Whispering rivers and the affective domain: assessing Eocene watersheds and rethinking geoscience education

By

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ABSTRACT

This dissertation is comprised of both geological and educational research. Two of the three chapters herein are basin-scale studies in alluvial sedimentology. Chapter One uses detrital zircon, petrographic, and paleocurrent analysis to seek a more comprehensive understanding of the provenance of the Eocene Aspen River as it flowed into the Greater Green River Basin of southwest WY. Results suggest surprising provenance complexity within a relatively small area and indicate the need for caution in future studies that rely on the accurate understanding of detrital sandstone provenance.

Chapter Two builds on the findings in Chapter One and employs 3D model analysis, paleo-catchment size estimations, and sedimentologic observations to develop a comparative analysis of the Aspen and Idaho Rivers. Results indicate that the Idaho River, despite being similar in size to the Aspen, represented a more important hydrologic source to Lake Gosiute. Additionally, results indicate that the Aspen River was more beholden to astronomic influence than the Idaho River, likely a function of either a change in astronomic signal strength or differences in source area precipitation and that both the Aspen and Idaho rivers were fed by high-elevation catchments in the Eocene Laramide foreland and western U.S. Cordillera respectively.

Chapter Three is motivated by my belief that introductory geoscience education has an important role to play in the development of a diverse, climate-conscious citizenry as our global society inevitably reckons with a changing climate. In it, I study how an art-infused introductory geoscience curriculum impacted students' emotional connection to the course content. Specifically, I measure students' sense of belonging, their sense of place, their interest in further geoscience education, their outcome expectations, and their career goals. I find that all metrics except outcome expectations experienced positive

change over the semester, and argue that well-rounded introductory geoscience education should aim to reach students on an affective (emotional) level in addition to the more traditionally important cognitive level.

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Penultimately, some parents voice their opinions about what they want their children to do with their lives. My parents, however, have always been much more vocal about how much they love me. My endless thanks to them for how empowering that has been. To my siblings, for loving, challenging, and supporting me in all my endeavors including this one.

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INTRODUCTION

"We give thanks to all of the waters of the world for quenching our thirst, for providing strength and nurturing life for all beings. We know its power in many forms—waterfalls and rain, mists and streams, rivers and oceans, snow and ice. We are grateful that the waters are still here and meeting their responsibility to the rest of Creation. Can we agree that water is important to our lives and bring our minds together as one to send greetings and thanks to the Water? Now our minds are one."

(Stokes and Kanawahienton, 1993)

The above is an excerpt from the Haudenosaunee Thanksgiving Address, which translates more accurately in the Onondaga language as the "Words That Come Before All Else" (Kimmerer, 2013). I lead with these words for several reasons (beyond the obvious reason that they are meant to be led with).

First, I believe it is incumbent upon me as an academic to recognize my privilege in pursuing critical thought and deeper understanding as a profession. The principal premise of the Words That Come Before All Else is that they position gratitude as the foremost priority in our relationships with the world and people around us, and this dissertation is evidence that I have a tremendous amount to be grateful for.

Second, two of the three chapters of this dissertation are basin-scale studies in alluvial sedimentology and are thus wholly dependent on the ancient power of water as it simultaneously reacted to and shaped its environment during the early Eocene. The early Eocene was punctuated by global hyperthermal events including the Eocene Climatic Optimum (EECO) and is often studied as an analog to climate change today (e.g., Lourens et al., 2005; Nicolo et al., 2007; Zachos et al., 2008, 2010; Sexton et al., 2011; Hyland and Sheldon, 2013; Lauretano et al., 2016). One way of understanding Eocene climate dynamics is via observations of lacustrine strata. Lacustrine sediments record high-resolution records of the environments within which they are deposited and can offer unparalleled opportunities to understand systematic responses to allogenic drivers like shifts in climate and tectonics (e.g., Astin, 1990; Roehler, 1993; Rhodes et al., 2002; Melles et al., 2012; Chamberlain et al., 2013; Cohen et al., 2015; Lyons et al., 2015; Meyer et al., 2020). Decades of research, therefore, have resulted in the dominantly lacustrine Green River Formation (GRF) of Wyoming, Utah, and Colorado providing the highest-resolution terrestrial record of the early Eocene (e.g., Bradley, 1964; Roehler, 1993; Carroll and Bohacs, 1999; Rhodes et al., 2002; Smith et al., 2003, 2014, 2015; Walters et al., 2023; Bruck et al., 2023).

Yet the lacustrine record represents only one component of the larger sediment routing system and is inherently dependent on up-system dynamics (e.g., Zhao et al., 2015; Romans et al., 2016; Sickmann et al., 2016). A comprehensive understanding of the hydrologic sources to a basin is therefore vital to contextualizing the lacustrine record therein. Here lies the motivation for much of this dissertation, which follows a more holistic, source-to-sink (S2S) approach. S2S analysis embraces the totality of a sediment routing system and considers each segment of the system as being dynamically connected and dependent on those neighboring it (Einsele and Hinderer, 1998; Sømme et al., 2009; Hinderer, 2012; Helland-Hansen et al., 2016; Romans et al., 2016; Allen, 2017). The Greater Green River Basin (GGRB) of southwest Wyoming represented the terminal sink for two regional river systems during the early Eocene: the Idaho River and the Aspen River (Fig. 1; Chetel et al., 2011; Smith et al., 2014; Hammond et al., 2019; Honig et al., 2020; Parrish et al., 2023). The Idaho River, sourced from central Idaho flowed into the basin from the northwest, while the Aspen River, sourced from central Colorado entered from the southeast.

In chapter one, I focus on the Eocene Aspen River and seek a more comprehensive understanding of its provenance. Through the lenses of detrital zircon, petrographic, and paleocurrent analysis I identify seven distinct “detrital zircon chronofacies” representing four separate source regions feeding the GGRB from the south and east (Parrish et al., 2023). The results of this study reveal surprising provenance complexity within a relatively small area, reflecting sand derived from local and distal sources. Results, therefore, indicate the need for caution in research dependent on the known provenance of detrital material (e.g. paleoaltimetry studies).

Building on the first chapter, chapter two broadens the scope to include both the Aspen and Idaho Rivers. Therein, I build a comparative assessment of the two fluvial systems based on 3D outcrop models, paleo-catchment estimates, and sedimentologic observations. In Chapter Two I seek to understand how the two rivers may have been shaped by their Eocene environment, as well as their respective influences on paleolake Gosiute, which occupied the Bridger sub-basin of the GGRB at that time. Results suggest a duality of Aspen River expression between a more ephemeral system with flashy, variable discharge and a more established, possibly perennial, system. This duality is likely a response to previously documented eccentricity-paced astronomical cyclicity, yet is absent in Idaho River deposits. Results further suggest that the Idaho River may have been a more consistent, and thus hydrologically important, source to Lake Gosiute and that both rivers were sourced from higher elevation catchments in the Laramide foreland (Aspen) and western U.S. cordillera (Idaho).

Finally, to appreciate my third motivation for beginning with the excerpt from the Haudenosaunee Thanksgiving Address, it’s helpful to read the address in its entirety – which I certainly recommend doing. Via prioritizing a sense of gratitude, the Words That Come Before All Else teach a posture of humility and awe for the world we inhabit. They do so by illustrating the interconnectedness and interdependency of all things. In prioritizing gratitude, they teach reciprocity. They remind us that gazing upon this planet in gratitude and wonder engenders the natural response to care for it and all it holds. Today, as our global society faces the monumental challenge of a changing climate amid the backdrop of myriad other crises, the wisdom offered both explicitly and inexplicitly by the Words That Come Before All Else is needed more than ever before. I believe it is not only within the purview of geoscience education but our responsibility as geoscience educators to do our best to help our students learn or reclaim a deeper, emotionally founded relationship with the world we otherwise teach them about. The third chapter of this dissertation is an exploration of that belief. In it, I explore the impacts of integrating art into a geoscience curriculum and measure its affective (emotional) impact on students. Specifically, I measure how an art-infused curriculum impacted students' sense of belonging, their sense of place, their interest in further geoscience education, their outcome expectations, and their career goals. I find that all metrics except outcome expectations experienced positive change over the semester, and argue that well-rounded introductory geoscience education should aim to reach students on an affective level in addition to the more traditionally important cognitive level.

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FIGURES

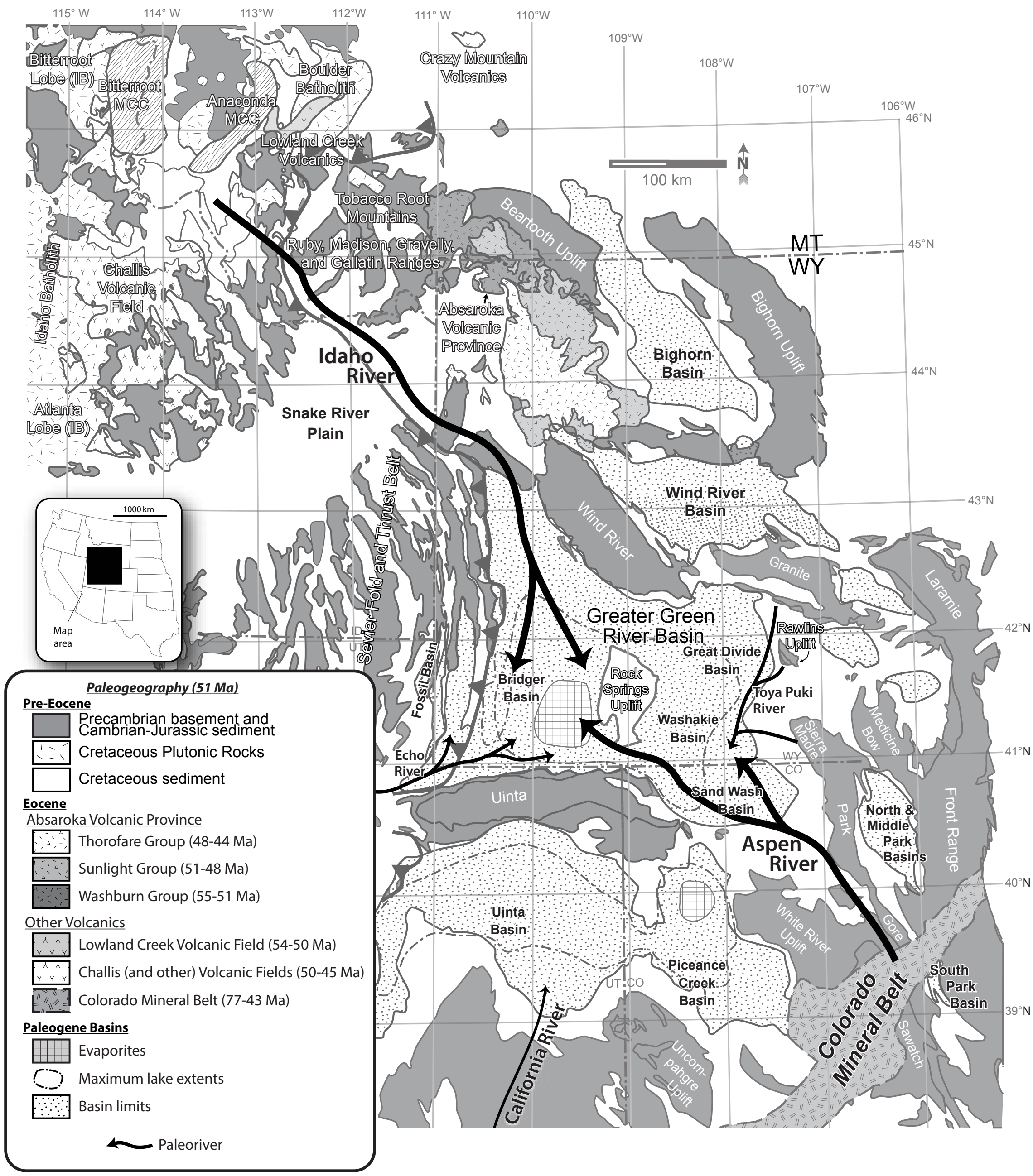

Figure 1 Regional map showing both the Aspen and Idaho rivers, sub-basins comprising the Greater Green River Basin (GGRB), and regional topographic uplifts.

Chapter 1

Watershed-scale provenance heterogeneity within Eocene nonmarine basin fill: southern Greater Green River Basin, western U.S.

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ABSTRACT

Weathering, erosion, and sediment transport in modern landscapes may be investigated via direct observation of attributes such as elevation, relief, bedrock lithology, climate, drainage organization, watershed extent, and others. Studies of ancient landscape evolution lack this synoptic perspective, however, and instead must rely more heavily on downstream records of fluvial deposits. Provenance analysis based on detrital grain ages has greatly enhanced the utility of such records but has often focused broadly on regional to continental scales. This approach may overlook important details of localized watersheds, which could lead to significant misinterpretation of past sediment dispersal patterns. The present study, therefore, explores the impact of geographic and stratigraphic sampling density on detrital zircon provenance, based on a high-density investigation of U-Pb ages (N = 23, n = 4905) obtained from a narrow chronostratigraphic range (~2 My) within a relatively small (~25,000 km^2) area of an Eocene nonmarine sedimentary basin. Based on multi-dimensional scaling and DZmix modeling, these strata comprise seven distinct, approximately isochronous DZ chronofacies, defined as "…a group of sedimentary rocks that contains a specified suite of detrital zircon age populations" (Lawton et al., 2010). Four of these DZ chronofacies reflect long-distance transport from extrabasinal source areas. DZ chronofacies CO-1 and CO-2 are interpreted to derive from a primary sediment source in central Colorado, corroborating previously proposed long-distance sediment transport via Aspen paleoriver. DZ chronofacies ID-1 and ID-2 are interpreted to have been delivered to the basin from central Idaho by the Idaho paleoriver. In contrast, DZ chronofacies UT-1 and UT-2 are interpreted to reflect local drainage from the Uinta uplift south of the basin, and DZ chronofacies WY-1 is interpreted to have been sourced from the Rawlins, Granite, and Sierra Madre uplifts to the north and east via the Toya

Puki paleoriver. Lateral transitions between different DZ chronofacies in some cases occur over distances as little as 5 km, implying that depositional systems carrying sand from disparate watersheds directly competed to fill available basin accommodation. The results of this study reveal a high degree of complexity of Eocene rivers that converged on the Greater Green River Basin, indicating that their deposits contain a rich record of fine-scale landscape evolution across much of the Laramide foreland and Cordilleran orogen. These results illustrate the need for adequate sample density when assessing basin-scale provenance and offer a cautionary consideration for researchers using sandstone (and incorporated authigenic cement) in other nonmarine basins as the basis for paleoaltimetry or detrital thermochronology studies.

Note: Samples referenced in this Chapter are in the collections of the Department of Geoscience, University of Wisconsin-Madison, under file number UW 2053 (Appendix A7).

INTRODUCTION

The weathering, erosion, and transport processes that shape modern continental landscapes and control the downstream delivery of weathering products shed light on a host of topics including, though not limited to, the influence of agriculture and bedrock lithology on stream-dissolved organic carbon (e.g., Longworth et al., 2007; Stahl et al., 2021), differential silicate weathering fluxes based on bedrock lithology and land use (e.g., West et al., 2002), pre- versus post-development denudation rates (e.g., Brown et al., 1998), spatial differences in denudation rates (e.g., Norton et al., 2010; Zhao et al., 2015), changes in erosion rates following glacial retreat (e.g., Delaney et al., 2018) and sediment mixing processes across source-to-sink transects (e.g., Sickmann et al., 2016). Allogenic and autogenic influences on watershed evolution exert important controls on the nature of the downstream deposits (e.g., Zhao et al., 2015; Romans et al., 2016; Sickmann et al., 2016). Conversely, basinal deposits can provide a record of the geomorphic processes active upstream (e.g., Wren and Davidson, 2011).

The advent of rapid and inexpensive radioisotopic analyses of detrital zircon (DZ) grains (Gehrels, 2012, 2014) has revolutionized sedimentary provenance studies that link upstream processes to downstream products, and thus are profoundly expanding our understanding of source-to-sink relationships (e.g., Davis et al., 2010; Laskowski et al., 2013; Blum and Pecha, 2014; Sickmann et al., 2016; Blum et al., 2017; Leary et al., 2020). U-Pb geochronology has been widely employed to document watershed- to sub-watershed-scale provenance heterogeneity in modern fluvial systems (e.g., Capaldi et al., 2017; Jackson et al., 2019). For example, DZ results from Ecuador reveal drastic downstream changes within a single watershed, as the Rio Pastaza traverses the Andean hinterland to the foreland (Jackson et al., 2019). In contrast, DZ studies of ancient fluvial systems are commonly more limited in their spatial resolution, with a focus on regional- rather than watershed-scale variations (e.g., Rainbird et al., 2012; Laskowski et al., 2013; May et al., 2013; Gehrels and Pecha, 2014; Blum et al., 2017). Studies of ancient DZ provenance may also be hindered by limited chronostratigraphic control (e.g., Dickinson and Gehrels, 2003; Link et al., 2005; Sickmann et al., 2016; Karlstrom et al., 2018, Leary et al., 2020), which can make synoptic reconstruction of ancient drainage networks difficult to impossible.

Closed, nonmarine sedimentary basins offer an opportunity to better reconstruct detailed, synoptic source-to-sink relationships. Such basins can capture a relatively detailed and complete record of watershed- to sub-watershed-scale sediment delivery (e.g., Hinderer and Einsele, 2001; Smith et al., 2008; Allen and Allen, 2013), and interfingered lacustrine strata can provide greatly improved chronostratigraphic control. Eocene fluvial deposits of the Greater Green River Basin in southwestern Wyoming represent an ideal test case for this approach, due to their excellent outcrop exposure, well-established lithostratigraphy (Smoot, 1983; Roehler, 1993; Pietras and Carroll, 2006; Smith et al., 2015), and extensive radioisotopic dating of volcanic tuffs deposited in Eocene paleolake Gosiute (Smith et al., 2003, 2008, 2010; Machlus et al., 2015; Bruck et al. 2023). Past studies have inferred that detritus was supplied to the basin via intrabasinal (Smoot, 1983; Roehler, 1993), interbasinal (Dickinson et al., 1988), and orogen-scale rivers (Davis et al., 2010; Chetel et al., 2011; Hammond et al., 2019). Based on DZ age analyses of six existing samples (n = 861; Hammond et al., 2019) and 17 new samples (n = 4044), this study shows that at least four distinct watersheds contributed detritus to a relatively small (~25,000 km^2) area of the southeastern Green River Basin. Detrital zircon analyses based on geographically-dense sampling are therefore vital to accurately interpret paleoelevation, paleoclimate, and sediment flux across the Laramide foreland.

GEOLOGIC SETTING

During the late Cretaceous to early Paleogene, contractile tectonics within the North American Cordillera transformed the foreland landscape from a low-relief marine basin to the central Rocky Mountain region of North America (Fig. 1a; Weimer, 1960; Dickinson and Snyder, 1978; Bird, 1984, 1998; Dickinson et al., 1988; DeCelles, 2004). The final (70-50 Ma) phase of Cordilleran compression induced a series of diversely oriented and segmented, anticlinal basement-cored uplifts and associated basins across the foreland (Fig. 1a; DeCelles, 2004; Erslev, 1988). These basins acted as sediment sinks for several large and dynamically evolving watersheds (e.g., Dickinson et al., 1988; Carroll et al., 2006; Smith et al., 2014; Lawton, 2019). Several regional-scale paleorivers have been proposed as inputs to lakes that occupied the Uinta, Piceance, and Greater Green River Basins, including the Idaho River (Chetel et al., 2011), California River (Davis et al., 2010), the Aspen River (Smith et al., 2014; Hammond et al., 2019) and the Toya Puki River (this study).

The Greater Green River Basin comprises the Bridger, Washakie, Great Divide, and Sand Wash sub-basins, and is bounded by the Sevier fold and thrust belt to the west, the Wind River and Granite Mountains to the north, the Rawlins Uplift, and Sierra Madre Mountains to the east, and the Uinta Mountains to the south (Fig. 1; Love et al., 1963). Sub-basins comprising the Greater Green River Basin are separated by anticlinal structures including the Rock Springs Uplift, Wamsutter Arch, and Cherokee Ridge (Fig. 1b; Roehler, 1992; Jesse et al., 2011).

While each sub-basin records a unique succession of strata, the long-term trend in each is an evolution from a hydrologically open to closed system, followed by a return to a hydrologically open system during deposition of the Green River Formation between ~53.5 and ~48.5 Ma (Fig. 2; Roehler, 1969, 1992; Carroll and Bohacs, 1999; Smith et al., 2003, 2008, 2010; Machlus et al., 2015). Specifically, the Luman Tongue, Tipton, Wilkins Peak, and Laney Members of the Green River Formation record a progression from fluvial to fluvial-lacustrine to fluctuating profundal to evaporative lacustrine and back (Fig. 2). The evaporative Wilkins Peak Member is primarily limited to the Bridger sub-basin and is laterally equivalent to alluvial deposits of the Cathedral Bluffs Member of the Wasatch Formation in the adjacent Washakie, Great Divide and Sand Wash sub-basins (Fig. 2; Bradley, 1964; Sullivan, 1985; Roehler, 1992). The Laney Member overlies the Wilkins Peak Member and records an expansion of lacustrine strata into all the sub-basins of the Greater Green River Basin (Fig.

2; Surdam and Stanley, 1980; Roehler, 1992). Alluvial, volcaniclastic sediment of the Sand Butte bed of the Laney Member records a time-transgressive replacement of lacustrine strata in the Greater Green River Basin from north to south (Fig. 2; Roehler, 1992).

The Greater Green River Basin straddles the W-SW to E-NE-trending Cheyenne Belt—a regional suture that juxtaposes the Archean Wyoming province to the north with interpreted Proterozoic magmatic arc and related rocks of the Yavapai-Mazatzal province to the south (Fig. 1a; Karlstrom and Houston, 1984; Templeton and Smithson, 1994). The Cheyenne Belt is exposed in the Sierra Madre, Medicine Bow, and Laramie uplifts, of which the Laramie represent the easternmost exposure of the Cheyenne Belt (Karlstrom and Houston, 1984). Nd-isotope and trace element data of sediment from the Neoproterozoic Uinta Mountain Group suggest its derivation from the Wyoming province to the north and from a westward-flowing fluvial system sourcing younger sediments from the East (Ball and Farmer, 1998). Ball and Farmer (1998) suggest that the Uinta Mountain Group and the modern Uinta Mountains roughly represent the southern edge of the Wyoming province and the linear extent of the Cheyenne Belt reactivated before subsequent Cenozoic contraction. Prominent uplifts surrounding the basin exhumed sediment sources that include widespread Paleozoic passive margin strata, Cretaceous foreland basin deposits, and Late Cretaceous to Paleogene magmatism ranging from the Colorado Mineral Belt in central Colorado, to the Challis and Absaroka volcanics of central Idaho and northwest Wyoming (Bookstrom et al., 1989; Bookstrom, 1990; DeCelles, 2004; Dickinson and Gehrels, 2008; Chetel et al., 2011; Chapin, 2012; Laskowski et al., 2013; Fayon et al., 2017).

METHODS

Field investigations were predominantly carried out on fluvial outcrops of the Wilkins Peak Member on the south and east margins of the Bridger sub-basin and directly south of the Rock Springs Uplift, as well as on age-equivalent fluvial outcrops on the western and eastern margins of the Washakie and Great Divide sub-basins (Figs. 1-3). This study is based on a total of 52 fluvial sandstone samples, six from Hammond et al. (2019), plus 46 new samples. Of the 46 new samples, 42 have associated petrographic data and eighteen have associated DZ data (Table 1). New samples were collected from seventeen fluvial outcrop localities within the Wasatch and Green River Formations in the southern and eastern reaches of the Greater Green River Basin (Figs. 1-3). A total of 303 new paleocurrent indicators were measured across six localities within the Wilkins Peak and Cathedral Bluffs Members within the Bridger and Washakie sub-basins (Fig. 3). For all localities, trough-cross bedding was measured, and in one locality (associated with sample SB3_18) lateral accretionary faces were also measured (Fig. 3). Point counts of sandstone framework grains were conducted using a modified Gazzi-Dickinson method (Ingersoll et al., 1984). Framework grains not considered include phyllosilicates, accessory minerals, dense minerals, and unidentified grains. Samples for petrographic analysis range from very fine- to very coarse-grained fluvial sandstones from fifteen outcrop localities (Fig. 3). Sandstone modal compositions were determined by counting 300+ total points per slide including porosity, matrix, and cement, for 42 of 43 thin sections (App. A1). Each thin section was dual-stained with barium chloride + rhodizonate, as well as sodium cobaltinitrite, to distinguish potassium and plagioclase feldspar respectively.

Detrital zircons were separated from eighteen samples using standard separation techniques to prevent sample biases (e.g., grain size, shape, color, rounding) during separation (Sircombe and Stern, 2002; Fedo et al., 2003;

Gehrels, 2012). Samples were first crushed in a jaw-crusher before being reduced to sand (<~2mm) by a disc mill. Thereafter the sample was sieved to isolate grains between 125μm and 500μm. To separate the zircon grains, the isolated sample was first separated from lower-density minerals by gold-table density separation, from magnetic higher-density minerals using a Franz magnetometer, then from light minerals using methylene iodide heavy liquids separation. U-Pb ages were determined for a target of ~315 grains per sample using laser ablation-inductively coupled plasma-mass spectrometry at the Arizona LaserChron Center at the University of Arizona (Gehrels et al., 2008; Gehrels and Pecha, 2014; Pullen et al., 2014, 2018). Data reduction was performed using the Arizona LaserChron Center's "AgeCalc" program (described in Gehrels and Pecha, 2014). Default discordance and reverse discordance filters of 20% and 5% (respectively) were applied to all samples (this study). Complete U-Pb analytical data is included in the supplemental material (App. A2).

Maximum depositional ages were calculated by three different metrics: "YSG" (youngest single grain age), "YC2" (youngest cluster of two or more grain ages (n ≥ 2) overlapping in age at 1σ), and "YC3" (youngest cluster of three or more grain ages (n ≥ 3) overlapping in age at 2σ) (e.g. Dickinson and Gehrels, 2009b) using the Python-based detrital-zircon analysis package "detritalPy" (Sharman et al., 2018; Table 1). Reported MDA uncertainties include both an MDA date uncertainty (α) and a total uncertainty (β) (Table 1). External uncertainties (App. A2) have been manually propagated with date uncertainties (α) into the total uncertainty (β) via quadrature and converted to Ma. For MDA ages <900 Ma, the 206Pb/238U external uncertainty was used. For MDA ages >900 Ma, the 206Pb/207Pb external uncertainty was used. For samples from Hammond et al. (2019), 2% external uncertainties were used (e.g. Horstwood et al., 2016).

We utilize both multi-dimensional scaling (MDS) (Vermeesch, 2013, 2018) and DZmix quantitative modeling (Sundell and Saylor, 2017) to assess statistical similarities and differences between samples. MDS is a dimension reduction statistical test that measures pairwise dissimilarity between two or more samples by calculating the Euclidean distance between samples. MDS plots were generated using DZmds (Saylor et al., 2018) for two compiled age ranges: 0-3500 Ma and 0-300 Ma. Two age ranges are shown to illustrate sample groupings more clearly and to remove the homogenizing influence of older ages for samples more appropriately compared according to their younger age populations. For all MDS analyses, kernel density estimate (KDE) distributions with adaptive bandwidth algorithms were used, stress was calculated and minimized using the metric squared criterion and the comparison statistics were chosen based on the best (lowest) Shepard plot stress value for 3 dimensions. Where MDS is purely a statistical test of sample similarity that avoids a priori assumptions about zircon sources, DZmix seeks to determine mixing proportions from potential sources through inverse Monte Carlo modeling, wherein mixed samples are compared to randomly generated combinations of source distributions, and a range of best mixing proportions are retained (Sundell and Saylor, 2017). For all DZmix models, cross-correlation comparison metrics were used. For the 0-300 Ma DZmix models a KDE density distribution with a fixed 1 m.y. bandwidth was used, and for the 0-3500 Ma models KDE density distributions with optimized bandwidths were used. In both age models, Monte Carlo simulations were run 15000 times for each sample (Sundell and Saylor, 2017).

Source compilations include U-Pb ages measured from in-situ and detrital grains in the Sierra Madre Mountains, Uinta Mountains, and the Colorado

Mineral Belt as well as detrital grains associated with the Rawlins Uplift in south-central Wyoming (Premo and Van Schmus, 1989; Souders and Frost, 2007; Dehler et al., 2010; Klein et al., 2010, Lynds and Xie, 2019). For the Colorado Mineral Belt, source compilations also include ages obtained via K-Ar and $^{40}Ar/^{39}Ar$ chronometers (Klein et al., 2010). Both MDS and DZmix models were employed to more reliably characterize sample similarity. To further corroborate MDS and DZmix outputs, petrographic, MDA, and paleocurrent data were then compared on a sample-by-sample basis.

RESULTS

Paleocurrents

Paleocurrent directions vary across the Greater Green River Basin (Fig. 3). Figure 3 summarizes paleocurrent data collected as part of this study in addition to existing data published by Forss (1983) and Hammond et al. (2019). Paleocurrent trends can be grouped into three general groups: paleocurrents indicating north to northeastward paleoflow (N = 5), paleocurrents indicating a predominantly northwestward paleoflow (N = 9), and paleocurrents indicating southeast to southwestward paleoflow (N = 7) (Fig. 3). Complete paleocurrent data is included in the supplemental material (App. A3).

Sandstone Petrography

Framework grain compositions were determined by point counting, using a modified Gazzi-Dickinson method (Ingersoll, 1984). Of 42 sandstone samples analyzed, 25 are arkosic arenite, 12 subarkose, 3 sublithic arenite, and 2 are quartz arenite (modified Dott, 1964; Fig. 4). More mature samples (quartz arenites, subarkoses, and sublithic arenites) occur adjacent to the Uinta Uplift, whereas less mature samples (arkosic arenites) occur farther from the Uintas (Fig. 3). There are two exceptions to this general trend. First, two of the six samples adjacent to the Uinta Uplift are arkosic arenite, while the remaining four are subarkose, sublithic arenite, or quartz arenite (Figs. 3 & 4). Second, despite the close geographic proximity of the three Scrivner Butte localities, they show distinct differences in mineralogic maturity. The three samples from Scrivner Butte A are arkosic arenite, the two samples from Scrivner Butte_C are subarkose, and of the two samples from Scrivner Butte_B, one is arkosic arenite and the other subarkose. Finally, seritization of plagioclase feldspar was observed at several localities including Firehole Canyon, Sage Creek, Badger Creek, and Scrivner Butte_A (Fig. 5).

U-Pb Geochronology

For the eleven samples taken from the Wilkins Peak Member, U-Pb individual grain ages range from 46.2 Ma to 3551.1 Ma. For the ten samples taken from the Cathedral Bluffs Member of the Wasatch Formation, U-Pb individual grain ages range from 45.5 Ma to 3215.2 Ma. Two samples were collected from the Laney Member, they range in age from 35.1 Ma to 2940.0 Ma. Sample 17-BF-001 was collected from the Wasatch Main Body Member and ranges in age from 73.0 Ma to 2957.7 Ma. Considering all samples (including Hammond et al., 2019), major detrital zircon age populations define multiple peaks ranging from the Paleogene to the Archean (Fig. 6a). For compiled source spectra, major detrital zircon age populations define peaks at ~1040 Ma, ~1090 Ma, and ~2660 Ma for the Uintas; ~1755 Ma and ~2650 for the Sierra Madre; ~75 Ma, ~95 Ma, and ~1700 Ma for Rawlins Uplift; and ~65 Ma, with minor ~57 Ma and ~71 Ma peaks, as well as ~520 Ma, ~1370 Ma, and ~1700 Ma for the Colorado Mineral Belt. When divided by chronometer, age peaks for the Colorado Mineral Belt are ~1430 Ma and ~1700 Ma for U-Pb ages, and ~ 57 Ma, ~65 Ma, ~71 Ma, ~520 Ma, and ~1370 Ma for K-Ar and $^{40}Ar/^{39}Ar$ ages (Fig. 6).

Maximum depositional ages are reported in Table 1 and shown in Figure 6.

Except for samples TR-19-372 and MD1_20, all calculated MDA ages were at least 4 m.y. older than the ages indicated by lower bounding volcanic tuffs (Table 2; Smith et al., 2008, 2010).

Similarity Testing

For 0-300 Ma MDS analysis, a Shepard plot stress of 0.061912 was obtained using the cross-correlation comparison metric. For 0-3500 Ma MDS analysis, the youngest age for sample PL3_18 was omitted as an outlier, and a Shepard plot stress of 0.072596 was obtained using the cross-correlation comparison metric. Shepard plots are included in the supplemental material (App. A4).

DZmix model results returned poor cross-correlation R-values (App. A5). For 0-3500 Ma models, R-values ranged from 0.336±0.01 to 0.665±0.004, not including MD1_20 which we consider an outlier (discussed later). For 0-300 Ma models, R-values ranged from 0.168±0 to 0.703±0 (again omitting MD1_20). We believe this to be a function of the complexity of our samples and their variable sources, and attribute the poor DZmix fit values to insufficient source comparison data to reliably identify the complexities of our samples. Regardless, DZmix results are incorporated here as we believe they capture the influence of the four primary provenance sources across our data and are largely corroborated by MDS, petrographic, and paleocurrent analysis.

Figure 7 summarizes both MDS analysis and DZmix modeling for ages 0-3500 Ma (Fig. 7a) and 0-300 Ma (Fig. 7b). DZmix outputs are displayed as pie-plots, showing the modeled relative percentage of different provenance sources per sample, overlain on an MDS plot. DZ chronofacies associations (e.g., CO-1, CO-2, etc.) are based on MDS and DZmix outputs, as well as visual spectral analysis. Details of why certain samples are grouped in specific DZ chronofacies are discussed later.

Detrital Zircon Chronofacies

The distribution and magnitude of detrital zircon age populations in a sandstone represents an intrinsic rock property that is analogous to framework grain composition or heavy mineral assemblage. To describe this property Lawton et al. (2010) proposed the term "chronofacies", which they defined as "a group of sedimentary rocks that contains a specified suite of DZ age populations." It must be noted this term differs in meaning from the similar-sounding term "chronozone," which is formally defined as "…the body of rocks formed anywhere during the time span of some designated stratigraphic unit or geologic feature" (Murphy and Salvador, 1999). "Chronofacies" does not signify the age of rock formation, but instead the age distribution of included detrital zircon grains (note that the two terms may be equivalent in the case of a sandstone containing only juvenile volcanic grains). Herein we use "DZ chronofacies" to help distinguish this from occasional earlier, dissimilar uses of "chronofacies" in other applications.

We identify seven distinct DZ chronofacies in this study: Colorado-1 (CO-1), Colorado-2 (CO-2), Utah-1 (UT-1), Utah-2 (UT-2), Wyoming-1 (WY-1), Idaho-1 (ID-1), and Idaho-2 (ID-2) (Figs. 6 & 7). DZ chronofacies are named for their interpreted source regions (see discussion), and, with the exception of sample SB3_18, these divisions are also reflected in calculated MDAs (Fig. 6; Table 1). Moreover, excepting samples in UT-1, these divisions are further recognized in sandstone framework grain compositions (Fig. 4b).

DZ Chronofacies CO-1 & CO-2

CO-1 characteristically features prominent Paleocene, mid-Mesoproterozoic, and late-Paleoproterozoic age populations, as well as subdued Mesozoic, Paleozoic, and late-Mesoproterozoic populations. With the exception of sample TR-19-372 (discussed below), CO-1 has a notable dearth of Archean grains (Fig. 6a). CO-2 features the same prominent Paleocene, mid-Mesoproterozoic, and late-Paleoproterozoic age populations as well as the lack of Archean grains as CO-1, but lacks the subdued Mesozoic, Paleozoic, and late-Mesoproterozoic populations (Fig. 6a). For all but one sample (RR1_20, see discussion), MDS analysis clearly corroborates DZ chronofacies delineations (Fig. 7). Modeling of the relative contributions from the source domains using DZmix suggests that the majority of grains in CO-2 samples originated in central Colorado (Fig. 7). Samples in CO-1, however, are more variable, and DZmix modeling identifies age populations associated with all four source domains as significantly influencing these samples (Fig. 7).

Relative to DZ chronofacies UT-1 and UT-2, MDS analysis shows much greater inter-sample variation between samples in both CO-1 and CO-2 as well as in WY-1 (Fig. 7). Samples associated with CO-1 and CO-2 are all arkosic arenite (Fig. 4b) and all report MDAs of between 50 Ma and 58 Ma. (Fig. 6b; Table 1).

DZ Chronofacies UT-1 & UT-2

DZ chronofacies UT-1 and UT-2 contain large populations of late-Mesoproterozoic grains and more subdued populations of early-Mesoproterozoic ages. UT-1 additionally has subdued populations of Paleozoic and Paleoproterozoic grains. Both UT-1 and UT-2 contain small but present populations of Archean grains (Fig. 6a). With the exception of sample SB3_18 (discussed below), neither UT-1 nor UT-2 has any significant grain populations younger than Paleozoic in age. MDS analysis for both Utah DZ chronofacies indicates less inter-sample variation than Colorado or Wyoming DZ chronofacies (Fig. 7). Modeling with DZmix suggests that UT-2 is nearly exclusively derived from the Uinta uplift whereas UT-1 also contains zircon grains derived from other sources (Fig. 7). Paleocurrent data for both UT-1 and UT-2 consistently indicate northward transport—away from the uplift (Fig. 3), and in both, sandstone grain size is generally coarser than in CO-1, CO-2, and WY-1 (e.g., Fig. 5).

Of the samples associated with UT-1 two are arkosic arenite and one subarkose (Fig. 4b). Of the three samples associated with UT-2, one is subarkose, another sublithic arenite, and the third is quartz arenite. With the exception of sample SB3_18 (discussed below), MDAs for UT-1 and UT-2 are all >300 Ma (Fig. 6a; Table 1).

DZ Chronofacies WY-1, ID-1, & ID-2

DZ chronofacies WY-1 contains late-Cretaceous, mid-Cretaceous, Paleoproterozoic, and Archean age populations as well as subdued Paleozoic, and early- and late-Mesoproterozoic populations (Fig. 6). DZ chronofacies ID-1, while similar to WY-1, lacks Mesozoic ages present in WY-1 and shows a far less pronounced Archean Peak. DZ chronofacies ID-2 contains a single, unique Eocene age population. With the exception of one sample (RR1_20, see discussion) MDS analysis clearly distinguishes distinct Idaho (ID-1 & ID-2) and Wyoming (WY-1) DZ chronofacies from Colorado and Utah DZ chronofacies in both the full age spectrum (Fig. 7a) as well as for ages 0-300 Ma (Fig. 7b). For both age groups DZmix modeling identifies the Rawlins uplift as the overwhelming source to WY-1 samples, with minor contributions from the remaining three source domains (Figs. 7 & 8). Obtained petrographic data include an arkosic arenite associated with WY-1 and a subarkose associated with ID-1. MDAs range from 41 Ma to 73 Ma for WY-1, ID-1, and ID-2 (Fig. 6b; Table 1).

DISCUSSION

Detrital Zircon Age Populations

The sandstone samples in this study all represent mixed compositions derived from multiple igneous, sedimentary, and metamorphic sources within the geologically complex central Rocky Mountain region (Fig. 8). Consequently, similar DZ ages may come from more than one source, zircon content may vary between different sources, and some DZ populations may reflect multiple cycles of erosion and deposition. A summary of zircon provenance populations is provided in Table 3 and a more comprehensive discussion is given in the supplemental material (App. A6).

Potential Sediment Sources

Three distinct geographic DZ age domains strongly influenced the results: 1) the Sierra Madre Mountains, the Rawlins Uplift, and the Granite Mountains of southcentral Wyoming, 2) the Uinta Mountains of southwestern Wyoming and northeastern Utah, and 3) the Park and Sawatch ranges in central Colorado. DZmix pie charts visualize relative contributions from each of these source areas to each sample (Fig. 7). Zircon fertility among the domains is likely variable. The Uinta Mountains, in particular, are composed predominately of Grenville-aged sands suggesting higher-than-average zircon fertility (Moecher and Samson, 2006; Dickinson, 2008). Despite this, zircon fertility is a non-issue because all samples were collected from sedimentary strata (fluvial sandstones). Furthermore, the varied, though ubiquitous, presence of Grenville-aged zircons in our data is an archetypal indicator of high fertility (Moecher and Samson, 2006).

The Sierra Madre mountains of south-central Wyoming and northern Colorado are a Laramide-aged uplift that exposes the roughly east-to-west oriented Cheyenne Belt suture, separating Archean gneisses and metasedimentary sequences to the north from Mesoproterozoic accretionary metamorphic rocks to the south (Karlstrom et al., 1983; Karlstrom and Houston, 1984; Premo and Van Schmus, 1989). Accordingly, the age spectra of zircon derived from this domain are distinctively bimodal, with peaks at ~1750 Ma and ~ 2600 Ma (Fig. 6). Based on both petrology and proximity, earlier work on the A-I arkose beds of the Wilkins Peak Member, by Smoot (1983) and Sullivan (1980, 1985) posited the Sierra Madres as the likely source for the arkosic A-I beds from which multiple samples were collected.

To the north of the Sierra Madre, lie the Rawlins Uplift and the Granite Mountains (Fig. 1). The Laramide-aged Rawlins Uplift is an asymmetric, basement-faulted, anticlinal fold that verges to the south (Ottoman and Snoke, 2005). The core of the structure is composed of Precambrian basement rock of the Wyoming Province and is flanked to the west by steeply dipping (30°-90°) Cambrian through late Cretaceous sedimentary cover. Accordingly, DZ spectra associated with the Rawlins Uplift are notably more complex as they inherit ages from the full Paleozoic-Mesozoic suite flanking the uplifted basement. Age populations for DZ samples associated with the Rawlins Uplift include prominent Cretaceous and Jurassic age populations, as well as a prominent late-Paleoproterozoic peak and a subdued late-Mesoproterozoic population (Lynds and Xie, 2019). For a comprehensive provenance assessment of DZ samples collected adjacent to the Rawlins Uplift see Lynds and Xie, 2019. The Granite Mountains are an east-west trending, Laramide-aged, basement-cored uplift, on-lapped to the south by the Eocene Battle Spring Formation which unconformably overlies the Paleocene Fort Union Formation in the northeast portion of the Great Divide sub-basin. The Battle Spring Formation is an arkosic conglomerate, sandstone, and siltstone deposited in alluvial fans derived from the Granite Mountains (Love, 1970, Pipiringos and Denson, 1970, Lynds and Lichter, 2016), which is dominated in the south by the Neoarchean Granite Mountains batholith, and in the north hosts granitic and tonalitic gneisses and patches of amphibolite-grade supracrustal rocks >3.2 Ga (Grace et al., 2006).

The Uinta Mountains have been interpreted as a Neoproterozoic north-tilted half-graben that was inverted during the Laramide orogeny (Hansen, 1965; Dehler et al., 2010). Uinta Mountain Group metasedimentary rocks comprise rift fill and have been interpreted to incorporate detritus derived both from the uplifted Grenville-Llano province to the east and from Archean rocks of the Wyoming province to the north. DZ age spectra exhibit major peaks associated with these sources, along with subordinate Mesoproterozoic populations (Fig. 6). Smaller age populations from the early Mesoproterozoic and Paleoproterozoic reflecting grains collected along the flow path of the transcontinental fluvial system (Rainbird et al., 2012) are also present.

Central Colorado contains three principal magmatic/metamorphic assemblages: Paleoproterozoic accreted arc terranes, Mesoproterozoic anorogenic granite, and the Colorado Mineral Belt. The latter is a northeast/southwest-trending belt of plutons extending ~500 km, emplaced in three primary stages from ca. 75 Ma to 0 Ma (Fig. 1; Bookstrom, 1990; Chapin et al., 2004; Klein et al., 2010; Chapin, 2012; Gonzales, 2015; Pecha et al., 2018). The oldest and northernmost igneous bodies are primarily alkaline monzonite and quartz monzonite plutons emplaced between 75 Ma and 43 Ma in the northeastern portion of the Colorado Mineral Belt at the eastern edge of the Farallon flat slab. Later episodes of magmatism have been attributed to late Eocene-Oligocene Farallon slab rollback and Rio Grande rifting (Chapin, 2012), but are not relevant to the present study. Magmatic intrusive bodies throughout the Colorado Mineral Belt manifest as stocks, laccoliths, sills, and dikes. Hydrothermal activity associated with Colorado Mineral Belt magmatism resulted in extensive ore deposits (Tweto and Sims, 1963; Bookstrom, 1990). Whole-rock and single mineral measurements of Colorado Mineral Belt plutons suggest that U-Pb data preferentially captures older ages and K-Ar and $^{40}Ar/^{39}Ar$

data preferentially capture younger ages (Fig. 6; Klein et al. 2010). Speculation as to why this may be is beyond the scope of the current study, but it is clear from the data that igneous bodies associated with the Colorado Mineral Belt were active before and during the deposition of the Green River Formation.

Eocene Watershed Implications

Chronofacies CO-1 & CO-2

DZ chronofacies CO-2 is interpreted to primarily represent sand transported northwestward from central Colorado by the Aspen paleoriver corroborating the work done by Hammond et al. (2019). As the system progressed toward the Bridger sub-basin it was met with contributions from local tributary streams that drained Uinta and Rock Springs uplifts resulting in a dilution of the CO-2 signature and the more complex CO-1 characteristics (Figs. 7 & 9). Alternatively, differences between CO-1 and CO-2 DZ chronofacies may be explainable by sample size. Generally, samples making up DZ chronofacies CO-2 have fewer measured zircons than CO-1, therefore the complexity seen in CO-1 may be a result of more grains being measured. We believe this is less likely, however, because samples 19-VC-395 and TR-19-372 of CO-1 having similar n-counts to sample 19-HR-392 of CO-2, and sample CR-148-16 of CO-1 has similar n-counts to several samples from CO-2. Higher MDS intersample variation in DZ chronofacies CO-1, CO-2, and WY-1 may be a function of 1) greater grain-age complexity in the Colorado and Wyoming DZ chronofacies relative to the Utah DZ chronofacies, and/or, in the case of the Colorado DZ chronofacies, 2) the greater number of samples (12) relative to Utah (6).

DZmix identifies the Colorado Mineral Belt and the Rawlins uplift as the two primary sediment sources of CO-1 and CO-2 DZ chronofacies (Fig. 7). This serves as an important illustration of the limits of DZmix, which cannot resolve differences in provenance when there are similar age ranges from differing source domains. In this case, the DZmix model recognizes the Yavapai-Mazatzal ages present in the Bridger sub-basin as being influenced by the Rawlins uplift rather than exclusively by the host rocks of the Colorado Mineral Belt. We know this not to be the case, however, due to the lack of Archean ages in CO-1 and CO-2, which would necessarily be present if sediments from the Rawlins uplift (and thus the Sierra Madre and Granite Mountains) were significantly present in the Bridger sub-basin (discussed below). This illustrates the need for caution when utilizing DZmix to interrogate provenance, and the importance of using multiple means of similarity assessment (in this study DZmix, MDS, and visual spectral analysis) to develop and interpret DZ chronofacies groupings.

Despite its proximity to CO-1 samples in MDS space (Fig. 7a), Sample RR1_20 lacks the diagnostic Paleocene ages indicative of Colorado DZ chronofacies (Fig. 6b) making it more like DZ chronofacies WY-1 (Fig. 7b). The immature, arkosic nature of samples in CO-1 & CO-2 is consistent with first-cycle derivation from crystalline basement and juvenile intrusive or volcanic rocks (Figs. 4 & 5). Further, pervasive seritization of plagioclase feldspar in these samples is indicative of hydrothermal alteration, consistent with derivation from the Colorado Mineral Belt (Fig. 5; Bookstrom, 1990; Nesse, 2012). Paleocurrent data from Hammond et al. (2019) and Forss (1983) support the existence of a northwest-flowing Aspen paleoriver (Fig. 3), but CO-1 paleocurrent data collected for this study are more ambiguous (e.g., sample BC2_18, Fig. 3). This ambiguity may in part reflect the generally finer-grained nature of the fluvial sandstone facies examined in this study, which contain fewer reliable paleocurrent indicators. Alternatively, the depositional nature of the paleoriver system remains in question and paleocurrent indicators at Badger Creek and Scrivner Butte may record meanders or other local departures from the primary river trajectory.

Chronofacies UT-1 & UT-2

Both UT-1 and UT-2 are interpreted as representing sediment shed proximally off the Uinta Mountains. Minimal MDS inter-sample variation in DZ chronofacies UT-1 and UT-2 suggests less age complexity in the source domains and/or less potential for inherited complexity between source and sink, and northward paleocurrent indicators are consistent with a more proximal source (Figs. 3 & 5). UT-2 framework grain compositions are dominantly quartzose, consistent with greater mineralogic maturity caused by multiple cycles of erosion and transport while UT-1 framework grain compositions are more variable (Fig. 4). Dehler et al. (2010) proposed that a major paleoriver system carried sediment derived from the Grenville orogen and its foreland westward across the continent to the Uinta graben, depositing Neoproterozoic Uinta Mountain Group strata that locally reach ~7 km in thickness. Subsequent Paleozoic sedimentary strata covered the Uinta Mountain Group before diachronous uplift and unroofing from the Paleogene through the early Eocene (Smith et al., 2015). Differences in UT-1 and UT-2, however, are inexplicable by unroofing patterns since we would expect to see 1) the Paleozoic ages associated with UT-1 to be both closer to the uplift and further east than they are, neither of which is true, and 2) stratigraphic organization of the two DZ chronofacies, which is similarly not present. UT-1 and UT-2 are therefore interpreted to be primarily from the recycling of sedimentary and metasedimentary strata within and adjacent to the Uinta uplift, and UT-1's Paleozoic populations are interpreted to be recycled from late Paleozoic and Mesozoic strata, specifically the Triassic–Jurassic aeolian sedimentary units recycling out of the fold-thrust belt to the west (Figs. 6a & 7; Leier and Gehrels, 2011; Lawton et al., 2010). Sample SB3_18's notable Paleocene age population is discussed below.

Also of note is the lack of Neoarchean ages in either UT-1 or UT-2 relative to the compiled source spectra (Fig. 6a). In a study by Dehler et al. (2010), Neoarchean zircon grains are prominent in most samples and were attributed to local derivation from the southern Wyoming Province. They vary in abundance in Neoproterozoic units of the western Uinta Mountains from dominant to nearly absent (Yonkee et al., 2014). The lack of Neoarchean grains in our samples likely reflects their local absence in parent Neoproterozoic source rocks. Alternatively, Grenville-age zircons in UT-1 and UT-2 could also be derived from Mesozoic aeolian sandstone units that flank the northern Uinta uplift. Colorado Plateau aeolianites to the south contain abundant Grenville-age zircons (Dickinson and Gehrels, 2003, 2009a). Mesozoic aeolianites typically also contain major Appalachian-derived post-Grenville zircon populations, however, which are present in only minor quantities in UT-1 and absent altogether in UT-2 (Fig. 6a).

Chronofacies WY-1, ID-1, & ID-2

WY-1 samples are interpreted as representing influence from uplifts to the east and north of the Greater Green River Basin. While DZmix identifies Colorado Mineral Belt and Uinta sources in WY-1 samples (Fig. 7), based on the geographic distribution of these samples, we believe that neither the Uinta Mountains nor the Colorado Mineral Belt has any influence on WY-1 samples and that all ages present can be attributed to either basement or cover strata associated with the Rawlins, Sierra Madre, and Granite uplifts. We propose the existence of an early Eocene paleoriver, herein named “Toya Puki” River, meaning “Mountain Fan”, honoring the Eastern Shoshone and their ancestral land. The Toya Puki paleoriver flowed south from the Granite Mountains and Rawlins Uplifts picking up drainage from the Sierra Madre prior to terminating in the Washakie sub-basin. The prominent Archean and late-Paleoproterozoic peaks in WY-1 suggest significant influence from the Sierra Madre uplift as they provide the closest primary source for both age groups (Lynds and Xie, 2019). Recycling from cover strata associated with these uplifts also accounts for subdued Paleozoic and Mesoproterozoic age populations most likely inherited from North American passive margin strata, Paleozoic sandstones in surrounding areas, and/or Mesozoic eolianites. In the absence of influence from the Colorado Mineral Belt, which is supported by the lack of Paleocene ages as well as paleocurrent indicators (Figs. 3 and 6b), the late-Cretaceous ages present in WY-1 are likely indicative of recycled grains originating in the Cordilleran magmatic arc then transported east as part of a Cretaceous dispersal system.

As the only sample making up DZ chronofacies ID-2, sample MD1_20 has a single distinct Eocene peak at ~47 Ma. At this time the Greater Green River Basin was filling with volcaniclastic sediment largely derived from the Challis Volcanic field (49.8–45.5 Ma) sourced more than 400 km northwest by the Idaho paleoriver (Chetel et al., 2011, Honig et al., 2020). As such, MD1_20, which was collected stratigraphically above the Cathedral Bluffs Member, represents the exclusive influence of the Idaho Paleoriver as it filled the Greater Green River Basin from the north.

We differentiate between DZ chronofacies ID-1 (comprised solely of sample 17-BF-001) and DZ chronofacies WY-1 based on the differences in Mesozoic and Archean ages and attribute these variations to stratigraphic and geographic differences between 17-BF-001 and the other three samples. Where samples NFT2_18, RR2_20, and RR1_20 were all collected near the Cathedral Bluffs and Laney member contact in the Washakie sub-basin, 17-BF-001 was collected near the top of the Wasatch Main Body member in the Bridger sub-basin, making it ~5 my older (Figs. 1b & 2; Smith et al., 2008). Sample 17-BF-001 contains zircons sourced from the north by the Idaho paleoriver. This interpretation is in line with interpretations made by Honig et al. (2020) and DZ ages for sample 17-BF-001 closely resemble samples collected from the Wasatch Main Body associated with the Idaho paleoriver further north.

The presence of sample 17-BF-001 additionally suggests a shift in fluvial input to the Bridger sub-basin. Prior to ~53 Ma, Idaho paleoriver-derived zircon grains are prominent, whereas these grains are absent during the deposition of the Wilkins Peak Member. As evidenced by DZ chronofacies CO-1 and CO-2, however, fluvial input to the same area was dominantly from the southeast during Wilkins Peak Member deposition. Influence from the Idaho paleoriver seems to return and dominate again after Wilkins Peak/Cathedral Bluffs Member deposition as suggested by the presence of DZ chronofacies ID-2 (sample MD1_20).

Lateral DZ Chronofacies Transitions

Age-equivalent strata record profound differences in provenance over short distances. Based on field relationships to each other and to lacustrine facies that contain dated tephras, samples in DZ chronofacies CO-1, CO-2, UT-1, and UT-2 (with the exception of CR-148-16) were all deposited synchronously or nearly so (c.f., Smith et al., 2008; 2015). Lateral transitions between these DZ chronofacies, therefore, are interpreted to reflect contemporaneous depositional systems that competed to fill available basin accommodation, rather than secular changes in sources over time. The spatial stability of these deposystems is supported by the consistency of zircon ages in samples taken from different stratigraphic levels in the same general area. For example, samples SC1_18, FH3_18, and 5-SC_18 are all part of DZ chronofacies CO-1 and collected from the Bridger sub-basin near its evaporite depocenter. Meanwhile, samples LMRC2_18, 19-LM-405, 19-DM-403, and PL3_18 are all either DZ chronofacies UT-1 or UT-2 and were collected at the southern margin of the

Bridger sub-basin near the Uinta uplift (Figs. 1-3). This suggests that the lateral transitions in sandstone provenance may occur on a kilometer scale. Samples FH3_18, SC1_18, and 5-SC_18 were collected only ~25 km north of samples LMRC2_18, 19-LM-405, 19-DM-403, and PL3_18, yet they represent sand sources originating hundreds of kilometers apart. Moreover, samples SB3_18 and SB7_18 were collected ~5 km apart in what appears to be the same outcropping sandstone interval and show similar paleocurrent flow directions. Despite this, SB3_18 and SB7_18 display clear differences in petrography and DZ ages. Deposits at such localities, due to the dynamic and avulsive nature of distributive river systems (Mohrig et al., 2000; Weissmann et al., 2010, 2015; Best and Fielding, 2019) record reworked sediments from both sources, yet the abruptness (< 5km) of the mixing line between the Aspen paleoriver and tributaries that drained the Uinta uplift (Fig. 9b) suggests relatively discrete and consistent depositional features during the deposition of the Wilkins Peak Member.

DZ chronofacies boundaries may also reflect the interaction of depositional systems with intrabasinal structural relief. Despite close proximity (<20 km) to the Aspen paleoriver system, mixing of the Toya Puki paleoriver system with the Aspen paleoriver appears limited based on the notable dearth of Archean-aged grains associated with DZ chronofacies CO-1 and CO-2 (Fig. 6a). The Toya Puki paleoriver system appears to have terminated within the Washakie sub-basin. One possibility is that the Washakie sub-basin may have contained a lake that captured the Toya Puki paleoriver thus precluding it from joining the Aspen paleoriver. Alternatively, the Washakie basin may have been “hemiendorheic” (Por, 2000) impounded to the south by the Cherokee Ridge and to the west by the Rock Springs Uplift (Fig. 9b). As such the Toya Puki paleoriver may have succumbed to evaporation rather than joining the Aspen paleoriver as a tributary. Modern analogs for this type of system include the Pantanal region as fed by the Taquari River in central South America and the Okavango Delta fed by the Cubango River in southcentral Africa. In either case, precedent for Greater Green River sub-basin accommodation is seen north in the Great Divide sub-basin, wherein the Battle Spring Formation represents continual fill of the basin beginning in the earliest Eocene and extending to the early middle Eocene—a timespan equal to that of the deposition of the Wasatch and Green River Formations combined (Pipiringos and Denson, 1970).

The presence of Aspen paleoriver-derived ages (Sample BC2_18) north of Cherokee Ridge and on the western edge of the Washakie sub-basin, however, suggests that either the Aspen paleoriver produced enough sediment to periodically overcome Cherokee Ridge from south to north, or that it circumnavigated the structure to the west thus adding to the infill of Washakie sub-basin en route to the Bridger sub-basin. In either case, any mixing between the Aspen and Toya Puki paleoriver systems occurred in the Washakie sub-basin which provided the terminal sink for the Toya Puki paleoriver at the time.

Based on the presence of DZ chronofacies WY-1 in the Washakie sub-basin, the Wamsutter Arch, which separates the Washakie and Great Divide sub-basins, lacked surface expression and was not a barrier to the Toya Puki paleoriver entering the Washakie sub-basin. Alternatively, the Toya Puki paleoriver may have circumnavigated the structural high to the east during the deposition of the Cathedral Bluffs Member, but the arch was certainly overcome by the Idaho paleoriver during the deposition of the Laney Member, as evidenced by sample MD1_20 and DZ chronofacies ID-2 (Figs. 6 & 9c).

Regional Implications

In considering Laramide foreland basins, it is often assumed that sediments are sourced proximally (e.g., Dickinson et al., 1988). Though relatively limited, more recent assessments of the relationships of Laramide foreland paleo-watersheds to paleo-lakes reveal that a substantial portion of the water entering a lake may have been transported long distances (e.g., 100-1000 km) by rivers (e.g., Davis et al., 2010; Dickinson et al., 2012, Hammond et al., 2019), and may have originated at relatively high elevations (e.g., Dettman and Lohmann, 2000; Carroll et al., 2008; Fan and Dettman, 2009; Chetel et al., 2011; Schneider et al., 2016; Ma et al., 2017). This study supports these previous findings as it recognizes sediments sourced from four distinct watersheds as proximally as the Uinta (< 30 km) and Sierra Madre Mountains (< 50 km) and as distally as the Granite Mountains (> 120 km), the Colorado Mineral Belt (> 300 km), and central Idaho (> 400km) to the Greater Green River Basin. Moreover, this study offers context on the timing of uplift and accommodation generation for intrabasinal Greater Green River Basin Laramide structures. Based on our, and findings by Hammond et al. (2019), drainage organizations within the surrounding region (and changes therein) may be equally as important as local climate change in controlling the overall character of lake deposits.

It is well-established that during the late-Cretaceous, sediment dispersal throughout what is now the intermountain west was dominantly eastward, driven by the Sevier thrust front (e.g., DeCelles, 2004). How and when this system was dissected and reoriented during the Paleocene and Eocene remains a topic of interest. Due to the temporal scope of our data, comment on the onset of Laramide uplift is beyond the purview of this paper. However, the ubiquitous presence of pre-Cambrian ages across our samples corroborates that extrabasinal Laramide structures including the Sierra Madre Mountains, the Rawlins Uplift and the Granite Mountains of southcentral Wyoming, the Uinta Mountains of southwestern Wyoming and northeastern Utah, and the Park and Sawatch ranges in central Colorado were all established sediment sources by the early-Eocene (e.g., Bookstrom, 1990; Carroll et al., 2006; Lynds and Xie, 2019). Lynds and Xie posit the dominance of an eastward propagating sediment system throughout the Bridger sub-basin and into the Hanna Basin as late as the Paleocene Fort Union Formation (2019). Our data suggest that immediately thereafter, long-distance (> 100 km), west- and southwestward-flowing paleorivers including the Aspen and Toya Puki paleorivers were established as sediment dispersal systems into the western and southern Greater Green River Basin.

Hammond et al. (2019) posited that the influence of the Aspen paleoriver provided the requisite alkalinity for the formation of trona—a Na-carbonate evaporite—in the Bridger sub-basin. The highest frequency of bedded evaporites in the Bridger sub-basin occurs stratigraphically below sample FH3_18 (Fig. 2B; Pietras and Carroll, 2006; Smith et al., 2014b) implying that the Aspen paleoriver influenced Lake Gosiute and the Bridger sub-basin as far back as the start of the Wilkins Peak Member. The presence of sample CR-148-16 (DZ chronofacies CO-1) in the Sand Wash sub-basin, however, suggests that the Aspen paleoriver influenced the Sand Wash sub-basin prior to the Wilkins Peak Member during the deposition of the Main Body of the early-Eocene Wasatch Formation. This establishes westward long-distance drainage, opposite that of the long-standing Cretaceous-Paleocene trend, by the earliest Eocene.

Differences between coeval samples 17-BF-001 and CR-148-16 (notably Paleocene, mid-Mesoproterozoic, and Archean DZ age populations), suggest that the Aspen Paleoriver did not make its way into the Bridger sub-basin until Wilkins Peak Member times and that until then, the Bridger sub-basin was largely influenced by fluvial input from the north (see discussion on Idaho DZ chronofacies, Fig. 9). Regardless, by the early Eocene, influence of the Uintas in the Sand Wash sub-basin is negligible. Potential reasons for this include decreasing accommodation in the basin as the depocenter shifted west toward the Bridger sub-basin (possibly due to increased input from the Colorado Mineral Belt), diachronous uplift of the Uintas that shifted sedimentation westward (e.g., Smith et al., 2015), denudation of the Uintas resulting in less distal deposition, or some combination thereof. Input from the Uintas (UT-1 & 2) was likely consistent throughout the Wilkins Peak Member. Uplift of the Uinta Mountains occurred as part of the greater Laramide deformation, thus largely predating the Eocene Wilkins Peak Member (Bruhn et al., 1986; Smith et al., 2015). In the Uinta Basin, fluvial sediments sourced from the Uinta Uplift are recognized as early as the Maastrichtian, suggesting that sediment delivery from the Uintas was likely ongoing throughout the deposition of the Wasatch Formation as well (Bruhn et al., 1983, 1989; Roehler, 1992; Carroll et al., 2006; Smith et al., 2015). Despite this, UT-1 and UT-2 terminate <~30km from the estimated watershed boundary. Comparatively, in the Uinta Basin to the south, Eocene fluvial deposits associated with the Uinta Mountains have been recognized > 45km from the estimated watershed boundary (Fouch, 1981; Bruhn et al., 1983). This suggests limited catchment for, or supply of, sediment issuing north off the Uintas into the Bridger sub-basin. Structurally, the Uinta Mountains are a north-verging anticlinal feature (Bruhn et al., 1986). As a result, the northern watershed, supplying sediment to the Bridger sub-basin, appears to have been smaller than the southern watershed which terminates into the Uinta Basin, resulting in greater sedimentation to the Uinta Basin than the Bridger (Allen et al., 2013).

Intrabasinal structures including the Cherokee Ridge and the Rock Springs Uplift were present and topographically exposed by Wilkins Peak Member time as evidenced by the isolation of the Toya Puki Paleoriver from the Aspen Paleoriver (Fig. 9b). If the Wamsutter Arch was present then, it is unlikely that it created any relief given the transport of sediment south from the Granite Mountains and Rawlins uplift by the Toya Puki River during the early Eocene (Fig. 9).

Post-Wilkins Peak Member deposition of the Laney Member is characterized by freshwater and “over-filled” lake-type facies (Carroll and Bohacs, 1999, Rhodes and Carroll, 2015). This shift has been attributed to the recapture of the Idaho paleoriver (Fig. 9c; Chetel et al., 2011; Honig et al., 2020), which is supported by our data, as well as watershed expansion (Rhodes and Carroll, 2015). Throughout the deposition of the Laney Member, both paleoriver systems simultaneously filled the Greater Green River Basin, but the relative contribution of the Idaho paleoriver system was greater, as volcaniclastics brought by the Idaho paleoriver ultimately filled the Greater Green River Basin by the end of Laney Member deposition (Fig. 9c; Roehler, 1992; Carroll and Bohacs, 1999). Further work is needed to understand the evolution and influence of the Idaho paleoriver through Green River Formation time.

CONCLUSIONS

Using DZ analysis on fluvial samples collected in three of the Greater Green River sub-basins, we were able to identify seven distinct DZ chronofacies associated with four separate source regions and watersheds in the southern and eastern reaches of the Greater Green River Basin. These DZ chronofacies are further corroborated by petrographic, paleocurrent, and MDA data. DZ chronofacies CO-2 primarily represents sand transported northwestward from central Colorado by the Aspen paleoriver, corroborating previous work done by Hammond et al. (2019) (Figs. 6 & 9). As the system progressed toward the Bridger sub-basin it was met with contributions from local tributary streams that drained the Uinta uplift resulting in the more complex characteristics of DZ chronofacies CO-1 down system (Figs. 6, 7, & 9). DZ chronofacies UT-1 and UT-2 are associated with tributaries issuing out of the Uinta uplift and are comprised of sediment primarily recycled out of sedimentary and metasedimentary strata within and adjacent to the uplift (Figs. 6 & 9). DZ chronofacies WY-1 is indicative of primary and recycled sediments associated with the Toya Puki paleoriver and weathering out of the Sierra Madre, Rawlins, and Granite uplifts of south and central Wyoming. Contrary to previous suppositions, sediment from the Toya Puki paleoriver does not join the Aspen paleoriver headed to the Bridger sub-basin but is instead sequestered in the Washakie sub-basin, likely baffled by the Cherokee Ridge to the south (Figs. 6 & 9). DZ chronofacies ID-1 and ID-2 represent sedimentation via the Idaho paleoriver before and after Wilkins Peak Member deposition (respectively), implying that the Idaho paleoriver was not a contributing source to the Greater Green River Basin through Wilkins Peak Member deposition (e.g., Chetel et al., 2011; Honig et al., 2020).

The results of this study reveal a surprising complexity of sandstone provenance within a relatively small area, reflecting sand derived from diverse local and distal sources. Moreover, lateral transitions between different DZ chronofacies can occur over distances as little as 5 km, implying that different depositional features maintained discrete positions within the basin over millions of years rather than avulsing across it. Recognition of these complexities was made possible by high sample density, contrasting with regional- to continental-scale provenance studies with sampling densities that are often an order of magnitude lower (e.g., Laskowski et al., 2013; Gehrels and Pecha, 2014; Blum et al., 2017). These two approaches complement one another, with large-scale studies providing needed tectononomagnetic context and small-scale studies offering a clearer view of local sediment dispersal.

Finally, the complexity of these systems indicates a need for caution in conducting thermochronology or paleoaltimetry studies. The latter often use early, authigenic carbonate phases in basinal fluvial and floodplain deposits to infer precipitation $\partial^{18}O$ associated with upstream mountain ranges (e.g., Chamberlain et al., 2012; Gao and Fan, 2018). The results of this study demonstrate that the deposits of rivers originating hundreds of kilometers away may reside closely adjacent to detritus derived from local uplifts. Detailed provenance studies are therefore critical to avoid misinterpretation of the drainage pathways that linked high-elevation sediment sources to low-elevation deposits.

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FIGURES & TABLES

Figure 1 caption

a) Generalized paleogeographic map (51 Ma) showing locations of principal Laramide uplifts and Eocene paleocatchment of the Greater Green River and surrounding basins. Isopach thicknesses for Eocene fill are shown with 1km counters (after Smith et al., 2008). Additionally depicted are the Cheyenne Belt, alluvial fans (Smith et al., 2015), and known as well as proposed paleodrainage paths. **b)** Map of field area showing detrital zircon sample locations by DZ chronofacies (see discussion) and cross-section locations (Fig. 2).

Figure 2 caption

a) Schematic East-West cross section along the axis of the Aspen paleoriver modified from (Smith et al., 2015). A–I beds indicate named alluvial horizons of Culbertson (1961). Sample locations (this study and Hammond et al., 2019) are organized by DZ chronofacies (see discussion). Error bars associated with samples “CC”, “SCD”, “MCP”, and “HOR” represent the precision of stratigraphic location for samples collected by Hammond et al., 2019. **b)** Schematic N-S cross-section modified from (Smith et al., 2015). Sample locations (this study) are organized by DZ chronofacies (Fig. 7).

Figure 3 caption

DZ sample localities and paleocurrent data. Paleocurrent rose diagrams summarize the direction of reported measurements—a total of 303 from this study plus an existing 354 from Hammond et al (2019) and 726 from Forss (1983)—subdivided by sedimentary structure (Fig. 3; App. A3). Pertinent structures including the Rock Springs Uplift, the Wamsutter Arch, and the

Cherokee Ridge, are shown.

Figure 4 caption

Sandstone ternary plots. Q = monocrystalline quartz + polycrystalline (including chert), F = plagioclase feldspar + potassium feldspar, and L = all lithic fragments (excluding intrabasinal carbonate grains. **a)** All samples (including Hammond et al., 2019) organized by locality. **b)** Samples with corresponding detrital zircon ages (Fig. 6) shaded by DZ chronofacies (Fig. 7) and shaped by stratigraphy (Fig. 2; Table 1).

Figure 5 caption

Top: Side-by-side comparison of sand indicative of DZ chronofacies UT-1 (left; primary Uinta influence) to DZ chronofacies CO-1 (right; primary Colorado Mineral Belt influence). Major differences include grain size and compositional maturity. Grains from CO-1 (SC4) are smaller and more arkose than those from UT-1 (LMRC2) which are larger and more quartz-rich. **Bottom:** Magnified and annotated images of the same samples. Pervasive seritization (indicative of hydrothermal alteration) of plagioclase feldspars is common in sands associated with the Colorado Mineral Belt (DZ chronofacies CO-1 and CO-2).

Figure 6 caption

U-Pb detrital zircon kernel density estimate (KDE) spectra for **a)** all grains 0-3500 Ma (KDE bandwidth = 15 m.y.) and **b)** grains younger than 300 Ma (KDE bandwidth = 1 m.y.). DZ chronofacies groupings are based on consideration of MDS analysis and DZmix modeling (Fig. 7). Smaller vertical black dotted lines represent MDAs (Table 1). “n =” number of measured grains per sample. Bar plot (right) shows relative proportions of each sample colored by likely original provenance: “CMB” = Colorado Mineral Belt, “CMA” = Cordilleran Magmatic Arch, “App.-Ouch.” = Appalachian-Ouachita, “GV Pro.” = Grenville Provence, “Y-M” = Yavapai-Mazatzal, “WY Prov.” = Wyoming province. Provenance age associations are based on prior regional studies by Whitmeyer and Karlstrom (2007); Gehrels et al. (2011); Chapin (2012); Dickinson et al. (2012); Laskowski et al., (2013); Yonkee et al. (2014) (Fig. 8; App. A6). Provenance source area age spectra are based off previously published geochronologic ages (Premo and Van Schmus, 1989; Souders and Frost, 2006; Dehler et al., 2010; Klein et al., 2010; Lynds and Xie, 2019). Sierra Madre ages represent in situ U-Pb zircon ages compiled from original work by Premo and Van Schmus (1989). Uinta ages represent DZ ages from original work by Dehler et al. (2010). Colorado Mineral Belt ages represent a compilation of in situ U-Pb, K-Ar, and Ar-Ar ages compiled from the database assembled by Klein et al. (2010). Rawlins Uplift ages represent DZ ages from Lynds and Xie (2019).

Figure 7 caption

Sample similarity measures, including MDS analysis and DZmix modeling for a) Ages 0-3500 Ma and b) ages 0-300 Ma. Distances between samples are plotted on a dimensionless cartesian coordinate grid wherein the distance between similar samples is small relative to the distance between dissimilar samples (Vermeesch, 2013, 2018; Saylor and Sundell, 2016). Each sample is connected to the sample most similar to it by a solid black line capped with a black cone and to the sample second most similar by a dotted grey line capped with a grey cone. Overlain on the MDS plot are DZmix results representing modeled provenance proportions per sample.

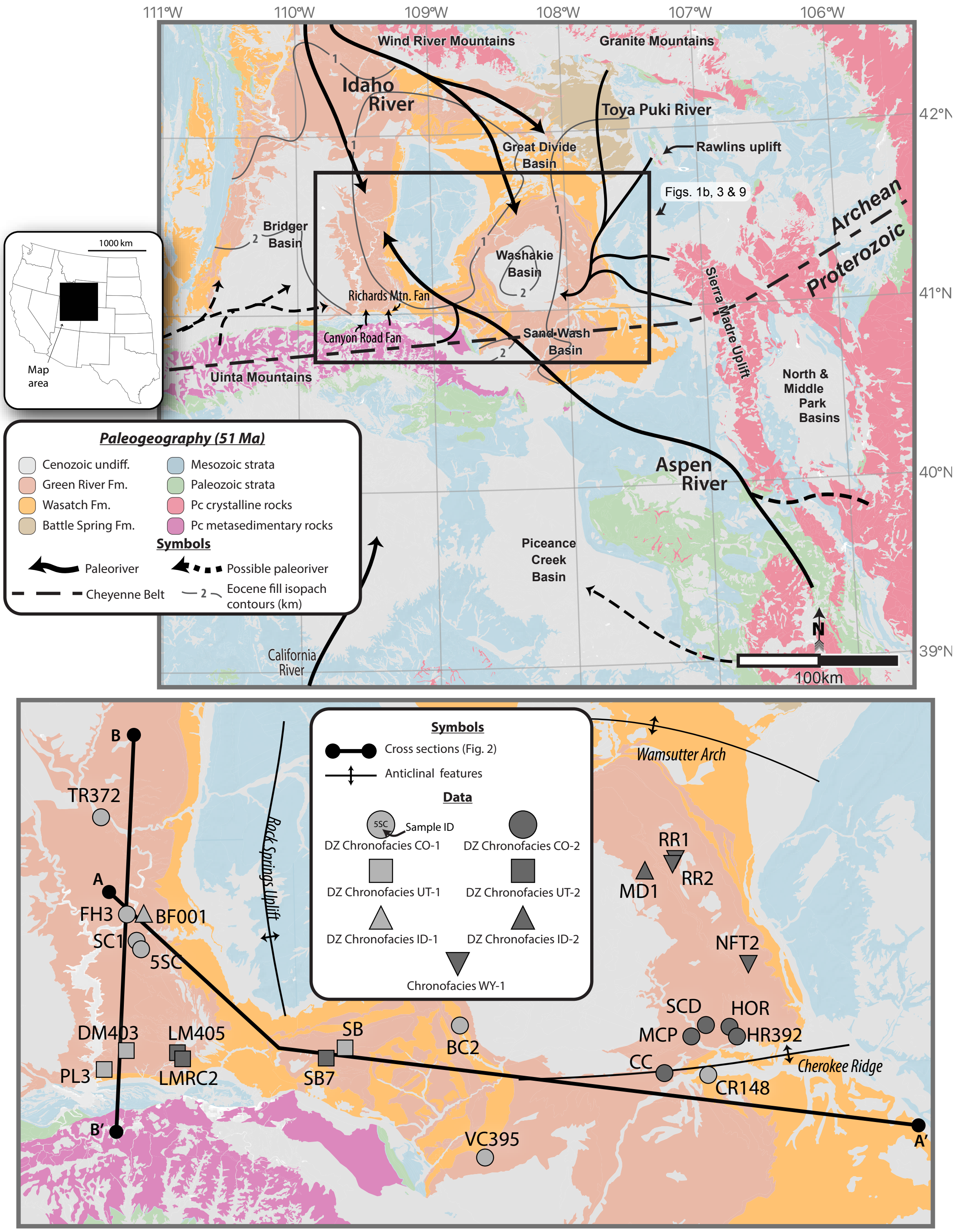
Figure 8 caption

Generalized North American crustal province map (adapted from Gehrels et al., 2011; Laskowski et al., 2013; Pecha et al., 2018). Age domains are shaded to match detrital zircon spectral diagram (Fig. 6). Provenance age associations are based on prior regional studies by Whitmeyer and Karlstrom (2007), Gehrels et al. (2011), Chapin (2012), Dickinson et al. (2012), Laskowski et al. (2013), and Yonkee et al. (2014). Distribution of Mesozoic eolianites from (Leier and Gehrels, 2011).

Figure 9 caption

Paleowatershed reconstructions for the **a)** Tipton, **b)** Wilkins Peak, and **c)** Laney Member deposition, as well as age-equivalent strata of the Green River Formation. Known paleoriver systems include the Aspen, Idaho, and Toya Puki. Possible paleodrainage pathways, recognized DZ chronofacies boundaries and inputs, and pertinent structural features are also shown.

Figure 1



111°W
110°W
109°W
108°W
107°W
106°W
42°N
41°N
40°N
39°N
Wind River Mountains
Granite Mountains
Idaho River
Toya Puki River
Great Divide Basin
Rawlins uplift
Figs. 1b, 3 & 9
Bridger Basin
Washakie Basin
Richards Mtn. Fan
Canyon Road Fan
Sand Wash Basin
Uinta Mountains
Sierra Madre Uplift
Archean
Proterozoic
North & Middle Park Basins
Aspen River
Piceance Creek Basin
California River
100km
N
1000 km
Map area
Paleogeography (51 Ma)
Cenozoic undiff.
Green River Fm.
Wasatch Fm.
Battle Spring Fm.
Mesozoic strata
Paleozoic strata
Pc crystalline rocks
Pc metasedimentary rocks
Symbols
Paleoriver
Possible paleoriver
Cheyenne Belt
Eocene fill isopach contours (km)
Symbols
Cross sections (Fig. 2)
Anticlinal features
Data
Sample ID
DZ Chronofacies CO-1
DZ Chronofacies CO-2
DZ Chronofacies UT-1
DZ Chronofacies UT-2
DZ Chronofacies ID-1
DZ Chronofacies ID-2
Chronofacies WY-1
Wamsutter Arch
Rock Springs Uplift
Cherokee Ridge
B
B'
A
A'
TR372
FH3
BF001
SC1
5SC
DM403
LM405
PL3
LMRC2
SB
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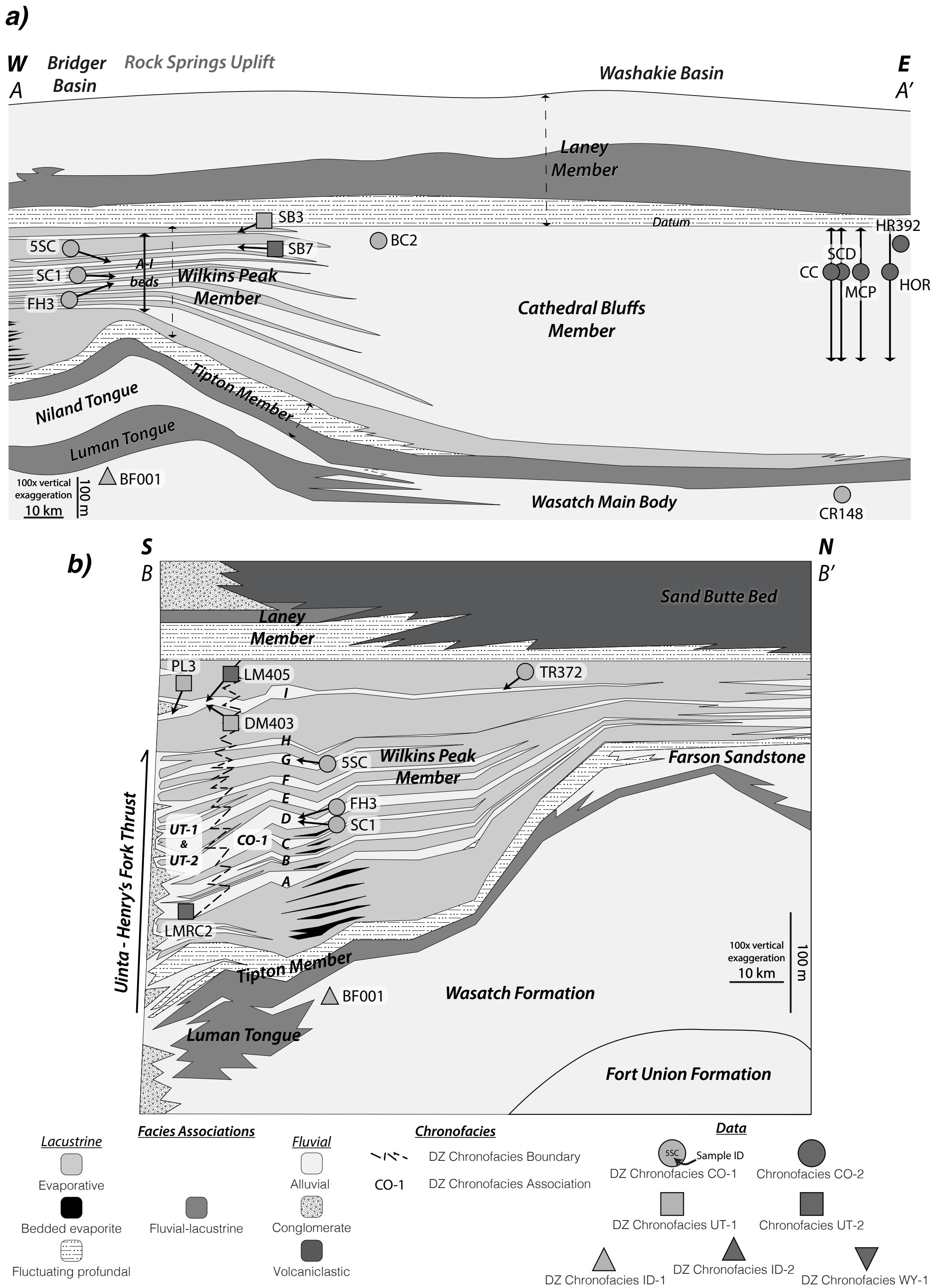
BC2
VC395
RR1
RR2
MD1
NFT2
SCD
HOR
MCP
HR392
CC
CR148

Figure 2


a)
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Bridger Basin
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Datum
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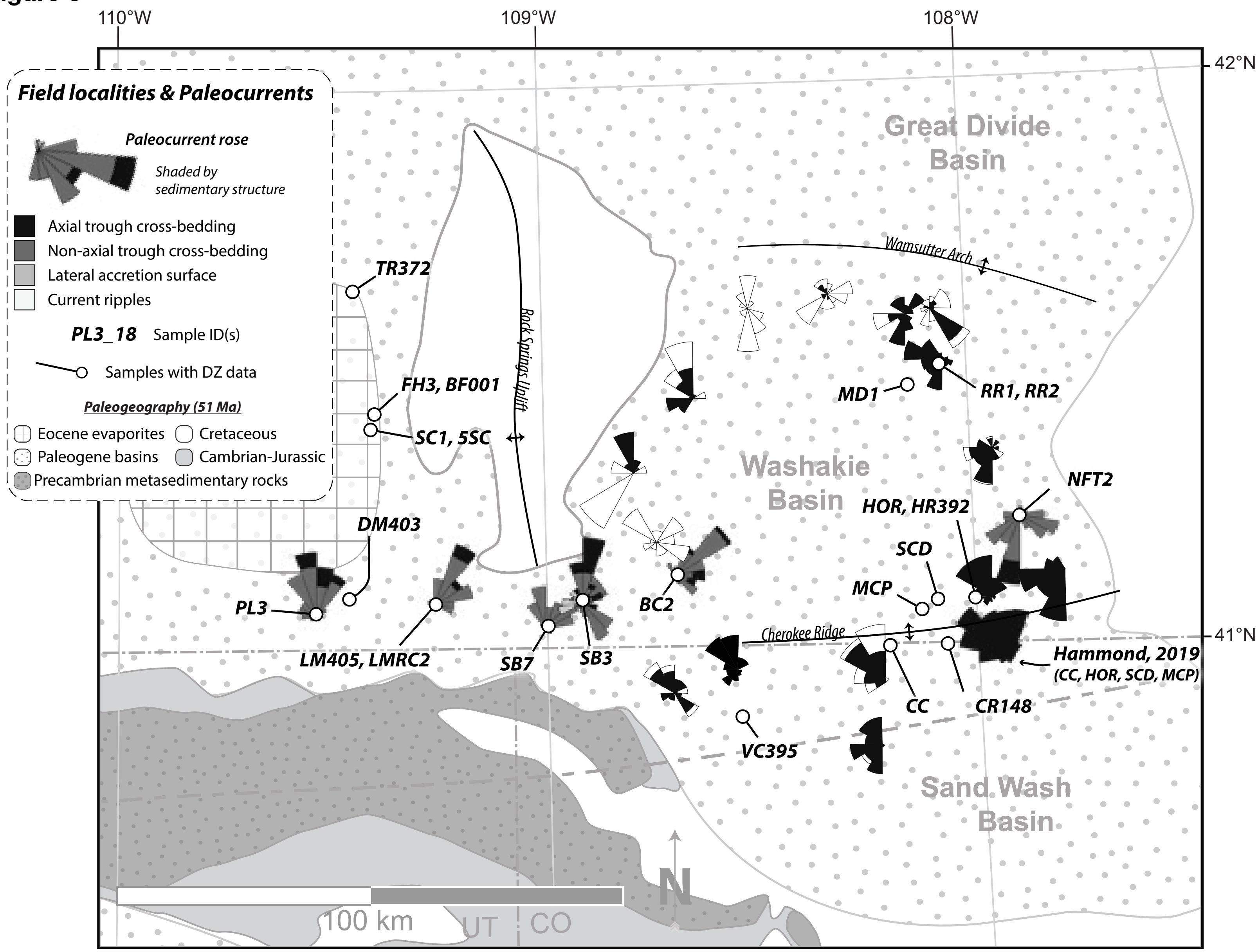
A-I beds
Wilkins Peak Member
Cathedral Bluffs Member
SCD
CC
MCP
HOR
Niland Tongue
Tipton Member
Luman Tongue
BF001
Wasatch Main Body
CR148
100x vertical exaggeration
10 km
100 m
b)
S
B
N
B'
Sand Butte Bed
Laney Member
PL3
LM405
TR372
DM403
I
H
G
F
E
D
C
B
A
5SC
Wilkins Peak Member
Farson Sandstone
FH3
SC1
UT-1 & UT-2
CO-1
Uinta - Henry's Fork Thrust
LMRC2
Tipton Member
BF001
Wasatch Formation
Luman Tongue
100x vertical exaggeration
10 km
100 m
Fort Union Formation
Lacustrine
Evaporative
Bedded evaporite
Fluctuating profundal
Facies Associations
Fluvial-lacustrine
Fluvial
Alluvial
Conglomerate
Volcaniclastic
Chronofacies
DZ Chronofacies Boundary
CO-1
DZ Chronofacies Association
Data
5SC
Sample ID
DZ Chronofacies CO-1
Chronofacies CO-2
DZ Chronofacies UT-1
Chronofacies UT-2
DZ Chronofacies ID-1
DZ Chronofacies ID-2
DZ Chronofacies WY-1

Figure 3



110°W
109°W
108°W
42°N
41°N
Field localities & Paleocurrents
Paleocurrent rose
Shaded by sedimentary structure
Axial trough cross-bedding
Non-axial trough cross-bedding
Lateral accretion surface
Current ripples
PL3_18 Sample ID(s)
Samples with DZ data
Paleogeography (51 Ma)
Eocene evaporites
Cretaceous
Paleogene basins
Cambrian-Jurassic
Precambrian metasedimentary rocks
Great Divide Basin
Washakie Basin
Sand Wash Basin
Rock Springs Uplift
Wamsutter Arch
Cherokee Ridge
TR372
FH3, BF001
SC1, 5SC
DM403
PL3
LM405, LMRC2
SB7
SB3
BC2
MD1
RR1, RR2
NFT2
HOR, HR392
SCD
MCP
CC
CR148
VC395
Hammond, 2019
(CC, HOR, SCD, MCP)
100 km
UT
CO
N

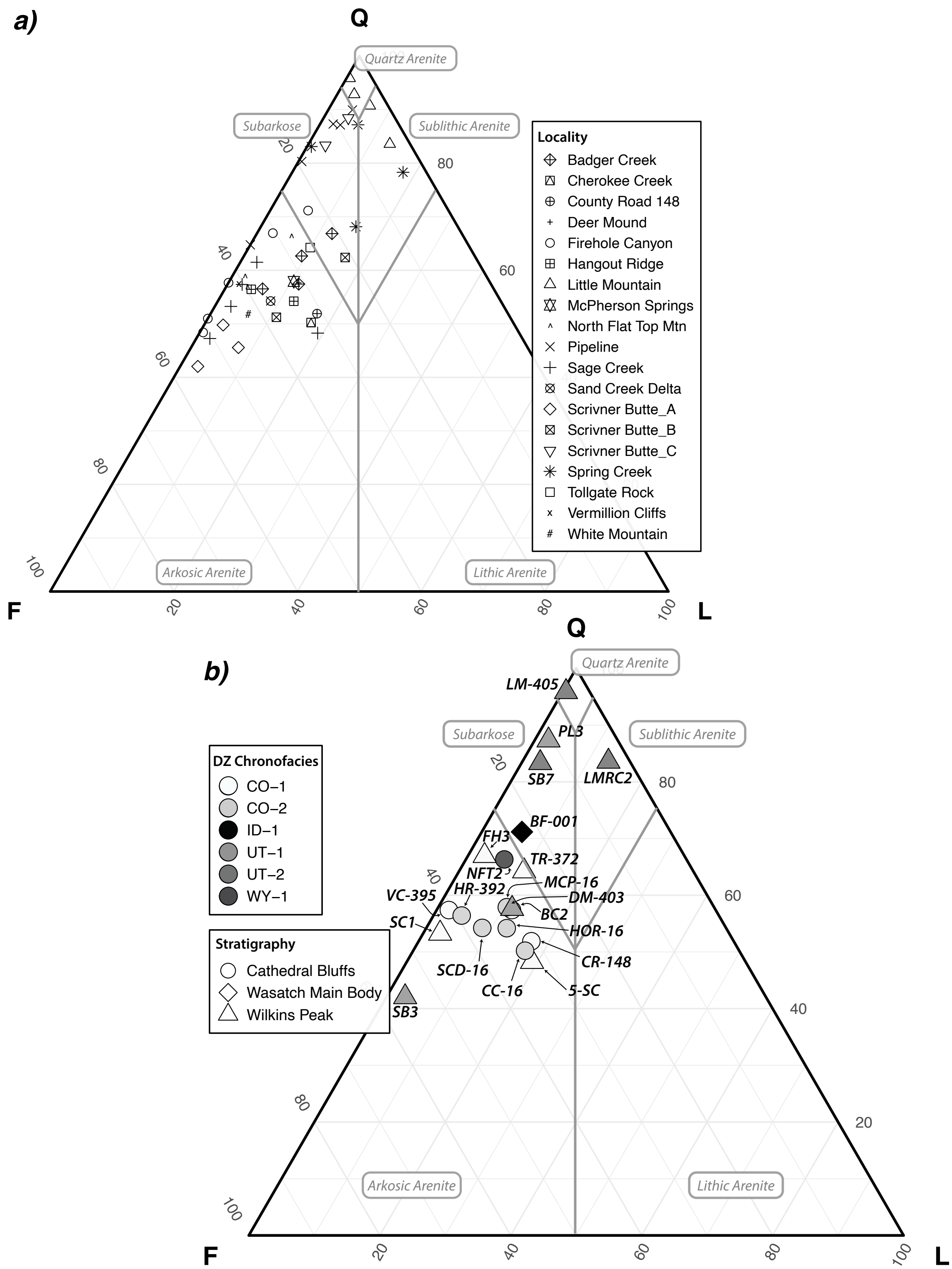
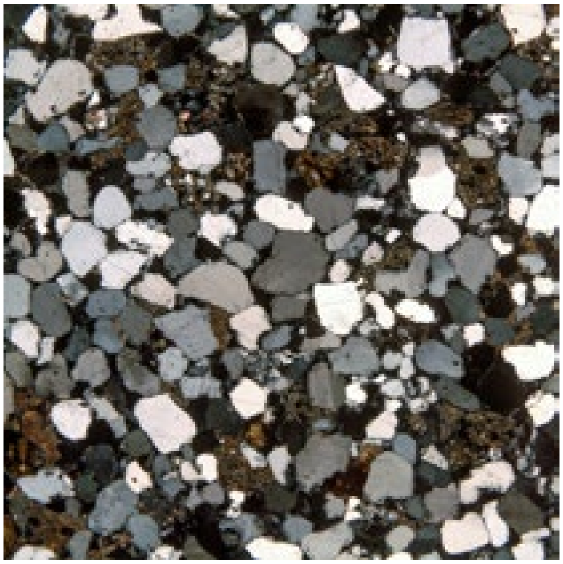

a)
Q
Quartz Arenite
Subarkose
Sublithic Arenite
Arkosic Arenite
Lithic Arenite
F
L
Locality
Badger Creek
Cherokee Creek
County Road 148
Deer Mound
Firehole Canyon
Hangout Ridge
Little Mountain
McPherson Springs
North Flat Top Mtn
Pipeline
Sage Creek
Sand Creek Delta
Scrivner Butte_A
Scrivner Butte_B
Scrivner Butte_C
Spring Creek
Tollgate Rock
Vermillion Cliffs
White Mountain
b)
Q
Quartz Arenite
Subarkose
Sublithic Arenite
Arkosic Arenite
Lithic Arenite
F
L
DZ Chronofacies
CO–1
CO–2
ID–1
UT–1
UT–2
WY–1
Stratigraphy
Cathedral Bluffs
Wasatch Main Body
Wilkins Peak
LM-405
PL3
SB7
LMRC2
BF-001
FH3
TR-372
NFT2
MCP-16
HR-392
DM-403
VC-395
BC2
SC1
HOR-16
CR-148
SCD-16
CC-16
5-SC
SB3

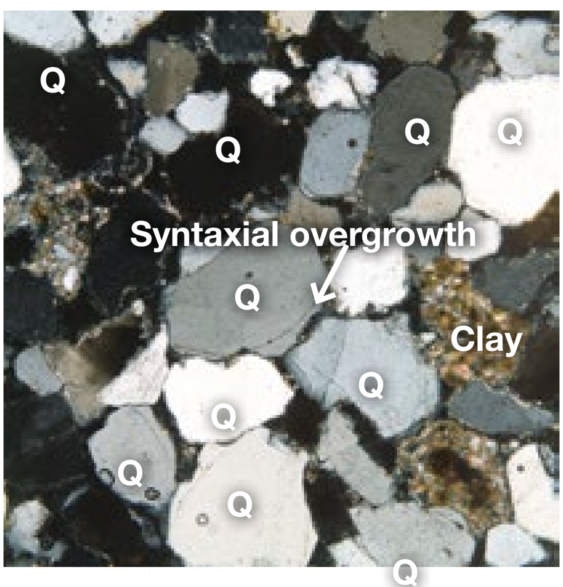
Figure 5



LMRC2 (4x magnification) 500 um

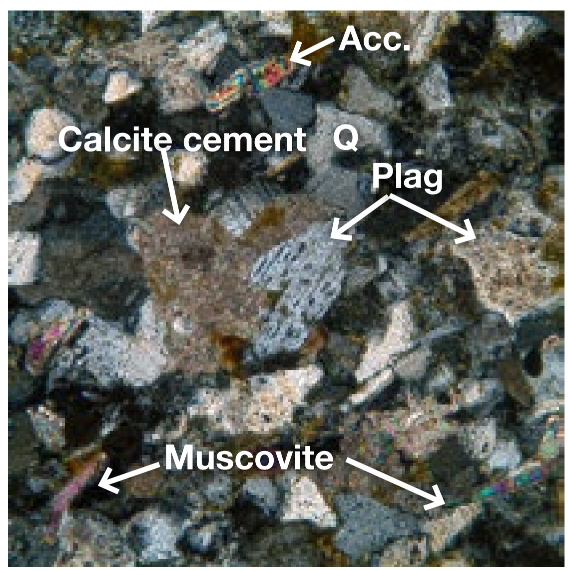
500 um **SC4 (4x magnification)**

LMRC2 (10x magnification)



500 um

SC4 (20x magnification)



500 um

a)

Figure 6

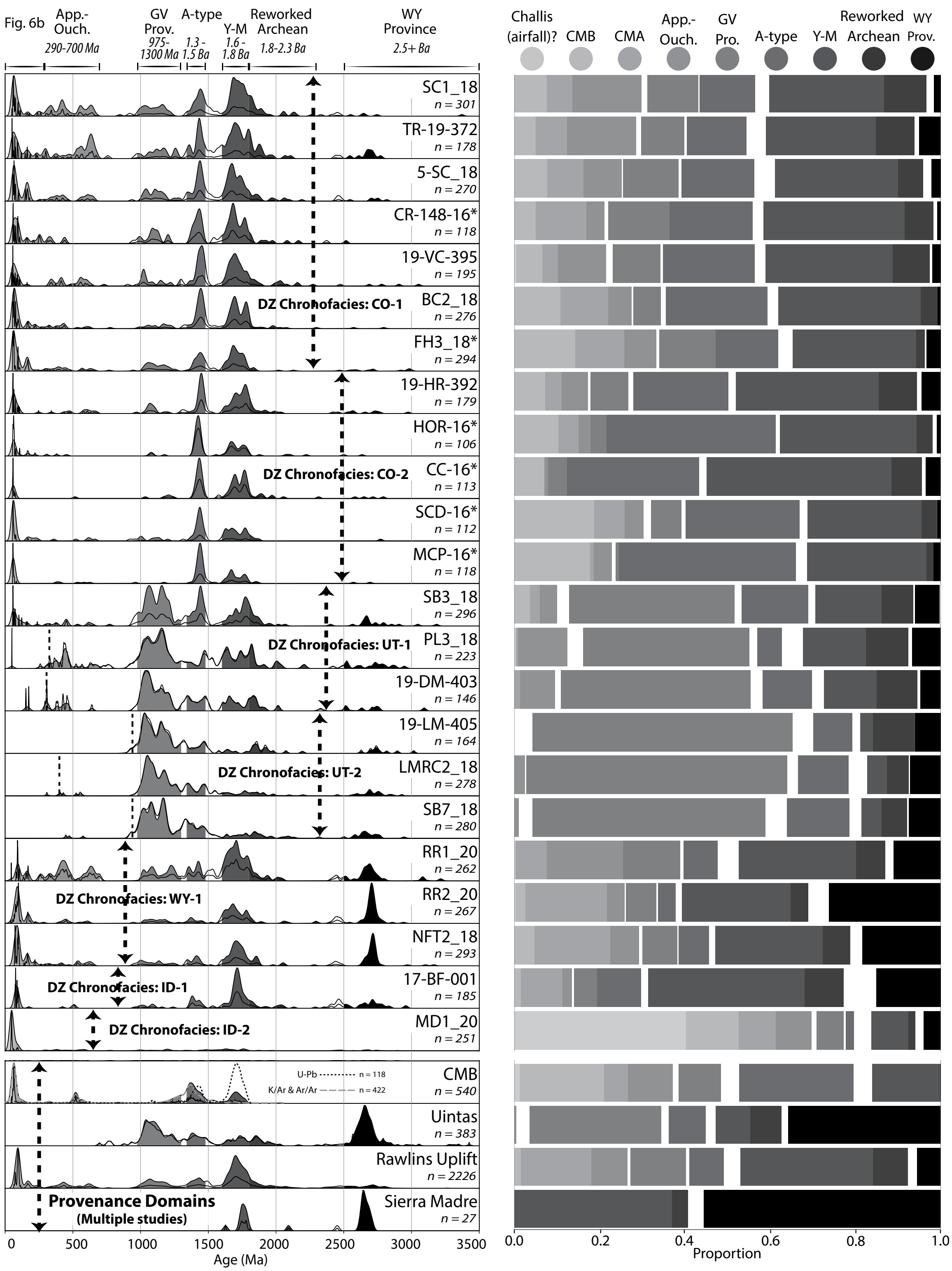


Fig. 6b
App.-Ouch.
290-700 Ma
GV Prov.
975-1300 Ma
A-type
1.3 - 1.5 Ba
Y-M
1.6 - 1.8 Ba
Reworked Archean
1.8-2.3 Ba
WY Province
2.5+ Ba
SC1_18 n = 301
TR-19-372 n = 178
5-SC_18 n = 270
CR-148-16* n = 118
19-VC-395 n = 195
BC2_18 n = 276
DZ Chronofacies: CO-1
FH3_18* n = 294
19-HR-392 n = 179
HOR-16* n = 106
CC-16* n = 113
DZ Chronofacies: CO-2
SCD-16* n = 112
MCP-16* n = 118
SB3_18 n = 296
PL3_18 n = 223
DZ Chronofacies: UT-1
19-DM-403 n = 146
19-LM-405 n = 164
LMRC2_18 n = 278
DZ Chronofacies: UT-2
SB7_18 n = 280
RR1_20 n = 262
RR2_20 n = 267
DZ Chronofacies: WY-1
NFT2_18 n = 293
17-BF-001 n = 185
DZ Chronofacies: ID-1
MD1_20 n = 251
DZ Chronofacies: ID-2
CMB n = 540
U-Pb n = 118
K/Ar & Ar/Ar n = 422
Uintas n = 383
Rawlins Uplift n = 2226
Sierra Madre n = 27
Provenance Domains
(Multiple studies)
0 500 1000 1500 2000 2500 3000 3500
Age (Ma)
Challis (airfall)?
CMB
CMA
App.-Ouch.
GV Pro.
A-type
Y-M
Reworked Archean
WY Prov.
0.0 0.2 0.4 0.6 0.8 1.0
Proportion

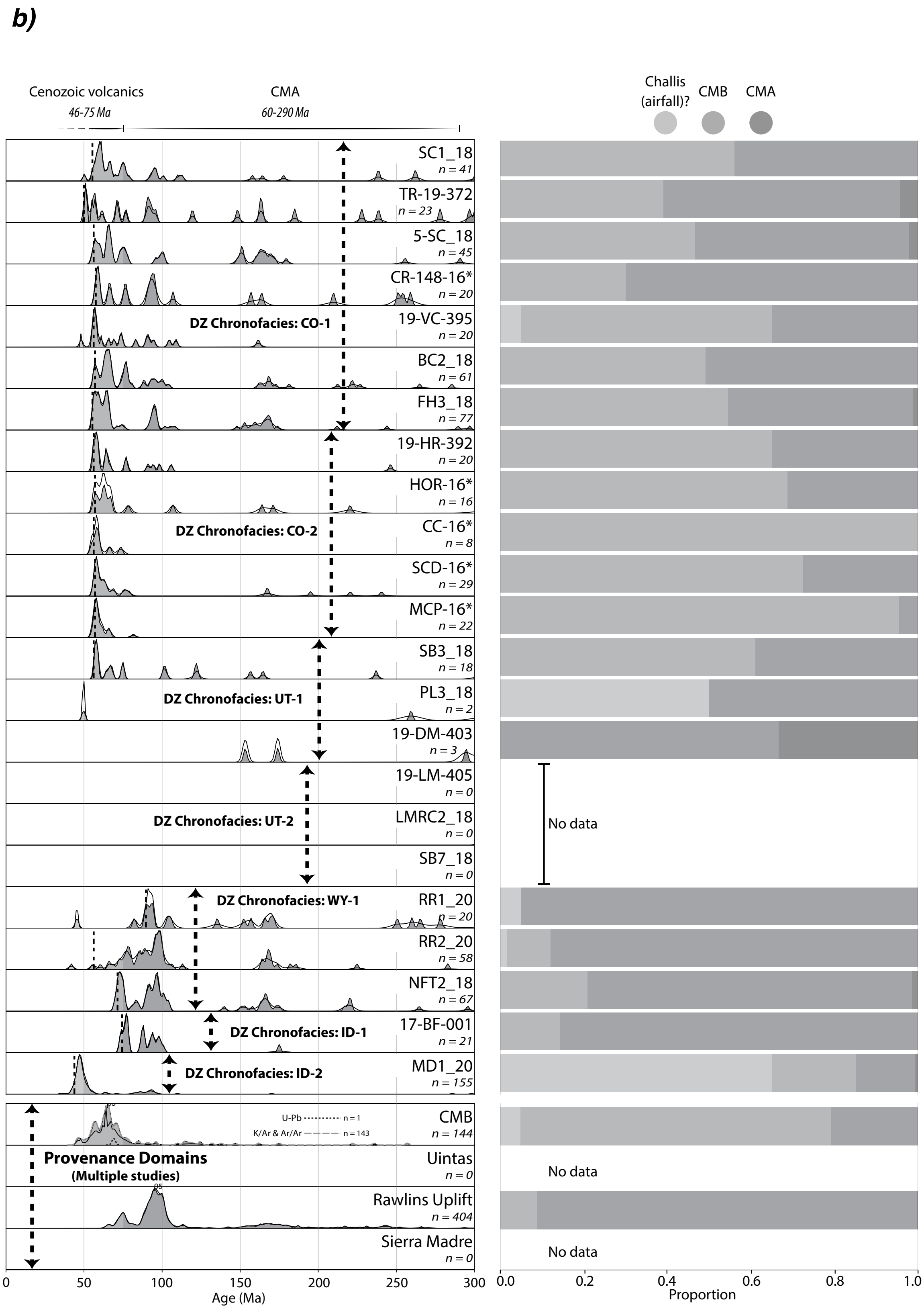
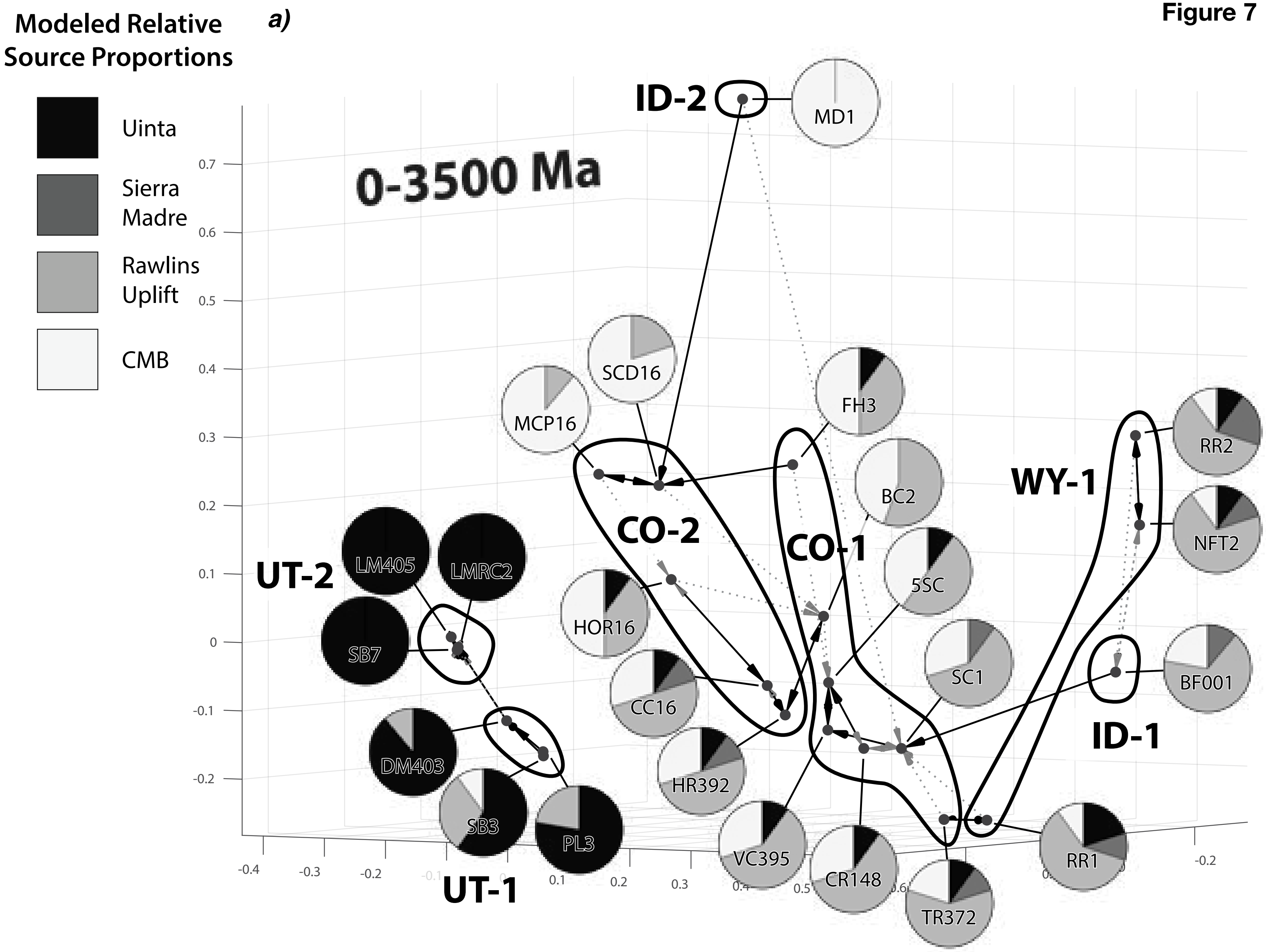

b)
Cenozoic volcanics
46-75 Ma
CMA
60-290 Ma
Challis (airfall)?
CMB
CMA
SC1_18 n = 41
TR-19-372 n = 23
5-SC_18 n = 45
CR-148-16* n = 20
DZ Chronofacies: CO-1
19-VC-395 n = 20
BC2_18 n = 61
FH3_18 n = 77
19-HR-392 n = 20
HOR-16* n = 16
DZ Chronofacies: CO-2
CC-16* n = 8
SCD-16* n = 29
MCP-16* n = 22
SB3_18 n = 18
DZ Chronofacies: UT-1
PL3_18 n = 2
19-DM-403 n = 3
19-LM-405 n = 0
DZ Chronofacies: UT-2
LMRC2_18 n = 0
SB7_18 n = 0
No data
DZ Chronofacies: WY-1
RR1_20 n = 20
RR2_20 n = 58
NFT2_18 n = 67
DZ Chronofacies: ID-1
17-BF-001 n = 21
DZ Chronofacies: ID-2
MD1_20 n = 155
U-Pb n = 1
K/Ar & Ar/Ar n = 143
CMB n = 144
Provenance Domains
(Multiple studies)
Uintas n = 0
No data
Rawlins Uplift n = 404
Sierra Madre n = 0
No data
0 50 100 150 200 250 300
Age (Ma)
0.0 0.2 0.4 0.6 0.8 1.0
Proportion

Figure 7


Modeled Relative Source Proportions
Uinta
Sierra Madre
Rawlins Uplift
CMB
a)
0-3500 Ma
ID-2
MD1
SCD16
MCP16
FH3
BC2
RR2
NFT2
WY-1
CO-2
CO-1
5SC
UT-2
LM405
LMRC2
SB7
HOR16
SC1
BF001
ID-1
CC16
HR392
DM403
SB3
PL3
UT-1
VC395
CR148
TR372
RR1
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.4
-0.3
-0.2
0.1
0.2
0.3
-0.2

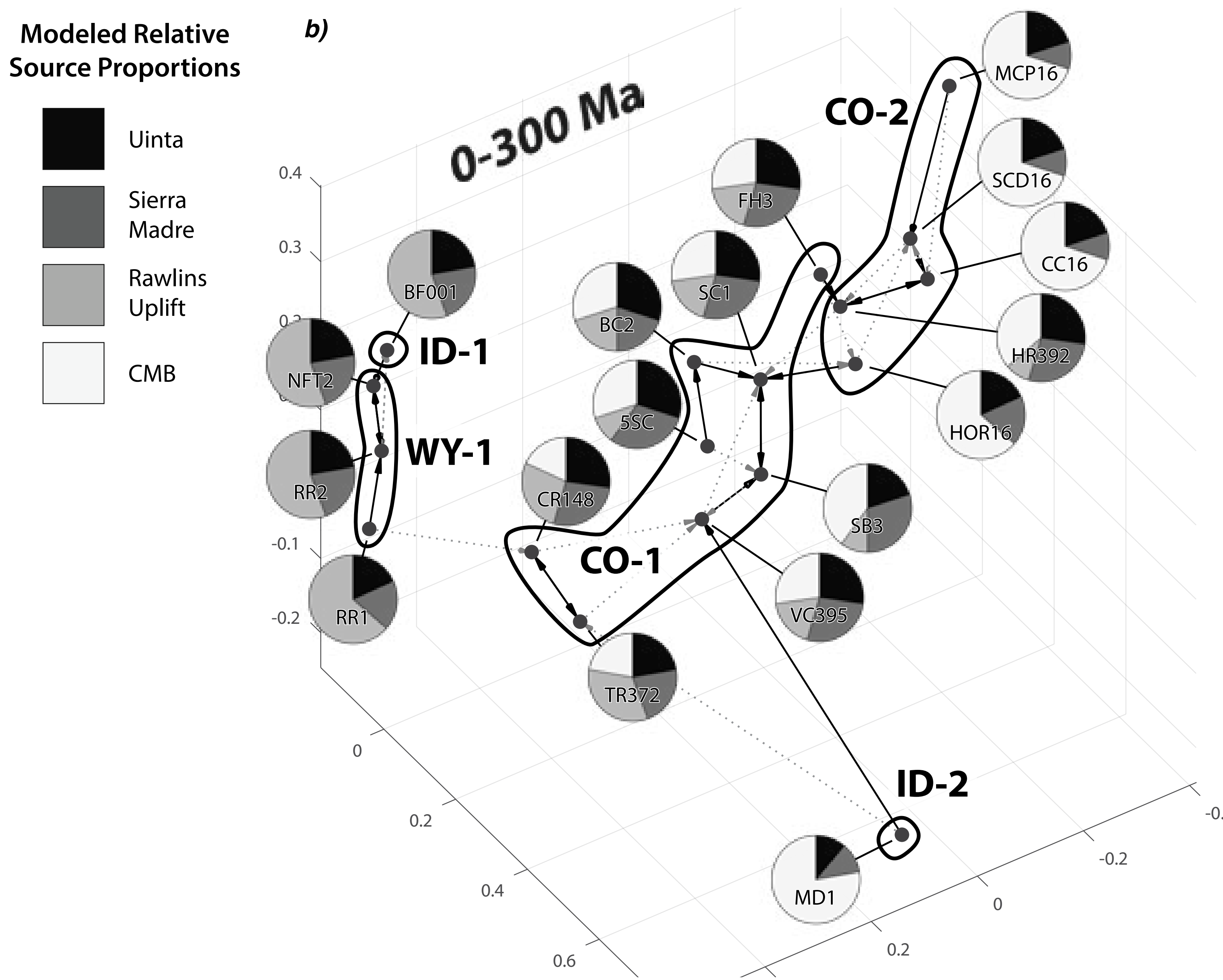
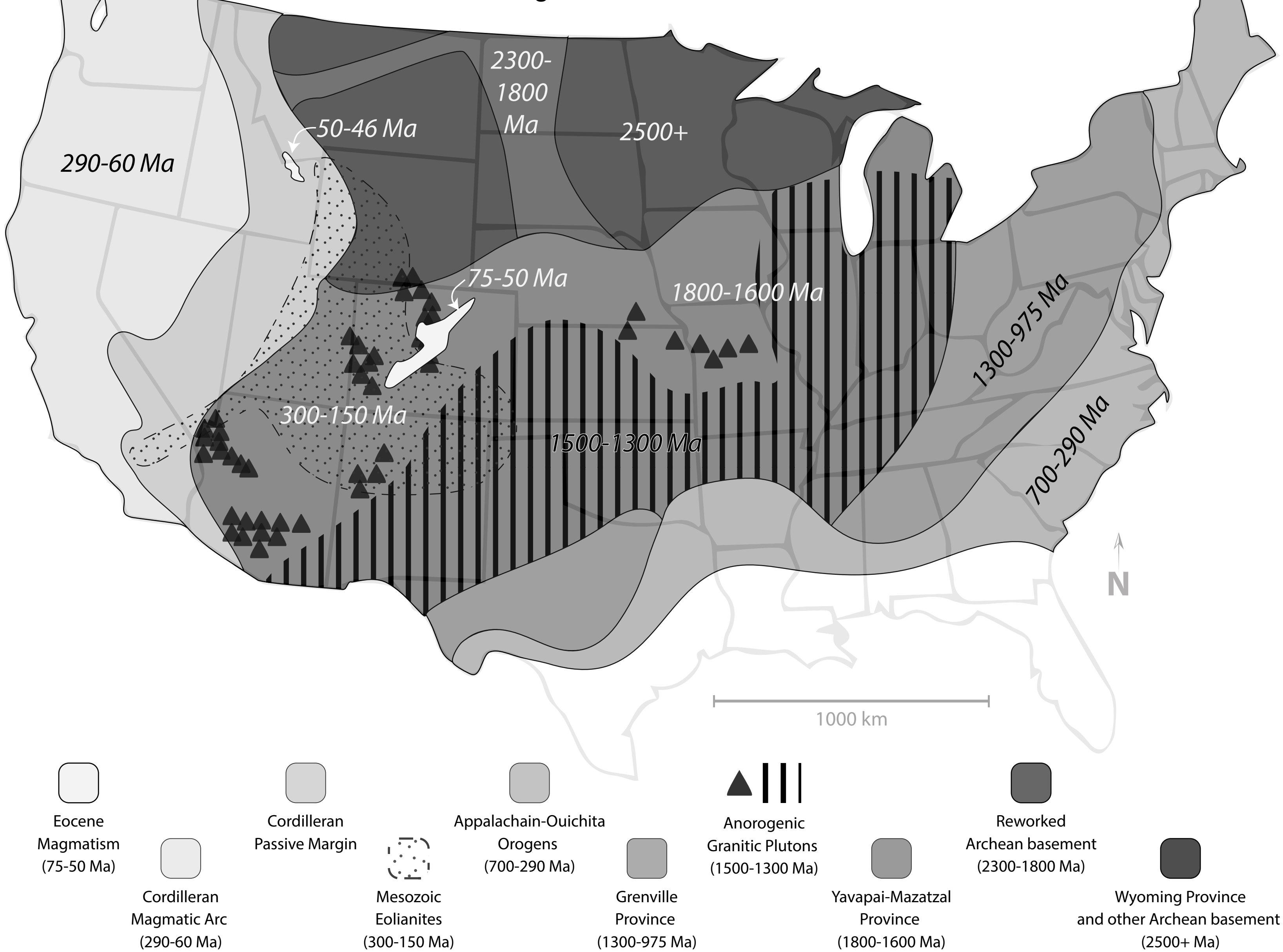

Modeled Relative Source Proportions
Uinta
Sierra Madre
Rawlins Uplift
CMB
b)
0-300 Ma
ID-1
WY-1
CO-1
CO-2
ID-2
BF001
NFT2
RR2
RR1
CR148
TR372
BC2
SC1
5SC
FH3
SB3
VC395
MCP16
SCD16
CC16
HR392
HOR16
MD1
0.4
0.3
-0.1
-0.2
0
0.2
0.4
0.6
-0.4
-0.2
0
0.2

Figure 8



290-60 Ma
50-46 Ma
2300-1800 Ma
2500+
75-50 Ma
1800-1600 Ma
300-150 Ma
1500-1300 Ma
1300-975 Ma
700-290 Ma
N
1000 km
Eocene Magmatism (75-50 Ma)
Cordilleran Magmatic Arc (290-60 Ma)
Cordilleran Passive Margin
Mesozoic Eolianites (300-150 Ma)
Appalachain-Ouichita Orogens (700-290 Ma)
Grenville Province (1300-975 Ma)
Anorogenic Granitic Plutons (1500-1300 Ma)
Yavapai-Mazatzal Province (1800-1600 Ma)
Reworked Archean basement (2300-1800 Ma)
Wyoming Province and other Archean basement (2500+ Ma)

Figure 9

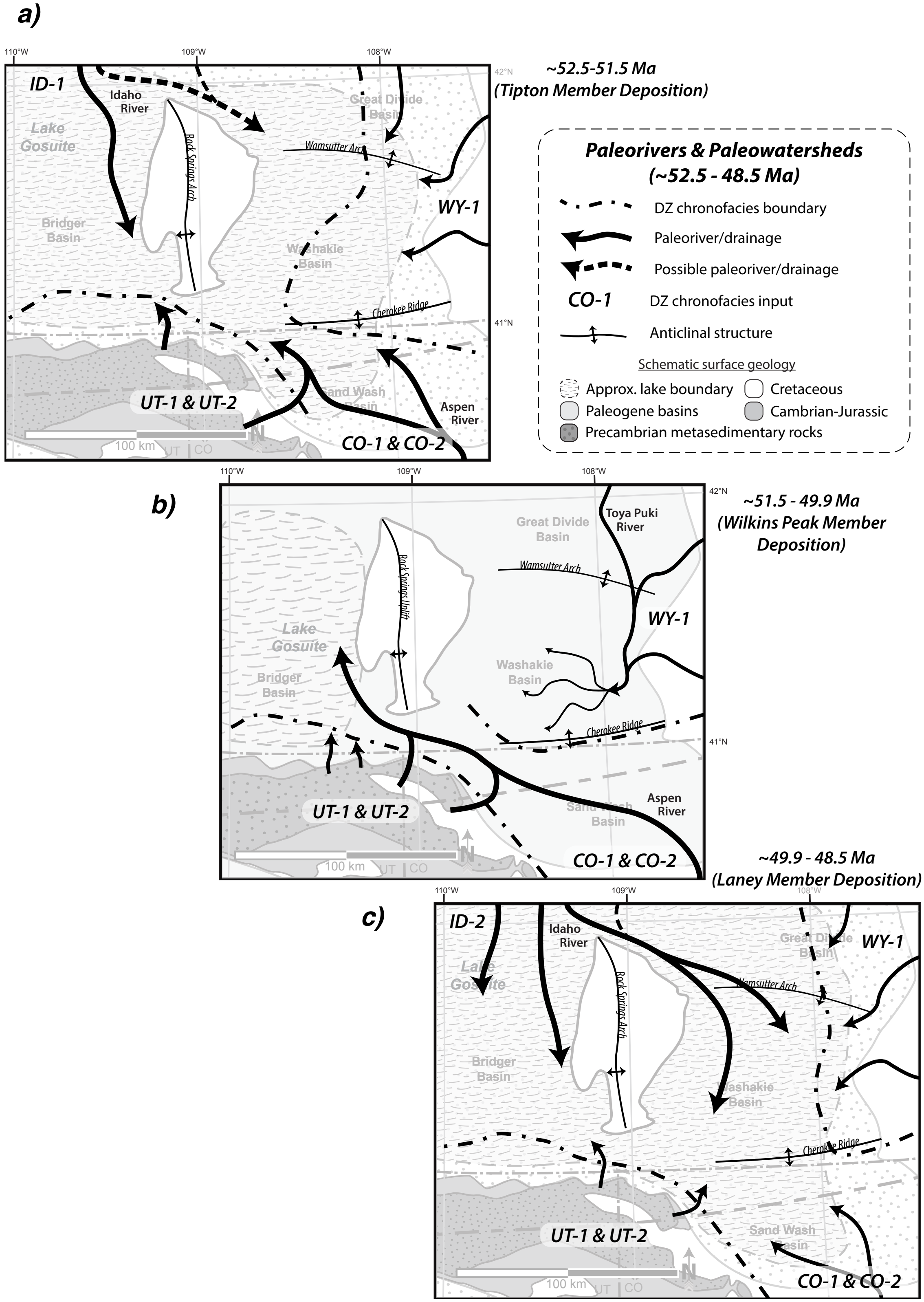

a)
~52.5-51.5 Ma
(Tipton Member Deposition)
ID-1
Idaho River
Lake Gosuite
Rock Springs Arch
Great Divide Basin
Wamsutter Arch
WY-1
Bridger Basin
Washakie Basin
Cherokee Ridge
UT-1 & UT-2
Sand Wash Basin
Aspen River
CO-1 & CO-2
100 km
Paleorivers & Paleowatersheds
(~52.5 - 48.5 Ma)
DZ chronofacies boundary
Paleoriver/drainage
Possible paleoriver/drainage
CO-1
DZ chronofacies input
Anticlinal structure
Schematic surface geology
Approx. lake boundary
Cretaceous
Paleogene basins
Cambrian-Jurassic
Precambrian metasedimentary rocks
b)
~51.5 - 49.9 Ma
(Wilkins Peak Member Deposition)
Toya Puki River
Great Divide Basin
Wamsutter Arch
Rock Springs Uplift
WY-1
Lake Gosuite
Bridger Basin
Washakie Basin
Cherokee Ridge
UT-1 & UT-2
Sand Wash Basin
Aspen River
CO-1 & CO-2
c)
~49.9 - 48.5 Ma
(Laney Member Deposition)
ID-2
Idaho River
Lake Gosuite
Great Divide Basin
WY-1
Wamsutter Arch
Rock Springs Arch
Bridger Basin
Washakie Basin
Cherokee Ridge
UT-1 & UT-2
Sand Wash Basin
CO-1 & CO-2

Table 1

TABLE 1. DZ SAMPLES

Sample Name	Abbreviated Name	Latitude (°N)	Longitude (°W)	Member	N[†] (U-Pb)	YSG[§]	YSG_Ma ± α 1σ	YSG_Ma ± β 2σ	YC2_Ma[#]	YC2_Ma ± α 1σ	YC2_Ma ± β 2σ	YC2 MSWD	YC2 cluster size	YC3_Ma**	YC3_Ma ± α 2σ	YC3_Ma ± β 2σ	YC3 MSWD	YC3 cluster size	# Disc. Grains
						U-Pb MDA*													
This Study																			
17-BF-001	BF001	41.3527	-109.3339	Wasatch	185	**73.02**	0.78	1.02	73.76	0.48	0.82	0.78	3	74.21	0.43	0.79	1.93	4	15
19-DM-403	DM403	41.0724	-109.479	WPM	146	153.27	1.72	2.36	**307.45**	2.05	3.84	0.57	3	304.87	1.83	3.71	2.88	4	55
19-HR-392	HR392	41.0868	-107.8518	CBM	179	**55.78**	0.67	0.88	56.40	0.28	0.64	0.37	4	57.00	0.23	0.63	2.58	6	25
19-LM-405	LM405	41.0771	-109.3096	WPM	164	918.94	14.10	17.85	**931.28**	11.46	15.94	0.03	3	962.83	5.84	12.87	1.64	9	37
19-VC-395	VC395	40.8555	-108.5031	CBM	195	48.27	0.43	0.63	**55.61**	0.32	0.62	0.63	2	56.19	0.22	0.58	1.97	5	5
5-SC_18	5SC	41.2899	-109.3996	WPM	270	**55.1**	0.60	0.76	55.95	0.29	0.56	1.99	2	56.44	0.37	0.61	1.28	4	13
BC2_18	BC2	41.1164	-108.5597	CBM	276	**56.0**	0.80	0.98	56.75	0.54	0.79	0.54	5	57.19	0.30	0.65	1.41	7	31
LMRC2_18	LMRC2	41.068	-109.2854	WPM	278	307.8	0.70	2.96	**403.82**	0.38	3.79	0.81	2	995.60	5.61	10.87	1.12	10	36
MD1_20	MD1	41.4096	-108.056	Laney	251	35.11	0.94	1.05	**41.72**	0.32	0.64	0.18	3	42.20	0.26	0.62	1.75	5	N.A.
NFT2_18	NFT2	41.2245	-107.8093	CBM	293	**69.7**	1.00	1.17	69.98	0.66	0.89	0.14	2	71.95	0.30	0.69	1.57	11	18
PL3_18	PL3	41.0339	-109.5227	WPM	223	49.7	4.40	4.43	**330.37**	4.67	5.62	0.07	2	326.19	3.65	4.79	2.83	3	14
RR1_20	RR1	41.4334	-107.9935	CBM	262	45.49	0.68	0.86	**90.61**	0.59	1.20	0.82	3	91.84	0.44	1.15	2.46	6	N.A.
RR2_20	RR2	41.4334	-107.9945	Laney	267	41.88	1.81	1.90	**56.52**	1.51	1.68	1.69	2	75.55	0.69	1.21	1.65	8	N.A.
SB3_18	SB3	41.0773	-108.8638	WPM	296	**57.0**	1.00	1.08	57.35	0.66	0.77	0.21	4	57.90	0.30	0.51	1.21	6	18
SB7_18	SB7	41.0605	-108.9126	WPM	280	447.7	3.50	4.53	**932.59**	7.67	9.73	0.14	6	941.07	6.60	8.95	1.00	7	31
SC1_18	SC1	41.2899	-109.3996	WPM	301	50.2	5.60	5.62	**55.71**	7.53	7.55	0.93	2	56.41	0.42	0.64	1.69	4	13
TR-19-372	TR372	41.5424	-109.4822	WPM	178	**50.61**	0.59	0.77	51.11	0.33	0.60	0.67	3	51.11	0.33	0.60	0.67	3	25
Hammond et al., 2019																			
CC-16	CC	41.01033	-108.0272	CBM	113	**54.78**	1.05	1.52	55.37	0.79	1.36	0.76	2	57.27	0.48	1.24	2.04	6	N.A.
CR-148-16	CR148	41.00566	-107.923	CBM	118	**57.49**	1.22	1.68	58.64	0.73	1.38	0.63	4	58.64	0.59	1.31	0.63	4	N.A.
FH3_18	FH3	41.3515	-109.413	WPM	294	**55.3**	0.70	1.31	55.98	0.35	1.17	0.45	7	56.37	0.24	1.15	0.93	11	N.A.
HOR-16	HOR	41.09575	-107.8637	CBM	106	**56.17**	1.24	1.67	57.07	0.36	1.20	0.58	3	57.69	0.62	1.31	1.25	4	N.A.
MCP-16	MCP	41.08605	-107.9454	CBM	118	**55.04**	1.11	1.56	56.03	0.68	1.31	0.69	3	57.43	0.35	1.20	0.68	15	N.A.
SCD-16	SCD	41.09517	-107.9292	CBM	112	**56.37**	1.14	1.60	57.61	0.59	1.29	0.38	11	57.89	0.33	1.21	0.76	13	N.A.

*MDA data generated using detritalPy (Sharman et al., 2018).

[†]Number of analyses.

[§]Youngest single DZ grain age.

[#]Youngest cluster of two or more grain ages (n ≥ 2) overlapping in age at 1σ.

**Youngest cluster of three or more grain ages (n ≥ 3) overlapping in age at 2σ.

Table 2

TABLE 2. MDAs VS. DATED TUFF AGES

Sample Name	Stratigraphy	MDA (Ma)	Lower Tuff Bound	Tuff Age (Ma)*	± 2σ	Upper Tuff Bound	Tuff Age (Ma)	± 2σ
17-BF-001	Upper Wasatch Main Body	73.0	N.A.	N.A.	N.A.	Scheggs Bed	52.21	0.09
19-DM-403	WPM: ~I-bed equivalent	307.5	Layered Tuff	50.11	0.09	6th Tuff	49.92	0.1
19-HR-392	Upper Cathedral Bluffs	55.8	Layered Tuff	50.11	0.09	6th Tuff	49.92	0.1
19-LM-405	WPM: ~I-bed equivalent	931.3	Layered Tuff	50.11	0.09	6th Tuff	49.92	0.1
19-VC-395	Upper Cathedral Bluffs	55.6	Layered Tuff	50.11	0.09	6th Tuff	49.92	0.1
5-SC_18	WPM: G-Bed	55.1	Grey Tuff	50.86	0.21	Main Tuff	50.27	0.09
BC2_18	Upper Cathedral Bluffs	56.0	Layered Tuff	50.11	0.09	6th Tuff	49.92	0.1
FH3_18	WPM: D-Bed	55.3	Boar Tuff	51.13	0.24	Grey Tuff	50.86	0.21
LMRC2_18	WPM: ~A-bed equivalent	403.82	Rife Tuff	51.61	0.3	Firehole Tuff	51.40	0.21
MD1_20	Laney	41.7	6th Tuff	49.92	0.1	N.A.	N.A.	N.A.
NFT2_18	Upper Cathedral Bluffs	69.7	Layered Tuff	50.11	0.09	6th Tuff	49.92	0.1
PL3_18	WPM: ~I-bed equivalent	330.37	Layered Tuff	50.11	0.09	6th Tuff	49.92	0.1
RR1_20	Upper Cathedral Bluffs	90.6	Layered Tuff	50.11	0.09	6th Tuff	49.92	0.1
RR2_20	Laney	56.5	6th Tuff	49.92	0.1	N.A.	N.A.	N.A.
SB3_18	WPM: ~I-bed equivalent	57.0	Layered Tuff	50.11	0.09	6th Tuff	49.92	0.1
SB7_18	WPM: ~H-bed equivalent	932.59	Layered Tuff	50.11	0.09	6th Tuff	49.92	0.1
SC1_18	WPM: E-Bed	55.7	Grey Tuff	50.86	0.21	Main Tuff	50.27	0.09
TR-19-372	WPM: ~I-bed equivalent	50.6	Layered Tuff	50.11	0.09	6th Tuff	49.92	0.1

*From Smith et al., 2010

Table 3

TABLE 3. DZ PROVENANCE AGES*

DZ age population (Ma)	Most likely source(s)
3500 - 2500	Basement-cored, Laramide stuctures
2300 - 1800	Trans-hudson Province, Snowy Pass Supergroup
1800 - 1600	Yavapai and Mazatzal Provinces
1480 - 1340	A-type igneous plutons
1200 - 975	Grenville-Llano province
290 - 75	Cordilleran Magmatic Arc
75 - 50	Colorado Mineral Belt

*See Data Repository 6 for details

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Chapter 2

A tale of two rivers: a comparative analysis of the Aspen and Idaho paleorivers

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ABSTRACT

This study seeks a more holistic understanding of the Greater Green River Basin in southwest Wyoming by offering a comparative analysis of Eocene deposits representing the influent Idaho and Aspen Rivers. Grain sizes found in Idaho River deposits are, on average, larger than those in Aspen River deposits, yet channel dimensions measured for both systems suggest similar-sized rivers. This is likely a function of larger grains in the Aspen River system being sequestered in up-system sub-basins, especially the Sand Wash sub-basin. Within Aspen River deposits, sub- versus critical and super-critical flow structures suggest a duality of Aspen River expression, likely indicating astronomically mediated climatic influence and corroborating previous work (e.g., Meyers, 2008; Aswasereelert et al., 2013; Smith et al., 2014b; Bruck et al., 2023). The same duality of expression is not present in Idaho River deposits indicating a change in astronomical forcing between the existence of the two rivers, or a fundamental difference in signal propagation through each sediment routing system. Sub-critical sedimentary structures in Idaho River deposits suggest the latter as they indicate that the Idaho River was a more consistent, and thus important, hydrologic source to Eocene Lake Gosiute. Finally, based on the previously modeled semi-arid climate of the Eocene Greater Green River Basin, and relative to known watershed limits for each river, predicted watersheds using regional hydraulic curves were significantly larger than expected. This is likely a result of substantially wetter catchments for both systems at higher elevations in both the Cordillera and Laramide foreland.

INTRODUCTION

The intermontane American West is uniquely defined by the enigmatic tectonic interplay between Laramide-style block uplifting as well as folding and thrusting associated with Sevier tectonics. These two events imparted dramatic changes on the Paleogene landscape, and understanding the implications thereof has been a focus of geologic research for decades (J. D. Love, 1961; Atwater, 1970; Dickinson and Snyder, 1978; Dickinson et al., 1988; DeCelles and Giles, 1996; Bird, 1998; DeCelles, 2004; Dickinson and Gehrels, 2008; Yonkee and Weil, 2015). The relative elevation of orogenic uplifts like the Laramide foreland and Sevier-driven western U.S. Cordillera exert important first-order controls on both erosion rates (and thus sedimentation) and regional atmospheric circulation (e.g., Molnar, 2005; Horton, 2018), and, as a result, have long been debated (e.g., Norris et al., 1996; Davis et al., 2008, 2009; Chamberlain et al., 2012; Smith et al., 2014a; Cassel et al., 2018; Gao and Fan, 2018; Canada et al., 2019). Understanding the nature of these uplifts, therefore, enables a more holistic understanding of landscape evolution as well as regional climate trends of the intermontane west of North America.

Lacustrine sediments record high-resolution records of the environments within which they are deposited and can offer unparalleled opportunities to understand systematic responses to allogenic drivers like shifts in climate and tectonics (e.g., Astin, 1990; Roehler, 1993; Rhodes et al., 2002; Melles et al., 2012; Chamberlain et al., 2013; Cohen et al., 2015; Lyons et al., 2015; Meyer et al., 2020). Accordingly, lakes have been the focus of substantial research in both the modern and the ancient. A preeminent example is the Eocene Green River Formation (GRF) of Wyoming, Utah, and Colorado (e.g., Bradley, 1964; Roehler, 1993; Carroll and Bohacs, 1999; Rhodes et al., 2002; Smith et al., 2003, 2014b, 2015; Walters et al., 2023; Bruck et al., 2023). Deposited within a vast lake system that existed during a time punctuated by global hyperthermal events including the Eocene Climatic Optimum (EECO) (Zachos et al., 2008), the GRF offers the highest resolution terrestrial record of the early Eocene — a time often considered analogous to climate change today (e.g., Lourens et al., 2005; Nicolo et al., 2007; Zachos et al., 2010; Sexton et al., 2011; Hyland and Sheldon, 2013; Lauretano et al., 2016). Moreover, the Eocene Greater Green River Basin (GGRB) lies near the boundary of the western U.S. Cordillera and the adjacent Laramide foreland, capturing drainage from both, thus offering the opportunity to assess differences between the two uplifted regions (Fig. 1).

Yet a potential drawback to the lacustrine record is its tendency to average the signals of influent drivers. This is especially true of larger lake systems with more than one hydrologic source, and ancient systems wherein reworking of lacustrine sediment before analysis is more likely. For example, the GGRB of southwest Wyoming represented the terminal sink for two regional river systems during the early Eocene: the Idaho River and the Aspen River (Fig. 1; Chetel et al., 2011; Smith et al., 2014b; Hammond et al., 2019; Honig et al., 2020; Parrish et al., 2023). The Idaho River, sourced from central Idaho (i.e., the U.S. western Cordillera) flowed into the basin from the northwest, while the Aspen River, sourced from central Colorado (i.e., the Laramide foreland) entered from the southeast. Unique signals from these catchments, therefore, were mixed in Lake Gosiute resulting in a signal-to-noise ratio that may preclude detection in the lacustrine record.

A comprehensive understanding of the hydrologic sources to a basin is therefore vital to contextualizing the lacustrine record therein. Here a more holistic, source-to-sink (S2S) approach is warranted, which embraces the totality of a sediment routing system and considers each segment of the system as being dynamically connected and dependent on those neighboring it (Einsele and Hinderer, 1998; Sømme et al., 2009; Hinderer, 2012; Helland-Hansen et al., 2016; Romans et al., 2016; Allen, 2017). This study seeks a more holistic understanding of the GGRB through a comparative analysis of the Aspen and

Idaho rivers, thus offering a unique perspective on the impact of paleorivers on the hydrologic evolution of an important paleolake, as well as on the complex orogenic topography of its watershed.

GEOLOGIC SETTING

Since the end of the Cretaceous, the intermontane American West has experienced dramatic tectonic changes, especially in the form of the abrupt onset and subsequent denudation of the Nevadaplano (DeCelles, 2004; Chamberlain et al., 2012), as well as Miocene basin and range extensional tectonics (Dickinson, 2002). The Idaho River watershed in central Idaho offers a representative glimpse of the complex geologic history since the Mesozoic. Several tectonomagmatic events influenced watershed evolution, including Cretaceous and Cenozoic interplay between tectonics of the Sevier fold and thrust belt and Laramide block-faulting, Late Cretaceous and Cenozoic hinterland igneous activity and regional uplift, the Paleogene shift from compressional to extensional tectonics in the western United States, and the resultant metamorphic core complexes that ensued (Chetel et al., 2011; Honig et al., 2020 and references therein).

The Aspen River, conversely, was sourced from headwaters draining what is now central Colorado (Hammond et al., 2019; Parrish et al., 2023). Broadly, central Colorado represents a tectonomagmatic history beginning with juvenile crust and island-arc accretion of the Yavapai (1.8–1.7 Ga) and Mazatzal (1.7–1.65 Ga) provinces before the Mesoproterozoic intrusion of anorogenic igneous rocks (Van Schmus et al., 1996; Whitmeyer and Karlstrom, 2007). Thereafter, the region underwent Paleozoic and Mesozoic sedimentary cycling, including the uplift and denudation of the ancestral Rockies, Jurassic erg formation, Cretaceous and Eocene Laramide uplift (Dickinson and Snyder, 1978; Bird, 1984; DeCelles, 2004; Davis et al., 2009; Christie-Blick et al., 2015; DeCelles and Graham, 2015; Yonkee and Weil, 2015), and finally, Eocene volcanic activity resulting in the Colorado Mineral Belt (Chapin, 2012).

In Wyoming, the Green River Formation (GRF) was deposited between 53.5 and 48.5 Ma in paleolake Gosiute which, at its most expanded state, occupied several regional basins that comprise the Greater Green River Basin (GGRB). These sub-basins include the Bridger, Great Divide, Washakie, and Sand Wash sub-basins (Fig. 1). In the Bridger sub-basin, which serves as the GGRB's ultimate sink, the GRF is comprised of the Luman tongue, the Tipton Member, the Wilkins Peak Member, and the Laney Member (Fig. 2) (Roehler, 1993; Smith et al., 2003, 2010). These strata record the system's evolution from overfilled (Luman tongue) to balanced filled (Tipton Member) to underfilled (Wilkins Peak Member) and back to balanced/overfilled (Laney/Sand Butte bed of the Laney) (Carroll and Bohacs, 1999). The GRF lies atop the mixed lacustrine, paludal and fluviatile facies of the Wasatch Formation Main Body (Bradley, 1964; Roehler, 1969; Sullivan, 1985). The GGRB formed when Laramide tectonics, in conjunction with tectonics associated with the Sevier fold and thrust belt dissected the landscape throughout the current central Rocky Mountain region, transforming it into a series of discrete, hydrologically isolated, "fault-bounded" non-marine basins (Weimer, 1960; Dickinson and Snyder, 1978; Bird, 1984, 1998; Dickinson et al., 1988; DeCelles, 2004). These basins provided a sink for large and dynamically evolving watersheds (Smith et al., 2014b; Parrish et al., 2023). Several regional-scale paleorivers have been proposed as inputs to lakes that occupied the Uinta, Piceance, and Greater Green River Basins, including the Idaho River (Chetel et al., 2011; Honig et al., 2020), the California River (Davis et al., 2010), and the Aspen River (Smith et al., 2014b; Hammond et al., 2019; Parrish et al., 2023). Previous provenance work based on detrital zircon geochronology, paleocurrent analysis, and petrographic thin-section analysis by Hammond et al. and Parrish et al. (2019 and 2023) suggests that the headwaters of the Aspen River were sourced in central Colorado during the early Eocene. Similar work by Chetel et al. and Honig et al. (2011 and 2020) identified north central Idaho as the likely provenance of the Idaho River. From their respective catchments, both the Idaho and Aspen rivers emptied into the GGRB which, at ~50,000 km^2, resulted in both rivers distributing sediment across 100s of km^2 (Fig. 1). Deposits associated with each distributive fluvial system (DFS) (e.g., Weissmann et al., 2010) provide the basis of this study.

Despite its continentality and orographic isolation, the fossil record from the GRF suggests a subhumid climate in the Laramide foreland with temperatures remaining above freezing year-round (Wilf, 2000; Smith et al., 2015). Yet, regional climate modeling of the early Eocene suggests that the structural features responsible for hydrologically isolating the GGRB also worked as barriers to the lateral advection of atmospheric moisture (Sewall and Sloan, 2006). Specifically, modeling suggests that the GGRB was mostly isolated from Pacific moisture and thus received the bulk of its influent precipitation from cyclonal semi-monsoonal airflow originating in the Gulf of Mexico. Despite this, and similar to today, the Front Range of Colorado and Wyoming, though not to the same degree as the uplifted Sevier foreland, also appears to have provided an orographic barrier to moisture from the Southeast (Sewall and Sloan, 2006), indicating a more arid Eocene climate in the GGRB (Smith et al., 2014b).

METHODS

Field Data

Outcrop Analysis

At four key outcrop localities – Sand Creek Delta (SCD), Scrivner Butte

(SB), Firehole Canyon (FHC), and Little Mesa (LM) – measured sections, detailed sedimentary observations, and annotated photos were all collected (Figs. 3-6). Stratigraphic sections were measured at the decimeter scale (App. B1). High-resolution outcrop photos were shot with either a DJI Phantom 4 Unmanned Aerial Vehicle or a handheld Nikon Z6II mirrorless camera and stitched together in Adobe Photoshop. Outcrop-scale image annotations were made in the field using an iPad Pro and Procreate software. Smaller-scale feature annotations, sedimentary feature observations, and orientation data acquisition were all conducted within StraboSpot. Channelized sand percentages were calculated from measured sections where both channelized sand and overbank/lacustrine fines were adequately represented. When surrounding fine-grained facies were not adequately represented in the observed outcrop, analogous measured sections were used to calculate channelized sand percentages.

3D Model Image Acquisition

At each locality, 3D models were generated from acquired imagery using Agisoft Metashape, and then exported to Virtual Reality Geological Studio (VRGS) for annotation and analysis. Each 3D model represents 100s of still images acquired with a DJI Phantom 4 Unmanned Aerial Vehicle or a handheld Nikon Z6II mirrorless camera. Both methods captured GPS data on an image-by-image basis. When possible, imagery was shot on cloudy days to minimize the contrast between sunny and shady areas on outcrops. All camera settings were manually controlled to optimize image quality.

Paleohydraulic Measurements

In addition to field observations, bar heights (B_H) were measured from representative 3D photogrammetric models for three outcrop localities. Bankfull flow widths (B_{bf}), paleoslopes (S), and catchment areas (D_a) were then calculated

(Table 1).

Bankfull Flow Width (B_{bf})

In their 2021 publication, Greenberg et al. used Bayesian linear regression analysis to derive a relationship between bankfull flow width (B_{bf}) and bar width (W_{bar}) (therein called "point-bar surface width"). Using their methods B_{bf} is expressed as:

$$(1) \quad B_{bf} = (2.34 \pm 0.13)W_{bar}$$

Paleoslope (S)

Trampush et al. (2014) developed a methodology to estimate paleoslope (S) based on Bayesian regression analysis of bankfull measurements in modern alluvial rivers (n = 541). Using their methods, paleoslope (S) is expressed as:

$$(2) \quad logS = \alpha_0 + \alpha_1 logD_{50} + \alpha_2 logH$$

where the constants are given by $\alpha_0 = -2.08 \pm 0.036$, $\alpha_1 = 0.254 \pm 0.016$, and $\alpha_2 = -1.09 \pm 0.044$.

Catchment Area (D_a)

The catchment area for each system was calculated using regional hydraulic geometry curves after Davidson and North (2009):

$$(3) \quad H = aD_A^{\,b}$$

where H = channel depth and D_A = drainage area. The constants, *a* and *b*, are empirically determined using survey and stream gauge data from analog catchment areas (Davidson and North, 2009 and references therein). Drainage-area calculations need to be done for the primary trunk channel of the drainage network (Bridge and Tye, 2000; Davidson and North, 2009). Here, maximum measured channel depths are used to minimize the risk of using smaller or tributary channels. Calculations based on these curves assume substantial uncertainty due to inherent uncertainties in channel depth measurement, uncertainties in paleoclimate approximation, as well as the limitations of applicable published regional hydraulic curves. As such, and based on the range of proposed climates for the GGRB, a range of hydraulic geometry curves representing potentially representative climate settings have been used to calculate drainage areas for each catchment area (Table 1). These curves include 1) “humid, sub-tropical” – a humid, subtropical climate with year-round precipitation 2) “continental” – an amalgamation of dry summer continental climates with seasonal precipitation and humid continental climates with year-round precipitation, and 3) “semi-arid” – a semi-arid climate with seasonal precipitation (Davidson and North, 2009 and references therein).

RESULTS

Representative Lithofacies

Firehole Canyon (FHC)

At FHC both outcropping sands (the “upper” and “lower” sands) are less than three stories thick and lenticular. Both sand bodies are erosionally based, thin toward their margins, and are laterally continuous on scales of 10s of meters (Fig. 3). The “upper sand” is dominated by thin (cm-scale) convex-up, low-angle, and rippled bedding (facies Sla, Sr; Fig. 7F; Table 2). The lower sand, by contrast, is predominantly characterized by laterally accreting clinoforms comprised of low-angle and rippled (predominantly climbing ripples) well-sorted, fine to medium-grained, arkosic sand (facies Sla and Srl; Fig. 7E; Table 2).

Since the modeled outcrop of the D-bed in FHC does not adequately represent fine-grained strata, a representative section in the neighboring canyon was used to calculate the channelized sand percentage (Fig. 1b). Channelized sand in Sage Creek Canyon (and by proxy FHC) comprised 23% of the measured stratigraphy (Table 3).

Scrivner Butte (SB)

At SB, channelized sandstone facies are predominantly characterized by planar and low-angle laminations as well as highly bioturbated and massive stratification of very fine to fine, well-sorted, sub-rounded, arkosic sand (facies Spp, Sla, and Sm; Fig. 7D; Table 2). Channelized sand at SB comprised 24% of the measured stratigraphy (Fig. 4; Table 3).

Sand Creek Delta (SCD)

Channelized sands at SCD are bimodal. The “upper sand” is a poorly-sorted arkose characterized by pebble lags throughout. Grain sizes range from medium to granule sized and structures are almost exclusively dm-scale, trough-cross stratification (facies Stx; Fig. 7C; Table 2). The upper sand is laterally continuous for 10s to 100s of meters and thins gradually towards its margins (Fig. 5).

The lower sand is characterized by dm-scale clinoforms dipping up to 20° to the SE, comprised of well-sorted, fine to medium-sized sand, with variable sedimentary structures including planar and low-angle bedding, unidirectional ripples, and trough-cross stratification (facies Spp, Sla, Sr, and Stx; Table 2). It is laterally continuous for ~20-30 meters. A representative section that captured both channelized sands and surrounding fines was not attainable at the SCD locality, as such channelized sand percentages were not calculated.

Little Mesa (LM)

Channelized sands at the Little Mesa locality are multi-story sand bodies that characteristically sit atop an intraclast conglomerate (Fig. 6). Conglomeratic facies and pebble lags are common within the characteristic medium- to coarse-grained, dm- to m-scale trough-cross stratification (facies Stx; Fig. 7A&B). Other common facies include plane-parallel bedding, low-angle bedding, and conglomerate deposits (facies Spp, Sla, Gmm, Gmpp; Table 2). Channelized sand at LM comprised 50% of the measured stratigraphy (Fig. 6; Table 3).

Channel Geometries

Average channel heights for Aspen paleoriver deposits ranged from 3.7 m at SB to 4.6 m at FHC. The average channel height measured for Idaho River deposits was 4.5 m at LM. Aspen River flow widths ranged from 24.3 m at SB to 36.6 m at FHC. Calculated flow widths at the LM locality averaged 40.8 m wide. Measurable clinoforms at the SCD locality were not reliably discernable from the 3D model. Further work would therefore be required to obtain channel geometry data for SCD (e.g., Lyster et al., 2021 and references therein).

Paleogeomorphic Calculations

Paleoslopes are presented as y/x m. For example, a paleoslope of $1 \cdot 10^{-3}$ results in an elevation decrease of 1 m per 1000 m. Calculated paleoslopes for Aspen River deposits were shallowest at FHC with a slope of $2.1 \cdot 10^{-4}$, and steepest at SB with a slope of $2.29 \cdot 10^{-4}$. The calculated paleoslope at the Little Mesa outcrop was $2.16 \cdot 10^{-4}$ (Table 1).

Calculated catchment areas across three different climate zones ranged from 20,297 km^2 to 1,033,794 km^2 for the Aspen River and from 66,543 km^2 to 1,131,844 km^2 for the Idaho River (Table 1).

DISCUSSION

Depositional Model

Aspen River

At the SCD locality, the lower sand, based on its dipping clinoforms and lateral evolution of tractive flow structures (e.g., Stx and Sr) into suspension-deposited structures (e.g., Spp and Sm) is interpreted as a small delta (Figs. 5 & 7). The upper sand, as evidenced by its larger grain sizes and ubiquitous trough-cross stratification, is interpreted as a channel of the Aspen River. Here then, two expressions of the Aspen DFS's relationship to the lake are recognized. First, the lower sand represents deltaic deposition during an expanded phase of Lake Gosiute (Smoot, 1983; Roehler, 1992, 1993; Pietras and Carroll, 2006; Aswasereelert et al., 2013; Smith et al., 2014b), though this could alternatively represent deltaic deposition into an ephemeral lacustrine body within the Washakie sub-basin. Second, the upper sand represents the Aspen River during a Gosiute lowstand as an established river channel deposited amalgamated sands. There is a notable difference in sedimentary structures at SCD relative to structures at FHC and SB (discussed below) suggesting a fundamental difference in the fluvial character of the river at SCD. This, in part, is likely a function of SCD's relative location within the Aspen DFS. Amalgamated, trough-cross-bedded channel belt facies are typical of proximal and medial DFS lithofacies (Owen et al., 2015), though, based on the limited vertical stacking of the upper sand, it is most likely that SCD represents a medial locality within the Aspen DFS (Owen et al., 2015). Sub-critical flow structures (e.g. trough-cross stratification) are often interpreted to be indicative of perennial rivers (e.g., Birgenheier et al., 2020), though the recognition of poor sorting, variable paleocurrents, and pebble lags are conversely interpreted as deposition from a river that experienced seasonal flashy discharge (Owen et al., 2015 and references therein). It may therefore be that the fluvial deposits of the "upper sand" at SCD represent a combination thereof – a more established (potentially perennial) system that was seasonally subject to monsoonal flooding.

The predominance of planar and low-angle stratification at SB (Figs. 4 &

7) may suggest critical to super-critical flow conditions indicative of variable discharge flooding events (e.g., Wang and Plink-Björklund, 2019; Birgenheier et al., 2020). Moreover, Froude critical and supercritical flow deposits have been linked to dryland rivers, humid, subtropical conditions, and monsoonally influenced rivers (Wang and Plink-Björklund, 2019 and references therein). Common to rivers across these settings are significant seasonal discharge variability, high peak flows, and rapid changes in flow such that flood-stage can be supercritical and falling-stage too brief to rework flood-stage deposits (Lang et al., 2004; Fielding, 2006; McCarthy, 2013; Plink-Björklund, 2015; Sala et al., 2020). This interpretation of sedimentary structures observed at SB is in line with the hypothesized climate within the proposed catchment of the Aspen River as it flowed out of a region influenced by a Gulf of Mexico-driven monsoon (Sewall and Sloan, 2006).

Furthest down-system, at the FHC locality (Figs. 3 & 7), the predominance of high-deposition, lower flow-regime structures (e.g., climbing ripples) within laterally accreted clinoforms in the “lower sand” suggests rapid deposition in an established channel, followed by relative local hydrologic quiescence as indicated by bounding floodplain deposits. The “upper sand”, characterized by m-scale, convex-up, low-angle, and rippled sand lamina proves more enigmatic (Fig. 7F). One possibility is that similar to deposits at SB, the upper sand at FHC represents critical and super-critical flow (e.g., Fielding, 2006; Cartigny et al., 2014; Birgenheier et al., 2020). The differences observed between the upper and lower sands at FHC are reminiscent of observed differences in Jurassic and age-equivalent Eocene deposits described in the Uinta basin by both Wang and Plink-Björklund (2019) as well as Birgenheieer et al. (2020), respectively. Specifically, Biregenheir et al. identify two separate fluvial facies (F1.1 and F2.2) differentiated based on sub-and super-critical deposition which they attribute to differences in deposition imparted by changes in climate. Wang and Plink-Björklund recognize similar critical and super-critical flow structures (facies 1.2-1.5) and interpret them as indicative of climate-mediated seasonal flooding (2019). The single-story and isolated nature of channels at FHC and SB suggests minimal avulsion reoccupation and thus low channel return frequency (Hajek and Edmonds, 2014; Chamberlin and Hajek, 2015). While this is almost certainly influenced by variable seasonal discharge, this could also be a function of relative location within the DFS. Previous research recognizes a correlation between channelized sand percentages and relative location within a DFS (Table 3; Owen et al., 2015; Wang and Plink-Björklund, 2019). Channelized sand percentages for FHC and SB (23% and 24% respectively) suggest that both localities represent relatively distal deposition within an Aspen River DFS. The erosionally based, lenticular sand bodies of the “upper sand” at FHC and deposits at SB are thus interpreted as isolated channels within surrounding floodplain and/or lacustrine deposits wherein deposition was dominated by climatically mediated, episodic flooding events. Yet, the sub-critical structures observed in the “lower sand” at FHC and deposits at SCD suggest more established fluvial systems (Fig. 7C&E).

Idaho River

The predominance of trough-cross bedding at LM suggests channelized fluvial deposition in subcritical flow (Figs. 6 & 7). Like the “upper sand” at SCD, it is suggestive of a more established fluvial system (e.g., Birgenheier et al., 2020). Yet, the presence of conglomeratic facies, local low-angle and planer bedding, poor sorting, and pebble lags throughout may be indicative of variable discharge (e.g., Fielding, 2006; Owen et al., 2015; Wang and Plink-Björklund, 2019). In addition to the notable difference in mean grain size observed between the Idaho and Aspen Rivers, another significant difference is the multi-story nature of channels at LM. Relative to the minimal vertical aggradation at Aspen River localities, multi-story sand bodies at LM are on the scale of 10s of meters suggesting frequent avulsion reoccupation (Fig. 6; Hajek and Edmonds, 2014; Chamberlin and Hajek, 2015). Moreover, channelized sand percentages at LM were measured at 50% implying a relatively proximal position within the Idaho River DFS (Table 3; Owen et al., 2015).

Finally, though a distinct bi-modality of lithofacies was observed in Aspen River deposits, the same is not true of Idaho River deposits. The implication herein is that whatever signal driver was moderating the Aspen River, it had no discernible influence on Idaho River deposits. This could be a function of the limitations of outcrops representing the Idaho River or even the scale of outcrop analysis in this study. Alternatively, it could also be the relative lack of signal influencing the Idaho system or a difference in signal propagation through each sediment routing system.

Grain Size Differences

Within channelized sand bodies, the mean and maximum grain size is notably larger for Idaho River deposits than for Aspen River deposits (Fig. 7A; Table 1; Chetel et al., 2011; Hammond et al., 2019; Honig et al., 2020; Parrish et al., 2023). This difference could result from several different causes. One possible cause could be a difference in the grain size mix of the sediment supply to the two rivers. The grain-size characteristics of the sediment supply, which are largely controlled by catchment lithology, impart a first-order control on grain size trends and sedimentary architectures downstream (Allen et al., 2015). Therefore, if the Idaho River's catchment had higher fractions of resistant metamorphic and igneous lithologies, larger grain sizes might be expected relative to a catchment lacking such lithologies. Both catchments contain resistant lithologies, including the Challis and Absaroka volcanics drained by the Idaho River and Proterozoic metamorphic rocks drained by the Aspen River. However, the Idaho River headwaters also include thick, structurally imbricated sedimentary deposits associated with a Paleozoic passive margin and Mesozoic foreland basin. Equivalent strata are an order of magnitude thinner in the Aspen River headwaters. Larger grain sizes associated with the Idaho River therefore cannot be confidently attributed to differences in catchment lithology.

A second potential explanation for grain size differences could be the representative outcrop's relative distance along the sediment routing system. For example, if the Little Mesa locality is relatively further upstream than outcrop localities representing the Aspen River, it may still be within the system's gravel front, thus explaining the presence of pebble-sized grains (e.g., Michael et al., 2014). Downstream-fining relationships cannot be directly evaluated based on data from a single locality, but distance from basin center (Table 1) permits a first-order comparison of the two river systems. This distance is similar for both the Little Mesa and Sand Creek Delta localities, suggesting that downstream fining may not fully account for their grain size difference. Moreover, the Idaho River was significantly longer than the Aspen River (~550 and ~370 km, respectively) (Fig. 1), and therefore represents sand potentially transported 100s of km further than sand in the Aspen River.

A third interpretation of the grain size disparity could be the sequestration of coarser fractions in the Aspen fluvial system in upstream sub-basins. Enroute to its terminal sink (Lake Gosiute), the Aspen River encountered first the Sand Wash and then the Washakie sub-basins (Smith et al., 2014b; Hammond et al., 2019; Parrish et al., 2023), the former especially would have provided accommodation and a means of sequestering larger grains, thus leaving a smaller grain size fraction for distribution to downstream sub-basins. However, this hypothesis is difficult to fully evaluate due to the presence of younger cover strata in the upstream sub-basins.

A fourth interpretation of the grain size disparity is the differences in stream power of the two rivers. By virtue of deeper and more powerful peak flows, larger rivers are capable of transporting larger grain sizes. A system-scale size difference between the Aspen and Idaho rivers is supported by previous regional geological, geochemical, and sedimentary provenance analysis (Carroll et al., 2008; Doebbert et al., 2010; Chetel et al., 2011; Smith et al., 2014b; Hammond et al., 2019; Honig et al., 2020; Parrish et al., 2023). Although subject to large uncertainties, the reconstructed catchment area of the Idaho River appears to be approximately three times that of the Aspen River (Fig. 8; Table 1). Catchment area generally correlates with both point bar thickness and bankfull discharge in compilations of modern rivers (Blum et al., 2013 and references therein). The Idaho River might thus have been capable of transporting larger clasts than the Aspen River. However, channel height measurements for the Idaho River (at LM) and Aspen River (at FHC) are indistinguishable at $\pm 1\sigma$ (Table 1). Average flow widths, paleoslopes, and drainage areas derived from these measurements therefore do not support significantly different discharge magnitudes for the two paleorivers.

Modern Analogs

Modern rivers that terminate in endorheic basins offer analogs that may provide useful insights into the nature of the Idaho and Aspen Rivers. Three potentially instructive examples include the Ili River, which terminates in Lake Balkhash in Kazhakstan, the Neales River, which terminates in Lake Eyre in Australia (Croke et al., 1998; Lang et al., 2004), and the Okavango River, which terminates in the Okavango Delta in Botswana (McCarthy, 2013). Calculated paleoslopes for both the Aspen and Idaho rivers are comparable to known gradients for the end reaches of all three of these analogs (Table 1), and are broadly characteristic of lowland rivers (Blum et al., 2013; Lyster et al., 2021). Measured channel geometries in Aspen and Idaho river deposits are also comparable to channel geometries of the Okavango and Neales river systems (measured geometries were not found for the Ili River). The Okavango has measured channel depths ranging from 3 to 7 m representative of pre-fan and upper DFS localities, and the Neales River has measured channel depths ranging from 2.5 to 5 m in main-trunk measurements (Table 1; Lang et al., 2004; McCarthy, 2013). Blum et al. (2013) show a correlation between bankfull discharge and drainage area ($r^2 = 0.944$). Therefore, based on observed similarities to modern analogs in both paleoslope and channel geometries, the expectation is that estimated drainage areas for the two Eocene systems would also be similar.

For both the Aspen and the Idaho rivers, however, geologically reconstructed drainage areas are much smaller than predicted based on the relationship between drainage area and discharge of modern rivers occupying semi-arid regions (Table 1; Fig. 8; Davidson and North, 2009). Reconstructed drainage areas are also much smaller than those of the Okavango and Ili Rivers. Several factors might explain these observations. The reconstructed drainage could be too small due to limited preservation or outcrop exposure of fluvial deposits, insufficient provenance sampling resolution, masking of provenance signatures due to sedimentary recycling, or other causes. Alternatively, climate in the region may have been sub-humid as previously inferred by Wilf et al. (2000), rather than semi-arid (e.g., Sewall and Sloan, 2006; Smith et al., 2014b). Perhaps most importantly, portions of the drainage area may have stood substantially above the lowland termini of the Idaho and Aspen Rivers. Previous studies have suggested that portions of the drainage area for the Idaho River were 2 km or more above Lake Gosiute (Carroll et al., 2008; Doebbert et al., 2010), and therefore would have experienced much higher precipitation rates than the adjacent lowlands.

Climatic Implications

Astronomic influence on the deposition of GRF deposits is well documented. Most notably this is observed in the cyclicity of the characteristic "A-I" arkose beds – of which the FHC locality (this study) represents the "D" bed (Culbertson, 1961; Meyers, 2008; Smith et al., 2010, 2014b; Aswasereelert et al., 2013; Machlus et al., 2015; Bruck et al., 2023). In a study assessing the astronomic cyclicity of the "A-I" arkose beds, Bruck et al. (2023) hypothesized that increasing eccentricity enhanced the delivery of lowstand alluvial sediment possibly due to increased "monsoon-like" precipitation (2023). The implication therein is an augmentation of the status quo imparted on the depositional system by astronomic changes. In this case, Bruck et al. argue that an increase in eccentricity elevates a "monsoon-like" condition, suggesting not only that the increase in eccentricity increases monsoonal precipitation, but also that it exacerbates the dry season. The bi-modality observed in the Aspen River system may therefore be indicative of an astronomically-driven climate signal wherein increases in eccentricity exaggerate monsoonal seasonality resulting in critical and super-critical fluvial deposits indicative of variable, high-discharge flood events (e.g., SB and the upper sand at FHC), and decreases in eccentricity return the system to a relatively less exaggerated state wherein a more consistent (perennial?) system, as indicated by subcritical sedimentary structures could establish itself (e.g., SCD and the lower sand at FHC).

Yet the same climatic-driven bi-modality is not observed in Idaho River deposits. One possibility could be that the astronomic signal responsible for modulating Aspen River deposition was weaker or not present during the deposition of the Alkali Creek Member. The Alkali Creek Member of the Green

River Formation represents deposition between ~52.5 and ~51.5 Ma. The A-I beds are found within the Wilkins Peak Member of the Green River Formation which was deposited between ~51.5 and ~50 Ma. Given the age difference between the two members, the astronomic signal may simply have been too weak during the deposition of the Alkali Creek Member and then strengthened prior to deposition of the Wilkins Peak Member. This hypothesis is supported by the increase in frequency and strength of hyperthermal events around ~51.5 Ma relative to the previous 1 m.y. (Lauretano et al., 2018; Bruck et al., 2023).

There is also the possibility that the lack of an astronomic signal in Idaho River deposits is less a function of the astronomical signal as it is a reflection of inherent climatic differences between the watersheds – namely, the differences in patterns of precipitation. While both rivers terminated into a semi-arid to sub-humid lake Gosiute (Wilf, 2000; Sewall and Sloan, 2006; Smith et al., 2015), they sourced areas of notably different climates. If, for example, the Aspen River were a perennial river sourcing an area with seasonal changes in precipitation, such variability would be augmented by orbitally-paced climate variability resulting in a strong signal-to-noise ratio. Moreover, if the Idaho River sourced an area less influenced by seasonal changes in precipitation, orbitally-paced variability might be drowned out by the more consistent, regional climate signal, resulting in a weak signal-to-noise ratio. This interpretation is supported by climate modeling by Sewall and Sloan (2006). Based on a regional climate model, they identified a monsoonal trend imparting a significant seasonal influence on the Front Range, peaking in June, July, and August. This seasonal variability would have directly influenced the Aspen River headwaters and thus exaggerated any orbital signal (Sewall and Sloan, 2006). They additionally recognized that relatively heavier precipitation in the Northwest (i.e. the Idaho River headwaters), came predominantly as winter snow and that, due to the high elevations of the Cordillera at the time, snowpack (and thus runoff) persisted throughout the summer. As such, the Idaho River would have been a much more seasonally consistent system which may have precluded an orbitally-paced influence on the river, and by extension, its influence on Lake Gosiute. The implication, therefore, is that the hydrologic budget of Lake Gosiute was much more dependent on the Idaho River than the Aspen River.

Landscape Evolution

This unequal influence by each fluvial system on Lake Gosiute is corroborated by previous research on the provenance of the Idaho River. Using detrital zircon provenance analysis, Honig et al. (2020) recognized the disappearance and reappearance of Idaho River deposits in Bridger Basin between ~51.6 and 49.9 Ma. As the dominant hydrologic source of Lake Gosiute, the disappearance of the Idaho River dramatically affected the lake as evidenced by the evolution of Lake Gosiute from a balanced-filled to an under-filled lake (Carroll and Bohacs, 1999). Moreover, Hammond et al. (2019) argue that the formation of trona, a relatively rare non-marine evaporite found in the Wilkins Peak Member of the Green River Formation that requires unusually alkaline parent waters, was made possible by excess alkalinity sourced from central CO by the Aspen River. Recognizing a ~3-4 m.y. lag between the youngest detrital zircon ages connecting the Bridger sub-basin to the Colorado Mineral Belt and evaporite deposition onset, Hammond et al. cite the timing of hydrothermal activity in the Colorado Mineral Belt, zircon inheritance, zircon fertility, and unroofing times as potential explanations for the offset. Another plausible explanation might be that the alkalinity sourced by the Aspen River remained more or less constant and that the onset of evaporite deposition was triggered by the cessation of the Idaho River which would have diluted any alkaline influence by the Aspen. By this reasoning, the lag time becomes a non-issue as alkalinity in Lake Gosiute builds not as a function of changes in the Aspen River watershed, but as a function of the dramatic hydrologic change engendered by the cessation of the more hydrologically influential Idaho River.

In a geologic instance of irony, the cessation of the Idaho River to Lake Gosiute may, in addition to enabling the deposition of bedded trona, also have been responsible (or partly so) for its short tenure in the Wilkins Peak Member. Walters et al. (2023) suggest that a tectonically induced environmental shift in the GGRB reduced accommodation and thus precluded bedded evaporite formation which requires deeper, stratified water (Demicco and Lowenstein, 2019; Walters et al., 2023). This environmental shift and subsequent change in “transfer function” might also be attributed to the cessation of the Idaho River. If the formation of the bedded evaporite requires excessively alkaline and deep water, the “Goldilocks” environment would have evolved as soon as alkalinity, sourced from the Aspen River, reached requisite levels, and depth, as controlled by the Aspen and late Idaho Rivers, remained significantly deep. With the cessation of the Idaho, however, the underfilled lake would have slowly shallowed. This shallowing may have, as Walters et al. (2023) argued, been a function of a tectonically moderated reduction in accommodation. Alternatively, it could also have been a function of evaporative output outpacing Aspen River input to a point where a critical threshold was reached and regardless of alkalinity, depth conditions were such that bedded evaporite deposition was not possible.

CONCLUSIONS

Comparative analysis based on 3D model analysis, paleo-catchment size estimations, and sedimentologic observations of deposits representing the Eocene Aspen and Idaho Rivers reveals fundamentally different river systems.

Observed differences in both fluvial architectures and lithofacies across three localities representative of the Aspen River suggest a duality of Aspen River expression between a more ephemeral system with flashy, variable discharge and a more established, possibly perennial, system. This duality is likely a response to previously documented eccentricity-paced astronomical cyclicity, yet is absent in Idaho River deposits. The lack of bi-modality in Idaho River deposits may be the result of a change in the strength of the astronomic signal between Alkali Creek (Idaho River) and Wilkins Peak Member (Aspen River) deposition. Alternatively, there could be a fundamental difference in signal propagation through the Idaho fluvial system versus the Aspen. The latter is supported by modeled differences in catchment precipitation and observed differences in sedimentary structures between the two rivers, suggesting that the Idaho River may have been a more established and sustained fluvial system. In addition to dampening any astronomic signal, a more consistent fluvial system would also suggest that the Idaho River represented a more significant hydrologic source to Lake Gosiute. This interpretation is corroborated by previous provenance research and may play a role in both the appearance and disappearance of the enigmatic bedded evaporites present in the Wilkins Peak Member of the GRF. Finally, based on the previously modeled semi-arid climate of the Eocene GGRB, and relative to measured watershed limits for each river, predicted watersheds using regional hydraulic curves were significantly larger than expected. This is likely a result of substantially wetter catchments at higher elevations in both the Cordillera and Laramide foreland.

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a)

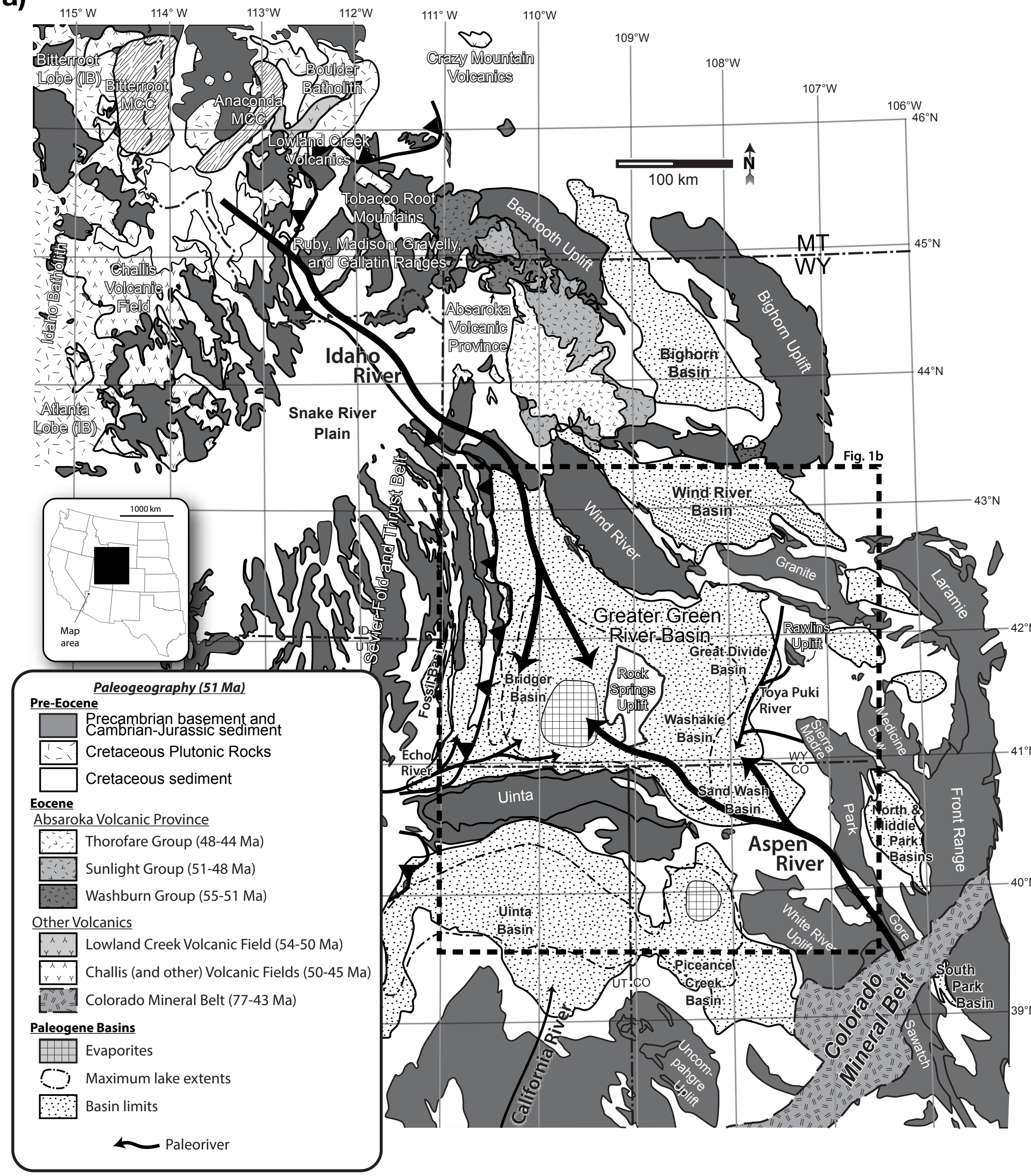
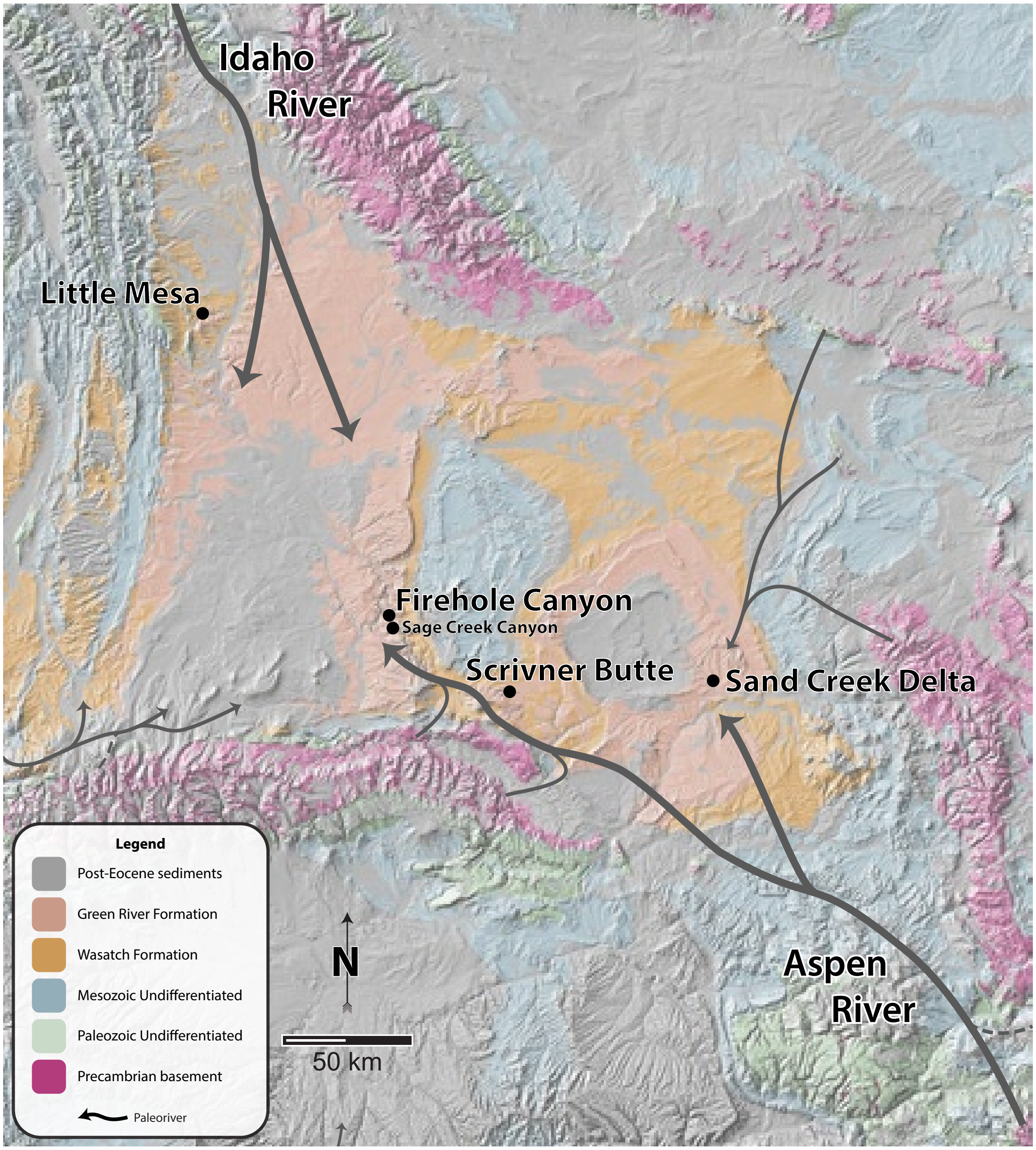


Figure 1 a) Regional map showing both the Aspen and Idaho rivers, sub-basins comprising the Greater Green River Basin (GGRB), and regional topographic uplifts. **b)** (Next page) map showing field area and outcrop localities.

b)


Idaho
River
Little Mesa
Firehole Canyon
Sage Creek Canyon
Scrivner Butte
Sand Creek Delta
Aspen
River
N
50 km
Legend
Post-Eocene sediments
Green River Formation
Wasatch Formation
Mesozoic Undifferentiated
Paleozoic Undifferentiated
Precambrian basement
Paleoriver

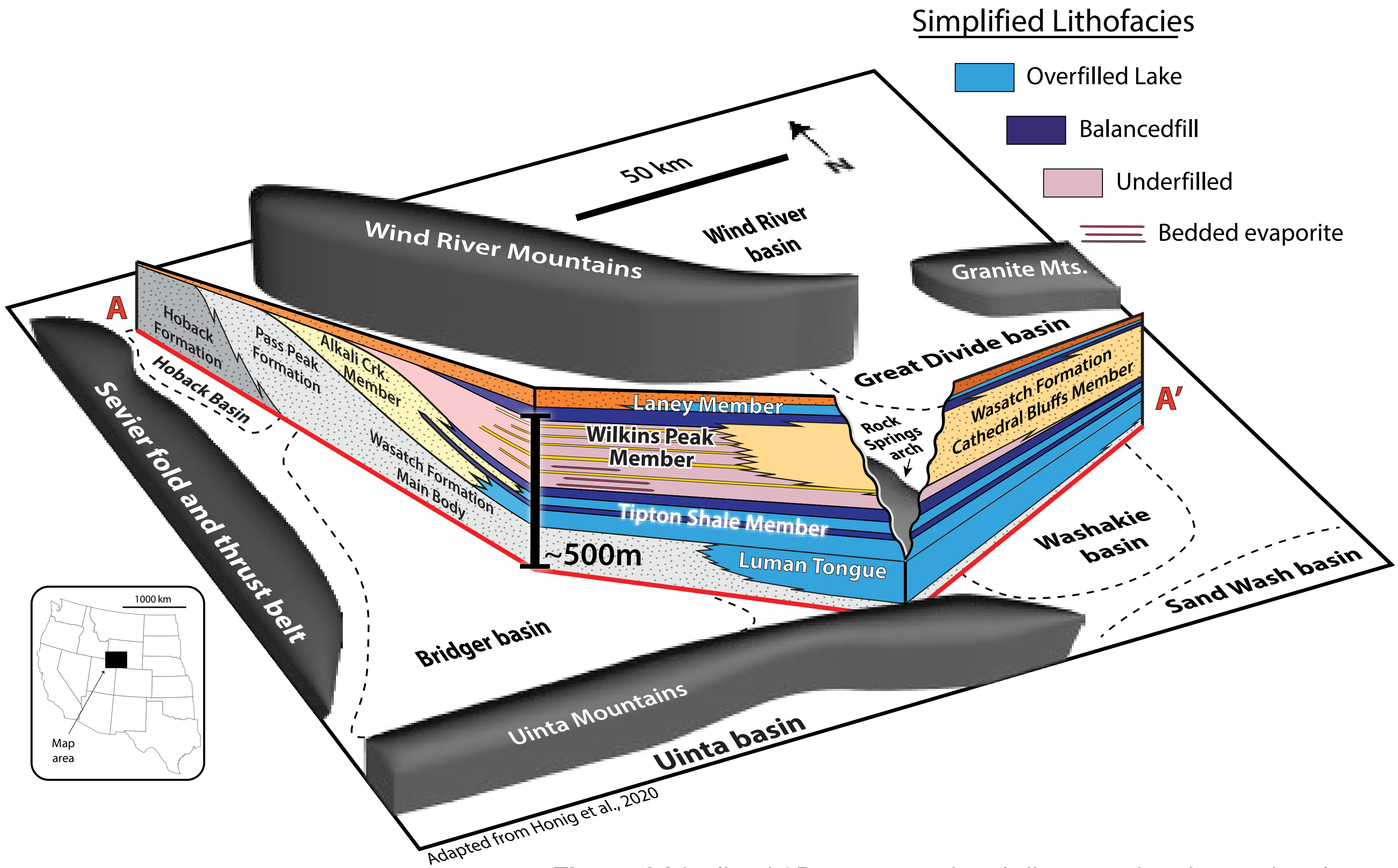
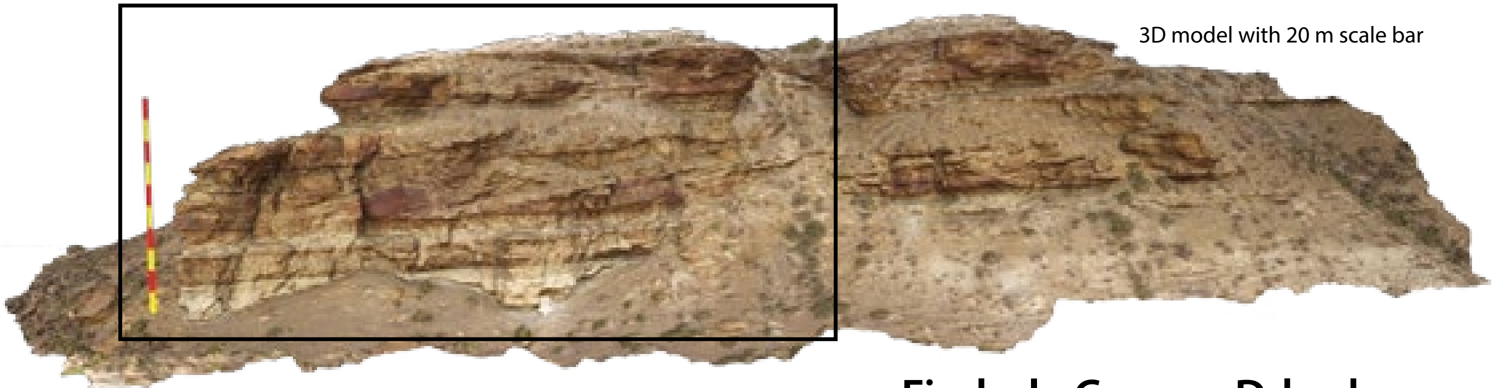


Figure 2 Idealized 3D cross-sectional diagram showing regional uplifts, the sub-basins of the Greater Green River Basin, as well as the Wind River and Uinta basins, and the principal stratigraphy of the Green River Formation. Stratigraphic and spatial relationships are based on prior work by Roehler (1991, 1992), Pietras et al. (2003), Smith et al. (2008), and Chetel et al. (2011).

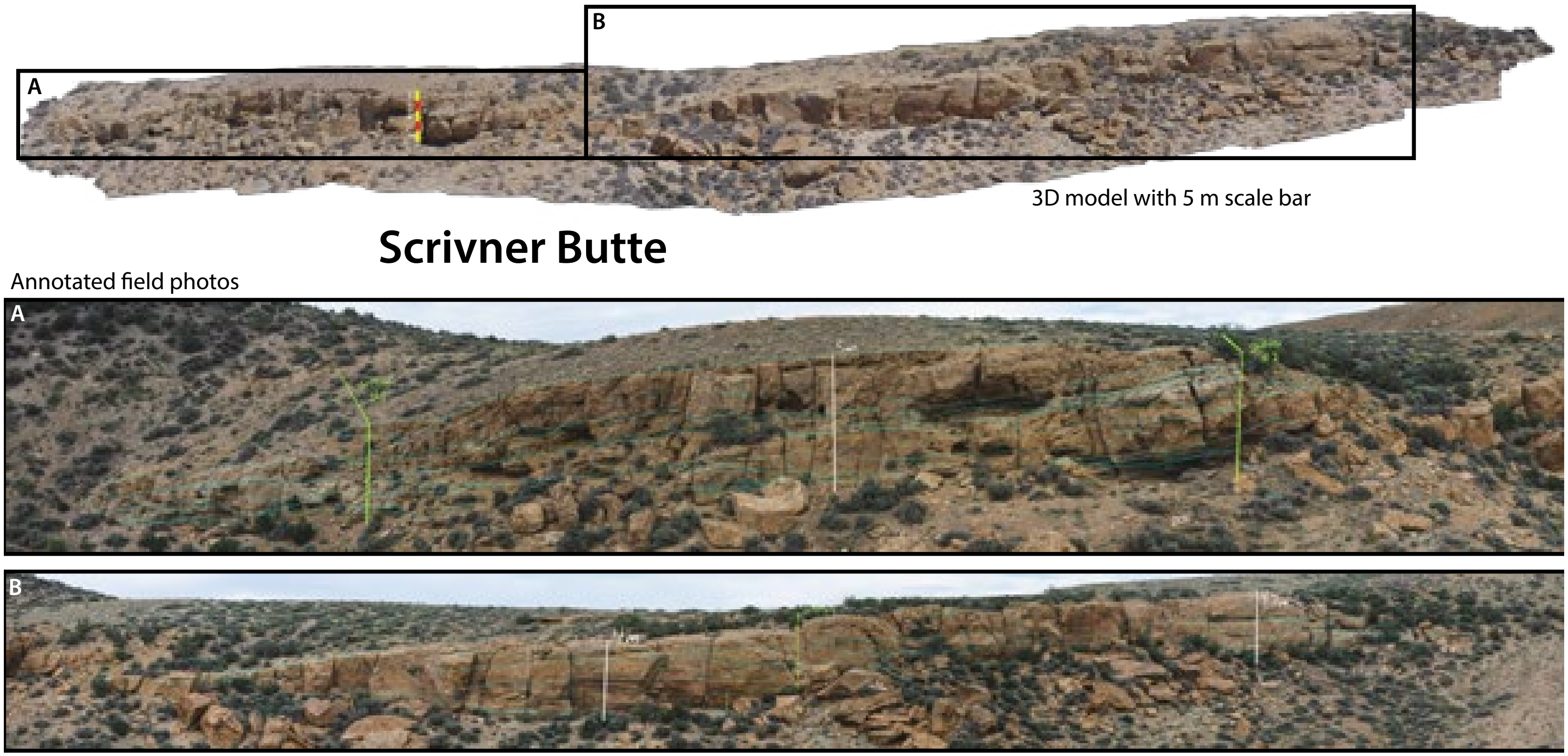
Figure 3 Paired 3D model and annotated outcrop photo for the Firehole Canyon (FHC) locality.



Firehole Canyon D-bed

Annotated field photo

Figure 4 Paired 3D model and annotated outcrop photos for the Scrivner Butte (SB) locality.



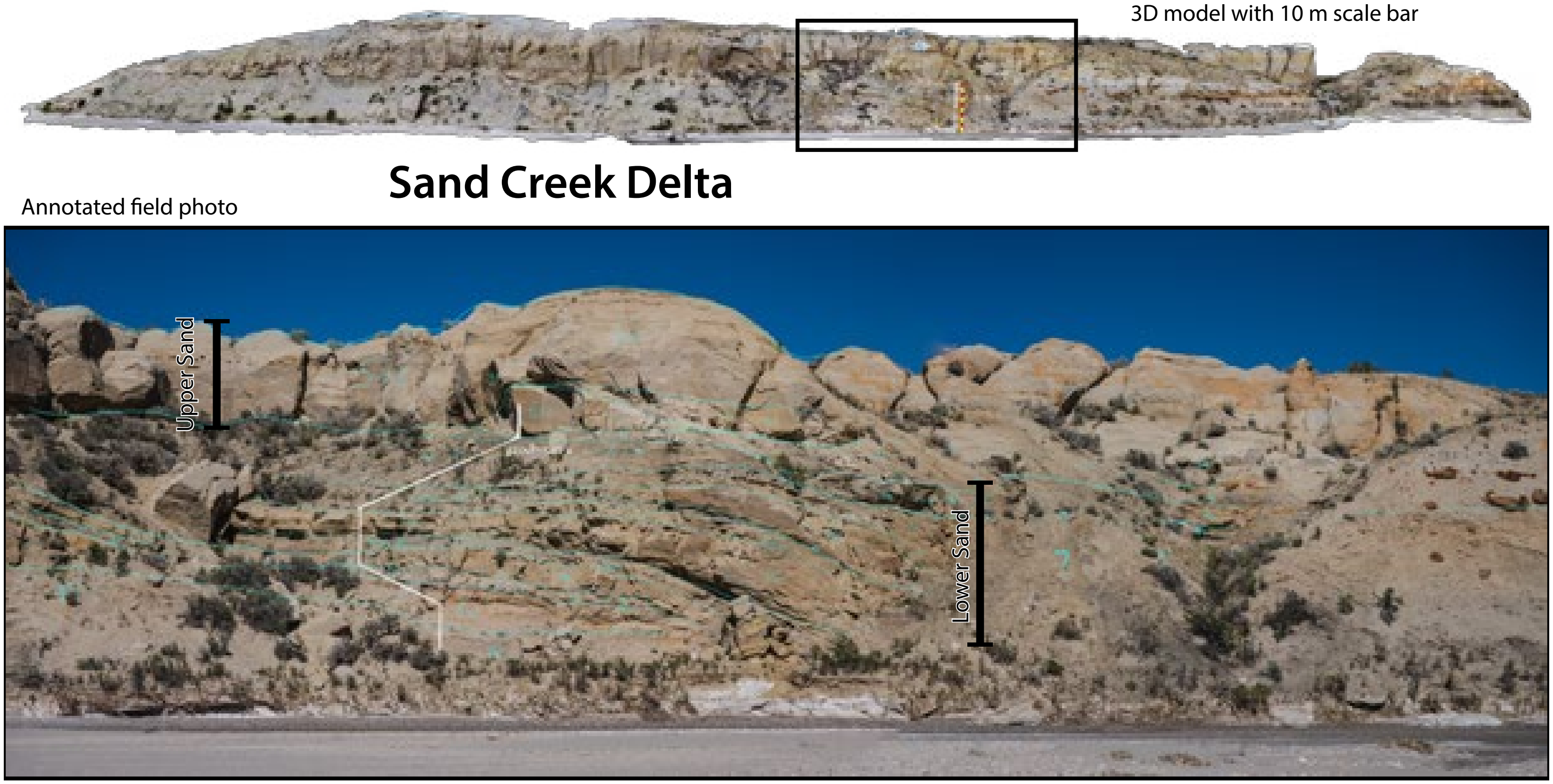


Figure 5 Paired 3D model and annotated outcrop photo for the Sand Creek Delta (SCD) locality.

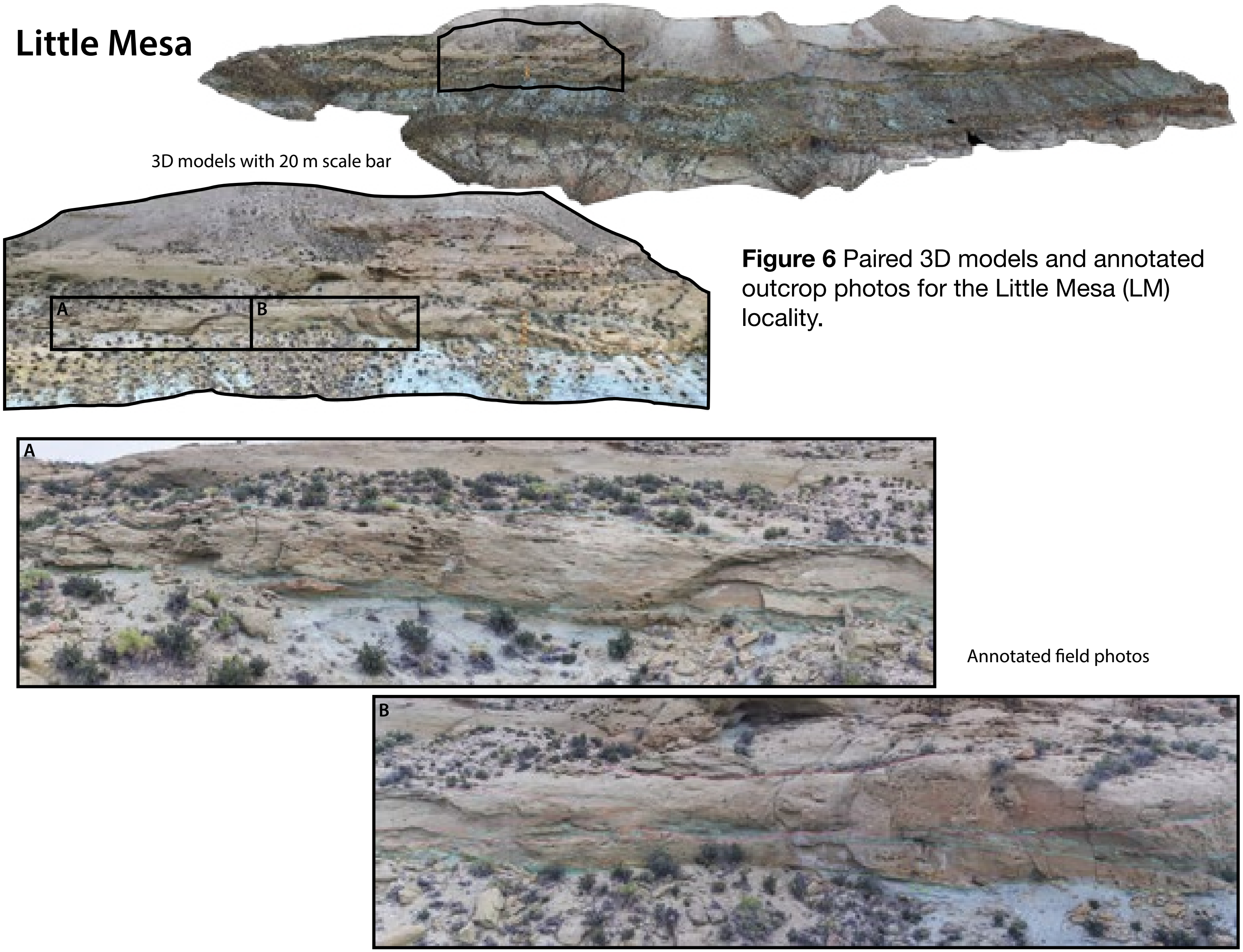


Figure 6 Paired 3D models and annotated outcrop photos for the Little Mesa (LM) locality.

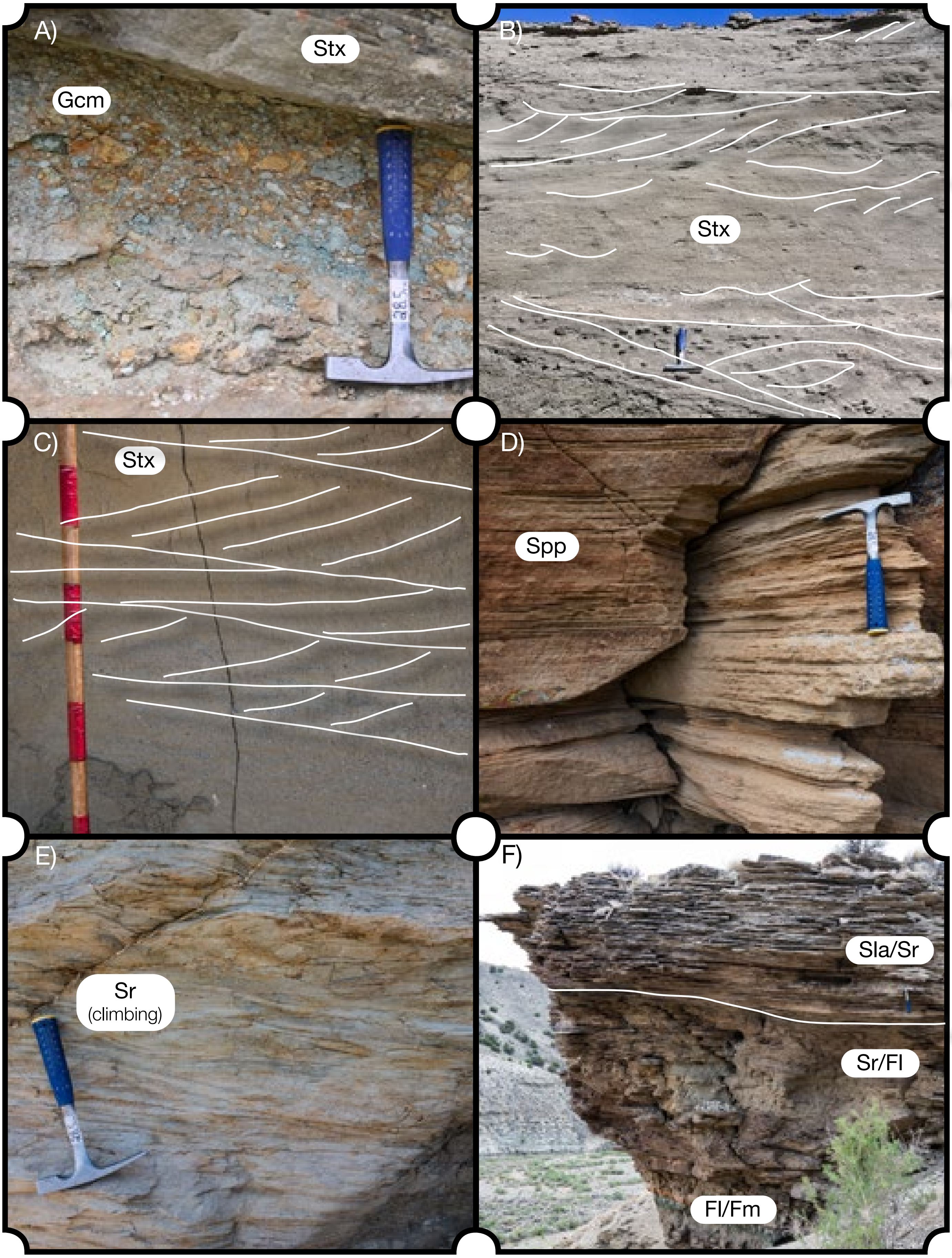


Figure 7 Outcrop photos of common facies (Table 2). Rock hammer (28.5 cm) and Jacob's Staff (dm-scale intervals) for scale. **A)** Gravel (Gcm) at the LM locality (Fig. 6). **B)** Trough-cross stratification (Stx) at the LM locality (Fig. 6). **C)** Trough-cross stratification (Stx) in the Upper Sand at the SCD locality (Fig. 5). **D)** Plane parallel bedding (Spp) at the SB locality (Fig. 4). **E)** Climbing ripples (Sr) in the Lower Sand at the FHC locality (Fig. 3). **F)** Low-angle (Sla) convex-up, rippled (Sr) bedding in the Upper Sand at the FHC locality (Fig. 3).

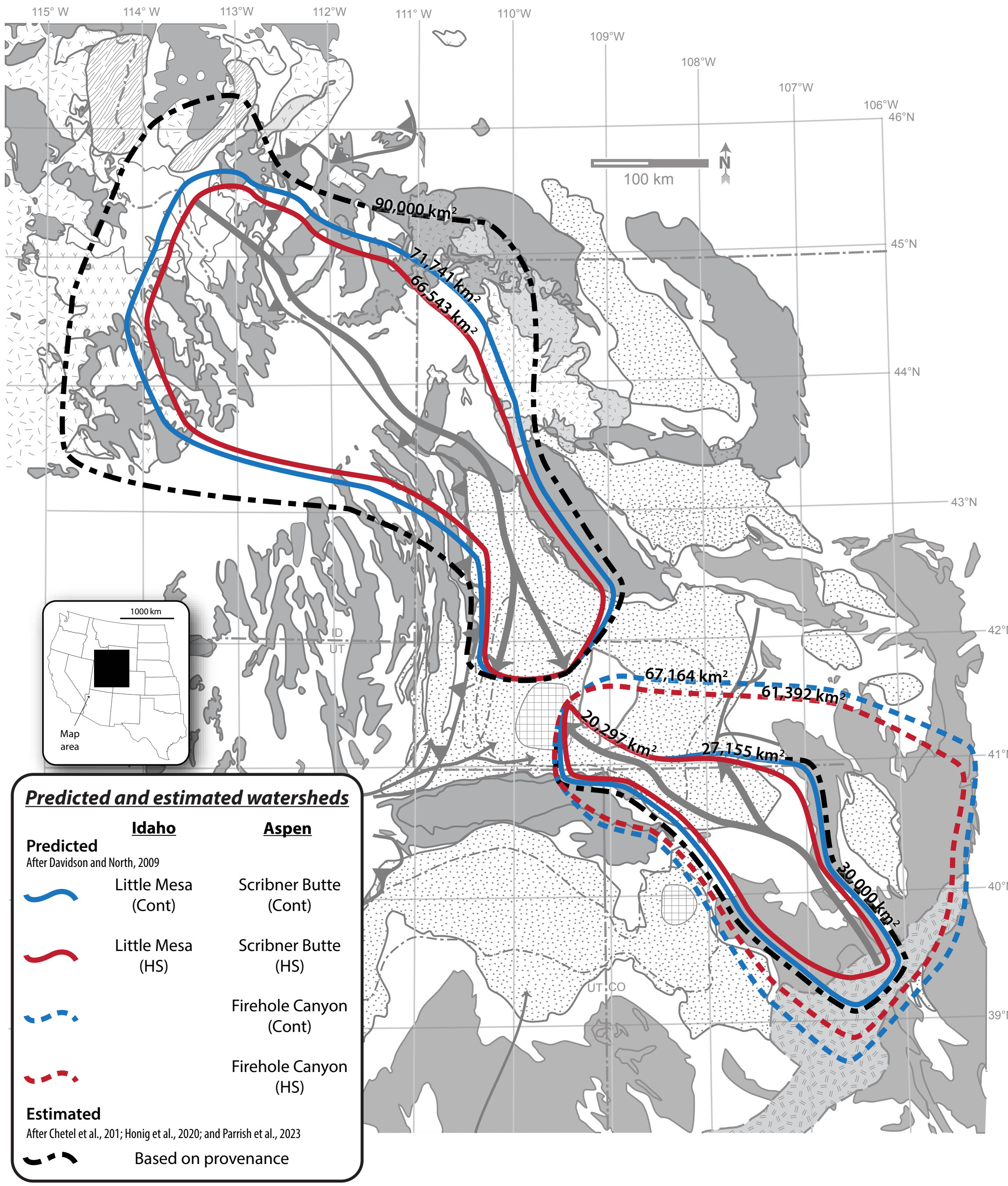


Figure 8 Predicted and estimated watershed sizes for the Idaho and Aspen river systems. Predicted watershed sizes include values calculated for “humid, sub-tropical” (HS) and “continental” (Cont) climates, based on measured geometries at the Little Mesa locality for the Idaho River as well as the Scrivner Butte and Firehole Canyon localities for the Aspen River (Fig. 1b; Davidson and North, 2009). Calculated values for a “semi-arid” climate were omitted due to size, but are given in Table 1. Estimated watershed sizes are based on previous provenance research by Chetel et al. (2011), Honig et al. (2020), and Parrish et al. (2023).

Table 1

TABLE 1. RIVER PARAMETERS

Locality		**Measured Parameters**						**Calculated Parameters**		**Predicted Watershed Area (Davidson and North, 2009)**		
		Basin Center Distance (km)*	D_{avg} (mm)	D_{50} (mm)	H (m)	River Length (km)	Watershed Area (km^2)	B (m)	S (y/x)†	Humid-Subtropical (km^2)	Continental (km^2)	Semi-arid (km^2)
Greater Green River Basin, WY												
Aspen	Firehole Canyon (FHC)	25	0.375	0.375	4.64	~370	30,000	36.55	2.10E-04	61,392	67,164	1,033,764
Aspen	Scrivner Butte (SB)	80	0.164	0.188	3.66	~370	30,000	24.30	2.29E-04	20,297	27,155	297,620
Aspen	Sand Creek Delta (SCD)	152	3.469	3.000	N.D.	~370	30,000	N.D.	N.D.	N.D.	N.D.	N.D.
Idaho	Little Mesa (LM)	119	7.536	0.375	4.53	~550	90,000	48.14	2.16E-04	66,543	71,741	1,131,844
Modern Analogs												
Okavango, BOT[1]	Panhandle reach	N.A.	N.A.	N.A.	3-5	1700	156,250	50-90	1.25E-04	N.A.	N.A.	N.A.
Okavango, BOT[1]	Delta Upper	N.A.	N.A.	N.A.	5-7	1700	156,250	15-130	1.25E-04	N.A.	N.A.	N.A.
Okavango, BOT[1]	Delta Middle	N.A.	N.A.	N.A.	N.D.	1700	156,250	5-20	1.25E-04	N.A.	N.A.	N.A.
Okavango, BOT[1]	Delta Outlet	N.A.	N.A.	N.A.	N.D.	1700	156,250	N.D.	1.25E-04	N.A.	N.A.	N.A.
Ili, KZT[2]	N.A.	N.A.	N.A.	N.A.	N.A.	1439	140,000	N.A.	1.53E-04	N.A.	N.A.	N.A.
Neales, AUS[3]	Upstream of point Bar	N.A.	N.A.	0.75	5	420	35,000	80	2.32E-04	N.A.	N.A.	N.A.
Neales, AUS[3]	Prior to terminal splay	N.A.	N.A.	N.D.	2.5	420	35,000	200	N.D.	N.A.	N.A.	N.A.
Neales, AUS[3]	Avulsion channel	N.A.	N.A.	0.375	0.8	420	35,000	50-150	1.43E-03	N.A.	N.A.	N.A.

Note: D_{avg} = average grain size, D_{50} = median grain size, H = channel height, B = channel width, S = mean paleoslope

*Basin center referenced as Solvay Core: 41.414231°N, 109.69675°W

†In modern analogs where paleoslopes were not calculable from D_{50}, H, and B values, Google Earth was used to estimate gradients.

Data sources:

1. McCarthy (2013)
2. Wikipedia (2023)
3. Lang et al. (2004)

Table 2

TABLE 2 - OBSERVED FACIES, GREEN RIVER FORMATION, GREATER GREEN RIVER BASIN, WY, USA

Facies code	Textures	Structures	Interpretation
Stx	fine to coarse sand, well to moderatly sorted	Trough-cross stratification	Bedload deposition and dune migration in subcritical flow
Spx	fine to coarse sand, well to moderatly sorted	Planar-cross stratification	Bedload deposition and dune migration in subcritical flow
Spp	very fine to coarse sand, well to moderatly sorted	plane parallel bedding	Bedload and suspension deposition in trans-supercritical flow
Sla	very fine to medium sand, well to moderatly sorted	low-angle bedding, often convex up in nature	Suspension deposition, in supercritical flow; high deposition rates
Sm	very fine to medium sand, well to moderately sorted	Massive, often trace fossils	Bioturbated sand
Sr/Srl	very fine to coarse sand, well to moderately sorted	Ripple/wavy laminations, including climbing ripples	Bedload deposition and ripple migration in subcritical flow; climbing ripples suggest high deposition rates
Swr	very fine to coarse sand, well to moderately sorted	Wave/bi-directional ripples	Bedload deposition and ripple migration in wave-dominated flow regimes
Sc	very fine to coarse sand, well to moderately sorted	flame sctructures; overturned folds; ball and pillow structures; convolute bedding	soft sediment deformation from water escape and local collapse
Fl	clay to well-sorted, very fine sand, variably colored (greenish, purplish, grey/brown most common)	laminated, blocky, root traces possible	Purplish : oxidized well-drained floodplain/channel-fill mudstone Greenish: Reduced, poorly drained, floodplain/channel-fill mudstonez Grey/brown: oxidized poorly-drained floodplain/channel-fill mudstone Mixed color: Variable redox conditions floodplain/channel-fill mudstone
Fm	clay to well-sorted, very fine sand, variably colored (greenish, purplish, grey/brown most common)	massive, blocky, root traces common	Highly biotrubated; Purplish : oxidized well-drained floodplain/channel-fill mudstone Greenish: Reduced, poorly drained, floodplain/channel-fill mudstonez Grey/brown: oxidized poorly-drained floodplain/channel-fill mudstone Mixed color: Variable redox conditions floodplain/channel-fill mudstone
Gcm/Gmm	Dominatly gravel+ sized grains; matrix supported, sub-rounded to angular, variable in shape	Massive	Intrabasinal clasts (e.g. floodplain mudstones and lake carbonates) deposited by collapse and fluidization of channel banks during falling stage of flow (e.g. Wang and Plink-Björklund, 2019)?
Gmpp	Dominatly gravel+ sized grains; matrix supported, sub-rounded to angular, variable in shape	planar bedding	Intrabasinal clasts (e.g. floodplain mudstones and lake carbonates) deposited by supercritical tractive flow.
Gci/Gmi	Dominatly gravel+ sized grains; matrix supported, sub-rounded to angular, variable in shape	Inverse grading	Intrabasinal clasts (e.g. floodplain mudstones and lake carbonates) deposited within small-scale mudlfows, from possible collapse of channel banks (like above)?
Gcn/Gmn	Dominatly gravel+ sized grains; matrix supported, sub-rounded to angular, variable in shape	Normal grading	Intrabasinal clasts (e.g. floodplain mudstones and lake carbonates) deposited by waning, sub/transcritical, tractive flow.

Table 3

TABLE 3 - CHANNELIZED SAND PERCENTAGES BY OUTCROP LOCALITY

Locality	Channel Sand (%)
Little Mesa (LM)	50
Sage Creek Canyon (Proxy for FHC)	23
Scrivner Butte (SB)	24

Note: channelized sand percentages calculated from measured sections (Appendix B1)

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Chapter 3

Honoring the affective domain: re-envisioning geoscience education

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ABSTRACT

In an era of unprecedented human-caused climate change, never has an education in the Earth Sciences been so societally necessary for the future and health of humanity. Moreover, diverse representation from a climate-conscious global community is vital to our movement toward a better future. One way to seek this future is through undergraduate geoscience education. Despite research showing the educational value of emotional engagement, the historic focus of science education has been placed largely on the cognitive domain. This paper seeks to address if and how the incorporation of interdisciplinary art into a geoscience curriculum can engage emotion and, by extension, enhance learning. We aim to understand if an arts-based geoscience curriculum influences students' sense of belonging, their sense of place, outcome expectations associated with the course, interest in the curriculum, and ultimately, their future goals.

This study consists of two sub-studies. Study 1 approaches the whole course as an arts-based intervention and consists of early and late-semester surveys. Study 2 focuses on the specific use of video as an educational tool and was implemented on a lab-specific basis via pre- and post-lab surveys. Both studies incorporate quantitative and qualitative data in the form of Likert-type and free-response form survey questions. The target demographic was introductory geoscience students representing a wide range of academic majors and ranks, with little to no geoscience experience.

The arts-based geoscience curriculum improved student perceptions of their sense of belonging in the Earth Science community, enhanced their sense of place, elevated their interest in further Earth Science education, and influenced their career goals. Moreover, the results were consistent for non-male and/or non-white-identifying students.

INTRODUCTION

As our global society invariably reckons with the impacts of a changing climate, we are increasingly called to recognize the interconnectedness of humanity and Earth-system processes (IPCC, 2014). Never has an education in the Earth Sciences been so societally necessary for the future and health of humanity. Moreover, as the burden of the climate change crisis is unequally shouldered by marginalized and lower-income socioeconomic groups, diverse representation from a climate-conscious global community is vital to our movement toward a better future. One avenue to advance the development of such a community is through undergraduate geoscience education, yet undergraduate enrollment rates in geoscience writ large have been declining since 2017 (Keane et al., 2021). Among the physical sciences, geoscience is one of the least diverse (if not the least diverse), with 76% of respondents in a recent national study identifying as “White” (Beane et al., 2021; Diversity in the Geosciences, 2020; Keane et al., 2021). Research suggests that students from underrepresented groups who take a traditional geoscience course can actually have a decreased interest in geoscience at the end of the course (Keilson, 1998; Riggs & Semken, 2001) and that one of the principal obstacles in diversifying geoscience education may be the ineffective way the subject matter is presented, particularly in introductory undergraduate courses (Baber et al., 2010; Huntoon et al., 2005). In addition, students from underrepresented groups are overall less likely than majority students to perceive geosciences as socially or personally interesting or valuable (Sherman-Morris & McNeal, 2016).

Perera et al. (2018) offer a review of the systemic issues impacting diversity in geosciences, including the myriad barriers faced by marginalized groups before and after stepping into college geoscience classrooms. These barriers are almost completely external issues associated with historical and systemic failure to value the assets marginalized students bring into STEM. Barriers include the lack of access to math and science in K-12 settings, uninviting learning environments, and lack of encouragement and support (Baber et al., 2010 and references therein). Notably, the latter two points are associated with the affective domain — the feelings, attitudes, emotions, and values that shape an individual's learning and behavior (Krathwohl et al., 1964; McConnell & van Der Hoeven Kraft, 2011); and not the more traditionally valued cognitive domain (the processes behind learning) within the realm of science, technology, engineering, and math (STEM) education.

Despite this, the historic focus of science education has been placed largely on the cognitive domain. Decades of research on science education have provided a plethora of tools for teaching conceptual understanding of geosciences, focusing on the cognitive processes behind learning. Much less focus, however, has been given to the affective domain (McConnell & van Der Hoeven Kraft, 2011). Yet the importance of addressing the affective domain in educational settings is well understood. Research shows that intrinsic value and positive emotions like enjoyment of learning, hope for success, and pride in a given task result in more effective learning (Emotion in Education, 2007). Moreover, students are more likely to engage in higher-order learning strategies such as elaboration, organization, and critical thinking when they feel they are in an emotionally supportive learning environment (Turner et al., 2002). Indeed, McConnell et al. (2010) demonstrated that for introductory geoscience students, motivation has a more significant influence on student performance than pre-existing student ability (measured by standardized test results such as ACT/SAT scores). Curriculum, therefore, that takes into account the affective domain, has not only a positive effect on student performance but may additionally serve to increase diversity in the field.

The question invariably becomes, what can geoscience educators do to more effectively honor the affective domain in introductory geoscience classrooms? This paper seeks to address if and how the incorporation of interdisciplinary art into a geoscience curriculum is one potential way of engaging emotion and, by extension, enhancing learning. We aim to understand if a less traditional geoscience curriculum that incorporates art, and the artistic expression of geologic principles, influences students' sense of belonging, their sense of place, their outcome expectations associated with the course, their interest in the curriculum, and ultimately, their future goals.

Sense of place encompasses the meanings and attachments that places hold for people. Its components, place attachment and place meaning, reference both cognitive (knowledge concerning the meaning of a place) and affective (place attachments and attitudes towards a place) domains. Place-based science education, therefore, reaches students on both cognitive and affective levels which is vital to an interest-based (i.e., intrinsically motivated) learning relationship between a person and an object of study (Ainley & Hidi, 2002), and focuses on referential environments by synthesizing different ways of knowing within and about a place (Semken & Freeman, 2008).

The need to belong — to form interpersonal relationships — is a fundamental human motive (Baumeister & Leary, 1995). Sense of belonging, writ large, is therefore fundamental to a rewarding human experience. This holds true for the academic realm as well. Academic sense of belonging, herein simply referred to as "sense of belonging", reflects the feeling that one fits in, belongs to, or is a member of the academic community in question. It "involves one's personal belief that one is an accepted member of an academic community whose presence and contributions are valued" (Good et al., 2012). Working to instill a positive sense of belonging is vitally important to educational spaces as it influences students' interest in further learning, as well as their likelihood of remaining interested in the field. Furthermore, a sense of belonging to an educational community can decrease students' anxiety about that subject and increase confidence in personal ability, whare are all critical factors in a student's experience and success in an educational setting (Ferkany, 2008; Good et al., 2012). Within the geosciences, sense of belonging has been tied to overall career satisfaction and is clearly important for retention (McCallum et al., 2018). Societal norms have historically had a significant influence on sense of belonging — specifically, capability-based stereotypes (e.g., perceived female inability in math/science) and fixed views on intelligence (e.g., that skill in math and/or science is a natural talent). These influences on a student's sense of belonging are typically more pronounced for marginalized groups (Good et al., 2012).

Together, self-efficacy and outcome expectations make up the two pillars of Social Cognitive Theory, which is widely recognized as being fundamental to understanding individual behavior (Bandura, 1986). Self-efficacy is concerned with an individual's beliefs in their ability to perform a specific task, while outcome expectancies are concerned with an individual's perceptions about the likely outcomes of their action (Koletsou & Mancy, 2011). Specific influence on behavior depends on the nature of the particular activity. In instances where outcomes are more loosely tied to the quality of performance (e.g., academic and career environments), outcome expectancies play a more significant independent role than they might otherwise (Lent et al., 1994). Both self-efficacy and outcome expectations are important for an individual's relative interest in a subject (Smith & Fouad, 1999), which in turn, can influence that individual's success in the subject.

Interest, broadly defined, is a phenomenological experience incorporating both cognitive and affective components (Ainley et al., 2002; Lamb et al., 2012; Sansone & Smith, 2000). More specifically, with respect to the relationship between interest and learning, interest in a topic is related to an individual's affective response to that topic. A positive emotional response, mediated by topical interest, engenders persistence within that subject and thus improves learning (Ainley et al., 2002). This "topical interest" might also be considered in terms of intrinsic motivation, i.e. when the behavior of an individual is motivated by the actual, anticipated, or sought experience of interest (Sansone & Smith, 2000).

Interest, in this case in Earth Science, is intimately related to one's goals. For example, if a student is interested in learning more about Earth Science, it follows then that they may have a goal of taking an Earth Science course in college, and may further have the goal of doing well in that course. Here, though, it is important to differentiate between "target" and "purpose" goals (Harackiewicz & Sansone, 2000), the prior referring to smaller tasks specific to an activity at a given point in time (e.g., doing well on an exam) and the latter operating at a higher level and representing the reasons for the behavior (e.g., pursuing an Earth Science-related career). The interest-goal relationship, however, is not a one-way continuum. Just as interest may beget goal-setting, goals may also beget interest. Therefore, interest, and thus intrinsic motivation, can be learned in the right context. The key to a particular goal's effect, however, depends on whether it is associated with performing the given activity in a way that involves and interests the individual (Sansone & Smith, 2000). This has obvious and profound implications for educational curriculum: if the goals integrated into a curriculum do not involve and interest the students, the likelihood of students developing any intrinsic motivation to participate is low. This is less of an issue in higher-level collegiate courses, where presence in the course is predicated on a purpose goal (i.e., established interest) in the form of a declared major or minor, or more generally where the course is elective in nature. The same is not true of introductory-level courses where presence in the course is often a function of a mandated target goal (e.g., credit requirements).

We began by asking what geoscience educators can do to honor the affective domain in introductory geoscience classrooms, suggesting that an effort to do so may improve student performance as well as increase diversity in the field. We now posit that in addition to these, honoring the affective domain may also provide a way in which curriculum might more effectively involve and interest students, thereby increasing intrinsic motivation and potentially influencing higher-order purpose goals related to career and/or future paths of study.

Video as an affective teaching tool in geoscience

One possible way to honor the affective domain is by incorporating curriculum-specific videos into the introductory geology curriculum. Advantages to the film medium are numerous, including 1) the potential to promote connectedness to Earth via place-based education principles (Frantz & Mayer, 2009; Mayer et al., 2009; Semken, 2005; Semken et al., 2017; Semken & Freeman, 2008); 2) the potential for increased student engagement via the employment of a “blended learning” or “flipped classroom” model (Brame, 2016; Jamaludin & Osman, 2014; Stockwell et al., 2015); 3) the potential to apply universal design for learning principles (Grogan & Ruzik, 2000; King-Sears, 2009); 4) the potential for film to engender an emotional connection to content (Dobele et al., 2007; Gross & Levenson, 1995; von Mossner, 2014); and 5) appealing to the values and preferences of younger generations (Ghersetti & Westlund, 2018; Nicholas, 2008; Schwieger & Ladwig, 2018).

METHODS

Locating the Research

Establishing the setting for the research may be important for understanding study findings. This study was conducted during the spring semester of 2022 in the introductory geology course taught at a large midwestern institution and was approved by the institution's Institutional Review Board (IRB# 2022-0041) prior to data collection. All participants were given a consent form approved by the IRB. The course was taught by the third author. All three authors adhere to postpositivist perspectives – that knowledge is not fixed. Rather, knowledge is supported by the strongest, currently available evidence, and is subject to change as better evidence evolves. In addition, we recognize knowledge as constructed by individuals and seek to find commonalities between individual interpretations of study data to generate interpretations.

The first author (EP) is a Ph.D. candidate at the University of Wisconsin-Madison with a focus on geoscience and education. He holds both a B.A. and an M.S. in geology and has experience as an educator both in K-12 and collegiate settings. Author 1 is also a professional filmmaker with a focus on educational and documentary media, some of which has been developed for and implemented in this study.

The second author (JL) holds a B.S. in physics and geology and a Ph.D. in geoscience. She is a professor of science education research housed in Earth and Environmental Sciences and Undergraduate Education at Michigan State University. She has experience teaching a wide range of geoscience topics, investigating conceptual understanding using qualitative and quantitative approaches, and bringing concepts from other disciplines into geoscience education research.

The third author (SM) holds a B.S. in environmental science and an M.S. and Ph.D. in geology. He is a professor in the Department of Geoscience at the University of Wisconsin-Madison where he has developed a research, teaching, and outreach program that addresses climate change, Earth System history, and Solar System evolution. He regularly teaches the large introductory geoscience course that is the focus of this study, and co-founded tadada Scientific Lab, which develops approaches for science education that engage art-science collaboration (Meyers & Cohen, 2019b; tadada Scientific Lab, n.d.; Tyrell, 2018), as implemented in this study.

The fourth author (GC) started her career as newspaper photographer in 1987, and continued as a professional photojournalist and social documentary photographer for over 20 years. Her international body of work addresses social issues such as women's and children's rights, living with AIDS, and incarceration. Cohen's photography has been featured in a wide range of international publications (e.g., Sunday Times Magazine, L'Express, New York Times Magazine, LIFE, Der Spiegel, New York Newsday, Guardian) and exhibitions such as the "Child Labor and the Global Village: Photography for Social Change project" (Bachman et al., 2004). Her professional experience in the field followed a B.A. with a double major in Fine Arts and Rhetoric & Communication. Author 4 is the co-founder of tadada Scientific Lab and a primary collaborator on the project (Meyers & Cohen, 2019b; tadada Scientific Lab, n.d.; Tyrell, 2018).

Instructional Design

The implemented curriculum (Study 1, see "Study Design" below) was developed over several years leading up to the 2022 semester. Holistically, the curriculum seeks to re-envision large introductory geoscience courses by emphasizing a personal (affective) connection to the course content, while inspiring scientific literacy and building the skill sets that lead to successful engagement in science throughout life (Meyers & Cohen, 2019a). Recognizing the variety of backgrounds and lived experiences present in a large introductory classroom, the curriculum seeks to mirror this diversity by promoting personal and emotional connections to Earth Science in myriad ways.

For example, “connection events” that seek to foster wonderment, empathy, and inclusion through collaborations with artists, musicians, storytellers, and community members are integrated throughout the semester. In addition, the lecture portion of the course has been reenvisioned through the lens of narrative storytelling in an effort to illustrate the relatable human journey of science and to offer students a more personally relatable experience. Moreover, the curriculum takes the collaborative experience traditionally reserved for the lab portion of the course and extends it to the course writ large through classroom implementations like “pair & share” discussions, “gots & nots” feedback, experiential examples, and self-evaluation (among others). Moreover, and possibly most importantly, the curriculum seeks to blur the boundaries between science, art, and lived experience by showing examples of engaging with science in non-traditional and art-based ways, before asking students to do the same. The implicit argument is thereby made that everything is connected — that what and how students learn in the classroom, can be and is intimately connected with their personal lives. More information about the curriculum can be found in Meyers and Cohen (2019a), Tyrell (2018), and tadada.net (tadada Scientific Lab, n.d.)

Study Design

This study consists of two sub-studies. Study 1 approaches the whole course as an arts-based intervention. Investigation of the impact of this intervention was undertaken via two surveys. The first survey was administered in the first week of class and the second survey in the final week of class. Study 2 focuses on the specific use of video as an educational tool. Each week students participated in a lab section that required them to complete a lab assignment for that week. For three specific labs during the semester, students were randomly split into treatment and control groups, both of which took identical pre- and post-lab surveys. The treatment group received the pre-lab content in the form of a video, while the control group received the pre-lab content in the form of a reading. The videos were designed specifically for the curriculum by the first author, and employ principles founded in place-based education, digital education best practices, narrative storytelling, and creative filmmaking.

Surveys

A mixed-methods approach was taken in this study using close-ended (Likert-type) and open-ended (free-response) survey approaches. Participants were informed that surveys were optional, could be stopped at any point, and would take about 10 minutes of their time, with no time limits.

Prior to implementation, instrument appropriateness was established through two means. First, the calculation of a Flesch Reading Ease score indicates surveys fell at the 8th-9th grade level, appropriate for entry-level college courses. Second, five participants external to the study reviewed the survey. These external participants were an instructional consultant for diversity, equity, and inclusion, two graduate students with a research focus on geocognition, another graduate student focusing on writing, rhetoric, and culture, and a postdoc with a focus on biosystems and agricultural engineering. Feedback indicated general agreement that surveys targeted desired variables and were understandable. Minor revisions to the survey language were implemented based on feedback from external participants.

The pre- and post-course survey (Study 1) included four non-identifying questions used to link survey responses across the semester, six questions documenting Sense of Belonging (modified from Good et al., 2012), seven questions documenting student Career Goals (Gray & O'Brien, 2007), five questions documenting Sense of Place (modified from Wynveen & Kyle, 2015), five questions documenting Earth Science outcome expectations for the course (modified from Byars-Winston et al., 2016), four questions related to Interest in Further Earth Science Education (Berry et al., 2017), and one open-ended question (late-semester survey only) documenting additional thoughts and reactions to the course as a whole (this study). Finally, participants completed a set of demographic questions documenting both academic and personal demographic metrics (Supplement A).

The video-specific lab surveys (Study 2) included four non-identifying questions used to link survey responses across the semester, five questions documenting Sense of Place (modified from Wynveen & Kyle, 2015), seven questions documenting the efficacy of the pre-lab as a preparatory and teaching tool (this study), four questions related to student inspiration (Berry et al., 2017), one question assessing how likely a student is to use the pre-lab content as a study resource (this study), and one open-ended question documenting additional thoughts and reactions to the pre-lab content (this study).

Participants

The target demographic was introductory geoscience students representing a wide range of academic majors and ranks, with varying experience in geoscience backgrounds. Large introductory geoscience classes offer the ideal setting for this study as enrollment represents a diverse array of student academic interests and backgrounds. Students representing majors subsumed in the categories of “Humanities, Social Sciences, and the Arts”, “Natural Sciences”, “Professions and Applied Sciences”, and “Formal Sciences” are all represented in our data. All enrolled students in the course (n = 476 in the spring of 2022 and n = 298 in the spring of 2023) were included in the study, though participation in data collection was optional. Following university guidelines, the study was limited to students 18 years of age and older and incentivized by one extra credit point per survey taken.

In the spring of 2022, early semester survey respondents (N = 385) ranged from first-year undergraduates to 5th-year undergraduates with an age range of 18 to 24 and an average age of 20. 54.1% of respondents identified as women, 42.9% as men, and 3% identified as transgender or otherwise. 69.3% reported their ethnicity as white, 10.9% as American Indian/Native American, 4.06% as Latinx/Hispanic, 2.03% as Black/African/African American, and 13.7% chose not to respond.

Respondents’ motivation for taking the course was varied, with the majority of respondents taking it to “fulfill a non-major credit requirement”. Respondents’ previous collegiate STEM experience ranged from zero to more than five previous courses with the majority of respondents (48.7%) having taken two previous STEM courses. Respondents’ previous experience in Earth Science courses ranged from zero to more than three with the majority of respondents (80.2%) having not previously taken any Earth Science course. 56.9% of respondents had already declared a major of which 15.7% fell under the umbrella of Humanities, Social Sciences, and the Arts (Anthropology, Philosophy, Sociology, Linguistics, Religion, Music, Visual/Performing Arts, Economics, Political Science, etc.) 3.05% under the umbrella of Natural Sciences (Physics, Biology, Chemistry, Geology, etc), 24.4% under the umbrella of Professions and Applied Sciences (Business, Agriculture, Architecture, Education, etc.), and 9.14% under the umbrella of Formal Sciences (Computer Sciences, Mathematics, etc.). Of the respondents in the early-semester survey who had yet to declare a major, 1.02% responded that they were likely or very likely to major in Earth Science, 34.3% responded that they were unlikely or very unlikely to major in Earth Science, and 6.85% responded that they were neither likely nor unlikely to major in Earth Science. 48.5% of respondents hoped to attain a four-year college degree, 36.5% a Master's degree, and 13.5% a Doctorate or similar terminal degree. Respondents came from a variety of backgrounds including parents/guardians who never attended college to those who have terminal degrees. 91.1% of respondents grew up in the United States, while the remainder did not or chose not to answer, and 93.9% of respondents currently have a permanent address in the United States. 89.1% of respondents consider English their primary language while the remainder did not or chose not to answer. 3.3 % of respondents identified as having a disability while the remainder did not or chose not to answer. 0.51% of respondents identified as active military or veterans while the remainder did not or chose not to answer.

ANALYTICAL METHODS

Study 1

Quantitative

Scores for each of the five Likert-type instruments were calculated by averaging responses for affiliated items. Averages and standard deviations are reported in Table 1. Pearson correlations between pre- and post-course variables were calculated to determine the potential influence of variables on each other. Paired T-tests and effect sizes comparing pre- and post-averages were conducted to determine changes in the student population. Cohen's D metrics between pre- and post-course variables were then calculated to determine the importance of the difference between pre- and post-course responses (Supplement B).

Hypothesizing that a student's "career goals" may be informed by a student's sense of belonging, sense of place, interest in education, and outcome expectancies, regression analysis was conducted to determine which factors most significantly influence career goals. All correlated variables were included in a stepwise regression analysis, allowing the determination of the importance of each variable in influencing career goals. We predicted that students' career goals prior to the course, and their interest in further education after the course would explain most of the variance in post-course career goals. Regression was carried out in four steps (Table 2). In the first step, pre-course survey variables (e.g., Interest in Further Education, Sense of Belonging, Outcome Expectations, Sense of Place, and Career Goals) were evaluated. Post-course variables including Earth Science Outcome Expectations, Sense of Place, and Sense of Belonging were carried out in step two. The final two steps considered Interest in Further Education (post) and treatment vs. control, respectively. Regression coefficients were further calculated to identify which variables within each regression step were most influential on the model's explanatory power.

Qualitative

Based on quantitative results from 2022, a follow-up qualitative assessment was conducted at the end of the spring of 2023. Students were asked: "In what ways did the incorporation of art (e.g., film, music, visual art, poetry, etc.) impact your experience in this course?". Coded themes for Study 1 were identified by author 1 following the protocol authors 1 and 2 used to co-code Study 2 (see below).

Study 2

Quantitative

Factor analysis was conducted for questions comprising the Efficacy of Experience instrument (this study). Scores for each of the four Likert-type instruments were calculated by averaging responses for affiliated items. Averages and standard deviations are reported in Table 3. Independent T-tests and effect sizes for each instrument in both treatment and control groups were conducted to determine the effect of treatment versus control pre-lab material (Supplement C).

Qualitative

For each of the three labs in Study 2, students were asked the optional, free-response question, “We would love to hear your additional thoughts on this week’s pre-lab content (e.g., how it could be improved, what specifically it may have helped you with, etc.)” Authors 1 and 2 co-coded responses to identify recurring themes by iteratively identifying emergent themes to the free-response questions until both authors were: 1) in agreement with identified themes and 2) until a saturation of major themes was reached. Author 1 then solo-coded the remaining responses.

RESULTS

Study 1

In the spring of 2022, 385 pre- and 251 post-course surveys were collected (80% and 53% respectively). Both surveys were completed by 53% of all enrolled students (N = 476).

Quantitative

Results from both survey implementations are provided in Supplement D. We describe the pre-course results first. With the exception of Interest in Further Earth Science Education, averaged survey responses indicate that students displayed positive attitudes regarding all other metrics (Sense of Belonging, Career Goals, Sense of Place, and Earth Science Outcome Expectations) (Table 1). Respondents displayed a notably positive Sense of Place with an average response of 4.20±0.57. The same positive trend was also observed in Sense of Belonging, Earth Science Outcome Expectations, and Career Goals responses as well (3.87±0.64, 3.71±0.83, and 3.45±0.55 respectively). Interest in Further Earth Science Education was the only metric for which negative responses were recorded in the early-semester survey (2.34±0.71).

Four out of five instruments measured saw statistically significant increases from pre- to post-course surveys (Table 1). Sense of Belonging scores increased by 3.35%, Career Goals scores increased by 2.71%, Sense of Place scores increased by 2.09%, and Interest in Further Earth Science Education increased by 2.77%. The final instrument (Earth Science Outcome Expectations) exhibited no significant change from pre-to post-course (+0.03%).

With the exception of Earth Science Outcome Expectations, all pre- to post-course paired averages were significantly positively correlated (Supplement B) suggesting that the pre- and post-course responses can be reliably compared. Moreover, effect sizes (Cohen's D metric) ranged from 0.49 to 0.88 suggesting that the magnitude of the difference between pre- to post-course responses is not trivial.

Based on the hypothesis that a student's "career goals" are informed by a student's sense of belonging, sense of place, interest in education, and outcome expectations, regression analysis was conducted to determine which factors most significantly influence career goals. Variables in step one provide a statistically significant change in the model's explanatory power ($\Delta R2 = 0.369$); they include Interest in Further Earth Science Education (pre), Sense of Belonging (pre), Earth Science Outcome Expectations (pre), Sense of Place (pre), and Career Goals (pre). Adding the variables in step two – Earth Science Outcome Expectations (post), Sense of Place (post), and Sense of Belonging (post) – again provides a statistically significant change in the model's explanatory power ($\Delta R2 = 0.135$). Step three, the addition of Interest in Further Earth Science Education (post) provides a very small, though statistically significant change in the model's explanatory power ($\Delta R2 = 0.071$), and step four, Treatment vs. Control, provides no significant change in the model's explanatory power (Table 2). As predicted, the only statistically significant variable in the first step of the regression analysis was the pre-course score for Career Goals ($\beta = 0.414$). With the addition of the second step, Career Goals (pre) remained statistically significant, and Sense of Place (post) was also recognized as a statistically significant coefficient ($\beta = 0.392$ and $\beta = 0.407$, respectively). With the third step, Interest in Further Earth Science Education (post) was also added as a statistically significant coefficient ($\beta = 0.35$), and no new coefficients were identified with the fourth step. Recognizing, therefore, that these variables control each model step's explanatory power, 56% of the dependent variable can be predicted by three variables: Career Goals (pre) (37%), Sense of Place (post) (12%), and Interest in Education (post) (7%) (Table 2).

Qualitative

Analysis of qualitative data produced seven emergent themes that together provided additional context for the quantitative results. Themes included (in order of prevalence): 1) the course being more enjoyable and engaging than other courses, 2) help in recognizing the interconnectedness of geoscience to other aspects of life (including students' personal lives) 3) appreciation for incorporated art, especially music and video, 4) recognition of how the inclusion of art aided in learning the content, 5) appreciation for approaching science from new, different and creative perspectives, 6) recognition of how the inclusion of art helped deepen appreciation for geoscience, and 7) art inclusion as an unwanted and/or unhelpful aspect of the course.

The most common emergent theme related to an appreciation for the inclusion of art as it increased both engagement with, and enjoyment of, the curriculum. As one student wrote, “I think the incorporation of art into this course made it not as scary or stressful. It added a sense of fun to learning. It also showed how art and science are connected, which is really cool.” Similarly, “Film and music helped make lectures more engaging and relevant to my life/ interests!”, and “It showed me that science isn’t a boring, monotonous thing that you have to study for 20 hours a week to understand. Science is artistic, and geological processes are like a brushstroke that we can interpret. Science can be informative while not being insanely boring.”

Second to the theme of increased engagement was the theme that the incorporation of art helped students recognize the interconnectedness of geoscience to other aspects of life, including their personal lives: “I really enjoyed the concerts and multimedia exposure offered in the course, it positioned geoscience within a global context not simply a required academic class”, and “[i]t showed me the depth of which Earth Science is deeply connected to the world around me.”

Beyond the purely affective impacts, students also felt that the inclusion of art enhanced learning (usually as it related to being interested or engaged). One student provided this insight about the relationship between science learning and art, “The incorporation of art made me feel more engaged during class which helped me understand the content better as I usually struggle with science.” Another noted, “It felt easy to recall information or facts from these lectures, because they stood out to me and were so engaging.” These qualitative findings provide a deeper context for increases in survey measures documented above.

Yet not all students found the inclusion of art to be a helpful aspect of the course. Though relatively uncommon, these perspectives typically related to its lack of impact on their experience, e.g., “I thought it didn’t really impact my learning. I honestly thought we could’ve spent that time doing other things” and, “[i]t didn’t really impact [my experience]. It was cool though.”

Study 2

Study 2 investigated the impact of a specific art form (videos) on student learning in the context of three lessons. Students were assigned to either treatment (video) or control (text) groups. Survey group 2 consisted of three surveys given after completion of three specific lab assignments during the semester (N = 181, 150, and 159 for each assignment).

Quantitative

Results from all survey implementations are provided in Supplement D. As previously noted, Study 2 included three quantitative instruments: Sense of Place, Inspiration, and Efficacy of Experience. The Efficacy of Experience survey was a seven-item survey developed and validated for this study (Supplement E). A factor analysis was conducted to establish scale validity. First, all items were well-correlated 0.40 or higher. According to KMO and Bartlett’s tests, the sample was both large enough (0.874) and varied enough (sig. <0.001) to be a statistically appropriate sample for factor analysis. Eigenvalue and scree plot analysis both pointed towards one single factor and all seven items exhibited factor loadings above 0.63 on a single scale. Relative to internal consistency, Cronbach’s alpha for the seven items comprising the scale was 0.89, suggesting items are measuring a single construct.

Averaged student responses to all independent variables were positive, ranging from 3.5 to 4.1, with no statistically significant variance between treatment and control responses (Table 3). T-test P-values were all high (not significant), with the exception of Efficacy of Experience (sed) and Sense of Place (sed), which approached significance in favor of the video treatment with T-test p-values of 0.07 and 0.15 respectively (Supplement C). Due to the lack of statistical significance of the T-test P-values, effect size statistics are not reported.

Qualitative

For the treatment (video) group, 90 responses were collected across all three labs, with response rates of 51%, 37%, and 40% for the mineralogy, sedimentology, and igneous rocks labs respectively. For the control (reading) group, 66 responses were collected across all three labs, with response rates of 40%, 40%, and 35% for the mineralogy, sedimentology, and igneous rocks labs respectively. For the treatment group, analysis of qualitative data produced six emergent themes which included (in order of prevalence): 1) liking the videos, especially the visuals included therein, 2) the videos being helpful, especially in terms of feeling prepared for the lab as well as clarifying course content, 3) the videos being engaging and fun, 4) suggestions for changes and improvements, 5) the videos being educational and informative, and 6) appreciating seeing real-world examples/places.

The most referenced theme related to an appreciation of the videos and the visuals within. In the words of one student, “I liked the demonstration with the trail mix and the examples of rocks in nature. They were visually engaging and useful for explaining the topics.” Similarly, another student wrote, “I liked that the video had captions for the definitions so it was easier to take notes.”

The second most prevalent theme identified the helpfulness of the content, especially with respect to preparation for lab and the clarification of content: "I thought this video was incredibly engaging! I learned a ton and I feel more prepared going into lab", and "I thought the video was so helpful! It not only clarified what we already learned in class but was super easy to follow and learn."

Not all students, however, found the videos enjoyable. Though uncommon, these perspectives typically related to disliking the tone of the videos, e.g., "I didn't like the humor in the video because it felt demeaning as a college student to be taught something in a tone that you teach middle schoolers. I like the definitions given in the background but they could be kept up there longer so I wouldn't have to pause the video so much". Moreover, even when students enjoyed or found the videos helpful, another prevalent theme was the offering of feedback or suggestions to make the video better, e.g., "[t]he first video was nice where their were definitions on the screen versus the second which was hard to follow along. I like to take notes during the pre lab videos so him explain these scientific terms without it written on the screen can get confusing."

For the control group, analysis of qualitative data produced six emergent themes which included (in order of prevalence): 1) liking the pre-lab reading, especially the included visuals, 2) finding the material helpful and/or educational, 3) suggestions for changes to the pre-lab material, 4) finding the pre-lab material difficult to understand, and 5) finding the pre-lab material unengaging.

DISCUSSION

Introductory geoscience curriculum that included curriculum-specific art integrations improved student perceptions of their sense of belonging in the Earth Science community, enhanced their sense of place, elevated their interest in further Earth Science education, and influenced their career goals.

Individually, each of these outcomes is significant; cumulatively, the implications are profound.

Study 1

Given students' motivation for taking the course (Fig. 1), early semester scores for the Sense of Belonging metric were particularly surprising (Table 1). By virtue of the motivation for taking the course being credit fulfillment, students' motivation for taking the course was likely not based on their pre-existing sense of belonging in geoscience or even scientific spaces in general. Moreover, it is likely, even, that presence in this course is indicative of a lack of a sense of belonging with respect to scientific spaces. One potential explanation for this is that despite the prompt asking students "[with respect to] the Earth Science community", students responded with respect to their presence in that specific Earth Science setting (e.g., an introductory geoscience course for which they chose to be present). If this were the case, students would have been more likely to feel that they belonged in the introductory course they enrolled in than in the Earth Science community writ large. Regardless, this study showed a classwide increase in Sense of Belonging (Table 1). Moreover, the same increase remained true for non-white-identifying (Fig. 2) as well as non-male-identifying students (Fig. 3), for which a healthy sense of belonging is not always the case (Good et al., 2012; Murphy et al., 2007; Walecki, 2023). The curriculum, therefore, was identity-agnostic with respect to its impact on Sense of Belonging. This outcome is especially significant within the context of an introductory geoscience class where the vast majority of students was not initially motivated to participate by the subject matter but rather by the prospect of an earned science credit (Fig. 1). In this light, the outcomes are more significant in that they represent an increase in the sense of belonging of a student population not predisposed to such.

Sense of place, as previously noted, entails the perceived cognitive and emotional meanings and attachments affixed to a place by an individual or group. Within the context of an introductory geoscience curriculum, the place attachment component of Sense of Place most readily corresponds to a student's emotional connection to Earth. Based on the classwide increase from pre- to post-course Sense of Place scores, this curriculum engendered an increased appreciation for, or attachment to, Earth (Table 1). Again, this effect was identity-agnostic and was found to be true for non-white and non-female-identifying students (Figs. 2 & 3). This enhanced appreciation for Earth, mediated by an improved sense of place, likely leads to increased interest (and thus engagement) in the course.

Arguably the most direct proxy of a student's interest in Earth Science is their interest in continuing further with Earth Science education. Given that the overwhelming motive for taking the course was "to fulfill a non-major science credit" and not because the student "planned to major in an Earth Science related field" (which was, in fact, the least popular reason) (Fig. 1), the low pre-course score for Interest in Further Earth Science Education was not surprising. Here again, though, we see a classwide, as well as among non-male and non-white-identifying, increase in Interest in Further Earth Science Education (Figs. 2 & 3; Table 1), suggesting that the curriculum motivated students to want to learn more about Earth Science.

The educational implications are clear. The identity-agnostic impact seen in Sense of Belonging, Sense of Place, and Interest in Further Education responses suggest that the non-traditional, art-infused, curriculum reached students more ubiquitously than a more traditional course. Moreover, where each of these metrics stands alone as an important cog in the affective educational wheel, the cumulative impact is that of increased intrinsic motivation. That is, as a student's emotional relationship with a topic (in this case Earth Science) improves as a function of increases in the aforementioned metrics, so too does the behavior of that student as their engagement becomes motivated by the actual, anticipated, or sought experience of interest.

To this end, the Career Goals metric was included in this study as it reflects a more holistic change in perspective by the student. In other words, if the curriculum had an emotional impact on a student (e.g., increases in Sense of Place, Sense of Belonging, Interest in Further Education, and/or Outcome Expectations) the expected outcome would be a similar change in Career Goal responses, which is exactly what we see (Table 1). By treating the Career Goal metric as a proxy for affective impact, regression analysis of the Career Goal scores enables the identification of the metrics most influenced by this curriculum (Table 2).

It is expected that a student's career goals going into the course have a first-order influence on their career goals leaving the course, so seeing that Career Goal pre-course scores have the most significant impact on Career Goal post-course scores is not only expected but serves as a validation of the regression model. Two other metrics have a statistically significant influence on the regression model: Sense of Place (post) and Interest in Further Education (post). This suggests that the art-based approach, without regard to identity, reaches students on an affective level, which, based on the effect that it has on students' sense of place and their interest in further education, changes their perspective about their futures.

These impacts are further corroborated by qualitative data. Prevalent themes such as an appreciation for approaching science from new and different perspectives, and especially students' recognition of the interconnectedness of geoscience to other aspects of life (including their personal lives), speak directly to students' elevated sense of place, sense of belonging, and interest in further education. Moreover, coded themes like the course being more enjoyable and engaging, and appreciation for the incorporation of interdisciplinary art speak to the positive affective relationships students had with the curriculum.

Undiscussed heretofore is the lack of change seen in the Outcome Expectations metric. One possibility is that the instrument used was a previously established instrument and is focused more on long-term outcomes like career intentions, satisfaction, and salary rather than shorter-term outcomes like appreciating science or doing well in school (Supplement A). Given the career-centric theme of the Outcome Expectancies Instrument, it is intriguing that we see a positive change in the Career Goals instrument and not in Outcome Expectancies. This may be because the Career Goals instrument employed is less focused on specific long-term goals, but more on a student's perceived capability as influenced by Earth Science. In other words, the Career Goals instrument might also be thought of as a self-efficacy instrument, which is more concerned with an individual's belief in their capability of an action or skill (e.g., using or incorporating Earth Science knowledge) than the perceived outcomes of an action requiring that skill (e.g., being an Earth Science professional) (Koletsou & Mancy, 2011). Here it becomes clear that the impact this curriculum has on students' "career goals", may more appropriately be considered less in light of students wanting to become geoscientists explicitly, but rather that their newfound appreciation for Earth Science is something that will serve them no matter their professional and/or life choices. Again, qualitative data identifying students' recognition of the interconnectedness of geoscience to other aspects of life, including their own personal lives, corroborates this finding. Moreover, this outcome aligns with the educational goal of the test curriculum, which is not exclusively to cultivate a new generation of geoscientists as much as it is to promote a personal and emotional connection to the content while inspiring scientific literacy and building the skills that lead to successful engagement with science throughout life. While the potential for this curriculum to inspire students to consider geoscience as a future career is certainly a possibility, and maybe even a likelihood; measurement thereof is beyond the scope of this study.

Study 2

Despite average treatment group responses being slightly higher than average control group responses in most cases, the lack of statistical significance between the scores suggests two things (Table 3). First, the videos employed in this study were no more effective at reaching the students on an affective level than the pre-lab readings. Second, that both interventions (video and reading) were effective. Similarly, a student's incorporation in either the treatment or control group appears to have had no bearing on their Career Goals response scores (Table 2). Across the board, responses for both the treatment and control groups were higher for the Sense of Place and Efficacy of Experience metrics than they were for the Inspiration metric. One possible reason for this is the difference in the tangibility of the Inspiration instrument relative to the Efficacy of Experience and Sense of Place instruments. In the latter, the questions comprising the two instruments are more personal and may be more easily and confidently assessed by the individual, resulting in more positive (or negative) scores. The prior begs more existential consideration which may result in less confidence and more neutral responses. Alternatively, it may simply be that the impact that a simple pre-lab video or reading has on larger, more existential considerations (e.g., "This week's lab topic is useful to society") is negligible whereas its impact on the personal experience (e.g., "clarified material covered in the lecture portion of class" or "deepens my appreciation for places I visit") is more tangible.

The efficacy of both the treatment and control groups is evidenced by the consistency of positive scores for both (Table 3). This observations stands in sharp contrast to themes coded from paired qualitative data wherein a stark preference for the video treatment over the reading control was recognized. Treatment group comments on how “engaging”, “fun” and “helpful” the videos were, as well as their appreciation for seeing real-world examples are not met with similar specificity or positivity in control group responses, where a general appreciation for having pre-lab information was the prevalent theme. This suggests that despite there not being an apparent quantitative difference between the treatment and control group, there is a preference for the treatment (video) over the control (reading) by the average student. This is in line with previous findings that younger generation students, specifically generation Z-age students, value more immersive, personalized, entertaining, and convenient experiences (Schwieger & Ladwig, 2018). Schwieger and Ladwig’s findings regarding personalization are further corroborated by the fact that a mutual theme for both the treatment and control group, was students’ offering ways in which the content could be improved (personalized).

The apparent dissonance between the quantitative and qualitative findings suggests the need for further research into the efficacy and optimization of curriculum-specific video education with respect to the affective domain. Given that students have a clear preference for the film medium (relative to reading), should educators not seek to incorporate it? Assuming as much, it is well documented that the video medium is capable of engendering emotional connection to content outside of the educational domain (Dobele et al., 2007; Gross & Levenson, 1995; Plantinga & Smith, 1999; von Mossner, 2014). Moreover, there is ample evidence that video is an effective educational tool from a cognitive perspective. (e.g., Brame, 2016; Carmichael et al., 2018; Hsin & Cigas, 2013; Mateer & Ghent, 2022; Noetel et al., 2021; Rasi & Poikela, 2016;

Stockwell et al., 2015). Therefore, further research needs to assess methods for educational content creation that adhere to cognitive best practices whilst influencing students on an affective level.

Here a discussion on the reproducibility of the curriculum is merited. This study assessed the efficacy of a specific curriculum (Meyers & Cohen, 2019a), a curriculum that was iteratively designed, curated, and led by Author 3, in collaboration with Author 4, and Author 1 over several years. Our argument here is not that this specific curriculum be implemented, or even that the specific methods therein be employed. Rather, we propose that as geoscience educators, we recognize the first-order importance of incorporating methods that honor the historically overlooked affective domain.

CONCLUSION

In an era of unprecedented human-caused climate change, inspiring a connection to Earth in our citizenry has never been more important. As a diverse array of science-credit-seeking students enroll in large-scale introductory geoscience courses, these courses find themselves perfectly positioned to be active players in this effort. Yet geoscience writ large finds itself in the unenviable position of simultaneously seeing decreasing enrollments whilst suffering the reputation of being one of the least diverse science disciplines. Reframing how we approach geoscience education to holistically incorporate educational goals that target both cognitive and affective outcomes may aid in 1) diversifying the science and 2) inspiring future generations of Earth-conscious citizens.

This study shows that a curriculum that included art in myriad forms (e.g., music, painting, poetry, and film) and that sought to re-envision large introductory geoscience courses by emphasizing a personal (affective) connection to the course content positively impacted the average student's sense of belonging, sense of place, and interest in further Earth Science education. This study also found that students have a preference for video media over reading, but further research is needed to understand how best to leverage this preference and verify the affective impact of video in introductory geoscience settings. Finally, this study shows that the curriculum's impact on students' sense of place and interest in further Earth science education has first-order impacts on their long-term goals.

Ultimately, this study shows that incorporating art in myriad forms is one way of honoring the affective domain. We posit, though, that as geoscience educators our ability to inspire connections to this wondrous planet is first dependent on our recognition of the importance of a balanced cognitive-affective approach, and then is limited only by our creativity in seeking how best to implement it.

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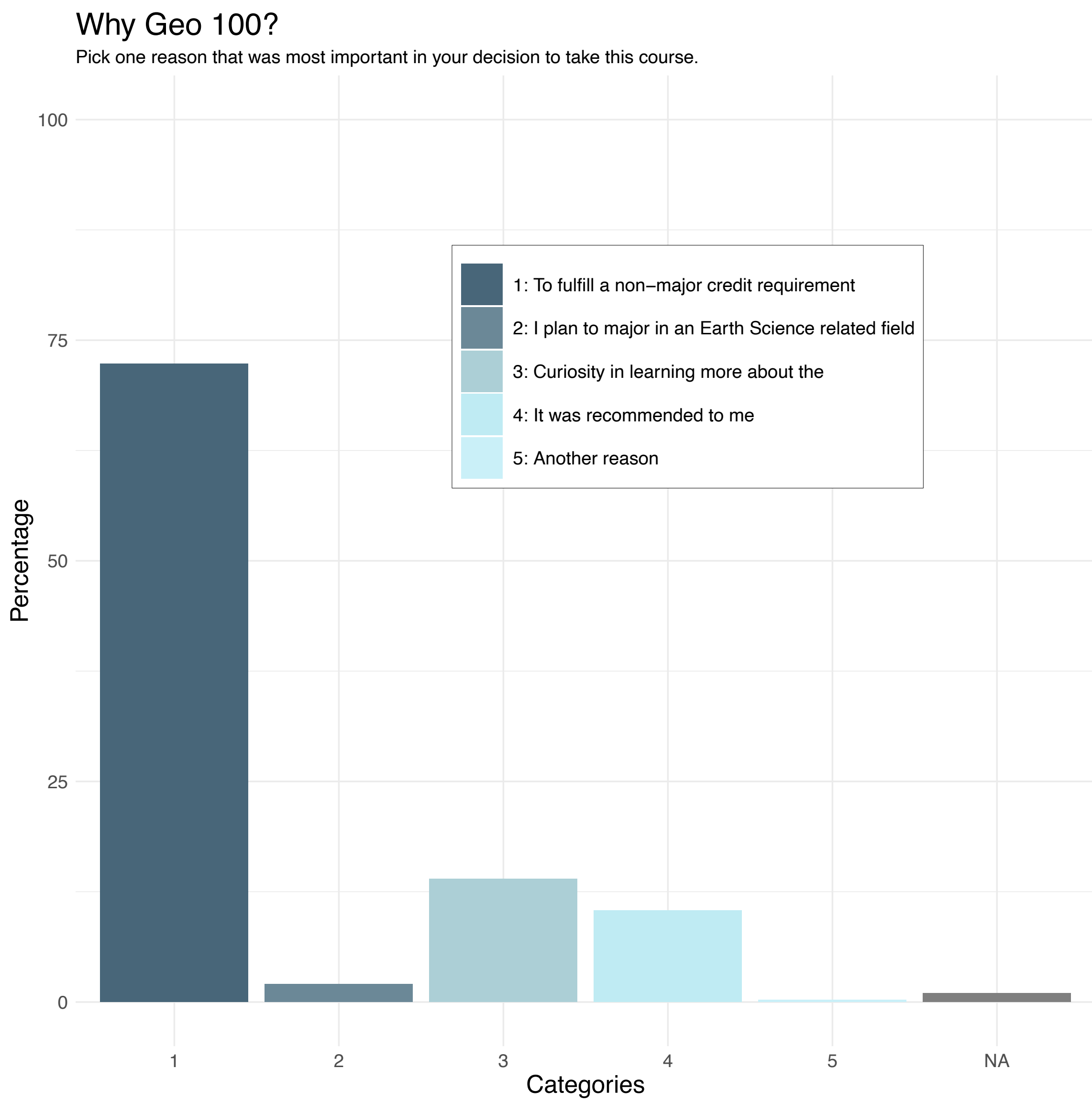
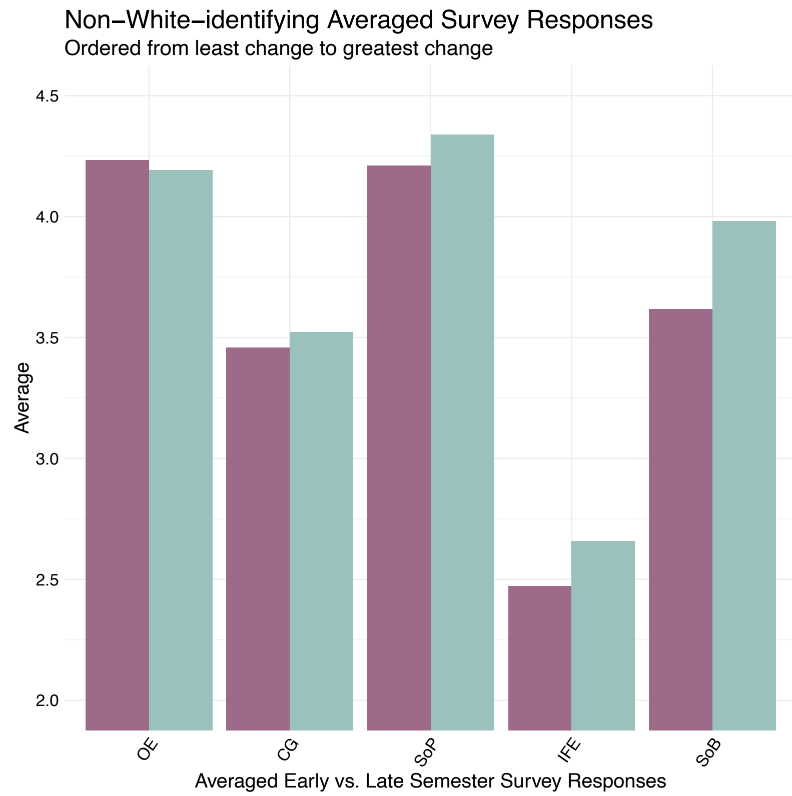


Figure 1: Motivation for taking geo100

Figure 2: Non-white-identifying response statistics ordered from least to greatest positive change. OE = Earth Science outcome expectations, CG = career goals, SoP = sense of place, IFE = interest in further Earth Science education, and SoB = sense of belonging.



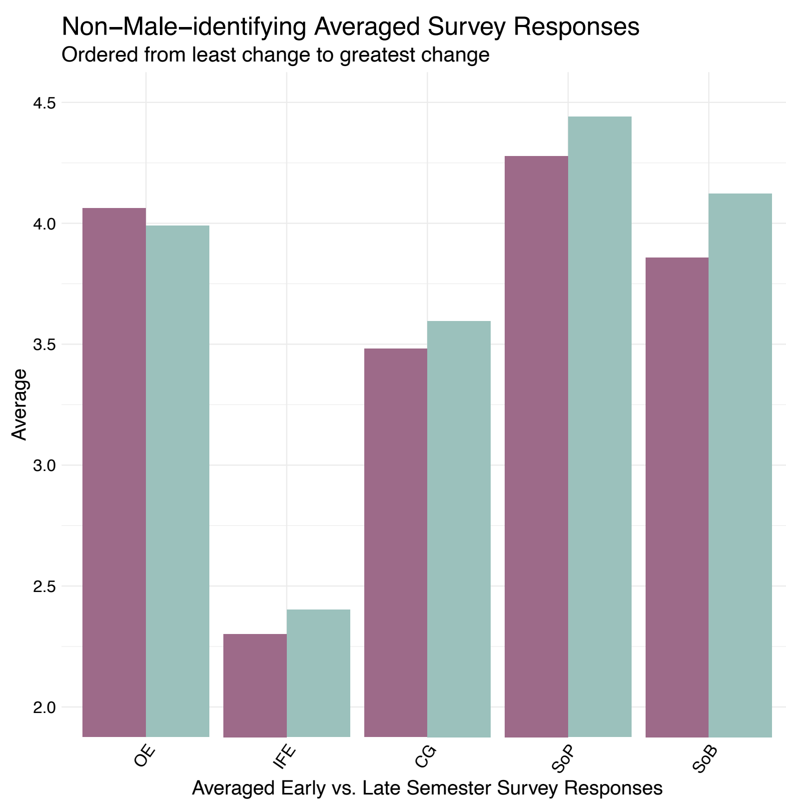


Figure 3: Non-male-identifying response statistics ordered from least to greatest positive change. OE = Earth Science outcome expectations, IFE = interest in further Earth Science education, CG = career goals, SoP = sense of place, and SoB = sense of belonging.

Table 1

Table 1: Study 1 Averaged Scores

	Sense of Belonging			Career Goals			Sense of Place			Earth Science Outcome Expectations			Interest in further Earth Science Education		
	SOBpre	SoBpost	% Change	CarGoalspre	CarGoalspost	% Change	SoPpre	SoPpost	% Change	ESOutExpecpre	ESOutExppost	% Change	IntEdpre	IntEdpost	% Change
N	386	251		385	251		384	251		385	251		385	251	
Mean	3.8725	4.0401	3.35%	3.4486	3.5842	2.71%	4.1958	4.3004	2.09%	3.7123	3.7136	0.03%	2.3418	2.4801	2.77%
Std. Deviation	0.6358	0.67823		0.54683	0.56168		0.5719	0.60143		0.82954	0.7193		0.71	0.77949	

Table 2

Table 2: Regression Analysis

		1					2					2					3				
		B	Std. Error	Beta	t	Sig.	B	Std. Error	Beta	t	Sig.	B	Std. Error	Beta	t	Sig.	B	Std. Error	Beta	t	Sig.
Pre-semester Survey	(Constant)	1.063	0.272		3.913	<.001	0.244	0.286		0.85	0.396	0.033	0.268		0.124	0.901	0.048	0.271		0.179	0.858
	Sense of Belonging	0.111	0.047	0.131	2.356	0.019	0.024	0.048	0.028	0.506	0.613	0.05	0.044	0.059	1.119	0.264	0.05	0.044	0.059	1.124	0.262
	Career Goals	0.443	0.078	0.414	5.707	<.001	0.42	0.069	0.392	6.046	<.001	0.396	0.064	0.37	6.142	<.001	0.398	0.065	0.372	6.144	<.001
	Sense of Place	0.075	0.061	0.074	1.225	0.222	-0.099	0.059	-0.097	-1.67	0.096	-0.038	0.056	-0.038	-0.69	0.491	-0.04	0.056	-0.039	-0.708	0.48
	ES Outcome Expectations	-0.009	0.034	-0.014	-0.257	0.797	0.024	0.034	0.037	0.713	0.476	0.033	0.031	0.05	1.05	0.295	0.035	0.032	0.053	1.095	0.275
	Interest in Further ES Education	0.123	0.052	0.153	2.374	0.018	0.103	0.046	0.128	2.219	0.027	-0.065	0.05	-0.081	-1.291	0.198	-0.066	0.05	-0.082	-1.301	0.195
Post-semester Survey	Sense of Belonging						0.054	0.049	0.065	1.09	0.277	0.045	0.046	0.055	0.984	0.326	0.046	0.046	0.056	0.994	0.321
	Sense of Place						0.377	0.054	0.407	7.024	<.001	0.328	0.05	0.353	6.499	<.001	0.329	0.051	0.354	6.499	<.001
	ES Outcome Expectations						0.013	0.039	0.017	0.335	0.738	-0.008	0.036	-0.01	-0.211	0.833	-0.009	0.036	-0.011	-0.238	0.812
	Interest in Further ES Education											0.251	0.039	0.35	6.352	<.001	0.252	0.04	0.351	6.354	<.001
	Treatment/Control																-0.02	0.048	-0.018	-0.409	0.683
	R2		0.369					0.488					0.56					0.559			
	ΔR2		28.574					21.968					40.348					0.167			
	Sig. F Change		<.001					<.001					<.001					0.683			

Table 3

Table 1: Study 2 Averaged Scores					
Lab	**Content**	**Treatment/Control**	**N**	**Mean**	**Std. Deviation**
Minerals Lab	Sense of Place	T	96	3.9573	0.61861
		C	85	3.9835	0.54442
	Efficacy of Experience	T	96	3.9573	0.68285
		C	85	3.9496	0.62996
	Inspiration	T	96	3.48	0.64626
		C	85	3.5353	0.56715
Igneous Rocks Lab	Sense of Place	T	78	4.0513	0.67338
		C	71	3.9127	0.67843
	Efficacy of Experience	T	79	3.8807	0.72282
		C	71	3.7438	0.71539
	Inspiration	T	79	3.5063	0.74461
		C	71	3.4507	0.75666
Sedimentary Rocks Lab	Sense of Place	T	87	4.0736	0.65919
		C	72	3.9194	0.70063
	Efficacy of Experience	T	87	4.0345	0.60725
		C	72	3.8512	0.67196
	Inspiration	T	87	3.5431	0.73848
		C	71	3.5211	0.72672

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Appendices

Appendix A

(Chapter 1)

CAPTIONS

Appendix A1

Petrographic point counting data was gathered using a modified Gazzi-Dickinson point counting methodology (Ingersoll et al., 1984) for 40 samples from this study. Q = monocrystalline quartz + polycrystalline (including chert), F = plagioclase feldspar + potassium feldspar and L = all lithic fragments (excluding intrabasinal carbonate grains). Qp = polycrystalline quartz, Qm = monocrystalline quartz, P = plagioclase feldspar, K = potassium feldspar, Lv = Volcanic lithics, Lsed+met = sedimentary and metamorphic lithics, M = phyllosilicates, D = dense minerals, Acc = accessory minerals (Fig. 4)

Appendix A2

U-Pb data for all samples from this study. Dataset is hosted on the GeoChron database here: http://www.geochron.org/dataset/html/geochron_dataset_2023_02_07_gVw3j

Appendix A3

Paleocurrent data

Appendix A4

Shepard plots for MDS analysis.

Appendix A5

Sample results for DZmix modeling.

Appendix A6

Pertinent detrital zircon provenance populations.

Appendix A7

Samples housed in the collections of the Department of Geoscience, University of Wisconsin-Madison, under file number UW2053.

Appendix A1

Sample	Locality	Q	F	L	Qp	Qm	Chert	P	K	Lv	Lsed+met	M	D	Acc.	Unknown	Matrix/ Cement	Total Framework Grains	UW Museum #
5-SC	Sage Creek	111	75	44	7	100	4	51	24	11	33	22	1	5	3	55	230	
BC1	Badger Creek	121	38	22	7	113	1	19	19	17	5	19	1	3	2	24	181	
BC2	Badger Creek	120	65	24	19	101	0	11	54	23	1	18	0	6	1	19	209	
BC3	Badger Creek	94	42	14	12	79	3	41	1	11	3	43	0	2	2	46	150	
BC4	Badger Creek	130	86	14	46	81	3	29	57	14	0	6	1	3	3	6	230	
BF-001	Firehole Canyon	43	43	14	3	113	0	24	13	0	10	37	5	0	0	0	267	
DM-403	Deer Mound	59	10	31	0	106	0	32	25	0	21	20	2	0	0	0	181	
FH1	Firehole Canyon	75	55	0	5	70	0	49	6	0	0	13	1	4	0	13	130	
FH2	Firehole Canyon	91	96	1	4	83	4	77	19	1	0	46	0	8	1	46	188	
FH4	Firehole Canyon	77	74	0	12	65	0	44	30	0	0	24	2	3	0	24	151	
HR-392	Hangout Ridge	51	14	35	15	77	0	15	49	0	7	24	0	0	0	49	182	
LM-405	Little Mountain	70	27	3	0	185	0	0	7	0	1	0	3	0	0	0	264	
LMRC1	Little Mountain Road-cut	186	6	13	14	170	2	1	5	3	10	0	0	0	0	10	205	
LMRC2	Little Mountain Road-cut	229	9	36	22	207	0	5	4	0	36	0	0	1	0	36	274	
LMRC3	Little Mountain Road-cut	169	8	5	17	152	0	2	6	2	3	0	0	1	0	3	182	
PL1	Pipeline	151	36	1	8	142	1	0	36	1	0	1	1	1	0	1	188	
PL2	Pipeline	101	55	0	8	93	0	1	54	0	0	0	0	0	0	0	156	
PL3	Pipeline	124	15	3	11	110	3	2	13	1	2	0	0	0	1	2	142	
PL4	Pipeline	161	11	7	19	140	2	1	10	1	6	0	0	1	0	6	179	
PL5	Pipeline	156	17	6	15	138	3	0	17	5	1	0	0	0	0	1	179	
SB1	Scrivner Butte_A	113	107	7	17	95	1	66	41	2	5	25	0	0	0	30	227	
SB2	Scrivner Butte_A	113	116	19	20	92	1	56	60	13	6	13	0	3	2	19	248	
SB3	Scrivner Butte_A	103	135	7	19	84	0	111	24	3	4	31	1	1	0	35	245	
SB4	Scrivner Butte_B	42	31	9	2	40	0	18	13	0	9	11	5	4	0	20	82	
SB5	Scrivner Butte_B	68	23	18	2	66	0	19	4	1	17	24	4	3	1	41	109	
SB6	Scrivner Butte_C	199	17	9	17	181	1	10	7	6	3	0	0	2	0	3	225	
SB7	Scrivner Butte_C	205	34	7	27	178	0	13	21	0	7	0	0	1	1	7	246	
SC1	Sage Creek	123	102	6	10	112	1	91	11	6	0	24	2	2	0	24	231	
SC2	Sage Creek	115	67	5	8	107	0	54	13	3	2	21	7	3	0	23	187	
SC3	Sage Creek	*Not counted in point-counting metrics*																
SC4	Sage Creek	121	85	5	8	110	3	59	26	1	4	16	0	2	0	20	211	
SC5	Sage Creek	86	92	4	6	79	1	74	18	1	3	27	2	5	0	30	182	
SpCr1	Spring Creek	197	15	14	9	187	1	0	15	0	14	0	0	2	0	14	226	
SpCr2	Spring Creek	166	8	38	10	151	5	3	5	0	38	0	1	1	0	38	212	
SpCr3	Spring Creek	124	30	28	8	116	0	5	25	0	28	1	2	2	0	29	182	
SpCr4	Spring Creek	123	24	1	11	112	0	12	12	0	1	0	0	1	2	1	148	
TR-372	Tollgate Rock	71	0	29	0	97	0	11	28	0	15	30	24	4	0	0	136	
VC-395	Vermillion Cliffs	58	0	42	26	67	0	11	55	0	3	17	2	0	0	36	159	

Bold = Processed for U-Pb DZ analysis

Appendix A2

Sample_ID	Unit	Basin	Age	Latitude	Longitude	Source
CC-16	Cathedral Bluffs	Sandwash	Eocene	41.01033	-108.02724	Hammond et al., 2019
CR-148	Cathedral Bluffs	Sandwash	Eocene	41.00566	-107.923	Hammond et al., 2019
FH3_18	Wilkins Peak	Bridger	Eocene	41.35152082	-109.4130088	Hammond et al., 2019
HOR-16	Cathedral Bluffs	Sandwash	Eocene	41.09575	-107.86373	Hammond et al., 2019
MCP-16	Cathedral Bluffs	Sandwash	Eocene	41.08605	-107.94543	Hammond et al., 2019
SDC-16	Cathedral Bluffs	Sandwash	Eocene	41.09517	-107.92923	Hammond et al., 2019
17-BF-001	Wasatch	Bridger	Eocene	41.352739	-109.333886	This study
19-DM-403	Wilkins Peak	Bridger	Eocene	41.072382	-109.479023	This study
19-HR-392	Cathedral Bluffs	Washakie	Eocene	41.086758	-107.8517526	This study
19-LM-405	Wilkins Peak	Bridger	Eocene	41.0771071	-109.3095767	This study
19-VC-395	Cathedral Bluffs	Sandwash	Eocene	40.8555014	-108.5030526	This study
5-SC_18	Wilkins Peak	Bridger	Eocene	41.28994795	-109.3996372	This study
BC2_18	Cathedral Bluffs	Washakie	Eocene	41.11635813	-108.5597383	This study
MD1_20	Laney	Washakie	Eocene	41.4095897	-108.0560462	This study
LMRC2_18	Wilkins Peak	Bridger Basin	Eocene	41.06795933	-109.2854359	This study
NFT2_18	Wilkins Peak	Washakie	Eocene	41.22446167	-107.8092895	This study
PL3_18	Wilkins Peak	Bridger	Eocene	41.03392515	-109.5227177	This study
RR1_20	Cathedral Bluffs	Washakie	Eocene	41.4334077	-107.9934752	This study
RR2_20	Cathedral Bluffs	Washakie	Eocene	41.43338106	-107.9945224	This study
SB3_18	Wilkins Peak	Washakie/Bridger Basins	Eocene	41.07730805	-108.8637856	This study
SB7_18	Wilkins Peak	Washakie/Bridger Basins	Eocene	41.06047438	-108.9126273	This study
SC1_18	Wilkins Peak	Bridger	Eocene	41.28994795	-109.3996372	This study
TR-19-372	Wilkins Peak	Bridger	Eocene	41.542441	-109.48219	This study
CMB						Klein et al., 2010
Rawlins Uplift						Lynds and Xie, 2019
Sierra Madre						Premo and Van Schmus, 1989; Souder and Frost, 2006
Uintas						Dehler et al., 2010

Aliquot Name 17-BF-001
Stratigraphic Formation Name
Stratigraphic Age
Rock Type
Mineral Zircon
Method U-Pb
Latitude
Longitude
Internal Uncertainty Level one sigma
External Uncertainty 206/238 (% two sigma) 0.89920672
External Uncertainty 206/207 (% two sigma) 0.78890091
Analysis Purpose
Laboratory Name Arizona LaserChron Center
Analyst Name
Aliquot Reference
Aliquot Instrumental Method LA-ICPMS
Aliquot Instrumental Reference Gehrels, G.E., Valencia, V., Ruiz, J., 2008, Enhanced precision, accuracy, efficiency, and spatial resolution of U-Pb ages by laser ablation-multicollector-inductively coupled plasma-mass spectrometry: Geochemistry, Geophysics, Geosystems, v. 9, Q03017, doi:10.1029/2007GC001805.
Gehrels, G. and Pecha, M., 2014, Detrital zircon U-Pb geochronology and Hf isotope geochemistry of Paleozoic and Triassic passive margin strata of western North America: Geosphere, v. 10 (1), p. 49-65.

				Isotope ratios									Apparent ages (Ma)						
Analysis	U (ppm)	206Pb 204Pb	U/Th	206Pb* 207Pb*	± (%)	207Pb* 235U	± (%)	206Pb* 238U	± (%)	error corr.	206Pb* 238U	± (Ma)	207Pb* 235U	± (Ma)	206Pb* 207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)
Spot 1	179.849477	74811.45904	2.234839001	6.265769312	0.799758263	10.45972574	1.302050413	0.474508582	1.02733863	0.789016017	2503.302301	21.31229278	2476.355566	12.06769238	2454.304426	13.52641707	2454.304426	13.52641707	47.34144962
Spot 2	144.419534	325176.5594	2.425929215	9.134544148	0.841612644	4.797868458	1.371849915	0.317098939	1.083355967	0.789704439	1775.545814	16.81383414	1784.52591	11.52750046	1795.026241	15.32102925	1795.026241	15.32102925	380.8351298
Spot 3	70.1805755	1180502.328	1.088033703	11.12949817	0.952814191	3.119812835	1.400101196	0.251162782	1.025879356	0.732718005	1444.469584	13.27567393	1437.58718	10.76605678	1427.399368	18.19270341	1427.399368	18.19270341	3818.36123
Spot 4	98.7164501	681099.108	1.04804588	5.288859265	0.830001872	13.18397052	1.493231495	0.504362592	1.241304608	0.831287455	2632.517529	26.82806951	2692.910078	14.09397009	2738.541945	13.65396551	2738.541945	13.65396551	1230.492729
Spot 5	368.649562	153511.5112	2.496809642	9.617307534	0.709103856	4.216370844	1.243690147	0.293534052	1.021670419	0.821483085	1659.165496	14.94549923	1677.211676	10.20768071	1699.847059	13.06421584	1699.847059	13.06421584	186.9434533
Spot 6	218.261181	208052.9628	1.727716286	9.068918982	0.561730505	4.831938319	1.020146321	0.317050502	0.851547262	0.834730513	1775.308738	13.21458677	1790.475116	8.582447994	1808.176307	10.20904519	1808.176307	10.20904519	328.1839236
Spot 7	182.259223	2740.498039	1.367563129	20.71349425	2.390240981	0.071562045	2.619300477	0.012073587	1.029994254	0.393232568	77.36523924	0.792094938	70.18067634	1.776155956	NA	NA	77.36523924	0.792094938	129.2570164
Spot 8	1529.42119	317258.7649	3.654756871	9.4522349	0.650314874	4.276099155	1.122996054	0.292384156	0.915535346	0.81526141	1653.432362	13.35230216	1688.771923	9.241765655	1732.921259	11.92972927	1732.921259	11.92972927	273.5560295
Spot 9	147.69386	78519.78337	3.118985074	6.35610022	0.775121121	10.09944794	1.317501183	0.464649513	1.065226635	0.80852044	2460.054626	21.78480371	2443.920772	12.17301022	2430.504788	13.14164752	2430.504788	13.14164752	36.031794
Spot 10	128.629667	219732.4951	2.408533954	9.449594956	0.600247807	4.456130579	1.237280495	0.304663723	1.081926534	0.874439174	1714.393711	16.28692363	1722.840893	10.26091319	1733.103885	11.01079375	1733.103885	11.01079375	277.3584745
Spot 11	1908.79912	1017202.499	23.24681596	9.18130974	0.667612041	4.235013223	1.452765899	0.281295468	1.290280153	0.888154212	1597.883322	18.26067508	1680.834005	11.93390379	1785.959815	12.16657588	1785.959815	12.16657588	155.9685706
Spot 12	92.515598	73100.23267	0.559426226	5.365308415	0.73554224	13.429342	1.192400637	0.521653068	0.93837668	0.786964256	2706.187195	20.73781663	2710.325199	11.26881235	2713.399061	12.13395436	2713.399061	12.13395436	231.231191
Spot 13	51.0555776	77975.39711	0.948114404	7.878411694	0.734410419	6.737605917	1.211898827	0.384479899	0.963961548	0.79541421	2097.176761	17.2570254	2077.567474	10.71547423	2058.168846	12.96212898	2058.168846	12.96212898	192.7386634
Spot 14	23.6393891	58672.11648	0.987968052	13.11528272	1.522607712	2.035337517	1.872723562	0.193705836	1.090219847	0.582157382	1141.418961	11.40454941	1127.402779	12.7513411	1100.495898	30.44151673	1100.495898	30.44151673	196.0589423
Spot 15	207.054097	26146.60914	3.859649122	10.04642221	0.719022989	3.896514878	1.214637439	0.28466813	0.964000229	0.793652655	1614.829463	13.77031583	1612.960047	9.814752667	1610.504491	13.76900272	1610.504491	13.76900272	16.42769103
Spot 16	133.671629	6388.271517	1.769932008	16.78927182	5.140669749	0.093926941	5.317294427	0.011860079	1.288162736	0.242259058	76.00515593	0.973320956	91.15491754	4.635808619	508.3787387	113.5084975	76.00515593	0.973320956	241.5652862
Spot 17	518.944904	156000.4344	2.003014498	8.089129678	0.592957986	6.159376855	1.244723561	0.360605822	1.094394477	0.879226931	1985.044694	18.69793844	1998.703301	10.87379087	2012.837377	10.51952418	2012.837377	10.51952418	188.0395599
Spot 18	94.0783388	70406.19995	1.656515051	13.79106405	1.010190179	1.666712687	1.325848054	0.166712118	0.85870663	0.647665942	993.9702661	7.909821813	995.9349247	8.414302509	1000.244154	20.49555457	1000.244154	20.49555457	155.2254664
Spot 19	220.202365	2932.209487	1.081548835	20.87969389	2.079999495	0.068429068	2.571691158	0.011555865	1.16084553	0.451393833	74.0667616	0.854880173	67.20760409	1.672414964	NA	NA	74.0667616	0.854880173	150.9231924
Spot 20	184.772324	183677.7819	6.578368581	9.491276162	0.963401391	4.4744435	1.34945545	0.307372222	0.94490945	0.700215372	1727.762677	14.32103729	1726.243211	11.19966738	1724.385143	17.69517623	1724.385143	17.69517623	85.50674468
Spot 21	100.932226	88318.12542	1.858198402	14.09529902	0.66517981	1.58879047	1.275172497	0.162355021	1.087432191	0.85277262	969.8510091	9.791464493	965.822985	7.946528395	956.6469722	13.59589099	956.6469722	13.59589099	257.8534692
Spot 22	199.675892	44505.30124	4.629812479	13.81878376	0.597652226	1.70906049	0.999444266	0.171588232	0.80073793	0.801183174	1020.856029	7.559991444	1011.932672	6.402215594	992.6823734	12.1401715	992.6823734	12.1401715	36.99237834
Spot 23	457.256908	787386.2037	3.932504924	9.558853779	0.960565402	4.463952451	1.404928316	0.308696415	1.025249957	0.729752505	1734.288728	15.58983381	1724.295497	11.65509448	1712.168788	17.6681506	1712.168788	17.6681506	576.5355522
Spot 24	82.3044011	102071.316	1.747373834	9.634098041	0.795551058	4.230279628	1.23154564	0.305171982	0.939994193	0.76326379	1667.323069	13.80993808	1679.915462	10.11437271	1695.661644	14.66552872	1695.661644	14.66552872	177.0104217
Spot 25	527.449532	18745.84226	3.706670784	20.91750038	1.413779913	0.089821918	1.847372051	0.01381796	0.93689183	0.507148427	88.4664764	0.823173918	87.3374671	1.5460068	56.5977959	37.95592333	88.4664764	0.823173918	224.3496417
Spot 26	878.02128	170326.9789	2.179944582	6.192508766	0.47138178	9.952647039	1.120191847	0.445860866	1.01618326	0.907151095	2376.824493	20.20061147	2430.401752	10.33610301	2475.550421	7.955424632	2475.550421	7.955424632	157.8882014
Spot 27	88.2764562	67814.08293	1.231729219	5.236513404	0.803999931	14.36541537	1.193282421	0.544818607	0.881602079	0.738804213	2803.587412	20.0431811	2774.147564	11.32830818	2752.789492	13.21512013	2752.789492	13.21512013	67.45544049
Spot 28	1571.62854	14224898.92	9.153140862	9.584570958	0.570485335	4.123342141	1.07832763	0.285969801	0.915061178	0.848592907	1621.35789	13.11771947	1658.939928	8.812265249	1706.835335	10.49941178	1706.835335	10.49941178	5122.371894
Spot 29	179.798908	5087.962137	0.799437622	20.96318936	2.445203171	0.071878854	2.74489201	0.011611948	1.228059159	0.447397987	74.42415114	0.908716928	70.48083192	1.869007774	NA	NA	74.42415114	0.908716928	346.299196
Spot 30	275.647524	66880.64048	2.485047153	9.50087578	0.725409832	4.51583464	1.212348655	0.31105534	0.970962713	0.800893958	1745.897926	14.8504004	1733.891437	10.07856035	1719.418481	13.34199647	1719.418481	13.34199647	58.6839381
Spot 31	323.33354	141318.6524	1.442684887	5.688450735	0.48227811	11.74304976	1.02514544	0.483596655	0.904608446	0.882419617	2542.912567	19.00848679	2584.135661	9.592589002	2616.607671	8.027526049	2616.607671	8.027526049	189.7187946
Spot 32	680.72858	431382.4641	5.474960623	9.623517459	0.51275948	4.370674276	1.012246309	0.304416306	0.872764496	0.862205659	1713.171091	13.13008595	1706.811661	8.364607459	1698.999513	9.446170043	1698.999513	9.446170043	228.0434468
Spot 33	1733.98982	31195.92192	1.825043433	19.76929773	0.910827132	0.094921891	1.525472323	0.013709953	1.201983184	0.787941653	87.77967345	1.047945885	92.07800991	1.342819805	204.9320854	21.80352914	87.77967345	1.047945885	821.177333
Spot 34	199.134052	48351.42309	2.525652676	17.96372713	1.115871615	0.519903007	1.544854966	0.067965188	1.066635746	0.690443938	423.8848988	4.375864193	425.0865836	5.365721429	431.5877861	24.90269071	423.8848988	4.375864193	183.7372374
Spot 35	90.3191727	54889.62295	2.043378537	11.05380665	0.713591782	3.109771624	1.042659622	0.249499392	0.760010195	0.728914958	1435.893538	9.782985279	1435.109368	8.011102425	1433.92839	13.61705068	1433.92839	13.61705068	71.85988485
Spot 36	460.603079	45302.17836	2.041835783	20.42802429	1.361196764	0.096424277	1.953816635	0.014352219	1.401485759	0.717306698	91.86269408	1.278312853	93.47030305	1.744704537	134.7007879	31.99022782	91.86269408	1.278312853	1065.710168
Spot 37	247.646568	3202.285171	1.311846242	20.77322102	2.346884199	0.072107172	5.914248653	0.011991507	0.972244504	0.164390197	76.84240623	0.742660956	70.69709263	4.038983172	NA	NA	76.84240623	0.742660956	136.8243118
Spot 38	166.828682	16363.82434	2.847540657	20.35298284	2.13572877	0.097682689	2.349852998	0.014650528	0.977437875	0.41595703	93.75823529	0.90979632	94.63503171	2.123303267	116.7942119	50.39670068	93.75823529	0.90979632	257.8302289
Spot 39	299.383732	110257.6664	2.737858943	9.5347284	0.728017618	4.348643987	1.472528851	0.300291407	1.279860995	0.869158518	1692.753577	19.05392653	1702.638035	12.15695019	1714.80702	13.38943626	1714.80702	13.38943626	124.1054518
Spot 40	466.320215	71654.04574	4.439357744	9.637807893	0.563029963	4.243043886	1.103267935	0.296362284	0.948761255	0.859955433	1673.244794	13.982099	1682.390439	9.066015944	1693.796639	10.38002057	1693.796639	10.38002057	45.59911264
Spot 41	303.308611	95974.05288	2.187756221	9.095535002	0.728133728	4.837249767	1.062269073	0.318678421	0.773190081	0.727866509	1783.271806	12.0453311	1791.399457	8.938525888	1800.860879	13.25236084	1800.860879	13.25236084	125.8352296
Spot 42	112.32741	5969.691021	0.90908767	20.32492747	3.062253512	0.077596654	3.714915416	0.012005342	1.912074667	0.514702073	76.93053784	1.462226998	75.88286676	2.716230607	42.99969472	NA	76.93053784	1.462226998	346.9278797
Spot 43	99.759823	39426.7765	1.477711961	9.931024197	0.758781899	4.134585986	1.300017139	0.297661314	1.055518287	0.81192644	1679.701241	15.60794955	1661.165877	10.62971084	1637.795362	14.09274127	1637.795362	14.09274127	61.29104793
Spot 44	142.145363	97050.80219	1.260677759	5.385693434	0.619996116	13.52127905	1.051433391	0.526430588	0.849174847	0.807635419	2726.395233	18.87907118	2716.774224	9.941191882	2709.614841	10.22938149	2709.614841	10.22938149	130.4962771
Spot 46	201.11041	106802.196	3.212897325	9.713628236	0.553309118	4.329365125	1.007435494	0.304185854	0.841788835	0.835575915	1712.0321	12.65672817	1698.971536	8.310087446	1682.881009	10.21866191	1682.881009	10.21866191	98.03952673
Spot 49	116.346652	218459.1428	1.398940682	9.700634204	0.830077242	4.34137612	1.313868041	0.304389475	1.018431066	0.775139538	1713.038491	15.3205024	1701.257369	10.84357335	1686.759694	15.3187145	1686.759694	15.3187145	499.6097913
Spot 50	696.582505	73423560.27	6.634324081	11.44557373	0.639393675	2.857475243	1.302416911	0.236243219	1.134665386	0.871199826	1367.136945	13.97790619	1370.780207	9.796540575	1376.444558	12.2931944	1376.444558	12.2931944	40804.80218
Spot 51	88.6134928	52476.90931	1.621396206	11.31532459	0.78208535	3.048299447	1.027397814	0.249700233	0.665924537	0.6481662	1436.929629	8.57741802	1419.806979	7.855289772	1394.199799	15.00560479	1394.199799	15.00560479	84.05319937
Spot 52	440.972688	318064.4359	2.867687205	9.706857142	0.562351396	4.327743303	1.150452915	0.303279777	1.003642442	0.872388977	1707.551925	15.05579903	1698.66249	9.489200081	1687.695563	10.37654953	1687.695563	10.37654953	313.2035204
Spot 53	1488.77609	113086.0373	11.67106524	9.335803992	0.718780669	4.609349699	1.089284873	0.310886166	0.818467635	0.751380704	1745.066051	12.51286268	1750.961867	9.088874879	1757.990569	13.14657888	1757.990569	13.14657888	26.24959518
Spot 54	147.01882	62145.87713	0.896832405	5.367698182	0.471134466	13.34694779	1.104997238	0.51753846	0.999472538	0.904502296	2688.732234	21.97321858	2704.510557	10.43827767	2716.308978	7.770000253	2716.308978	7.770000253	121.2950265
Spot 55	246.225611	327951.2957	2.464545508	6.49466875	0.635398967	9.419920494	1.308241494	0.441606361	1.143574237	0.87413084	2357.827687	22.58254971	2379.772967	12.00938901	2398.603612	10.80760788	2398.603612	10.80760788	278.1578988
Spot 56	412.040344	8863.196013	1.509622166	20.47658135	1.329570182	0.100296648	1.791977694	0.015343852	1.075867879	0.600380174	98.16164667	1.048089583	97.0501332	1.658591847	69.84622133	34.1160103	98.16164667	1.048089583	255.0389073
Spot 57	211.872439	215995.7634	2.271381597	10.0963836	0.824927204	3.874078153	1.353071591	0.282438206	1.072506107	0.792645499	1603.630069	15.22669972	1608.296685	10.92052004	1614.397257	15.36386619	1614.397257	15.36386619	298.2631968
Spot 58	318.522044	401320.7142	2.340504598	9.056648126	0.687816879	5.015106209	1.057208297	0.327861292	0.802867136	0.759421902	1828.007071	12.77908887	1821.875419	8.950319861	1814.857771	12.4904017	1814.857771	12.4904017	460.2723261
Spot 59	236.787996	4187439.013	2.050911732	9.007696226	1.040377845	4.317259369	1.40687153	0.280636682	0.947048807	0.673159408	1594.568007	13.37856984	1696.662451	11.59907984	1825.192495	18.87011726	1825.192495	18.87011726	6083.917567
Spot 60	539.006966	195362.6996	3.095414603	9.534585896	0.741683606	4.322279113	1.385892269	0.297586994	1.170715464	0.844737711	1679.332031	17.30804704	1697.620568	11.42859609	1720.258398	13.62984909	1720.258398	13.62984909	185.8213017
Spot 61	308.603704	2892303.265	4.016498043	5.713808618	0.521059189	11.90138806	1.093272221	0.490512927	0.961114702	0.879117464	2572.894807	20.38964126	2596.674526	10.24080572	2615.264465	8.673910832	2615.264465	8.673910832	1371.500057
Spot 62	153.704732	160446.3338	2.211345261	13.20285846	0.73916017	1.910421039	1.18932299	0.182146578	0.931733591	0.783415101	1078.690859	9.254648815	1084.731439	7.927054041	1096.871758	14.77626568	1096.871758	14.77626568	352.5709442
Spot 63	801.72526	122222.4877	6.919406267	6.459844243	0.735354964	9.501040378	1.288178501	0.442996752	1.057664584	0.821054368	2364.042089	20.93162197	2387.647191	11.83489636	2407.83694	12.49584579	2407.83694	12.49584579	33.90936832
Spot 64	549.177651	12294.7064	4.117924881	20.6044522	1.457379584	0.096228259	1.793653917	0.014664285	1.045148763	0.582692544	93.84563387	0.973721668	93.28875697	1.598713178	79.04791443	34.63060482	93.84563387	0.973721668	127.4279013
Spot 65	538.382463	347029.0135	3.406304281	9.423536165	0.556398373	4.605061529	1.056716475	0.313131365	0.898369344	0.850151734	1756.097595	13.80995264	1750.185342	8.815650299	1743.113161	10.19360157	1743.113161	10.19360157	292.455597

Spot 66	422.902309	2728533.97	1.660278891	9.428500136	0.622315367	4.53076998	1.086764662	0.307798074	0.890943889	0.819813084	1729.862135	13.51743844	1736.637095	9.039893426	1744.789064	11.39904405	1744.789064	11.39904405	4701.449323
Spot 67	387.974123	192958.5968	5.027242858	11.41435597	0.501622781	2.817622349	1.208893907	0.231912486	1.099889995	0.909831697	1344.514606	13.34788178	1360.235373	9.059817372	1385.008091	9.633835044	1385.008091	9.633835044	139.0931779
Spot 69	1120.71069	32991.83496	0.455277059	20.6355701	1.214321516	0.075914285	1.629470529	0.011391934	1.077387253	0.661188548	73.02198088	0.782290442	74.29638816	1.167407408	115.5195228	28.81192025	73.02198088	0.782290442	4065.855199
Spot 70	182.65336	1954753.295	2.940608607	6.31542827	0.688220126	10.25020399	1.242523465	0.466427076	1.034513227	0.832590495	2467.87353	21.21187713	2457.619192	11.49542878	2449.133592	11.64576297	2449.133592	11.64576297	1284.990164
Spot 71	92.8685127	37406.05669	3.032722	13.66231925	0.905037153	1.760474862	1.438782325	0.174055376	1.111667014	0.772644336	1034.416687	10.62410067	1031.02271	9.317152953	1023.810033	18.48192661	1023.810033	18.48192661	45.05473449
Spot 72	200.80404	16503.80931	0.856458919	5.544840415	0.690992024	12.90060072	1.304117431	0.517054277	1.105476815	0.847681956	2686.675125	24.28873602	2672.419207	12.28978208	2661.63648	11.46609098	2661.63648	11.46609098	26.31043587
Spot 74	322.803054	737695.3549	1.890077233	9.531398897	0.770970478	4.43325758	1.168038977	0.30424615	0.87745059	0.751216875	1712.330129	13.19492757	1718.575292	9.677497472	1726.175792	14.15715121	1726.175792	14.15715121	1178.764114
Spot 75	200.991398	60740.68299	3.817049343	9.598230688	0.667430041	4.414640989	1.081665777	0.305698726	0.851122663	0.786862894	1719.505689	12.84581266	1715.090195	8.954884403	1709.685444	12.28130834	1709.685444	12.28130834	34.3778862
Spot 76	310.612303	57634.38691	1.643148608	9.502206014	0.572389482	4.38693556	0.990554872	0.300944354	0.807439667	0.815138757	1695.989858	12.04082573	1709.881885	8.191007889	1726.924903	10.53539015	1726.924903	10.53539015	79.46284677
Spot 77	162.881513	61078.50611	1.340570289	10.07020439	0.617167315	3.919154181	1.328854176	0.28491698	1.176575476	0.885406011	1616.078062	16.81830588	1617.643906	10.75041866	1619.666672	11.49534205	1619.666672	11.49534205	144.1316757
Spot 78	796.262229	157969.9204	1.603851054	11.31607651	0.902614351	2.810449879	1.370713217	0.229302175	1.031463993	0.752501676	1330.840748	12.40287417	1358.325898	10.2657551	1401.831503	17.29649476	1401.831503	17.29649476	405.7472842
Spot 79	1157.0605	828394.6662	3.682273717	9.332856248	0.6504151	4.431528694	1.216477616	0.297945377	1.027996995	0.845060346	1681.112233	15.21216728	1718.252142	10.07812594	1763.794489	11.88745837	1763.794489	11.88745837	664.6553682
Spot 80	524.414781	848071.2037	2.377271418	6.288926724	0.682209562	8.984013256	1.133672619	0.406995527	0.9054301	0.798669814	2201.170662	16.88383292	2336.381316	10.35852382	2456.658288	11.53238942	2456.658288	11.53238942	763.857152
Spot 81	285.407177	224106.1388	1.144652366	8.033649468	0.588373974	6.288570062	1.009020018	0.363721512	0.819714379	0.812386638	1999.789646	14.09369108	2016.862848	8.839958702	2034.373076	10.40969171	2034.373076	10.40969171	478.2398418
Spot 82	212.426729	74702.39611	2.241223056	4.643726111	0.599906937	16.21437717	1.012872169	0.54222028	0.81604553	0.805674748	2792.735654	18.49537471	2889.521162	9.687387732	2957.672384	9.681248687	2957.672384	9.681248687	40.48282598
Spot 83	223.142711	525021.881	4.691759456	11.39782757	0.650024682	2.929991062	1.0867945	0.240644204	0.870970418	0.801412243	1390.045213	10.89055914	1389.69097	8.227380439	1389.129105	12.47596663	1389.129105	12.47596663	401.9505428
Spot 84	213.738261	108659.6494	2.528047246	5.423732542	0.707721495	13.37034254	1.236157127	0.522704953	1.013479886	0.81986332	2710.641917	22.42724598	2706.164936	11.67879814	2702.809754	11.68491616	2702.809754	11.68491616	77.4210655
Spot 86	261.864662	111249.5158	2.586262679	9.269309947	0.671591368	4.654486548	1.17158356	0.311052834	0.995493472	0.849699079	1745.885603	15.22549419	1759.099669	9.792537613	1774.815699	11.27299454	1774.815699	11.27299454	123.8388537
Spot 87	239.886302	352618.2607	1.511032631	9.590141752	0.739899358	4.322605512	1.122776911	0.298658754	0.844497064	0.752150366	1684.654337	12.51979152	1697.682836	9.258843519	1713.788231	13.60606739	1713.788231	13.60606739	689.2463531
Spot 88	87.2421092	41740.47874	2.277738933	8.793080729	0.7606879	5.435313565	1.420790303	0.345473871	1.197010691	0.842496383	1912.949374	19.81333308	1890.440745	12.18528338	1865.792954	13.81348101	1865.792954	13.81348101	36.08411137
Spot 89	180.120358	71377.12732	2.514703996	9.622219964	0.63818332	4.447704831	1.343877338	0.309049332	1.182398348	0.879840976	1736.026902	17.99512816	1721.271654	11.141133	1703.358069	11.76027891	1703.358069	11.76027891	80.70692009
xx	275.920683	52174.17545	6.311397496	17.19542797	0.932654757	0.693091092	1.328249636	0.08632973	0.94519787	0.711611616	533.7939979	4.842166708	534.6559443	5.521078075	538.3140038	20.42991236	533.7939979	4.842166708	62.89976061
Spot 91	103.49601	53706.90806	0.874122935	8.451088829	0.860847628	5.668634456	1.373011182	0.346107861	1.069387601	0.778862995	1915.98622	17.72499197	1926.603147	11.85127964	1938.028482	15.40863672	1938.028482	15.40863672	120.8480315
Spot 92	137.784626	6907734.991	3.222216539	9.43920335	0.564773948	4.625873791	1.271698586	0.315031874	1.139406723	0.895972313	1765.420815	17.59609422	1753.948598	10.61778001	1740.291143	10.35066512	1740.291143	10.35066512	6334.641372
Spot 93	225.16573	55521.40451	2.249098416	9.549794683	0.799887474	4.319233694	1.239283285	0.298388978	0.946472196	0.763725459	1683.315057	14.02183032	1697.039397	10.21816225	1714.015087	14.7111449	1714.015087	14.7111449	56.36190524
Spot 94	609.929446	34572.15581	1.875590759	17.3677473	0.691934214	0.656223822	1.229703728	0.082858836	1.036238173	0.842673035	513.1643155	5.111458843	512.3015738	4.947283547	508.4578488	14.55776959	513.1643155	5.111458843	135.3815701
Spot 95	322.921277	68992.68026	2.80193712	11.06775514	0.794750943	3.050728464	1.250835554	0.244227789	0.96546838	0.771858761	1408.638762	12.21664521	1420.416035	9.565626026	1438.097764	15.1626102	1438.097764	15.1626102	70.53223444
Spot 96	1182.5533	69117.49452	1.878121755	20.5775481	0.996110623	0.090753408	1.545345344	0.013535658	1.179897583	0.763517092	86.67119358	1.015787461	88.20496266	1.305545651	129.8963445	23.46867559	86.67119358	1.015787461	2547.261297
Spot 97	523.140503	149658.0666	0.986250069	11.1089737	0.761785716	3.02238478	1.430008975	0.24254089	1.210148012	0.84625204	1399.892911	15.22761129	1413.286242	10.91067273	1433.51453	14.53499589	1433.51453	14.53499589	538.0588148
Spot 98	481.898203	254376.9158	1.857542067	9.465701228	0.810195066	4.518985137	1.331256943	0.308714669	1.056319252	0.793475112	1734.378644	16.06299765	1734.47123	11.06854887	1734.567446	14.86025764	1734.567446	14.86025764	402.8632374
Spot 99	190.437362	210406.4796	1.322416496	9.565866312	0.556688803	4.038643454	1.015305135	0.278851586	0.849065843	0.836266669	1585.575997	11.93474225	1642.013393	8.263384612	1715.024848	10.23713214	1715.024848	10.23713214	390.8573515
Spot 100	154.710903	58950.64975	1.539641172	9.217926955	0.639960723	4.681501984	1.04090118	0.311950039	0.820777467	0.78852583	1750.295631	12.58090635	1763.939312	8.709076599	1780.116255	11.6745264	1780.116255	11.6745264	84.59744958
Spot 101	244.010541	2626314.662	5.607457354	9.699061066	0.798856056	4.354031622	1.181736607	0.304669996	0.870821685	0.736899983	1714.424703	13.10922602	1703.660305	9.758310143	1690.430605	14.73371341	1690.430605	14.73371341	1397.939041
Spot 102	282.645248	728320.163	3.902045879	9.89936953	0.741259115	3.969831426	1.154143897	0.283561393	0.884637122	0.766487718	1609.273506	12.59837041	1628.050892	9.361222806	1652.385072	13.73770814	1652.385072	13.73770814	593.6306139
Spot 103	1254.88167	195329.0593	4.278226465	9.600614667	0.625532513	4.236474945	1.194470271	0.293698307	1.017574944	0.851904789	1659.984024	14.89202705	1681.117481	9.812606603	1707.572788	11.51177624	1707.572788	11.51177624	136.8746402
Spot 104	144.3634	68956.38533	1.967287861	11.18544633	0.79151393	3.145180592	1.253319754	0.254387825	0.971301536	0.774983027	1461.064721	12.69805883	1443.820233	9.656217038	1418.495762	15.14178332	1418.495762	15.14178332	94.40423653
Spot 105	1854.87457	1370069.355	39.92120584	6.063107696	0.751754356	10.04242498	1.257847418	0.439311642	1.008486741	0.801756021	2347.558244	19.84301422	2438.690837	11.61584898	2515.59304	12.63373058	2515.59304	12.63373058	75.94831348
Spot 106	79.6375358	51943.19373	1.584867389	5.141122226	0.667181216	14.88424628	1.24896013	0.553091429	1.055802089	0.84534491	2838.01718	24.23832891	2807.867003	11.883888	2786.268612	10.92734598	2786.268612	10.92734598	40.28499799
Spot 107	307.539429	166648.6267	3.759635271	10.91795862	0.720424206	3.212493034	1.236593334	0.253445907	1.005038736	0.812747981	1456.222301	13.10030147	1460.176313	9.575747497	1465.915241	13.68473695	1465.915241	13.68473695	138.3385362
Spot 108	128.490949	2378.411958	3.243662222	18.14308497	1.968370873	0.106601652	3.206383582	0.015722341	1.247710698	0.389133323	100.5642269	1.245014257	102.8519514	3.136312931	156.1767021	69.14832064	100.5642269	1.245014257	99.43893874
Spot 109	303.060972	207554.8176	4.022081671	9.522529448	0.50461564	4.17851641	0.999610135	0.287340099	0.862877748	0.863214285	1628.223374	12.41569261	1669.816325	8.190053429	1722.488022	9.270825609	1722.488022	9.270825609	161.4295473
Spot 111	150.077118	41383.90462	2.506126816	9.545198769	0.772775024	4.553270879	1.412098463	0.314655472	1.18182408	0.836927531	1763.575392	18.2345703	1740.75961	11.75679452	1713.440319	14.21289114	1713.440319	14.21289114	35.1946782
Spot 112	604.535142	273109.95	1.266421678	6.00890921	0.679109153	10.88073741	1.418579329	0.471798709	1.24546139	0.877963865	2491.444088	25.7370705	2512.990185	13.19237252	2530.428187	11.39872846	2530.428187	11.39872846	415.7661997
Spot 113	71.0806177	24434.61802	1.226768606	5.134527224	0.653413652	14.87132459	1.258999899	0.552267131	1.07607747	0.854708146	2834.594857	24.68008213	2807.040662	11.97877017	2787.289122	10.70253922	2787.289122	10.70253922	24.20106689
Spot 114	58.961358	7888.983128	0.772727576	17.40740361	1.379730436	0.630475222	1.827500154	0.081810565	1.182705737	0.647171348	506.9207828	5.765715353	496.3918561	7.175437436	448.0991363	30.95586432	506.9207828	5.765715353	79.32149639
Spot 115	1874.08645	13772.5979	3.054253677	7.933587378	0.686077065	1.223422459	1.372572394	0.070568904	1.188779917	0.866096333	439.5822272	5.051478407	811.3394496	7.668808424	2039.176139	12.13263394	2039.176139	12.13263394	48.30811382
Spot 117	69.5066637	111664.8243	1.735837023	7.577808284	0.676437062	7.156405841	1.158032498	0.391791355	0.939890561	0.811627102	2131.130779	17.05600133	2131.089619	10.31719736	2131.035038	11.84097761	2131.035038	11.84097761	134.4263561
Spot 118	117.618561	73453.35171	0.607264285	5.17968339	0.569720377	13.96052853	1.276922146	0.522565053	1.142778064	0.894947329	2710.04962	25.2840612	2747.032849	12.09956646	2774.317467	9.340003961	2774.317467	9.340003961	162.1412485
Spot 120	121.917114	100754.6183	3.60032634	4.9760707	0.681054137	15.32464658	1.02288918	0.550932791	0.763170558	0.746093099	2829.051092	17.47618047	2835.63591	9.750312245	2840.304949	11.10015858	2840.304949	11.10015858	46.00817153
Spot 121	106.870904	174737.2375	2.554100197	6.258820117	0.53671015	10.62132973	1.04095742	0.480404182	0.891921101	0.856827651	2529.025922	18.65831122	2490.574382	9.6604876	2459.349601	9.069852428	2459.349601	9.069852428	118.0654745
Spot 122	743.356742	552356.624	8.95400287	11.46621205	0.785393289	2.538485447	1.309428141	0.210329672	1.047739986	0.800150809	1230.573916	11.73732333	1283.138342	9.538533732	1372.24218	15.11038259	1372.24218	15.11038259	303.4209211
Spot 123	385.803976	4354241.674	2.840514629	9.028254985	0.884452159	4.89379029	1.304080293	0.31903193	0.958316121	0.734859752	1784.999718	14.94192732	1801.187291	10.9951686	1819.959509	16.05182482	1819.959509	16.05182482	4527.890451
Spot 124	487.3531	83996.03556	4.298657148	6.656641816	0.667368025	7.30196476	1.363050565	0.351327076	1.188443011	0.871899431	1940.932339	19.91815426	2149.050317	12.17367023	2354.315583	11.40520567	2354.315583	11.40520567	45.87899173
Spot 125	98.6392882	19031.86703	2.836805786	9.230358284	1.237559185	4.68813403	1.769873867	0.314586443	1.247070145	0.704609616	1763.236902	19.23805807	1765.123883	14.81266608	1767.341751	22.94244691	1767.341751	22.94244691	15.25607187
Spot 126	510.382283	378786.1239	2.970506621	6.06441522	0.706695279	10.82753602	1.315123486	0.474465311	1.109112568	0.843352414	2503.113123	23.00729612	2508.433136	12.22511031	2512.725673	11.87965203	2512.725673	11.87965203	266.1839382
Spot 127	1458.18858	104456.9235	10.15046258	10.21243609	0.687250228	3.397357194	1.269912085	0.250989852	1.067700606	0.84076734	1443.57853	13.80927043	1503.786082	9.962468669	1589.654912	12.84710289	1589.654912	12.84710289	42.28718459
Spot 129	790.193622	73700.0304	4.742492355	6.191418761	0.720590231	8.38573365	1.17390992	0.375254293	0.926663118	0.789381793	2054.076743	16.29985232	2273.636431	10.65009417	2477.400557	12.15748579	2477.400557	12.15748579	41.04718244
Spot 130	371.259781	113056.6451	1.832562209	8.189097952	0.515652366	6.040719591	0.968303281	0.357272269	0.819482934	0.846308124	1969.231273	13.90564458	1981.733644	8.435735114	1994.790116	9.167305457	1994.790116	9.167305457	154.7168567
Spot 131	827.312259	414750.7938	14.78440395	9.749294629	1.901968745	4.053584009	2.318059775	0.28527772	1.325108742	0.571645631	1617.887637	18.96015367	1645.019745	18.88183882	1679.845524	35.12956429	1679.845524	35.12956429	79.26224638
Spot 132	460.99767	260147.199	4.697033698	6.920939757	0.602140966	7.411714459	1.182711996	0.370296029	1.017953285	0.860694141	2030.793207	17.73298329	2162.385452	10.58178156	2289.746563	10.35900373	2289.746563	10.35900373	149.8178628
Spot 133	150.786264	57592.56666	2.344099059	11.36075582	0.754208501	2.870128946	1.298591076	0.236107571	1.056880254	0.813866869	1366.429567	13.01362314	1374.105525	9.778938737	1386.037605	14.48824351	1386.037605	14.48824351	69.62893482
Spot 134	204.27639	159703.9389	0.767892434	8.912268967	0.614689593	4.848872664	1.436230897	0.312303392	1.298041165	0.903783067	1752.031638	19.91363317	1793.419237	12.09047361	1841.88378	11.12740644	1841.88378	11.12740644	610.3592468
Spot 135	1018.35051	32122.92417	27.52668143	9.49618881	0.793014534	3.745898165	1.236277676	0.258041786	0.948345561	0.767097537	1479.815465	12.53950352	1581.236433	9.908257252	1719.27273	14.57637172	1719.27273	14.57637172	6.757599333
Spot 136	65.9680898	60716.20609	2.038459415	5.635538989	0.794703978	12.07866018	1.387913962	0.492036724	1.13783362	0.819815674	2579.481809	24.18894971	2610.53146	13.01582645	2634.695139	13.20227119	2634.695139	13.20227119	52.19766819
Spot 137	323.994079	20315.61427	1.260780132	9.002170982	7.702925999	0.420911238	8.153572133	0.027523949	2.671462686	0.327643227	175.0328779	4.613028994	356.7024244	24.52934057	1814.396859	140.1204465	175.0328779	4.613028994	346.2373427
Spot 138	174.790959	185787.7669	1.320962407	5.384915777	0.663336252	13.85553473	1.230555818	0.538894103	1.036457086	0.84226743	2778.817363	23.397321	2739.881713	11.65427607	2711.298389	10.94257212	2711.298389	10.94257212	236.4795655
Spot 139	216.714477	1317997.972	1.618280568	6.461454981	0.504901828	9.49694362	1.138826313	0.44284524	1.020783771	0.896347194	2363.365189	20.19694175	2387.250983	10.46221807	2407.685352	8.579815909	2407.685352	8.579815909	1601.85781
Spot 140	202.67431	1790568.577	3.226181523	9.511635141	0.797592683	4.430906192	1.435826306	0.304151559	1.193919213	0.831520643	1711.862583	17.94966102	1718.135763	11.89520519	1725.772566	14.64676699	1725.772566	14.64676699	1614.761125
Spot 141	238.10128	104260.4041	4.508553473	9.707282552	0.613716287	4.314185122	1.330533419	0.302414885	1.180410353	0.887170767	1703.272492	17.6687618	1696.075223	10.96818297	1687.175386	11.32957406	1687.175386	11.32957406	67.86163636
Spot 142	191.662695	96192.4927	1.659740663	11.12724653	0.805689372	3.144995606	1.248034196	0.252790815	0.952931539	0.763546017	1452.852311	12.39547494	1443.774918	9.615355504	1430.412454	15.38162648	1430.412454	15.38162648	199.8044276
Spot 143	388.522781	94105.5816	1.076697422	9.614512845	0.741665116	4.249174149	1.165229187	0.295121361	0.898493104	0.771087022	1667.071111	13.19847456	1683.57695	9.577842582	1704.184528	13.66000476	1704.184528	13.66000476	249.6468409
Spot 144	646.690709	553988.1084	2.275644892	9.465675909	0.708615978	4.614423484	1.231940916	0.315352109	1.007740651	0.818010538	1766.990451	15.57476646	1751.879889	10.28127353	1733.883447	12.99778709	1733.883447	12.99778709	677.2344816
Spot 145	502.424562	99290.0576	1.380942535	10.50262177	0.560819073	3.66533123	0.91361438	0.278273552	0.720698719	0.78884345	1582.661598	10.11394158	1563.85118	7.288380539	1538.529252	10.56273412	1538.529252	10.56273412	208.6145862
Spot 146	203.673083	323437.2352	3.879672841	9.604516055	0.697752489	4.471492283	1.319990385	0.309861075	1.120495642	0.848866518	1740.02309	17.08721095	1725.695681	10.95378519	1708.345195	12.83974967	1708.345195	12.83974967	241.6954452
Spot 147	566.991585	104824.3689	8.143873824	5.943097556	0.741698584	10.21196226	1.161205633	0.438018423	0.893465554	0.769429228	2341.763551	17.54385458	2454.161819	10.7394691	2548.635042	12.42395176	2548.635042	12.42395176	21.69431953
Spot 148	975.737443	431644.4301	3.398776553	9.324449885	0.552194387	4.710835882	1.109683915	0.316761317	0.962537478	0.867397883	1773.893143	14.92662804	1769.168302	9.294790959	1763.579526	10.09256544	1763.579526	10.09256544	357.1406831
Spot 149	303.379512	580597.3984	1.000185644	5.375214902	0.65280864	13.16647016	0.950274421	0.51011612	0.690552106	0.72668704	2657.125212	15.03744845	2691.656513	8.968048552	2717.679353	10.76229489	2717.679353	10.76229489	1003.998485
Spot 150	462.941619	63577.75479	1.123699107	4.63928619	0.707754798	13.41340549	1.328943593	0.448868341	1.124797586	0.846384746	2390.219481	22.4638604	2709.203138	12.55830571	2956.541232	11.42147549	2956.541232	11.42147549	128.8559377
Spot 151	313.014087	343875.628	1.483315727	20.48009091	2.142555074	0.08216321	2.469639423	0.012141224	1.228241243	0.497336263	77.79603603	0.949780452	80.17668643	1.903919577	151.7246941	50.1986944	77.79603603	0.949780452	16951.53963
Spot 152	98.0002686	60401.5988	2.526525245	5.031507539	0.899141974	14.98529577	1.672181413	0.544076838	1.409755788	0.843063903	2800.491319	32.02262971	2814.306022	15.91818406	2824.208837	14.67910955	2824.208837	14.67910955	39.23967743
Spot 153	186.020175	267644.7847	1.924490466	5.433283878	0.55479691	12.84676415	1.063584354	0.503519201	0.907419249	0.853170927	2628.902459	19.59000684	2668.479027	10.01985423	2698.59621	9.163024291	2698.59621	9.163024291	256.0338308
Spot 154	486.989999	419585.7736	7.554897533	10.98056306	0.770521458	3.185531722	1.376452433	0.252339434	1.140576604	0.828634958	1450.529244	14.81516515	1453.656648	10.63746889	1458.213296	14.65089468	1458.213296	14.65089468	193.5963499
Spot 155	378.289714	206247.3657	3.199513452	9.343115366	0.707320381	4.594998215	1.183859903	0.309788506	0.94931339	0.80187984	1739.665936	14.4741366	1748.360687	9.872549092	1758.756101	12.9359844	1758.756101	12.9359844	183.3733959
Spot 156	423.193956	62104.11786	3.061016168	9.222888642	0.592989265	4.646186297	1.092411744	0.309609996	0.917432027	0.83982256	1738.787299	13.98188662	1757.608088	9.127868725	1780.04211	10.81500281	1780.04211	10.81500281	37.04335594
Spot 157	906.401554	23067.74429	2.32800038	20.25665621	1.209829371	0.092550927	1.583344976	0.013696804	1.012415937	0.63941589	87.69605654	0.881837068	89.87689704	1.361898692	148.1727504	28.51980237	87.69605654	0.881837068	446.008369
Spot 158	130.806073	52345.79306	1.608140705	9.766210251	0.662340657	4.042548187	1.20078523	0.285449991	1.001198855	0.833786784	1618.751617	14.33224136	1642.799967	9.774933521	1673.692735	12.25264281	1673.692735	12.25264281	76.09368547
Spot 159	162.066077	78315.07998	3.446910244	12.79238689	0.778329188	2.01785873	1.212413055	0.18658817	0.929109193	0.766330574	1102.866106	9.418231514	1121.538864	8.231554938	1157.87305	15.4684032	1157.87305	15.4684032	107.4826895
Spot 160	448.147918	110661.7061	2.312074998	6.233566481	0.794435853	10.42522515	1.424842592	0.469220484	1.182805231	0.830130456	2480.141673	24.35137541	2473.294048	13.20206746	2467.655686	13.41551557	2467.655686	13.41551557	87.18378514
Spot 161	1660.35775	324586.3	8.13193329	11.4438636	0.732213014	2.798277816	1.200931339	0.23112528	0.951890026	0.792626518	1340.393959	11.51995135	1355.077177	8.983871345	1378.304779	14.07430516	1378.304779	14.07430516	151.3871607
Spot 162	150.710865	130898.5962	1.679223959	9.652517822	0.745535287	4.482958761	1.196302567	0.312665706	0.935548772	0.782033573	1753.811182	14.36519307	1727.821369	9.931950817	1696.470372	13.74045793	1696.470372	13.74045793	214.4215008

Spot 163	924.81402	562578.5883	5.61460904	11.48983892	0.597068175	2.833341764	1.329387598	0.235202102	1.187762473	0.89346589	1361.705732	14.57980521	1364.407723	9.977389655	1368.625159	11.493115	1368.625159	11.493115	357.199104
Spot 164	703.244667	246654.4199	4.863495747	8.581650472	0.737138283	5.275632415	1.109269451	0.327154353	0.828910946	0.747258428	1824.574157	13.17218897	1864.927921	9.468835748	1910.193156	13.23510781	1910.193156	13.23510781	145.4633488
xx	3304.63408	875041.2507	0.980398518	13.04434223	0.587273788	1.815299572	1.051580283	0.171136193	0.87231322	0.829526033	1018.3683	8.217228398	1050.991192	6.884980143	1119.426207	11.71509624	1119.426207	11.71509624	5001.640312
Spot 166	243.08639	46162.22791	5.697148975	9.31235656	0.628268113	4.837278141	1.198803764	0.326386282	1.020957949	0.851647266	1820.84231	16.1952945	1791.404393	10.08748655	1757.2784	11.49279931	1757.2784	11.49279931	16.94966092
Spot 167	89.9222288	89374.264	2.107284738	5.55928598	0.617431288	12.33075389	0.920145338	0.495927881	0.682232647	0.741440094	2596.271848	14.58006003	2629.91693	8.642347946	2655.900473	10.23856829	2655.900473	10.23856829	77.90227213
Spot 168	466.281733	170339.1497	20.65599072	13.30719515	0.827019635	1.902830613	1.523835286	0.183150454	1.27983691	0.839878773	1084.162818	12.77148594	1082.079844	10.14286901	1077.868812	16.58166431	1077.868812	16.58166431	39.3663413
Spot 170	363.713028	86977.29668	1.784655167	5.579944354	0.648996619	10.76464424	1.164823155	0.43433128	0.967194152	0.830335616	2325.213433	18.88011988	2503.019529	10.82249102	2650.582142	10.76613921	2650.582142	10.76613921	89.08033713
Spot 171	565.520285	279854.7616	3.19703255	9.554658099	0.721457329	4.320644639	1.426997872	0.298324934	1.231184757	0.862779672	1682.997075	18.23680479	1697.308695	11.76676205	1715.010452	13.26490901	1715.010452	13.26490901	264.7387524
Spot 172	689.373925	417332.265	3.438742124	9.466601329	0.736847016	4.391333345	1.355473538	0.300488973	1.137700315	0.839337901	1693.732967	16.94606816	1710.709984	11.21085723	1731.543662	13.51968442	1731.543662	13.51968442	346.94284
Spot 173	493.066153	57766.12208	1.424319705	17.36175521	0.826317228	0.644306966	1.366181341	0.081187845	1.085105667	0.794261812	503.2089834	5.252670937	504.969283	5.435660693	512.9583538	18.25357968	503.2089834	5.252670937	324.4885006
Spot 174	134.044603	61158.22672	1.685529749	9.56305002	0.897689511	4.318777607	1.346662519	0.299112032	1.003262848	0.744999459	1686.903971	14.89090133	1696.952332	11.10337488	1709.3685	16.52875109	1709.3685	16.52875109	83.46675386
Spot 175	412.535588	3660854.103	3.532051543	9.579492622	0.628045779	4.359271985	1.046498815	0.301638649	0.837089165	0.799894995	1699.429298	12.50509577	1704.653645	8.6434537	1711.063247	11.55282443	1711.063247	11.55282443	3133.024059
Spot 176	309.609419	218071.8342	9.786810488	9.420852774	0.74930154	4.492410334	1.478505242	0.306106737	1.274561304	0.862060727	1721.519779	19.25637101	1729.570188	12.27977456	1739.308715	13.73510044	1739.308715	13.73510044	72.69665919
Spot 177	85.2890514	13958.04998	2.606930886	13.44415592	0.837437689	1.846830434	1.561879763	0.18197013	1.120301178	0.717277478	1077.72859	11.11852128	1062.300093	10.2886358	1030.72455	22.0184763	1030.72455	22.0184763	18.86793746
Spot 178	93.0312831	80896.75645	1.14051177	11.39729187	0.981445013	3.003828318	1.485975863	0.247958845	1.115289882	0.750543741	1427.940646	14.28518997	1408.591139	11.32033605	1379.420554	18.87354726	1379.420554	18.87354726	259.8942711
Spot 179	297.69114	88932.83244	3.511768936	9.674952706	0.680560367	4.334287706	1.155054825	0.30357116	0.932898743	0.807666201	1708.993032	14.00487261	1699.908984	9.529860897	1688.711718	12.56542065	1688.711718	12.56542065	72.89460566
Spot 180	613.484759	11370.73367	1.467634033	20.05895846	0.988325627	0.100478646	1.901905287	0.014957961	1.281955782	0.674037656	95.71116351	1.217911155	97.21807177	1.76323983	134.3163266	33.0013969	95.71116351	1.217911155	326.6649666
Spot 181	130.509608	207954.1261	3.023411571	10.5533381	0.696114849	3.469974623	1.287540935	0.265071402	1.08312545	0.841235739	1515.736115	14.63004118	1520.41705	10.14907963	1526.921175	13.11394408	1526.921175	13.11394408	232.3211625
Spot 182	218.885505	71289.29508	1.656884149	12.2381001	0.698473682	2.236945003	1.357552623	0.198500804	1.16326275	0.856882253	1167.261535	12.41996879	1192.69938	9.526191594	1239.118749	13.73767626	1239.118749	13.73767626	144.53984
Spot 183	248.986062	85419.38487	3.111109895	9.691566928	0.827577052	3.951318609	1.281266954	0.277429748	0.977803683	0.763153752	1578.404835	13.68946668	1624.261488	10.38259343	1684.172534	15.28476087	1684.172534	15.28476087	96.39855241
Spot 184	393.105801	216744.1806	3.933562475	9.667101146	0.568866381	4.479601871	1.171965344	0.313430985	1.024632108	0.874285331	1757.568321	15.76237668	1727.19952	9.728555954	1690.581794	10.49320988	1690.581794	10.49320988	157.9070082
Spot 185	67.9754685	32693.15823	3.543894518	13.2376122	0.962202758	1.767213538	1.566672189	0.170194067	1.233930772	0.78761261	1013.180368	11.56900456	1033.498371	10.15941949	1076.734983	19.37811141	1076.734983	19.37811141	35.96686475
Spot 186	1035.3874	30311.23246	3.810423988	20.71011072	1.030115242	0.101089921	1.504710408	0.015290168	1.095070729	0.727761783	97.82080191	1.063120444	97.78192297	1.402710938	96.81152113	24.42717354	97.82080191	1.063120444	362.9903853
Spot 187	543.602933	313997.103	6.035210605	6.244028911	0.722406541	10.3576511	1.191841414	0.467687791	0.947951259	0.79536694	2473.413255	19.47277678	2467.270775	11.03667465	2462.202699	12.20537019	2462.202699	12.20537019	103.7593044
Spot 188	190.732204	644927.2979	1.3400842	5.529198023	0.657243277	13.18838057	1.148866374	0.527254366	0.94229782	0.820197929	2729.873272	20.97088377	2693.22573	10.84362726	2665.823754	10.8883072	2665.823754	10.8883072	833.4137036
Spot 190	518.084326	75075.32085	3.446811842	8.929665811	0.747379334	4.817477359	1.116870943	0.311512794	0.829935391	0.743089787	1748.146818	12.70768406	1787.954231	9.391398463	1834.71019	13.54163194	1834.71019	13.54163194	44.54942212
Spot 191	679.735054	570889.005	2.682407251	9.731571471	0.63918007	4.18777431	1.345718901	0.294902738	1.184232912	0.880000207	1665.982832	17.38593458	1671.629957	11.03071189	1678.710508	11.80764469	1678.710508	11.80764469	651.4461449
Spot 192	476.858664	588390.0557	2.17859271	11.44148461	0.753148258	2.899826895	1.341424813	0.240095318	1.110039547	0.827507838	1387.19256	13.85434342	1381.867458	10.12831951	1373.634023	14.48731159	1373.634023	14.48731159	984.563999
Spot 193	400.105869	61643.00652	7.084815376	9.437269203	0.520197059	4.354904182	0.936511415	0.297950202	0.778741141	0.831534062	1681.136195	11.52384587	1703.825771	7.733539057	1731.826975	9.545584992	1731.826975	9.545584992	19.69988956
Spot 194	177.281794	23634.18131	1.739232678	9.444049772	0.914322554	4.540135566	1.585551893	0.311895915	1.295351901	0.816972252	1750.029681	19.85261189	1738.35505	13.19420547	1724.320533	16.7940437	1724.320533	16.7940437	29.80350711
Spot 195	208.227497	61007.14359	2.407600128	6.125827216	0.656385448	10.61426057	1.14366904	0.4709879	0.93621367	0.818605415	2487.891805	19.3239157	2489.956545	10.61314922	2491.628257	11.0679354	2491.628257	11.0679354	49.05666052
Spot 196	697.563726	121110.1877	2.190730402	9.595438058	0.635446222	4.390688096	1.485556375	0.304926395	1.342786917	0.903894958	1715.691457	20.22719848	1710.588453	12.28651249	1704.327334	11.69901745	1704.327334	11.69901745	162.8063003
Spot 198	124.390533	5404.876926	1.62088547	20.24141473	3.468080782	0.078603416	3.602766541	0.012176933	0.906128074	0.251508962	78.0234711	0.702731284	76.83106156	2.66591721	39.91827521	NA	78.0234711	0.702731284	175.4469016
Spot 199	265.565029	61832.89912	0.896697542	9.909122211	0.801313779	4.096290809	1.365437714	0.294109691	1.105580361	0.809689339	1662.033595	16.19748851	1653.564485	11.14437769	1642.804229	14.87093863	1642.804229	14.87093863	159.1573403
Spot 200	117.421757	46138.84277	0.707870537	5.228883706	0.682855075	14.34029736	1.217728484	0.542848055	1.008248105	0.827974478	2795.359194	22.86875758	2772.486349	11.55908652	2755.867596	11.21822576	2755.867596	11.21822576	83.23670708

1. Analyses with >10% uncertainty (1-sigma) in 206Pb/238U age are not included.
2. Analyses with >10% uncertainty (1-sigma) in 206Pb/207Pb age are not included, unless 206Pb/238U age is <400 Ma.
3. Best age is determined from 206Pb/238U age for analyses with 206Pb/238U age <900 Ma and from 206Pb/207Pb age for analyses with 206Pb/238Uage >900 Ma.
4. Concordance is based on 206Pb/238U age / 206Pb/207Pb age. Value is not reported for 206Pb/238U ages <400 Ma because of large uncertainty in 206Pb/207Pb age.
5. Analyses with 206Pb/238U age >400 Ma and with >20% discordance (<80% concordance) are not included.
6. Analyses with 206Pb/238U age >400 Ma and with >5% reverse discordance (<105% concordance) are not included.
7. All uncertainties are reported at the 2-sigma level, and include only measurement errors.
8. Systematic errors are as follows (at 2-sigma level): [sample 1: xxx% (206Pb/238U) & xxx% (206Pb/207Pb)]
9. Analyses conducted by LA-ICPMS, as described by Gehrels et al. (2008) and Gehrels and Pecha (2014).
10. U concentration and U/Th are calibrated relative to FC-1 zircon standard and are accurate to ~20%.
11. Common Pb correction is from measured 204Pb with common Pb composition interpreted from Stacey and Kramers (1975).
12. Common Pb composition assigned uncertainties of 1.5 for 206Pb/204Pb, 0.3 for 207Pb/204Pb, and 2.0 for 208Pb/204Pb.
13. U/Pb and 206Pb/207Pb fractionation is calibrated relative to fragments of large Sri Lanka zircons and individual crystals of FC-1, and R33.
14. U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U/235U = 137.82.
15. Weighted mean and concordia plots determined with Isoplot (Ludwig, 2008).

Aliquot Name	19-DM-403
Stratigraphic Formation Name	
Stratigraphic Age	
Rock Type	
Mineral	Zircon
Method	U-Pb
Latitude	
Longitude	
Internal Uncertainty Level	one sigma
External Uncertainty 206/238 (% two sigma)	1.05629992
External Uncertainty 206/207 (% two sigma)	1.12466164
Analysis Purpose	
Laboratory Name	Arizona LaserChron Center
Analyst Name	
Aliquot Reference	
Aliquot Instrumental Method	LA-ICPMS
Aliquot Instrumental Reference	Gehrels, G.E., Valencia, V., Ruiz, J., 2008, Enhanced precision, accuracy, efficiency, and spatial resolution of U-Pb ages by laser ablation-multicollector-inductively coupled plasma-mass spectrometry: Geochemistry, Geophysics, Geosystems, v. 9, Q03017, doi:10.1029/2007GC001805. Gehrels, G. and Pecha, M., 2014, Detrital zircon U-Pb geochronology and Hf isotope geochemistry of Paleozoic and Triassic passive margin strata of western North America: Geosphere, v. 10 (1), p. 49-65.

				Isotope ratios							Apparent ages (Ma)							
Analysis	U (ppm)	206Pb 204Pb	U/Th	206Pb* 207Pb*	± (%)	207Pb* 235U	± (%)	206Pb* 238U	± (%)	error corr.	206Pb* 238U	± (Ma)	207Pb* 235U	± (Ma)	206Pb* 207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)
Spot 1	63.7026895	4536.94203	1.787990392	10.74617115	1.370159082	3.08735617	1.812703147	0.24790369	1.158830614	0.63928317	1427.65573	14.84023759	1429.556123	13.90362329	1432.367748	26.5977338	1432.367748	26.5977338	14.66702187
Spot 2	305.515299	463476.7194	1.353335958	12.5163424	0.858609956	2.106626953	1.22475302	0.190739853	0.8733891	0.713114469	1125.38172	9.01884267	1150.974825	8.43309409	1199.504722	16.92824149	1199.504722	16.92824149	3273.955615
Spot 3	220.033337	355083.2751	4.711374057	13.64122834	0.637508076	1.742094276	1.219031163	0.171899844	1.039047431	0.852355102	1022.570379	9.825143461	1024.239187	7.86398495	1027.787138	12.89157415	1027.787138	12.89157415	790.5503344
Spot 4	61.5407353	11950.08798	0.986504822	9.75886489	0.803111209	4.176626152	1.616663161	0.29800632	1.36393981	0.843675939	1681.414908	20.18661491	1669.445623	13.24502816	1654.412727	16.08113757	1654.412727	16.08113757	56.1643691
Spot 5	166.886632	142010.5575	5.060517873	13.533093	0.764853255	1.770184301	1.282701801	0.173427262	1.029698214	0.802757284	1030.966966	9.810467294	1034.587859	8.322909314	1042.228637	15.45367245	1042.228637	15.45367245	295.2113321
Spot 6	532.566283	76903.69072	2.025075705	8.996529323	0.513714515	4.849128055	1.149631127	0.314830613	1.02828849	0.894450807	1764.434138	15.87234904	1793.463573	9.677743314	1827.376592	9.322476759	1827.376592	9.322476759	223.0257444
Spot 7	39.224758	34848.84345	2.409182366	9.527235446	0.745072774	4.602066697	1.124081316	0.317096586	0.841556605	0.748661679	1775.534297	13.06098933	1749.642669	9.376583343	1718.830136	13.69681239	1718.830136	13.69681239	61.41886325
Spot 9	99.2220915	103378.4275	3.023085754	11.25614181	0.813494142	2.966130165	1.388989797	0.24141722	1.125811323	0.810525265	1394.060574	14.11350857	1398.98548	10.54794436	1406.481215	15.57746345	1406.481215	15.57746345	261.2529765
Spot 10	101.066311	20054.13652	1.096780616	13.14289089	0.792423805	1.850186125	1.458686148	0.177153907	1.19255151	0.817551816	1051.407458	11.56946576	1063.496268	9.614948185	1088.363764	16.82286786	1088.363764	16.82286786	145.9330171
Spot 13	135.781236	49239.26612	3.645808101	13.69778913	0.893426056	1.746641484	1.47771475	0.173365956	1.176889095	0.796425085	1030.630164	11.20945551	1025.921599	9.541905222	1015.873847	18.10460827	1015.873847	18.10460827	142.8313352
Spot 16	232.743068	22624.99878	89.87657019	13.61824537	0.597243682	1.747594478	1.104442884	0.173585788	0.921592931	0.834441459	1031.837793	8.787329917	1026.273842	7.132936287	1014.410344	12.333503	1014.410344	12.333503	9.691445752
Spot 17	289.771876	55511.91641	2.10802326	13.22346553	0.682657666	1.866866921	1.17679512	0.179119934	0.957683028	0.813806084	1062.164973	9.37834579	1069.421504	7.781173476	1084.246153	13.69625568	1084.246153	13.69625568	252.0067096
Spot 19	104.631558	4723.016688	1.570496554	17.54409819	0.90765804	0.547649285	3.146558845	0.073474315	0.910862495	0.289478933	457.0534179	4.018971897	443.4555409	11.3061226	373.4752585	67.8023848	457.0534179	4.018971897	52.29082036
Spot 20	99.4810514	30550.60206	1.362594497	5.283262981	0.618555419	14.05675654	1.338702252	0.538237927	1.186808842	0.886536823	2776.068062	26.77023954	2753.543007	12.69083546	2737.054604	10.18926828	2737.054604	10.18926828	57.71029726
Spot 21	170.633452	21514.79644	3.4090787	12.91492201	0.805272767	2.026574761	1.271512578	0.190922005	0.980729853	0.771309596	1126.367774	10.13539373	1124.467216	8.645145143	1120.812463	16.14635266	1120.812463	16.14635266	42.26260126
Spot 22	97.9270226	66245.74854	2.328797406	11.349683	0.95483188	2.980937083	1.593248257	0.245283986	1.27517065	0.800359043	1414.108654	16.19154229	1402.769193	12.1143876	1385.560629	18.34207524	1385.560629	18.34207524	205.5290581
Spot 23	64.065081	19673.12464	1.615964887	9.796155501	0.803900634	4.16060732	1.288858315	0.296768386	1.004505635	0.779376308	1675.263899	14.81926171	1666.298695	10.55131612	1655.005634	14.96130895	1655.005634	14.96130895	54.53591324
Spot 24	153.22661	29930.74826	2.340072642	13.05679485	0.686278217	1.941364097	1.544488686	0.184446131	1.380133642	0.893586113	1091.218469	13.85460829	1095.46982	10.3511331	1103.90716	13.88040523	1103.90716	13.88040523	90.00488087
Spot 25	73.1384091	31992.30306	2.708872428	14.03738004	1.033666319	1.590370334	1.389609022	0.162561192	0.92392295	0.664879787	970.9943302	8.328278818	966.4424546	8.663023281	956.0847655	21.21479948	956.0847655	21.21479948	129.7320946
Spot 26	144.758369	27738.58422	4.829049503	13.68284422	0.782699811	1.754217505	1.357639655	0.175012974	1.108918844	0.816799097	1039.672455	10.64745829	1028.71846	8.780322267	1005.478595	15.87487398	1005.478595	15.87487398	45.74005842
Spot 27	68.1691342	6543.914433	2.568320576	12.57061376	1.121829768	2.155373887	1.503066476	0.201649895	0.99651395	0.662987277	1184.177439	10.78008142	1166.783769	10.42545817	1134.660848	22.39669738	1134.660848	22.39669738	15.92373045
Spot 28	120.442951	30006.7763	4.807945396	13.92310858	0.975297666	1.580079612	1.382680428	0.160383361	0.968442725	0.700409657	958.9069097	8.628796444	962.4006255	8.598208433	970.3715654	20.13802403	970.3715654	20.13802403	52.7011906
Spot 29	254.987197	45147.04095	3.340457815	13.717375	0.807730712	1.721100844	1.437437704	0.171720177	1.188554934	0.826856656	1021.581989	11.22885111	1016.435519	9.231931861	1005.347033	16.3855334	1005.347033	16.3855334	141.4315688
Spot 31	158.265103	17319.6472	2.078445556	18.97226013	0.95740281	0.348997557	1.47417864	0.048662034	1.035536423	0.702449754	306.302006	3.097692714	303.9668641	3.872517188	286.0819677	23.97891748	306.302006	3.097692714	228.6970369
Spot 32	79.3425518	1402997.983	3.09200459	11.67141794	0.762007928	2.819105982	1.423232855	0.237962906	1.202054772	0.844594592	1376.098057	14.89514953	1360.629902	10.66771839	1336.394021	14.73351345	1336.394021	14.73351345	3473.399247
Spot 33	119.497974	38076.66823	0.625212019	8.775923025	0.639727717	5.291660295	1.129653559	0.337725258	0.928812439	0.822209988	1875.717022	15.11623517	1867.51789	9.647503496	1858.387546	11.61440931	1858.387546	11.61440931	249.6390997
Spot 35	114.694111	34881.38287	2.435208269	12.73155179	0.75578601	2.081929895	1.433677472	0.193061585	1.217286301	0.849065655	1137.938848	12.69826854	1142.870478	9.834183249	1152.224387	15.03428507	1152.224387	15.03428507	130.6687578
Spot 36	148.518377	39417.80616	2.838020073	12.7055927	0.793784204	2.173355291	1.196861117	0.201006423	0.893433114	0.74648019	1180.724521	9.639292971	1172.553668	8.323297658	1157.481728	15.81515952	1157.481728	15.81515952	92.41356416
Spot 37	170.257872	45693.3272	2.296527863	13.38635445	0.838844698	1.772893047	1.34738539	0.172686155	1.053243806	0.781694542	1026.894285	9.998231502	1035.580237	8.747458815	1053.98387	16.94489531	1053.98387	16.94489531	212.5955401
Spot 38	104.144504	4627.955205	1.139234971	19.89699804	1.89157011	0.156300057	3.631424931	0.024061125	1.135383385	0.312655062	153.2713415	1.719692484	147.4593098	4.984241288	54.94733936	NA	153.2713415	1.719692484	229.2243345
Spot 39	181.597812	21106.07367	2.053003085	10.89634474	0.723640965	3.191503076	1.112480265	0.253982283	0.841516601	0.756432835	1458.980264	10.98735952	1455.104228	8.601181098	1449.430123	13.85189194	1449.430123	13.85189194	53.97358161
Spot 40	200.823496	283393.4728	2.883279048	8.519048764	0.711212422	5.375762288	1.339218332	0.332081283	1.134759941	0.847330053	1848.46152	18.23631275	1881.000821	11.46588799	1917.110127	12.75698083	1917.110127	12.75698083	548.4576502
Spot 41	134.923863	53711.44742	2.099352342	11.42815401	0.616864822	2.570402131	1.171192039	0.213483096	0.995264619	0.849787726	1247.347729	11.28721966	1292.255908	8.561547172	1367.649291	11.8853215	1367.649291	11.8853215	213.2438958
Spot 42	104.616939	14651.64265	0.943203535	13.06707624	0.986611599	1.879573996	1.600339182	0.180244061	1.206431371	0.753859797	1068.307807	11.87710126	1073.912134	10.60691115	1085.28976	21.06220552	1085.28976	21.06220552	113.23369
Spot 45	317.209138	35325.55915	1.642928935	10.82063439	0.57086124	3.307098067	0.958859773	0.260112968	0.770323165	0.803374161	1490.419818	10.25047648	1482.7277	7.475756896	1471.721784	10.83690153	1471.721784	10.83690153	109.7286919
Spot 48	303.157877	72586.58852	2.791447558	10.67645734	0.554831908	2.851805607	1.172902461	0.220856482	1.033113339	0.880817777	1286.399015	12.04792395	1369.286721	8.817760185	1501.05222	10.49840571	1501.05222	10.49840571	197.8168139
Spot 49	132.124389	601602.0251	3.404095779	13.71992042	0.853603685	1.722462774	1.534523727	0.171126819	1.275195506	0.831004098	1018.316704	12.01184261	1016.943598	9.858368759	1013.96873	17.29916426	1013.96873	17.29916426	1805.704831
Spot 50	603.90565	65558.2818	11.75686271	13.53106679	0.691976113	1.732037188	1.296533361	0.170403523	1.09599972	0.845330906	1014.334124	10.28660271	1020.508254	8.34630005	1033.755988	14.01446639	1033.755988	14.01446639	58.22402748
Spot 51	67.8977827	30807.38063	1.974760444	11.55608643	0.974026732	2.865952363	1.439459222	0.241409334	1.054464673	0.732542233	1394.019624	13.21873513	1373.009147	10.83573142	1340.458612	18.93482016	1340.458612	18.93482016	84.711496
Spot 52	97.3641305	23167.21152	1.086247025	10.07023301	0.733609483	3.510175659	1.496734685	0.257849304	1.302349015	0.870126836	1478.829079	17.21012295	1529.50815	11.82850266	1600.308554	13.7643012	1600.308554	13.7643012	103.6741972
Spot 53	19.3126329	41992.18564	1.052118779	6.011391719	2.515294506	11.366454	2.92842457	0.496315147	1.499498237	0.512049466	2597.940482	32.06285595	2553.67567	27.33686308	2518.695115	42.27001027	2518.695115	42.27001027	150.8685217
Spot 55	133.324071	23935.02823	1.059320676	12.6542054	0.665203372	2.155399692	1.103867102	0.199394327	0.877442196	0.794880284	1172.065763	9.403463346	1166.792073	7.656466208	1156.999623	13.28944909	1156.999623	13.28944909	153.6470095
Spot 56	156.360859	39530.13497	2.003175518	10.73954467	1.05396375	3.242644944	1.978122559	0.253850077	1.673078789	0.845791269	1458.300593	21.83574172	1467.418269	15.35249305	1480.618651	20.00672692	1480.618651	20.00672692	103.0964158
Spot 57	152.703605	17724.45686	0.910336203	11.46200764	0.855986564	2.860517737	1.333513729	0.24027184	1.022177379	0.766529325	1388.110115	12.76530013	1371.580752	10.03322679	1345.914614	16.53686909	1345.914614	16.53686909	108.6026719
Spot 58	127.994495	17349.22414	1.539853482	11.13342493	0.852575679	2.965430565	1.613618817	0.241919967	1.369298885	0.848588818	1396.670703	17.19473929	1398.806357	12.25319517	1402.044912	16.3562113	1402.044912	16.3562113	63.58898196
Spot 59	265.417455	272080.5229	1.91530072	5.36218534	0.630882142	13.53693937	1.126005032	0.527249921	0.932670502	0.828300474	2729.85451	20.75651128	2717.868663	10.64715714	2708.958747	10.40939437	2708.958747	10.40939437	500.5880932
Spot 61	190.932131	36726.73383	1.891699405	11.79845895	0.702808	2.581603455	1.136480745	0.221860563	0.888858376	0.78211477	1291.698621	10.40422211	1295.436455	8.317900877	1301.618616	13.7601448	1301.618616	13.7601448	159.2728058
Spot 62	394.832789	17634.7319	3.516529031	18.38644569	0.882500951	0.459089396	1.396757737	0.062153335	1.075839939	0.770240902	388.7077872	4.058290621	383.6244505	4.462406745	353.0459805	20.10531799	388.7077872	4.058290621	111.2263789
Spot 63	428.220332	29441.39727	6.84252387	17.95567957	0.911897865	0.52005823	1.304142226	0.068297716	0.920378307	0.705734612	425.8917776	3.793136839	425.1902762	4.530535088	421.3668567	20.6249013	425.8917776	3.793136839	82.32847269
Spot 64	280.850806	27988.31314	2.389057567	9.479742022	0.661688353	4.466067396	1.120488604	0.308433167	0.904122282	0.806900025	1732.991883	13.73901396	1724.688447	9.296078417	1714.609067	12.16949952	1714.609067	12.16949952	52.81936727
Spot 65	156.211452	17035.09379	4.247432823	13.50658586	0.78277902	1.786096716	1.348991027	0.176432359	1.086020425	0.805061267	1047.454856	10.49948175	1040.403706	8.781295306	1025.601927	16.18784295	1025.601927	16.18784295	31.14020817
Spot 66	73.4232228	12096.79209	1.666031937	9.048849818	0.734870391	5.052571046	1.348005772	0.333984129	1.116756702	0.828450979	1857.663498	18.02407856	1828.180076	11.42648169	1794.74558	13.7457479	1794.74558	13.7457479	30.20646685
Spot 67	175.1395	26758.60723	2.402114632	12.4723012	0.596597113	2.20969982	1.264787811	0.200607143	1.109433915	0.877169992	1178.581024	11.94993687	1184.116788	8.841529921	1194.261107	11.98298679	1194.261107	11.98298679	73.92146801
Spot 69	47.6485392	9265.427307	1.483669421	13.16597893	1.082297215	1.920831369	1.785894552	0.186579954	1.345972826	0.753668701	1102.821472	13.64341596	1088.356898	11.92582543	1059.544736	23.63298612	1059.544736	23.63298612	44.16534808
Spot 70	414.544764	42036.26619	2.884548122	18.85412148	0.894078549	0.356509007	1.31709771	0.04891122	0.96674989	0.73400013	307.833636	2.906043631	309.6050092	3.514774485	322.9696589	20.32176411	307.833636	2.906043631	539.6259598
Spot 71	59.3924683	25949.59371	1.220232094	9.681341398	0.777630202	4.43078748	1.356731858	0.311679742	1.111413824	0.819184585	1748.967359	17.0245552	1718.113568	11.23983106	1680.700408	14.37083214	1680.700408	14.37083214	88.74798403
Spot 72	207.924597	12098.82907	2.750969113	12.75566202	0.920653258	2.072229173	1.447431441	0.194008897	1.114842856	0.770221528	1143.055381	11.67740704	1139.669405	9.913474334	1133.209861	18.35893013	1133.209861	18.35893013	30.97712782
Spot 73	212.372771	132837.8863	95.38773899	10.89384093	1.539073484	3.20213704	2.087506906	0.25256695	1.41028306	0.675582464	1451.700277	18.33163648	1457.677022	16.15340829	1466.380939	29.23365172	1466.380939	29.23365172	13.12017088
Spot 74	88.2428438	9682.082	1.460086441	13.59820337	0.942428334	1.735478486	1.378634081	0.17415709	0.968210481	0.702296929	1034.975149	9.257702887	1021.786434	8.881287462	993.6224371	19.95053768	993.6224371	19.95053768	50.40320597
Spot 75	134.7572	56566.50415	2.678173316	8.828830922	0.73286536	5.262998203	1.351572012	0.336850935	1.135205859	0.839915187	1871.502333	18.43948496	1862.881674	11.5329049	1853.260814	13.25839264	1853.260814	13.25839264	117.0860782
Spot 76	15.4950904	4785.542682	1.915776652	6.631917134	1.298358982	9.131570215	1.906329224	0.445974243	1.392983335	0.730714987	2377.329966	27.69593417	2351.278177	17.44774327	2328.742748	22.29529482	2328.742748	22.29529482	7.424484243
Spot 78	243.77693	72137.11444	3.602876038	13.5798917	0.722695498	1.777238588	1.281185846	0.175146084	1.05783418	0.825668019	1040.402685	10.16353377	1037.17025	8.325001444	1030.344827	14.63021572	1030.344827	14.63021572	208.8181466

Spot 79	18.4980509	32023.71114	2.793075713	12.97413871	1.384800763	2.022424581	1.969590595	0.19094344	1.400534305	0.711078896	1126.483803	14.47525732	1123.07392	13.38282755	1116.501772	27.65143282	1116.501772	27.65143282	87.17814808
Spot 80	673.799142	39253.41641	2.169575717	12.92922728	0.735366846	0.776452857	1.750459499	0.072980235	1.586656565	0.906422894	454.0856958	6.95688533	583.4579876	7.768762723	1125.420382	14.75368975	454.0856958	6.95688533	307.7095107
Spot 81	184.75635	15398.12673	3.664229429	12.49276812	0.863494015	2.155051117	1.361559519	0.197063464	1.041491228	0.764925229	1159.525832	11.05256773	1166.679898	9.4434403	1180.001863	17.34065109	1180.001863	17.34065109	29.5285144
Spot 82	162.48865	38553.68015	1.269547559	10.04277022	0.691572483	3.344359678	1.118217892	0.243893944	0.877369621	0.784614186	1406.908857	11.08967681	1491.474212	8.740862323	1613.826959	12.91230045	1613.826959	12.91230045	175.3710834
Spot 83	384.542254	35665.17287	3.4933647	11.53514969	0.670152378	2.71747249	1.186113558	0.227959719	0.978562271	0.825015669	1323.797113	11.71065382	1333.242625	8.804089671	1348.427077	12.93780276	1348.427077	12.93780276	75.70307375
Spot 84	204.256093	25238.32193	2.342510933	13.60744933	0.827542913	1.745608981	1.594027555	0.173146232	1.358953494	0.852528233	1029.422897	12.92957583	1025.53983	10.29079402	1017.243932	16.87644247	1017.243932	16.87644247	84.1148581
Spot 86	76.6374293	23822.45532	2.735994104	9.057503305	0.654835075	5.05966154	1.265088875	0.333198673	1.081880599	0.855181498	1853.866699	17.43038527	1829.368886	10.72605945	1801.582833	11.92886452	1801.582833	11.92886452	35.61008448
Spot 87	202.452124	33356.83721	1.423545333	13.13468802	0.857235072	1.602430289	1.700234223	0.152996109	1.468024133	0.863424646	917.7364498	12.55753781	971.1587908	10.63052155	1094.059763	17.15698192	1094.059763	17.15698192	212.900094
Spot 88	162.293658	11874.19148	0.899655802	13.11507393	0.936731112	1.858903925	1.473059992	0.17918942	1.127849356	0.76565066	1062.54485	11.04837777	1066.597257	9.725703151	1074.913427	19.02045631	1074.913427	19.02045631	103.4513419
Spot 89	173.881197	57072.55032	0.787607306	11.07781341	0.828140037	3.089725151	1.521943472	0.248295802	1.276500427	0.838730512	1429.680984	16.36786258	1430.144456	11.67544113	1430.815508	15.81682906	1430.815508	15.81682906	493.6855519
Spot 92	146.099088	15604.52893	1.773220308	9.622256821	0.766155261	4.429393413	1.215444559	0.310960787	0.935849278	0.769964595	1745.432997	14.31003691	1717.852889	10.06867315	1684.383389	14.31669857	1684.383389	14.31669857	39.67706884
Spot 94	62.0631304	9908.731299	1.068160428	11.60927309	1.011315173	2.722368224	1.519404694	0.232462935	1.086474222	0.715065727	1347.394381	13.21046453	1334.578956	11.28362868	1314.059098	20.60061574	1314.059098	20.60061574	53.57110846
Spot 95	110.313854	70653.07537	2.852263836	9.031521046	0.752676983	5.089737102	1.258042498	0.333382421	1.007894576	0.801160992	1854.755117	16.24509307	1834.396012	10.67672445	1811.355363	13.67784531	1811.355363	13.67784531	131.7868847
Spot 100	108.840631	21014.7608	2.697047007	12.74228175	0.793536433	2.111776792	1.360122866	0.196378124	1.099948332	0.808712477	1155.83409	11.63899837	1152.656627	9.3725974	1146.703494	15.88423877	1146.703494	15.88423877	52.32022866
Spot 101	99.9167671	39512.54184	2.836373389	11.59924925	0.902375596	2.774350626	1.484147239	0.233462393	1.177819409	0.793600108	1352.619943	14.37105501	1348.660556	11.07753761	1342.369138	17.44394157	1342.369138	17.44394157	80.40386356
Spot 102	78.3184468	19470.06274	1.754629984	9.617452856	0.661261827	4.341411824	1.110598715	0.303717872	0.863515053	0.777522107	1709.718513	12.9680726	1701.264156	9.165872145	1690.849979	12.88010102	1690.849979	12.88010102	48.56766403
Spot 103	403.948789	196884.7057	2.469684763	12.65885506	0.719803797	2.18195361	1.382094678	0.199743138	1.179853825	0.853670768	1173.940258	12.66282379	1175.301164	9.623485099	1177.826005	14.24605573	1177.826005	14.24605573	696.1068647
Spot 105	805.781561	81546.49638	5.085981564	17.68188162	0.81835038	0.364995511	1.659617586	0.046776444	1.443675416	0.869884381	294.7003313	4.158733513	315.9375947	4.506061244	475.7055203	18.11017231	294.7003313	4.158733513	362.6470579
Spot 106	135.426419	64378.7433	2.131321714	6.056313187	0.516844246	11.05538667	1.159378	0.484287617	1.037717822	0.895064269	2545.914187	21.82651715	2527.807876	10.79603101	2513.288598	8.689714721	2513.288598	8.689714721	118.5810287
Spot 109	74.5352784	49752.39225	2.341942823	9.860094489	0.68467251	4.110139075	1.222747328	0.293584708	1.012406491	0.827976858	1659.417939	14.81195719	1656.319866	9.986295963	1652.377059	12.70734045	1652.377059	12.70734045	128.3967915
Spot 110	155.967789	98562.88132	1.697957657	13.00714871	0.713213857	2.071148734	1.188639885	0.194993486	0.950721262	0.799839609	1148.368953	10.00060617	1139.312253	8.139541663	1122.123317	14.24355626	1122.123317	14.24355626	532.8635602
Spot 111	110.048176	28098.58302	2.401498516	8.046744299	0.882279659	6.182866163	1.714703275	0.361322768	1.470224805	0.857422288	1988.440615	25.15581406	2002.029233	14.98795911	2016.065626	15.64806552	2016.065626	15.64806552	45.72137391
Spot 112	96.0826485	45112.02462	2.117450086	5.217826555	0.661893707	14.04480178	1.157566899	0.530925429	0.94938439	0.820155095	2745.34993	21.22468977	2752.736492	10.97291614	2758.145362	10.87799427	2758.145362	10.87799427	73.42049112
Spot 113	113.664785	471012.5795	3.267389645	13.57011619	1.096423735	1.752986111	1.617779688	0.172175293	1.18956549	0.735307471	1024.085396	11.26380883	1028.264387	10.46017877	1037.147755	22.16102605	1037.147755	22.16102605	1525.168342
Spot 114	702.598742	42608.33119	1.392326124	19.8403552	1.010091499	0.189452387	1.372926707	0.027381872	0.92972428	0.677184205	174.1414607	1.597363001	176.161875	2.220398761	203.343883	23.46136563	174.1414607	1.597363001	1957.758471
Spot 115	353.205025	33222.49259	2.09183901	13.75097131	0.630601628	1.755610444	1.145229335	0.175695511	0.953540753	0.832619916	1043.415931	9.185939121	1029.231857	7.408672804	999.1864748	12.87073692	999.1864748	12.87073692	166.9030527
Spot 116	83.3000641	9764.290903	3.350171692	12.1574481	1.086262489	2.42893909	1.629626183	0.21754091	1.189556236	0.729956506	1268.868184	13.70128233	1251.206691	11.72179307	1220.924903	21.90970352	1220.924903	21.90970352	18.02047722
Spot 118	228.113052	22871.81751	2.244496725	12.70458065	0.62770212	2.168131295	1.314064456	0.200939962	1.153152408	0.877546304	1180.367782	12.43799776	1170.880761	9.131469937	1153.36212	12.49249026	1153.36212	12.49249026	67.35553294
Spot 119	112.425999	26406.08303	2.254985757	8.869088922	0.832884215	5.101779144	1.41104269	0.328980355	1.138819552	0.807076611	1833.437538	18.17296017	1836.40188	11.97996047	1839.747771	15.08405835	1839.747771	15.08405835	48.03723296
Spot 120	81.28846	16423.31462	2.440880787	12.14869588	1.309736214	2.186606219	1.699801945	0.19428755	1.038781901	0.611119374	1144.559648	10.89379155	1176.784759	11.8437739	1236.523826	26.38625016	1236.523826	26.38625016	46.59272316
Spot 121	120.129941	1349999.896	1.880561045	4.250247795	0.812934546	19.83418103	1.20020811	0.609571985	0.882970515	0.735681177	3068.288773	21.55661776	3083.307059	11.60227641	3093.096598	12.96401461	3093.096598	12.96401461	2095.210998
Spot 122	243.015241	103241.2313	1.230247124	13.33379574	0.881922675	1.850736119	1.365660426	0.178806824	1.04262512	0.763458543	1060.452928	10.19502274	1063.692185	9.002673458	1070.36066	17.70371639	1070.36066	17.70371639	853.7810912
Spot 124	180.645462	108097.9096	3.455644489	12.78045766	0.777535745	2.115832563	1.193249552	0.195903844	0.905133158	0.75854473	1153.27803	9.558234801	1153.979176	8.22768925	1155.278129	15.44445435	1155.278129	15.44445435	274.4913525
Spot 125	67.9605314	9145.641807	1.999103157	10.59294052	1.043073223	3.443152276	1.649186091	0.268096822	1.111706922	0.674094287	1531.134321	15.1512536	1514.30583	12.97741679	1490.836443	23.06178137	1490.836443	23.06178137	22.99280149
Spot 126	158.067627	172142.8193	2.850392476	9.959829935	0.690881105	4.015658727	1.065992742	0.289477645	0.811798566	0.761542302	1638.918356	11.74811474	1637.370934	8.666096514	1635.366869	12.83374903	1635.366869	12.83374903	400.9869641
Spot 127	137.076629	8137.4665	2.015325318	13.13509033	0.849848181	1.59611682	1.336389184	0.155181296	1.02878037	0.769820934	929.9422932	8.909029111	968.6924889	8.342823944	1057.695469	17.19092723	1057.695469	17.19092723	32.54668614
Spot 129	345.628999	43202.33381	8.650093569	9.317070364	0.766483745	4.381309888	1.384334906	0.296088644	1.151662468	0.831924748	1671.883924	16.96021943	1708.820448	11.44472709	1754.384654	14.05404095	1754.384654	14.05404095	31.01184548
Spot 130	227.502056	15458.33237	2.976194005	13.16800963	0.593221242	1.88217819	1.216276276	0.181437328	1.061497572	0.872743794	1074.82206	10.50881022	1074.829999	8.065126594	1074.865928	11.90406665	1074.865928	11.90406665	39.0512937
Spot 131	47.7293805	2559.38694	1.660589336	16.39046212	1.072197907	0.799161712	1.727413514	0.104365449	1.013006472	0.586429632	639.9414393	6.171269227	596.3556286	7.791107825	433.8553867	31.17877036	639.9414393	6.171269227	20.07939179
Spot 132	67.6081796	7393.96677	1.932662778	13.45888424	1.301893324	1.751575665	1.752645787	0.174913826	1.00210046	0.571764396	1039.128482	9.617183776	1027.744039	11.32894654	1003.569034	29.18209211	1003.569034	29.18209211	28.07346351
Spot 133	131.404262	13517.57817	1.521659819	13.29372155	0.766985098	1.888522097	1.445461806	0.184051302	1.146228908	0.792984569	1089.069235	11.48572455	1077.062483	9.596123699	1052.86318	17.7616876	1052.86318	17.7616876	65.60294834
Spot 134	232.101886	57295.06092	1.136893482	5.636952838	0.786174827	11.00812502	1.174517386	0.449099044	0.872411926	0.742783322	2391.245863	17.42949959	2523.819369	10.93312458	2632.207992	13.06607715	2632.207992	13.06607715	220.6452594
Spot 137	108.230452	24969.60431	1.253436435	13.44269578	0.839170754	1.85933862	1.369462835	0.182111565	1.066614415	0.778856051	1078.499928	10.59266179	1066.751634	9.042417225	1042.823696	17.34938812	1042.823696	17.34938812	144.7084042
Spot 138	316.620801	10242.10139	0.986027401	18.10677228	0.987258596	0.448927004	1.791775836	0.060329986	1.121590041	0.625965603	377.6320189	4.113813395	376.5276793	5.636990085	369.7185994	31.47715752	377.6320189	4.113813395	234.9892934
Spot 139	103.004899	33550.4475	1.377166389	13.30556024	0.886182072	1.635239635	1.331722069	0.158206418	0.992711932	0.745434768	946.8017217	8.741376854	983.8799016	8.391018622	1067.571401	17.84460557	1067.571401	17.84460557	172.8385701
Spot 140	114.569459	37925.67291	2.480199544	13.38347402	0.570996214	1.866051524	1.291213191	0.181481027	1.157384741	0.896354489	1075.060495	11.46042945	1069.132667	8.536458515	1057.07772	11.52583751	1057.07772	11.52583751	111.9207817
Spot 142	65.7458457	40126.18003	2.174691739	13.24453289	1.138050679	1.925149453	1.696506473	0.185325922	1.258095369	0.741580058	1096.005008	12.68033472	1089.856907	11.33756709	1077.573576	22.82793261	1077.573576	22.82793261	176.1950535
Spot 143	98.1397785	230652.5249	2.330969996	11.82225385	0.849300365	2.677055967	1.31615533	0.229121306	1.005461242	0.76393813	1329.892209	12.08244363	1322.142888	9.729881719	1309.588125	16.4831668	1309.588125	16.4831668	795.0310693
Spot 144	63.0802171	41310.62505	0.590620672	8.844573373	0.735926981	5.324855048	1.25815642	0.3416921	1.019784077	0.810538388	1894.804695	16.74208272	1872.860961	10.75568328	1848.586708	13.32669331	1848.586708	13.32669331	366.4044343
Spot 146	169.889506	22654.81129	3.300739454	10.76521121	0.845005311	3.219218685	1.262951468	0.252002565	0.938093319	0.742778597	1448.794978	12.17207183	1461.796177	9.78472129	1480.720884	16.0298032	1480.720884	16.0298032	38.41762884
Spot 147	156.375429	44022.90583	2.035200163	8.656778636	0.639875545	5.592083972	1.138641022	0.350359658	0.94093086	0.826363043	1936.315683	15.7377057	1914.879962	9.80801671	1891.725325	11.53606248	1891.725325	11.53606248	112.0220441
Spot 148	132.67196	39241.50674	2.320663263	8.085298721	0.731196653	6.300980609	1.296789217	0.368747921	1.070300128	0.825346258	2023.506177	18.58793283	2018.590312	11.3643443	2013.550211	12.98809996	2013.550211	12.98809996	82.46130305
Spot 150	290.321003	37854.67381	1.874528085	10.10379855	0.631814639	3.696611236	1.344768521	0.270597448	1.186184113	0.882073081	1543.833822	16.28496954	1570.636376	10.74763306	1606.824559	11.81182438	1606.824559	11.81182438	98.41426505
Spot 151	327.888314	25086.00022	1.003624059	12.95716852	0.754049303	1.606985591	1.346842571	0.151490236	1.115460864	0.828204341	909.3115916	9.460132878	972.9345664	8.430048552	1119.51691	15.06102086	1119.51691	15.06102086	219.5014575
Spot 153	127.232393	12945.41569	2.31199033	13.38314395	0.979518878	1.818068686	1.444517405	0.178312799	0.955786857	0.661665172	1057.750745	9.323983275	1051.989427	9.462894004	1040.02966	21.88182909	1040.02966	21.88182909	41.05844555
Spot 154	248.874584	36966.10816	5.770518417	13.32953962	0.856617664	1.734616969	1.364070665	0.167814877	1.056190142	0.774292835	1000.060441	9.784014863	1021.466597	8.785868621	1067.644448	17.33353473	1067.644448	17.33353473	40.80596419
Spot 155	714.365091	30676.36029	1.394681429	17.53252798	0.860751037	0.399575591	4.355607582	0.051009829	4.267447664	0.979759444	320.7184157	13.35162491	341.3403477	12.6271004	484.283871	19.26233079	320.7184157	13.35162491	630.6401638
xx	42.6389699	2087536.091	0.857470982	17.66602414	1.657923314	0.605980501	2.011230666	0.077435482	1.138568873	0.566105565	480.7971898	5.27504712	481.0219569	7.705813832	482.1142376	36.62361931	480.7971898	5.27504712	54222.17057
Spot 156	28.0735657	58018.91623	1.307915424	12.434247	1.235138582	2.241752406	1.589792957	0.202324578	1.000920174	0.629591526	1187.795853	10.85787851	1194.206275	11.16338184	1205.846578	24.3289639	1205.846578	24.3289639	373.3651406
Spot 158	97.7015669	553352.3274	2.388287704	12.398712	0.645649092	2.318031489	1.277270828	0.208046182	1.102069831	0.862831755	1218.400184	12.23500223	1217.82168	9.060731464	1216.785815	12.69636431	1216.785815	12.69636431	2081.068869
Spot 159	89.0582091	10342.26161	3.855093554	13.26102116	0.816948695	1.895161708	1.376481024	0.185241343	1.086384243	0.789247526	1095.545003	10.94543961	1079.393783	9.149246731	1046.946981	17.06356022	1046.946981	17.06356022	19.78372076
Spot 160	83.387604	32149.58643	2.32408066	10.98118076	0.8833392	3.274914668	1.396507714	0.261431756	1.081530265	0.774453484	1497.162869	14.44947905	1475.11209	10.86331462	1443.509435	16.83197292	1443.509435	16.83197292	70.05466012
Spot 163	40.6579502	37036.76213	2.126503864	8.94746257	0.935005958	5.241904248	1.427071937	0.340494131	1.077590075	0.755105645	1889.046254	17.64483438	1859.456063	12.16938277	1826.511179	16.96655608	1826.511179	16.96655608	72.89875248
Spot 165	109.095698	30385.62743	2.186651047	12.58916911	0.755731549	2.190799604	1.254823348	0.200747971	0.998503807	0.795732569	1179.337124	10.7613718	1178.120064	8.748354477	1175.904226	15.04531813	1175.904226	15.04531813	122.2481986
Spot 167	71.890448	104356.8989	3.238665773	9.831566789	0.962669623	4.219040153	1.483695737	0.300609438	1.128966905	0.76091538	1694.330075	16.82116661	1677.731133	12.17919565	1657.018909	17.83174541	1657.018909	17.83174541	193.5215621
Spot 168	102.352411	13389.35461	3.527215978	8.976145021	0.858206083	5.146986065	1.325554146	0.337411514	0.978023047	0.737822027	1874.204932	15.90607468	1843.896929	11.27031311	1809.850927	16.25869818	1809.850927	16.25869818	15.2516711
Spot 171	190.016368	63377.20954	1.205585265	8.906630588	0.670060612	4.997806475	1.320636947	0.322563403	1.137995106	0.861701703	1802.235781	17.89197597	1818.950921	11.17423685	1838.132665	12.13616933	1838.132665	12.13616933	295.7461262
Spot 173	341.619388	249217.2799	1.865190129	11.37171559	0.799898614	2.706814028	1.613482028	0.222817956	1.401241949	0.868458355	1296.747756	16.45965238	1330.327213	11.96387208	1384.785137	15.36177018	1384.785137	15.36177018	1089.564771
Spot 175	298.676552	87221.6703	2.058263245	10.82699994	0.904525608	3.115577251	1.283057795	0.24438761	0.909870445	0.709142214	1409.466749	11.51918444	1436.542726	9.862739315	1476.85179	17.15808587	1476.85179	17.15808587	331.8512813
Spot 176	469.427388	44758.34824	3.525418955	12.70677375	0.533853318	2.137637912	1.236235214	0.197508068	1.114934715	0.90187911	1161.91966	11.85426208	1161.060323	8.552096836	1159.43744	10.60452579	1159.43744	10.60452579	113.329137
Spot 177	64.425252	6472.717172	2.216663791	12.63707159	1.01113623	2.061586693	1.4901549	0.194041239	1.057034831	0.709345606	1143.229997	11.07344223	1136.145919	10.18898548	1122.625137	20.95242728	1122.625137	20.95242728	20.06428599
Spot 178	288.910578	322478.8619	2.254817069	12.38182531	0.796159683	2.218435153	1.28848164	0.199037734	1.013071609	0.786252266	1170.148893	10.84079989	1186.876442	9.018234826	1217.500903	15.67324262	1217.500903	15.67324262	1276.214403
Spot 179	172.293448	98858.16443	2.653163216	12.43226467	0.829580471	2.203902146	1.422272469	0.198784469	1.155183845	0.812209945	1168.787113	12.34841411	1182.281045	9.934354099	1207.047585	16.33065055	1207.047585	16.33065055	346.1751492
Spot 180	127.159675	35000.48299	2.03240327	11.47028342	0.79479655	2.910652156	1.32763822	0.242899983	1.061007343	0.799169025	1401.755647	13.3668329	1384.682085	10.0337878	1358.444722	15.38280837	1358.444722	15.38280837	129.1489977
Spot 181	32.119721	2952774.151	1.860623506	13.42899182	1.186790933	1.794752279	1.685333412	0.174538608	1.196610208	0.710013935	1037.069436	11.46292834	1043.553305	10.98990389	1057.175546	23.895546	1057.175546	23.895546	16052.45224
Spot 182	219.73935	42862.89293	2.871462126	9.424264624	0.748979966	4.560519922	1.352974349	0.312161841	1.126379264	0.832520783	1751.33626	17.27413467	1742.08419	11.26772544	1730.980317	13.75353477	1730.980317	13.75353477	88.93291402
Spot 184	776.363707	204791.0093	2.240545686	13.56143048	0.650997001	1.534489651	1.354612288	0.150832296	1.187923678	0.876947366	905.6271789	10.03666424	944.2984168	8.327758086	1035.576343	13.16846856	1035.576343	13.16846856	1084.344738
Spot 185	74.8649468	11376.72711	2.524256672	13.35754929	1.075313482	1.838939464	1.652686989	0.180893469	1.243009959	0.752114567	1071.853854	12.2745479	1059.481702	10.87047225	1034.062457	22.02533061	1034.062457	22.02533061	32.7339475
Spot 187	369.1603	64318.93735	2.661319405	9.150771767	0.736842648	4.583874753	1.311806887	0.304310732	1.085057266	0.827147103	1712.649323	16.31954301	1746.339986	10.93487141	1786.897496	13.43371348	1786.897496	13.43371348	145.375351
Spot 188	433.03922	219039.0375	4.050104919	13.39041073	0.938643601	1.728703171	1.519960509	0.167756303	1.195497945	0.786532241	999.7371037	11.07118464	1019.268383	9.777768978	1061.478162	18.89069306	1061.478162	18.89069306	311.4836784
Spot 189	100.216503	21399.21795	2.775227805	12.43363164	0.841805506	2.235633817	1.351211482	0.202937133	1.056092983	0.781589705	1191.079306	11.48522248	1192.287997	9.479974319	1194.499118	16.62091323	1194.499118	16.62091323	51.37482256
Spot 191	123.128154	55259.73573	1.334573546	9.828795874	0.744152783	4.101365	1.211983308	0.292299869	0.956544811	0.789239262	1653.011928	13.94728013	1654.574962	9.894237195	1656.544393	13.78603497	1656.544393	13.78603497	251.0492174
Spot 192	370.758077	13276.1663	1.966765352	17.67407296	0.869841088	0.528867007	1.379923195	0.068949244	1.065813829	0.772371849	429.8220873	4.431717319	431.0574635	4.84690927	437.6439229	19.52273112	429.8220873	4.431717319	125.1523552
Spot 196	154.399611	6901.866077	3.065390746	17.69314434	1.032055486	0.565812184	1.804711773	0.075191018	1.009116137	0.559156399	467.3543097	4.549249622	455.3024893	6.621807417	394.8888524	33.55569706	467.3543097	4.549249622	40.78172158
Spot 200	89.4965785	13346.69428	2.416130755	13.54991884	0.900323268	1.786721523	1.519991468	0.177604815	1.201193855	0.790263551	1053.876278	11.67849677	1040.631389	9.89573616	1012.898142	18.86476019	1012.898142	18.86476019	39.77350333
xx	142.757638	99737.385	1.583326614	17.02043052	0.899047871	0.762141431	1.333124405	0.094211896	0.984255238	0.738307118	580.3988712	5.462989403	575.2447497	5.854640212	554.956242	19.62612526	580.3988712	5.462989403	1179.205039

1. Analyses with >10% uncertainty (1-sigma) in 206Pb/238U age are not included.
2. Analyses with >10% uncertainty (1-sigma) in 206Pb/207Pb age are not included, unless 206Pb/238U age is <400 Ma.
3. Best age is determined from 206Pb/238U age for analyses with 206Pb/238U age <900 Ma and from 206Pb/207Pb age for analyses with 206Pb/238Uage >900 Ma.

4. Concordance is based on 206Pb/238U age / 206Pb/207Pb age. Value is not reported for 206Pb/238U ages <400 Ma because of large uncertainty in 206Pb/207Pb age.
5. Analyses with 206Pb/238U age >400 Ma and with >20% discordance (<80% concordance) are not included.
6. Analyses with 206Pb/238U age >400 Ma and with >5% reverse discordance (<105% concordance) are not included.
7. All uncertainties are reported at the 2-sigma level, and include only measurement errors.
8. Systematic errors are as follows (at 2-sigma level): [sample 1: xxx% (206Pb/238U) & xxx% (206Pb/207Pb)]
9. Analyses conducted by LA-ICPMS, as described by Gehrels et al. (2008) and Gehrels and Pecha (2014).
10. U concentration and U/Th are calibrated relative to FC-1 zircon standard and are accurate to ~20%.
11. Common Pb correction is from measured 204Pb with common Pb composition interpreted from Stacey and Kramers (1975).
12. Common Pb composition assigned uncertainties of 1.5 for 206Pb/204Pb, 0.3 for 207Pb/204Pb, and 2.0 for 208Pb/204Pb.
13. U/Pb and 206Pb/207Pb fractionation is calibrated relative to fragments of large Sri Lanka zircons and individual crystals of FC-1, and R33.
14. U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U/235U = 137.82.
15. Weighted mean and concordia plots determined with Isoplot (Ludwig, 2008).

Aliquot Name	19-HR-392
Stratigraphic Formation Name	
Stratigraphic Age	
Rock Type	
Mineral	Zircon
Method	U-Pb
Latitude	
Longitude	
Internal Uncertainty Level	one sigma
External Uncertainty 206/238 (% two sigma)	1.0234174
External Uncertainty 206/207 (% two sigma)	0.82154339
Analysis Purpose	
Laboratory Name	Arizona LaserChron Center
Analyst Name	
Aliquot Reference	
Aliquot Instrumental Method	LA-ICPMS
Aliquot Instrumental Reference	Gehrels, G.E., Valencia, V., Ruiz, J., 2008, Enhanced precision, accuracy, efficiency, and spatial resolution of U-Pb ages by laser ablation-multicollector-inductively coupled plasma-mass spectrometry: Geochemistry, Geophysics, Geosystems, v. 9, Q03017, doi:10.1029/2007GC001805. Gehrels, G. and Pecha, M., 2014, Detrital zircon U-Pb geochronology and Hf isotope geochemistry of Paleozoic and Triassic passive margin strata of western North America: Geosphere, v. 10 (1), p. 49-65.

				Isotope ratios								Apparent ages (Ma)						
Analysis	U (ppm)	206Pb 204Pb	U/Th	206Pb* 207Pb*	± (%)	207Pb* 235U	± (%)	206Pb* 238U	± (%)	error corr.	206Pb* 238U	± (Ma)	207Pb* 235U	± (Ma)	206Pb* 207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)
Spot 1	509.743298	610038.3939	7.332361821	11.36633965	0.60691265	2.850283896	0.933845286	0.233685532	0.70973435	0.760012778	1353.786022	8.666458177	1368.8855	7.019515324	1392.510887	11.64313568	1392.510887	11.64313568	290.9266921
Spot 2	54.5302953	53258.3444	1.911506677	9.643112127	0.657112414	4.288703885	1.091038911	0.299096399	0.869948964	0.79735833	1686.826398	12.91166849	1691.194805	8.983763124	1696.599313	12.13426414	1696.599313	12.13426414	56.28596805
Spot 3	153.96124	114660.2275	3.987186615	10.91766264	0.78837126	3.25938657	1.210274665	0.257008164	0.918059511	0.75855468	1474.516835	12.10036219	1471.417122	9.404053357	1466.930024	14.97754826	1466.930024	14.97754826	92.54162176
Spot 4	55.6432343	9969041.624	0.728011188	10.92828732	0.64396328	3.156989048	1.183534144	0.24885033	0.993007736	0.839019086	1432.544028	12.75555128	1446.708662	9.126759217	1467.568018	12.22900495	1467.568018	12.22900495	40502.49428
Spot 5	157.649073	70039.61983	3.284488461	8.758096413	0.623844966	5.066561845	1.149239316	0.320599096	0.964944765	0.839637795	1792.654275	15.10124496	1830.524473	9.745955881	1873.858891	11.25606889	1873.858891	11.25606889	40.74597861
Spot 6	225.571364	498668.6318	3.048116018	9.769223427	0.574441891	4.279749173	1.086162851	0.301180915	0.92182655	0.848700127	1697.161956	13.75491278	1689.474124	8.940073794	1679.928648	10.61008613	1679.928648	10.61008613	445.7474507
Spot 7	1181.5254	982389.2462	1.957798575	9.315959664	0.5862623	4.420729064	1.022196996	0.296656632	0.837366764	0.819183355	1674.708334	12.34990261	1716.231223	8.464684376	1767.256868	10.71031523	1767.256868	10.71031523	1342.061151
Spot 8	301.55308	29404.01993	2.682063096	11.91199617	0.843654797	2.341541035	1.343464752	0.201856028	1.045521149	0.778227451	1185.283169	11.31985204	1224.990697	9.559253792	1295.577322	16.40619591	1295.577322	16.40619591	32.95674676
Spot 9	90.45894	19829.41567	1.895020213	19.42200884	1.751712922	0.274689954	1.981724383	0.03894945	0.92445918	0.466492307	246.3178638	2.234152823	246.4364884	4.336247048	247.5651994	40.36987304	246.3178638	2.234152823	158.9100798
Spot 10	461.692749	3436636.576	14.15313752	9.677578799	0.727583627	3.966493469	1.798022007	0.276227244	1.644233926	0.914468187	1572.333667	22.94151757	1627.368687	14.58181697	1699.252801	13.40405336	1699.252801	13.40405336	547.5005047
Spot 11	55.3319648	39337.03462	1.612968294	13.4498608	0.798572168	1.867597282	1.175617598	0.181472599	0.84726653	0.720699088	1075.014509	8.38930351	1069.680149	7.774447746	1058.83839	16.41763409	1058.83839	16.41763409	75.44891938
Spot 12	248.066638	145702.636	3.589073051	9.468825806	0.467551931	4.553089406	0.823557648	0.310435187	0.677837945	0.823060713	1742.847934	10.35141811	1740.726428	6.856492868	1738.163467	8.574296078	1738.163467	8.574296078	101.2476852
Spot 13	156.633961	91505.66029	2.049433941	11.01723515	0.57958331	2.5488819	2.231841951	0.20236494	2.154915467	0.965532289	1188.01225	23.38025889	1286.117273	16.27753787	1453.911122	11.05190121	1453.911122	11.05190121	178.4672418
Spot 14	383.821455	207747.7801	2.294142176	9.591032276	0.565101096	4.475377469	1.039515726	0.30899585	0.872472219	0.839306417	1735.763524	13.27653681	1726.416426	8.627541015	1715.086788	10.39200593	1715.086788	10.39200593	233.6890168
Spot 15	134.205937	59503.12496	2.109969217	11.18525212	0.716949806	3.15322783	1.136258723	0.254404043	0.881365644	0.77567338	1461.148065	11.52288822	1445.789534	8.759665255	1423.257194	13.7002304	1423.257194	13.7002304	61.86500031
Spot 16	66.5838597	111418.9744	5.331679935	9.191680549	0.715857761	4.576374258	1.173434941	0.303150189	0.929598115	0.792202518	1706.910916	13.94047236	1744.975164	9.778493983	1790.87556	13.04245303	1790.87556	13.04245303	54.72669607
Spot 17	433.977853	172180.8251	21.24156196	8.027979901	0.691374104	5.483747488	1.444313567	0.31697698	1.268067581	0.877972492	1774.948871	19.67485287	1898.05418	12.40407434	2035.460129	12.23141681	2035.460129	12.23141681	26.51690637
Spot 18	125.356383	36315.17026	1.213691411	10.87780603	0.70738999	3.136832069	1.16275695	0.246557742	0.922785373	0.793618455	1420.699087	11.76591301	1441.773158	8.952688756	1472.978354	13.42470754	1472.978354	13.42470754	75.28820978
Spot 20	641.984673	1424201.139	18.5947778	9.903873245	0.681175417	4.258540494	1.442833123	0.30351586	1.271914873	0.881539835	1708.719561	19.09161165	1685.387131	11.86482505	1656.457336	12.61744385	1656.457336	12.61744385	204.2191296
Spot 21	273.363857	65740.3968	3.212630123	13.50267226	0.609360165	1.786739737	1.227086144	0.174106789	1.064752431	0.867707973	1034.698979	10.17830156	1040.638026	7.988749619	1053.15242	12.30768601	1053.15242	12.30768601	69.06594302
Spot 22	25.1800146	81612.43905	1.335735269	12.73424256	1.101137354	1.97435262	1.503221347	0.181309934	1.02245718	0.680177395	1074.126905	10.11629381	1106.794343	10.13210135	1171.581441	21.81333243	1171.581441	21.81333243	198.4960607
Spot 24	454.221097	82800.89389	3.308856971	9.404542486	0.552853665	3.85897613	1.13185557	0.261546084	0.987643248	0.872587699	1497.747106	13.19969857	1605.1457	9.127670367	1749.081129	10.12126315	1749.081129	10.12126315	66.59095724
Spot 25	160.496404	92678.21004	5.788763325	11.03627029	0.583909895	3.144706347	1.148096485	0.250142258	0.988088258	0.860631725	1439.209354	12.74506749	1443.704057	8.845158394	1450.311934	11.1282932	1450.311934	11.1282932	41.46944993
Spot 26	140.896037	41937.59298	3.458163159	17.21169745	0.913509806	0.748996905	1.334804064	0.093338195	0.961382437	0.720242366	575.2495093	5.290775867	567.6422058	5.804210351	537.2742238	20.28328489	575.2495093	5.290775867	79.6056372
Spot 29	60.2233556	79254.20684	6.823516259	9.197075258	0.761776104	4.733757206	1.30587138	0.313797145	1.06061209	0.812187254	1759.365213	16.33038345	1773.235542	10.94747148	1789.589074	13.87790643	1789.589074	13.87790643	22.68309774
Spot 31	882.993341	40178.64589	2.583624505	20.74075773	0.964354081	0.057824997	1.542304538	0.008690217	1.202122314	0.779432521	55.77872619	0.667635932	57.07966732	0.856055541	112.0126638	22.79510238	55.77872619	0.667635932	997.0026594
Spot 32	171.939783	2191343.56	0.979947089	9.312174429	0.643712378	4.424729533	1.040929537	0.296251865	0.818027306	0.785862326	1672.695691	12.05197469	1716.980294	8.621251567	1771.402577	11.75202675	1771.402577	11.75202675	6335.840728
Spot 33	27.6288536	9528.161583	1.013917104	9.941538531	0.992931221	3.596159247	1.584634227	0.260872613	0.996597687	0.628913392	1494.304793	13.29217261	1548.683564	12.58998016	1623.675627	22.91900539	1623.675627	22.91900539	21.31616845
Spot 34	149.189574	133957.9008	1.495145195	13.45333603	0.625310266	1.807098263	1.044360005	0.175099182	0.836288332	0.800766333	1040.145395	8.033116434	1048.028942	6.826700332	1064.516777	12.56162822	1064.516777	12.56162822	394.4122147
Spot 35	129.529644	81153.47748	3.944644203	9.217202504	0.559075222	4.891093189	1.165457747	0.324733223	1.022009916	0.876917176	1812.803211	16.14999969	1800.722528	9.825395552	1786.745334	10.20719799	1786.745334	10.20719799	55.27498886
Spot 36	150.847576	90135.41589	4.776511557	11.03292505	0.707215256	2.978087521	1.382974826	0.236666718	1.188360832	0.859278716	1369.344914	14.66060184	1402.04212	10.5129071	1452.096547	13.46175252	1452.096547	13.46175252	53.7450234
Spot 37	1304.93404	534872.2526	5.169086509	8.583321025	0.631982495	5.123169613	1.101550636	0.31626868	0.902225304	0.819050232	1771.480912	13.97479764	1839.955194	9.358561924	1918.295098	11.33397395	1918.295098	11.33397395	260.0071905
Spot 38	258.087734	365541.1368	4.828116169	14.11921794	0.657125894	1.58302371	1.183122492	0.16075922	0.983846607	0.831567833	960.9946256	8.783742903	963.5586061	7.362516136	969.4125687	13.4081467	969.4125687	13.4081467	390.9024378
Spot 39	56.3205703	42436.14355	1.011720853	9.662751074	0.548922408	4.265085577	1.133829999	0.297082771	0.991815232	0.874747743	1676.826563	14.64399263	1686.650149	9.326364438	1698.871186	10.12197106	1698.871186	10.12197106	82.81338114
Spot 40	313.030891	11964584.02	6.306015127	10.96942977	0.848212353	2.841343894	1.497415977	0.223979249	1.234013944	0.824095617	1302.866918	14.55702876	1366.525133	11.24684592	1467.485648	16.10803853	1467.485648	16.10803853	6009.509614
Spot 41	129.408415	96330.9883	2.115255846	5.324738061	0.576920445	13.80219967	1.148161512	0.528650662	0.992666197	0.864570173	2735.764229	22.13011528	2736.229676	10.87105108	2736.557044	9.491979924	2736.557044	9.491979924	71.53964706
Spot 42	75.6014927	208368.7011	0.664740382	5.381520786	0.504522856	13.44663517	1.02003041	0.52034171	0.88651956	0.869110912	2700.629291	19.55938926	2711.541379	9.640576304	2719.670829	8.316059338	2719.670829	8.316059338	501.0547885
Spot 43	282.653061	862046.9407	3.73792267	9.268505674	0.621434475	4.752642194	1.202669007	0.316875289	1.029675604	0.856158759	1774.451089	15.97214492	1776.574363	10.08923132	1779.055509	11.33453046	1779.055509	11.33453046	602.833792
Spot 46	166.639489	573783.7216	2.548753492	9.260693314	0.688587498	4.788024542	1.192917237	0.318814122	0.974113905	0.816581298	1783.935149	15.18038241	1782.800476	10.02029082	1781.454438	12.55587249	1781.454438	12.55587249	578.5728073
Spot 47	167.532087	76536.73972	5.330283806	9.276640423	0.600462137	4.779190187	0.889572502	0.319229575	0.656191598	0.737648248	1785.965583	10.23604005	1781.249497	7.469756099	1775.713216	10.95944556	1775.713216	10.95944556	28.21566493
Spot 48	58.2092718	4487662.561	1.816069338	11.05271672	0.640633463	3.15745357	1.12094461	0.250746032	0.919839977	0.820593604	1442.321994	11.88764739	1446.822119	8.644385399	1453.422494	12.1889483	1453.422494	12.1889483	7888.118599
Spot 49	276.300874	976321.1784	0.767694562	11.194211	0.646223114	2.684476947	1.306921626	0.215831145	1.135975228	0.869199197	1259.809268	12.99955558	1324.190054	9.668885491	1429.915023	12.33441084	1429.915023	12.33441084	3588.380984
Spot 50	81.1601604	98844.73549	4.56600896	11.88300233	0.710358877	2.53107779	1.177880067	0.216349874	0.939122397	0.797298828	1262.559016	10.76809651	1281.010456	8.573132	1312.075298	13.79353228	1312.075298	13.79353228	82.51059508
Spot 51	730.409748	55419.13906	3.421930761	21.03039862	1.199153691	0.058085186	1.532835707	0.008819498	0.954464235	0.622678759	56.6048866	0.537908302	57.32938693	0.854417974	87.72586976	28.42239574	56.6048866	0.537908302	1109.673739
Spot 52	225.263993	239311.763	4.42030199	13.462201	0.763597523	1.789347621	1.135689124	0.173080363	0.840633545	0.740196879	1029.060938	7.995491707	1041.587796	7.39757097	1067.985061	15.34405463	1067.985061	15.34405463	251.4962406
Spot 53	450.928481	764059.2244	2.542415587	9.469620161	0.561713727	4.235378917	1.246848561	0.287757939	1.113152562	0.892772865	1630.315386	16.03492265	1680.904933	10.2424181	1744.615438	10.28903341	1744.615438	10.28903341	717.3062879
Spot 54	82.9159393	74986.63231	3.11801132	10.89357146	0.815218495	3.22083361	1.225398412	0.252164654	0.914134283	0.745989446	1449.629502	11.86728747	1462.184745	9.494890043	1480.452698	15.47055696	1480.452698	15.47055696	56.91972867
Spot 55	382.047112	48671.95001	109.1669545	17.74714947	0.65085411	0.544869358	1.093574181	0.069726971	0.87660448	0.801595808	434.5105467	3.683407701	441.6300437	3.916344957	478.8818077	14.43804107	434.5105467	3.683407701	23.01440109
Spot 56	270.295305	130790.6748	3.021375405	5.888742331	0.582449807	10.28773303	1.201062067	0.434939565	1.050353157	0.874520298	2327.946709	20.52344789	2461.000724	11.11541458	2572.804699	9.736613472	2572.804699	9.736613472	73.68890553
Spot 58	143.298716	84965.84894	1.611320453	10.9967997	0.652156208	2.812801667	1.12044967	0.222347203	0.910773705	0.81286445	1294.265575	10.67987511	1358.952393	8.393189931	1462.199073	12.40214377	1462.199073	12.40214377	195.2106529
Spot 59	218.163158	118447.5173	4.826942005	9.729690214	0.627164342	4.311441069	1.147518757	0.301480823	0.960886512	0.83736018	1698.647613	14.34871268	1695.55078	9.45828403	1691.708355	11.56889204	1691.708355	11.56889204	67.79482597
Spot 60	53.7511845	12777.2813	1.242155397	12.99165409	0.822799415	2.026538846	1.261028884	0.191768356	0.954853561	0.757201974	1130.947414	9.904679216	1124.455167	8.573811813	1111.917154	16.44730348	1111.917154	16.44730348	31.99179579
Spot 61	186.615151	40873.19167	0.64071911	16.47033605	0.85080297	0.864465381	1.266319727	0.102823694	0.929747278	0.734212109	630.9356011	5.588179438	632.5576004	5.961719735	638.3790471	18.49592495	630.9356011	5.588179438	368.5591295
Spot 62	116.278213	30261.32416	1.8666299	11.05760192	0.883088544	3.09946653	1.298780655	0.247341378	0.952015412	0.733007077	1424.750288	12.16953955	1432.560137	9.971013121	1444.160966	16.83018773	1444.160966	16.83018773	40.50710757
Spot 63	50.0467598	191105.0822	6.882964878	9.159215358	0.746940906	4.694961562	1.314736655	0.308992401	1.081938031	0.822931365	1735.746539	16.4638807	1766.341928	11.00593475	1802.697121	13.58655565	1802.697121	13.58655565	71.07174556
Spot 64	101.797095	74494.11113	3.908853227	9.051426677	0.539259824	5.078941564	1.003671956	0.330658434	0.846088869	0.842993435	1841.572172	13.55338706	1832.594401	8.514852469	1822.393243	9.794832458	1822.393243	9.794832458	34.59312375
Spot 65	86.4098027	79645.85838	0.881324943	11.08236755	0.700280252	3.214099986	1.202098315	0.25639853	0.976579261	0.812395499	1471.389647	12.84737467	1460.563581	9.309719924	1444.835022	13.35207072	1444.835022	13.35207072	277.9928184
Spot 67	212.565325	75039.61426	1.687308515	10.80436335	0.505191832	3.017611533	1.510900947	0.234625527	1.423507943	0.94215835	1358.695937	17.43890327	1412.080601	11.52338143	1493.553813	9.583299712	1493.553813	9.583299712	148.3767523
Spot 68	243.204481	91487.05125	5.143921449	9.123735818	0.686274533	4.672444157	1.210298859	0.306583009	0.996689707	0.823507103	1723.870035	15.07613599	1762.319229	10.12303675	1808.189285	12.47861361	1808.189285	12.47861361	37.3613176
Spot 69	302.415286	292113.6417	2.239533219	9.400618457	0.674678171	4.743096017	1.426988882	0.320369902	1.257414735	0.881166455	1791.535382	19.66772787	1774.887994	11.96703186	1755.345168	12.34411683	1755.345168	12.34411683	319.1609188
Spot 70	166.337677	185805.0879	4.127436938	9.252446607	0.543239436	4.850348424	1.183017865	0.322313716	1.050896696	0.888318534	1801.018643	16.51290437	1793.675402	9.959243385	1785.12928	9.901292924	1785.12928	9.901292924	115.7123873
Spot 71	179.477305	1652989.02	3.998040436	9.494086765	0.604699257	4.620826197	1.030392733	0.314956306	0.834294899	0.809686319	1765.050366	12.88182391	1753.037176	8.601269643	1738.729533	11.08467702	1738.729533	11.08467702	1084.215869

Spot 72	131.033437	12204.84609	1.629952623	10.08792818	1.510106187	3.3672085	1.819533135	0.246583393	1.005920591	0.552845437	1420.83174	12.82699615	1496.800546	14.2457217	1606.077988	28.27068343	1606.077988	28.27068343	20.90352245
Spot 73	49.5814305	30788.97098	3.712461162	13.13356458	0.815638268	1.877584011	1.281657672	0.178131389	0.980210606	0.764799078	1056.758194	9.553987059	1073.210191	8.49148102	1106.768696	16.51554639	1106.768696	16.51554639	27.96766338
Spot 74	440.234354	746814.4264	1.924471395	11.22247982	0.553922287	2.999456823	1.260660461	0.241737806	1.132446217	0.898295975	1395.725091	14.21186805	1407.481908	9.600250944	1425.309836	10.5792486	1425.309836	10.5792486	1195.104185
Spot 75	354.825245	5446833.726	4.122418577	9.382717071	0.505796573	4.524082956	1.448740919	0.304745793	1.357578756	0.937074902	1714.799207	20.44073498	1735.408695	12.04790088	1760.325773	9.248260823	1760.325773	9.248260823	3323.357162
Spot 76	196.403527	393169.5461	1.124360165	20.94262458	2.343783684	0.0605278	2.541541822	0.009107434	0.982910407	0.386737845	58.44455089	0.57186135	59.67072021	1.472856067	109.1639126	55.34272144	58.44455089	0.57186135	31943.01954
Spot 77	85.6836081	156151.7444	2.392518787	11.01982395	0.727400414	3.18982153	1.183309359	0.252668861	0.933274631	0.788698766	1452.224749	12.13510729	1454.696795	9.147676978	1458.291454	13.83219104	1458.291454	13.83219104	211.7098496
Spot 79	55.7878769	35365.72733	4.149918048	9.021788062	1.093201994	4.677942553	1.355594651	0.304064902	0.80031781	0.590381358	1711.434221	12.02951942	1763.302981	11.34074813	1825.296446	19.84502419	1825.296446	19.84502419	19.50149174
Spot 80	664.70573	21168.27957	2.486623189	20.77284378	0.950137335	0.101621782	1.242393998	0.01537371	0.796065011	0.640750851	98.35121462	0.77699732	98.27226602	1.163707241	96.36171477	22.58392198	98.35121462	0.77699732	318.0715732
Spot 81	181.728527	15964.98917	3.721990498	19.93943659	1.795571871	0.06920294	2.1109842	0.010088839	1.102519634	0.522277539	64.71095162	0.709881989	67.94278869	1.387329329	183.2479567	41.95850048	64.71095162	0.709881989	275.5220258
Spot 82	327.291293	82275.55215	6.478469332	11.10677774	0.529089627	3.169839757	0.992893511	0.253102988	0.840167775	0.846181152	1454.458443	10.93944148	1449.842725	7.66405783	1443.063663	10.08107322	1443.063663	10.08107322	40.43036747
Spot 83	25.5234376	24125.09803	1.142846424	9.740378755	0.886411054	4.124672644	1.308038826	0.289887156	0.932671198	0.713030209	1640.965279	13.51215638	1659.203583	10.6903014	1682.350905	16.93418619	1682.350905	16.93418619	41.44819761
Spot 84	90.1187194	79998.01122	1.143546727	20.40226918	2.663241957	0.067825551	2.860443081	0.009966955	1.043673495	0.364864276	63.93303816	0.663954313	66.63388853	1.844831557	164.6985117	62.26163915	63.93303816	0.663954313	5578.715482
Spot 85	283.519837	4225.933583	1.895348856	17.41162276	3.064932683	0.11087942	3.222940482	0.014742766	0.981159545	0.30442993	94.3442266	0.918926675	106.7695304	3.266387606	393.6790929	68.89086967	94.3442266	0.918926675	105.9948272
Spot 86	265.034495	376930.4788	1.166960223	9.328865026	0.585428808	4.109157013	1.576833292	0.275011243	1.464128373	0.928524519	1566.188537	20.35800614	1656.124712	12.87782333	1772.145241	10.68686224	1772.145241	10.68686224	607.7282712
Spot 87	148.895198	77252.40979	1.467510968	11.07307272	0.586268275	3.086656659	1.282534739	0.245599932	1.140180809	0.88900579	1415.743994	14.49246735	1429.382335	9.836323535	1449.729217	11.17913252	1449.729217	11.17913252	129.6107921
Spot 88	73.3693331	238497.0262	1.291241561	16.60677561	1.126495992	0.793426258	1.414050424	0.094612174	0.85471655	0.604445595	582.7566252	4.762413993	593.1135717	6.352190557	632.953416	24.27388427	582.7566252	4.762413993	1577.877484
Spot 89	118.620848	1756951.747	2.672386194	11.32423455	0.714034799	2.81839361	1.103542619	0.228963757	0.841403953	0.762457144	1329.065853	10.10533643	1360.440487	8.270839191	1410.064508	13.66551189	1410.064508	13.66551189	2338.659696
Spot 90	144.122554	83694.70541	3.6320816	13.32265633	0.735506122	1.881589526	1.089737781	0.180225273	0.803457471	0.737294315	1068.205187	7.909191642	1074.622593	7.225235694	1087.662438	14.73864553	1087.662438	14.73864553	105.8975109
Spot 92	56.6626844	73435.41104	2.034657565	13.63280412	2.454649029	1.119998214	2.781167588	0.10998311	1.306792885	0.469872039	672.6497897	8.347084953	762.9743068	14.92004594	1037.53676	49.56499294	672.6497897	8.347084953	208.4795566
Spot 94	67.6560966	120494.0678	0.835930538	11.01808363	0.642842478	3.128415163	1.248486362	0.248041816	1.070121181	0.857134859	1428.369223	13.71031983	1439.705128	9.606555335	1456.473533	12.23057286	1456.473533	12.23057286	490.8482341
Spot 95	192.834277	278040.5818	2.507860541	11.02717972	0.76237829	3.173982471	1.153790167	0.251680884	0.866022865	0.75058957	1447.13847	11.22547208	1450.851002	8.908852964	1456.275651	14.49999323	1456.275651	14.49999323	357.8571567
Spot 97	116.053648	81571.09779	2.418042594	9.358721584	0.996021193	4.527147022	1.504808432	0.304874984	1.127746895	0.749428878	1715.437476	16.98571121	1735.971745	12.51574489	1760.788736	18.21638475	1760.788736	18.21638475	92.21863607
Spot 98	358.179103	276448.5391	1.819512798	9.442010703	0.541451533	4.74432821	1.19265069	0.321990404	1.062650113	0.890998614	1799.442276	16.68491869	1775.105823	10.00213475	1746.58452	9.915733031	1746.58452	9.915733031	333.2442497
Spot 99	272.823827	5957020.608	2.106863787	11.17445561	0.561851331	2.984104168	0.946002754	0.239686017	0.761048666	0.804488848	1385.064529	9.485537459	1403.576673	7.194703054	1431.785762	10.72210519	1431.785762	10.72210519	8194.979385
Spot 100	98.1645265	192294.981	2.429405769	10.99030941	0.647497764	3.249893025	0.999554742	0.256930237	0.761445521	0.761784712	1474.117188	10.03370751	1469.151457	7.761327688	1461.964562	12.30623037	1461.964562	12.30623037	254.4410633
Spot 101	131.660986	182528.2515	1.5469395	11.09097045	0.53346664	3.060658049	1.061662498	0.244560191	0.917876888	0.864565613	1410.360723	11.62714184	1422.902007	8.125386903	1441.699206	10.16674754	1441.699206	10.16674754	410.5979323
Spot 102	421.995519	29526.52638	5.037352955	20.89396562	1.615268251	0.059354306	1.877374302	0.009021318	0.954084869	0.50820173	57.89439995	0.549888776	58.54655711	1.068050854	85.32672011	38.33175835	57.89439995	0.549888776	397.2725989
Spot 103	158.223521	2056001.905	3.901940502	9.139281072	0.537543463	4.649814143	1.079517416	0.305944402	0.93616498	0.867206927	1720.71851	14.13803708	1758.260293	9.021368517	1803.152953	9.776891741	1803.152953	9.776891741	1416.446109
Spot 105	982.219385	4295879.816	30.74309115	9.771023407	0.562024959	4.205446286	1.193839813	0.295865536	1.053271781	0.882255533	1670.774146	15.50222125	1675.082947	9.793626945	1680.46808	10.37999272	1680.46808	10.37999272	311.8074171
Spot 106	152.597332	2626566.086	1.295640196	11.09478964	0.634809358	3.214118301	1.075536838	0.25699648	0.868214586	0.807238353	1474.456915	11.44297245	1460.567993	8.329521945	1440.407464	12.09936624	1440.407464	12.09936624	6528.034391
Spot 107	267.302923	1724847.221	2.976073374	8.850293911	0.730002514	5.342230076	1.255913486	0.340746199	1.021966244	0.813723441	1890.258333	16.74326607	1875.646498	10.74203175	1859.482171	13.18486327	1859.482171	13.18486327	1390.659298
Spot 108	270.811107	148347.6101	15.81857814	9.330284526	0.764171926	4.761636191	1.322985541	0.320415649	1.07992308	0.816277311	1791.75873	16.89332274	1778.160629	11.10229323	1762.21864	13.97053193	1762.21864	13.97053193	23.80341269
Spot 109	79.8045314	46365.14032	0.892804906	16.23531102	1.005320049	0.911872165	1.395323139	0.107210556	0.959586187	0.6877161	656.5275718	5.989763124	658.0524476	6.75750269	663.3034585	21.70221793	656.5275718	5.989763124	291.9730103
Spot 110	443.223186	85247.95198	4.274344585	20.62798427	1.25421244	0.110879796	1.595004903	0.016538685	0.984163577	0.617028559	105.7431758	1.032196911	106.7698738	1.616507223	129.7419028	29.51386807	105.7431758	1.032196911	979.510572
xx	401.477072	83486.11892	6.73961091	16.52976766	1.09998229	0.859066023	5.103655586	0.102582189	4.983411705	0.976439656	629.5237631	29.88884112	629.6128584	23.95099364	629.953457	23.72585632	629.5237631	29.88884112	102.4492988
Spot 111	61.2128502	98831.1092	1.611813042	5.228419154	0.531907942	13.8294934	1.004029228	0.521174674	0.851530042	0.848112802	2704.160182	18.80717775	2738.100213	9.507556492	2763.215234	8.732998477	2763.215234	8.732998477	94.46434047
Spot 112	97.8222418	100857.7995	2.40359609	9.526394598	0.565810755	4.522209783	1.154759622	0.310721719	1.006485377	0.871597307	1744.257313	15.38110772	1735.064328	9.602233232	1723.982031	10.39776172	1723.982031	10.39776172	109.4074768
Spot 113	36.4501779	54430.62262	4.448613513	9.170162887	0.710635718	4.770859164	1.365475264	0.315977404	1.165030955	0.853205463	1770.054232	18.03285115	1779.78471	11.46273671	1791.198007	12.97088367	1791.198007	12.97088367	23.97868645
Spot 114	64.9382877	796703.2103	1.211205919	9.649145594	0.621340504	4.485829727	1.060567109	0.312056958	0.859499003	0.810414538	1750.820967	13.17787456	1728.352901	8.806014865	1701.24091	11.44360061	1701.24091	11.44360061	1723.532156
Spot 115	319.481729	107249.81	1.915949419	8.61562076	0.620720455	5.176847555	1.753107611	0.321848783	1.639454101	0.93517026	1798.751649	25.73296741	1848.817624	14.91997977	1905.609978	11.15489057	1905.609978	11.15489057	149.5507785
Spot 116	549.457258	74866.34326	1.987177724	18.45741102	0.777465364	0.407085198	1.073945215	0.05437421	0.740526819	0.689538729	341.3210289	2.461825128	346.7739546	3.154847365	383.4460637	17.47854721	341.3210289	2.461825128	343.9378331
Spot 118	49.590368	2586.988515	1.652052217	21.15420822	3.696535447	0.059663224	4.087883147	0.010360896	1.500317517	0.367015754	66.44699391	0.991795605	58.84261036	2.337050025	NA	NA	66.44699391	0.991795605	150.4958977
Spot 119	97.3225997	87252.90755	3.484899532	13.34277178	0.917883897	1.906829654	1.284168528	0.183757909	0.897582303	0.698959898	1087.471695	8.982059225	1083.477709	8.553709987	1075.458237	18.43716993	1075.458237	18.43716993	114.3582237
Spot 120	101.98314	297490.7627	1.430348333	11.00426156	0.588935677	3.085004886	1.111215292	0.244784669	0.94231132	0.848000677	1411.523344	11.94546595	1428.971848	8.521216333	1455.03774	11.20292737	1455.03774	11.20292737	684.9355412
Spot 121	230.761772	179710.1365	6.397895001	9.802271787	0.650354041	4.167521106	1.371820203	0.294618815	1.207843732	0.880467957	1664.56922	17.71938371	1667.658117	11.23415404	1671.530926	12.02396135	1671.530926	12.02396135	82.10087796
Spot 122	211.243475	81627.70659	5.631756435	9.583768572	0.525759372	4.389647464	0.900679756	0.303664522	0.73085887	0.811452534	1709.454709	10.97438913	1710.392422	7.44864689	1711.52332	9.6817205	1711.52332	9.6817205	42.60763058
Spot 123	425.444107	368378.672	3.860319085	9.454585239	0.45024985	4.643598053	0.914660647	0.316631842	0.796161516	0.870444704	1773.259249	12.34269937	1757.142524	7.641817289	1738.014841	8.253840292	1738.014841	8.253840292	230.8829711
Spot 124	471.576844	125120.3407	1.583727279	10.59733653	0.729321503	0.949116498	1.810019964	0.072643938	1.656508093	0.915187747	452.0649209	7.231955525	677.6424752	8.949654032	1523.262012	13.74904911	1523.262012	13.74904911	111.4082198
Spot 127	70.7408404	22072.42851	1.801530959	13.25028063	0.780500624	1.878243969	1.325450443	0.181152465	1.041717165	0.78593445	1073.267541	10.29927568	1073.443037	8.782711875	1073.818816	16.44002257	1073.818816	16.44002257	41.95772348
Spot 128	618.83418	225959.2879	20.07290537	9.958325561	0.596835896	4.171053219	1.006774198	0.299998762	0.810769935	0.805314575	1691.302576	12.06126534	1668.351917	8.245903691	1639.576621	11.08116559	1639.576621	11.08116559	34.86833418
Spot 129	856.446194	1630286.601	0.993268744	20.80391129	0.875048666	0.079533108	1.219631323	0.011945367	0.849582483	0.69658959	76.54848718	0.646496505	77.70588408	0.912369132	113.4491065	20.64774401	76.54848718	0.646496505	87848.78022
Spot 130	78.7138142	86173.02227	2.850215765	11.78467004	0.839351951	2.690362842	1.261743115	0.229306514	0.941344536	0.746066711	1330.863499	11.31940155	1325.810818	9.340172364	1317.6385	16.28629595	1317.6385	16.28629595	107.1278087
Spot 131	795.01576	24145.81762	3.269239129	21.45213127	0.994569758	0.058393277	1.360399493	0.009167471	0.924793572	0.679795587	58.82807278	0.541563405	57.62500015	0.762100465	7.880527469	NA	58.82807278	0.541563405	473.567129
Spot 132	152.056081	77660.53683	2.073447667	9.545320246	0.757071116	4.314215808	1.251615816	0.297959849	0.996419984	0.796106897	1681.184109	14.74544486	1696.081086	10.31759744	1714.524048	13.92704787	1714.524048	13.92704787	106.2625595
Spot 133	674.273258	782593.3911	125.9842899	9.860570054	0.73276858	4.31052774	1.300543911	0.30696014	1.074460006	0.826162036	1725.730454	16.26780745	1695.376165	10.71923585	1658.031479	13.57054137	1658.031479	13.57054137	18.66072366
Spot 134	697.790615	286863.9039	11.56504838	9.86096088	0.63898544	4.224567068	1.270463832	0.30094048	1.098074798	0.864310159	1695.970661	16.37473367	1678.805845	10.43132306	1657.405136	11.83451198	1657.405136	11.83451198	63.45465324
Spot 135	76.4958788	8862.939586	1.13938215	20.55136822	2.666651004	0.064609253	3.041308025	0.009933052	1.31433872	0.432162316	63.71663639	0.833327322	63.57093283	1.874110935	58.06603855	NA	63.71663639	0.833327322	463.0291759
Spot 137	74.034657	49349.97007	3.459424596	13.58687389	0.740495926	1.814595299	1.481457053	0.178915126	1.282585725	0.86575964	1061.04516	12.54786026	1050.737153	9.698308764	1029.35333	15.00971962	1029.35333	15.00971962	48.09572526
Spot 138	158.972118	1127863.753	2.017328986	16.68938478	0.739553504	0.817086451	1.154841207	0.098568381	0.886971706	0.768046465	606.0136059	5.130250757	606.4216553	5.272887499	607.926133	15.99036875	606.0136059	5.130250757	4577.386238
Spot 139	106.384587	70997.57789	1.710685571	11.01145872	0.812928988	3.20126074	1.187800902	0.255293671	0.865678421	0.728807681	1465.718266	11.34932297	1457.465255	9.190239584	1445.436537	15.49111729	1445.436537	15.49111729	103.9115554
Spot 141	93.5374907	78341.78846	1.698535191	5.553343848	0.624189833	12.84051594	1.061578536	0.516113813	0.85867295	0.808864273	2682.677576	18.84347095	2668.020743	10.00060506	2656.915634	10.34979218	2656.915634	10.34979218	70.1058371
Spot 142	702.547954	2937998.894	4.197638979	13.18856595	0.434786354	2.026127743	1.09737334	0.193116362	1.007565914	0.918161465	1138.234813	10.51304024	1124.317236	7.460564635	1097.51414	8.700691088	1097.51414	8.700691088	2780.648942
Spot 143	214.867599	41088.55321	3.464058207	9.228426964	0.462142327	4.239007473	0.966457596	0.283562309	0.848752366	0.878209628	1609.278105	12.08735453	1681.608435	7.940296715	1773.04228	8.436545493	1773.04228	8.436545493	26.21676567
Spot 144	85.934903	344923.7173	2.446068415	17.46667439	1.270570943	0.613848067	1.507345682	0.077538593	0.811011879	0.53803974	481.4140835	3.76210189	485.9840902	5.821645778	507.6135677	27.9647783	481.4140835	3.76210189	1395.268776
Spot 145	268.238655	165799.3647	1.766586028	9.277789467	0.722656747	4.767745458	1.352871055	0.319725274	1.143659513	0.845357367	1788.387359	17.86115329	1779.236705	11.35563427	1768.502977	13.19917414	1768.502977	13.19917414	249.311703
Spot 146	60.6754938	687301.7174	9.056862272	9.094495579	0.811308595	4.853965869	1.147425148	0.318926693	0.81139555	0.707144646	1784.48538	12.6479924	1794.303049	9.660818247	1805.718769	14.74980794	1805.718769	14.74980794	210.2139804
Spot 147	125.104221	314316.245	1.043948353	9.773316658	0.712461882	4.134539554	1.175250683	0.292170547	0.93466679	0.795291425	1652.366797	13.62361181	1661.156695	9.609461161	1672.269076	13.17063098	1672.269076	13.17063098	769.1569857
Spot 148	507.656037	192486.8953	24.33955724	9.669344688	0.569395788	4.38622965	1.036900309	0.306738962	0.866555555	0.835717328	1724.63943	13.11279641	1709.748319	8.574005082	1691.537054	10.50185102	1691.537054	10.50185102	28.82710616
Spot 149	29.953603	51241.95626	0.959317612	9.490786517	0.921518033	4.374055693	1.392609789	0.300792905	1.043725976	0.749474824	1695.239359	15.55840133	1707.450753	11.50959653	1722.449296	16.93767048	1722.449296	16.93767048	107.4808801
Spot 150	90.9409357	55409.47004	1.197785771	11.08237439	0.542753042	3.196957118	1.06182619	0.256719566	0.911275572	0.858215384	1473.036627	12.00021504	1456.4246	8.212872746	1432.253945	10.39951509	1432.253945	10.39951509	108.4752961
Spot 151	68.8574258	131100.5753	1.020315731	11.00133113	0.74894479	3.116643978	1.20973982	0.248092364	0.950020821	0.785310035	1428.630312	12.17358569	1436.805872	9.299892235	1448.912662	14.25860219	1448.912662	14.25860219	428.7368704
Spot 152	167.261448	87868.17496	2.435549238	11.63488301	0.661619778	2.549758829	1.221337182	0.214759747	1.026121956	0.840162709	1254.126142	11.69445947	1286.368143	8.907931886	1340.597914	12.7987307	1340.597914	12.7987307	99.4437815
Spot 155	223.7339	81652.22412	2.54065721	11.03793852	0.683182084	2.612420243	2.262854943	0.208754199	2.157256814	0.953334115	1222.17722	24.01702929	1304.13563	16.61767154	1441.606074	13.01950222	1441.606074	13.01950222	81.22074219
Spot 154	49.9360537	35868.88125	1.054048291	11.05168465	0.760841921	3.226271065	1.158184875	0.258750311	0.864732124	0.746627023	1483.445041	11.45886348	1463.491963	8.977648987	1434.635413	14.69665075	1434.635413	14.69665075	80.5245119
Spot 156	235.713037	1913002.249	3.508633624	8.950559165	0.86462708	5.27072405	1.379635621	0.340759831	1.075088113	0.779255114	1890.323878	17.61411188	1864.133448	11.77514781	1835.035961	15.66502615	1835.035961	15.66502615	1300.438155
Spot 157	474.350177	86365.24579	11.80273258	9.244242981	0.534002288	4.028210931	2.135112934	0.269165777	2.067254978	0.968218095	1536.566101	28.26288704	1639.90886	17.36968082	1775.045765	9.744451566	1775.045765	9.744451566	16.8586773
Spot 158	222.466589	146689.3967	195.1325809	10.09321056	0.556784438	4.007330582	1.135945935	0.292212083	0.990037888	0.871553704	1652.574009	14.43228575	1635.683561	9.230993462	1614.020125	10.37264091	1614.020125	10.37264091	6.051166207
Spot 159	313.057006	228392.422	14.8807581	6.413211594	0.663160194	8.486821363	1.462367819	0.392987521	1.303353612	0.891262509	2136.66873	23.70358075	2284.513998	13.28420741	2419.551042	11.25283982	2419.551042	11.25283982	45.68729033
Spot 160	138.561216	28319.24153	3.095781403	13.16673256	0.79867259	1.937594306	1.117361983	0.185360953	0.78139297	0.699319452	1096.195518	7.87690409	1094.167623	7.483464398	1090.115325	15.98289156	1090.115325	15.98289156	30.03565176
Spot 161	218.377502	1753423.801	10.91994951	8.175537271	0.583304876	6.208101723	1.142018525	0.366690594	0.981815524	0.859719438	2013.809461	16.98160243	2005.590326	9.987458383	1997.121633	10.36439947	1997.121633	10.36439947	368.6202582
Spot 162	427.345045	1232500.145	1.256088308	12.51972867	0.647974106	2.314878095	1.124922904	0.209250831	0.919554801	0.817438064	1224.825267	10.25762893	1216.856221	7.976679957	1202.731613	12.76733398	1202.731613	12.76733398	3700.580811
Spot 163	182.176763	144639.5295	2.840892978	9.363312434	0.657207178	4.665087334	1.007393199	0.315612187	0.763361208	0.757758946	1768.26494	11.80523549	1761.001483	8.423489855	1752.378015	12.0296963	1752.378015	12.0296963	128.4140291
Spot 164	249.558966	179372.6084	2.932418432	9.280662799	0.652594668	4.648891818	1.314022038	0.311684949	1.140478043	0.86792916	1748.992951	17.46998343	1758.094519	10.98084275	1768.913104	11.91905706	1768.913104	11.91905706	150.8669173
Spot 165	151.642583	87527.52309	1.236433859	11.09427543	0.775468867	2.767844241	1.16943321	0.222070218	0.874905046	0.748144518	1292.804644	10.24881493	1346.908685	8.722976914	1433.894675	14.8027927	1433.894675	14.8027927	187.5683702
Spot 166	129.752755	36722.25446	1.463818425	20.83695321	2.06507667	0.093767497	2.452066472	0.01420731	1.322031025	0.53914975	90.941707	1.193836869	91.00691024	2.13447021	92.71787854	48.9267859	90.941707	1.193836869	1082.912073
Spot 167	223.604323	204617.6056	3.722307659	6.023311918	0.547566571	11.35356299	1.107905409	0.492944257	0.963125852	0.869321373	2583.401653	20.50014477	2552.616665	10.33921444	2528.235769	9.192954763	2528.235769	9.192954763	93.72681108
Spot 168	340.721986	43304.53617	3.85754911	9.275310977	0.787943523	4.670283574	1.237636756	0.313047413	0.954327712	0.771088695	1755.685446	14.66716577	1761.932405	10.35086455	1769.331655	14.39111068	1769.331655	14.39111068	22.74368868
Spot 169	748.250933	270374.6914	2.339042255	10.04265705	0.569913226	3.951272071	1.034816507	0.28607476	0.863729142	0.834668887	1621.884014	12.38538866	1624.251945	8.385390169	1627.302873	10.59614105	1627.302873	10.59614105	314.4591288
Spot 170	147.01289	79178.98349	1.031167813	11.00096243	0.607945883	3.122873153	1.118726035	0.248026167	0.939025162	0.839370081	1428.288391	12.03011419	1438.341156	8.604357014	1453.220704	11.57016411	1453.220704	11.57016411	181.5508441
Spot 171	37.4779104	112989.8046	1.24880743	9.645469878	0.801162318	4.373966983	1.288600986	0.304548373	1.00917956	0.783159078	1713.823735	15.1874042	1707.433991	10.64988215	1699.587877	14.76133116	1699.587877	14.76133116	238.1083835

Spot 172	38.8016705	29760.01069	1.351199699	9.634193929	0.663783752	4.271359268	1.321769236	0.298133883	1.133620316	0.85765373	1682.048404	16.78335025	1687.859324	10.87541009	1695.070892	12.52819977	1695.070892	12.52819977	46.35186466
Spot 173	105.440358	37260.32263	2.655701791	11.04059937	0.74043356	3.102011711	1.155956326	0.24799969	0.886268064	0.766696841	1428.151627	11.35325557	1433.190348	8.876237958	1440.660301	14.1445384	1440.660301	14.1445384	36.46156221
Spot 174	271.046434	25523.5127	5.752015329	9.074551277	1.332404783	4.452570195	1.704316583	0.292547856	1.062107117	0.623186518	1654.248848	15.49664374	1722.178091	14.13245895	1805.75229	24.23435663	1805.75229	24.23435663	12.1716466
Spot 175	49.19276	44804.82948	1.504673301	9.530105161	0.804429138	4.253058765	1.49963134	0.292901736	1.265520706	0.843887876	1656.013535	18.48183451	1684.3281	12.32891575	1719.753071	14.78631959	1719.753071	14.78631959	63.83651747
Spot 176	267.181856	673104.2256	2.389758729	6.286357845	0.492157772	10.29190163	1.088163698	0.46568533	0.970505446	0.891874493	2464.611991	19.87784843	2461.37564	10.0708685	2458.691627	8.317082315	2458.691627	8.317082315	498.6584431
Spot 177	407.650069	14714.28963	4.468872698	9.950963279	0.58566702	1.204218091	1.830145252	0.087052603	1.733890514	0.947405957	538.0821934	8.950995912	802.5311864	10.15267603	1630.153874	10.88561906	1630.153874	10.88561906	50.97416571
Spot 179	206.194362	479516.9663	4.296816787	9.572590854	0.581396409	4.419975367	0.897654036	0.304589316	0.683929746	0.761907949	1714.02605	10.29368598	1716.090035	7.433086603	1718.592464	10.68619709	1718.592464	10.68619709	301.6845581
Spot 180	149.258575	76092.17111	7.186779227	16.52888971	0.760044143	0.827721047	1.191290388	0.098773864	0.917246674	0.76996061	607.2192669	5.315427165	612.3469168	5.478048177	631.3788894	16.3851174	607.2192669	5.315427165	64.73773034
Spot 181	354.102757	141772.2872	4.478361213	9.24026374	0.502909121	4.268417452	1.340947759	0.284002835	1.24300739	0.926961831	1611.490175	17.72350872	1687.292505	11.03177929	1782.820707	9.170906642	1782.820707	9.170906642	78.80073613
Spot 182	511.76445	52594.7662	5.262824089	21.14447011	1.257792239	0.057452435	1.580532411	0.008791825	0.948178605	0.59991089	56.42805136	0.532703825	56.7219904	0.871928799	69.15690544	30.07727507	56.42805136	0.532703825	667.4463554
Spot 183	703.333751	879878.9763	1.643165944	8.501809237	0.46673867	5.173487832	0.949670608	0.316473389	0.827060553	0.870892019	1772.483392	12.81684694	1848.265185	8.08099638	1934.645858	8.353804272	1934.645858	8.353804272	1267.546241
Spot 184	578.884684	6709.054691	3.340485083	20.72195116	1.064039895	0.058006008	1.406412622	0.009061551	0.909437237	0.646636146	58.15143341	0.526472634	57.25340129	0.782938407	19.8368576	NA	58.15143341	0.526472634	171.9648066
Spot 185	175.817864	103622.3867	2.091960634	11.12604367	0.633143047	3.121098262	1.119075322	0.25019818	0.922551851	0.824387629	1439.497712	11.90185807	1437.903941	8.605856501	1435.528368	12.08095285	1435.528368	12.08095285	153.236748
Spot 186	100.3512	64798.09697	0.724419747	11.09632916	0.554098221	3.086097106	1.136733389	0.246884398	0.992159525	0.872816383	1422.388128	12.66390737	1429.243298	8.717663511	1439.447422	10.57539124	1439.447422	10.57539124	222.1428801
Spot 187	45.5263989	330637.8038	1.834502314	5.9116311	0.576352786	11.51256822	1.119252827	0.489601891	0.95944898	0.857222745	2568.953406	20.32892448	2565.602474	10.45681012	2562.940724	9.64325942	2562.940724	9.64325942	317.310279
Spot 188	114.305648	3449.77405	0.814983709	21.04198769	2.6788224	0.052994404	3.01675663	0.008818857	1.08198666	0.358658915	56.60079458	0.609732346	52.43226777	1.541609828	NA	NA	56.60079458	0.609732346	284.691578
Spot 189	112.158498	99222.33483	0.681828353	11.05530753	0.526138384	3.127761749	1.012237396	0.24908427	0.864545415	0.854093535	1433.751483	11.11375992	1439.544408	7.788249345	1448.09536	10.02426696	1448.09536	10.02426696	335.6374023
Spot 190	180.573343	124326.048	5.074827988	13.5108117	0.771672801	1.798136711	1.160382498	0.17500221	0.866566052	0.746793452	1039.6134	8.320031456	1044.782185	7.571691464	1055.627017	15.56042268	1055.627017	15.56042268	116.6626038
Spot 191	35.1814105	741874.4923	1.18582219	9.501879532	0.679253188	4.495801578	1.206682813	0.306923196	0.997345735	0.826518555	1725.548233	15.09886773	1730.196935	10.02335784	1735.808164	12.45610966	1735.808164	12.45610966	1569.715421
Spot 192	39.2713919	21458.62561	0.932450874	10.92391049	0.866385223	3.176009009	1.355429512	0.251005216	1.04049643	0.767650713	1443.657702	13.4580785	1451.343867	10.46748943	1462.599616	16.50705224	1462.599616	16.50705224	55.14455128
Spot 193	96.1271445	5505364.603	2.811446294	4.605607618	0.684343763	17.43325707	1.174607336	0.57677551	0.954660153	0.812748332	2935.580629	22.51156625	2958.985107	11.28020364	2974.925467	11.02582698	2974.925467	11.02582698	2825.739099
Spot 194	134.56011	132527.2779	1.670859871	11.51792133	0.865688802	2.870645507	1.324711107	0.237803906	1.002679998	0.756904651	1375.270044	12.41790202	1374.241043	9.976110004	1372.625097	16.6550675	1372.625097	16.6550675	278.8893297
Spot 195	99.5804181	113307.6882	0.719870446	8.302511111	0.597476173	6.045935961	1.284528044	0.360939703	1.137066035	0.88520141	1986.626394	19.44021134	1982.485649	11.19221233	1978.153625	10.64355351	1978.153625	10.64355351	362.573934
Spot 196	245.512066	246103.3409	4.139713394	9.266762863	0.795493017	4.739786605	1.45206944	0.315856999	1.214774776	0.836581738	1769.46439	18.79736661	1774.302719	12.1759023	1779.985994	14.5083886	1779.985994	14.5083886	159.4963057
Spot 197	228.503011	115793.3323	3.844064966	9.622064654	0.613553656	4.435823427	0.996752521	0.307126374	0.785525954	0.788085244	1726.550329	11.8981317	1719.054692	8.259157361	1709.920066	11.28806826	1709.920066	11.28806826	83.09237704
Spot 198	199.49556	150996.4267	2.435574694	17.82378239	0.530680509	0.584605824	1.202434566	0.075022482	1.078953052	0.897307082	466.3437527	4.853943483	467.417053	4.504391202	472.6704966	11.75982665	466.3437527	4.853943483	674.3456862
Spot 199	267.131348	12097.49592	3.053435964	20.2375646	1.797043396	0.080945258	2.201312432	0.012072085	1.18683477	0.539148715	77.35567423	0.9125976	79.03325057	1.673785107	130.0334107	43.59151941	77.35567423	0.9125976	205.4395925
Spot 200	315.224925	4039.715026	2.939838473	20.7471338	1.78523138	0.057480947	2.478750597	0.009277922	1.400703436	0.565084457	59.53357706	0.830050147	56.74936787	1.36808906	NA	NA	59.53357706	0.830050147	167.9724366

1. Analyses with >10% uncertainty (1-sigma) in 206Pb/238U age are not included.
2. Analyses with >10% uncertainty (1-sigma) in 206Pb/207Pb age are not included, unless 206Pb/238U age is <400 Ma.
3. Best age is determined from 206Pb/238U age for analyses with 206Pb/238U age <900 Ma and from 206Pb/207Pb age for analyses with 206Pb/238Uage >900 Ma.
4. Concordance is based on 206Pb/238U age / 206Pb/207Pb age. Value is not reported for 206Pb/238U ages <400 Ma because of large uncertainty in 206Pb/207Pb age.
5. Analyses with 206Pb/238U age >400 Ma and with >20% discordance (<80% concordance) are not included.
6. Analyses with 206Pb/238U age >400 Ma and with >5% reverse discordance (<105% concordance) are not included.
7. All uncertainties are reported at the 2-sigma level, and include only measurement errors.
8. Systematic errors are as follows (at 2-sigma level): [sample 1: xxx% (206Pb/238U) & xxx% (206Pb/207Pb)]
9. Analyses conducted by LA-ICPMS, as described by Gehrels et al. (2008) and Gehrels and Pecha (2014).
10. U concentration and U/Th are calibrated relative to FC-1 zircon standard and are accurate to ~20%.
11. Common Pb correction is from measured 204Pb with common Pb composition interpreted from Stacey and Kramers (1975).
12. Common Pb composition assigned uncertainties of 1.5 for 206Pb/204Pb, 0.3 for 207Pb/204Pb, and 2.0 for 208Pb/204Pb.
13. U/Pb and 206Pb/207Pb fractionation is calibrated relative to fragments of large Sri Lanka zircons and individual crystals of FC-1, and R33.
14. U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U/235U = 137.82.
15. Weighted mean and concordia plots determined with Isoplot (Ludwig, 2008).

Aliquot Name	19-LM-405
Stratigraphic Formation Name	
Stratigraphic Age	
Rock Type	
Mineral	Zircon
Method	U-Pb
Latitude	
Longitude	
Internal Uncertainty Level	one sigma
External Uncertainty 206/238 (% two sigma)	1.08048025
External Uncertainty 206/207 (% two sigma)	1.1906923
Analysis Purpose	
Laboratory Name	Arizona LaserChron Center
Analyst Name	
Aliquot Reference	
Aliquot Instrumental Method	LA-ICPMS
Aliquot Instrumental Reference	Gehrels, G.E., Valencia, V., Ruiz, J., 2008, Enhanced precision, accuracy, efficiency, and spatial resolution of U-Pb ages by laser ablation-multicollector-inductively coupled plasma-mass spectrometry: Geochemistry, Geophysics, Geosystems, v. 9, Q03017, doi:10.1029/2007GC001805. Gehrels, G. and Pecha, M., 2014, Detrital zircon U-Pb geochronology and Hf isotope geochemistry of Paleozoic and Triassic passive margin strata of western North America: Geosphere, v. 10 (1), p. 49-65.

				Isotope ratios							Apparent ages (Ma)								
Analysis	U (ppm)	206Pb 204Pb	U/Th	206Pb* 207Pb*	± (%)	207Pb* 235U	± (%)	206Pb* 238U	± (%)	error corr.	206Pb* 238U	± (Ma)	207Pb* 235U	± (Ma)	206Pb* 207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)
Spot 1	98.6780388	11864.77693	1.382238233	13.5440821	0.911747294	1.772450586	1.287009121	0.176088889	0.818389871	0.635885059	1045.572488	7.898970168	1035.418203	8.354715361	1014.017295	20.1224605	1014.017295	20.1224605	67.507234
Spot 2	240.581116	49578.97291	2.476896532	13.41310545	0.729196038	1.804953828	1.419055878	0.175510093	1.216238118	0.857075565	1042.399196	11.70612151	1047.252961	9.272180114	1057.411657	14.73704699	1057.411657	14.73704699	212.313889
Spot 3	114.167187	7899.364072	3.062775622	12.63605414	0.710213237	2.087163206	1.232011162	0.194992878	1.005376599	0.816045041	1148.365676	10.57549733	1144.5932	8.457683275	1137.460288	14.1519921	1137.460288	14.1519921	18.66696819
Spot 4	113.236311	35747.22114	3.80836827	13.21573103	0.814822415	1.876387191	1.324847245	0.180289977	1.040429452	0.785320312	1068.55859	10.24504976	1072.787794	8.775697499	1081.373952	16.44900228	1081.373952	16.44900228	72.92184215
Spot 5	187.600522	80121.51949	2.423666115	12.77050526	0.661195509	2.1811472	1.254820171	0.201904452	1.066144471	0.849639252	1185.542901	11.54544511	1175.0438	8.736215305	1155.737084	13.12998401	1155.737084	13.12998401	308.6825251
Spot 6	250.070048	34644.62822	3.435054425	13.56035475	0.742472784	1.779591481	1.144989596	0.175669594	0.871043616	0.760743695	1043.27383	8.390148835	1038.030124	7.443523721	1026.984467	15.03074769	1026.984467	15.03074769	78.68355359
Spot 7	69.4963697	56618.73323	1.117450345	13.01618239	0.844772595	1.839330258	1.284334325	0.173876381	0.967322546	0.75317036	1033.433803	9.236512899	1059.621465	8.448154086	1113.983234	16.86603005	1113.983234	16.86603005	530.1636189
Spot 8	58.5691146	7355.449559	2.529979128	11.6552515	0.717480492	2.702123476	1.216537442	0.233169438	0.970108524	0.797434169	1351.088696	11.82463887	1329.041547	9.016149322	1293.668785	14.27955121	1293.668785	14.27955121	17.02283616
Spot 10	182.648105	52741.65406	2.419602402	13.32978845	0.599092888	1.698173675	1.061326834	0.164455101	0.874687344	0.824145132	981.4875306	7.963351219	1007.843963	6.78262363	1065.614932	12.06872206	1065.614932	12.06872206	227.6962389
Spot 11	196.10087	157755.7764	1.825443409	12.36028715	0.571691006	2.309289113	1.166711007	0.207007302	1.017038009	0.871713734	1212.854099	11.2442786	1215.142811	8.266970722	1219.193056	11.24750462	1219.193056	11.24750462	769.9032989
Spot 13	238.585609	18159.80007	3.050709923	12.72979359	0.700517073	2.054490891	1.063072397	0.191361024	0.79894621	0.751544497	1128.743732	8.272677298	1133.789847	7.260483451	1143.481388	13.93393328	1143.481388	13.93393328	43.67413582
Spot 14	132.216586	32976.22505	3.373345777	13.77761542	0.910940217	1.706524338	1.270049997	0.171347895	0.884477673	0.696411697	1019.533488	8.340617278	1010.981652	8.131310808	992.5179696	18.53166577	992.5179696	18.53166577	105.6364546
Spot 15	139.692546	11830.66253	4.121517668	13.45342031	0.613611001	1.789369474	1.218263355	0.177264506	0.909669469	0.746693615	1052.013101	8.829778936	1041.595751	7.935493017	1019.782636	16.40813323	1019.782636	16.40813323	22.64328312
Spot 16	350.850343	60671.46028	2.177034799	14.00797115	0.635565871	1.596584417	1.178209556	0.162522412	0.991438647	0.841479041	970.7792928	8.935034908	968.8753571	7.356131584	964.5707658	12.98775296	964.5707658	12.98775296	310.6731725
Spot 19	127.69603	52421.15062	2.094663616	5.195008849	0.755532682	13.13582615	1.579936005	0.494849437	1.387574269	0.878247135	2591.622823	29.61100351	2689.457721	14.90859822	2763.825114	12.40299405	2763.825114	12.40299405	89.90023594
Spot 20	186.220959	31538.43207	2.843830344	12.58395013	0.704272064	2.179228135	1.200452143	0.199717869	0.970791427	0.808688154	1173.804482	10.41795106	1174.431073	8.355367731	1175.605379	13.97747333	1175.605379	13.97747333	76.77315083
Spot 21	79.0560148	31607.98894	1.371270721	13.284707	0.913153508	1.91183235	1.225768611	0.185050176	0.809348348	0.660278245	1094.505184	8.147168251	1085.223695	8.172053911	1066.659275	18.48901604	1066.659275	18.48901604	224.9064927
Spot 22	275.330145	26782.4416	6.116230163	13.47863514	0.862492513	1.766603152	1.318225642	0.173697136	0.991931968	0.752475097	1032.449391	9.463178166	1033.274376	8.547164395	1035.000788	17.55889472	1035.000788	17.55889472	34.27310267
Spot 23	118.1535	15553.40631	3.136462731	10.97193454	0.672999532	3.149738261	1.133147549	0.252772795	0.910822137	0.803798356	1452.759587	11.84705184	1444.936044	8.733349579	1433.423811	12.8606155	1433.423811	12.8606155	27.39893914
Spot 24	31.4003821	31625.93702	0.8900407	13.36586641	1.096602629	1.802447631	1.456281587	0.175564962	0.958061271	0.657881882	1042.700088	9.223653948	1046.345321	9.510713938	1053.982893	22.09212271	1053.982893	22.09212271	360.6134667
Spot 25	265.91642	28051.00029	3.885415396	13.67496303	0.615320334	1.67748919	1.079423024	0.167329967	0.877867087	0.813274377	997.3831496	8.111987851	1000.02994	6.86689194	1005.818207	12.73362286	1005.818207	12.73362286	59.75874475
Spot 27	118.550383	35002.05136	1.797885018	8.91743752	0.790499458	5.188194274	1.280558208	0.336485681	1.005371621	0.785104195	1869.740807	16.31729002	1850.681147	10.90180006	1829.309421	14.37782298	1829.309421	14.37782298	80.43835454
Spot 28	95.4222145	35827.84566	2.54531942	11.97824597	0.704462085	2.506007259	1.148922881	0.218456797	0.90465279	0.787392091	1273.715634	10.45576804	1273.775557	8.33873296	1273.858485	13.80593515	1273.858485	13.80593515	120.6978988
Spot 29	255.266475	32859.77057	3.619138576	12.63588789	0.716718674	2.148556457	1.202385876	0.19766302	0.959973731	0.798390725	1162.753746	10.21336151	1164.587582	8.331415769	1167.982429	14.35781568	1167.982429	14.35781568	64.21442904
Spot 30	129.507534	103567.9745	2.310980851	12.72801436	0.815375189	2.065741918	1.158782424	0.190720958	0.823313711	0.710498963	1125.279423	8.501043263	1137.523076	7.928318824	1160.936701	16.16786152	1160.936701	16.16786152	408.8469682
Spot 31	1008.40799	752.8364402	2.410683183	6.469773114	0.779927683	1.217228064	1.499429104	0.064256044	1.279646695	0.853422607	401.4569201	4.980537674	808.5066719	8.358478822	2194.551961	13.58165015	2194.551961	13.58165015	24.90927295
Spot 32	117.008379	21389.67177	1.97506568	14.13975187	0.68657769	1.535913006	1.145206996	0.158821203	0.916220723	0.800048136	950.2226188	8.094883286	944.8684899	7.042926157	932.3942729	14.09847548	932.3942729	14.09847548	94.67994176
Spot 34	31.5728586	11951.23471	2.204804187	12.61444789	1.160645045	2.188660482	1.630421661	0.202975952	1.141382102	0.700053323	1191.287328	12.41473465	1177.43912	11.36365645	1152.058854	23.12024339	1152.058854	23.12024339	35.76384101
Spot 35	84.9661267	504027.746	0.509904752	9.807143978	0.872023634	4.156984371	1.167678492	0.2954601	0.776561545	0.6650474	1668.756948	11.41745581	1665.585606	9.557594353	1661.575061	16.14259498	1661.575061	16.14259498	6079.745143
xx	51.4573577	2395.779235	8.514333532	16.86691526	1.262131578	0.690216375	1.886393012	0.094012766	1.106983022	0.586825235	579.2256117	6.132304861	532.9304494	7.821924756	339.3694847	34.59196113	579.2256117	6.132304861	17.26442995
Spot 37	70.5735603	30626.22614	3.202768471	10.81586553	0.904854066	3.321524135	1.441444672	0.261574461	1.119344044	0.77654319	1497.892109	14.96115177	1486.122911	11.24983434	1469.348418	17.2430139	1469.348418	17.2430139	67.14053196
Spot 38	54.3578904	3209.852484	1.336903147	12.80602584	1.152191538	1.657178531	2.137037236	0.163153378	1.049865334	0.491271428	974.2771702	9.493168694	992.2981746	13.53369175	1032.33555	37.61945516	1032.33555	37.61945516	21.11815616
Spot 39	179.131725	114849.3104	4.173801819	12.50550558	0.734736614	2.170355417	1.302015082	0.196997028	1.074865019	0.825539606	1159.16805	11.40352686	1171.59334	9.050661762	1194.643713	14.49706428	1194.643713	14.49706428	263.7808832
Spot 40	53.3521378	517471.7653	1.638893994	4.452018391	0.641246813	18.94323838	1.1704975	0.611062993	0.979217489	0.836582298	3074.257569	23.94268352	3038.929946	11.28955544	3015.642279	10.29594745	3015.642279	10.29594745	987.971937
Spot 41	278.093796	46563.11173	2.947830349	13.32946456	0.870565608	1.874624297	1.434165971	0.181773079	1.138937489	0.794146223	1076.653797	11.29312175	1072.165291	9.496752883	1063.067437	17.51368658	1063.067437	17.51368658	159.6369811
Spot 42	120.436675	157350.375	2.569314133	12.36556877	0.921346973	2.090269989	1.429129734	0.187469743	1.09248841	0.764443132	1107.653678	11.11844637	1145.614522	9.815694994	1218.204964	18.11582829	1218.204964	18.11582829	617.7633162
Spot 43	261.68696	31753.91819	3.844627869	12.7304716	0.943814323	2.160213403	1.474531993	0.200323205	1.131885295	0.767623422	1177.056297	12.17738951	1168.339907	10.23479302	1152.202403	18.77875884	1152.202403	18.77875884	75.94225167
Spot 44	77.9120773	17356.91166	1.047342468	13.14675414	0.944746565	1.93560661	1.613884835	0.186111658	1.293145097	0.801262314	1100.276829	13.08019032	1093.480341	10.80533123	1079.978294	19.37567048	1079.978294	19.37567048	118.3762725
Spot 45	86.643156	15272.95056	1.657111021	10.9180161	0.79165633	3.094339793	1.194090746	0.246647599	0.891910849	0.746937242	1421.163756	11.37557321	1431.289518	9.163537337	1446.357952	15.12038392	1446.357952	15.12038392	51.66866026
Spot 46	306.565441	21854.45678	2.447086228	13.57075299	0.664906385	1.770867971	1.04864028	0.175236423	0.809245105	0.771708965	1040.898233	7.778531852	1034.83842	6.805081004	1022.037598	13.49891515	1022.037598	13.49891515	70.75304722
Spot 47	244.010531	42356.76433	2.720361322	13.59602419	0.691671699	1.724926494	1.288398703	0.170274551	1.085639232	0.842626766	1013.623726	10.1827734	1017.862063	8.281435438	1026.971102	14.03193006	1026.971102	14.03193006	171.892057
Spot 48	68.2682828	7644.434484	2.514919414	12.61445	0.871924596	2.180848717	1.363676771	0.203579578	1.025852048	0.752269211	1194.52118	11.18568978	1174.948523	9.493722524	1139.053841	17.8519273	1139.053841	17.8519273	20.04069882
Spot 51	122.223976	11868.46927	3.124661303	11.09033261	0.793045269	2.657783081	1.301125077	0.215501323	1.013493211	0.778936037	1258.060293	11.58334578	1316.806872	9.599828696	1413.741845	15.60807439	1413.741845	15.60807439	28.0797051
Spot 52	21.478915	149741.5426	1.32955741	13.43678024	1.22653897	1.926697095	1.673535547	0.187045946	1.138561863	0.680333241	1105.352603	11.56527796	1090.393985	11.18711469	1060.659456	24.70054849	1060.659456	24.70054849	1088.028383
Spot 54	102.008071	61726.33828	1.232163198	8.547971987	0.578467199	5.646504995	1.221212373	0.349067199	1.075427274	0.880622648	1930.142724	17.93807481	1923.228057	10.53472177	1915.767611	10.38208983	1915.767611	10.38208983	265.5271821
Spot 55	151.567602	269337.9443	2.931976641	10.8602763	0.631522038	3.434639263	1.277916109	0.269276943	1.110967167	0.869358449	1537.130714	15.19368124	1512.358505	10.05007424	1477.823957	11.97626488	1477.823957	11.97626488	639.7244061
Spot 56	228.424181	33485.74399	1.598177444	11.75531288	0.638468505	2.647392729	1.119425068	0.225773242	0.916492293	0.818716963	1312.308543	10.88202621	1313.918456	8.250311385	1316.529231	12.46275122	1316.529231	12.46275122	172.290331
Spot 57	54.4809777	10868.56901	1.438640328	5.026712079	0.713057008	15.46429509	1.200687545	0.564211483	0.964386905	0.80319556	2884.008719	22.42423897	2844.28502	11.45157749	2816.248259	11.68603638	2816.248259	11.68603638	18.57336026
Spot 58	200.701723	383085.5537	2.761779999	8.835318791	0.679266042	5.186193235	1.13470081	0.330889309	0.908924157	0.801025388	1842.690552	14.56757925	1850.352755	9.659387503	1858.959703	12.26911912	1858.959703	12.26911912	809.9070983
Spot 59	50.6301807	23318.73922	0.539990082	8.82995826	0.758359464	5.247747142	1.446194998	0.336117779	1.225880296	0.847659063	1867.966024	19.87990888	1860.406094	12.3346714	1851.953504	13.87061437	1851.953504	13.87061437	177.7660994
Spot 60	136.566982	29087.48487	2.553327763	5.653433022	0.516790388	12.0603769	1.059535602	0.493221686	0.924938392	0.872965845	2584.59946	19.69473938	2609.111015	9.934922734	2628.179572	8.592575708	2628.179572	8.592575708	32.61465866
Spot 61	137.530397	30918.39741	2.369099085	14.02561762	0.727453898	1.621118312	1.075470484	0.165038704	0.784590554	0.729532392	984.717545	7.164846852	978.4241899	6.75402865	964.3443607	15.02875391	964.3443607	15.02875391	145.2747616
Spot 62	93.0244595	31326.85834	1.656559102	13.52418835	0.722825724	1.75324439	1.168849791	0.172050998	0.913213359	0.781292315	1023.401796	8.641744226	1028.359643	7.557781457	1038.902805	14.74842382	1038.902805	14.74842382	193.4809575
Spot 63	147.066695	61218.45627	3.788713102	13.61490443	0.616575839	1.706027089	1.087029641	0.168037152	0.894551787	0.822932286	1001.287296	8.296073434	1010.795086	6.958760336	1031.439562	12.50180113	1031.439562	12.50180113	177.3462372
Spot 65	64.7076093	63554.81296	1.042545204	9.012237229	0.701958957	5.0881352	1.21465055	0.331089659	0.991050399	0.815914008	1843.660913	15.89106971	1834.128881	10.30790803	1823.309938	12.7399021	1823.309938	12.7399021	342.4963374
Spot 66	123.189911	8896.928997	2.816639809	13.44507099	0.908620248	1.775736885	1.426154856	0.175836391	0.93359331	0.654622677	1044.188342	8.999908267	1036.621065	9.264222261	1020.675294	21.82696986	1020.675294	21.82696986	25.04576415
Spot 67	238.685564	120047.7981	2.267899397	11.81273425	0.645833009	2.596842214	1.125598578	0.221368971	0.921818876	0.818958814	1289.104507	10.77045548	1299.747472	8.251771302	1317.345547	12.52260073	1317.345547	12.52260073	440.1006882
Spot 68	125.052727	32277.43665	1.665543648	8.8199353	0.657682041	5.379868007	1.18637029	0.343209571	0.984327507	0.829696693	1902.091556	16.21340965	1881.654474	10.15838314	1859.152168	11.9614166	1859.152168	11.9614166	103.618682
Spot 69	204.919813	307022.3804	6.035460137	11.44794689	0.674691169	2.85543168	1.033176746	0.235848748	0.782461327	0.757335402	1365.07964	9.626084342	1370.242149	7.769834572	1378.281852	12.96859567	1378.281852	12.96859567	407.3635067
Spot 70	82.4147559	18929.65877	2.116815553	10.93582725	0.67306768	3.29876527	1.083878032	0.26214831	0.838006375	0.773155605	1500.823703	11.22025271	1480.76137	8.445551647	1452.114441	13.08132411	1452.114441	13.08132411	47.7480164
Spot 71	354.129319	287034.1848	1.919082808	11.89785846	0.651694159	2.640401755	0.979063567	0.226586036	0.730656144	0.746280598	1316.581659	8.700949253	1311.970399	7.210556739	1304.423793	12.6578155	1304.423793	12.6578155	1230.271906
Spot 72	165.074168	42616.12204	1.938641772	11.29748132	0.779316553	2.856485035	1.256609123	0.233488519	0.984365368	0.783350487	1352.756484	12.01172701	1370.519527	9.451113174	1398.295807	14.9727147	1398.295807	14.9727147	176.2830003

Spot 73	32.1343013	5814.126263	1.774171701	13.20410389	1.131374231	1.81022912	2.093311904	0.177938125	1.384875375	0.661571442	1055.70062	13.4857798	1049.160804	13.6924762	1035.552695	31.72803614	1035.552695	31.72803614	24.59307998
Spot 74	27.9348029	18206.90953	3.914510791	12.6016131	1.063837509	2.253171504	1.519575839	0.20662499	1.0813676	0.711624634	1210.811915	11.93720317	1197.776685	10.68699527	1174.354776	21.14442456	1174.354776	21.14442456	30.51381058
Spot 75	44.2975377	7677.677023	2.64880993	10.79707792	0.790078693	3.326855664	1.312850547	0.263923053	0.943388421	0.71858021	1509.881827	12.69889699	1487.374832	10.24994424	1455.409991	17.36690059	1455.409991	17.36690059	15.73086004
Spot 76	35.410737	9634.660787	1.699638649	12.95245014	1.089237268	1.911996711	1.471861272	0.181871634	0.908098854	0.616973129	1077.191378	9.008371244	1085.281008	9.813107817	1101.57426	23.16844375	1101.57426	23.16844375	44.88019083
Spot 78	143.58545	31238.74449	2.983586438	10.86212177	0.767833212	2.981849724	1.51910364	0.234440412	1.308568786	0.861408499	1357.729311	16.02057136	1403.001946	11.55146157	1472.456849	14.64277482	1472.456849	14.64277482	61.43814835
Spot 81	63.6887597	5980.9672	1.691380531	12.68053402	0.991864959	2.11195349	2.061853243	0.199018676	0.929245278	0.45068449	1170.046428	9.94298531	1152.714282	14.20912258	1120.245269	36.71311064	1120.245269	36.71311064	23.72114075
Spot 82	178.865092	68522.4339	3.205527437	12.44942234	0.74109283	2.196243521	1.1921869	0.197735599	0.933635603	0.783128554	1163.144391	9.936189386	1179.850963	8.318108938	1210.59876	14.57899516	1210.59876	14.57899516	203.5091694
Spot 84	171.933796	20213.63	4.200220911	12.50369745	0.686677403	2.235475581	1.429403965	0.203595011	1.232748915	0.862421642	1194.603839	13.44250529	1192.238339	10.02838083	1187.935616	14.26983609	1187.935616	14.26983609	31.92457584
Spot 88	209.326976	25280.768	1.285395319	13.4814221	0.706591823	1.692462015	1.270593836	0.165852388	1.045799088	0.823078988	989.2182629	9.590581654	1005.69226	8.109895067	1041.74595	14.58106241	1041.74595	14.58106241	167.1046198
Spot 89	268.05651	32858.39731	1.802222055	9.930708256	0.66221398	3.377524739	1.062738018	0.242990284	0.830843064	0.781794808	1402.223985	10.4702912	1499.19626	8.325988197	1639.077994	12.30344125	1639.077994	12.30344125	144.0137908
Spot 90	201.191153	29029.56215	3.541403709	8.52418933	0.555380465	5.11361684	1.198258477	0.315739847	1.059310414	0.884041661	1768.890435	16.38708661	1838.369856	10.17712082	1917.94916	10.04452894	1917.94916	10.04452894	33.83492307
Spot 91	39.6122952	30457.54583	6.195209934	11.89730903	1.178172071	2.508512626	1.615323093	0.216616191	1.100214604	0.681111171	1263.97029	12.62796849	1274.500883	11.72740358	1292.286624	22.99715952	1292.286624	22.99715952	32.31183697
Spot 92	29.0430149	32822.28911	1.495049432	13.14128038	1.186982322	1.916943727	1.649277082	0.182876455	1.141859845	0.692339606	1082.669757	11.38019921	1087.004518	11.00580606	1095.682898	23.81874362	1095.682898	23.81874362	161.8879959
Spot 93	126.059227	96216.3345	3.151141163	12.55960987	0.713899262	2.148661459	1.088486887	0.195156138	0.821611136	0.754819507	1149.246325	8.648531105	1164.621444	7.542288236	1193.310837	14.07124403	1193.310837	14.07124403	303.1884325
Spot 95	60.6997371	850507.0653	2.137787929	13.31130984	0.944911803	1.835880795	1.432190606	0.176587849	1.076248861	0.751470409	1048.306823	10.41280523	1058.38714	9.414552546	1079.24065	18.9538051	1079.24065	18.9538051	4186.199774
Spot 96	122.229147	95036.82494	1.763765769	8.415962229	0.805897258	5.821839791	1.352807898	0.354359519	1.086539194	0.803173308	1955.382196	18.32630507	1949.666649	11.72314324	1943.585892	14.41303394	1943.585892	14.41303394	297.018114
Spot 98	88.8090715	33167.81827	2.367454514	11.9476306	0.801472405	2.503082033	1.337943476	0.217133066	1.070628799	0.800204805	1266.708443	12.31248057	1272.928021	9.707461658	1283.42937	15.63042324	1283.42937	15.63042324	119.240499
Spot 99	40.2923683	9067.200052	3.553564991	13.78260189	1.267211023	1.654335495	1.562573901	0.168362118	0.878244792	0.562050084	1003.080538	8.158323698	991.2111886	9.888990988	965.0249684	26.38508311	965.0249684	26.38508311	22.30929487
Spot 100	91.3084308	127885.9472	0.898251002	13.26875752	0.695872047	1.933997525	1.143694307	0.185521785	0.907593437	0.793562958	1097.07012	9.155777264	1092.923629	7.65498367	1084.652068	13.93527867	1084.652068	13.93527867	1421.216691
Spot 101	177.366801	14506.98197	1.98372036	12.68071168	0.571651304	2.047061755	0.990013137	0.189963584	0.803296036	0.81139937	1121.17779	8.266672841	1131.317223	6.753469779	1150.80935	11.47100249	1150.80935	11.47100249	53.10743089
Spot 102	143.284968	49070.21061	1.999175102	11.664639	0.71568285	2.742829684	1.242271872	0.232011856	1.01517831	0.817194957	1345.034573	12.32413239	1340.145124	9.243944653	1332.32688	13.85163594	1332.32688	13.85163594	200.9333794
Spot 103	149.403661	27129.60901	2.95619536	12.78960773	0.747256265	2.066847994	1.034531318	0.192337615	0.714354817	0.690510577	1134.025867	7.428435501	1137.889346	7.079406937	1145.274473	14.85501201	1145.274473	14.85501201	66.01519075
Spot 104	79.157119	114134.8807	0.908927478	5.40119751	0.646925532	13.54659569	1.330700203	0.529124795	1.16285684	0.873868387	2737.763366	25.9395229	2718.542918	12.58349171	2704.277506	10.67902596	2704.277506	10.67902596	463.448724
Spot 105	163.90683	12674.63871	2.844960008	13.55045762	0.695815197	1.78212812	1.26685859	0.17715785	1.056393491	0.833868515	1051.429052	10.24872847	1038.956334	8.240041179	1012.788045	14.17373737	1012.788045	14.17373737	35.14667762
Spot 106	50.0747169	13536.17604	2.280414174	13.49099014	1.202086247	1.749028472	1.66018727	0.173061657	1.059902621	0.638423533	1028.958141	10.0800931	1026.803641	10.72557993	1022.196979	25.88265613	1022.196979	25.88265613	47.37789125
Spot 107	155.447177	52081.01947	3.16551279	13.74808474	0.614094243	1.688509222	0.974674553	0.168475621	0.755982664	0.775625733	1003.70676	7.026638709	1004.200485	6.215654551	1005.26019	12.47711273	1005.26019	12.47711273	178.5970832
Spot 108	184.319321	11805.013	3.76969922	13.48909968	0.665784301	1.75191287	1.143480116	0.173689349	0.927560426	0.811173201	1032.406622	8.848725303	1027.868466	7.391694737	1018.203453	13.54333095	1018.203453	13.54333095	25.2301617
Spot 109	204.588418	32560.94069	3.840246542	12.39756762	0.725100654	2.380511666	1.486615833	0.214535905	1.29417914	0.870553852	1252.938164	14.73679309	1236.764054	10.62997897	1208.670297	14.38378389	1208.670297	14.38378389	73.53728044
Spot 110	205.141529	37703.82765	3.911942095	12.26597297	0.684009593	2.39973313	1.304775495	0.213803541	1.109289076	0.850176203	1249.04981	12.59592274	1242.521133	9.3518192	1231.239267	13.46422264	1231.239267	13.46422264	62.40587974
Spot 111	226.351634	15149.86637	3.869623452	11.60694163	0.655537596	2.275557793	1.275498503	0.19314172	1.093779663	0.857531123	1138.371823	11.41386067	1204.739984	8.997541	1325.746415	12.70535323	1325.746415	12.70535323	27.69721897
Spot 112	121.163941	11450.90461	2.63823774	12.62118457	0.683080927	2.137160065	1.180612677	0.198216492	0.808309269	0.684652372	1165.732115	8.61986603	1160.905674	8.166709174	1151.890291	17.08298987	1151.890291	17.08298987	32.69507733
Spot 114	128.244007	24456.7354	2.470205839	13.33752667	0.776029774	1.899298224	1.165180864	0.184682534	0.868809598	0.745643552	1092.504979	8.731058938	1080.843495	7.750539989	1057.42711	15.65061618	1057.42711	15.65061618	74.35262133
Spot 115	99.9965907	13189.37916	2.518668357	11.70725497	0.981352639	2.673833262	1.414043729	0.229141063	1.010158072	0.714375412	1329.995828	12.13973631	1321.252579	10.45016058	1307.080803	19.21133054	1307.080803	19.21133054	32.0275039
Spot 116	48.3130911	16838.15565	1.161464167	5.263608481	0.765105367	13.95279212	1.212471849	0.53337254	0.935913033	0.77190496	2755.645991	20.98641257	2746.507637	11.48838375	2739.781265	12.67860017	2739.781265	12.67860017	39.11616784
Spot 118	175.651992	23982.85506	2.223589755	9.151857185	0.745564907	4.843484579	1.246564484	0.322394257	0.991163311	0.795115956	1801.411277	15.57724357	1792.483417	10.49170654	1782.091878	13.78399019	1782.091878	13.78399019	49.30810541
Spot 119	192.979978	28350.3177	1.899549187	10.624026	0.836079177	3.016798126	1.478603096	0.232791527	1.216648311	0.822836307	1349.112859	14.81022156	1411.875005	11.27627398	1507.880424	15.869449	1507.880424	15.869449	88.25322812
Spot 120	176.581696	190022.1421	2.67771788	12.5109964	0.753392575	2.174872738	1.387167284	0.196768239	1.164744882	0.839657117	1157.935791	12.34509655	1173.039091	9.648934279	1201.00021	14.83204672	1201.00021	14.83204672	680.4342103
Spot 121	85.6134316	14974.70396	2.386921688	12.69752871	0.914596951	2.138081635	1.32544624	0.198381313	0.951302013	0.717722065	1166.618791	10.15179201	1161.203908	9.169884822	1151.096891	18.342645	1151.096891	18.342645	43.28805229
Spot 122	72.8276783	38334.60555	2.606003233	13.39050096	0.946936159	1.863319797	1.489122373	0.18103464	1.148130895	0.771011783	1072.62445	11.34512028	1068.164411	9.839917029	1059.086239	19.10725139	1059.086239	19.10725139	146.0631618
Spot 123	114.024353	25310.77213	0.997040512	8.461409085	0.649485847	5.75666796	1.062931584	0.353246342	0.840556632	0.790790907	1950.081569	14.14447044	1939.919646	9.195719154	1929.067815	11.65317149	1929.067815	11.65317149	101.5607025
Spot 124	130.323875	13178.53868	0.669636104	5.278059206	0.735238562	10.8195093	2.629625003	0.414314251	2.522736184	0.959352068	2234.615858	47.64111338	2507.743815	24.44644718	2736.92905	12.20952351	2736.92905	12.20952351	73.49358015
Spot 125	85.1435373	13187.73737	2.018680108	14.11398122	0.997682824	1.580446938	1.448884778	0.163579596	0.941721	0.649962657	976.6389174	8.534414821	962.5451751	9.010733537	930.5075204	22.60288974	930.5075204	22.60288974	55.72321961
Spot 126	183.092106	9362.440743	3.597553464	12.99277022	1.182773164	1.726549053	1.840238742	0.165313735	1.409008914	0.765666368	986.2391693	12.88542054	1018.466494	11.83284964	1088.387308	23.70303334	1088.387308	23.70303334	22.75435543
Spot 127	148.802591	40839.41131	2.686557406	13.51282423	0.808196196	1.771147425	1.371673048	0.173683708	1.106663665	0.806798432	1032.37564	10.55704204	1034.940821	8.901982251	1040.344958	16.37706412	1040.344958	16.37706412	166.3918101
Spot 128	157.330157	21910.02432	2.37651599	13.25640016	0.760079153	1.811077786	1.161301042	0.174912408	0.842804031	0.725741216	1039.120701	8.088354294	1049.467395	7.59708649	1071.084376	16.04069274	1071.084376	16.04069274	74.89992484
Spot 129	133.764954	99964.36056	3.115368567	10.84652948	0.679269314	3.332973967	1.238111699	0.261509198	1.035076308	0.836012057	1497.558618	13.83208942	1488.8096	9.670495133	1476.352225	12.88611512	1476.352225	12.88611512	235.3033523
Spot 130	31.8133106	5813.123313	2.035684648	12.25325806	0.88432883	2.213891632	1.723998631	0.201948976	1.154631509	0.669740386	1185.7817	12.50598142	1185.441995	12.05902999	1184.841717	25.29557262	1184.841717	25.29557262	19.90081563
Spot 131	57.8270379	30757.25125	1.676648801	12.50084969	0.877159157	2.221958898	1.446208897	0.20173547	1.14808249	0.793856608	1184.636502	12.42410811	1187.987539	10.12724614	1194.07359	17.33376732	1194.07359	17.33376732	128.8723621
Spot 133	39.8611662	6824.970526	1.253174661	13.24502519	0.896112545	1.777308086	1.416951816	0.174864237	1.082708125	0.764110757	1038.856392	10.38827147	1037.195658	9.207369122	1033.67729	18.48678024	1033.67729	18.48678024	42.19701953
Spot 134	34.0958699	14594.58327	1.812403108	13.40599657	1.210178518	1.828933023	1.545486136	0.179446133	0.959847142	0.621064868	1063.948102	9.414051793	1055.896448	10.14576067	1039.267292	24.4720234	1039.267292	24.4720234	59.2964167
Spot 135	84.6847177	3534.779262	2.826967258	12.17602461	2.860874803	1.741941558	3.119612566	0.161051662	1.09719505	0.351708754	962.6185288	9.811062587	1024.182634	20.12624842	1158.156887	57.94283601	1158.156887	57.94283601	13.94233504
Spot 137	260.452801	19309.65994	2.902253525	12.35270326	0.549126938	1.892786726	1.199536307	0.170250941	1.063632524	0.886703068	1013.493666	9.975178641	1078.560494	7.969617757	1212.523649	10.91422692	1212.523649	10.91422692	53.11115236
Spot 138	39.0978796	4152.76666	2.750172299	13.7495965	0.982827909	1.499448322	2.949568573	0.156072468	1.237696309	0.419619439	934.9134994	10.77144441	930.1619906	17.96888303	918.9367271	55.05956247	918.9367271	55.05956247	13.81410398
Spot 140	135.714134	11805.30412	4.794203727	13.48726202	0.699088146	1.731857224	1.44686701	0.171235917	1.132677919	0.782848673	1018.917199	10.67518766	1020.441366	9.313754637	1023.692846	18.21659097	1023.692846	18.21659097	20.36865154
Spot 142	153.255335	68211.29611	2.116138683	13.74787405	0.715450824	1.676297363	1.246574823	0.16661783	1.020516202	0.818656196	993.4492752	9.395746289	999.5778631	7.92818514	1013.026148	14.50986486	1013.026148	14.50986486	364.3435285
Spot 143	105.733094	16514.94779	2.819967604	12.43978706	0.755875391	2.217430304	1.203311539	0.20093063	0.91640236	0.761567001	1180.317687	9.884005279	1186.559373	8.420905219	1197.971583	15.37894758	1197.971583	15.37894758	40.60194702
Spot 144	192.455027	15843.38997	1.618523278	13.46910532	0.765208958	1.580694933	1.42477276	0.155374223	1.153157739	0.809362567	931.0188195	9.996859034	962.6427543	8.86131003	1035.57387	16.9218069	1035.57387	16.9218069	87.93635207
Spot 145	70.4925221	29008.1907	3.36378833	13.17744944	0.722053973	1.845660181	1.227461572	0.176480901	0.986661334	0.803822585	1047.720843	9.541122319	1061.882612	8.083802538	1091.120442	14.62286442	1091.120442	14.62286442	68.21460023
Spot 146	150.494428	27777.34691	2.848573788	13.59383816	0.808973231	1.740444481	1.323652015	0.171768522	1.039289982	0.785168587	1021.847962	9.821029932	1023.628092	8.535974961	1027.416762	16.59732991	1027.416762	16.59732991	81.44058963
Spot 147	147.726387	25511.16582	1.735522375	13.51208749	0.878430407	1.729703132	1.204984914	0.169724445	0.823911629	0.68375265	1010.592772	7.706547788	1019.640413	7.753113012	1039.097574	17.76977749	1039.097574	17.76977749	117.7568302
Spot 148	39.1246539	7743.640029	1.964319697	13.13956614	1.008802612	1.864127502	1.498768311	0.180867801	0.974060753	0.649907491	1071.713733	9.617552162	1068.450796	9.90515908	1061.8148	22.93727077	1061.8148	22.93727077	31.54495816
Spot 150	153.04978	43424.50779	2.409857395	12.7287756	0.808618293	2.153131447	1.237357101	0.198210321	0.934387879	0.755148112	1165.698915	9.964120148	1166.061907	8.579535374	1166.717434	16.08816469	1166.717434	16.08816469	162.8591605
Spot 151	49.0266158	15371.4282	2.221837325	12.85854432	0.80209256	2.137152852	1.302683261	0.200294228	0.97408817	0.747755191	1176.900672	10.47846274	1160.903339	9.01114649	1131.15092	17.21211375	1131.15092	17.21211375	46.73724709
Spot 152	89.7684193	33548.88943	2.425412766	11.19630667	0.771576643	2.8924042	1.237502981	0.234427068	0.966837943	0.781281304	1357.659627	11.8362655	1379.932998	9.337475122	1414.541822	14.77401997	1414.541822	14.77401997	113.9563979
Spot 153	135.287083	33425.31434	8.60406209	12.86603375	0.87636277	2.113165112	1.416378141	0.196967284	1.108050752	0.782312802	1159.00786	11.75412094	1153.109539	9.762336758	1142.018784	17.54057875	1142.018784	17.54057875	28.55324885
Spot 154	90.990057	48726.56351	2.765613365	13.40320092	0.778461423	1.810222459	1.150613943	0.175503066	0.846217937	0.735449055	1042.360658	8.144447057	1049.158397	7.525905218	1063.356727	15.6715113	1063.356727	15.6715113	188.6583174
Spot 155	76.1461671	175840.7501	2.116238143	13.09823547	0.911574305	1.967067904	1.403076258	0.18583785	1.066605115	0.76019041	1098.788535	10.77534383	1104.30444	9.445296153	1115.206149	18.17746544	1115.206149	18.17746544	823.5790181
Spot 157	251.994433	16447.28178	2.963107443	12.27384372	0.509659692	2.102805302	1.129930214	0.187934504	1.007009693	0.89121406	1110.176231	10.26990079	1149.724972	7.775611619	1225.074126	10.08357677	1225.074126	10.08357677	42.23835857
Spot 159	291.460233	35942.96123	3.001157117	5.299647681	0.629685039	11.28144909	1.097508694	0.431544857	0.898893136	0.819030538	2312.678038	17.46820648	2546.672001	10.23688607	2738.676781	10.357817	2738.676781	10.357817	34.46933735
Spot 160	82.200566	37439.7512	2.107899808	12.72249406	1.056405222	2.130617752	1.543275114	0.196246488	1.124393323	0.728576073	1155.124759	11.8909944	1158.785957	10.66509509	1165.620833	20.96205078	1165.620833	20.96205078	123.5107839
Spot 161	82.9073747	38716.81058	2.163337517	11.43997369	0.801987328	2.887737678	1.37455595	0.239102422	1.115002676	0.811173001	1382.029102	13.86984332	1378.714946	10.36736073	1373.56928	15.46262955	1373.56928	15.46262955	138.9367825
Spot 162	104.71707	24223.91058	3.558203565	13.82506861	0.795283256	1.598633514	1.281235844	0.160608574	1.004270132	0.783829251	960.1579381	8.958844172	969.6763319	8.003350977	991.3168115	16.17127534	991.3168115	16.17127534	61.24007686
Spot 164	106.815411	30832.60136	6.173960179	8.813353862	0.618741604	5.238585294	1.011124003	0.33406883	0.797452785	0.788679512	1858.072797	12.87305072	1858.916019	8.621298245	1859.841931	11.22694848	1859.841931	11.22694848	27.81293502
Spot 166	207.0651	17480.96452	2.95235501	12.15366599	0.87808906	1.99401033	1.352361487	0.176177235	1.028239164	0.760328635	1046.056718	9.928638787	1113.483004	9.145523254	1247.583869	17.19782472	1247.583869	17.19782472	51.64827726
Spot 167	132.855567	30541.18116	3.219093652	7.836249812	0.592804582	6.728194225	1.071215496	0.380819648	0.890650147	0.831438819	2080.111332	15.83465523	2076.331654	9.469778922	2072.571008	10.48429171	2072.571008	10.48429171	47.54671993
Spot 169	85.3629078	32011.25658	1.666301307	12.51989057	0.726788858	2.211929393	1.202372418	0.200454756	0.949155365	0.789402144	1177.762762	10.21707178	1184.821865	8.407833672	1197.747968	14.53788152	1197.747968	14.53788152	138.8190152
Spot 170	131.969702	32638.8355	4.150184694	10.70034702	0.713456136	3.331625283	1.164866386	0.257794085	0.9189002	0.788846009	1478.546077	12.14088834	1488.493502	9.0975178	1502.677623	13.53170958	1502.677623	13.53170958	43.46021361
Spot 173	59.9755191	1546486.311	1.188947012	4.819461092	0.698925024	16.50435965	1.398566948	0.57374577	1.211401387	0.866173327	2923.182067	28.47042934	2906.483193	13.39031511	2894.923118	11.33976948	2894.923118	11.33976948	4319.986017
Spot 174	81.0168619	100894.8342	2.307320003	13.30130197	0.92444603	1.907875422	1.244013755	0.183463778	0.832388008	0.669114795	1085.869743	8.318396637	1083.84294	8.287794117	1079.77533	18.53208776	1079.77533	18.53208776	443.2070577
Spot 175	458.259338	1647.076995	2.12889781	9.255816692	1.203944937	1.225653371	1.92047203	0.088764588	1.495101826	0.778507473	548.226578	7.857691013	812.3577423	10.73900951	1626.748508	22.4141336	1626.748508	22.4141336	18.24063334
Spot 176	124.09408	990547.4561	1.628265675	11.61146595	0.879930441	2.716288562	1.241663869	0.227916817	0.876043135	0.705539685	1323.571888	10.48217734	1332.919198	9.215361039	1347.949296	16.98658456	1347.949296	16.98658456	4953.029951
Spot 177	108.439854	12100.76331	2.839154852	12.61479654	0.778250674	2.088731796	1.232541846	0.193221675	0.933206858	0.757140101	1138.803794	9.741619578	1145.108986	8.463385444	1157.053484	15.98610555	1157.053484	15.98610555	31.30133976
Spot 178	158.816602	45716.06266	3.777138936	13.08764848	0.919855111	1.991178958	1.448986369	0.189051614	1.118454707	0.771887666	1116.235462	11.4634871	1112.522323	9.794349047	1105.269956	18.41323418	1105.269956	18.41323418	125.5165371
Spot 179	218.671024	33886.22959	2.027689365	12.12164591	0.836704079	2.055644128	1.327582369	0.180944077	1.025703953	0.772610406	1072.130114	10.13107737	1134.173137	9.06876385	1254.94643	16.49602851	1254.94643	16.49602851	134.161231
Spot 180	115.655376	492187.1383	1.078543481	10.29290943	0.538987953	3.2656004	1.1986049	0.242923084	1.070581857	0.893189955	1401.875463	13.48848739	1472.897339	9.317534756	1576.776032	10.08678187	1576.776032	10.08678187	3787.601633
Spot 182	135.488191	15346.33099	1.477785802	13.52105739	0.863407355	1.746592669	1.390693789	0.172719696	1.034739635	0.744045629	1027.078662	9.824201721	1025.903553	8.979871555	1023.378738	18.80271849	1023.378738	18.80271849	85.14735806
Spot 183	81.1219228	5508.446023	3.157933519	12.47408985	0.942542649	2.15493985	1.550519811	0.200560653	1.131134516	0.729519551	1178.331402	12.18132714	1166.644089	10.75393821	1145.010936	21.06723296	1145.010936	21.06723296	12.09280474
Spot 184	167.266864	1500061.005	2.580150543	13.45501324	0.709647209	1.827015228	1.272154112	0.177558039	1.055829966	0.82995445	1053.620216	10.26291129	1055.207865	8.348211469	1058.512732	14.28432368	1058.512732	14.28432368	6505.655009
Spot 185	138.004569	16194.71048	1.556617889	11.56638989	0.837204544	2.784942172	1.473274098	0.234983758	1.210632101	0.821729034	1360.566116	14.84936076	1351.505923	11.00746745	1337.178258	16.23153734	1337.178258	16.23153734	64.06415056
Spot 186	94.1731717	11842.70313	3.052754121	11.54992428	1.946142072	2.413967794	2.170237968	0.204137059	0.950347425	0.437900101	1197.506376	10.38596642	1246.76366	15.58272523	1332.865549	37.74655165	1332.865549	37.74655165	30.77271379

Spot 187	31.7243546	4641.248494	2.161091417	8.751646127	0.545083515	5.238896478	1.014694646	0.33984422	0.835736105	0.823633108	1885.920087	13.66512477	1858.966665	8.651827008	1828.934895	10.43360079	1828.934895	10.43360079	9.338727889
Spot 188	34.6288025	15430.22605	1.70363009	13.56931593	1.223468951	1.781690971	1.649787974	0.176854366	1.101478078	0.667648265	1049.76688	10.67056763	1038.796777	10.72995024	1015.764976	24.87223494	1015.764976	24.87223494	71.89286967
Spot 190	80.3171098	20063.50374	1.548436808	9.570886169	0.694495753	4.355548635	1.333418284	0.303101394	1.135855606	0.851837431	1706.669531	17.03146734	1703.947963	11.01164602	1700.587791	12.8651349	1700.587791	12.8651349	63.30172807
Spot 191	100.153042	13125.78572	1.714512557	13.83943498	0.837302416	1.596346797	1.436202295	0.162109213	1.01255268	0.705020932	968.4876134	9.105354835	968.7824329	8.966467106	969.4414176	20.7784915	969.4414176	20.7784915	67.39034224
Spot 192	115.222778	22182.96851	0.806387011	8.82179428	0.701225716	5.227708877	1.439278818	0.335106198	1.2556946	0.872447079	1863.083565	20.31750236	1857.144244	12.26814975	1850.485966	12.71788694	1850.485966	12.71788694	118.7986081
Spot 193	179.585538	23079.28451	3.952416024	12.81226259	0.69903969	2.09468821	1.297402575	0.195501484	1.085389257	0.836586328	1151.10878	11.44205733	1147.065199	8.916990802	1139.447583	14.13648375	1139.447583	14.13648375	43.50446654
Spot 194	66.080392	43172.8001	3.187822399	8.234137354	0.584182805	6.086713559	1.153735856	0.363148561	0.994614056	0.862081257	1997.080692	17.08106529	1988.34513	10.06209704	1979.259436	10.41254084	1979.259436	10.41254084	71.94982234
Spot 195	122.065075	16532.82461	3.564857178	12.53982372	0.714952723	2.165306155	1.236020949	0.198366702	0.965743574	0.781332691	1166.540197	10.30527161	1169.974902	8.585580809	1176.354617	15.25938666	1176.354617	15.25938666	34.00570662
Spot 196	50.3022621	111438.1281	2.206465568	13.23771121	0.910357753	1.999216363	1.418109631	0.191626772	1.08729836	0.766723768	1130.181526	11.27154148	1115.247035	9.598528403	1086.265487	18.23633063	1086.265487	18.23633063	486.9803778
Spot 197	118.45725	34753.11807	1.079396407	5.427476397	0.5550389	13.20563218	1.142108234	0.519395228	0.997333544	0.873239081	2696.614855	21.97796673	2694.459581	10.78082815	2692.827625	9.19337483	2692.827625	9.19337483	119.7460458
Spot 198	644.81836	1242.168918	1.271840618	7.89306607	1.789441704	1.411255406	2.058314996	0.088120547	1.011872634	0.49160242	544.4121784	5.282558634	893.6868836	12.23277996	1897.808944	32.2278795	1897.808944	32.2278795	22.46158958
Spot 199	170.079711	269405.4808	2.358929661	10.89455229	0.762389182	3.121967838	1.175951128	0.246153604	0.895334135	0.761370191	1418.608801	11.40088123	1438.11817	9.043873809	1467.075526	14.47896332	1467.075526	14.47896332	902.4565042
Spot 200	168.710384	13193.14202	4.257339875	12.92667642	0.801871418	2.049600216	1.398923606	0.194336128	1.047028053	0.748452631	1144.821852	10.98256847	1132.162771	9.546912787	1107.95058	18.54643747	1107.95058	18.54643747	23.21921273

1. Analyses with >10% uncertainty (1-sigma) in 206Pb/238U age are not included.
2. Analyses with >10% uncertainty (1-sigma) in 206Pb/207Pb age are not included, unless 206Pb/238U age is <400 Ma.
3. Best age is determined from 206Pb/238U age for analyses with 206Pb/238U age <900 Ma and from 206Pb/207Pb age for analyses with 206Pb/238Uage >900 Ma.
4. Concordance is based on 206Pb/238U age / 206Pb/207Pb age. Value is not reported for 206Pb/238U ages <400 Ma because of large uncertainty in 206Pb/207Pb age.
5. Analyses with 206Pb/238U age >400 Ma and with >20% discordance (<80% concordance) are not included.
6. Analyses with 206Pb/238U age >400 Ma and with >5% reverse discordance (<105% concordance) are not included.
7. All uncertainties are reported at the 2-sigma level, and include only measurement errors.
8. Systematic errors are as follows (at 2-sigma level): [sample 1: xxx% (206Pb/238U) & xxx% (206Pb/207Pb)]
9. Analyses conducted by LA-ICPMS, as described by Gehrels et al. (2008) and Gehrels and Pecha (2014).
10. U concentration and U/Th are calibrated relative to FC-1 zircon standard and are accurate to ~20%.
11. Common Pb correction is from measured 204Pb with common Pb composition interpreted from Stacey and Kramers (1975).
12. Common Pb composition assigned uncertainties of 1.5 for 206Pb/204Pb, 0.3 for 207Pb/204Pb, and 2.0 for 208Pb/204Pb.
13. U/Pb and 206Pb/207Pb fractionation is calibrated relative to fragments of large Sri Lanka zircons and individual crystals of FC-1, and R33.
14. U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U/235U = 137.82.
15. Weighted mean and concordia plots determined with Isoplot (Ludwig, 2008).

Aliquot Name	19-VC-395
Stratigraphic Formation Name	
Stratigraphic Age	
Rock Type	
Mineral	Zircon
Method	U-Pb
Latitude	
Longitude	
Internal Uncertainty Level	one sigma
External Uncertainty 206/238 (% two sigma)	0.95406054
External Uncertainty 206/207 (% two sigma)	0.85825835
Analysis Purpose	
Laboratory Name	Arizona LaserChron Center
Analyst Name	
Aliquot Reference	
Aliquot Instrumental Method	LA-ICPMS
Aliquot Instrumental Reference	Gehrels, G.E., Valencia, V., Ruiz, J., 2008, Enhanced precision, accuracy, efficiency, and spatial resolution of U-Pb ages by laser ablation-multicollector-inductively coupled plasma-mass spectrometry: Geochemistry, Geophysics, Geosystems, v. 9, Q03017, doi:10.1029/2007GC001805. Gehrels, G. and Pecha, M., 2014, Detrital zircon U-Pb geochronology and Hf isotope geochemistry of Paleozoic and Triassic passive margin strata of western North America: Geosphere, v. 10 (1), p. 49-65.

				Isotope ratios							Apparent ages (Ma)								
Analysis	U (ppm)	206Pb 204Pb	U/Th	206Pb* 207Pb*	± (%)	207Pb* 235U	± (%)	206Pb* 238U	± (%)	error corr.	206Pb* 238U	± (Ma)	207Pb* 235U	± (Ma)	206Pb* 207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)
Spot 1	70.4209463	10736.56405	1.417668849	9.562272064	0.745764579	4.15027816	1.152354571	0.291395408	0.874040783	0.758482506	1648.498601	12.71375774	1664.26433	9.429204242	1684.195824	13.86332806	1684.195824	13.86332806	35.96867964
Spot 2	790.186051	7356.039641	1.25234461	20.13438058	0.987331367	0.166669513	1.546598233	0.025378858	1.162463516	0.751626047	161.5610734	1.854749489	156.5244648	2.243450251	80.91990082	24.20800104	161.5610734	1.854749489	298.6070306
Spot 3	159.248958	41531.83348	1.455384742	9.728736981	0.71169087	4.106643914	1.40738768	0.290887149	1.21297324	0.861861488	1645.960965	17.62003493	1655.625141	11.49247775	1667.890739	13.20162422	1667.890739	13.20162422	172.9247593
Spot 4	156.901008	94665.66909	1.934397891	9.268274578	0.587829659	4.652691935	1.061440506	0.313376976	0.883737559	0.832583224	1757.303234	13.59314184	1758.777357	8.871265931	1760.512582	10.74984168	1760.512582	10.74984168	288.4612665
Spot 5	231.469207	79446.58983	3.461352028	9.710669787	0.711541569	4.182656131	1.261540945	0.295266442	1.041709758	0.825743914	1667.793205	15.30808029	1670.627701	10.33822632	1674.173246	13.15075392	1674.173246	13.15075392	139.2820834
Spot 6	309.899141	36703.31578	2.27134772	9.294774461	0.643934405	4.107498733	1.358060533	0.277760032	1.194772487	0.879763794	1580.071361	16.74267509	1655.795095	11.09010041	1753.227878	11.81390292	1753.227878	11.81390292	83.6345
Spot 7	79.2079418	103581.8124	2.3376486	7.767257658	0.773790413	6.725899404	1.30057949	0.379139888	1.045326199	0.8037388	2072.264532	18.52517821	2076.0301	11.49705713	2079.751375	13.6206985	2079.751375	13.6206985	221.4966471
Spot 8	754.09743	109049.3368	2.685309159	11.42264309	0.919675477	2.883828298	1.278063608	0.239226925	0.887416231	0.694344339	1382.676794	11.04346134	1377.693397	9.636177578	1369.961537	17.70062891	1369.961537	17.70062891	305.9987665
Spot 9	222.85249	49148.38956	3.388146158	9.357101286	0.712415086	4.563199589	1.094644003	0.310217433	0.830437958	0.758637471	1741.77665	12.67502379	1742.573395	9.117154352	1743.511438	13.06570595	1743.511438	13.06570595	80.38415175
Spot 10	11.5369345	1194.549677	53999.3558	14.72983784	3.239880563	0.793961423	5.858214656	0.103278752	1.602033203	0.273467822	633.5950349	9.667535383	593.4165204	26.33169607	442.62014	125.3908772	633.5950349	9.667535383	15.78295196
Spot 11	130.257653	141887.4643	1.011750402	8.192335907	0.636153185	6.125424911	0.994123045	0.363920348	0.763924079	0.768440167	2000.729486	13.13972682	1993.876591	8.677728896	1986.76581	11.31944044	1986.76581	11.31944044	704.9708068
Spot 12	633.249909	178848.3813	29.90517576	9.81061495	0.802524682	3.745792033	1.472392092	0.266499003	1.234452251	0.838399131	1523.006629	16.74496387	1581.213726	11.8007035	1659.735537	14.85959482	1659.735537	14.85959482	44.15529263
Spot 13	172.495381	19906.17506	3.680538764	10.80151614	0.777680345	3.119122823	1.211336056	0.246110611	0.924297252	0.763039494	1418.386395	11.76803888	1437.417103	9.313962187	1465.675676	14.8722342	1465.675676	14.8722342	30.62464039
Spot 14	41.6945186	1559.08295	1.119005447	7.585294955	4.417461205	5.113280007	5.042316298	0.30061017	2.178465233	0.432036609	1694.333707	32.45854387	1838.313911	42.84922582	2005.448508	80.77205066	2005.448508	80.77205066	8.162174961
Spot 15	190.197965	1907675.413	1.906813926	7.452687878	0.714984943	7.526050169	1.05448253	0.4064997	0.775067699	0.735021848	2198.898536	14.44039772	2176.094027	9.451507167	2154.644018	12.47969153	2154.644018	12.47969153	4388.219227
Spot 16	253.607978	37747.40102	0.505097497	9.477691379	0.684040556	4.317600528	1.113878598	0.29757296	0.879076748	0.789203374	1679.262309	12.99592705	1696.727596	9.183460476	1718.354656	12.57373028	1718.354656	12.57373028	296.383988
Spot 17	165.572687	51203.85171	1.613897728	11.27389371	0.756485474	3.072199715	1.308129981	0.251777627	1.066823721	0.815533423	1447.636698	13.83252573	1425.783951	10.02109746	1393.28835	14.5214846	1393.28835	14.5214846	224.2787197
Spot 18	59.2669451	8190.492854	2.292882397	13.66735408	1.094666081	1.626269748	1.451321018	0.164967337	0.930937046	0.641441166	984.3226429	8.498122472	980.4178227	9.125535108	971.666279	22.72723937	971.666279	22.72723937	29.72892073
Spot 19	158.506117	84949.6077	3.179546987	9.57283115	0.607522065	4.270101328	1.294274705	0.296680785	1.142695054	0.882884483	1674.828411	16.85411245	1687.616987	10.64857541	1703.530275	11.19055556	1703.530275	11.19055556	162.4488797
Spot 20	156.37363	1807.545209	1.7739263	11.93283189	6.119591663	0.121062908	7.224708729	0.011554577	1.425850747	0.197357541	74.05855173	1.049921949	116.0351932	7.922097492	1094.785165	141.9687081	74.05855173	1.049921949	150.6333259
Spot 21	81.5081493	441060.074	1.296123544	11.15272413	0.634917673	2.937054952	1.179846575	0.237458633	0.994443281	0.842858133	1373.471634	12.30144202	1391.514413	8.937318964	1419.26533	12.13612746	1419.26533	12.13612746	2640.254497
Spot 22	175.228667	16789.5606	3.707179735	12.22685034	0.882543065	2.359161248	1.44597755	0.21119967	1.14376818	0.790999957	1235.206003	12.8568413	1230.330826	10.31176875	1221.78045	17.38570609	1221.78045	17.38570609	28.99361709
Spot 23	75.9632906	45840.4338	1.580352352	11.048097	0.889350272	3.157464051	1.22428438	0.253645988	0.840500965	0.68652429	1457.251226	10.962508	1446.824679	9.44136195	1431.518331	16.98736826	1431.518331	16.98736826	205.9861345
Spot 24	187.576798	300007.277	0.860675203	11.07873969	0.707825908	3.058712512	1.195986851	0.245694425	0.96403539	0.806058519	1416.233009	12.25731897	1422.415401	9.152051298	1431.663069	13.50708491	1431.663069	13.50708491	2498.219961
Spot 25	72.4790747	31121.58915	1.546426612	9.68215738	0.693941306	4.255945034	1.127901603	0.299871446	0.88669965	0.786149827	1690.671214	13.18651578	1684.885844	9.273814313	1677.674416	12.8790223	1677.674416	12.8790223	85.29451817
Spot 26	25.6760443	18540.61246	1.268597442	4.339481968	0.763783429	18.51344949	1.195917497	0.583803576	0.920156948	0.769415073	2964.249995	21.86488574	3016.808596	11.52134192	3052.002185	12.22386636	3052.002185	12.22386636	35.34941579
Spot 27	134.684149	51598.75491	2.503148275	9.649690033	0.634548342	4.276080874	1.083144517	0.299830135	0.87752652	0.810165685	1690.466338	13.04871447	1688.768405	8.913780576	1686.64432	11.717472	1686.64432	11.717472	127.9259666
Spot 28	132.839463	17876.56961	2.353876921	9.507060213	0.705894076	4.068480104	1.304521658	0.282251036	1.096818039	0.840781778	1602.689153	15.56381714	1648.008316	10.6328951	1706.273522	12.9991681	1706.273522	12.9991681	34.58454044
Spot 29	730.763408	7370.293884	3.322342108	20.34268311	1.619604956	0.057714363	2.261838268	0.008865294	1.059802966	0.468558243	56.89752174	0.600348322	56.97346676	1.253161904	60.16772974	47.61844076	56.89752174	0.600348322	344.8051449
Spot 30	138.647246	20808.32416	2.538910743	11.02598356	0.777845885	3.095209494	1.356457233	0.249083791	1.082504472	0.79803804	1433.74901	13.91561719	1431.505178	10.41034588	1428.152543	15.60567328	1428.152543	15.60567328	44.49734957
Spot 31	492.09246	63821.58142	1.485054121	6.186731367	0.573670609	10.95292839	1.257500244	0.491037659	1.119015227	0.889872771	2575.163857	23.75649447	2519.141293	11.70073496	2474.292055	9.680309904	2474.292055	9.680309904	145.460708
Spot 32	189.350493	6472885.69	0.517606042	10.91937805	0.754721841	3.023895079	1.368836387	0.238987093	1.14197548	0.834267332	1381.429075	14.19983674	1413.66742	10.44520195	1462.570268	14.34202107	1462.570268	14.34202107	93120.66695
Spot 33	433.927795	33305.14297	0.162802686	17.81236496	0.623229913	0.523051173	1.150460771	0.067955769	0.96441455	0.838285472	423.8280438	3.955989058	427.1875649	4.01174823	445.3320925	13.95606607	423.8280438	3.955989058	3512.89555
Spot 34	102.942432	25191.28695	2.105756444	11.8424568	0.811063516	2.62641705	1.255353631	0.226591846	0.941055063	0.749633442	1316.612196	11.20670354	1308.062266	9.231959739	1294.052988	16.16056123	1294.052988	16.16056123	72.61742736
Spot 35	963.514693	6587.908521	3.803569021	20.90015124	1.140606597	0.055446357	2.472979217	0.008795218	0.96061461	0.388444271	56.44973673	0.539897094	54.79389252	1.319129633	NA	NA	56.44973673	0.539897094	243.600422
Spot 36	491.434799	68498.61619	0.960666532	8.94806455	0.649185001	5.122686522	1.264986313	0.332187474	1.085652157	0.858232335	1848.975396	17.45130353	1839.875082	10.74701142	1829.580289	11.77098277	1829.580289	11.77098277	356.5313129
Spot 37	836.067852	5854.700534	1.354202411	20.61357308	1.16540289	0.054852854	2.195617376	0.008629338	0.770240633	0.350808224	55.38964418	0.424805899	54.22275725	1.159295384	2.947057701	NA	55.38964418	0.424805899	568.7808656
Spot 38	61.9842578	7586.096754	0.917287743	9.74093609	0.986855709	4.181679986	1.737354741	0.299896461	1.178958395	0.678593938	1690.79527	17.53397309	1670.436437	14.23728179	1644.931963	23.67295041	1644.931963	23.67295041	37.1981323
Spot 39	87.4576392	24103.56883	1.274389684	13.09946939	0.936827302	1.876047405	1.353586753	0.17906757	0.975852287	0.720938119	1061.878685	9.553903554	1072.66784	8.965511258	1094.675397	18.79735654	1094.675397	18.79735654	113.1557978
Spot 40	323.20865	65863.51316	9.503269855	17.98237829	0.963457935	0.506426833	1.317968474	0.066110922	0.899020567	0.682126003	412.682511	3.593839664	416.0435712	4.498901044	434.7043805	21.46429042	412.682511	3.593839664	179.915033
Spot 41	105.973714	12432.81793	3.654526451	11.7606474	0.918336151	2.29015108	1.775663969	0.197266795	1.456441247	0.820223461	1160.620712	15.46945663	1209.253678	12.55050214	1297.146453	19.74935551	1297.146453	19.74935551	26.84385688
Spot 42	194.845812	78657.48054	2.617509623	9.520783222	0.573674716	4.404503652	1.039891795	0.303555216	0.867221944	0.833954021	1708.914186	13.01839134	1713.187405	8.605371421	1718.398171	10.54768704	1718.398171	10.54768704	169.7655472
Spot 43	171.092734	30550.63136	0.924335446	11.40932151	0.70858285	2.794624599	1.354734646	0.231762793	1.153993375	0.851822442	1343.73124	13.99712491	1354.100102	10.13102109	1370.495087	13.65652225	1370.495087	13.65652225	248.3715026
Spot 44	120.504857	41322.85446	0.919777347	9.977936125	0.742245168	3.984967953	1.384614335	0.288466751	1.167867044	0.843460171	1633.862669	16.85524796	1631.138726	11.23929145	1627.60976	13.82888669	1627.60976	13.82888669	282.847396
Spot 45	181.678932	10173.60983	1.977493806	20.55109056	2.047627259	0.096499965	2.298925745	0.014780268	1.030167448	0.448108187	94.58246019	0.967244616	93.54039432	2.054347853	67.02101007	48.90337095	94.58246019	0.967244616	483.9750921
Spot 46	215.543585	29553.38647	1.608786711	9.835929801	0.563505358	3.712518068	1.075180193	0.265096761	0.914806914	0.850840557	1515.865333	12.35744974	1574.06954	8.600765365	1652.979092	10.47014608	1652.979092	10.47014608	89.77377539
Spot 47	140.780239	31760.95134	1.151489521	7.951074025	0.753016249	6.164997562	1.484579558	0.355413612	1.278275159	0.861035134	1960.397464	21.60759323	1999.500148	12.97101233	2040.13625	13.34904429	2040.13625	13.34904429	125.3138583
Spot 48	374.155221	250486.9504	7.511867395	9.502609665	0.543369695	4.689868957	1.863008768	0.322224833	1.782006967	0.956520977	1800.585319	27.99522945	1765.433535	15.59327696	1724.077635	9.980367546	1724.077635	9.980367546	191.3116156
Spot 49	137.762385	743.7360203	1.283447001	19.68812898	2.788006451	0.043230884	14.65986656	0.010240952	1.029636105	0.070235026	65.68166757	0.672848562	42.97356683	6.168491294	NA	NA	65.68166757	0.672848562	152.2494841
Spot 50	176.121988	80553.66059	1.789052417	10.90897231	0.75639459	3.158417666	1.471275439	0.249522552	1.261790534	0.8576168	1436.013021	16.24321879	1447.057555	11.34706198	1463.303072	14.37745748	1463.303072	14.37745748	308.1618201
Spot 51	54.1142774	8632.106503	2.455670061	14.15600739	0.924293674	1.510647669	1.626728892	0.158255607	1.12566737	0.691982159	947.0754957	9.914785438	934.7014828	9.938855465	905.6210637	24.19915939	905.6210637	24.19915939	30.30055019
Spot 52	120.688055	66929.26976	7.601140099	9.902235249	0.60287006	3.964398971	1.247855466	0.284274593	1.092402726	0.875424082	1612.854406	15.58769797	1626.940384	10.11857256	1645.187658	11.1899413	1645.187658	11.1899413	56.78788382
Spot 53	124.982248	89987.87916	1.860668801	8.880516229	0.814696599	5.007534125	1.490482338	0.321633414	1.248089516	0.837372899	1797.701253	19.58012352	1820.596405	12.61556664	1846.87857	14.73813237	1846.87857	14.73813237	266.6504836
Spot 54	385.410461	64810.13169	3.675800529	13.72523413	0.704629948	1.753804151	1.198198843	0.174327008	0.968809521	0.80855488	1035.907971	9.271126984	1028.566059	7.74845794	1012.964743	14.29071955	1012.964743	14.29071955	173.0091697
Spot 55	107.989365	18904.92818	1.249060122	20.67554916	2.004329844	0.107801443	2.20434876	0.016360437	0.917413131	0.416183295	104.6127123	0.951985442	103.9522456	2.178078518	88.86212064	47.49353488	104.6127123	0.951985442	1306.83463
Spot 56	54.9041622	201183.0935	1.804813087	8.046910293	0.812029705	6.405984462	1.263922333	0.372429081	0.968559097	0.766312195	2040.820123	16.94333913	2033.089693	11.10121941	2025.2388	14.3825602	2025.2388	14.3825602	528.7271411
Spot 57	225.616875	148747.4922	0.992869668	9.68624663	0.716983865	4.286347927	1.338911614	0.300073794	1.130747243	0.844527175	1691.674635	16.82460181	1690.742381	11.02378055	1689.570321	13.22703054	1689.570321	13.22703054	916.8598606
Spot 58	469.396901	191841.6319	3.259224955	9.622445726	0.698548273	4.498630659	1.258202352	0.312981278	1.046466554	0.831715624	1755.36075	16.08067539	1730.71949	10.45253266	1701.041836	12.86630449	1701.041836	12.86630449	298.957408
Spot 59	155.186234	23237.95444	0.926594126	11.05126994	0.651970872	3.098801179	0.972901015	0.249084446	0.721966675	0.742076187	1433.752391	9.28090796	1432.395325	7.468669803	1430.361262	12.44679839	1430.361262	12.44679839	132.023484
Spot 60	141.364815	112988.672	1.920683317	10.92430925	0.581439572	3.175923957	1.056795481	0.250927942	0.882393475	0.834970901	1443.2595	11.41031618	1451.323187	8.161081668	1463.13381	11.05029481	1463.13381	11.05029481	407.0483092
Spot 61	164.219851	36330.90518	0.978242348	11.19330802	0.703350352	3.070839681	1.227517138	0.249429951	1.004283768	0.81814236	1435.535265	12.9244455	1425.444776	9.402493303	1410.389013	13.50810808	1410.389013	13.50810808	186.7053345
Spot 62	150.213505	26123.28961	2.18117613	16.95083797	0.639602579	0.714411842	1.313663027	0.088330675	1.139460757	0.867391967	545.6569299	5.961676141	547.3626164	5.558424522	554.4489657	14.28243147	545.6569299	5.961676141	169.3773469

Spot 63	88.3124807	203289.5738	4.419076902	9.397357435	0.789334462	4.581560848	1.136072018	0.311283671	0.817071235	0.719207253	1747.020527	12.50369462	1745.919134	9.469044522	1744.582376	14.4593507	1744.582376	14.4593507	264.3557179
Spot 64	650.795223	21072.13864	2.443335004	20.94493812	1.390295492	0.058964862	1.749501509	0.009054651	1.059226916	0.605444986	58.10735761	0.612723112	58.17321001	0.989136225	60.88784052	33.16297894	58.10735761	0.612723112	1161.667846
Spot 65	202.258225	26073.59199	2.023063453	11.15402956	0.591339872	3.118446969	1.153755627	0.25245571	0.990353962	0.858374112	1451.127749	12.86862208	1437.250488	8.870736451	1416.752047	11.31779994	1416.752047	11.31779994	68.53911282
Spot 66	234.55141	223339.62	2.313105249	17.40906492	0.84928618	0.531552452	1.36638608	0.066845067	1.070384684	0.783369137	417.1201135	4.323407456	432.8394124	4.815272245	517.3548436	18.65889925	417.1201135	4.323407456	2411.190514
Spot 67	125.530733	16753.18732	1.289576054	11.09439593	0.855168261	3.158629624	1.339791642	0.255201267	1.024941997	0.765001038	1465.243717	13.43345051	1447.109309	10.3330999	1420.549365	16.49048133	1420.549365	16.49048133	65.31270207
Spot 68	29.1016414	31329.53292	1.813658265	13.32813752	1.041019873	1.788622167	1.492698133	0.173051901	1.065715561	0.713952498	1028.904531	10.1348895	1041.323681	9.721742287	1067.501816	20.99225269	1067.501816	20.99225269	131.9858695
Spot 69	269.224096	9817.89165	3.445860603	16.87311306	0.760346435	0.718396257	1.155905776	0.089621294	0.862770765	0.746402331	553.297014	4.574559999	549.7197005	4.906778662	534.9439946	16.83949858	553.297014	4.574559999	42.80799146
Spot 70	468.767522	4610.431397	1.780536408	20.11576166	1.432177739	0.061362238	2.506313632	0.009511262	0.98442294	0.392777235	61.0237832	0.597897713	60.4693236	1.471306626	38.54653375	NA	61.0237832	0.597897713	370.0124514
Spot 71	91.1218585	45680.07972	2.160213945	10.928091	0.839403606	3.199868834	1.173229127	0.252763803	0.819199876	0.698243725	1452.713312	10.65501738	1457.128796	9.076549154	1463.55481	15.957997	1463.55481	15.957997	155.8788027
Spot 72	433.1571	286294.6132	2.548305166	11.88259169	0.695248603	2.706916292	1.318153766	0.231862557	1.11989086	0.849590456	1344.253332	13.5882308	1330.355225	9.773979992	1308.034447	13.49594043	1308.034447	13.49594043	842.1638596
Spot 74	41.3098688	7484.088048	2.386601905	12.59111299	1.139985548	2.161245244	1.708997208	0.20079336	1.106422476	0.647410348	1179.580802	11.92671278	1168.671386	11.86415711	1148.534152	25.88508981	1148.534152	25.88508981	21.54291741
Spot 75	104.132562	14840.41703	3.304417816	13.48408764	0.968021186	1.702397756	1.498886122	0.167514576	1.080701054	0.721002776	998.4025455	9.995727748	1009.432336	9.587893981	1033.429497	21.00469196	1033.429497	21.00469196	37.00332864
Spot 76	79.4746745	13552.39716	1.68832209	13.57815557	1.056018085	1.693964472	1.460536093	0.168022038	0.979536643	0.670669248	1001.203882	9.083524467	1006.258709	9.325386667	1017.263166	21.9440794	1017.263166	21.9440794	65.78397224
Spot 77	1754.25494	39265.1051	7.505771875	20.60532838	0.813036672	0.113888249	1.321886668	0.017029879	1.038368652	0.785520179	108.8573466	1.120850322	109.5159888	1.372339905	123.8393171	19.25806168	108.8573466	1.120850322	388.0191709
Spot 78	211.625061	54814.3036	1.282947898	16.82418936	0.950270538	0.753673686	1.663164005	0.091740201	1.364677806	0.820531109	565.820713	7.392458758	570.3536955	7.257832672	588.4435353	20.60220371	565.820713	7.392458758	844.3179078
Spot 79	144.074429	32070.77028	0.703198008	10.86492873	0.709949316	3.095596714	1.339169115	0.243539597	1.133258263	0.846239844	1405.07221	14.30730306	1431.601182	10.27797031	1471.239852	13.5431051	1471.239852	13.5431051	313.8794618
Spot 80	489.911753	64434.58357	1.612199687	21.13714003	1.200968307	0.092047346	1.685466255	0.01409842	1.181916979	0.701240369	90.24954952	1.059242779	89.40877614	1.442514099	67.00025993	28.60210748	90.24954952	1.059242779	4747.58459
Spot 81	443.01739	6170.334142	1.401254141	15.32155723	0.745125542	0.723125662	1.106380766	0.082856516	0.817120731	0.738552907	513.1505022	4.030512239	552.51042	4.714487324	718.2171245	15.84466551	513.1505022	4.030512239	68.101488
Spot 82	592.137068	5599.017651	3.711513845	20.55894719	1.789994356	0.057515936	2.462060723	0.009015945	1.650713411	0.670460072	57.86007288	0.950830496	56.78296275	1.359659614	11.59839595	NA	57.86007288	0.950830496	211.8184251
Spot 83	48.3000459	61084.66925	1.262076302	9.588805366	0.735317087	4.136250162	1.47127342	0.286523515	1.274328026	0.866139501	1624.132994	18.29545217	1661.494921	12.03106997	1709.027699	13.5303977	1709.027699	13.5303977	320.4878403
Spot 84	109.749686	37730.84321	2.141522324	12.38792978	0.910844282	2.145066828	1.27264524	0.192324891	0.887993905	0.69775447	1133.957073	9.233564163	1163.461582	8.813717461	1218.833785	17.93237059	1218.833785	17.93237059	167.8905212
Spot 85	70.5950226	33210.08613	2.867385629	5.169823727	0.759272382	14.35227273	1.30700783	0.535419502	1.063403597	0.813616852	2764.245833	23.9048187	2773.278696	12.40731237	2779.848181	12.45282144	2779.848181	12.45282144	29.96999852
xx	299.691179	119909.6188	4.94127146	16.85666766	0.988430637	0.705575641	1.348778892	0.085841496	0.917683061	0.680380651	530.8961084	4.676725081	542.1157266	5.665624311	589.5598997	21.41858668	530.8961084	4.676725081	541.7333367
Spot 86	49.3601735	18704.17554	1.377428418	9.783603388	0.669728154	4.114769387	1.114378403	0.292055557	0.88729017	0.796219819	1651.793105	12.92911339	1657.239491	9.10319144	1664.130957	12.47613304	1664.130957	12.47613304	59.70155328
Spot 87	179.965179	4143.655588	2.561602902	18.85173773	1.053154204	0.369283422	1.473995563	0.053707277	1.023979363	0.694696367	337.2421337	3.364516059	319.1222555	4.036405934	188.8409441	24.69487496	337.2421337	3.364516059	42.33854955
Spot 88	502.332759	5540.057116	2.095913388	20.35045233	1.611917311	0.073882282	2.025893682	0.011453084	1.218452145	0.601439333	73.41172508	0.889412819	72.37689279	1.415241207	38.29764498	38.71050885	73.41172508	0.889412819	298.8725914
Spot 89	481.49402	161262.9967	1.481908485	9.902042689	0.730094933	4.04824086	1.273847379	0.288999055	1.043853125	0.819449129	1636.525324	15.08697664	1643.945614	10.37262535	1653.430436	13.52920402	1653.430436	13.52920402	588.5873873
Spot 90	75.4684421	14477.53001	2.370777752	11.46924483	0.626535841	2.831585482	1.157820691	0.236597818	0.971833804	0.839364688	1368.985745	11.98651592	1363.942409	8.688263305	1356.030666	12.13532449	1356.030666	12.13532449	35.41893083
Spot 91	194.892013	15798.26142	3.015912003	13.60538802	0.690126438	1.577097144	1.315158872	0.156507639	1.069578409	0.813269356	937.3396143	9.330784723	961.2262044	8.172316222	1016.260494	15.50343445	1016.260494	15.50343445	44.58951586
Spot 92	371.868009	3347.268513	1.99341353	18.9253816	1.607388373	0.072601959	2.149514686	0.0107948	1.188972721	0.553135426	69.21483923	0.818543368	71.16559246	1.477339757	137.2427209	42.06865024	69.21483923	0.818543368	219.2237907
Spot 93	1046.56572	30009.48287	2.613913133	20.64698892	0.977150641	0.08640878	1.461201199	0.012979501	1.083694789	0.741646523	83.13288896	0.89512264	84.15246963	1.180061751	113.1721243	23.11585074	83.13288896	0.89512264	1116.637478
Spot 94	111.039445	7172.098764	4.515730122	17.98677572	1.2124985	0.413063027	1.619180021	0.055494951	1.024345913	0.632632506	348.1695689	3.471859931	351.0785479	4.805992409	370.3418667	28.24429178	348.1695689	3.471859931	40.0161746
Spot 95	174.117154	71899.54788	0.878339678	11.17276757	0.600386021	2.961412178	1.140917951	0.238600232	0.969902716	0.850107333	1379.415937	12.04443942	1397.776892	8.660514259	1425.881315	11.4740215	1425.881315	11.4740215	594.7259395
Spot 96	1090.047	105319.7406	10.44506554	8.949429722	0.791842516	4.841189576	1.308798041	0.312050884	1.042051323	0.796189549	1750.791125	15.97654779	1792.084552	11.01464158	1840.477292	14.33563767	1840.477292	14.33563767	59.09430532
Spot 97	147.192477	19579.55808	1.218573193	10.96954522	0.602676261	3.111352901	1.00164079	0.247245941	0.770843921	0.769581201	1424.257038	9.850585986	1435.499972	7.696880567	1452.18346	12.17125416	1452.18346	12.17125416	72.37129031
Spot 98	220.026415	40549.53351	4.066530271	8.824114228	0.655844474	5.130342098	1.085647021	0.326351924	0.864562133	0.796356566	1820.67532	13.71331575	1841.143885	9.225546893	1864.341286	11.85248771	1864.341286	11.85248771	54.1448559
Spot 99	83.3698694	4510.772825	0.986808516	16.33600623	1.214328283	0.728842737	1.696753712	0.090328346	1.169670328	0.689357754	557.4787139	6.246670066	555.8737338	7.263308104	549.3103394	26.86235413	557.4787139	6.246670066	54.59698708
Spot 100	321.389853	53428.03359	2.148824259	9.914837302	0.777804348	3.967638841	1.383753947	0.283311358	1.143874109	0.826645598	1608.017638	16.27905936	1627.602828	11.22247343	1652.996126	14.43002272	1652.996126	14.43002272	152.2365243
Spot 102	206.236622	18527.9093	3.324671442	18.17798359	1.112910005	0.449154703	1.450122828	0.059526366	0.921170477	0.635236174	372.7444534	3.336229005	376.6872346	4.563718256	400.9811732	25.09042202	372.7444534	3.336229005	137.2575915
Spot 103	279.508064	152310.4335	4.459673879	9.147270888	0.637037733	4.840868154	1.034931681	0.318471956	0.815622809	0.788093382	1782.262414	12.70013765	1792.028677	8.709597694	1803.399938	11.58655553	1803.399938	11.58655553	189.223976
Spot 104	512.771338	55595.5971	17.98111981	10.19814379	0.735521557	3.617412879	1.345746874	0.265779517	1.12614816	0.836820194	1519.343443	15.24326469	1553.368092	10.7055443	1599.937686	13.74880497	1599.937686	13.74880497	21.10675854
Spot 105	3745.00325	15474.93286	0.690141649	21.1315114	0.783875126	0.048480949	1.193389825	0.007515771	0.890581949	0.746262395	48.26860995	0.42826617	48.07067196	0.560302877	38.18671386	18.98704023	48.26860995	0.42826617	4655.65699
Spot 106	180.169852	23681.35781	1.645143925	11.07598349	0.665643681	3.034027205	1.149831133	0.243324585	0.930940464	0.809632334	1403.957508	11.74470366	1416.22093	8.781231952	1434.694735	12.8730405	1434.694735	12.8730405	82.55744315
Spot 107	57.6403122	18923.9599	1.243231786	9.576589674	0.832367347	3.843612488	1.184946819	0.266499739	0.825175793	0.696382133	1523.010372	11.19326547	1601.930065	9.547986052	1707.316847	15.65114853	1707.316847	15.65114853	80.70611229
Spot 108	52.444007	40173.8604	1.157000361	10.95805478	0.743050765	3.125741612	1.279779462	0.247208964	1.040300542	0.812874853	1424.06592	13.29237658	1439.047356	9.845317037	1461.242557	14.16726378	1461.242557	14.16726378	236.2436181
Spot 109	463.151988	241647.9125	32.97266119	11.11365664	0.680665219	2.852418537	1.010961846	0.228073834	0.74748683	0.739381839	1324.396153	8.948969219	1369.448284	7.6006822	1440.421086	12.97339703	1440.421086	12.97339703	55.06134489
Spot 110	89.9282991	52687.48986	4.37919475	9.147969134	0.808952902	4.923690857	1.256439732	0.324340044	0.961295691	0.765094947	1810.889637	15.17668999	1806.325542	10.60439151	1801.046668	14.71891982	1801.046668	14.71891982	61.91681886
Spot 111	272.184227	2607131.795	4.364949423	9.681258952	0.493863062	4.370341224	0.971176662	0.30418659	0.836231658	0.861049993	1712.035737	12.57319627	1706.748692	8.025103771	1700.249925	9.096512192	1700.249925	9.096512192	3217.135897
Spot 112	59.5565195	16547.42854	0.61061331	10.66977579	0.89884471	3.37887896	1.296165985	0.261535629	0.930395959	0.717806184	1497.69368	12.43420148	1499.510328	10.15581326	1502.062087	17.05888929	1502.062087	17.05888929	114.7487905
Spot 113	270.343371	71780.49757	7.645143902	9.644355733	0.471236262	4.348119169	0.960574505	0.302047075	0.836963694	0.871315749	1701.451725	12.51622376	1702.538399	7.929944692	1703.857708	8.678290672	1703.857708	8.678290672	52.18562251
Spot 114	138.273552	15904.31302	6.182554536	8.983427832	0.557648167	4.828127551	1.070168082	0.314237391	0.90556566	0.846190123	1761.525008	13.95798963	1789.811417	9.002082111	1822.924947	10.34530521	1822.924947	10.34530521	10.83026035
Spot 115	87.959796	7020.276169	2.496906445	11.00942025	0.694498145	3.063244233	1.073661095	0.247884297	0.816335848	0.760329169	1427.555553	10.45351028	1423.548486	8.218930512	1417.542046	13.33327655	1417.542046	13.33327655	15.25301795
Spot 116	187.129477	30555.85712	1.430361799	10.96324412	0.641212731	3.168458141	1.004555739	0.251119499	0.765224265	0.761753913	1444.246572	9.901224845	1449.506237	7.753270208	1457.209448	12.37641192	1457.209448	12.37641192	108.7467584
Spot 117	93.6184281	8981.527398	1.277153986	16.41272004	1.05069183	0.749028275	1.427919987	0.090848727	0.827658913	0.579625553	560.5546612	4.44348775	567.6604178	6.209270486	596.2501693	25.19092453	560.5546612	4.44348775	100.8603052
Spot 118	204.188468	635804.4008	1.861682823	9.474211109	0.66941168	4.381266033	1.069369809	0.298685933	0.833930283	0.779833389	1684.789251	12.3640034	1708.812173	8.840645282	1738.372939	12.27167967	1738.372939	12.27167967	1800.827067
Spot 119	201.28508	34221.00177	1.983217813	11.03890456	0.667526259	3.109018743	1.286255287	0.248020596	1.097466626	0.853226134	1428.259618	14.05970508	1434.92334	9.882254039	1444.798801	12.77844348	1444.798801	12.77844348	94.82655269
Spot 120	100.704158	8365.833693	1.443369846	15.14031051	0.862502929	1.071782017	1.423226098	0.11986417	1.106185548	0.7772381	729.781794	7.632563396	739.6142709	7.476082136	769.4817497	18.8560176	729.781794	7.632563396	64.66272373
Spot 121	211.036106	57550.78338	1.631730112	9.276344259	0.705729027	4.529393159	1.123432831	0.303151554	0.874064319	0.778029887	1706.917668	13.10771737	1736.384295	9.344408837	1772.052475	12.88418794	1772.052475	12.88418794	210.1792118
Spot 122	145.853769	15432.91305	3.562467275	13.61332466	0.778276576	1.60881543	1.432505832	0.159608177	1.119716906	0.781649108	954.5989966	9.935063614	973.6470124	8.970165912	1016.857892	18.09805085	1016.857892	18.09805085	36.40522956
Spot 123	112.252121	113559.2197	2.81802772	9.198324887	0.60256534	4.811126961	1.239493796	0.318805722	1.083159079	0.873872126	1783.894093	16.87938921	1786.845226	10.4201979	1790.275838	10.97554273	1790.275838	10.97554273	207.3165781
Spot 124	481.291078	67168.24486	3.811923546	9.688417688	0.764250745	4.215834676	1.140237847	0.294501334	0.846034167	0.741980429	1663.984209	12.40770353	1677.107304	9.358309714	1693.549192	14.09330403	1693.549192	14.09330403	103.0511887
Spot 125	60.7814048	3521.648854	0.944869639	13.02082873	1.09051488	1.738644237	2.308341596	0.171960889	1.290680845	0.559137715	1022.906166	12.20827073	1022.960851	14.88113947	1023.058692	38.73314468	1023.058692	38.73314468	28.47091867
Spot 126	228.200629	55501.80937	0.703830271	11.05076109	0.652235251	3.003527137	1.123092435	0.239427001	0.9136287	0.813493771	1383.717498	11.37733544	1408.514755	8.555481841	1446.214663	12.43939229	1446.214663	12.43939229	543.5007807
Spot 127	122.372253	21281.45274	0.825514641	11.11045079	0.507109181	3.039995235	0.943828981	0.244801796	0.793433339	0.840653715	1411.612039	10.05873571	1417.722001	7.211449582	1426.89397	9.760279821	1426.89397	9.760279821	123.4728502
Spot 128	525.595696	20577.40104	12.23442359	17.36161696	0.755956352	0.61451964	1.296940544	0.077718713	1.028985639	0.793394612	482.4915688	4.783522015	486.4065349	5.012402531	504.8948083	17.34956185	482.4915688	4.783522015	25.26369279
Spot 129	137.390257	13948.2261	0.576386374	10.89862449	0.857715088	3.055656529	1.150977922	0.242249296	0.739522899	0.642517015	1398.379919	9.296594697	1421.650587	8.805441956	1456.659783	16.77338563	1456.659783	16.77338563	113.9185571
Spot 130	731.88658	179887.1112	3.099033652	10.98418966	0.548115886	3.36874147	1.284373158	0.266466776	1.161532658	0.904357625	1522.842595	15.75432361	1497.156902	10.05649563	1460.961392	10.41850067	1460.961392	10.41850067	306.7750146
Spot 131	82.8498242	292613.7723	1.604063156	9.528185049	0.763424267	4.334756652	1.580386132	0.296990316	1.383763885	0.875585945	1676.36705	20.42618237	1699.998244	13.03968507	1729.238729	14.01142111	1729.238729	14.01142111	1136.617958
Spot 132	69.5340511	10460.12568	1.572254626	9.664382563	0.697791496	4.299686878	1.159904145	0.302690075	0.924975924	0.797458935	1704.634424	13.8549952	1693.301253	9.555456724	1679.281249	12.927578	1679.281249	12.927578	27.6377377
Spot 133	207.908471	245430.4055	1.505965085	11.07759413	0.728790676	2.994684196	1.380113458	0.238915302	1.171993897	0.849201122	1381.055536	14.56956697	1406.269509	10.50579151	1444.673676	13.88277621	1444.673676	13.88277621	1308.199121
Spot 134	252.341598	114325.2839	1.496017663	9.962285765	0.645592318	3.965845791	1.072542726	0.284701199	0.856439979	0.798513624	1614.9954	12.23496766	1627.236263	8.697565903	1643.08232	11.98144555	1643.08232	11.98144555	448.6434496
Spot 135	40.9438212	8977.426771	1.14316546	9.65621417	0.861063456	4.24540119	1.388902024	0.299463077	1.077217276	0.775589104	1688.64568	16.00301254	1682.846859	11.41457753	1675.609027	16.20070451	1675.609027	16.20070451	35.1296195
Spot 136	122.64753	26022.35914	1.638028451	9.878890115	0.468936971	4.148597389	0.895793457	0.296742851	0.75707201	0.845141259	1675.136964	11.16817558	1663.93291	7.32921897	1649.807132	8.878263158	1649.807132	8.878263158	64.54162434
Spot 138	511.293485	26719.42374	9.308426034	9.691042809	0.591989476	3.535336637	1.722850119	0.248413423	1.617860598	0.93906056	1430.28837	20.75283501	1535.156939	13.63718604	1682.755657	10.93472141	1682.755657	10.93472141	12.58568761
Spot 139	237.774392	50216.55588	2.985831899	5.463561747	0.546812899	12.76334861	1.097597647	0.503755717	0.951479584	0.866874657	2629.916454	20.5476352	2662.343668	10.33543114	2687.062079	9.043498401	2687.062079	9.043498401	51.18756951
Spot 140	73.4790735	43344.98227	4.070744142	8.000249066	0.78588827	6.012424422	1.187805901	0.347877947	0.88999743	0.749278505	1924.457466	14.8075788	1977.644812	10.34122152	2033.72038	13.91905873	2033.72038	13.91905873	58.43780208
Spot 141	166.653979	41149.23887	3.605806071	9.226597385	0.747899646	4.695761472	1.278173905	0.313544535	1.035666174	0.810270159	1758.125608	15.93651351	1766.484537	10.70015745	1776.367033	13.66770452	1776.367033	13.66770452	64.88169946
Spot 142	491.945039	30829.91084	2.476712161	11.14857667	0.663368433	3.116771004	1.226249745	0.251976854	1.031295994	0.841016276	1448.662599	13.3803203	1436.837203	9.426913094	1419.353954	12.68066207	1419.353954	12.68066207	82.58786924
Spot 143	125.726297	82276.14271	4.540781153	9.216572402	0.657322252	4.799644419	1.187885617	0.319763247	0.989322404	0.832843154	1788.572842	15.45216713	1784.836887	9.982198968	1780.453714	11.99048736	1780.453714	11.99048736	93.16257781
Spot 144	313.170479	319261.5111	1.957416327	16.27804595	1.309588887	0.562522145	1.600076707	0.066138083	0.919359244	0.574571981	412.8467443	3.6765599	453.1667514	5.84909884	663.2607246	28.04279048	412.8467443	3.6765599	4522.676828
Spot 145	161.100692	32477.19373	0.903455508	9.598729386	0.617318809	4.27766542	1.26489189	0.297555221	1.102671913	0.871751904	1679.17418	16.30073432	1689.073305	10.41030596	1701.369523	11.41376138	1701.369523	11.41376138	152.7782519
Spot 146	272.513609	160101.9799	1.123167731	6.983343663	0.569190925	8.360885535	1.138621353	0.421973083	0.986136868	0.866079724	2269.430473	18.86470482	2270.944707	10.32665222	2272.292566	9.808188917	2272.292566	9.808188917	537.8555
Spot 147	132.995356	30557.31506	1.057721345	15.70201124	0.858441075	0.868311254	1.30435744	0.099132234	0.981340225	0.752355294	609.3214512	5.705620318	634.6498962	6.155425092	725.9042353	18.21582085	609.3214512	5.705620318	384.2175256
Spot 148	151.09456	19521.90078	4.306523539	12.7703753	0.660216056	2.114238871	1.247325158	0.196660553	1.024688389	0.821508635	1157.35571	10.85567196	1153.459694	8.598488326	1146.12617	14.13087942	1146.12617	14.13087942	28.88740813
Spot 149	269.796379	368244.7987	1.075031421	16.09809581	0.872555217	0.844088586	1.350735261	0.098119979	1.031083008	0.763349442	603.3818371	5.93908596	621.3993644	6.277864382	687.5907669	18.630476	603.3818371	5.93908596	6104.266099
Spot 150	378.95418	14032.55438	6.813958491	11.81434005	0.928610383	2.326099525	1.48264101	0.200689926	1.143405066	0.771194819	1179.025496	12.3200807	1220.287662	10.52869479	1293.978287	18.35823614	1293.978287	18.35823614	13.20994657
Spot 151	286.326092	52814.16636	5.907051075	9.44232332	0.812304208	4.263833967	1.785845962	0.291478158	1.590088284	0.890383783	1648.911659	23.13450748	1686.408745	14.68934076	1733.345121	14.91260622	1733.345121	14.91260622	54.56356525
Spot 152	324.407948	32318.06118	6.38619894	9.516667983	0.784382021	4.590103146	1.183469732	0.316854116	0.886076609	0.748710833	1774.34744	13.74395812	1747.471939	9.867414234	1715.451192	14.42365566	1715.451192	14.42365566	28.92626586
Spot 153	111.390602	22101.2617	1.99088673	16.48301763	1.107574247	0.79838204	1.385013006	0.096037698	0.831239483	0.600167276	591.1463938	4.695271362	595.9155138	6.243355111	614.0887798	23.92937817	591.1463938	4.695271362	141.2687686
Spot 154	262.912083	63400.21235	2.247343737	9.21831124	0.752871388	4.704292277	1.334245897	0.313677552	1.101222267	0.825351811	1758.778375	16.95074739	1768.004186	11.17315547	1778.90476	13.74110704	1778.90476	13.74110704	168.5000296

Spot 155	216.063129	52634.42944	2.652383902	11.03610759	0.784848416	3.125681138	1.275850595	0.249752132	1.005471268	0.788079162	1437.197341	12.95310164	1439.032472	9.815044432	1441.72738	14.96663394	1441.72738	14.96663394	145.6803726
Spot 156	33.1939358	88948.54921	0.973719016	10.91321661	1.024572391	3.143296604	1.490447548	0.248036934	1.082443473	0.726253986	1428.344004	13.86797395	1443.358635	11.48165403	1465.530783	19.46249959	1465.530783	19.46249959	632.6742948
Spot 157	444.359905	70192.52114	2.164225769	9.426629893	0.595975174	4.559867361	0.981505239	0.310618144	0.779677881	0.794369556	1743.747892	11.91199653	1741.965022	8.173718801	1739.810424	10.92738547	1739.810424	10.92738547	170.8455072
Spot 158	84.655445	124342.6031	4.463421372	9.900736796	0.66768104	4.252535653	1.172973508	0.304119851	0.964399877	0.822183852	1711.705847	14.4978415	1684.22698	9.642954661	1650.15793	12.3791312	1650.15793	12.3791312	162.7100095
Spot 159	301.656322	47227.96108	1.141680694	10.9088656	0.526317209	2.963812596	1.169240235	0.234036119	1.043751804	0.892675237	1355.617695	12.76059803	1398.391977	8.877329779	1464.213459	10.01189158	1464.213459	10.01189158	281.1894991
Spot 160	216.409352	110531.4363	4.927958738	9.472848288	0.630401636	4.490477539	1.182838641	0.307281089	1.000805756	0.846105057	1727.313299	15.16476397	1729.212809	9.823163494	1731.496461	11.56763805	1731.496461	11.56763805	131.9083609
Spot 161	277.726883	53747.29676	2.20424478	16.87348139	0.909670033	0.781499742	1.276340663	0.09561309	0.894330754	0.7006991	588.6485495	5.031258146	586.3385909	5.685178825	577.4166854	19.79998837	588.6485495	5.031258146	466.9584906
Spot 162	1006.63708	3846.514451	1.549262245	20.37489901	1.023834435	0.05458313	3.720270784	0.008710047	0.883506477	0.237484454	55.90545428	0.491792733	53.9630927	1.95516142	NA	NA	55.90545428	0.491792733	347.3917235
Spot 163	135.506506	36042.99176	1.4557019	10.92992765	0.845007633	3.138700523	1.466270508	0.248631705	1.196538057	0.816041822	1431.415413	15.3591681	1442.231665	11.29139992	1458.198239	16.11450942	1458.198239	16.11450942	176.0130894
Spot 164	445.299739	30877.71071	2.204668462	13.63226259	0.658484487	1.688343266	1.33173517	0.167155747	1.153625633	0.866257541	996.4209731	10.65064716	1004.137805	8.492468307	1021.001798	13.46858098	1021.001798	13.46858098	150.3086812
Spot 165	291.883321	129119.8998	2.52509108	7.450746287	0.783592414	6.61035506	1.341548632	0.355719649	1.088898436	0.811672726	1961.852826	18.41809573	2060.729886	11.83248214	2161.113708	13.66809158	2161.113708	13.66809158	241.4948676
Spot 166	187.422348	15699.75615	1.716896961	10.74175752	0.645265011	2.836968216	1.342474605	0.22198776	1.149826641	0.85649787	1292.369663	13.46521761	1365.367851	10.07897857	1481.506189	13.1341253	1481.506189	13.1341253	54.14315978
Spot 167	95.5384373	14157.805	2.47922378	9.621524379	0.761489974	4.459667602	1.246594243	0.312497829	0.986761417	0.791565838	1752.986696	15.14535911	1723.498918	10.33966162	1687.854651	14.05601021	1687.854651	14.05601021	25.07702822
Spot 168	106.467419	25121.71537	2.040668548	13.5829389	0.839046802	1.726680261	1.255212081	0.170533687	0.926695225	0.738277809	1015.05101	8.703254044	1018.515355	8.071121373	1025.951145	17.14473499	1025.951145	17.14473499	97.97183396
Spot 169	274.604674	39155.18663	2.969607833	9.396938295	0.812513129	4.427997798	1.33037929	0.301207341	1.051717207	0.790539371	1697.292877	15.69412439	1717.591853	11.02021764	1742.408424	14.92877875	1742.408424	14.92877875	58.5593708
Spot 170	80.090637	17926.00634	2.334714021	13.16779156	0.797310447	1.825712873	1.322773225	0.175286141	1.043914849	0.789186559	1041.170943	10.03662268	1054.739988	8.67821346	1082.918524	16.29314789	1082.918524	16.29314789	58.24297954
Spot 171	177.601761	40013.68721	3.334813293	9.627213551	0.545385706	4.387967041	1.277112134	0.30597235	1.154007906	0.903607346	1720.856466	17.42915161	1710.07579	10.56119422	1696.880666	10.08094397	1696.880666	10.08094397	69.17172145
Spot 172	155.502216	3995.619393	1.92974984	20.69205767	2.84227984	0.088224303	3.221163983	0.014283383	1.192403477	0.370177825	91.42521788	1.082463413	85.84788384	2.65163382	NA	NA	91.42521788	1.082463413	188.823048
Spot 173	409.484284	15150.93981	1.036007269	18.26480281	0.956517044	0.393301172	1.359960377	0.052823872	0.94962149	0.698271439	331.8353349	3.071448816	336.7780628	3.897970404	371.0279613	21.91398369	331.8353349	3.071448816	355.2916906
Spot 174	290.393768	681721.8867	6.100378861	10.33964572	0.828383007	3.004156524	1.366589758	0.22443302	1.086898871	0.795336614	1305.25638	12.84279759	1408.674369	10.41105647	1568.765565	15.51986213	1568.765565	15.51986213	559.5929929
Spot 175	303.705226	64491.4616	3.862177239	18.31765837	0.866986759	0.410757119	1.194774406	0.054579186	0.821288833	0.687400759	342.5741264	2.740072204	349.420241	3.532241773	395.157523	19.45913044	342.5741264	2.740072204	549.3986621
Spot 176	78.3546738	12089.23825	3.761313601	9.254570541	0.640160078	4.649360023	0.92121381	0.314382904	0.594501836	0.645346205	1762.238717	9.166609241	1758.178675	7.698260381	1753.339844	12.87645518	1753.339844	12.87645518	12.54362985
Spot 177	230.143487	70888.77097	0.963797313	9.786924519	0.589517347	4.187575639	1.079850995	0.296889907	0.904533822	0.837646884	1675.867968	13.34860738	1671.591071	8.851216554	1666.206896	10.91157502	1666.206896	10.91157502	335.1407616
Spot 178	41.995052	29032.29348	179.8205074	12.78149302	1.132269678	2.049512252	1.519038775	0.190594586	1.01240983	0.666480571	1124.595225	10.4477217	1132.133483	10.36654401	1146.63626	22.51842097	1146.63626	22.51842097	8.892088259
Spot 179	110.527331	21097.65697	0.721017476	10.78181632	0.722270696	3.110512022	1.219212062	0.244220771	0.981061131	0.804668164	1408.602401	12.41366334	1435.292278	9.368227866	1475.0608	13.73279024	1475.0608	13.73279024	160.738943
Spot 180	242.260449	113369.3659	5.643087742	10.05230868	0.609086236	3.90574355	1.111675993	0.284226056	0.929931155	0.836512762	1612.610769	13.26758956	1614.871982	8.987074898	1617.805633	11.33917725	1617.805633	11.33917725	115.5593525
Spot 181	140.48977	8265.032522	1.444866891	17.59838069	1.007862664	0.49553234	1.485856614	0.065079356	1.018405615	0.685399658	406.4419606	4.01144024	408.6736292	4.999038895	421.2793048	24.15322348	406.4419606	4.01144024	111.9210328
Spot 182	174.497821	39117.323	1.012270945	11.10907906	0.554305025	2.973373935	1.358916986	0.239801625	1.239743512	0.912302609	1385.665672	15.45791102	1400.838292	10.32589966	1423.987654	10.63036311	1423.987654	10.63036311	207.9675432
Spot 183	121.281348	25216.4771	0.854991578	9.519389156	0.421285461	4.27496415	0.823122378	0.295793646	0.700360381	0.850858147	1670.41651	10.30607123	1688.553468	6.773509219	1711.13381	7.954501203	1711.13381	7.954501203	114.1279718
Spot 185	1834.12585	848466.6344	1.785675595	13.61231574	0.738095215	1.776729475	1.341906488	0.174926272	1.120682117	0.835141738	1039.196767	10.75586831	1036.984096	8.718676697	1032.303163	14.93625041	1032.303163	14.93625041	4321.064344
Spot 186	120.545279	21894.81905	1.457200649	10.7523028	0.702252032	3.263268714	1.056948973	0.255131475	0.769434664	0.727977115	1464.885272	10.08242793	1472.342153	8.214923769	1483.091868	13.7325968	1483.091868	13.7325968	61.36133101
Spot 187	170.801332	18104.84196	1.596326472	13.54696822	0.664575205	1.759802447	1.334799287	0.174018437	1.109388384	0.831127492	1034.213867	10.60040745	1030.775346	8.642557673	1023.466674	15.02022468	1023.466674	15.02022468	85.08072623
Spot 188	174.481876	36092.49578	1.978571051	10.9678197	0.455389433	3.14163589	0.919255239	0.249893432	0.79358559	0.863291887	1437.926145	10.22808195	1442.951568	7.080387027	1450.346892	8.830968053	1450.346892	8.830968053	113.7730785
Spot 189	1012.16405	95697.26073	5.238812477	9.194608422	0.500144369	4.992260423	1.0669379	0.331921507	0.942416458	0.883290826	1847.688263	15.13974736	1818.011582	9.02582782	1784.154145	9.117328189	1784.154145	9.117328189	95.90774522
Spot 190	243.839948	12668.22551	1.399893128	8.618971491	0.519421037	4.931152773	0.952992178	0.309773202	0.798685677	0.83808209	1739.590612	12.17705765	1807.603788	8.045215509	1886.942525	9.35845971	1886.942525	9.35845971	35.74325937
Spot 191	338.347496	90058.8424	4.543951236	11.03276832	0.669610999	3.119239157	1.084176335	0.248562606	0.852620115	0.786421994	1431.058657	10.94207447	1437.445779	8.33626014	1446.891913	12.7529222	1446.891913	12.7529222	144.3595937
Spot 192	322.858741	30722.06562	2.051133005	9.719707224	0.506156416	4.311362603	0.86347539	0.303468248	0.699424795	0.810011267	1708.484095	10.49717445	1695.53578	7.116977388	1679.547686	9.352899006	1679.547686	9.352899006	57.06570781
Spot 193	130.100596	13684.06067	1.782874561	11.02711828	0.684327308	3.11675105	1.035577301	0.25062683	0.776594898	0.749914948	1441.707589	10.0325864	1436.832281	7.961022324	1429.60293	13.07644308	1429.60293	13.07644308	36.18552069
Spot 194	76.8841778	16533.85133	1.834883103	4.768605363	0.492860381	16.63810113	0.987432999	0.57398164	0.855153252	0.866036736	2924.148174	20.10304772	2914.211707	9.458059448	2907.34361	8.001065906	2907.34361	8.001065906	20.65128555
Spot 195	453.415026	26999.75276	7.525419932	12.60958793	0.530281848	1.992736567	0.992407372	0.182384828	0.83874802	0.845165044	1079.989939	8.340264326	1113.05093	6.709769699	1178.226435	10.50988699	1178.226435	10.50988699	30.18513293
Spot 197	962.334965	15427.61453	3.564605727	19.02320687	1.125435382	0.063683384	1.561696916	0.008889582	0.981519678	0.628495625	57.05271674	0.557512925	62.68749094	0.949381029	283.5377935	27.7973895	57.05271674	0.557512925	623.07508
Spot 198	572.716431	4393933.958	147.8969664	10.0388069	0.759100529	3.9180386	1.255853287	0.283397922	1.000466823	0.796643074	1608.452453	14.2415393	1617.413609	10.15921347	1629.078077	14.11066834	1629.078077	14.11066834	193.1225135
Spot 199	125.968098	73284.76074	0.85027524	10.97418501	0.877838923	3.226879408	1.291166444	0.255677441	0.946783436	0.733277604	1467.68877	12.42749834	1463.63811	10.00896304	1457.747077	16.69373396	1457.747077	16.69373396	606.9650143
Spot 200	153.06786	13052.33306	2.464708715	9.120719704	0.652152028	4.697487367	1.085497523	0.311649606	0.866365622	0.798127682	1748.819253	13.2699345	1766.792166	9.087670942	1788.08734	11.91534227	1788.08734	11.91534227	22.39724833

1. Analyses with >10% uncertainty (1-sigma) in 206Pb/238U age are not included.
2. Analyses with >10% uncertainty (1-sigma) in 206Pb/207Pb age are not included, unless 206Pb/238U age is <400 Ma.
3. Best age is determined from 206Pb/238U age for analyses with 206Pb/238U age <900 Ma and from 206Pb/207Pb age for analyses with 206Pb/238Uage >900 Ma.
4. Concordance is based on 206Pb/238U age / 206Pb/207Pb age. Value is not reported for 206Pb/238U ages <400 Ma because of large uncertainty in 206Pb/207Pb age.
5. Analyses with 206Pb/238U age >400 Ma and with >20% discordance (<80% concordance) are not included.
6. Analyses with 206Pb/238U age >400 Ma and with >5% reverse discordance (<105% concordance) are not included.
7. All uncertainties are reported at the 2-sigma level, and include only measurement errors.
8. Systematic errors are as follows (at 2-sigma level): [sample 1: xxx% (206Pb/238U) & xxx% (206Pb/207Pb)]
9. Analyses conducted by LA-ICPMS, as described by Gehrels et al. (2008) and Gehrels and Pecha (2014).
10. U concentration and U/Th are calibrated relative to FC-1 zircon standard and are accurate to ~20%.
11. Common Pb correction is from measured 204Pb with common Pb composition interpreted from Stacey and Kramers (1975).
12. Common Pb composition assigned uncertainties of 1.5 for 206Pb/204Pb, 0.3 for 207Pb/204Pb, and 2.0 for 208Pb/204Pb.
13. U/Pb and 206Pb/207Pb fractionation is calibrated relative to fragments of large Sri Lanka zircons and individual crystals of FC-1, and R33.
14. U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U/235U = 137.82.
15. Weighted mean and concordia plots determined with Isoplot (Ludwig, 2008).

Aliquot Name	5-SC_18
Stratigraphic Formation Name	
Stratigraphic Age	
Rock Type	
Mineral	Zircon
Method	U-Pb
Latitude	
Longitude	
Internal Uncertainty Level	one sigma
External Uncertainty 206/238 (% two sigma)	0.85570655
External Uncertainty 206/207 (% two sigma)	0.66882227
Analysis Purpose	
Laboratory Name	Arizona LaserChron Center
Analyst Name	
Aliquot Reference	
Aliquot Instrumental Method	LA-ICPMS
Aliquot Instrumental Reference	Gehrels, G.E., Valencia, V., Ruiz, J., 2008, Enhanced precision, accuracy, efficiency, and spatial resolution of U-Pb ages by laser ablation-multicollector-inductively coupled plasma-mass spectrometry: Geochemistry, Geophysics, Geosystems, v. 9, Q03017, doi:10.1029/2007GC001805. Gehrels, G. and Pecha, M., 2014, Detrital zircon U-Pb geochronology and Hf isotope geochemistry of Paleozoic and Triassic passive margin strata of western North America: Geosphere, v. 10 (1), p. 49-65.

				Isotope ratios							Apparent ages (Ma)									
Analysis	U (ppm)	206Pb 204Pb	U/Th	206Pb* 207Pb*	± (%)	207Pb* 235U*	± (%)	206Pb* 238U	± (%)	error corr.	206Pb* 238U*	± (Ma)	207Pb* 235U	± (Ma)	206Pb* 207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)
-2016-5-S AND L Spot 182	2051	27583	3.2	21.2677	0.9	0.0557	1.7	0.0086	1.5	0.84	55.1	0.8	55.0	0.9	49.2	22.4	55.1	0.8	NA
-2016-5-S AND L Spot 39	1291	20059	3.3	21.1304	1.4	0.0576	1.9	0.0088	1.2	0.67	56.6	0.7	56.8	1.0	64.6	32.9	56.6	0.7	NA
-2016-5-S AND L Spot 103	1082	27579	2.9	20.9935	1.3	0.0580	2.0	0.0088	1.5	0.76	56.7	0.8	57.2	1.1	80.1	30.6	56.7	0.8	NA
-2016-5-S AND L Spot 276	1128	65179	3.9	21.0457	1.1	0.0583	1.7	0.0089	1.2	0.74	57.1	0.7	57.5	0.9	74.2	26.7	57.1	0.7	NA
-2016-5-S AND L Spot 134	1022	10278	3.9	21.2761	2.0	0.0588	2.2	0.0091	1.1	0.49	58.3	0.6	58.0	1.3	48.2	46.8	58.3	0.6	NA
-2016-5-S AND L Spot 15	1444	45893	2.1	20.5816	1.1	0.0613	1.6	0.0092	1.2	0.72	58.7	0.7	60.4	0.9	126.9	26.5	58.7	0.7	NA
-2016-5-S AND L Spot 215	564	582965	2.6	20.8710	1.5	0.0614	1.9	0.0093	1.1	0.59	59.7	0.7	60.5	1.1	94.0	36.6	59.7	0.7	NA
-2016-5-S AND L Spot 184	1012	62006	2.1	20.7286	1.3	0.0626	1.7	0.0094	1.1	0.65	60.5	0.7	61.7	1.0	110.2	31.3	60.5	0.7	NA
-2016-5-S AND L Spot 60	830	14509	6.3	21.2662	1.5	0.0618	2.0	0.0095	1.4	0.68	61.1	0.9	60.8	1.2	49.3	35.6	61.1	0.9	NA
-2016-5-S AND L Spot 120	137	2661	1.0	23.4400	2.9	0.0588	3.2	0.0100	1.5	0.46	64.1	1.0	58.0	1.8	NA	NA	64.1	1.0	NA
-2016-5-S AND L Spot 80	205	30503	2.1	21.9077	2.6	0.0633	2.9	0.0101	1.3	0.43	64.5	0.8	62.3	1.8	NA	NA	64.5	0.8	NA
-2016-5-S AND L Spot 130	135	6316	1.4	22.1985	3.5	0.0630	3.8	0.0101	1.5	0.39	65.1	0.9	62.0	2.3	NA	NA	65.1	0.9	NA
-2016-5-S AND L Spot 30	318	11856	5.4	21.4913	2.1	0.0652	2.5	0.0102	1.3	0.53	65.2	0.9	64.1	1.6	24.1	51.4	65.2	0.9	NA
-2016-5-S AND L Spot 115	83	1433	1.0	23.3237	4.3	0.0607	4.5	0.0103	1.5	0.34	65.9	1.0	59.9	2.6	NA	NA	65.9	1.0	NA
-2016-5-S AND L Spot 91	93	13405	1.5	20.9844	3.1	0.0677	3.4	0.0103	1.2	0.35	66.1	0.8	66.5	2.2	81.1	74.5	66.1	0.8	NA
-2016-5-S AND L Spot 104	93	1038	1.1	29.1041	3.4	0.0490	3.8	0.0103	1.8	0.46	66.4	1.2	48.6	1.8	NA	NA	66.4	1.2	NA
-2016-5-S AND L Spot 154	102	2411	1.0	22.9741	3.8	0.0622	4.1	0.0104	1.6	0.39	66.5	1.1	61.3	2.4	NA	NA	66.5	1.1	NA
-2016-5-S AND L Spot 171	219	6990	3.1	20.7530	2.8	0.0695	3.1	0.0105	1.3	0.43	67.1	0.9	68.2	2.0	107.4	65.4	67.1	0.9	NA
-2016-5-S AND L Spot 47	384	24702	2.5	21.0754	1.5	0.0695	2.0	0.0106	1.3	0.65	68.2	0.9	68.2	1.3	70.8	35.8	68.2	0.9	NA
-2016-5-S AND L Spot 125	259	42038	1.3	20.8006	1.7	0.0754	2.3	0.0114	1.5	0.65	72.9	1.1	73.8	1.6	102.0	41.1	72.9	1.1	NA
-2016-5-S AND L Spot 217	137	2456	1.6	23.3072	2.3	0.0677	2.8	0.0114	1.6	0.57	73.3	1.2	66.5	1.8	NA	NA	73.3	1.2	NA
-2016-5-S AND L Spot 48	108	2713	1.0	22.2547	4.8	0.0724	5.0	0.0117	1.5	0.31	75.0	1.1	71.0	3.4	NA	NA	75.0	1.1	NA
-2016-5-S AND L Spot 177	876	10856	4.7	21.3581	1.4	0.0758	1.9	0.0117	1.3	0.67	75.3	1.0	74.2	1.4	39.1	34.1	75.3	1.0	NA
-2016-5-S AND L Spot 145	178	5302	2.1	21.3459	2.2	0.0771	2.5	0.0119	1.2	0.48	76.5	0.9	75.4	1.8	40.4	51.8	76.5	0.9	NA
-2016-5-S AND L Spot 66	334	9486	1.1	20.6561	1.5	0.0811	2.1	0.0122	1.4	0.68	77.9	1.1	79.2	1.6	118.4	35.6	77.9	1.1	NA
-2016-5-S AND L Spot 219	382	8374	2.6	20.7609	1.4	0.0995	1.9	0.0150	1.3	0.67	95.9	1.2	96.3	1.8	106.4	34.0	95.9	1.2	NA
-2016-5-S AND L Spot 170	418	177202	1.7	20.5795	1.2	0.1032	1.7	0.0154	1.2	0.70	98.6	1.1	99.7	1.6	127.2	28.5	98.6	1.1	NA
-2016-5-S AND L Spot 218	1085	38390	2.5	20.7791	0.9	0.1044	1.6	0.0157	1.3	0.81	100.6	1.3	100.8	1.5	104.4	21.6	100.6	1.3	NA
-2016-5-S AND L Spot 228	364	42428	2.5	21.0052	1.6	0.1033	2.1	0.0157	1.3	0.62	100.7	1.3	99.8	2.0	78.7	38.1	100.7	1.3	NA
-2016-5-S AND L Spot 71	456	54261	1.4	20.1865	1.2	0.1591	1.9	0.0233	1.5	0.80	148.5	2.2	150.0	2.7	172.3	27.0	148.5	2.2	NA
-2016-5-S AND L Spot 83	51	1771	1.0	22.3307	5.0	0.1464	5.1	0.0237	1.2	0.23	151.1	1.8	138.7	6.6	NA	NA	151.1	1.8	NA
-2016-5-S AND L Spot 264	157	7446	0.8	20.6625	1.4	0.1583	1.9	0.0237	1.4	0.71	151.2	2.0	149.2	2.7	117.7	31.9	151.2	2.0	NA
-2016-5-S AND L Spot 7	935	28987	2.5	20.2384	1.0	0.1619	1.7	0.0238	1.3	0.80	151.5	2.0	152.4	2.4	166.3	23.4	151.5	2.0	NA
-2016-5-S AND L Spot 56	169	8432	0.8	20.1391	1.8	0.1720	2.3	0.0251	1.4	0.62	160.0	2.2	161.1	3.4	177.8	41.2	160.0	2.2	NA
-2016-5-S AND L Spot 239	82	2332	0.6	18.7528	5.3	0.1875	5.5	0.0255	1.6	0.28	162.4	2.5	174.5	8.9	341.7	120.2	162.4	2.5	NA
-2016-5-S AND L Spot 176	285	13571	1.9	20.2301	1.6	0.1741	1.9	0.0255	1.0	0.53	162.6	1.6	162.9	2.8	167.3	37.0	162.6	1.6	NA
-2016-5-S AND L Spot 257	45	3840	1.0	20.5843	2.7	0.1725	3.1	0.0258	1.6	0.50	164.0	2.5	161.6	4.7	126.6	64.0	164.0	2.5	NA
-2016-5-S AND L Spot 152	422	14728	1.0	20.0188	1.1	0.1792	1.6	0.0260	1.2	0.73	165.6	2.0	167.4	2.5	191.8	26.0	165.6	2.0	NA
-2016-5-S AND L Spot 232	124	6876	0.6	20.4656	2.2	0.1758	2.6	0.0261	1.3	0.50	166.1	2.1	164.4	3.9	140.2	52.8	166.1	2.1	NA
-2016-5-S AND L Spot 231	61	1772	0.6	22.9875	2.1	0.1589	2.4	0.0265	1.3	0.52	168.7	2.1	149.8	3.4	NA	NA	168.7	2.1	NA
-2016-5-S AND L Spot 133	762	20175	0.8	18.9583	2.4	0.1941	2.7	0.0267	1.4	0.49	169.9	2.3	180.1	4.5	316.9	54.3	169.9	2.3	NA
-2016-5-S AND L Spot 245	319	12356	1.6	20.2168	1.7	0.1845	2.1	0.0271	1.4	0.63	172.1	2.3	171.9	3.4	168.8	38.8	172.1	2.3	NA
-2016-5-S AND L Spot 50	103	12115	1.8	20.1223	1.6	0.1933	1.9	0.0282	1.1	0.56	179.5	1.9	179.5	3.2	179.8	37.1	179.5	1.9	NA
-2016-5-S AND L Spot 108	426	16044	1.6	19.8266	1.1	0.2811	1.8	0.0404	1.4	0.78	255.6	3.5	251.6	4.0	214.2	25.8	255.6	3.5	NA
-2016-5-S AND L Spot 40	670	47930	5.1	19.5300	0.8	0.3257	1.6	0.0461	1.4	0.87	290.8	4.0	286.2	4.0	249.0	18.2	290.8	4.0	NA
-2016-5-S AND L Spot 62	415	77664	10.0	18.7666	1.3	0.3837	2.1	0.0523	1.6	0.77	328.3	5.1	329.8	5.8	340.0	29.5	328.3	5.1	NA
-2016-5-S AND L Spot 73	152	50125	1.4	17.4556	2.3	0.4267	2.7	0.0540	1.4	0.53	339.3	4.8	360.8	8.3	501.7	51.1	339.3	4.8	NA
-2016-5-S AND L Spot 220	320	15058	2.2	16.9094	1.4	0.4561	1.9	0.0560	1.3	0.69	351.0	4.5	381.6	6.1	571.3	30.1	351.0	4.5	NA
-2016-5-S AND L Spot 41	255	19482	0.7	18.7822	0.9	0.4377	1.5	0.0597	1.3	0.83	373.5	4.6	368.7	4.8	338.1	19.7	373.5	4.6	NA
-2016-5-S AND L Spot 97	266	42529	2.3	18.3933	1.2	0.4540	1.5	0.0606	0.9	0.59	379.2	3.3	380.1	4.8	385.3	27.5	379.2	3.3	NA
-2016-5-S AND L Spot 78	705	67632	65.3	18.4480	0.8	0.4584	1.5	0.0614	1.2	0.82	383.9	4.5	383.1	4.7	378.6	18.7	383.9	4.5	NA
-2016-5-S AND L Spot 246	471	37449	1.7	18.2443	0.9	0.4832	1.7	0.0640	1.4	0.84	399.7	5.5	400.2	5.6	403.6	20.5	399.7	5.5	NA
-2016-5-S AND L Spot 191	649	28944	2.3	17.8542	1.0	0.5217	1.7	0.0676	1.4	0.81	421.6	5.6	426.3	6.0	451.7	22.5	421.6	5.6	93.3
-2016-5-S AND L Spot 183	246	37409	1.9	17.7901	1.0	0.5238	1.7	0.0676	1.4	0.81	421.7	5.7	427.7	6.0	459.7	22.4	421.7	5.7	91.7
-2016-5-S AND L Spot 141	221	24387	1.2	17.7710	1.0	0.5309	1.5	0.0685	1.1	0.73	426.9	4.5	432.4	5.2	462.1	22.4	426.9	4.5	92.4
-2016-5-S AND L Spot 249	370	94485	2.1	18.0217	1.0	0.5398	1.7	0.0706	1.3	0.79	439.7	5.5	438.3	5.9	431.0	22.8	439.7	5.5	102.0
-2016-5-S AND L Spot 28	345	75626	1.7	17.7181	0.9	0.5756	1.3	0.0740	1.0	0.75	460.2	4.5	461.6	5.0	468.7	19.8	460.2	4.5	98.2
-2016-5-S AND L Spot 180	402	29770	2.7	16.6510	1.0	0.7334	1.5	0.0886	1.2	0.76	547.3	6.1	558.5	6.6	604.6	21.6	547.3	6.1	90.5
-2016-5-S AND L Spot 213	96	10099	0.7	16.8528	1.3	0.7502	1.7	0.0917	1.1	0.63	565.8	5.7	568.3	7.3	578.5	28.0	565.8	5.7	97.8
-2016-5-S AND L Spot 155	108	10413	2.7	17.4253	1.2	0.7301	1.9	0.0923	1.4	0.76	569.2	7.8	556.6	8.0	505.5	26.8	569.2	7.8	112.6
-2016-5-S AND L Spot 274	154	16722	2.9	16.7955	1.1	0.7885	1.7	0.0961	1.2	0.74	591.5	6.9	590.3	7.4	585.9	24.3	591.5	6.9	100.9
-2016-5-S AND L Spot 25	352	41892	9.2	16.2804	1.0	0.8341	1.9	0.0985	1.6	0.86	605.8	9.2	615.9	8.5	653.2	20.6	605.8	9.2	92.7
-2016-5-S AND L Spot 273	70	9988	1.3	16.9363	1.8	0.8033	2.2	0.0987	1.3	0.58	606.9	7.4	598.7	9.9	567.8	38.7	606.9	7.4	106.9
-2016-5-S AND L Spot 126	343	108082	2.1	16.6035	0.9	0.8270	1.5	0.0996	1.2	0.81	612.3	7.0	612.0	6.8	610.8	18.9	612.3	7.0	100.2
-2016-5-S AND L Spot 216	182	48122	2.8	16.6140	1.2	0.8468	1.8	0.1021	1.4	0.75	626.6	8.2	622.9	8.5	609.5	26.2	626.6	8.2	102.8
-2016-5-S AND L Spot 121	122	43539	1.7	16.3630	1.1	0.8801	1.7	0.1045	1.3	0.77	640.7	8.0	641.1	8.2	642.3	23.7	640.7	8.0	99.7
-2016-5-S AND L Spot 190	172	26846	1.0	16.4935	0.9	0.8813	1.5	0.1055	1.2	0.79	646.4	7.4	641.7	7.2	625.2	19.9	646.4	7.4	103.4
-2016-5-S AND L Spot 198	101	115747	1.2	16.3757	1.1	0.9028	1.5	0.1073	1.1	0.71	656.9	6.8	653.2	7.4	640.6	23.5	656.9	6.8	102.5
-2016-5-S AND L Spot 221	182	478700	1.9	14.2292	0.8	1.5068	1.3	0.1556	1.0	0.77	932.1	8.8	933.1	8.0	935.6	17.1	935.6	17.1	99.6
-2016-5-S AND L Spot 132	42	12014	2.7	13.7284	1.0	1.7474	1.4	0.1741	1.0	0.71	1034.4	9.6	1026.2	9.1	1008.7	20.3	1008.7	20.3	102.6
-2016-5-S AND L Spot 188	175	35529	1.3	13.6870	0.7	1.7986	1.6	0.1786	1.4	0.88	1059.4	13.5	1044.9	10.3	1014.8	15.0	1014.8	15.0	104.4
-2016-5-S AND L Spot 168	59	19064	2.4	13.6572	1.2	1.7510	1.8	0.1735	1.3	0.72	1031.4	12.2	1027.5	11.4	1019.2	24.7	1019.2	24.7	101.2
-2016-5-S AND L Spot 58	203	83244	3.4	13.5841	1.0	1.7120	1.6	0.1687	1.2	0.79	1005.2	11.4	1013.0	10.0	1030.1	19.5	1030.1	19.5	97.6
-2016-5-S AND L Spot 201	143	39858	5.4	13.5670	0.9	1.7535	1.5	0.1726	1.2	0.81	1026.5	11.8	1028.4	9.9	1032.6	18.1	1032.6	18.1	99.4

-2016-5-S AND L Spot 95	121	32379	1.9	13.5248	1.0	1.8714	1.7	0.1836	1.3	0.78	1086.9	13.1	1071.0	11.1	1038.9	21.1	1038.9	21.1	104.6
-2016-5-S AND L Spot 37	258	81695	1.8	13.5174	0.7	1.6934	1.3	0.1661	1.1	0.83	990.5	10.1	1006.0	8.5	1040.0	14.9	1040.0	14.9	95.2
-2016-5-S AND L Spot 92	123	74212	4.8	13.4899	1.1	1.8503	1.7	0.1811	1.3	0.75	1073.0	12.5	1063.5	11.1	1044.1	22.7	1044.1	22.7	102.8
-2016-5-S AND L Spot 222	255	53794	2.4	13.4779	0.9	1.7435	1.4	0.1705	1.1	0.76	1014.9	10.3	1024.7	9.2	1045.9	18.7	1045.9	18.7	97.0
-2016-5-S AND L Spot 81	30	19235	1.1	13.4591	1.2	1.8794	1.5	0.1835	0.9	0.60	1086.2	9.0	1073.8	10.0	1048.7	24.4	1048.7	24.4	103.6
-2016-5-S AND L Spot 254	148	85172	4.7	13.3868	1.0	1.8722	1.6	0.1819	1.2	0.77	1077.1	12.1	1071.3	10.4	1059.6	20.2	1059.6	20.2	101.7
-2016-5-S AND L Spot 106	165	85099	2.3	13.3527	0.8	1.7922	1.4	0.1736	1.2	0.83	1032.1	11.1	1042.6	9.1	1064.7	15.6	1064.7	15.6	96.9
-2016-5-S AND L Spot 179	77	62299	2.5	13.2323	1.2	1.7776	1.8	0.1707	1.3	0.73	1015.8	12.2	1037.3	11.5	1082.9	24.1	1082.9	24.1	93.8
-2016-5-S AND L Spot 151	353	41021	3.0	13.1323	0.8	1.7190	2.0	0.1638	1.8	0.92	977.8	16.5	1015.6	12.8	1098.1	16.0	1098.1	16.0	89.0
-2016-5-S AND L Spot 26	260	249156	2.6	13.1240	0.8	1.9932	1.5	0.1898	1.2	0.83	1120.3	12.8	1113.2	10.1	1099.4	16.7	1099.4	16.7	101.9
-2016-5-S AND L Spot 156	70	94229	2.3	13.1225	0.9	1.9336	1.6	0.1841	1.3	0.81	1089.4	12.9	1092.8	10.6	1099.6	18.6	1099.6	18.6	99.1
-2016-5-S AND L Spot 29	327	57741	1.5	13.0661	0.9	1.8707	1.3	0.1773	1.0	0.76	1052.5	9.7	1070.8	8.7	1108.2	17.2	1108.2	17.2	95.0
-2016-5-S AND L Spot 118	87	84042	0.9	13.0655	1.0	1.9402	1.4	0.1839	1.0	0.71	1088.5	10.2	1095.1	9.6	1108.3	20.2	1108.3	20.2	98.2
-2016-5-S AND L Spot 260	153	287767	1.7	13.0648	0.7	2.0496	1.4	0.1943	1.2	0.86	1144.6	12.8	1132.2	9.6	1108.4	14.4	1108.4	14.4	103.3
-2016-5-S AND L Spot 21	145	43651	7.6	13.0002	0.8	2.0144	1.4	0.1900	1.1	0.81	1121.4	11.6	1120.4	9.5	1118.3	16.4	1118.3	16.4	100.3
-2016-5-S AND L Spot 251	63	23420	2.0	12.9978	1.1	1.9916	1.5	0.1878	1.1	0.71	1109.6	11.0	1112.7	10.3	1118.7	21.5	1118.7	21.5	99.2
-2016-5-S AND L Spot 74	213	1591128	1.9	12.8827	0.6	1.9913	1.5	0.1861	1.3	0.89	1100.4	13.2	1112.6	9.8	1136.4	12.9	1136.4	12.9	96.8
-2016-5-S AND L Spot 238	256	39420	4.8	12.8513	0.9	2.0487	1.5	0.1910	1.1	0.78	1127.0	11.8	1131.8	10.0	1141.2	18.1	1141.2	18.1	98.7
-2016-5-S AND L Spot 209	223	60854	2.3	12.8230	0.9	2.1936	1.5	0.2041	1.2	0.81	1197.3	13.2	1179.0	10.4	1145.6	17.5	1145.6	17.5	104.5
-2016-5-S AND L Spot 88	97	62336	2.1	12.8086	0.9	2.1185	1.4	0.1969	1.1	0.78	1158.6	11.5	1154.9	9.5	1147.9	17.1	1147.9	17.1	100.9
-2016-5-S AND L Spot 131	174	65247	2.1	12.7850	0.8	2.1385	1.5	0.1984	1.2	0.84	1166.6	13.0	1161.4	10.0	1151.5	15.8	1151.5	15.8	101.3
-2016-5-S AND L Spot 153	134	105955	6.3	12.7104	1.2	1.8157	2.0	0.1674	1.6	0.79	998.0	14.9	1051.1	13.3	1163.1	24.4	1163.1	24.4	85.8
-2016-5-S AND L Spot 123	75	43389	2.5	12.6826	0.8	2.1491	1.2	0.1978	0.8	0.71	1163.3	8.8	1164.8	8.1	1167.4	16.4	1167.4	16.4	99.6
-2016-5-S AND L Spot 194	36	43449	2.3	12.6061	1.2	2.2466	1.6	0.2055	1.2	0.70	1204.7	12.7	1195.7	11.5	1179.5	23.1	1179.5	23.1	102.1
-2016-5-S AND L Spot 20	61	18012	1.5	12.5985	1.1	2.2531	1.5	0.2060	1.0	0.68	1207.3	11.2	1197.8	10.5	1180.7	21.8	1180.7	21.8	102.3
-2016-5-S AND L Spot 1	126	42112	3.3	12.5309	0.9	2.2531	1.6	0.2049	1.3	0.81	1201.4	13.8	1197.8	11.0	1191.3	18.1	1191.3	18.1	100.8
-2016-5-S AND L Spot 247	99	122756	3.4	12.2309	0.9	2.4461	1.5	0.2171	1.2	0.78	1266.4	13.7	1256.3	11.0	1238.9	18.6	1238.9	18.6	102.2
-2016-5-S AND L Spot 107	535	210863	2.8	12.1514	0.8	2.4829	1.8	0.2189	1.6	0.89	1276.1	18.5	1267.0	13.0	1251.7	16.0	1251.7	16.0	102.0
-2016-5-S AND L Spot 283	108	96544	5.4	11.9745	1.1	2.5897	1.6	0.2250	1.2	0.75	1308.3	14.2	1297.7	11.7	1280.3	20.5	1280.3	20.5	102.2
-2016-5-S AND L Spot 227	345	235854	1.2	11.9360	0.7	2.6861	1.2	0.2326	1.0	0.82	1348.3	12.3	1324.6	9.1	1286.6	13.8	1286.6	13.8	104.8
-2016-5-S AND L Spot 139	70	35589	2.2	11.6534	0.9	2.3836	1.5	0.2015	1.2	0.80	1183.6	13.2	1237.7	10.9	1333.1	17.5	1333.1	17.5	88.8
-2016-5-S AND L Spot 45	134	151147	1.5	11.6172	0.9	2.7253	1.6	0.2297	1.3	0.81	1333.1	15.5	1335.4	11.9	1339.1	18.1	1339.1	18.1	99.5
-2016-5-S AND L Spot 212	68	38881	2.9	11.5975	0.9	2.9002	1.6	0.2440	1.3	0.84	1407.7	17.0	1382.0	12.1	1342.4	17.0	1342.4	17.0	104.9
-2016-5-S AND L Spot 136	113	55894	3.1	11.5900	0.9	2.7317	1.6	0.2297	1.3	0.83	1333.1	15.9	1337.1	11.8	1343.6	16.9	1343.6	16.9	99.2
-2016-5-S AND L Spot 229	147	167974	2.0	11.5630	0.8	2.8631	1.5	0.2402	1.2	0.84	1387.8	15.4	1372.3	11.0	1348.1	15.3	1348.1	15.3	102.9
-2016-5-S AND L Spot 9	146	65403	2.7	11.4583	0.9	2.8242	1.5	0.2348	1.3	0.83	1359.6	15.5	1362.0	11.5	1365.7	16.5	1365.7	16.5	99.6
-2016-5-S AND L Spot 34	735	743966	3.7	11.4569	0.8	2.7698	1.5	0.2302	1.2	0.84	1335.8	14.8	1347.4	10.9	1365.9	15.1	1365.9	15.1	97.8
-2016-5-S AND L Spot 144	131	42686	1.7	11.4481	0.8	2.8914	1.5	0.2402	1.3	0.86	1387.6	16.5	1379.7	11.6	1367.4	15.2	1367.4	15.2	101.5
-2016-5-S AND L Spot 98	301	65502	3.0	11.3595	0.9	2.9806	1.3	0.2457	0.9	0.72	1416.1	12.0	1402.7	10.0	1382.3	17.7	1382.3	17.7	102.4
-2016-5-S AND L Spot 61	113	1327747	0.9	11.2978	0.9	3.0195	1.7	0.2475	1.4	0.83	1425.7	17.9	1412.6	12.8	1392.8	18.0	1392.8	18.0	102.4
-2016-5-S AND L Spot 57	127	220913	1.1	11.2241	1.1	2.9258	1.5	0.2383	1.0	0.70	1377.7	12.8	1388.6	11.2	1405.3	20.3	1405.3	20.3	98.0
-2016-5-S AND L Spot 275	156	71163	2.3	11.2224	0.8	3.0039	1.5	0.2446	1.3	0.84	1410.6	16.4	1408.6	11.7	1405.6	15.8	1405.6	15.8	100.4
-2016-5-S AND L Spot 240	73	72673	0.8	11.1801	0.9	2.9917	1.4	0.2427	1.1	0.77	1400.7	13.3	1405.5	10.4	1412.8	16.7	1412.8	16.7	99.1
-2016-5-S AND L Spot 127	141	81638	0.7	11.1720	0.8	3.0447	1.5	0.2468	1.3	0.86	1422.0	16.8	1418.9	11.7	1414.2	15.0	1414.2	15.0	100.5
-2016-5-S AND L Spot 225	54	38868	0.8	11.1675	1.0	3.0124	1.7	0.2441	1.3	0.79	1407.9	16.7	1410.8	12.8	1415.0	19.9	1415.0	19.9	99.5
-2016-5-S AND L Spot 2	168	68141	0.9	11.1504	0.6	3.1250	1.1	0.2528	1.0	0.86	1453.1	12.5	1438.9	8.6	1417.9	10.9	1417.9	10.9	102.5
-2016-5-S AND L Spot 226	269	60597	2.4	11.1401	0.8	3.1100	1.3	0.2514	1.1	0.79	1445.6	13.6	1435.2	10.3	1419.7	15.9	1419.7	15.9	101.8
-2016-5-S AND L Spot 277	280	57703	1.7	11.1289	0.7	2.6381	3.3	0.2130	3.2	0.98	1244.9	36.4	1311.3	24.2	1421.6	13.2	1421.6	13.2	87.6
-2016-5-S AND L Spot 243	146	237661	1.0	11.1038	0.9	3.1335	1.6	0.2525	1.3	0.82	1451.2	16.8	1441.0	12.1	1425.9	17.1	1425.9	17.1	101.8
-2016-5-S AND L Spot 8	125	154042	1.8	11.0926	0.7	3.1928	1.6	0.2570	1.4	0.88	1474.4	18.2	1455.4	12.1	1427.9	14.2	1427.9	14.2	103.3
-2016-5-S AND L Spot 49	186	77776	0.6	11.0891	0.9	3.0303	1.5	0.2438	1.2	0.81	1406.5	15.2	1415.3	11.4	1428.5	16.9	1428.5	16.9	98.5
-2016-5-S AND L Spot 44	162	43334	2.4	11.0867	0.7	3.1898	1.4	0.2566	1.2	0.87	1472.4	16.4	1454.7	11.1	1428.9	13.6	1428.9	13.6	103.0
-2016-5-S AND L Spot 140	153	96236	1.8	11.0850	0.7	3.2047	1.3	0.2578	1.1	0.85	1478.3	14.4	1458.3	10.0	1429.2	13.0	1429.2	13.0	103.4
-2016-5-S AND L Spot 262	110	36066	1.9	11.0825	1.0	3.1138	1.6	0.2504	1.3	0.78	1440.5	16.2	1436.1	12.3	1429.6	19.1	1429.6	19.1	100.8
-2016-5-S AND L Spot 255	52	15443	0.4	11.0780	0.9	3.2056	1.5	0.2577	1.2	0.80	1477.9	15.8	1458.5	11.6	1430.4	17.4	1430.4	17.4	103.3
-2016-5-S AND L Spot 12	165	84045	0.9	11.0610	1.0	3.1469	1.5	0.2526	1.1	0.76	1451.7	14.9	1444.2	11.6	1433.3	18.7	1433.3	18.7	101.3
-2016-5-S AND L Spot 55	75	33731	0.5	11.0504	1.0	3.1687	1.6	0.2541	1.3	0.80	1459.4	16.8	1449.6	12.4	1435.1	18.5	1435.1	18.5	101.7
-2016-5-S AND L Spot 197	168	54014	1.9	11.0439	0.7	3.0699	1.4	0.2460	1.2	0.84	1417.8	15.0	1425.2	10.7	1436.3	14.3	1436.3	14.3	98.7
-2016-5-S AND L Spot 187	105	72651	3.0	11.0286	0.9	3.1044	1.5	0.2484	1.1	0.77	1430.3	14.4	1433.8	11.1	1438.9	17.6	1438.9	17.6	99.4
-2016-5-S AND L Spot 148	77	51885	2.1	11.0285	1.0	3.0888	1.4	0.2472	1.1	0.73	1423.9	13.4	1429.9	11.0	1438.9	18.6	1438.9	18.6	99.0
-2016-5-S AND L Spot 113	175	6340937	1.5	11.0283	0.9	3.1085	1.7	0.2487	1.4	0.85	1432.0	18.5	1434.8	13.0	1439.0	17.1	1439.0	17.1	99.5
-2016-5-S AND L Spot 189	105	31287	1.3	11.0229	0.9	3.1262	1.3	0.2500	0.9	0.73	1438.7	11.9	1439.2	9.7	1439.9	16.3	1439.9	16.3	99.9
-2016-5-S AND L Spot 146	114	69837	2.0	11.0194	0.9	3.1276	1.3	0.2501	0.9	0.72	1438.8	12.0	1439.5	9.9	1440.5	17.1	1440.5	17.1	99.9
-2016-5-S AND L Spot 147	184	1144373	1.3	11.0125	0.8	3.1071	1.5	0.2483	1.3	0.85	1429.6	16.8	1434.4	11.8	1441.7	15.3	1441.7	15.3	99.2
-2016-5-S AND L Spot 116	152	394418	1.9	11.0060	0.8	3.0789	1.3	0.2459	1.1	0.82	1417.2	13.7	1427.5	10.1	1442.8	14.4	1442.8	14.4	98.2
-2016-5-S AND L Spot 51	207	72213	1.7	10.9980	0.8	3.0210	1.5	0.2411	1.2	0.83	1392.3	15.2	1412.9	11.1	1444.2	15.4	1444.2	15.4	96.4
-2016-5-S AND L Spot 84	27	16172	1.5	10.9931	1.0	3.2713	1.5	0.2609	1.1	0.73	1494.6	14.8	1474.3	11.8	1445.1	19.7	1445.1	19.7	103.4
-2016-5-S AND L Spot 13	347	1544463	0.6	10.9741	0.9	2.9653	1.6	0.2361	1.3	0.83	1366.5	16.3	1398.8	12.1	1448.3	16.7	1448.3	16.7	94.3
-2016-5-S AND L Spot 122	122	128137	1.9	10.9647	0.6	3.1487	1.2	0.2505	1.0	0.83	1441.1	12.4	1444.7	8.9	1450.0	12.3	1450.0	12.3	99.4
-2016-5-S AND L Spot 268	169	171242	1.6	10.9620	0.9	3.0282	1.4	0.2409	1.1	0.78	1391.2	13.6	1414.8	10.6	1450.4	16.6	1450.4	16.6	95.9
-2016-5-S AND L Spot 135	81	70226	1.5	10.9614	1.0	3.1759	1.5	0.2526	1.2	0.76	1451.8	15.3	1451.3	11.9	1450.5	19.0	1450.5	19.0	100.1
-2016-5-S AND L Spot 230	140	62694	2.8	10.9512	0.9	3.2882	1.5	0.2613	1.2	0.82	1496.4	16.3	1478.3	11.6	1452.3	16.3	1452.3	16.3	103.0
-2016-5-S AND L Spot 3	78	269939	3.0	10.9479	1.0	3.2331	1.5	0.2568	1.1	0.73	1473.6	14.9	1465.1	11.9	1452.9	19.9	1452.9	19.9	101.4
-2016-5-S AND L Spot 17	137	38508	2.2	10.9432	0.9	3.2947	1.6	0.2616	1.3	0.82	1498.1	17.7	1479.8	12.7	1453.7	17.9	1453.7	17.9	103.1
-2016-5-S AND L Spot 72	142	1018400	2.0	10.9399	0.7	3.2030	1.3	0.2543	1.1	0.86	1460.4	14.6	1457.9	10.1	1454.3	12.8	1454.3	12.8	100.4
-2016-5-S AND L Spot 6	141	77287	3.6	10.8981	0.9	3.1361	1.5	0.2480	1.2	0.78	1428.1	14.8	1441.6	11.4	1461.6	17.6	1461.6	17.6	97.7
-2016-5-S AND L Spot 161	144	132734	1.4	10.8842	0.9	3.1200	1.4	0.2464	1.1	0.77	1419.9	13.4	1437.6	10.5	1464.0	16.4	1464.0	16.4	97.0
-2016-5-S AND L Spot 27	75	20808	1.1	10.8397	1.0	3.2234	1.6	0.2535	1.3	0.79	1456.6	16.7	1462.8	12.5	1471.8	18.6	1471.8	18.6	99.0
-2016-5-S AND L Spot 159	234	22592	1.3	10.7903	1.1	2.9762	1.7	0.2330	1.3	0.78	1350.3	16.3	1401.6	13.1	1480.4	20.5	1480.4	20.5	91.2
-2016-5-S AND L Spot 124	1167	638140	18.0	10.7884	0.7	2.9244	1.4	0.2289	1.2	0.87	1328.8	14.3	1388.3	10.3	1480.8	12.6	1480.8	12.6	89.7
-2016-5-S AND L Spot 237	584	60691	6.0	10.7882	0.9	2.8575	1.6	0.2237	1.3	0.84	1301.3	15.7	1370.8	12.0	1480.8	16.6	1480.8	16.6	87.9
-2016-5-S AND L Spot 75	230	62358	1.1	10.7665	1.0	2.8798	1.6	0.2250	1.3	0.80	1308.1	15.4	1376.6	12.2	1484.6	18.3	1484.6	18.3	88.1
-2016-5-S AND L Spot 23	251	114320	1.8	10.6716	1.2	2.7943	2.3	0.2164	1.9	0.86	1262.6	22.3	1354.0	17.0	1501.4	22.1	1501.4	22.1	84.1
-2016-5-S AND L Spot 68	114	60503	2.0	10.6474	0.8	3.3978	1.4	0.2625	1.1	0.80	1502.6	14.6	1503.9	10.7	1505.7	15.5	1505.7	15.5	99.8
-2016-5-S AND L Spot 109	275	77600	12.9	10.5875	0.8	3.4317	1.3	0.2636	1.0	0.76	1508.4	13.0	1511.7	10.0	1516.3	15.6	1516.3	15.6	99.5
-2016-5-S AND L Spot 195	63	29170	1.4	10.5690	0.9	3.4968	1.6	0.2682	1.4	0.83	1531.5	18.5	1526.5	13.0	1519.6	17.5	1519.6	17.5	100.8
-2016-5-S AND L Spot 149	282	20685	1.4	10.5160	0.9	2.8551	1.6	0.2179	1.4	0.82	1270.5	15.6	1370.2	12.4	1529.1	17.6	1529.1	17.6	83.1
-2016-5-S AND L Spot 202	305	376073	1.0	10.3924	0.8	3.6117	1.2	0.2723	0.9	0.76	1552.7	12.1	1552.1	9.2	1551.3	14.3	1551.3	14.3	100.1
-2016-5-S AND L Spot 19	225	164079	187.3	10.3458	0.8	3.4865	1.3	0.2617	1.0	0.77	1498.7	13.4	1524.2	10.4	1559.8	15.8	1559.8	15.8	96.1
-2016-5-S AND L Spot 138	256	861631	4.2	10.1976	0.9	3.8772	1.4	0.2869	1.1	0.77	1625.9	15.3	1609.0	11.2	1586.8	16.5	1586.8	16.5	102.5
-2016-5-S AND L Spot 43	43	28050	60.0	10.1743	0.7	3.7921	1.3	0.2799	1.0	0.83	1591.1	14.7	1591.1	10.1	1591.0	12.9	1591.0	12.9	100.0
-2016-5-S AND L Spot 207	276	74378	2.9	10.0437	0.9	3.6281	1.5	0.2644	1.2	0.80	1512.3	16.0	1555.7	11.7	1615.1	16.3	1615.1	16.3	93.6
-2016-5-S AND L Spot 259	197	164084	4.2	10.0320	0.8	3.9222	1.3	0.2855	0.9	0.74	1619.0	13.3	1618.3	10.2	1617.3	15.8	1617.3	15.8	100.1
-2016-5-S AND L Spot 79	495	299275	2.4	10.0182	0.7	4.0919	1.4	0.2974	1.2	0.85	1678.6	17.5	1652.7	11.4	1619.9	13.6	1619.9	13.6	103.6
-2016-5-S AND L Spot 261	131	2146630	1.4	10.0052	0.8	3.9303	1.6	0.2853	1.4	0.86	1618.1	20.1	1619.9	13.3	1622.3	15.6	1622.3	15.6	99.7
-2016-5-S AND L Spot 185	228	82219	4.1	9.9958	0.7	3.8266	1.3	0.2775	1.1	0.84	1578.9	15.8	1598.3	10.8	1624.0	13.4	1624.0	13.4	97.2
-2016-5-S AND L Spot 223	160	94865	1.8	9.9520	0.9	4.0197	1.4	0.2903	1.0	0.75	1642.8	14.9	1638.2	11.1	1632.2	16.7	1632.2	16.7	100.7
-2016-5-S AND L Spot 211	222	261314	1.3	9.9308	0.7	3.9003	1.4	0.2810	1.2	0.87	1596.6	16.7	1613.7	11.0	1636.2	12.4	1636.2	12.4	97.6
-2016-5-S AND L Spot 208	140	94454	1.3	9.8948	0.8	3.9758	1.4	0.2854	1.2	0.82	1618.7	16.7	1629.3	11.6	1642.9	15.3	1642.9	15.3	98.5
-2016-5-S AND L Spot 258	98	288787	2.4	9.8897	0.8	4.0054	1.5	0.2874	1.2	0.83	1628.6	17.4	1635.3	11.9	1643.9	15.3	1643.9	15.3	99.1
-2016-5-S AND L Spot 165	103	108226	1.3	9.8832	0.8	4.1018	1.4	0.2941	1.2	0.84	1662.2	17.6	1654.7	11.6	1645.1	14.1	1645.1	14.1	101.0
-2016-5-S AND L Spot 52	158	41419	1.8	9.8826	0.8	4.1347	1.3	0.2965	1.1	0.79	1673.9	15.5	1661.2	10.8	1645.2	15.0	1645.2	15.0	101.7
-2016-5-S AND L Spot 54	336	63063	4.1	9.8697	1.1	4.0486	1.6	0.2899	1.1	0.68	1641.2	15.3	1644.0	12.7	1647.6	21.3	1647.6	21.3	99.6
-2016-5-S AND L Spot 193	139	150197	3.2	9.8621	1.0	4.2829	1.6	0.3065	1.3	0.80	1723.3	19.7	1690.1	13.3	1649.1	17.9	1649.1	17.9	104.5
-2016-5-S AND L Spot 0	50	55213	0.9	9.8576	1.0	4.2498	1.5	0.3040	1.2	0.78	1711.0	18.2	1683.7	12.7	1649.9	17.8	1649.9	17.8	103.7

-2016-5-S AND L Spot 272	80	35737	2.0	9.8540	0.9	4.2360	1.4	0.3029	1.1	0.79	1705.5	16.6	1681.0	11.5	1650.6	16.0	1650.6	16.0	103.3
-2016-5-S AND L Spot 267	181	403422	2.0	9.8410	0.7	4.0465	1.3	0.2889	1.1	0.83	1636.2	15.8	1643.6	10.7	1653.0	13.7	1653.0	13.7	99.0
-2016-5-S AND L Spot 284	110	24903	3.0	9.8400	1.0	4.2710	1.6	0.3049	1.2	0.76	1715.8	18.5	1687.8	13.2	1653.2	19.2	1653.2	19.2	103.8
-2016-5-S AND L Spot 233	295	87777	4.4	9.8115	0.7	4.2235	1.5	0.3007	1.3	0.90	1694.7	19.6	1678.6	12.1	1658.6	12.1	1658.6	12.1	102.2
-2016-5-S AND L Spot 250	134	77413	2.2	9.8110	0.7	4.2107	1.3	0.2997	1.1	0.85	1690.0	16.8	1676.1	10.9	1658.7	12.8	1658.7	12.8	101.9
-2016-5-S AND L Spot 263	36	20495	0.8	9.7970	0.9	4.3713	1.5	0.3107	1.2	0.80	1744.3	18.6	1706.9	12.5	1661.3	16.6	1661.3	16.6	105.0
-2016-5-S AND L Spot 5	134	51669	0.7	9.7832	1.0	4.3472	1.4	0.3086	0.9	0.68	1733.8	14.1	1702.4	11.3	1663.9	18.7	1663.9	18.7	104.2
-2016-5-S AND L Spot 178	151	106389	3.2	9.7824	0.8	4.2376	1.4	0.3008	1.2	0.85	1695.2	17.9	1681.3	11.7	1664.1	14.0	1664.1	14.0	101.9
-2016-5-S AND L Spot 64	200	75426	1.9	9.7696	0.9	4.2062	1.5	0.2982	1.2	0.81	1682.2	17.8	1675.2	12.2	1666.5	16.4	1666.5	16.4	100.9
-2016-5-S AND L Spot 282	139	97932	1.7	9.7695	0.7	4.1769	1.3	0.2961	1.1	0.83	1671.9	16.2	1669.5	10.8	1666.5	13.6	1666.5	13.6	100.3
-2016-5-S AND L Spot 158	240	403228	2.3	9.7592	0.7	4.2017	1.2	0.2975	1.0	0.81	1679.0	14.9	1674.3	10.2	1668.5	13.6	1668.5	13.6	100.6
-2016-5-S AND L Spot 117	426	46401	2.5	9.7570	0.9	3.2653	1.8	0.2312	1.5	0.85	1340.6	18.1	1472.8	13.7	1668.9	17.1	1668.9	17.1	80.3
-2016-5-S AND L Spot 101	283	87325	1.4	9.7357	0.9	4.2508	1.7	0.3003	1.4	0.83	1692.7	20.4	1683.9	13.6	1672.9	17.1	1672.9	17.1	101.2
-2016-5-S AND L Spot 90	349	163725	4.9	9.7232	1.0	4.1756	1.8	0.2946	1.4	0.82	1664.4	21.1	1669.2	14.4	1675.3	18.6	1675.3	18.6	99.4
-2016-5-S AND L Spot 114	359	171625	1.7	9.7219	0.6	4.1676	1.4	0.2940	1.3	0.90	1661.4	18.7	1667.7	11.6	1675.6	11.2	1675.6	11.2	99.2
-2016-5-S AND L Spot 265	163	39880	2.4	9.7160	0.9	4.3883	1.5	0.3094	1.2	0.80	1737.6	18.7	1710.1	12.7	1676.7	16.9	1676.7	16.9	103.6
-2016-5-S AND L Spot 63	124	60769	1.4	9.7141	0.7	4.2800	1.4	0.3017	1.2	0.86	1699.6	18.2	1689.5	11.7	1677.0	13.4	1677.0	13.4	101.3
-2016-5-S AND L Spot 105	983	290662	4.7	9.7001	0.8	3.9331	1.3	0.2768	1.1	0.81	1575.3	15.2	1620.5	10.9	1679.7	14.5	1679.7	14.5	93.8
-2016-5-S AND L Spot 252	112	67272	2.0	9.6888	0.9	4.2192	1.7	0.2966	1.4	0.83	1674.5	20.5	1677.8	13.8	1681.8	17.2	1681.8	17.2	99.6
-2016-5-S AND L Spot 42	443	372719	4.4	9.6870	0.8	3.9267	1.6	0.2760	1.4	0.87	1571.2	19.1	1619.2	12.7	1682.2	14.3	1682.2	14.3	93.4
-2016-5-S AND L Spot 86	98	2994820	2.4	9.6823	0.8	4.4328	1.5	0.3114	1.2	0.82	1747.7	18.2	1718.5	12.0	1683.1	15.5	1683.1	15.5	103.8
-2016-5-S AND L Spot 87	293	75214	5.3	9.6786	0.9	4.0854	1.5	0.2869	1.2	0.82	1626.0	17.6	1651.4	12.2	1683.8	15.7	1683.8	15.7	96.6
-2016-5-S AND L Spot 253	52	67636	1.9	9.6731	1.0	4.3221	1.7	0.3034	1.3	0.78	1707.9	19.3	1697.6	13.7	1684.8	19.2	1684.8	19.2	101.4
-2016-5-S AND L Spot 164	62	34265	1.3	9.6634	1.0	4.2948	1.6	0.3011	1.2	0.75	1696.9	17.5	1692.4	12.9	1686.7	19.2	1686.7	19.2	100.6
-2016-5-S AND L Spot 46	202	686266	1.7	9.6617	0.8	4.2279	1.8	0.2964	1.6	0.89	1673.4	23.5	1679.5	14.7	1687.0	15.2	1687.0	15.2	99.2
-2016-5-S AND L Spot 241	291	419437	4.0	9.6530	0.7	4.1046	1.6	0.2875	1.5	0.90	1628.9	21.2	1655.2	13.4	1688.7	13.3	1688.7	13.3	96.5
-2016-5-S AND L Spot 16	446	169355	1.9	9.6450	0.7	4.2535	1.3	0.2977	1.1	0.85	1679.7	16.1	1684.4	10.6	1690.2	12.7	1690.2	12.7	99.4
-2016-5-S AND L Spot 169	306	236813	3.9	9.6427	1.0	4.2479	1.6	0.2972	1.2	0.78	1677.5	18.1	1683.3	13.0	1690.7	18.2	1690.7	18.2	99.2
-2016-5-S AND L Spot 112	303	52103	2.2	9.6328	0.6	3.5057	1.3	0.2450	1.2	0.88	1412.8	15.0	1528.5	10.6	1692.5	11.5	1692.5	11.5	83.5
-2016-5-S AND L Spot 93	398	37568	0.9	9.6081	1.0	4.0728	1.9	0.2839	1.6	0.86	1611.1	22.8	1648.9	15.3	1697.3	17.9	1697.3	17.9	94.9
-2016-5-S AND L Spot 85	106	59967	4.8	9.5999	0.9	4.4613	1.7	0.3108	1.5	0.86	1744.4	23.1	1723.8	14.5	1698.9	16.2	1698.9	16.2	102.7
-2016-5-S AND L Spot 192	184	440869	2.9	9.5926	0.8	4.5322	1.5	0.3155	1.2	0.85	1767.5	19.3	1736.9	12.3	1700.2	14.5	1700.2	14.5	104.0
-2016-5-S AND L Spot 206	251	124498	3.4	9.5233	0.8	4.3826	1.9	0.3028	1.7	0.89	1705.3	25.1	1709.1	15.5	1713.6	15.6	1713.6	15.6	99.5
-2016-5-S AND L Spot 119	242	55410	1.8	9.5105	0.9	4.4115	1.7	0.3044	1.4	0.83	1713.2	21.1	1714.5	14.0	1716.1	17.2	1716.1	17.2	99.8
-2016-5-S AND L Spot 70	175	631740	2.1	9.4949	0.9	4.5179	1.3	0.3113	1.0	0.75	1746.9	15.2	1734.3	11.0	1719.1	15.9	1719.1	15.9	101.6
-2016-5-S AND L Spot 143	229	240820	1.9	9.4928	0.6	4.2445	1.4	0.2924	1.2	0.89	1653.3	17.6	1682.7	11.2	1719.5	11.4	1719.5	11.4	96.1
-2016-5-S AND L Spot 270	101	60970	3.0	9.4915	0.8	4.4131	1.4	0.3039	1.2	0.81	1710.7	17.3	1714.8	11.7	1719.7	15.2	1719.7	15.2	99.5
-2016-5-S AND L Spot 200	155	48934	3.8	9.4896	0.9	4.4783	1.5	0.3084	1.3	0.83	1732.6	19.1	1727.0	12.6	1720.1	15.7	1720.1	15.7	100.7
-2016-5-S AND L Spot 128	186	62674	3.2	9.4841	1.1	4.3807	1.8	0.3015	1.4	0.79	1698.5	21.0	1708.7	14.6	1721.2	19.7	1721.2	19.7	98.7
-2016-5-S AND L Spot 186	305	187317	3.7	9.4692	0.8	4.4503	1.2	0.3058	0.9	0.76	1719.8	13.8	1721.7	10.1	1724.1	14.6	1724.1	14.6	99.8
-2016-5-S AND L Spot 172	1123	325999	1.4	9.4465	0.9	4.3064	1.6	0.2952	1.4	0.84	1667.3	20.4	1694.6	13.6	1728.5	16.3	1728.5	16.3	96.5
-2016-5-S AND L Spot 214	725	466242	16.4	9.4286	0.8	4.4114	1.5	0.3018	1.3	0.86	1700.2	19.4	1714.5	12.6	1732.0	14.4	1732.0	14.4	98.2
-2016-5-S AND L Spot 102	125	9230784	4.9	9.4256	0.8	4.7188	1.4	0.3227	1.2	0.82	1803.0	18.5	1770.6	12.0	1732.5	15.0	1732.5	15.0	104.1
-2016-5-S AND L Spot 175	468	48767	2.7	9.4232	0.8	4.1865	1.6	0.2862	1.3	0.86	1622.7	19.2	1671.4	12.8	1733.0	14.7	1733.0	14.7	93.6
-2016-5-S AND L Spot 203	387	159808	3.6	9.3993	0.9	4.6119	1.6	0.3145	1.3	0.84	1762.9	20.8	1751.4	13.4	1737.7	16.1	1737.7	16.1	101.5
-2016-5-S AND L Spot 110	335	64001	1.1	9.3924	0.6	4.0240	1.3	0.2742	1.1	0.87	1562.3	15.9	1639.1	10.7	1739.0	11.8	1739.0	11.8	89.8
-2016-5-S AND L Spot 77	256	74877	2.6	9.3883	0.8	4.5282	1.5	0.3085	1.2	0.83	1733.1	19.0	1736.2	12.5	1739.8	15.3	1739.8	15.3	99.6
-2016-5-S AND L Spot 99	398	155104	2.2	9.3649	0.7	4.4243	1.6	0.3006	1.4	0.91	1694.4	21.4	1716.9	13.2	1744.4	12.4	1744.4	12.4	97.1
-2016-5-S AND L Spot 174	296	551897	15.1	9.3497	0.8	4.6062	1.3	0.3125	1.0	0.78	1752.9	15.8	1750.4	11.0	1747.4	14.9	1747.4	14.9	100.3
-2016-5-S AND L Spot 235	347	592524	4.0	9.3377	0.7	4.4608	1.3	0.3022	1.0	0.82	1702.4	15.4	1723.7	10.5	1749.7	13.3	1749.7	13.3	97.3
-2016-5-S AND L Spot 173	184	103866	3.7	9.3315	0.8	4.6833	1.4	0.3171	1.1	0.82	1775.5	17.7	1764.3	11.7	1750.9	14.6	1750.9	14.6	101.4
-2016-5-S AND L Spot 181	134	45951	3.9	9.3244	0.9	4.7407	1.3	0.3207	0.9	0.70	1793.3	14.4	1774.5	11.1	1752.3	17.3	1752.3	17.3	102.3
-2016-5-S AND L Spot 129	25	24763	0.5	9.3186	1.0	4.7243	1.5	0.3194	1.1	0.74	1787.0	16.7	1771.6	12.2	1753.4	18.0	1753.4	18.0	101.9
-2016-5-S AND L Spot 244	159	57258	2.3	9.3102	0.9	4.7057	1.3	0.3179	1.0	0.73	1779.4	14.8	1768.3	10.9	1755.1	16.1	1755.1	16.1	101.4
-2016-5-S AND L Spot 69	293	174954	2.5	9.2931	0.6	4.7104	1.2	0.3176	1.0	0.85	1778.1	15.6	1769.1	9.9	1758.5	11.5	1758.5	11.5	101.1
-2016-5-S AND L Spot 11	49	39060	3.8	9.2606	0.6	4.9188	1.3	0.3305	1.1	0.86	1840.9	17.3	1805.5	10.6	1764.9	11.7	1764.9	11.7	104.3
-2016-5-S AND L Spot 234	140	450898	4.0	9.2340	0.7	4.7741	1.2	0.3199	1.0	0.84	1789.1	16.3	1780.4	10.4	1770.1	12.4	1770.1	12.4	101.1
-2016-5-S AND L Spot 204	201	1510938	2.9	9.2160	0.8	4.7361	1.3	0.3167	1.0	0.77	1773.6	15.0	1773.6	10.6	1773.7	14.8	1773.7	14.8	100.0
-2016-5-S AND L Spot 281	248	68038	2.8	9.2043	0.9	4.0084	2.5	0.2677	2.3	0.94	1529.1	31.9	1635.9	20.3	1776.0	16.0	1776.0	16.0	86.1
-2016-5-S AND L Spot 137	137	99240	2.2	9.2030	0.9	4.6832	1.5	0.3127	1.2	0.81	1754.1	18.0	1764.2	12.2	1776.3	15.7	1776.3	15.7	98.8
-2016-5-S AND L Spot 205	125	10690	1.0	9.1153	0.9	4.6042	1.7	0.3045	1.5	0.86	1713.7	22.5	1750.0	14.5	1793.7	16.3	1793.7	16.3	95.5
-2016-5-S AND L Spot 266	56	75101	5.1	9.1095	1.1	4.9239	1.7	0.3255	1.3	0.75	1816.3	19.9	1806.4	14.1	1794.9	20.1	1794.9	20.1	101.2
-2016-5-S AND L Spot 196	577	607723	1.0	9.0998	0.7	4.8968	1.6	0.3233	1.5	0.91	1805.9	22.9	1801.7	13.5	1796.8	12.2	1796.8	12.2	100.5
-2016-5-S AND L Spot 279	1953	2589	1.0	9.0843	1.7	1.2043	2.1	0.0794	1.3	0.62	492.4	6.2	802.6	11.7	1799.9	30.1	1799.9	30.1	27.4
-2016-5-S AND L Spot 32	220	7758272	2.2	9.0718	0.9	4.8102	1.6	0.3166	1.3	0.84	1773.2	20.8	1786.7	13.4	1802.4	15.5	1802.4	15.5	98.4
-2016-5-S AND L Spot 18	70	40498	6.1	9.0262	0.9	4.7701	1.3	0.3124	1.0	0.74	1752.6	15.3	1779.7	11.2	1811.6	16.2	1811.6	16.2	96.7
-2016-5-S AND L Spot 210	240	430544	2.7	8.8897	0.8	4.7952	1.5	0.3093	1.2	0.81	1737.3	18.0	1784.1	12.2	1839.2	15.3	1839.2	15.3	94.5
-2016-5-S AND L Spot 22	276	256835	1.9	8.8785	0.8	5.1787	1.4	0.3336	1.1	0.81	1855.9	18.2	1849.1	11.9	1841.5	14.8	1841.5	14.8	100.8
-2016-5-S AND L Spot 160	218	128493	3.0	8.8701	0.7	5.2152	1.5	0.3357	1.3	0.87	1865.7	20.5	1855.1	12.4	1843.2	13.2	1843.2	13.2	101.2
-2016-5-S AND L Spot 33	326	232922	4.8	8.7817	0.7	4.9897	1.5	0.3179	1.3	0.88	1779.6	20.0	1817.6	12.4	1861.3	12.7	1861.3	12.7	95.6
-2016-5-S AND L Spot 89	254	77374	5.1	8.7696	0.8	5.4021	1.4	0.3437	1.1	0.81	1904.6	18.1	1885.2	11.6	1863.8	14.4	1863.8	14.4	102.2
-2016-5-S AND L Spot 111	60	58020	3.7	8.7331	0.7	5.3334	1.5	0.3380	1.3	0.87	1876.8	21.0	1874.2	12.7	1871.3	13.4	1871.3	13.4	100.3
-2016-5-S AND L Spot 142	180	69629	1.0	8.6642	0.8	5.2085	1.5	0.3274	1.2	0.82	1825.9	19.6	1854.0	12.7	1885.6	15.2	1885.6	15.2	96.8
-2016-5-S AND L Spot 280	203	63198	1.0	8.3050	0.8	5.7455	1.2	0.3462	0.9	0.76	1916.5	15.6	1938.2	10.7	1961.5	14.4	1961.5	14.4	97.7
-2016-5-S AND L Spot 65	70	202285	1.0	8.2601	0.8	5.8993	1.3	0.3536	1.0	0.77	1951.6	16.8	1961.1	11.3	1971.2	14.9	1971.2	14.9	99.0
-2016-5-S AND L Spot 4	189	149935	1.1	8.1449	0.8	5.8344	1.6	0.3448	1.4	0.86	1909.7	22.3	1951.5	13.6	1996.2	14.2	1996.2	14.2	95.7
-2016-5-S AND L Spot 150	115	9372387	1.3	7.8608	0.8	6.5594	1.5	0.3741	1.3	0.87	2048.8	23.5	2053.9	13.5	2059.0	13.4	2059.0	13.4	99.5
-2016-5-S AND L Spot 100	168	2223667	2.8	7.8602	0.9	6.2776	1.5	0.3580	1.2	0.79	1972.8	19.8	2015.3	13.0	2059.2	16.2	2059.2	16.2	95.8
-2016-5-S AND L Spot 10	141	75390	1.8	7.6931	0.9	6.9006	1.4	0.3852	1.1	0.78	2100.5	19.8	2098.7	12.6	2097.0	15.7	2097.0	15.7	100.2
-2016-5-S AND L Spot 271	10	1466	6.0	7.2963	2.0	6.1641	2.8	0.3263	2.0	0.72	1820.6	32.3	1999.4	24.7	2189.6	34.2	2189.6	34.2	83.1
-2016-5-S AND L Spot 278	84	45120	1.3	6.2856	1.0	10.2158	1.5	0.4659	1.1	0.76	2465.6	23.4	2454.5	14.0	2445.3	16.7	2445.3	16.7	100.8
-2016-5-S AND L Spot 76	93	137987	2.7	6.2470	0.8	10.2507	1.4	0.4646	1.2	0.82	2460.0	23.7	2457.7	13.1	2455.7	13.8	2455.7	13.8	100.2
-2016-5-S AND L Spot 31	138	358143	1.7	6.2440	0.8	9.6996	1.5	0.4394	1.2	0.82	2348.1	24.2	2406.7	13.7	2456.5	14.3	2456.5	14.3	95.6
-2016-5-S AND L Spot 67	38	68688	1.0	6.1882	1.0	10.6943	1.7	0.4802	1.4	0.82	2528.0	29.8	2496.9	16.1	2471.7	16.7	2471.7	16.7	102.3
-2016-5-S AND L Spot 199	33	21406	1.0	6.1450	1.0	10.9123	1.6	0.4865	1.3	0.80	2555.7	27.2	2515.7	15.1	2483.5	16.5	2483.5	16.5	102.9
-2016-5-S AND L Spot 38	96	54583	0.7	5.9233	0.7	11.4625	1.4	0.4926	1.2	0.85	2582.1	25.0	2561.5	13.0	2545.3	12.4	2545.3	12.4	101.4
-2016-5-S AND L Spot 14	105	128364	0.9	5.4002	0.7	13.5307	1.4	0.5302	1.2	0.87	2742.2	27.4	2717.4	13.4	2699.1	11.6	2699.1	11.6	101.6
-2016-5-S AND L Spot 269	32	53699	0.4	5.3720	0.8	13.8652	1.7	0.5404	1.5	0.88	2785.3	33.1	2740.5	15.8	2707.7	13.2	2707.7	13.2	102.9
-2016-5-S AND L Spot 224	17	9216	11.0	5.2498	0.8	13.6267	1.4	0.5191	1.1	0.82	2695.2	25.0	2724.1	13.2	2745.6	13.3	2745.6	13.3	98.2
-2016-5-S AND L Spot 59	201	140210	2.0	5.2154	1.0	14.2963	1.8	0.5410	1.5	0.83	2787.6	34.2	2769.6	17.3	2756.4	16.9	2756.4	16.9	101.1
-2016-5-S AND L Spot 24	111	2984838	1.7	5.0266	0.8	15.1334	1.4	0.5519	1.1	0.79	2833.2	24.5	2823.7	12.9	2816.8	13.6	2816.8	13.6	100.6

1. Analyses with >10% uncertainty (1-sigma) in 206Pb/238U age are not included.
2. Analyses with >10% uncertainty (1-sigma) in 206Pb/207Pb age are not included, unless 206Pb/238U age is <400 Ma.
3. Best age is determined from 206Pb/238U age for analyses with 206Pb/238U age <900 Ma and from 206Pb/207Pb age for analyses with 206Pb/238Uage >900 Ma.
4. Concordance is based on 206Pb/238U age / 206Pb/207Pb age. Value is not reported for 206Pb/238U ages <400 Ma because of large uncertainty in 206Pb/207Pb age.
5. Analyses with 206Pb/238U age >400 Ma and with >20% discordance (<80% concordance) are not included.
6. Analyses with 206Pb/238U age >400 Ma and with >5% reverse discordance (<105% concordance) are not included.
7. All uncertainties are reported at the 2-sigma level, and include only measurement errors.
8. Systematic errors are as follows (at 2-sigma level): [sample 1: xxx% (206Pb/238U) & xxx% (206Pb/207Pb)]
9. Analyses conducted by LA-ICPMS, as described by Gehrels et al. (2008) and Gehrels and Pecha (2014).
10. U concentration and U/Th are calibrated relative to FC-1 zircon standard and are accurate to ~20%.

11. Common Pb correction is from measured 204Pb with common Pb composition interpreted from Stacey and Kramers (1975).
12. Common Pb composition assigned uncertainties of 1.5 for 206Pb/204Pb, 0.3 for 207Pb/204Pb, and 2.0 for 208Pb/204Pb.
13. U/Pb and 206Pb/207Pb fractionation is calibrated relative to fragments of large Sri Lanka zircons and individual crystals of FC-1, and R33.
14. U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U/235U = 137.82.
15. Weighted mean and concordia plots determined with Isoplot (Ludwig, 2008).

Aliquot Name	BC2_18
Stratigraphic Formation Name	
Stratigraphic Age	
Rock Type	
Mineral	Zircon
Method	U-Pb
Latitude	
Longitude	
Internal Uncertainty Level	one sigma
External Uncertainty 206/238 (% two sigma)	1.00439175
External Uncertainty 206/207 (% two sigma)	0.83509526
Analysis Purpose	
Laboratory Name	Arizona LaserChron Center
Analyst Name	
Aliquot Reference	
Aliquot Instrumental Method	LA-ICPMS
Aliquot Instrumental Reference	Gehrels, G.E., Valencia, V., Ruiz, J., 2008, Enhanced precision, accuracy, efficiency, and spatial resolution of U-Pb ages by laser ablation-multicollector-inductively coupled plasma-mass spectrometry: Geochemistry, Geophysics, Geosystems, v. 9, Q03017, doi:10.1029/2007GC001805. Gehrels, G. and Pecha, M., 2014, Detrital zircon U-Pb geochronology and Hf isotope geochemistry of Paleozoic and Triassic passive margin strata of western North America: Geosphere, v. 10 (1), p. 49-65.

				Isotope ratios							Apparent ages (Ma)										
Analysis	U (ppm)	206Pb 204Pb	U/Th	206Pb* 207Pb*	± (%)	207Pb* 235U*	± (%)	206Pb* 238U	± (%)	error corr.	206Pb* 238U*	± (Ma)	207Pb* 235U	± (Ma)	206Pb* 207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)		
-#2 BC2 Spot 256	6288	83077	1.3	21.1622	0.7	0.0569	1.5	0.0087	1.3	0.88	56.0	0.7	56.2	0.8	61.1	17.0	56.0	0.7	NA	*	* Used for Avg
-#2 BC2 Spot 274	3166	9149	1.9	18.9213	2.1	0.0643	2.9	0.0088	1.9	0.67	56.6	1.1	63.3	1.8	321.4	48.2	56.6	1.1	NA	*	
-#2 BC2 Spot 38	2407	10514	0.5	21.0901	1.2	0.0577	1.7	0.0088	1.2	0.70	56.7	0.7	57.0	0.9	69.2	28.5	56.7	0.7	NA	*	
-#2 BC2 Spot 262	814	35828	5.9	20.8329	1.3	0.0589	1.9	0.0089	1.3	0.71	57.2	0.8	58.1	1.1	98.3	31.2	57.2	0.8	NA	*	
-#2 BC2 Spot 196	849	7501	2.3	20.9407	2.2	0.0589	2.6	0.0090	1.4	0.54	57.4	0.8	58.1	1.5	86.1	52.5	57.4	0.8	NA	*	
-#2 BC2 Spot 168	530	2612	2.1	22.6863	2.0	0.0552	2.3	0.0091	1.3	0.55	58.3	0.8	54.5	1.2	NA	NA	58.3	0.8	NA	*	
-#2 BC2 Spot 303	639	6249	3.5	21.3443	1.7	0.0590	2.3	0.0091	1.6	0.66	58.7	0.9	58.3	1.3	40.6	41.8	58.7	0.9	NA		
-#2 BC2 Spot 161	317	1413	2.5	21.9097	4.0	0.0583	4.2	0.0093	1.3	0.30	59.5	0.7	57.6	2.3	NA	NA	59.5	0.7	NA		
-#2 BC2 Spot 136	638	25508	1.6	20.3374	1.3	0.0645	2.0	0.0095	1.5	0.75	61.1	0.9	63.5	1.2	155.0	30.6	61.1	0.9	NA		
-#2 BC2 Spot 276	812	8735	10.8	20.8522	1.8	0.0637	2.2	0.0096	1.3	0.60	61.8	0.8	62.7	1.4	96.1	42.6	61.8	0.8	NA		
-#2 BC2 Spot 73	96	820	1.5	31.5588	12.9	0.0427	13.0	0.0098	1.4	0.10	62.7	0.8	42.4	5.4	NA	NA	62.7	0.8	NA		
-#2 BC2 Spot 178	82	644	1.2	34.9582	30.9	0.0389	31.0	0.0099	1.8	0.06	63.3	1.1	38.8	11.8	NA	NA	63.3	1.1	NA		
-#2 BC2 Spot 72	175	1680	1.9	23.4952	4.9	0.0579	5.2	0.0099	1.8	0.35	63.3	1.1	57.2	2.9	NA	NA	63.3	1.1	NA		
-#2 BC2 Spot 85	175	5155	1.1	20.9831	3.0	0.0648	3.2	0.0099	1.3	0.41	63.3	0.8	63.8	2.0	81.2	70.2	63.3	0.8	NA		
-#2 BC2 Spot 13	251	1281	1.5	26.4313	2.9	0.0518	3.2	0.0099	1.3	0.42	63.8	0.9	51.3	1.6	NA	NA	63.8	0.9	NA		
-#2 BC2 Spot 5	272	5429	0.6	20.5407	2.4	0.0669	2.8	0.0100	1.3	0.49	64.0	0.9	65.8	1.8	131.6	56.7	64.0	0.9	NA		
-#2 BC2 Spot 43	117	1238	1.5	21.4265	3.1	0.0648	3.4	0.0101	1.4	0.43	64.6	0.9	63.7	2.1	31.4	73.4	64.6	0.9	NA		
-#2 BC2 Spot 153	195	1181	0.7	18.5282	11.1	0.0750	11.2	0.0101	1.6	0.14	64.7	1.0	73.4	7.9	368.9	250.9	64.7	1.0	NA		
-#2 BC2 Spot 150	726	7746	7.6	21.3136	1.5	0.0656	2.0	0.0102	1.4	0.66	65.1	0.9	64.6	1.3	44.1	36.6	65.1	0.9	NA		
-#2 BC2 Spot 194	262	2627	1.1	22.8972	5.8	0.0615	6.0	0.0102	1.5	0.25	65.5	1.0	60.6	3.5	NA	NA	65.5	1.0	NA		
-#2 BC2 Spot 110	296	98300	0.9	19.5185	1.9	0.0724	2.3	0.0103	1.3	0.57	65.8	0.9	71.0	1.6	250.3	43.3	65.8	0.9	NA		
-#2 BC2 Spot 162	293	1207	0.9	26.8163	3.7	0.0528	4.0	0.0103	1.5	0.38	65.9	1.0	52.3	2.0	NA	NA	65.9	1.0	NA		
-#2 BC2 Spot 297	315	3053	1.4	22.1269	3.1	0.0646	3.3	0.0104	1.2	0.36	66.5	0.8	63.6	2.0	NA	NA	66.5	0.8	NA		
-#2 BC2 Spot 298	147	4205	1.4	19.4766	3.5	0.0735	3.8	0.0104	1.5	0.39	66.6	1.0	72.0	2.6	255.3	79.5	66.6	1.0	NA		
-#2 BC2 Spot 174	551	7904	2.0	21.1294	2.1	0.0679	2.5	0.0104	1.3	0.52	66.7	0.9	66.7	1.6	64.8	51.2	66.7	0.9	NA		
-#2 BC2 Spot 277	494	3346	0.9	22.3931	2.0	0.0642	2.5	0.0104	1.5	0.59	66.9	1.0	63.2	1.5	NA	NA	66.9	1.0	NA		
-#2 BC2 Spot 229	187	2922797	0.7	19.6849	2.5	0.0741	2.9	0.0106	1.5	0.51	67.9	1.0	72.6	2.0	230.7	57.1	67.9	1.0	NA		
-#2 BC2 Spot 176	105	585	0.8	35.7567	8.5	0.0411	8.6	0.0107	1.7	0.20	68.4	1.2	40.9	3.5	NA	NA	68.4	1.2	NA		
-#2 BC2 Spot 78	56	865	1.4	32.7346	10.6	0.0485	10.8	0.0115	2.1	0.19	73.8	1.5	48.0	5.1	NA	NA	73.8	1.5	NA		
-#2 BC2 Spot 232	141	253	0.1	5.3877	16.9	0.2965	17.4	0.0116	3.9	0.22	74.3	2.9	263.7	40.4	2702.9	282.0	74.3	2.9	NA		
-#2 BC2 Spot 155	162	14815	2.8	19.2242	2.3	0.0843	2.7	0.0118	1.5	0.54	75.3	1.1	82.2	2.2	285.2	52.3	75.3	1.1	NA		
-#2 BC2 Spot 208	111	2144	0.8	21.5335	3.9	0.0762	4.2	0.0119	1.6	0.38	76.2	1.2	74.5	3.0	19.4	94.1	76.2	1.2	NA		
-#2 BC2 Spot 169	128	578	1.3	36.3878	36.1	0.0453	36.1	0.0120	1.4	0.04	76.7	1.1	45.0	15.9	NA	NA	76.7	1.1	NA		
-#2 BC2 Spot 183	349	7526	1.8	19.7060	2.2	0.0840	2.5	0.0120	1.3	0.51	77.0	1.0	81.9	2.0	228.3	49.9	77.0	1.0	NA		
-#2 BC2 Spot 58	246	6139	2.0	20.8556	2.3	0.0796	2.8	0.0120	1.5	0.54	77.2	1.1	77.7	2.1	95.7	55.6	77.2	1.1	NA		
-#2 BC2 Spot 287	404	4326	2.3	21.0443	3.1	0.0789	3.6	0.0121	1.8	0.50	77.2	1.4	77.1	2.7	74.4	74.3	77.2	1.4	NA		
-#2 BC2 Spot 120	589	8107	1.4	21.1811	1.7	0.0786	2.2	0.0121	1.5	0.66	77.4	1.1	76.8	1.6	58.9	39.7	77.4	1.1	NA		
-#2 BC2 Spot 203	297	28387	1.4	19.9540	2.4	0.0868	2.6	0.0126	1.2	0.45	80.5	0.9	84.5	2.1	199.3	54.6	80.5	0.9	NA		
-#2 BC2 Spot 247	432	55512	4.3	19.6940	2.1	0.0963	2.4	0.0138	1.2	0.50	88.1	1.1	93.4	2.2	229.7	48.9	88.1	1.1	NA		
-#2 BC2 Spot 60	236	23800	2.0	17.1338	2.8	0.1116	4.2	0.0139	3.1	0.74	88.8	2.7	107.4	4.3	542.5	61.8	88.8	2.7	NA		
-#2 BC2 Spot 199	2787	1143038	4.8	20.4465	1.1	0.0977	1.7	0.0145	1.2	0.75	92.8	1.1	94.7	1.5	142.4	25.4	92.8	1.1	NA		
-#2 BC2 Spot 175	997	38741	4.8	20.3379	1.3	0.0988	2.2	0.0146	1.8	0.81	93.3	1.7	95.7	2.0	154.9	29.9	93.3	1.7	NA		
-#2 BC2 Spot 164	605	2909	2.0	22.5809	6.0	0.0909	6.2	0.0149	1.4	0.23	95.3	1.3	88.4	5.2	NA	NA	95.3	1.3	NA		
-#2 BC2 Spot 216	672	16975	2.5	20.9363	1.2	0.0984	1.9	0.0150	1.4	0.74	95.7	1.3	95.3	1.7	86.6	29.4	95.7	1.3	NA		
-#2 BC2 Spot 65	807	9377	4.2	20.5647	1.4	0.1028	2.1	0.0153	1.6	0.75	98.2	1.5	99.4	2.0	128.9	32.9	98.2	1.5	NA		
-#2 BC2 Spot 187	668	39588	2.0	16.6158	2.5	0.1300	3.1	0.0157	1.7	0.57	100.3	1.7	124.1	3.6	609.2	54.6	100.3	1.7	NA		
-#2 BC2 Spot 128	105	2720	2.0	20.8720	3.1	0.1037	3.4	0.0157	1.4	0.42	100.4	1.4	100.2	3.2	93.8	72.5	100.4	1.4	NA		
-#2 BC2 Spot 186	265	2793	2.3	21.3714	4.5	0.1051	4.7	0.0163	1.3	0.27	104.2	1.3	101.5	4.5	37.5	108.4	104.2	1.3	NA		
-#2 BC2 Spot 89	262	146222	1.5	19.6545	1.4	0.1785	1.8	0.0255	1.1	0.60	162.0	1.7	166.7	2.7	234.4	32.3	162.0	1.7	NA		
-#2 BC2 Spot 21	570	15614	0.9	19.2203	1.1	0.1849	1.7	0.0258	1.3	0.78	164.1	2.2	172.3	2.7	285.7	24.5	164.1	2.2	NA		
-#2 BC2 Spot 184	239	3592	1.3	21.2037	2.1	0.1716	2.5	0.0264	1.4	0.56	167.9	2.3	160.8	3.7	56.4	49.6	167.9	2.3	NA		
-#2 BC2 Spot 131	330	31029	1.6	19.7901	1.6	0.1843	2.1	0.0265	1.3	0.64	168.4	2.2	171.7	3.3	218.5	37.2	168.4	2.2	NA		
-#2 BC2 Spot 283	312	17113785	1.4	19.7581	1.5	0.1851	1.9	0.0265	1.2	0.64	168.8	2.0	172.4	3.0	222.2	33.6	168.8	2.0	NA		
-#2 BC2 Spot 280	190	6062	0.9	20.0157	1.9	0.1869	2.5	0.0271	1.5	0.62	172.7	2.6	174.0	3.9	192.2	45.0	172.7	2.6	NA		
-#2 BC2 Spot 218	385	12216	1.2	20.2064	1.6	0.1947	2.1	0.0285	1.4	0.64	181.4	2.4	180.6	3.5	170.0	37.8	181.4	2.4	NA		
-#2 BC2 Spot 11	516	41701	2.3	19.0750	1.0	0.2420	1.5	0.0335	1.1	0.74	212.4	2.3	220.0	2.9	303.0	22.2	212.4	2.3	NA		
-#2 BC2 Spot 112	415	7557	1.0	19.9008	1.3	0.2419	1.8	0.0349	1.3	0.73	221.3	2.9	220.0	3.6	205.5	29.3	221.3	2.9	NA		
-#2 BC2 Spot 93	218	3370	1.3	20.8377	1.8	0.2319	2.1	0.0351	1.1	0.51	222.2	2.3	211.8	4.0	97.8	42.5	222.2	2.3	NA		
-#2 BC2 Spot 130	978	109680	2.5	19.3452	1.3	0.2551	1.8	0.0358	1.2	0.69	226.8	2.7	230.7	3.6	270.8	29.3	226.8	2.7	NA		
-#2 BC2 Spot 64	3262	582	146.0	5.9470	3.1	0.9723	3.5	0.0420	1.6	0.45	264.9	4.1	689.7	17.5	2538.6	52.3	264.9	4.1	NA		
-#2 BC2 Spot 14	3415	1101	5.5	8.1986	1.4	0.7612	3.0	0.0453	2.6	0.89	285.5	7.4	574.7	13.0	1984.5	24.1	285.5	7.4	NA		
-#2 BC2 Spot 30	192	17152	1.4	18.2821	1.0	0.3872	1.5	0.0514	1.0	0.70	322.9	3.2	332.3	4.1	398.9	23.2	322.9	3.2	NA		
-#2 BC2 Spot 282	302	20996	5.1	12.0448	1.0	0.5891	1.7	0.0515	1.4	0.81	323.6	4.4	470.3	6.5	1268.9	19.8	323.6	4.4	NA		
-#2 BC2 Spot 221	1905	566	8.0	5.9812	1.1	1.2018	3.3	0.0522	3.1	0.95	327.7	9.8	801.4	18.1	2529.0	17.9	327.7	9.8	NA		
-#2 BC2 Spot 251	140	19812	1.8	18.7879	1.4	0.4408	1.9	0.0601	1.3	0.70	376.2	4.9	370.8	5.9	337.4	30.7	376.2	4.9	NA		
-#2 BC2 Spot 158	165	8234	1.6	18.4533	1.7	0.4489	2.3	0.0601	1.5	0.65	376.3	5.4	376.5	7.2	378.0	39.2	376.3	5.4	NA		
-#2 BC2 Spot 253	424	26623	16.9	17.9611	1.4	0.4901	1.9	0.0639	1.2	0.63	399.1	4.5	405.0	6.2	438.5	32.2	399.1	4.5	NA		
-#2 BC2 Spot 188	139	10022	2.4	17.6798	1.1	0.5224	1.4	0.0670	1.0	0.67	418.1	3.9	426.8	5.0	473.5	23.6	418.1	3.9	88.3		
-#2 BC2 Spot 270	59	18721	1.3	17.5184	1.7	0.5459	2.1	0.0694	1.4	0.64	432.5	5.7	442.3	7.7	493.8	36.6	432.5	5.7	87.6		
-#2 BC2 Spot 224	161	24310	1.7	17.2256	1.2	0.5562	1.8	0.0695	1.2	0.71	433.2	5.2	449.0	6.4	530.8	27.4	433.2	5.2	81.6		
-#2 BC2 Spot 95	144	7168	1.6	18.4081	1.4	0.5247	1.9	0.0701	1.3	0.67	436.7	5.5	428.3	6.7	383.5	32.2	436.7	5.5	113.9		
-#2 BC2 Spot 61	57	5174	1.4	17.8213	3.1	0.5441	3.3	0.0704	1.2	0.37	438.3	5.1	441.1	11.7	455.9	67.7	438.3	5.1	96.1		
-#2 BC2 Spot 44	261	39854	3.5	17.0451	0.9	0.6979	1.7	0.0863	1.4	0.84	533.7	7.4	537.6	7.2	553.8	20.7	533.7	7.4	96.4		
-#2 BC2 Spot 125	223	21789	1.4	16.6556	1.0	0.7867	1.7	0.0951	1.4	0.80	585.5	7.7	589.3	7.7	604.1	22.2	585.5	7.7	96.9		

-#2 BC2 Spot 117	164	49825	2.4	16.0445	1.1	0.8499	1.6	0.0989	1.2	0.74	608.2	6.7	624.6	7.3	684.4	22.7	608.2	6.7	88.9
-#2 BC2 Spot 301	364	10820	1.0	16.4742	1.2	0.8492	1.8	0.1015	1.3	0.73	623.2	7.8	624.2	8.3	627.7	26.2	623.2	7.8	99.3
-#2 BC2 Spot 293	96	12563	1.6	14.9602	1.2	1.1774	2.0	0.1278	1.6	0.81	775.4	11.7	790.1	10.9	832.0	24.2	775.4	11.7	93.2
-#2 BC2 Spot 102	609	44567	5.8	13.8960	0.8	1.6657	1.6	0.1680	1.4	0.88	1000.8	13.4	995.6	10.5	984.0	16.2	984.0	16.2	101.7
-#2 BC2 Spot 211	380	27197	29.0	13.7452	0.9	1.7175	1.5	0.1713	1.1	0.78	1019.2	10.8	1015.1	9.4	1006.2	18.4	1006.2	18.4	101.3
-#2 BC2 Spot 167	285	16847	0.9	13.5387	1.0	1.7933	1.4	0.1762	1.0	0.71	1046.0	9.9	1043.0	9.3	1036.8	20.3	1036.8	20.3	100.9
-#2 BC2 Spot 252	88	16334	8.9	13.4596	1.0	1.7809	1.7	0.1739	1.3	0.81	1033.7	12.8	1038.5	10.8	1048.7	19.6	1048.7	19.6	98.6
-#2 BC2 Spot 135	192	28111	2.3	13.3623	1.1	1.8668	1.5	0.1810	1.1	0.73	1072.4	11.0	1069.4	10.2	1063.3	21.3	1063.3	21.3	100.9
-#2 BC2 Spot 119	1643	145586	5.9	13.3430	0.9	1.6651	1.8	0.1612	1.6	0.86	963.5	13.9	995.3	11.4	1066.2	18.4	1066.2	18.4	90.4
-#2 BC2 Spot 35	215	20432	2.7	13.1515	1.1	1.8436	1.6	0.1759	1.2	0.76	1044.7	11.9	1061.2	10.7	1095.2	21.2	1095.2	21.2	95.4
-#2 BC2 Spot 236	297	85198	29.7	13.0682	0.8	2.0399	1.4	0.1934	1.2	0.83	1139.9	12.4	1128.9	9.7	1107.9	16.0	1107.9	16.0	102.9
-#2 BC2 Spot 268	127	34719	1.9	13.0326	1.2	1.9343	2.0	0.1829	1.6	0.80	1082.9	16.0	1093.0	13.5	1113.3	24.3	1113.3	24.3	97.3
-#2 BC2 Spot 10	190	10480	2.2	12.7499	1.2	2.1015	1.7	0.1944	1.2	0.72	1145.2	12.8	1149.3	11.6	1157.0	23.1	1157.0	23.1	99.0
-#2 BC2 Spot 139	173	55838	3.2	12.7256	1.0	2.1108	1.7	0.1949	1.4	0.81	1147.9	14.6	1152.3	11.8	1160.7	19.8	1160.7	19.8	98.9
-#2 BC2 Spot 204	323	83769	2.4	12.6875	0.9	2.1939	1.7	0.2020	1.4	0.84	1185.9	15.7	1179.1	12.0	1166.7	18.4	1166.7	18.4	101.6
-#2 BC2 Spot 245	355	41439	2.2	12.6073	0.7	2.2073	1.5	0.2019	1.3	0.88	1185.6	14.4	1183.4	10.5	1179.3	14.0	1179.3	14.0	100.5
-#2 BC2 Spot 265	48	6877	2.5	12.5930	1.0	2.1947	1.7	0.2005	1.3	0.79	1178.2	14.2	1179.4	11.7	1181.5	20.4	1181.5	20.4	99.7
-#2 BC2 Spot 207	559	230062	1.2	12.4693	0.9	2.2884	1.6	0.2070	1.4	0.84	1213.1	14.9	1208.7	11.4	1201.0	17.5	1201.0	17.5	101.0
-#2 BC2 Spot 127	399	32526	3.7	12.3915	0.9	2.3469	1.9	0.2110	1.6	0.88	1234.2	18.4	1226.6	13.3	1213.3	17.7	1213.3	17.7	101.7
-#2 BC2 Spot 288	97	13005	1.1	12.3333	1.2	2.2443	1.7	0.2008	1.2	0.70	1179.8	12.7	1195.0	11.8	1222.5	23.4	1222.5	23.4	96.5
-#2 BC2 Spot 237	97	133091	2.5	12.2465	0.9	2.2052	1.5	0.1959	1.2	0.80	1153.5	12.6	1182.7	10.4	1236.4	17.4	1236.4	17.4	93.3
-#2 BC2 Spot 241	3738	1151956	7.0	11.7746	0.8	2.4829	1.8	0.2121	1.6	0.88	1240.1	17.5	1267.1	12.8	1313.0	16.1	1313.0	16.1	94.4
-#2 BC2 Spot 2	247	42445	1.2	11.7463	1.0	2.6189	1.8	0.2232	1.5	0.83	1298.8	17.3	1306.0	13.0	1317.7	19.0	1317.7	19.0	98.6
-#2 BC2 Spot 138	86	9557	1.5	11.6915	1.0	2.7507	1.8	0.2333	1.5	0.81	1352.0	17.8	1342.3	13.3	1326.8	20.1	1326.8	20.1	101.9
-#2 BC2 Spot 82	127	12636	1.7	11.6007	1.0	2.8416	1.5	0.2392	1.1	0.73	1382.5	14.0	1366.6	11.6	1341.9	20.2	1341.9	20.2	103.0
-#2 BC2 Spot 191	326	36667	2.1	11.5149	0.7	2.8978	1.5	0.2421	1.3	0.87	1397.7	16.4	1381.3	11.2	1356.2	13.9	1356.2	13.9	103.1
-#2 BC2 Spot 107	141	17549	2.9	11.4752	0.9	2.8426	1.7	0.2367	1.5	0.87	1369.4	18.6	1366.9	13.0	1362.8	16.5	1362.8	16.5	100.5
-#2 BC2 Spot 116	88	7075	0.7	11.3654	1.4	3.0223	1.9	0.2492	1.4	0.71	1434.5	17.8	1413.3	14.9	1381.3	26.3	1381.3	26.3	103.9
-#2 BC2 Spot 231	255	16687	0.9	11.3626	0.8	2.3814	1.6	0.1963	1.3	0.85	1155.6	14.3	1237.0	11.3	1381.8	15.8	1381.8	15.8	83.6
-#2 BC2 Spot 239	131	29766	1.5	11.2361	0.9	3.0986	1.7	0.2526	1.4	0.84	1452.0	18.4	1432.3	12.9	1403.3	17.3	1403.3	17.3	103.5
-#2 BC2 Spot 249	149	103954	1.7	11.2350	0.8	3.0953	1.3	0.2523	1.0	0.77	1450.5	13.0	1431.5	10.0	1403.5	15.9	1403.5	15.9	103.3
-#2 BC2 Spot 56	593	32398	1.7	11.2182	0.8	3.0376	1.4	0.2473	1.2	0.84	1424.3	15.4	1417.1	11.0	1406.3	15.2	1406.3	15.2	101.3
-#2 BC2 Spot 166	236	21622	1.7	11.1990	1.0	3.0988	1.4	0.2518	1.1	0.74	1447.8	13.6	1432.4	11.0	1409.6	18.5	1409.6	18.5	102.7
-#2 BC2 Spot 291	165	38560	1.5	11.1688	0.9	3.1492	1.4	0.2552	1.0	0.75	1465.3	13.4	1444.8	10.6	1414.8	17.5	1414.8	17.5	103.6
-#2 BC2 Spot 264	229	96685	1.5	11.1631	1.1	3.1209	2.0	0.2528	1.6	0.83	1452.8	21.2	1437.9	15.1	1415.8	20.9	1415.8	20.9	102.6
-#2 BC2 Spot 99	275	51346	1.0	11.1522	0.8	3.0995	1.3	0.2508	1.1	0.81	1442.7	14.0	1432.6	10.2	1417.6	14.8	1417.6	14.8	101.8
-#2 BC2 Spot 55	158	38905	1.8	11.1469	1.1	3.1392	1.6	0.2539	1.2	0.74	1458.6	15.7	1442.4	12.5	1418.5	20.9	1418.5	20.9	102.8
-#2 BC2 Spot 22	206	36184	1.1	11.1411	1.0	3.1219	1.8	0.2524	1.6	0.85	1450.7	20.4	1438.1	14.2	1419.5	18.4	1419.5	18.4	102.2
-#2 BC2 Spot 258	266	48180	1.2	11.1372	1.0	2.8216	1.9	0.2280	1.6	0.86	1324.1	19.3	1361.3	14.1	1420.2	18.4	1420.2	18.4	93.2
-#2 BC2 Spot 222	342	106849	2.5	11.1314	0.9	3.0411	1.5	0.2456	1.2	0.79	1415.9	15.2	1418.0	11.5	1421.2	17.5	1421.2	17.5	99.6
-#2 BC2 Spot 68	239	109942	1.1	11.1249	1.0	3.0683	1.9	0.2477	1.6	0.85	1426.5	21.1	1424.8	14.9	1422.3	19.6	1422.3	19.6	100.3
-#2 BC2 Spot 210	104	26785	0.8	11.1238	1.0	3.1523	1.6	0.2544	1.3	0.78	1461.3	16.6	1445.6	12.6	1422.5	19.6	1422.5	19.6	102.7
-#2 BC2 Spot 113	929	1364663	2.9	11.1101	1.0	2.7726	1.5	0.2235	1.1	0.74	1300.4	13.0	1348.2	11.1	1424.8	19.1	1424.8	19.1	91.3
-#2 BC2 Spot 90	235	34590	1.1	11.1026	0.8	3.0585	1.4	0.2464	1.1	0.81	1419.8	14.3	1422.4	10.6	1426.1	15.7	1426.1	15.7	99.6
-#2 BC2 Spot 209	193	18738	1.8	11.0925	1.0	3.0918	1.5	0.2488	1.1	0.73	1432.5	13.9	1430.7	11.4	1427.9	19.5	1427.9	19.5	100.3
-#2 BC2 Spot 180	117	14390	2.1	11.0867	0.9	3.1114	1.4	0.2503	1.1	0.76	1440.0	14.1	1435.5	11.1	1428.9	18.0	1428.9	18.0	100.8
-#2 BC2 Spot 272	166	105278	2.0	11.0731	1.2	3.0406	1.6	0.2443	1.1	0.68	1409.0	13.6	1417.9	12.1	1431.2	22.1	1431.2	22.1	98.4
-#2 BC2 Spot 259	190	178679	1.5	11.0645	0.9	3.1698	1.8	0.2545	1.6	0.87	1461.5	20.8	1449.8	14.1	1432.7	17.1	1432.7	17.1	102.0
-#2 BC2 Spot 133	115	9530	0.8	11.0550	1.1	3.1147	1.9	0.2498	1.6	0.83	1437.7	20.3	1436.3	14.6	1434.3	20.5	1434.3	20.5	100.2
-#2 BC2 Spot 84	151	185998	1.5	11.0542	1.1	3.1525	1.7	0.2529	1.4	0.80	1453.2	18.1	1445.6	13.5	1434.5	20.2	1434.5	20.2	101.3
-#2 BC2 Spot 286	284	204690	0.9	11.0514	0.7	3.0307	1.6	0.2430	1.4	0.90	1402.4	18.2	1415.4	12.2	1435.0	13.1	1435.0	13.1	97.7
-#2 BC2 Spot 302	160	23447	2.8	11.0496	0.9	3.0146	1.4	0.2417	1.1	0.77	1395.5	13.7	1411.3	10.8	1435.3	17.3	1435.3	17.3	97.2
-#2 BC2 Spot 46	176	76151	2.5	11.0408	0.9	3.0528	1.7	0.2446	1.4	0.86	1410.4	18.3	1420.9	12.9	1436.8	16.5	1436.8	16.5	98.2
-#2 BC2 Spot 49	393	44356	1.9	11.0395	0.9	3.1991	1.5	0.2562	1.2	0.77	1470.6	15.1	1456.9	11.5	1437.0	17.9	1437.0	17.9	102.3
-#2 BC2 Spot 267	120	32718	1.8	11.0348	0.9	3.1537	1.6	0.2525	1.3	0.82	1451.4	17.3	1445.9	12.5	1437.8	17.8	1437.8	17.8	100.9
-#2 BC2 Spot 217	199	13964	1.4	11.0249	1.0	3.1601	1.5	0.2528	1.1	0.72	1452.8	13.7	1447.5	11.3	1439.5	19.5	1439.5	19.5	100.9
-#2 BC2 Spot 278	458	436678	2.1	11.0143	0.7	3.1058	1.6	0.2482	1.4	0.90	1429.2	18.2	1434.1	12.1	1441.4	13.1	1441.4	13.1	99.2
-#2 BC2 Spot 243	197	543404	1.8	11.0141	0.9	3.1449	1.7	0.2513	1.5	0.84	1445.3	18.9	1443.7	13.4	1441.4	18.0	1441.4	18.0	100.3
-#2 BC2 Spot 225	126	9389	1.8	11.0113	1.0	3.2395	1.5	0.2588	1.1	0.74	1483.8	15.1	1466.7	12.0	1441.9	19.9	1441.9	19.9	102.9
-#2 BC2 Spot 27	441	8169	2.3	11.0023	1.3	2.9468	1.9	0.2352	1.4	0.74	1361.9	17.0	1394.0	14.1	1443.5	23.8	1443.5	23.8	94.4
-#2 BC2 Spot 300	248	8911	1.5	10.9993	0.9	3.1547	1.4	0.2518	1.1	0.79	1447.6	14.6	1446.2	11.0	1444.0	16.8	1444.0	16.8	100.3
-#2 BC2 Spot 260	289	135924	1.3	10.9950	0.9	2.5123	1.6	0.2004	1.3	0.83	1177.6	14.5	1275.6	11.7	1444.7	17.1	1444.7	17.1	81.5
-#2 BC2 Spot 235	119	38634	2.4	10.9943	1.0	3.1329	1.4	0.2499	1.0	0.71	1438.1	12.8	1440.8	10.7	1444.8	18.6	1444.8	18.6	99.5
-#2 BC2 Spot 146	1670	31693	118.3	10.9840	0.7	2.6046	1.4	0.2076	1.2	0.87	1215.9	13.7	1301.9	10.4	1446.6	13.4	1446.6	13.4	84.1
-#2 BC2 Spot 48	292	1587925	2.4	10.9788	0.7	3.1963	1.4	0.2546	1.1	0.84	1462.3	14.9	1456.3	10.5	1447.5	14.2	1447.5	14.2	101.0
-#2 BC2 Spot 34	423	198955	2.2	10.9787	0.7	3.2079	1.4	0.2555	1.2	0.84	1467.0	15.3	1459.1	10.7	1447.5	14.1	1447.5	14.1	101.3
-#2 BC2 Spot 91	326	138930	1.9	10.9664	0.8	3.1314	1.5	0.2492	1.3	0.85	1434.2	16.5	1440.4	11.6	1449.7	15.0	1449.7	15.0	98.9
-#2 BC2 Spot 313	162	37901	0.6	10.9661	0.9	3.0603	1.4	0.2435	1.1	0.78	1404.9	13.8	1422.8	10.7	1449.7	16.6	1449.7	16.6	96.9
-#2 BC2 Spot 94	382	33103	2.1	10.9599	0.7	3.1528	1.4	0.2507	1.2	0.85	1442.2	15.6	1445.7	10.9	1450.8	13.9	1450.8	13.9	99.4
-#2 BC2 Spot 100	243	132723	1.3	10.9520	0.7	3.1461	1.5	0.2500	1.3	0.87	1438.5	16.5	1444.1	11.4	1452.2	14.0	1452.2	14.0	99.1
-#2 BC2 Spot 306	249	52221	1.4	10.9507	1.1	3.0431	1.6	0.2418	1.2	0.76	1396.0	15.6	1418.5	12.5	1452.4	20.3	1452.4	20.3	96.1
-#2 BC2 Spot 69	154	73891	1.3	10.9488	1.0	3.0931	1.9	0.2457	1.6	0.85	1416.4	20.5	1431.0	14.6	1452.7	19.0	1452.7	19.0	97.5
-#2 BC2 Spot 36	148	15096	1.7	10.9445	1.0	3.1393	1.6	0.2493	1.3	0.77	1434.9	16.2	1442.4	12.5	1453.5	19.7	1453.5	19.7	98.7
-#2 BC2 Spot 23	223	33710	1.8	10.9420	0.8	3.0412	1.4	0.2415	1.2	0.85	1394.2	15.3	1418.0	11.0	1453.9	14.6	1453.9	14.6	95.9
-#2 BC2 Spot 80	308	387680	2.3	10.9343	1.0	3.1725	1.9	0.2517	1.5	0.83	1447.2	20.0	1450.5	14.3	1455.3	19.7	1455.3	19.7	99.4
-#2 BC2 Spot 185	457	39821	3.2	10.9315	0.7	1.2803	5.5	0.1015	5.4	0.99	623.5	32.2	837.0	31.2	1455.7	14.1	1455.7	14.1	42.8
-#2 BC2 Spot 148	79	74106	0.5	10.9088	1.2	3.1054	1.9	0.2458	1.5	0.77	1416.8	19.0	1434.0	14.9	1459.7	23.3	1459.7	23.3	97.1
-#2 BC2 Spot 40	388	227235	2.4	10.9080	0.9	3.1087	1.9	0.2460	1.7	0.89	1418.0	22.1	1434.8	14.9	1459.8	16.6	1459.8	16.6	97.1
-#2 BC2 Spot 177	204	41799	1.6	10.9064	0.8	3.1283	1.2	0.2476	0.9	0.76	1425.9	12.1	1439.7	9.5	1460.1	15.2	1460.1	15.2	97.7
-#2 BC2 Spot 314	91	60491	0.6	10.8864	1.1	3.1815	1.9	0.2513	1.5	0.80	1445.2	19.4	1452.7	14.6	1463.6	21.7	1463.6	21.7	98.7
-#2 BC2 Spot 37	289	26441	1.3	10.8783	0.8	3.0810	1.4	0.2432	1.1	0.81	1403.2	14.0	1428.0	10.6	1465.0	15.6	1465.0	15.6	95.8
-#2 BC2 Spot 143	272	30366	1.5	10.8688	1.0	3.1885	1.6	0.2515	1.3	0.80	1446.0	16.5	1454.4	12.4	1466.7	18.4	1466.7	18.4	98.6
-#2 BC2 Spot 16	129	34894	1.2	10.8688	1.0	3.1090	1.6	0.2452	1.3	0.82	1413.6	17.0	1434.9	12.6	1466.7	18.1	1466.7	18.1	96.4
-#2 BC2 Spot 223	875	17250	3.6	10.8609	1.0	1.2435	3.3	0.0980	3.1	0.95	602.6	18.1	820.5	18.6	1468.1	19.6	1468.1	19.6	41.0
-#2 BC2 Spot 192	52	10124	1.1	10.8601	0.9	3.2539	1.5	0.2564	1.2	0.80	1471.4	16.3	1470.1	12.0	1468.2	17.4	1468.2	17.4	100.2
-#2 BC2 Spot 63	255	126534	0.7	10.8597	0.9	3.2064	1.6	0.2527	1.4	0.83	1452.2	17.8	1458.7	12.7	1468.3	17.4	1468.3	17.4	98.9
-#2 BC2 Spot 8	228	38607	1.6	10.8428	1.0	3.2184	1.9	0.2532	1.7	0.86	1455.0	21.7	1461.6	15.0	1471.2	18.8	1471.2	18.8	98.9
-#2 BC2 Spot 97	170	1547564	3.0	10.8423	1.0	3.1125	1.7	0.2449	1.4	0.82	1411.9	17.9	1435.8	13.2	1471.3	18.6	1471.3	18.6	96.0
-#2 BC2 Spot 201	204	213072	1.9	10.8354	0.9	3.2072	1.5	0.2521	1.2	0.81	1449.5	15.4	1458.9	11.4	1472.5	16.5	1472.5	16.5	98.4
-#2 BC2 Spot 17	193	34531	0.6	10.8120	0.8	3.1760	1.3	0.2492	1.1	0.82	1434.1	14.0	1451.3	10.3	1476.6	14.6	1476.6	14.6	97.1
-#2 BC2 Spot 59	216	141300	1.7	10.7516	0.9	2.8708	1.7	0.2240	1.4	0.84	1302.7	16.7	1374.3	12.7	1487.2	17.1	1487.2	17.1	87.6
-#2 BC2 Spot 215	177	18324	0.9	10.6649	0.9	3.0115	1.5	0.2330	1.2	0.79	1350.4	14.9	1410.5	11.7	1502.5	17.7	1502.5	17.7	89.9
-#2 BC2 Spot 137	219	10301	0.0	10.6487	1.5	2.7613	2.3	0.2134	1.8	0.76	1246.7	20.1	1345.2	17.3	1505.4	28.4	1505.4	28.4	82.8
-#2 BC2 Spot 193	139	9625	1.8	10.5003	1.1	3.2842	1.7	0.2502	1.4	0.79	1439.6	17.8	1477.3	13.6	1531.9	20.1	1531.9	20.1	94.0
-#2 BC2 Spot 197	1322	10268	4.9	10.4240	0.9	0.9070	2.2	0.0686	2.1	0.92	427.7	8.5	655.5	10.8	1545.6	16.8	1545.6	16.8	27.7
-#2 BC2 Spot 81	8569	115583	0.0	10.3697	0.7	3.0092	1.1	0.2264	0.9	0.81	1315.7	10.8	1410.0	8.5	1555.4	12.4	1555.4	12.4	84.6
-#2 BC2 Spot 149	105	299629	141.8	10.2263	1.0	3.8135	1.7	0.2830	1.3	0.80	1606.3	18.8	1595.6	13.4	1581.5	18.8	1581.5	18.8	101.6
-#2 BC2 Spot 114	342	248887	1.6	10.1222	0.7	3.8229	1.2	0.2808	1.0	0.81	1595.2	13.6	1597.6	9.5	1600.6	12.9	1600.6	12.9	99.7
-#2 BC2 Spot 142	873	295384	132.7	10.0623	0.7	3.7895	1.4	0.2767	1.3	0.88	1574.6	17.7	1590.5	11.6	1611.7	13.0	1611.7	13.0	97.7
-#2 BC2 Spot 4	208	38450	2.1	9.9162	0.9	3.9983	1.4	0.2877	1.1	0.78	1629.9	15.5	1633.8	11.2	1638.9	15.9	1638.9	15.9	99.5
-#2 BC2 Spot 307	1380	4209	3.8	9.9156	0.9	1.2651	1.6	0.0910	1.3	0.81	561.6	6.9	830.2	9.0	1639.0	17.2	1639.0	17.2	34.3
-#2 BC2 Spot 227	165	58574	0.9	9.8984	1.0	4.0251	1.7	0.2891	1.4	0.82	1637.0	19.7	1639.3	13.5	1642.2	17.7	1642.2	17.7	99.7
-#2 BC2 Spot 170	118	9496	1.3	9.8911	1.1	4.2180	1.9	0.3027	1.5	0.79	1704.8	21.9	1677.5	15.3	1643.6	21.3	1643.6	21.3	103.7
-#2 BC2 Spot 250	237	55057	0.7	9.8390	1.1	4.1570	1.7	0.2968	1.3	0.75	1675.3	18.9	1665.6	13.9	1653.4	20.7	1653.4	20.7	101.3
-#2 BC2 Spot 240	138	20848	1.2	9.8361	1.0	4.2269	1.7	0.3017	1.4	0.80	1699.6	20.6	1679.3	14.1	1653.9	18.9	1653.9	18.9	102.8

-#2 BC2 Spot 206	402	36852	3.0	9.8266	0.9	4.2875	1.5	0.3057	1.2	0.82	1719.5	18.5	1691.0	12.4	1655.7	16.1	1655.7	16.1	103.9
-#2 BC2 Spot 101	136	18142	3.3	9.8263	0.8	4.3027	1.5	0.3068	1.2	0.83	1724.8	18.8	1693.9	12.3	1655.8	15.5	1655.8	15.5	104.2
-#2 BC2 Spot 47	547	57688	2.1	9.8153	0.8	4.2323	1.9	0.3014	1.7	0.91	1698.4	25.7	1680.3	15.4	1657.9	14.0	1657.9	14.0	102.4
-#2 BC2 Spot 171	251	86418	2.1	9.7970	0.8	4.2292	1.3	0.3006	1.0	0.77	1694.5	14.8	1679.7	10.6	1661.3	15.1	1661.3	15.1	102.0
-#2 BC2 Spot 195	170	338506	1.3	9.7827	0.8	4.1326	1.5	0.2933	1.2	0.83	1658.2	18.1	1660.8	12.2	1664.0	15.3	1664.0	15.3	99.7
-#2 BC2 Spot 172	182	20324	1.8	9.7586	0.8	4.1157	1.5	0.2914	1.2	0.85	1648.6	18.0	1657.4	11.9	1668.6	14.2	1668.6	14.2	98.8
-#2 BC2 Spot 226	87	21958	1.6	9.7546	0.9	4.1995	1.6	0.2972	1.3	0.82	1677.6	19.7	1673.9	13.4	1669.3	17.3	1669.3	17.3	100.5
-#2 BC2 Spot 233	164	29128	1.8	9.7524	0.9	4.2689	1.8	0.3021	1.5	0.84	1701.6	22.3	1687.4	14.5	1669.8	17.5	1669.8	17.5	101.9
-#2 BC2 Spot 310	228	444494	1.2	9.7476	0.9	4.3475	1.8	0.3075	1.6	0.88	1728.3	24.5	1702.4	15.2	1670.7	16.5	1670.7	16.5	103.5
-#2 BC2 Spot 126	215	28900	0.8	9.7425	0.7	4.1456	1.4	0.2931	1.2	0.86	1656.8	17.7	1663.3	11.6	1671.6	13.6	1671.6	13.6	99.1
-#2 BC2 Spot 42	594	70185	2.0	9.7417	0.8	4.1965	1.5	0.2966	1.3	0.83	1674.5	18.7	1673.3	12.5	1671.8	15.6	1671.8	15.6	100.2
-#2 BC2 Spot 294	96	29929	0.8	9.7395	1.1	4.2462	1.7	0.3001	1.3	0.77	1691.7	19.3	1683.0	13.8	1672.2	19.9	1672.2	19.9	101.2
-#2 BC2 Spot 54	316	106268	6.4	9.7327	0.7	4.2114	1.5	0.2974	1.4	0.89	1678.4	20.0	1676.2	12.5	1673.5	12.7	1673.5	12.7	100.3
-#2 BC2 Spot 7	348	156156	2.3	9.7016	0.8	4.2330	1.5	0.2980	1.2	0.84	1681.2	18.2	1680.4	12.1	1679.4	14.8	1679.4	14.8	100.1
-#2 BC2 Spot 41	53	9890	1.0	9.6977	1.1	4.1709	1.8	0.2935	1.5	0.81	1658.9	21.8	1668.3	15.0	1680.2	19.8	1680.2	19.8	98.7
-#2 BC2 Spot 39	196	61205	1.7	9.6963	0.9	4.3019	1.7	0.3027	1.4	0.82	1704.5	20.2	1693.7	13.6	1680.4	17.5	1680.4	17.5	101.4
-#2 BC2 Spot 246	130	43680	2.3	9.6574	1.0	4.4752	1.9	0.3136	1.6	0.85	1758.3	25.3	1726.4	16.1	1687.8	19.0	1687.8	19.0	104.2
-#2 BC2 Spot 190	72	12326	1.2	9.6553	0.8	4.2061	1.3	0.2947	1.0	0.79	1664.8	14.8	1675.2	10.5	1688.2	14.6	1688.2	14.6	98.6
-#2 BC2 Spot 152	947	47792	8.7	9.6537	0.6	4.0206	1.5	0.2816	1.3	0.91	1599.5	18.8	1638.4	11.9	1688.6	11.1	1688.6	11.1	94.7
-#2 BC2 Spot 53	96	36379	1.1	9.6514	0.8	4.1807	1.4	0.2928	1.1	0.80	1655.4	16.7	1670.2	11.7	1689.0	15.6	1689.0	15.6	98.0
-#2 BC2 Spot 108	853	344354	37.5	9.6482	0.9	4.1727	1.7	0.2921	1.4	0.84	1652.1	20.3	1668.7	13.6	1689.6	16.6	1689.6	16.6	97.8
-#2 BC2 Spot 74	112	36018	1.4	9.6473	0.9	4.2738	1.7	0.2992	1.5	0.86	1687.1	21.9	1688.3	14.1	1689.8	16.2	1689.8	16.2	99.8
-#2 BC2 Spot 106	166	35704	1.7	9.6438	0.8	4.2497	1.5	0.2974	1.2	0.85	1678.2	18.3	1683.7	12.0	1690.4	14.2	1690.4	14.2	99.3
-#2 BC2 Spot 83	149	29454	1.5	9.6394	0.9	4.4377	1.6	0.3104	1.3	0.83	1742.6	19.8	1719.4	13.0	1691.3	16.2	1691.3	16.2	103.0
-#2 BC2 Spot 254	567	85741	204.6	9.6333	0.9	4.1479	1.7	0.2899	1.5	0.86	1641.2	21.7	1663.8	14.3	1692.5	16.5	1692.5	16.5	97.0
-#2 BC2 Spot 212	739	104130	10.3	9.6300	0.9	4.4036	1.6	0.3077	1.3	0.84	1729.4	20.4	1713.0	13.3	1693.1	16.0	1693.1	16.0	102.1
-#2 BC2 Spot 76	417	59555	6.0	9.6300	0.7	4.4736	1.3	0.3126	1.1	0.83	1753.4	16.5	1726.1	10.8	1693.1	13.3	1693.1	13.3	103.6
-#2 BC2 Spot 263	113	72407	6.9	9.6273	0.9	4.3549	1.8	0.3042	1.5	0.86	1712.1	22.9	1703.8	14.6	1693.6	16.7	1693.6	16.7	101.1
-#2 BC2 Spot 156	33	3510	6.5	9.6193	1.2	4.4370	1.7	0.3097	1.2	0.69	1739.1	18.2	1719.3	14.3	1695.1	22.9	1695.1	22.9	102.6
-#2 BC2 Spot 29	276	167032	1.9	9.6103	0.9	4.5199	1.4	0.3152	1.0	0.76	1766.1	16.1	1734.6	11.4	1696.9	16.4	1696.9	16.4	104.1
-#2 BC2 Spot 244	187	30350	2.6	9.5954	0.8	4.4012	1.6	0.3064	1.4	0.86	1723.1	21.1	1712.6	13.4	1699.7	15.3	1699.7	15.3	101.4
-#2 BC2 Spot 88	178	40802	1.4	9.5939	1.3	4.3026	2.2	0.2995	1.9	0.82	1688.9	27.5	1693.9	18.5	1700.0	23.5	1700.0	23.5	99.3
-#2 BC2 Spot 33	365	91893	2.0	9.5902	0.8	4.2317	1.6	0.2945	1.4	0.87	1663.8	20.5	1680.2	13.2	1700.7	14.3	1700.7	14.3	97.8
-#2 BC2 Spot 213	2964	8816	209.0	9.5817	0.7	1.0363	1.6	0.0720	1.4	0.89	448.5	6.2	722.1	8.4	1702.4	13.7	1702.4	13.7	26.3
-#2 BC2 Spot 122	56	8007	1.0	9.5790	0.8	4.2176	1.5	0.2931	1.2	0.82	1657.2	17.7	1677.5	12.1	1702.9	15.4	1702.9	15.4	97.3
-#2 BC2 Spot 200	376	32109	0.7	9.5722	0.9	4.3823	1.7	0.3044	1.4	0.84	1713.0	21.2	1709.0	13.8	1704.2	16.5	1704.2	16.5	100.5
-#2 BC2 Spot 145	223	75522	2.2	9.5598	0.8	4.3657	1.6	0.3028	1.3	0.84	1705.3	19.7	1705.9	12.9	1706.6	15.6	1706.6	15.6	99.9
-#2 BC2 Spot 163	591	344636	3.5	9.5487	0.9	4.4681	1.6	0.3096	1.3	0.82	1738.6	20.0	1725.1	13.2	1708.7	16.6	1708.7	16.6	101.7
-#2 BC2 Spot 261	830	74731	6.2	9.5431	0.9	4.1772	1.7	0.2892	1.5	0.86	1637.8	21.5	1669.6	14.1	1709.8	16.1	1709.8	16.1	95.8
-#2 BC2 Spot 205	525	228369	10.5	9.5400	0.7	4.4276	1.4	0.3065	1.2	0.86	1723.4	18.1	1717.5	11.5	1710.4	13.1	1710.4	13.1	100.8
-#2 BC2 Spot 248	172	56067	2.3	9.5286	1.0	4.2963	1.5	0.2970	1.1	0.73	1676.6	16.3	1692.6	12.4	1712.6	18.9	1712.6	18.9	97.9
-#2 BC2 Spot 214	63	12205	1.9	9.5230	0.9	4.5692	1.5	0.3157	1.2	0.80	1768.8	18.6	1743.7	12.5	1713.7	16.6	1713.7	16.6	103.2
-#2 BC2 Spot 304	1121	18726	9.6	9.5203	0.8	1.6327	3.2	0.1128	3.1	0.97	688.9	20.4	982.9	20.3	1714.2	14.7	1714.2	14.7	40.2
-#2 BC2 Spot 70	91	46943	7.2	9.5181	1.0	4.4149	1.6	0.3049	1.2	0.79	1715.6	18.6	1715.1	12.9	1714.6	17.5	1714.6	17.5	100.1
-#2 BC2 Spot 124	159	31642	2.6	9.5114	0.9	4.4940	1.2	0.3101	0.9	0.71	1741.4	13.6	1729.9	10.4	1715.9	16.1	1715.9	16.1	101.5
-#2 BC2 Spot 202	85	33740	5.9	9.4991	0.8	4.5023	1.7	0.3103	1.4	0.86	1742.2	21.8	1731.4	13.7	1718.3	15.2	1718.3	15.2	101.4
-#2 BC2 Spot 9	723	61030	7.7	9.4658	1.0	3.8265	1.5	0.2628	1.1	0.73	1504.2	14.6	1598.3	12.0	1724.7	18.9	1724.7	18.9	87.2
-#2 BC2 Spot 109	449	144602	10.1	9.4650	0.8	4.2397	1.7	0.2912	1.5	0.87	1647.3	21.7	1681.7	14.1	1724.9	15.4	1724.9	15.4	95.5
-#2 BC2 Spot 132	154	25800	2.9	9.4468	1.0	4.5616	1.6	0.3127	1.3	0.81	1753.9	20.5	1742.3	13.7	1728.4	17.7	1728.4	17.7	101.5
-#2 BC2 Spot 219	106	16494	4.7	9.4113	1.1	4.5801	1.9	0.3128	1.6	0.82	1754.3	24.1	1745.6	15.9	1735.3	20.0	1735.3	20.0	101.1
-#2 BC2 Spot 105	211	369192	2.7	9.4090	0.9	4.5270	1.5	0.3091	1.2	0.80	1736.1	18.6	1735.9	12.7	1735.8	16.8	1735.8	16.8	100.0
-#2 BC2 Spot 71	622	230319	1.9	9.3541	0.7	4.4784	1.5	0.3040	1.4	0.89	1710.9	20.4	1727.0	12.6	1746.5	12.4	1746.5	12.4	98.0
-#2 BC2 Spot 77	144	36691	2.7	9.3506	1.0	4.6016	1.6	0.3122	1.2	0.75	1751.5	18.3	1749.6	13.2	1747.2	19.0	1747.2	19.0	100.2
-#2 BC2 Spot 19	329	45148	2.2	9.3402	0.9	3.8125	1.4	0.2584	1.1	0.79	1481.5	14.6	1595.4	11.3	1749.2	15.8	1749.2	15.8	84.7
-#2 BC2 Spot 159	72	17830	1.8	9.3010	0.8	4.5494	1.5	0.3070	1.3	0.84	1726.1	19.7	1740.1	12.9	1756.9	15.2	1756.9	15.2	98.2
-#2 BC2 Spot 234	235	35187	3.4	9.2902	0.7	3.8710	2.1	0.2609	2.0	0.95	1494.6	26.6	1607.6	16.9	1759.0	12.1	1759.0	12.1	85.0
-#2 BC2 Spot 87	661	29427	3.4	9.2822	0.8	4.0647	1.8	0.2738	1.6	0.89	1559.9	22.3	1647.2	14.8	1760.6	15.4	1760.6	15.4	88.6
-#2 BC2 Spot 279	460	145994	3.8	9.2736	0.9	4.7727	1.6	0.3211	1.3	0.84	1795.3	21.0	1780.1	13.4	1762.3	16.0	1762.3	16.0	101.9
-#2 BC2 Spot 92	50	6207	1.1	9.2734	1.1	4.4720	1.8	0.3009	1.4	0.79	1695.8	21.4	1725.8	15.1	1762.3	20.6	1762.3	20.6	96.2
-#2 BC2 Spot 292	421	48230	2.9	9.2587	0.8	4.4722	1.7	0.3004	1.5	0.87	1693.5	21.7	1725.8	14.0	1765.3	15.4	1765.3	15.4	95.9
-#2 BC2 Spot 160	288	51673	5.1	9.2540	0.8	4.8133	1.6	0.3232	1.4	0.86	1805.3	21.9	1787.2	13.5	1766.2	14.8	1766.2	14.8	102.2
-#2 BC2 Spot 182	193	39794	4.2	9.2494	0.7	4.8056	1.4	0.3225	1.2	0.88	1802.0	19.6	1785.9	11.9	1767.1	12.4	1767.1	12.4	102.0
-#2 BC2 Spot 52	83	35264	7.7	9.2422	1.1	4.7051	1.5	0.3155	1.1	0.69	1767.8	16.4	1768.2	12.9	1768.5	20.3	1768.5	20.3	100.0
-#2 BC2 Spot 26	1016	230034	2.0	9.2393	0.9	4.5691	1.5	0.3063	1.2	0.82	1722.5	18.7	1743.7	12.5	1769.1	15.5	1769.1	15.5	97.4
-#2 BC2 Spot 151	79	12457	3.3	9.2343	0.9	4.6442	1.4	0.3112	1.1	0.78	1746.5	16.9	1757.3	11.8	1770.1	16.2	1770.1	16.2	98.7
-#2 BC2 Spot 104	194	100565	3.7	9.2017	0.8	4.7963	1.3	0.3202	1.0	0.78	1790.9	16.2	1784.3	11.2	1776.5	15.1	1776.5	15.1	100.8
-#2 BC2 Spot 179	65	343300	5.8	9.1931	1.1	4.7295	1.9	0.3155	1.5	0.81	1767.6	23.6	1772.5	15.8	1778.2	20.2	1778.2	20.2	99.4
-#2 BC2 Spot 75	687	39746	1.8	9.1915	0.8	4.1356	1.5	0.2758	1.2	0.83	1570.2	17.0	1661.4	12.0	1778.5	15.2	1778.5	15.2	88.3
-#2 BC2 Spot 228	480	28210	2.8	9.1844	0.8	3.9688	1.6	0.2645	1.4	0.85	1512.8	18.5	1627.8	13.0	1779.9	15.2	1779.9	15.2	85.0
-#2 BC2 Spot 0	231	13835	2.7	9.1799	1.5	4.0670	2.4	0.2709	1.9	0.79	1545.3	26.5	1647.7	19.8	1780.8	26.9	1780.8	26.9	86.8
-#2 BC2 Spot 1	309	33763	2.5	9.1763	0.8	4.4804	1.6	0.2983	1.4	0.86	1682.9	20.7	1727.3	13.5	1781.6	15.4	1781.6	15.4	94.5
-#2 BC2 Spot 238	450	93226	2.3	9.1747	0.9	4.7985	1.4	0.3194	1.1	0.79	1787.0	17.6	1784.6	11.9	1781.9	15.7	1781.9	15.7	100.3
-#2 BC2 Spot 154	258	46358	4.3	9.1706	0.9	4.8278	1.5	0.3212	1.2	0.82	1795.8	19.1	1789.8	12.5	1782.7	15.7	1782.7	15.7	100.7
-#2 BC2 Spot 309	658	38160	3.9	9.1621	0.9	3.8941	1.7	0.2589	1.5	0.86	1484.1	19.5	1612.4	13.8	1784.4	15.8	1784.4	15.8	83.2
-#2 BC2 Spot 266	1269	13220	4.9	9.1582	1.0	1.6062	2.7	0.1067	2.6	0.94	653.8	15.9	972.6	17.1	1785.2	17.6	1785.2	17.6	36.6
-#2 BC2 Spot 289	1835	4417	2.1	9.1528	0.9	1.5272	1.6	0.1014	1.3	0.84	622.7	7.8	941.4	9.7	1786.2	15.8	1786.2	15.8	34.9
-#2 BC2 Spot 269	112	26836	3.7	9.1522	1.0	4.8276	1.6	0.3206	1.3	0.77	1792.6	19.6	1789.7	13.7	1786.4	19.0	1786.4	19.0	100.3
-#2 BC2 Spot 308	164	16418	2.9	9.1493	0.9	4.7088	1.6	0.3126	1.3	0.83	1753.5	20.2	1768.8	13.3	1786.9	16.2	1786.9	16.2	98.1
-#2 BC2 Spot 181	373	34304	4.4	9.1468	0.9	4.6842	1.5	0.3109	1.2	0.81	1745.0	18.2	1764.4	12.3	1787.4	15.6	1787.4	15.6	97.6
-#2 BC2 Spot 57	553	179410	2.1	9.1196	0.9	4.8298	1.5	0.3196	1.2	0.79	1787.7	18.4	1790.1	12.6	1792.9	16.6	1792.9	16.6	99.7
-#2 BC2 Spot 144	378	99823	2.9	9.1139	0.9	4.7921	1.4	0.3169	1.1	0.77	1774.5	17.0	1783.5	12.0	1794.0	16.7	1794.0	16.7	98.9
-#2 BC2 Spot 305	482	189535	3.9	9.1112	0.9	4.9548	1.5	0.3276	1.2	0.82	1826.5	19.6	1811.6	12.7	1794.5	15.5	1794.5	15.5	101.8
-#2 BC2 Spot 103	395	110628	4.1	9.1103	0.9	4.7515	1.5	0.3141	1.2	0.82	1760.8	18.6	1776.4	12.4	1794.7	15.6	1794.7	15.6	98.1
-#2 BC2 Spot 32	215	654157	4.2	9.0936	0.9	4.8249	1.7	0.3184	1.4	0.84	1781.7	22.4	1789.3	14.4	1798.1	17.0	1798.1	17.0	99.1
-#2 BC2 Spot 45	166	27831	3.4	9.0840	0.9	4.9061	1.9	0.3234	1.6	0.86	1806.2	25.3	1803.3	15.7	1800.0	17.0	1800.0	17.0	100.3
-#2 BC2 Spot 271	489	165074	2.5	9.0584	0.9	4.7417	1.4	0.3117	1.1	0.75	1748.9	16.2	1774.6	11.8	1805.1	16.8	1805.1	16.8	96.9
-#2 BC2 Spot 296	810	25190	9.6	8.8807	0.9	4.2542	1.9	0.2741	1.6	0.88	1561.7	22.6	1684.5	15.3	1841.1	16.1	1841.1	16.1	84.8
-#2 BC2 Spot 96	171	22213	1.1	8.7132	0.9	4.5556	1.9	0.2880	1.7	0.88	1631.6	23.9	1741.2	15.6	1875.5	15.8	1875.5	15.8	87.0
-#2 BC2 Spot 157	206	24998	2.3	8.5732	0.8	5.3233	1.4	0.3311	1.1	0.80	1843.9	17.9	1872.6	11.9	1904.6	14.8	1904.6	14.8	96.8
-#2 BC2 Spot 230	1405	1091938	6.4	8.2646	0.8	5.8819	1.7	0.3527	1.5	0.88	1947.6	24.9	1958.6	14.5	1970.2	14.0	1970.2	14.0	98.9
-#2 BC2 Spot 129	317	2072997	2.0	8.2417	1.0	5.8958	1.9	0.3526	1.6	0.85	1946.9	27.4	1960.6	16.7	1975.1	18.4	1975.1	18.4	98.6
-#2 BC2 Spot 18	355	40961	5.3	8.1790	0.9	5.9745	1.6	0.3546	1.2	0.79	1956.3	20.8	1972.1	13.5	1988.7	16.9	1988.7	16.9	98.4
-#2 BC2 Spot 86	174	41222	1.7	7.9931	0.9	6.4565	1.4	0.3745	1.1	0.78	2050.3	19.1	2040.0	12.2	2029.5	15.3	2029.5	15.3	101.0
-#2 BC2 Spot 198	2103	1646	9.8	7.7943	1.0	1.5065	2.5	0.0852	2.3	0.92	527.1	11.5	933.0	15.1	2074.0	17.1	2074.0	17.1	25.4
-#2 BC2 Spot 165	623	30560	2.4	6.8552	0.9	7.7350	1.7	0.3847	1.5	0.86	2098.4	26.6	2200.7	15.4	2297.4	14.9	2297.4	14.9	91.3
-#2 BC2 Spot 50	548	418305	13.3	5.8271	0.9	11.5789	1.6	0.4896	1.4	0.85	2568.8	29.5	2571.0	15.3	2572.7	14.4	2572.7	14.4	99.8
-#2 BC2 Spot 28	65	13121	0.8	5.0957	1.0	14.3759	1.7	0.5315	1.4	0.81	2747.9	31.4	2774.8	16.5	2794.5	16.9	2794.5	16.9	98.3

1. Analyses with >10% uncertainty (1-sigma) in 206Pb/238U age are not included.
2. Analyses with >10% uncertainty (1-sigma) in 206Pb/207Pb age are not included, unless 206Pb/238U age is <400 Ma.
3. Best age is determined from 206Pb/238U age for analyses with 206Pb/238U age <900 Ma and from 206Pb/207Pb age for analyses with 206Pb/238Uage >900 Ma.
4. Concordance is based on 206Pb/238U age / 206Pb/207Pb age. Value is not reported for 206Pb/238U ages <400 Ma because of large uncertainty in 206Pb/207Pb age.
5. Analyses with 206Pb/238U age >400 Ma and with >20% discordance (<80% concordance) are not included.

6. Analyses with 206Pb/238U age >400 Ma and with >5% reverse discordance (<105% concordance) are not included.
7. All uncertainties are reported at the 2-sigma level, and include only measurement errors.
8. Systematic errors are as follows (at 2-sigma level): [sample 1: xxx% (206Pb/238U) & xxx% (206Pb/207Pb)]
9. Analyses conducted by LA-ICPMS, as described by Gehrels et al. (2008) and Gehrels and Pecha (2014).
10. U concentration and U/Th are calibrated relative to FC-1 zircon standard and are accurate to ~20%.
11. Common Pb correction is from measured 204Pb with common Pb composition interpreted from Stacey and Kramers (1975).
12. Common Pb composition assigned uncertainties of 1.5 for 206Pb/204Pb, 0.3 for 207Pb/204Pb, and 2.0 for 208Pb/204Pb.
13. U/Pb and 206Pb/207Pb fractionation is calibrated relative to fragments of large Sri Lanka zircons and individual crystals of FC-1, and R33.
14. U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U/235U = 137.82.
15. Weighted mean and concordia plots determined with Isoplot (Ludwig, 2008).

Aliquot Name	LMRC2_18
Stratigraphic Formation Name	
Stratigraphic Age	
Rock Type	
Mineral	Zircon
Method	U-Pb
Latitude	
Longitude	
Internal Uncertainty Level	one sigma
External Uncertainty 206/238 (% two sigma)	0.93443739
External Uncertainty 206/207 (% two sigma)	0.6647065
Analysis Purpose	
Laboratory Name	Arizona LaserChron Center
Analyst Name	
Aliquot Reference	
Aliquot Instrumental Method	LA-ICPMS
Aliquot Instrumental Reference	Gehrels, G.E., Valencia, V., Ruiz, J., 2008, Enhanced precision, accuracy, efficiency, and spatial resolution of U-Pb ages by laser ablation-multicollector-inductively coupled plasma-mass spectrometry: Geochemistry, Geophysics, Geosystems, v. 9, Q03017, doi:10.1029/2007GC001805. Gehrels, G. and Pecha, M., 2014, Detrital zircon U-Pb geochronology and Hf isotope geochemistry of Paleozoic and Triassic passive margin strata of western North America: Geosphere, v. 10 (1), p. 49-65.

				Isotope ratios							Apparent ages (Ma)									
Analysis	U (ppm)	206Pb 204Pb	U/Th	206Pb* 207Pb*	± (%)	207Pb* 235U*	± (%)	206Pb* 238U	± (%)	error corr.	206Pb* 238U*	± (Ma)	207Pb* 235U	± (Ma)	206Pb* 207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)
-#5 Lil mtn RC2 Spot 270	1415	285	3.6	4.3129	0.9	1.5627	1.7	0.0489	1.4	0.86	307.8	4.4	955.5	10.5	3064.2	13.9	307.8	4.4	NA
-#5 Lil mtn RC2 Spot 193	946	468	3.1	5.6475	0.9	1.5589	2.0	0.0639	1.8	0.90	399.2	7.0	954.0	12.4	2624.9	14.8	399.2	7.0	NA
-#5 Lil mtn RC2 Spot 135	535	93887	2.2	17.6897	0.9	0.5088	1.9	0.0653	1.6	0.88	407.8	6.5	417.7	6.4	472.3	19.6	407.8	6.5	86.4
-#5 Lil mtn RC2 Spot 31	214	13367	3.9	17.9617	1.1	0.5290	1.6	0.0689	1.2	0.73	429.8	4.8	431.1	5.6	438.4	24.5	429.8	4.8	98.0
-#5 Lil mtn RC2 Spot 293	578	183910	0.9	13.4336	0.7	0.8684	1.3	0.0846	1.1	0.84	523.8	5.4	634.7	6.1	1052.6	14.1	523.8	5.4	49.8
-#5 Lil mtn RC2 Spot 72	112	10225	2.2	17.0907	1.6	0.7205	1.9	0.0894	1.0	0.53	551.7	5.3	551.0	8.0	548.0	34.8	551.7	5.3	100.7
-#5 Lil mtn RC2 Spot 52	191	17968	1.3	16.8226	1.0	0.7461	1.6	0.0911	1.2	0.76	561.9	6.5	566.0	6.9	582.4	22.6	561.9	6.5	96.5
-#5 Lil mtn RC2 Spot 18	271	510976	3.8	14.1474	1.0	1.4965	1.4	0.1536	1.0	0.72	921.2	8.8	929.0	8.7	947.4	20.3	947.4	20.3	97.2
-#5 Lil mtn RC2 Spot 80	121	57689	3.7	13.9417	0.9	1.5267	1.5	0.1544	1.1	0.78	925.8	9.9	941.2	9.1	977.3	18.9	977.3	18.9	94.7
-#5 Lil mtn RC2 Spot 56	116	19061	1.0	13.9205	1.0	1.5919	1.5	0.1608	1.1	0.72	961.2	9.6	967.0	9.3	980.5	20.9	980.5	20.9	98.0
-#5 Lil mtn RC2 Spot 259	35	6446	1.1	13.8667	1.8	1.7043	2.1	0.1715	1.1	0.51	1020.2	10.1	1010.1	13.5	988.3	37.0	988.3	37.0	103.2
-#5 Lil mtn RC2 Spot 208	30	8080	0.8	13.8212	1.2	1.7052	1.6	0.1710	1.1	0.65	1017.7	10.0	1010.5	10.4	995.0	25.0	995.0	25.0	102.3
-#5 Lil mtn RC2 Spot 63	80	23981	1.4	13.8048	1.0	1.6149	1.3	0.1618	0.9	0.69	966.5	8.3	976.0	8.4	997.4	19.8	997.4	19.8	96.9
-#5 Lil mtn RC2 Spot 197	145	7372	2.0	13.7971	0.7	1.6885	1.2	0.1690	1.0	0.81	1006.8	9.1	1004.2	7.7	998.5	14.5	998.5	14.5	100.8
-#5 Lil mtn RC2 Spot 225	364	26167	2.6	13.7607	0.7	1.7217	1.2	0.1719	1.0	0.81	1022.6	9.2	1016.7	7.7	1003.9	14.2	1003.9	14.2	101.9
-#5 Lil mtn RC2 Spot 158	314	54947	1.6	13.7454	0.9	1.6583	1.5	0.1654	1.2	0.82	986.6	11.3	992.7	9.5	1006.1	17.4	1006.1	17.4	98.1
-#5 Lil mtn RC2 Spot 109	74	11328	3.1	13.7257	1.0	1.7385	1.5	0.1731	1.1	0.75	1029.4	10.8	1022.9	9.8	1009.1	20.4	1009.1	20.4	102.0
-#5 Lil mtn RC2 Spot 157	40	5110	1.0	13.7248	1.2	1.7243	1.7	0.1717	1.2	0.70	1021.5	11.2	1017.6	10.8	1009.2	24.3	1009.2	24.3	101.2
-#5 Lil mtn RC2 Spot 55	401	39186	10.4	13.6626	0.9	1.7052	1.4	0.1690	1.1	0.78	1006.8	10.0	1010.5	8.8	1018.4	17.2	1018.4	17.2	98.9
-#5 Lil mtn RC2 Spot 82	60	5536	1.3	13.6488	1.1	1.7452	1.7	0.1728	1.4	0.79	1027.7	13.0	1025.4	11.2	1020.4	21.4	1020.4	21.4	100.7
-#5 Lil mtn RC2 Spot 165	216	25303	3.1	13.6435	0.9	1.6831	1.6	0.1666	1.3	0.81	993.5	11.9	1002.2	10.2	1021.2	19.1	1021.2	19.1	97.3
-#5 Lil mtn RC2 Spot 304	138	15703	3.4	13.6353	0.9	1.6218	1.4	0.1605	1.1	0.75	959.3	9.4	978.7	8.8	1022.4	18.6	1022.4	18.6	93.8
-#5 Lil mtn RC2 Spot 310	163	21752	3.5	13.6331	0.9	1.7540	1.6	0.1735	1.3	0.81	1031.4	12.3	1028.7	10.3	1022.8	18.9	1022.8	18.9	100.8
-#5 Lil mtn RC2 Spot 23	164	36147	2.0	13.6158	0.7	1.7562	1.4	0.1735	1.2	0.87	1031.4	11.6	1029.4	9.1	1025.3	14.1	1025.3	14.1	100.6
-#5 Lil mtn RC2 Spot 284	243	34766	3.4	13.6091	0.7	1.8249	1.3	0.1802	1.0	0.80	1068.1	9.9	1054.5	8.2	1026.3	15.0	1026.3	15.0	104.1
-#5 Lil mtn RC2 Spot 19	187	39084	2.3	13.6027	0.8	1.7151	1.2	0.1693	0.9	0.72	1008.1	8.1	1014.2	7.7	1027.3	16.9	1027.3	16.9	98.1
-#5 Lil mtn RC2 Spot 73	191	20043	1.9	13.5913	0.8	1.7067	1.4	0.1683	1.1	0.80	1002.8	10.5	1011.1	9.0	1029.0	17.0	1029.0	17.0	97.5
-#5 Lil mtn RC2 Spot 148	245	16153	2.2	13.5809	0.8	1.8176	1.1	0.1791	0.8	0.69	1062.1	7.7	1051.8	7.5	1030.5	16.8	1030.5	16.8	103.1
-#5 Lil mtn RC2 Spot 269	290	67284	2.9	13.5753	0.8	1.7457	1.2	0.1719	0.9	0.75	1022.8	8.8	1025.6	8.0	1031.4	16.5	1031.4	16.5	99.2
-#5 Lil mtn RC2 Spot 37	322	646996	2.4	13.5693	0.8	1.7478	1.3	0.1721	1.1	0.81	1023.6	10.1	1026.3	8.5	1032.3	15.4	1032.3	15.4	99.2
-#5 Lil mtn RC2 Spot 142	408	51824	2.9	13.5606	0.8	1.7075	1.3	0.1680	1.0	0.80	1001.1	9.5	1011.4	8.2	1033.5	15.4	1033.5	15.4	96.9
-#5 Lil mtn RC2 Spot 32	58	6356	0.5	13.5500	1.7	1.6804	2.0	0.1652	1.1	0.54	985.7	10.1	1001.1	13.0	1035.1	34.7	1035.1	34.7	95.2
-#5 Lil mtn RC2 Spot 101	154	1129443	2.0	13.5484	0.8	1.7428	1.6	0.1713	1.4	0.86	1019.4	12.8	1024.5	10.1	1035.4	16.1	1035.4	16.1	98.5
-#5 Lil mtn RC2 Spot 34	131	28825	2.4	13.5468	1.0	1.7278	1.5	0.1698	1.1	0.75	1011.2	10.3	1018.9	9.5	1035.6	19.8	1035.6	19.8	97.6
-#5 Lil mtn RC2 Spot 201	45	5802	1.7	13.5432	1.1	1.8224	1.5	0.1791	1.0	0.69	1061.9	10.1	1053.5	9.8	1036.1	21.8	1036.1	21.8	102.5
-#5 Lil mtn RC2 Spot 205	217	36269	3.3	13.5174	0.7	1.8082	1.2	0.1773	1.0	0.82	1052.5	9.4	1048.4	7.7	1040.0	13.6	1040.0	13.6	101.2
-#5 Lil mtn RC2 Spot 126	264	68451	10.4	13.5168	0.8	1.8259	1.4	0.1791	1.1	0.81	1061.9	11.1	1054.8	9.2	1040.1	16.5	1040.1	16.5	102.1
-#5 Lil mtn RC2 Spot 184	253	12390	2.8	13.5056	0.7	1.7547	1.2	0.1720	1.0	0.81	1022.9	9.3	1028.9	7.9	1041.7	14.6	1041.7	14.6	98.2
-#5 Lil mtn RC2 Spot 226	318	69686	6.6	13.4986	0.8	1.7757	1.2	0.1739	0.9	0.73	1033.7	8.2	1036.6	7.6	1042.8	16.2	1042.8	16.2	99.1
-#5 Lil mtn RC2 Spot 28	117	23820	1.9	13.4973	0.8	1.7664	1.4	0.1730	1.1	0.83	1028.6	10.8	1033.2	8.9	1043.0	15.6	1043.0	15.6	98.6
-#5 Lil mtn RC2 Spot 143	110	33022	3.7	13.4894	0.8	1.7703	1.3	0.1733	0.9	0.75	1030.1	9.0	1034.6	8.2	1044.2	16.7	1044.2	16.7	98.7
-#5 Lil mtn RC2 Spot 175	198	223339	2.5	13.4882	0.8	1.7898	1.3	0.1752	1.0	0.78	1040.5	9.8	1041.7	8.5	1044.4	16.4	1044.4	16.4	99.6
-#5 Lil mtn RC2 Spot 119	205	42016	2.9	13.4868	0.7	1.7888	1.3	0.1750	1.1	0.86	1039.9	10.7	1041.4	8.5	1044.6	13.5	1044.6	13.5	99.5
-#5 Lil mtn RC2 Spot 186	34	10505	1.6	13.4857	1.1	1.7154	1.6	0.1679	1.2	0.71	1000.3	10.7	1014.3	10.4	1044.8	22.9	1044.8	22.9	95.7
-#5 Lil mtn RC2 Spot 65	181	19120	1.3	13.4830	0.8	1.7282	1.3	0.1691	1.0	0.77	1007.0	9.0	1019.1	8.1	1045.2	16.1	1045.2	16.1	96.3
-#5 Lil mtn RC2 Spot 192	75	10255	2.4	13.4777	1.2	1.7653	1.7	0.1726	1.2	0.71	1026.6	11.6	1032.8	11.2	1046.0	24.5	1046.0	24.5	98.1
-#5 Lil mtn RC2 Spot 124	65	10674	1.9	13.4690	0.6	1.8213	1.5	0.1780	1.4	0.92	1056.0	13.6	1053.2	9.9	1047.3	11.8	1047.3	11.8	100.8
-#5 Lil mtn RC2 Spot 213	47	9478	1.5	13.4686	0.9	1.8313	1.6	0.1790	1.3	0.81	1061.3	12.4	1056.8	10.3	1047.3	18.5	1047.3	18.5	101.3
-#5 Lil mtn RC2 Spot 274	102	9702	1.6	13.4568	1.3	1.7940	1.8	0.1752	1.2	0.67	1040.5	11.6	1043.3	11.7	1049.1	26.7	1049.1	26.7	99.2
-#5 Lil mtn RC2 Spot 95	187	25348	1.7	13.4567	0.9	1.8262	1.8	0.1783	1.6	0.87	1057.7	15.4	1054.9	11.9	1049.1	17.9	1049.1	17.9	100.8
-#5 Lil mtn RC2 Spot 258	119	20072	3.1	13.4482	0.9	1.8411	1.6	0.1796	1.3	0.81	1065.0	12.5	1060.2	10.3	1050.4	18.6	1050.4	18.6	101.4
-#5 Lil mtn RC2 Spot 27	65	38347	1.5	13.4427	1.2	1.7865	1.6	0.1743	1.1	0.66	1035.5	10.1	1040.6	10.4	1051.2	24.3	1051.2	24.3	98.5
-#5 Lil mtn RC2 Spot 61	224	54365	3.2	13.4405	0.7	1.7992	1.2	0.1755	1.0	0.81	1042.1	9.2	1045.2	7.7	1051.5	13.8	1051.5	13.8	99.1
-#5 Lil mtn RC2 Spot 2	53	10038	1.6	13.4381	0.9	1.8125	1.3	0.1767	0.9	0.72	1049.1	9.1	1050.0	8.5	1051.9	18.1	1051.9	18.1	99.7
-#5 Lil mtn RC2 Spot 223	279	24334	3.9	13.4294	0.7	1.7750	1.3	0.1730	1.0	0.81	1028.4	9.9	1036.4	8.3	1053.2	15.1	1053.2	15.1	97.6
-#5 Lil mtn RC2 Spot 309	273	36110	3.5	13.4270	0.6	1.7941	1.2	0.1748	1.1	0.86	1038.5	10.3	1043.3	8.1	1053.6	12.8	1053.6	12.8	98.6
-#5 Lil mtn RC2 Spot 69	236	20550	3.0	13.4150	0.8	1.8785	1.4	0.1828	1.2	0.82	1082.5	11.7	1073.5	9.5	1055.4	16.5	1055.4	16.5	102.6
-#5 Lil mtn RC2 Spot 17	218	168589	2.6	13.4055	0.8	1.8040	1.5	0.1755	1.3	0.86	1042.2	12.6	1046.9	9.9	1056.8	15.5	1056.8	15.5	98.6
-#5 Lil mtn RC2 Spot 215	372	688639	3.3	13.4022	0.8	1.8395	1.3	0.1789	1.1	0.81	1060.9	10.5	1059.7	8.6	1057.3	15.4	1057.3	15.4	100.3
-#5 Lil mtn RC2 Spot 117	80	15937	1.9	13.3963	1.1	1.7739	1.6	0.1724	1.2	0.74	1025.4	10.9	1035.9	10.2	1058.2	21.3	1058.2	21.3	96.9
-#5 Lil mtn RC2 Spot 116	169	108124	2.4	13.3951	1.0	1.7979	1.6	0.1747	1.3	0.78	1038.2	12.0	1044.7	10.5	1058.3	20.4	1058.3	20.4	98.1
-#5 Lil mtn RC2 Spot 196	66	12419	0.7	13.3935	1.1	1.5524	1.6	0.1509	1.1	0.70	905.8	9.3	951.5	9.7	1058.6	22.8	1058.6	22.8	85.6
-#5 Lil mtn RC2 Spot 306	50	7539	1.7	13.3925	1.0	1.8764	1.7	0.1823	1.4	0.80	1079.7	13.6	1072.8	11.3	1058.7	20.5	1058.7	20.5	102.0
-#5 Lil mtn RC2 Spot 183	343	174847	3.5	13.3923	0.6	1.7974	1.2	0.1747	1.0	0.84	1037.7	9.4	1044.5	7.6	1058.8	12.8	1058.8	12.8	98.0
-#5 Lil mtn RC2 Spot 238	320	64327	2.9	13.3905	0.8	1.8000	1.3	0.1749	1.1	0.82	1039.0	10.5	1045.5	8.7	1059.0	15.3	1059.0	15.3	98.1
-#5 Lil mtn RC2 Spot 125	173	31694	2.0	13.3854	0.8	1.8087	1.4	0.1757	1.2	0.85	1043.2	11.8	1048.6	9.4	1059.8	15.4	1059.8	15.4	98.4
-#5 Lil mtn RC2 Spot 131	145	35433	4.7	13.3480	0.8	1.8083	1.2	0.1751	0.9	0.76	1040.3	8.9	1048.5	8.1	1065.4	16.2	1065.4	16.2	97.6
-#5 Lil mtn RC2 Spot 211	297	52857	4.3	13.3479	0.8	1.7138	1.4	0.1660	1.2	0.83	990.0	10.7	1013.7	8.9	1065.4	15.5	1065.4	15.5	92.9
-#5 Lil mtn RC2 Spot 21	59	25126	3.3	13.3198	1.0	1.7481	1.4	0.1689	1.0	0.72	1006.3	9.4	1026.5	9.0	1069.7	19.3	1069.7	19.3	94.1
-#5 Lil mtn RC2 Spot 236	60	25237	3.7	13.3154	0.9	1.7919	1.4	0.1731	1.1	0.78	1029.3	10.5	1042.5	9.2	1070.3	17.8	1070.3	17.8	96.2
-#5 Lil mtn RC2 Spot 240	230	33630	2.6	13.3147	0.7	1.9003	1.5	0.1836	1.3	0.87	1086.6	12.8	1081.2	9.8	1070.5	14.3	1070.5	14.3	101.5
-#5 Lil mtn RC2 Spot 195	135	52265	2.0	13.2934	0.8	1.6862	1.4	0.1626	1.2	0.83	971.4	10.7	1003.3	9.2	1073.7	16.2	1073.7	16.2	90.5
-#5 Lil mtn RC2 Spot 96	89	44535	2.2	13.2917	1.0	1.8429	1.5	0.1777	1.0	0.72	1054.6	10.2	1060.9	9.6	1073.9	20.1	1073.9	20.1	98.2
-#5 Lil mtn RC2 Spot 233	243	30096	1.9	13.2915	0.9	1.8536	1.7	0.1788	1.4	0.82	1060.2	13.3	1064.7	10.9	1074.0	18.9	1074.0	18.9	98.7

-#5 Lil mtn RC2 Spot 13	125	418772	3.6	13.2884	0.7	1.8924	1.4	0.1825	1.2	0.86	1080.4	12.0	1078.4	9.3	1074.4	14.2	1074.4	14.2	100.6
-#5 Lil mtn RC2 Spot 138	125	18279	2.5	13.2610	0.9	1.8270	1.5	0.1758	1.2	0.78	1044.0	11.3	1055.2	9.9	1078.5	18.8	1078.5	18.8	96.8
-#5 Lil mtn RC2 Spot 167	117	14882	2.9	13.2604	0.8	1.8401	1.3	0.1771	1.0	0.77	1050.8	10.0	1059.9	8.7	1078.6	16.8	1078.6	16.8	97.4
-#5 Lil mtn RC2 Spot 308	52	30721	1.6	13.2532	1.0	1.9011	1.6	0.1828	1.2	0.76	1082.4	11.9	1081.5	10.4	1079.7	20.3	1079.7	20.3	100.2
-#5 Lil mtn RC2 Spot 234	119	19109	0.8	13.2453	0.8	1.9356	1.3	0.1860	1.1	0.82	1099.8	10.9	1093.5	8.8	1080.9	15.1	1080.9	15.1	101.7
-#5 Lil mtn RC2 Spot 25	302	26637	1.9	13.2288	0.9	1.8628	1.4	0.1788	1.1	0.76	1060.4	10.6	1068.0	9.4	1083.4	18.4	1083.4	18.4	97.9
-#5 Lil mtn RC2 Spot 280	122	22521	3.0	13.2215	0.8	1.8466	1.4	0.1772	1.1	0.82	1051.4	11.2	1062.2	9.2	1084.5	16.0	1084.5	16.0	96.9
-#5 Lil mtn RC2 Spot 182	72	136155	1.9	13.2185	0.9	1.7998	1.5	0.1726	1.2	0.80	1026.5	11.2	1045.4	9.6	1085.0	17.6	1085.0	17.6	94.6
-#5 Lil mtn RC2 Spot 0	59	16492	2.7	13.2145	1.2	1.8637	1.7	0.1787	1.2	0.72	1059.8	12.0	1068.3	11.3	1085.6	23.7	1085.6	23.7	97.6
-#5 Lil mtn RC2 Spot 141	381	29415	4.5	13.2101	0.8	1.9035	1.2	0.1825	0.9	0.74	1080.4	8.6	1082.3	7.7	1086.3	15.5	1086.3	15.5	99.5
-#5 Lil mtn RC2 Spot 176	26	8820	1.5	13.2051	1.6	1.8457	2.0	0.1768	1.2	0.61	1049.7	11.5	1061.9	12.9	1087.0	31.2	1087.0	31.2	96.6
-#5 Lil mtn RC2 Spot 199	63	33063	2.2	13.2042	0.8	1.8084	1.4	0.1733	1.1	0.79	1030.0	10.3	1048.5	8.9	1087.2	16.8	1087.2	16.8	94.7
-#5 Lil mtn RC2 Spot 253	58	17637	2.5	13.1985	0.9	1.8410	1.4	0.1763	1.0	0.75	1046.8	9.9	1060.2	9.0	1088.0	18.1	1088.0	18.1	96.2
-#5 Lil mtn RC2 Spot 105	87	16972	2.1	13.1957	0.9	1.9368	1.3	0.1854	0.9	0.74	1096.7	9.5	1093.9	8.5	1088.4	17.0	1088.4	17.0	100.8
-#5 Lil mtn RC2 Spot 294	146	36643	2.1	13.1931	1.0	1.8430	1.7	0.1764	1.3	0.79	1047.4	12.6	1060.9	10.9	1088.8	20.5	1088.8	20.5	96.2
-#5 Lil mtn RC2 Spot 277	271	38933	3.6	13.1924	0.9	1.9545	1.5	0.1871	1.3	0.82	1105.6	12.7	1100.0	10.3	1088.9	17.5	1088.9	17.5	101.5
-#5 Lil mtn RC2 Spot 39	109	10826	3.1	13.1774	1.0	1.9280	1.5	0.1843	1.1	0.73	1090.6	11.2	1090.8	10.2	1091.2	20.8	1091.2	20.8	99.9
-#5 Lil mtn RC2 Spot 246	180	43731	2.4	13.1603	0.9	1.8441	1.7	0.1761	1.5	0.86	1045.6	14.3	1061.3	11.4	1093.8	17.7	1093.8	17.7	95.6
-#5 Lil mtn RC2 Spot 231	391	33293	3.1	13.1563	0.6	1.8709	1.2	0.1786	1.1	0.86	1059.3	10.3	1070.9	8.1	1094.4	12.3	1094.4	12.3	96.8
-#5 Lil mtn RC2 Spot 216	163	33925	2.9	13.1335	0.7	1.8990	1.3	0.1810	1.1	0.82	1072.2	10.4	1080.7	8.5	1097.9	14.6	1097.9	14.6	97.7
-#5 Lil mtn RC2 Spot 85	103	26987	2.9	13.1331	1.0	1.8823	1.5	0.1794	1.2	0.77	1063.5	11.3	1074.9	10.0	1098.0	19.3	1098.0	19.3	96.9
-#5 Lil mtn RC2 Spot 134	118	100971	1.2	13.1323	0.8	1.9152	1.4	0.1825	1.2	0.84	1080.6	11.8	1086.4	9.4	1098.1	15.4	1098.1	15.4	98.4
-#5 Lil mtn RC2 Spot 90	206	30269	2.5	13.1300	0.7	1.9380	1.4	0.1846	1.2	0.87	1092.2	12.3	1094.3	9.4	1098.4	14.0	1098.4	14.0	99.4
-#5 Lil mtn RC2 Spot 146	110	12979	1.5	13.1297	0.8	1.8643	1.3	0.1776	1.0	0.78	1053.9	9.7	1068.5	8.4	1098.5	15.8	1098.5	15.8	95.9
-#5 Lil mtn RC2 Spot 22	50	16313	0.9	13.1241	1.1	1.8690	1.5	0.1780	1.1	0.71	1055.9	10.7	1070.2	10.2	1099.4	21.7	1099.4	21.7	96.0
-#5 Lil mtn RC2 Spot 92	93	35594	1.8	13.1211	0.8	1.8999	1.3	0.1809	1.0	0.79	1071.8	10.1	1081.1	8.6	1099.8	15.9	1099.8	15.9	97.5
-#5 Lil mtn RC2 Spot 178	112	32233	3.2	13.1199	0.9	1.8460	1.3	0.1757	0.9	0.71	1043.6	8.9	1062.0	8.6	1100.0	18.5	1100.0	18.5	94.9
-#5 Lil mtn RC2 Spot 160	86	30454	3.6	13.1114	1.0	1.8967	1.5	0.1804	1.1	0.75	1069.4	11.2	1079.9	10.0	1101.3	19.9	1101.3	19.9	97.1
-#5 Lil mtn RC2 Spot 83	256	63472	2.3	13.0648	0.8	1.9568	1.5	0.1855	1.2	0.83	1097.0	12.2	1100.8	9.8	1108.4	16.2	1108.4	16.2	99.0
-#5 Lil mtn RC2 Spot 71	370	35334	4.1	13.0581	0.7	1.8424	1.3	0.1746	1.1	0.86	1037.2	10.8	1060.7	8.6	1109.4	13.2	1109.4	13.2	93.5
-#5 Lil mtn RC2 Spot 137	80	8206	1.1	13.0576	0.7	1.9096	1.2	0.1809	1.0	0.82	1072.0	10.2	1084.4	8.3	1109.5	14.1	1109.5	14.1	96.6
-#5 Lil mtn RC2 Spot 33	56	16721	1.7	13.0264	1.1	1.8943	1.7	0.1790	1.3	0.78	1061.8	13.0	1079.1	11.3	1114.3	21.0	1114.3	21.0	95.3
-#5 Lil mtn RC2 Spot 209	142	33759	2.1	12.9866	0.9	1.9029	1.5	0.1793	1.2	0.81	1063.2	11.8	1082.1	9.9	1120.4	17.5	1120.4	17.5	94.9
-#5 Lil mtn RC2 Spot 62	55	37002	1.3	12.9861	1.2	1.8989	1.7	0.1789	1.3	0.74	1061.1	12.7	1080.7	11.6	1120.5	23.4	1120.5	23.4	94.7
-#5 Lil mtn RC2 Spot 26	87	18634	1.0	12.9810	0.8	1.9246	1.3	0.1813	1.0	0.77	1073.9	9.6	1089.7	8.5	1121.2	16.2	1121.2	16.2	95.8
-#5 Lil mtn RC2 Spot 29	250	76593	4.8	12.9713	0.7	1.9493	1.2	0.1835	1.0	0.80	1085.9	9.8	1098.2	8.2	1122.7	14.5	1122.7	14.5	96.7
-#5 Lil mtn RC2 Spot 303	136	13512	3.5	12.9668	0.8	2.0985	1.3	0.1974	1.1	0.80	1161.5	11.2	1148.3	9.1	1123.4	16.0	1123.4	16.0	103.4
-#5 Lil mtn RC2 Spot 181	66	30763	1.4	12.9588	0.9	1.8994	1.4	0.1786	1.2	0.81	1059.3	11.4	1080.9	9.6	1124.6	17.0	1124.6	17.0	94.2
-#5 Lil mtn RC2 Spot 1	38	8246	1.9	12.9337	1.1	1.9956	1.5	0.1873	1.0	0.70	1106.6	10.6	1114.0	10.0	1128.5	21.2	1128.5	21.2	98.1
-#5 Lil mtn RC2 Spot 108	48	12752	1.9	12.9111	1.7	1.8473	2.1	0.1731	1.3	0.61	1028.9	12.2	1062.5	13.9	1132.0	33.2	1132.0	33.2	90.9
-#5 Lil mtn RC2 Spot 112	22	11786	2.6	12.8795	1.3	1.9777	1.7	0.1848	1.1	0.67	1093.2	11.5	1107.9	11.5	1136.9	25.3	1136.9	25.3	96.2
-#5 Lil mtn RC2 Spot 206	41	7694	3.3	12.8764	1.2	2.0298	1.8	0.1896	1.3	0.75	1119.4	13.5	1125.6	12.0	1137.4	23.2	1137.4	23.2	98.4
-#5 Lil mtn RC2 Spot 271	63	10425	2.4	12.8603	1.0	2.0975	1.6	0.1957	1.2	0.75	1152.3	12.2	1148.0	10.7	1139.8	20.4	1139.8	20.4	101.1
-#5 Lil mtn RC2 Spot 302	93	12326	1.4	12.8484	0.7	2.0684	1.5	0.1928	1.2	0.86	1136.7	13.0	1138.4	9.9	1141.7	14.9	1141.7	14.9	99.6
-#5 Lil mtn RC2 Spot 120	139	18451	2.9	12.8443	0.8	2.0707	1.4	0.1930	1.2	0.84	1137.5	12.1	1139.2	9.4	1142.3	15.0	1142.3	15.0	99.6
-#5 Lil mtn RC2 Spot 57	204	11556	2.9	12.8253	0.9	2.1171	1.4	0.1970	1.0	0.76	1159.3	11.1	1154.4	9.5	1145.3	18.0	1145.3	18.0	101.2
-#5 Lil mtn RC2 Spot 311	193	35760	3.2	12.7928	0.8	2.1962	1.4	0.2039	1.1	0.80	1196.0	12.2	1179.8	9.8	1150.3	16.8	1150.3	16.8	104.0
-#5 Lil mtn RC2 Spot 286	224	65344	1.8	12.7882	0.7	2.1223	1.4	0.1969	1.2	0.87	1158.8	12.8	1156.1	9.5	1151.0	13.3	1151.0	13.3	100.7
-#5 Lil mtn RC2 Spot 248	73	22889	1.6	12.7740	0.8	2.1117	1.5	0.1957	1.2	0.84	1152.3	13.1	1152.6	10.2	1153.2	16.1	1153.2	16.1	99.9
-#5 Lil mtn RC2 Spot 129	78	7719	2.5	12.7605	1.3	2.0863	1.7	0.1932	1.0	0.61	1138.5	10.8	1144.3	11.6	1155.3	26.6	1155.3	26.6	98.5
-#5 Lil mtn RC2 Spot 305	230	32537	3.2	12.7571	0.8	2.1074	1.4	0.1951	1.1	0.80	1148.8	11.6	1151.2	9.5	1155.8	16.4	1155.8	16.4	99.4
-#5 Lil mtn RC2 Spot 289	58	8211	2.7	12.7531	1.0	2.0752	1.4	0.1920	1.0	0.71	1132.4	10.4	1140.7	9.7	1156.5	19.7	1156.5	19.7	97.9
-#5 Lil mtn RC2 Spot 177	293	21860	2.6	12.7412	0.8	2.1854	1.4	0.2020	1.2	0.83	1186.3	12.6	1176.4	9.7	1158.3	15.4	1158.3	15.4	102.4
-#5 Lil mtn RC2 Spot 150	251	33234	4.4	12.7079	0.7	2.1564	1.2	0.1988	1.0	0.83	1169.1	10.8	1167.1	8.4	1163.5	13.4	1163.5	13.4	100.5
-#5 Lil mtn RC2 Spot 122	54	30361	2.1	12.7021	0.8	2.1793	1.5	0.2009	1.3	0.85	1179.9	14.0	1174.5	10.7	1164.4	16.2	1164.4	16.2	101.3
-#5 Lil mtn RC2 Spot 118	32	27648	0.8	12.6949	0.9	2.1239	1.3	0.1956	1.0	0.73	1151.8	10.4	1156.6	9.3	1165.5	18.1	1165.5	18.1	98.8
-#5 Lil mtn RC2 Spot 290	193	35744	3.8	12.6845	0.9	2.1064	1.2	0.1939	0.9	0.70	1142.3	9.1	1150.9	8.5	1167.1	17.4	1167.1	17.4	97.9
-#5 Lil mtn RC2 Spot 219	382	39675	6.1	12.6813	0.9	2.1720	1.4	0.1999	1.1	0.75	1174.5	11.4	1172.1	9.9	1167.7	18.7	1167.7	18.7	100.6
-#5 Lil mtn RC2 Spot 79	138	44156	3.8	12.6795	0.8	2.1109	1.2	0.1942	0.9	0.77	1144.1	9.4	1152.4	8.1	1167.9	14.9	1167.9	14.9	98.0
-#5 Lil mtn RC2 Spot 8	314	265045	2.1	12.6756	0.8	2.2517	1.4	0.2071	1.1	0.81	1213.3	12.5	1197.3	9.9	1168.6	16.4	1168.6	16.4	103.8
-#5 Lil mtn RC2 Spot 97	140	24671	2.8	12.6728	0.9	2.0933	1.4	0.1925	1.1	0.77	1134.8	11.3	1146.6	9.8	1169.0	18.0	1169.0	18.0	97.1
-#5 Lil mtn RC2 Spot 40	152	10480	2.1	12.6712	1.0	2.1831	1.5	0.2007	1.2	0.76	1179.1	12.7	1175.7	10.8	1169.3	20.0	1169.3	20.0	100.8
-#5 Lil mtn RC2 Spot 114	455	127436	1.9	12.6681	0.6	2.0482	1.1	0.1883	1.0	0.87	1112.0	10.0	1131.7	7.7	1169.7	11.2	1169.7	11.2	95.1
-#5 Lil mtn RC2 Spot 93	151	34875	2.6	12.6571	0.7	2.0860	1.2	0.1916	1.0	0.83	1129.9	10.7	1144.2	8.5	1171.5	13.6	1171.5	13.6	96.4
-#5 Lil mtn RC2 Spot 77	339	31184	1.9	12.6140	0.6	2.1012	1.3	0.1923	1.1	0.87	1133.9	11.3	1149.2	8.6	1178.2	12.3	1178.2	12.3	96.2
-#5 Lil mtn RC2 Spot 168	143	36821	4.5	12.6029	0.9	2.1410	1.3	0.1958	1.0	0.77	1152.6	10.9	1162.1	9.3	1180.0	17.0	1180.0	17.0	97.7
-#5 Lil mtn RC2 Spot 255	252	195673	2.8	12.5918	0.8	2.0771	1.3	0.1898	1.0	0.79	1120.2	10.2	1141.3	8.6	1181.7	15.2	1181.7	15.2	94.8
-#5 Lil mtn RC2 Spot 107	55	45974	2.6	12.5874	1.0	2.1358	1.5	0.1951	1.2	0.78	1148.8	12.6	1160.5	10.7	1182.4	19.2	1182.4	19.2	97.2
-#5 Lil mtn RC2 Spot 266	294	221828	3.0	12.5837	0.7	2.1689	1.3	0.1980	1.1	0.83	1164.8	11.7	1171.1	9.2	1183.0	14.8	1183.0	14.8	98.5
-#5 Lil mtn RC2 Spot 217	131	209274	3.3	12.5716	0.8	2.1884	1.4	0.1996	1.2	0.84	1173.3	12.9	1177.3	10.1	1184.9	15.6	1184.9	15.6	99.0
-#5 Lil mtn RC2 Spot 74	150	54025	1.9	12.5685	0.9	2.1935	1.6	0.2000	1.3	0.83	1175.5	14.5	1179.0	11.3	1185.4	18.0	1185.4	18.0	99.2
-#5 Lil mtn RC2 Spot 257	387	89017	3.9	12.5617	0.7	2.1950	1.3	0.2001	1.1	0.85	1175.7	11.9	1179.5	9.1	1186.4	13.5	1186.4	13.5	99.1
-#5 Lil mtn RC2 Spot 86	112	106842	1.5	12.5539	0.9	2.1868	1.5	0.1992	1.2	0.79	1171.0	12.6	1176.8	10.4	1187.6	18.1	1187.6	18.1	98.6
-#5 Lil mtn RC2 Spot 295	174	113539	3.8	12.5456	0.7	2.1480	1.1	0.1955	0.9	0.78	1151.2	9.3	1164.4	7.8	1188.9	13.8	1188.9	13.8	96.8
-#5 Lil mtn RC2 Spot 147	273	37408	3.1	12.5435	0.7	1.8796	1.2	0.1711	0.9	0.77	1018.0	8.5	1073.9	7.7	1189.3	14.5	1189.3	14.5	85.6
-#5 Lil mtn RC2 Spot 51	128	22901	2.1	12.5228	0.9	2.1592	1.5	0.1962	1.2	0.77	1154.8	12.3	1168.0	10.4	1192.5	18.7	1192.5	18.7	96.8
-#5 Lil mtn RC2 Spot 267	77	30064	3.2	12.5122	1.2	2.2132	1.6	0.2009	1.1	0.66	1180.3	11.4	1185.2	11.1	1194.2	23.4	1194.2	23.4	98.8
-#5 Lil mtn RC2 Spot 254	75	10848	1.7	12.5080	1.0	2.1560	1.6	0.1957	1.2	0.75	1152.0	12.4	1167.0	10.9	1194.9	20.5	1194.9	20.5	96.4
-#5 Lil mtn RC2 Spot 189	79	46490	2.9	12.5010	0.9	2.1353	1.4	0.1937	1.1	0.76	1141.3	11.3	1160.3	9.8	1196.0	18.1	1196.0	18.1	95.4
-#5 Lil mtn RC2 Spot 64	246	54474	2.7	12.4937	0.8	2.1156	1.5	0.1918	1.3	0.86	1131.1	13.6	1153.9	10.6	1197.1	15.5	1197.1	15.5	94.5
-#5 Lil mtn RC2 Spot 163	114	71441	2.7	12.4897	1.1	2.1575	1.6	0.1955	1.2	0.73	1151.2	12.2	1167.5	11.0	1197.8	21.3	1197.8	21.3	96.1
-#5 Lil mtn RC2 Spot 59	122	33713	3.3	12.4207	0.8	2.2532	1.3	0.2031	1.0	0.78	1191.8	10.9	1197.8	9.0	1208.7	15.7	1208.7	15.7	98.6
-#5 Lil mtn RC2 Spot 170	174	21987	2.6	12.4193	0.8	2.1182	1.4	0.1909	1.1	0.81	1126.1	11.6	1154.8	9.6	1208.9	16.3	1208.9	16.3	93.2
-#5 Lil mtn RC2 Spot 204	158	28869	3.3	12.4081	0.8	2.0930	1.3	0.1884	1.0	0.76	1112.9	10.2	1146.5	9.0	1210.7	16.6	1210.7	16.6	91.9
-#5 Lil mtn RC2 Spot 173	370	36639	2.5	12.3775	0.9	2.3397	1.4	0.2101	1.1	0.78	1229.5	12.4	1224.4	10.1	1215.5	17.4	1215.5	17.4	101.2
-#5 Lil mtn RC2 Spot 20	235	16406	2.5	12.3441	0.8	2.3219	1.4	0.2080	1.1	0.81	1218.0	12.4	1219.0	9.8	1220.8	16.0	1220.8	16.0	99.8
-#5 Lil mtn RC2 Spot 185	116	364609	3.5	12.3344	0.9	2.1565	1.4	0.1930	1.2	0.80	1137.6	12.0	1167.1	10.0	1222.4	17.0	1222.4	17.0	93.1
-#5 Lil mtn RC2 Spot 265	207	24077	3.7	12.3091	0.8	2.3660	1.3	0.2113	1.0	0.80	1235.8	11.3	1232.4	9.0	1226.4	14.8	1226.4	14.8	100.8
-#5 Lil mtn RC2 Spot 268	148	6726	2.8	12.2671	1.0	2.1380	1.8	0.1903	1.6	0.85	1123.0	16.0	1161.2	12.6	1233.1	18.6	1233.1	18.6	91.1
-#5 Lil mtn RC2 Spot 144	90	17698	3.0	12.2359	0.7	2.3675	1.2	0.2102	1.0	0.82	1229.8	10.8	1232.8	8.4	1238.1	13.1	1238.1	13.1	99.3
-#5 Lil mtn RC2 Spot 127	16	2515	1.5	12.1929	2.1	2.5172	2.3	0.2227	1.0	0.43	1296.1	11.6	1277.0	16.7	1245.0	40.5	1245.0	40.5	104.1
-#5 Lil mtn RC2 Spot 153	155	61147	2.8	12.1710	0.7	2.3801	1.2	0.2102	1.0	0.81	1229.8	11.2	1236.6	8.8	1248.5	14.0	1248.5	14.0	98.5
-#5 Lil mtn RC2 Spot 283	103	15382	5.1	12.1687	0.8	2.4513	1.5	0.2164	1.3	0.85	1263.0	14.9	1257.8	11.0	1248.9	15.9	1248.9	15.9	101.1
-#5 Lil mtn RC2 Spot 87	92	20442	2.1	12.1642	0.8	2.4144	1.4	0.2131	1.1	0.82	1245.3	12.8	1246.9	9.9	1249.6	15.4	1249.6	15.4	99.7
-#5 Lil mtn RC2 Spot 212	168	36216	1.9	12.1075	0.8	2.2716	1.3	0.1996	1.0	0.80	1173.0	10.9	1203.5	9.0	1258.8	15.1	1258.8	15.1	93.2
-#5 Lil mtn RC2 Spot 261	160	28152	1.9	12.1073	0.8	2.4356	1.3	0.2140	1.1	0.83	1249.9	12.6	1253.2	9.7	1258.8	14.7	1258.8	14.7	99.3
-#5 Lil mtn RC2 Spot 110	18	36708	5.1	12.0894	1.5	2.4191	2.1	0.2122	1.5	0.72	1240.5	17.2	1248.3	15.3	1261.7	29.0	1261.7	29.0	98.3
-#5 Lil mtn RC2 Spot 198	479	28885	3.2	12.0739	1.0	2.0098	1.8	0.1761	1.5	0.84	1045.5	14.9	1118.8	12.4	1264.2	19.4	1264.2	19.4	82.7
-#5 Lil mtn RC2 Spot 94	90	16004	2.4	12.0738	0.9	2.4041	1.6	0.2106	1.3	0.82	1232.1	15.1	1243.8	11.8	1264.2	18.5	1264.2	18.5	97.5
-#5 Lil mtn RC2 Spot 202	60	19623	3.5	12.0733	1.0	2.2862	1.6	0.2003	1.2	0.77	1176.8	12.9	1208.0	11.0	1264.3	19.2	1264.3	19.2	93.1
-#5 Lil mtn RC2 Spot 241	210	37029	2.0	12.0518	1.0	2.4174	1.5	0.2114	1.1	0.73	1236.2	12.2	1247.8	10.7	1267.8	19.9	1267.8	19.9	97.5
-#5 Lil mtn RC2 Spot 242	55	28161	2.2	11.9879	1.0	2.2674	1.6	0.1972	1.3	0.80	1160.4	13.8	1202.2	11.5	1278.1	19.1	1278.1	19.1	90.8
-#5 Lil mtn RC2 Spot 100	617	21481	1.5	11.9853	0.9	1.1798	1.8	0.1026	1.5	0.85	629.6	9.0	791.2	9.7	1278.6	18.2	1278.6	18.2	49.2
-#5 Lil mtn RC2 Spot 38	155	18664	4.1	11.9682	0.9	2.4193	1.5	0.2101	1.2	0.79	1229.3	13.3	1248.4	10.8	1281.3	17.7	1281.3	17.7	95.9
-#5 Lil mtn RC2 Spot 35	59	7916	2.5	11.8311	0.9	2.7419	1.5	0.2354	1.2	0.78	1362.6	14.4	1339.9	11.2	1303.8	18.3	1303.8	18.3	104.5

-#5 Lil mtn RC2 Spot 88	823	19456	2.3	11.7369	0.8	1.1421	3.0	0.0973	2.9	0.96	598.3	16.4	773.5	16.2	1319.3	15.4	1319.3	15.4	45.4
-#5 Lil mtn RC2 Spot 169	149	25571	2.6	11.6953	0.7	2.7196	1.2	0.2308	1.0	0.81	1338.6	11.7	1333.8	8.9	1326.2	13.5	1326.2	13.5	100.9
-#5 Lil mtn RC2 Spot 103	119	21476	1.9	11.6900	0.9	2.1680	1.5	0.1839	1.2	0.79	1088.2	11.9	1170.9	10.5	1327.0	18.0	1327.0	18.0	82.0
-#5 Lil mtn RC2 Spot 180	332	169857	2.3	11.6818	0.6	2.6694	1.2	0.2263	1.0	0.86	1314.9	12.4	1320.0	9.0	1328.4	12.0	1328.4	12.0	99.0
-#5 Lil mtn RC2 Spot 210	15	4756	1.5	11.6587	2.0	2.7163	2.3	0.2298	1.1	0.48	1333.4	13.0	1332.9	16.9	1332.2	38.8	1332.2	38.8	100.1
-#5 Lil mtn RC2 Spot 10	213	39692	2.0	11.6432	0.8	2.5294	1.4	0.2137	1.1	0.82	1248.4	12.8	1280.5	10.0	1334.8	15.3	1334.8	15.3	93.5
-#5 Lil mtn RC2 Spot 278	184	48562	1.9	11.6092	0.7	2.6549	1.4	0.2236	1.2	0.84	1301.0	13.7	1316.0	10.2	1340.4	14.4	1340.4	14.4	97.1
-#5 Lil mtn RC2 Spot 249	151	34564	2.4	11.5952	0.9	2.6928	1.6	0.2266	1.4	0.83	1316.4	16.2	1326.5	12.2	1342.8	17.8	1342.8	17.8	98.0
-#5 Lil mtn RC2 Spot 66	117	35299	3.9	11.5927	0.8	2.6572	1.4	0.2235	1.2	0.83	1300.4	14.0	1316.6	10.6	1343.2	15.4	1343.2	15.4	96.8
-#5 Lil mtn RC2 Spot 36	55	13896	2.0	11.5830	1.2	2.5234	1.9	0.2121	1.4	0.75	1239.9	15.9	1278.8	13.7	1344.8	23.9	1344.8	23.9	92.2
-#5 Lil mtn RC2 Spot 152	205	82251	2.5	11.5512	0.7	2.7731	1.4	0.2324	1.2	0.84	1347.2	14.0	1348.3	10.2	1350.1	14.1	1350.1	14.1	99.8
-#5 Lil mtn RC2 Spot 45	75	16779	1.8	11.5374	1.0	2.7956	1.6	0.2340	1.2	0.77	1355.6	14.9	1354.4	11.8	1352.4	19.4	1352.4	19.4	100.2
-#5 Lil mtn RC2 Spot 227	161	39550	2.6	11.5205	1.0	2.7744	1.5	0.2319	1.2	0.77	1344.5	14.3	1348.7	11.4	1355.2	18.9	1355.2	18.9	99.2
-#5 Lil mtn RC2 Spot 312	285	129565	2.5	11.4873	0.9	2.6737	1.4	0.2229	1.1	0.80	1296.9	13.5	1321.2	10.6	1360.8	16.6	1360.8	16.6	95.3
-#5 Lil mtn RC2 Spot 53	206	42470	3.1	11.4868	1.0	2.8698	1.4	0.2392	1.0	0.69	1382.5	11.8	1374.0	10.4	1360.9	19.1	1360.9	19.1	101.6
-#5 Lil mtn RC2 Spot 104	190	37538	2.5	11.4763	0.7	2.7876	1.3	0.2321	1.1	0.83	1345.6	13.0	1352.2	9.6	1362.7	13.8	1362.7	13.8	98.7
-#5 Lil mtn RC2 Spot 187	258	249440	3.9	11.4634	0.7	2.7495	1.4	0.2287	1.3	0.89	1327.7	15.5	1342.0	10.8	1364.8	12.6	1364.8	12.6	97.3
-#5 Lil mtn RC2 Spot 291	155	16140	2.1	11.4543	0.9	2.7011	1.5	0.2245	1.1	0.78	1305.6	13.5	1328.8	10.9	1366.4	17.8	1366.4	17.8	95.6
-#5 Lil mtn RC2 Spot 67	41	11604	2.2	11.4318	1.1	2.6606	1.6	0.2207	1.2	0.74	1285.5	14.0	1317.6	12.0	1370.1	21.1	1370.1	21.1	93.8
-#5 Lil mtn RC2 Spot 60	129	26001	2.2	11.3570	0.8	2.7822	1.3	0.2293	1.1	0.82	1330.6	13.3	1350.8	10.1	1382.8	14.9	1382.8	14.9	96.2
-#5 Lil mtn RC2 Spot 203	253	26284	2.8	11.3316	0.8	2.9009	1.3	0.2385	1.1	0.80	1379.0	13.2	1382.1	10.0	1387.0	15.3	1387.0	15.3	99.4
-#5 Lil mtn RC2 Spot 121	113	141684	2.8	11.3192	0.9	2.9122	1.3	0.2392	0.9	0.72	1382.5	11.5	1385.1	9.7	1389.2	17.1	1389.2	17.1	99.5
-#5 Lil mtn RC2 Spot 179	196	15584	3.4	11.2612	0.9	2.8744	1.3	0.2349	1.0	0.75	1359.9	12.4	1375.2	10.1	1399.0	16.9	1399.0	16.9	97.2
-#5 Lil mtn RC2 Spot 81	73	12878	2.2	11.2092	0.9	2.9722	1.5	0.2417	1.2	0.80	1395.7	15.3	1400.5	11.5	1407.9	17.2	1407.9	17.2	99.1
-#5 Lil mtn RC2 Spot 245	149	14416	2.4	11.0794	1.0	2.5958	1.6	0.2087	1.2	0.78	1221.8	13.8	1299.5	11.6	1430.1	18.8	1430.1	18.8	85.4
-#5 Lil mtn RC2 Spot 130	121	21074	1.6	11.0331	1.0	2.9596	1.5	0.2369	1.1	0.75	1370.7	14.1	1397.3	11.6	1438.1	19.3	1438.1	19.3	95.3
-#5 Lil mtn RC2 Spot 235	150	37205	2.1	10.9982	0.8	2.9608	1.3	0.2363	1.0	0.78	1367.3	12.5	1397.6	9.8	1444.2	15.4	1444.2	15.4	94.7
-#5 Lil mtn RC2 Spot 151	101	36444	5.9	10.9947	1.2	2.8855	1.7	0.2302	1.2	0.71	1335.5	14.6	1378.1	12.9	1444.8	22.9	1444.8	22.9	92.4
-#5 Lil mtn RC2 Spot 99	80	16158	2.8	10.9592	1.0	3.0827	1.6	0.2451	1.3	0.78	1413.3	16.0	1428.4	12.3	1450.9	19.2	1450.9	19.2	97.4
-#5 Lil mtn RC2 Spot 218	125	66404	2.7	10.9556	0.9	3.1453	1.4	0.2500	1.1	0.80	1438.6	14.7	1443.9	11.0	1451.6	16.2	1451.6	16.2	99.1
-#5 Lil mtn RC2 Spot 133	165	42393	3.4	10.9427	0.9	3.2135	1.4	0.2551	1.1	0.78	1465.0	14.5	1460.4	10.9	1453.8	16.7	1453.8	16.7	100.8
-#5 Lil mtn RC2 Spot 15	124	38748	0.5	10.9404	0.9	3.1560	1.3	0.2505	0.9	0.73	1441.2	11.9	1446.5	9.7	1454.2	16.3	1454.2	16.3	99.1
-#5 Lil mtn RC2 Spot 106	56	99423	1.6	10.9162	1.0	3.1629	1.4	0.2505	1.0	0.69	1441.2	12.3	1448.1	10.6	1458.4	18.8	1458.4	18.8	98.8
-#5 Lil mtn RC2 Spot 76	55	74557	2.1	10.8894	0.8	3.0763	1.5	0.2431	1.3	0.85	1402.6	15.9	1426.8	11.4	1463.1	14.9	1463.1	14.9	95.9
-#5 Lil mtn RC2 Spot 207	145	77266	1.8	10.8669	0.8	3.2057	1.4	0.2528	1.2	0.84	1452.7	15.0	1458.5	10.7	1467.0	14.4	1467.0	14.4	99.0
-#5 Lil mtn RC2 Spot 68	682	105105	2.2	10.8308	0.6	3.0290	1.1	0.2380	0.9	0.81	1376.5	11.0	1414.9	8.3	1473.3	12.1	1473.3	12.1	93.4
-#5 Lil mtn RC2 Spot 89	70	15479	2.3	10.8298	1.0	3.1506	1.5	0.2476	1.2	0.75	1425.9	14.8	1445.1	11.8	1473.5	19.0	1473.5	19.0	96.8
-#5 Lil mtn RC2 Spot 42	111	22683	1.4	10.8108	0.7	3.1027	1.3	0.2434	1.1	0.83	1404.3	13.4	1433.4	9.8	1476.8	13.5	1476.8	13.5	95.1
-#5 Lil mtn RC2 Spot 220	603	297104	2.2	10.8010	0.7	3.2221	1.5	0.2525	1.3	0.87	1451.4	16.8	1462.5	11.5	1478.6	14.1	1478.6	14.1	98.2
-#5 Lil mtn RC2 Spot 154	182	37447	1.8	10.7746	0.8	3.0956	1.5	0.2420	1.3	0.85	1397.1	15.8	1431.6	11.4	1483.2	15.0	1483.2	15.0	94.2
-#5 Lil mtn RC2 Spot 161	32	7892	2.5	10.7569	1.2	3.1653	1.6	0.2470	1.0	0.66	1423.2	13.3	1448.7	12.2	1486.3	22.6	1486.3	22.6	95.8
-#5 Lil mtn RC2 Spot 6	218	170102	3.2	10.7535	0.6	3.2224	1.1	0.2514	0.9	0.85	1445.8	12.2	1462.6	8.6	1486.9	11.0	1486.9	11.0	97.2
-#5 Lil mtn RC2 Spot 7	63	7494	1.3	10.7446	0.9	3.3271	1.3	0.2594	1.0	0.75	1486.7	13.2	1487.4	10.4	1488.5	16.8	1488.5	16.8	99.9
-#5 Lil mtn RC2 Spot 155	67	61853	1.4	10.5762	1.0	3.4437	1.6	0.2643	1.2	0.78	1511.6	16.5	1514.4	12.4	1518.3	18.5	1518.3	18.5	99.6
-#5 Lil mtn RC2 Spot 48	149	53149	0.7	10.4367	0.8	3.4937	1.3	0.2646	1.1	0.83	1513.2	15.1	1525.8	10.6	1543.3	14.1	1543.3	14.1	98.0
-#5 Lil mtn RC2 Spot 279	383	159851	2.2	10.4347	0.7	3.1890	1.5	0.2415	1.3	0.88	1394.2	16.6	1454.5	11.7	1543.7	13.7	1543.7	13.7	90.3
-#5 Lil mtn RC2 Spot 301	270	88961	2.5	10.3910	0.7	3.2996	1.8	0.2488	1.7	0.93	1432.2	21.9	1481.0	14.3	1551.6	12.6	1551.6	12.6	92.3
-#5 Lil mtn RC2 Spot 16	275	84333	2.7	10.3908	0.8	2.9238	1.5	0.2204	1.3	0.85	1284.2	14.6	1388.1	11.2	1551.6	14.9	1551.6	14.9	82.8
-#5 Lil mtn RC2 Spot 24	226	9088	2.7	10.3448	1.2	3.0405	1.9	0.2282	1.4	0.77	1325.2	17.3	1417.8	14.3	1559.9	22.5	1559.9	22.5	84.9
-#5 Lil mtn RC2 Spot 162	581	5301	2.3	10.1396	2.0	1.4530	3.0	0.1069	2.3	0.75	654.7	14.0	911.1	18.1	1597.4	37.2	1597.4	37.2	41.0
-#5 Lil mtn RC2 Spot 54	134	31190	0.6	10.1382	0.8	3.7358	1.2	0.2748	0.9	0.77	1565.2	13.2	1579.1	9.9	1597.7	14.7	1597.7	14.7	98.0
-#5 Lil mtn RC2 Spot 191	408	2280	1.7	10.0549	4.1	1.5541	5.8	0.1134	4.1	0.70	692.4	26.8	952.1	35.9	1613.1	76.9	1613.1	76.9	42.9
-#5 Lil mtn RC2 Spot 314	383	7484	2.0	9.9908	0.9	3.1614	1.5	0.2292	1.3	0.82	1330.2	15.1	1447.8	11.8	1625.0	16.2	1625.0	16.2	81.9
-#5 Lil mtn RC2 Spot 296	117	18178	1.4	9.9103	0.8	3.8948	1.3	0.2801	1.1	0.81	1591.7	15.4	1612.6	10.8	1640.0	14.5	1640.0	14.5	97.1
-#5 Lil mtn RC2 Spot 4	143	65391	1.0	9.8779	0.9	3.9801	1.6	0.2853	1.3	0.81	1617.8	18.5	1630.1	12.9	1646.1	17.3	1646.1	17.3	98.3
-#5 Lil mtn RC2 Spot 298	159	15504	0.9	9.8017	0.8	3.9330	1.4	0.2797	1.2	0.83	1589.9	16.7	1620.5	11.6	1660.4	14.8	1660.4	14.8	95.8
-#5 Lil mtn RC2 Spot 172	68	71099	1.1	9.6928	0.7	3.8589	1.3	0.2714	1.1	0.86	1547.9	15.7	1605.1	10.7	1681.1	12.6	1681.1	12.6	92.1
-#5 Lil mtn RC2 Spot 237	141	26985	2.7	9.5122	0.8	4.3304	1.5	0.2989	1.3	0.85	1685.8	18.6	1699.2	12.2	1715.7	14.5	1715.7	14.5	98.3
-#5 Lil mtn RC2 Spot 43	101	260818	1.5	9.3856	0.7	4.3506	1.2	0.2963	1.0	0.81	1672.8	14.6	1703.0	10.1	1740.3	13.0	1740.3	13.0	96.1
-#5 Lil mtn RC2 Spot 111	120	180665	1.9	9.2647	0.7	4.7096	1.2	0.3166	1.0	0.84	1773.1	16.2	1768.9	10.4	1764.1	12.2	1764.1	12.2	100.5
-#5 Lil mtn RC2 Spot 297	203	39877	1.9	9.2601	0.9	4.5102	1.5	0.3030	1.1	0.79	1706.4	17.2	1732.9	12.1	1765.0	16.4	1765.0	16.4	96.7
-#5 Lil mtn RC2 Spot 272	94	19354	2.1	9.2367	0.7	4.6000	1.3	0.3083	1.0	0.81	1732.3	15.5	1749.3	10.5	1769.6	13.5	1769.6	13.5	97.9
-#5 Lil mtn RC2 Spot 139	174	39582	3.4	9.2315	0.8	4.3769	1.3	0.2932	1.0	0.80	1657.4	15.2	1708.0	10.8	1770.6	14.3	1770.6	14.3	93.6
-#5 Lil mtn RC2 Spot 132	159	16540	2.6	9.1544	0.8	4.4777	1.5	0.2974	1.2	0.85	1678.5	18.4	1726.9	12.1	1785.9	14.0	1785.9	14.0	94.0
-#5 Lil mtn RC2 Spot 156	135	149111	0.8	9.0841	0.9	4.5834	1.3	0.3021	1.0	0.73	1701.7	14.4	1746.3	11.1	1800.0	16.6	1800.0	16.6	94.5
-#5 Lil mtn RC2 Spot 276	212	11394	2.6	9.0105	0.8	4.2682	1.5	0.2791	1.3	0.85	1586.6	18.2	1687.2	12.5	1814.7	14.7	1814.7	14.7	87.4
-#5 Lil mtn RC2 Spot 49	231	39066	0.8	8.9659	0.7	5.0217	1.2	0.3267	0.9	0.78	1822.3	14.4	1823.0	9.8	1823.7	13.1	1823.7	13.1	99.9
-#5 Lil mtn RC2 Spot 9	91	15315	1.5	8.8722	0.9	5.0848	1.4	0.3273	1.1	0.76	1825.5	17.0	1833.6	11.9	1842.8	16.5	1842.8	16.5	99.1
-#5 Lil mtn RC2 Spot 78	120	11509	2.8	8.8660	0.9	5.0508	1.4	0.3249	1.1	0.79	1813.7	17.7	1827.9	12.1	1844.1	16.0	1844.1	16.0	98.4
-#5 Lil mtn RC2 Spot 84	135	491270	3.0	8.7792	0.7	4.5744	2.6	0.2914	2.6	0.97	1648.5	37.2	1744.6	22.0	1861.8	11.9	1861.8	11.9	88.5
-#5 Lil mtn RC2 Spot 50	113	24429	3.0	8.7628	0.7	5.1072	1.4	0.3247	1.2	0.86	1812.8	18.5	1837.3	11.5	1865.2	12.3	1865.2	12.3	97.2
-#5 Lil mtn RC2 Spot 252	833	1096	3.9	8.5908	1.3	1.2853	2.2	0.0801	1.8	0.82	496.8	8.7	839.2	12.7	1900.9	23.1	1900.9	23.1	26.1
-#5 Lil mtn RC2 Spot 243	169	304292	4.5	8.5748	0.7	5.4298	1.2	0.3378	1.0	0.84	1876.2	16.8	1889.6	10.6	1904.3	12.2	1904.3	12.2	98.5
-#5 Lil mtn RC2 Spot 30	628	51932	2.4	8.5715	0.7	4.8071	1.5	0.2990	1.4	0.89	1686.2	20.2	1786.1	12.8	1905.0	12.5	1905.0	12.5	88.5
-#5 Lil mtn RC2 Spot 292	874	956	2.6	8.2511	3.0	1.1925	3.3	0.0714	1.4	0.42	444.6	5.9	797.1	18.2	1973.1	53.4	1973.1	53.4	22.5
-#5 Lil mtn RC2 Spot 46	610	1114	2.6	8.1978	7.8	1.8700	8.6	0.1112	3.7	0.43	679.9	23.7	1070.5	57.2	1984.7	139.2	1984.7	139.2	34.3
-#5 Lil mtn RC2 Spot 251	678	1164	2.3	7.6976	3.0	1.5882	3.4	0.0887	1.6	0.47	547.9	8.3	965.6	21.1	2096.0	52.6	2096.0	52.6	26.1
-#5 Lil mtn RC2 Spot 159	653	2178	2.5	7.2607	0.9	2.1714	2.2	0.1144	2.0	0.91	698.2	13.5	1171.9	15.5	2198.1	15.6	2198.1	15.6	31.8
-#5 Lil mtn RC2 Spot 285	57	30670	1.0	6.2596	0.8	9.7924	1.4	0.4448	1.2	0.84	2371.9	22.9	2415.4	12.7	2452.3	12.7	2452.3	12.7	96.7
-#5 Lil mtn RC2 Spot 58	824	497	3.1	5.8628	1.0	1.6088	2.3	0.0684	2.1	0.90	426.7	8.7	973.6	14.6	2562.5	16.9	2562.5	16.9	16.7
-#5 Lil mtn RC2 Spot 228	28	17042	1.0	5.7575	0.9	11.6067	1.4	0.4849	1.0	0.74	2548.5	21.6	2573.2	13.0	2592.7	15.7	2592.7	15.7	98.3
-#5 Lil mtn RC2 Spot 91	130	29623	0.7	5.7300	0.7	11.8852	1.2	0.4941	1.0	0.82	2588.6	21.4	2595.4	11.4	2600.7	11.5	2600.7	11.5	99.5
-#5 Lil mtn RC2 Spot 70	143	83202	0.6	5.6183	0.8	12.1242	1.2	0.4943	0.9	0.75	2589.0	19.7	2614.1	11.6	2633.5	13.5	2633.5	13.5	98.3
-#5 Lil mtn RC2 Spot 275	72	26004	2.1	5.5217	0.8	12.8154	1.3	0.5134	1.1	0.81	2671.3	23.7	2666.2	12.6	2662.3	12.9	2662.3	12.9	100.3
-#5 Lil mtn RC2 Spot 307	50	19629	2.4	5.4469	0.9	13.1866	1.6	0.5212	1.3	0.82	2704.1	29.7	2693.1	15.4	2684.8	15.4	2684.8	15.4	100.7
-#5 Lil mtn RC2 Spot 166	121	150945	1.8	5.4407	0.7	12.8378	1.4	0.5068	1.2	0.87	2642.9	26.9	2667.8	13.4	2686.7	11.6	2686.7	11.6	98.4
-#5 Lil mtn RC2 Spot 232	92	49461	1.4	5.4344	0.7	13.1516	1.3	0.5186	1.1	0.85	2693.1	24.8	2690.6	12.6	2688.7	11.8	2688.7	11.8	100.2
-#5 Lil mtn RC2 Spot 250	107	17695	1.3	5.4192	0.8	11.6012	1.6	0.4562	1.4	0.87	2422.6	27.7	2572.8	14.8	2693.3	13.0	2693.3	13.0	90.0
-#5 Lil mtn RC2 Spot 244	906	398	3.7	5.3960	0.8	1.9276	2.1	0.0755	1.9	0.91	469.0	8.5	1090.7	13.7	2700.4	14.0	2700.4	14.0	17.4
-#5 Lil mtn RC2 Spot 194	63	229063	1.1	5.3959	0.9	13.1430	1.3	0.5146	1.0	0.75	2676.1	21.7	2690.0	12.5	2700.4	14.5	2700.4	14.5	99.1
-#5 Lil mtn RC2 Spot 3	223	8887	2.2	5.2992	0.8	10.9648	1.3	0.4216	1.0	0.80	2267.7	19.8	2520.2	12.0	2730.2	12.7	2730.2	12.7	83.1
-#5 Lil mtn RC2 Spot 140	52	173043	2.8	5.2503	0.8	13.8523	1.3	0.5277	1.0	0.78	2731.8	21.9	2739.7	11.9	2745.4	12.8	2745.4	12.8	99.5
-#5 Lil mtn RC2 Spot 123	73	106291	1.8	5.2311	0.7	13.8329	1.4	0.5250	1.1	0.84	2720.5	25.2	2738.3	12.8	2751.5	12.1	2751.5	12.1	98.9
-#5 Lil mtn RC2 Spot 41	24	7454	1.3	5.2022	0.7	13.7428	1.4	0.5187	1.2	0.84	2693.8	25.7	2732.1	13.1	2760.6	12.2	2760.6	12.2	97.6
-#5 Lil mtn RC2 Spot 136	976	1857	1.4	5.1927	0.8	2.3981	1.7	0.0904	1.5	0.89	557.6	8.0	1242.0	12.2	2763.6	12.9	2763.6	12.9	20.2
-#5 Lil mtn RC2 Spot 221	38	30031	1.1	5.1332	0.7	14.4198	1.6	0.5371	1.4	0.90	2771.2	32.2	2777.7	15.1	2782.5	11.6	2782.5	11.6	99.6
-#5 Lil mtn RC2 Spot 145	53	31869	2.3	4.9743	0.9	14.9134	1.6	0.5383	1.3	0.82	2776.2	28.7	2809.7	14.8	2833.9	14.4	2833.9	14.4	98.0
-#5 Lil mtn RC2 Spot 188	1034	354	3.6	4.9027	1.2	1.8261	3.2	0.0650	3.0	0.93	405.7	11.8	1054.9	21.1	2857.5	18.8	2857.5	18.8	14.2
-#5 Lil mtn RC2 Spot 273	156	76937	2.6	4.6987	0.7	17.2248	1.3	0.5872	1.1	0.86	2978.2	27.2	2947.4	12.8	2926.5	11.1	2926.5	11.1	101.8

1. Analyses with >10% uncertainty (1-sigma) in 206Pb/238U age are not included.
2. Analyses with >10% uncertainty (1-sigma) in 206Pb/207Pb age are not included, unless 206Pb/238U age is <400 Ma.
3. Best age is determined from 206Pb/238U age for analyses with 206Pb/238U age <900 Ma and from 206Pb/207Pb age for analyses with 206Pb/238Uage >900 Ma.
4. Concordance is based on 206Pb/238U age / 206Pb/207Pb age. Value is not reported for 206Pb/238U ages <400 Ma because of large uncertainty in 206Pb/207Pb age.

5. Analyses with 206Pb/238U age >400 Ma and with >20% discordance (<80% concordance) are not included.
6. Analyses with 206Pb/238U age >400 Ma and with >5% reverse discordance (<105% concordance) are not included.
7. All uncertainties are reported at the 2-sigma level, and include only measurement errors.
8. Systematic errors are as follows (at 2-sigma level): [sample 1: xxx% (206Pb/238U) & xxx% (206Pb/207Pb)]
9. Analyses conducted by LA-ICPMS, as described by Gehrels et al. (2008) and Gehrels and Pecha (2014).
10. U concentration and U/Th are calibrated relative to FC-1 zircon standard and are accurate to ~20%.
11. Common Pb correction is from measured 204Pb with common Pb composition interpreted from Stacey and Kramers (1975).
12. Common Pb composition assigned uncertainties of 1.5 for 206Pb/204Pb, 0.3 for 207Pb/204Pb, and 2.0 for 208Pb/204Pb.
13. U/Pb and 206Pb/207Pb fractionation is calibrated relative to fragments of large Sri Lanka zircons and individual crystals of FC-1, and R33.
14. U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U/235U = 137.82.
15. Weighted mean and concordia plots determined with Isoplot (Ludwig, 2008).

Aliquot Name MD1_20
Stratigraphic Formation Name
Stratigraphic Age
Rock Type
Mineral Zircon
Method U-Pb
Latitude
Longitude
Internal Uncertainty Level one sigma
External Uncertainty 206/238 (% two sigma) 1.332020816
External Uncertainty 206/207 (% two sigma) 1.05880567
Analysis Purpose
Laboratory Name Arizona LaserChron Center
Analyst Name
Aliquot Reference
Aliquot Instrumental Method LA-ICPMS
Aliquot Instrumental Reference Gehrels, G.E., Valencia, V., Ruiz, J., 2008, Enhanced precision, accuracy, efficiency, and spatial resolution of U-Pb ages by laser ablation-multicollector-inductively coupled plasma-mass spectrometry: Geochemistry, Geophysics, Geosystems, v. 9, Q03017, doi:10.1029/2007GC001805.
Gehrels, G. and Pecha, M., 2014, Detrital zircon U-Pb geochronology and Hf isotope geochemistry of Paleozoic and Triassic passive margin strata of western North America: Geosphere, v. 10 (1), p. 49-65.

Analysis	U (ppm)	206Pb 204Pb	U/Th	Isotope ratios 206Pb* 207Pb*	± (%)	207Pb* 235U	± (%)	206Pb* 238U	± (%)	error corr.	Apparent ages (Ma) 206Pb* 238U	± (Ma)	207Pb* 235U	± (Ma)	206Pb* 207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)
Spot 1	34.7308036	4704.812743	2.206966941	10.23851726	1.10053257	3.409137905	2.416273995	0.258821838	2.144377142	0.887472673	1483.811339	28.42227497	1506.5027	18.97219212	1538.539467	20.94677894	1538.539467	20.94677894	96.44285182
Spot 4	279.8323152	4921.001771	1.903904351	9.451969046	8.82533896	0.106502306	9.012776387	0.007435807	1.811502795	0.200992759	47.75695787	0.861922002	102.7607902	8.808583748	1694.545003	163.077819	47.75695787	0.861922002	2.818276162
Spot 7	244.1243944	2147.489995	1.835852426	18.87905342	4.375002042	0.048708053	9.646009838	0.007611547	4.186040097	0.433965978	48.88138903	2.038456319	48.29058321	4.549112573	19.07880871	NA	48.88138903	2.038456319	256.2077632
Spot 8	142.814718	1421.910526	1.515894553	22.07572751	3.705981889	0.039571361	6.445642218	0.008200996	4.931021737	0.765016358	52.65141233	2.58567902	39.40546836	2.491286418	NA	NA	52.65141233	2.58567902	
Spot 9	199.0356436	721.3302004	1.730169155	16.66496817	5.664206084	0.041648756	7.831988173	0.007608883	3.40133003	0.434286921	48.86434397	1.655754338	41.43250248	3.17968437	NA	NA	48.86434397	1.655754338	
Spot 10	433.1649046	2498.740698	1.727312721	22.08728379	2.341206046	0.040645912	7.195688738	0.007437865	2.849995217	0.39606983	47.77012192	1.356414257	40.45447537	2.853759158	NA	NA	47.77012192	1.356414257	
Spot 11	210.0783214	684.2516961	1.540244265	8.802681346	15.76256856	0.105014996	19.04247305	0.00809797	5.530003007	0.290403615	51.99263661	2.86363093	101.3950403	18.37738967	1509.167886	346.9965328	51.99263661	2.86363093	3.445119466
Spot 12	227.0995589	5311.797799	3.00512086	19.59708063	3.615374938	0.052799906	5.20427197	0.007870258	3.742038056	0.719031995	50.53633725	1.88369581	52.24469938	2.650197208	131.3038749	85.07704817	50.53633725	1.88369581	38.48807759
Spot 13	476.9894891	774938.963	2.382701286	9.479921996	0.732867126	4.060283965	1.276244223	0.276878306	1.044846904	0.818688841	1575.621441	14.60531843	1646.365032	10.3982535	1737.8774	13.43597992	1737.8774	13.43597992	90.66355551
Spot 14	533.7586371	94134.13815	10.4063485	8.465355348	1.526231628	4.488285021	1.800845852	0.273227804	0.95578521	0.530742378	1557.165215	13.22202268	1728.807254	14.9548349	1943.336311	27.29348028	1943.336311	27.29348028	80.12844746
Spot 15	23.40436004	4525.077023	1.004498589	10.57670303	1.58282231	2.932592547	3.558948978	0.230264988	3.185469437	0.895059035	1335.887729	38.43492503	1390.362887	26.95419983	1474.949549	30.11117838	1474.949549	30.11117838	90.57175754
Spot 16	14.92297374	36933.88437	1.026030267	15.69919811	5.283623743	0.545027734	7.526873883	0.061836061	5.360703624	0.712208509	386.7819018	20.12453057	441.7341329	26.96677204	739.1531891	111.8552598	386.7819018	20.12453057	52.32770521
Spot 17	360.1545467	9108.166586	5.989201473	21.30550614	2.732951803	0.050676173	5.002174605	0.008033056	4.18862696	0.837361206	51.57751984	2.151770385	50.19437633	2.449765589	NA	NA	51.57751984	2.151770385	
Spot 18	438.2414721	3235.663721	2.589228946	17.11257697	4.180924583	0.05486772	6.15303435	0.00731021	1.625659191	0.264204472	46.95323068	0.760526459	54.23706672	3.249672864	389.1074249	133.316573	46.95323068	0.760526459	12.06690689
Spot 19	539.0903559	7625.78185	1.079015143	20.32983933	3.138767142	0.050329904	4.184068661	0.007660184	2.682406998	0.641100138	49.19254477	1.314522347	49.85968321	2.035774481	82.02902042	76.24426965	49.19254477	1.314522347	59.96968453
Spot 20	478.1380681	27047.10305	107.962862	13.43249861	0.683674926	1.79315117	1.285918621	0.174453286	1.088657561	0.846599111	1036.601133	10.4244532	1042.971427	8.382541747	1056.361491	13.7995594	1056.361491	13.7995594	98.12939428
Spot 21	528.6581277	168708.3751	4.751383081	6.167970151	0.616782789	8.916229721	1.345736824	0.395687436	1.196068775	0.888783567	2149.1512	21.8594945	2329.464163	12.28700159	2491.430366	10.39270592	2491.430366	10.39270592	86.26174062
Spot 22	31.78933411	3223.917366	2.439359644	13.10588288	1.243519061	1.730433391	3.047109738	0.173129643	2.761898725	0.906399494	1029.33174	26.27566916	1019.912015	19.61079959	999.7288146	26.14102825	999.7288146	26.14102825	102.9610956
Spot 23	295.9996185	6274.155364	2.664632894	16.68809231	4.077697143	0.117389251	4.565937647	0.014656532	1.930913581	0.422895302	93.79637675	1.7980146	112.7023792	4.870651539	533.1150175	90.63398338	93.79637675	1.7980146	17.59402262
Spot 24	201.6901088	3968.433505	3.166534831	18.71275551	6.29255928	0.056171	7.856157093	0.008123352	3.992174522	0.508158693	52.15493912	2.073716215	55.49078918	4.24248692	201.973478	157.2145338	52.15493912	2.073716215	25.82266723
Spot 25	764.652588	7161.768004	2.066829979	16.10228863	1.193111277	0.410430519	1.834353214	0.049182075	1.391823418	0.758754316	309.4980483	4.205894696	349.1851457	5.420070692	622.359238	25.76741388	309.4980483	4.205894696	49.72980707
Spot 27	49.18356674	12595.45921	1.796239209	12.99476442	1.21895867	1.98605339	2.604893253	0.188559433	2.299122505	0.882616784	1113.566565	23.5130845	1110.78091	17.59367852	1105.352035	24.47811445	1105.352035	24.47811445	100.7431596
Spot 28	732.5448079	5268.932597	1.906491027	19.54574663	2.752875017	0.046548701	3.53410556	0.006929348	1.997071479	0.565085407	44.51539303	0.885941789	46.19769356	1.596091944	134.4369511	68.52675844	44.51539303	0.885941789	33.11246846
Spot 29	522.5975605	9886.982399	2.239322433	21.45293628	2.881981841	0.045604043	4.028809296	0.007282911	2.809508773	0.697354619	46.77852497	1.309489866	45.28075361	1.784198471	NA	NA	46.77852497	1.309489866	
Spot 30	340.2617645	8456.858237	2.097397627	20.17129092	4.270632622	0.049247681	5.590521526	0.007418462	3.593292869	0.642747345	47.64596397	1.705747642	48.81292911	2.664348312	106.5291911	101.217981	47.64596397	1.705747642	44.72573524
Spot 32	128.5556669	13884.11869	1.391848576	9.841218736	0.8797751	3.559414877	1.506132501	0.254862306	1.222227336	0.811500539	1463.502661	16.00223429	1540.53338	11.93940283	1647.894186	16.32084226	1647.894186	16.32084226	88.81047542
Spot 34	874.6012666	6811.488762	2.563261592	19.63711991	2.196002509	0.09607567	3.600509795	0.014191962	2.060113875	0.572172829	90.84414833	1.858367957	93.14741149	3.20455872	152.5416115	69.19523768	90.84414833	1.858367957	59.55368338
Spot 36	143.9617702	625026.3899	3.53591421	12.59037081	0.948437634	2.10057881	1.922516146	0.190709931	1.672284181	0.869841423	1125.219727	17.2661957	1148.996098	13.22576105	1194.126957	18.71312448	1194.126957	18.71312448	94.22948875
Spot 37	491.6832302	9005.0842	2.339087003	20.6154477	2.399797679	0.0498573	2.714864707	0.007669095	1.257445543	0.46317061	49.2495542	0.616926716	49.40270132	1.309112074	56.81654979	57.36169699	49.2495542	0.616926716	86.68170522
Spot 38	341.0089765	105684.2214	3.561199135	10.40211953	1.895949335	0.603791839	3.706816962	0.04533916	3.185249485	0.859295055	285.8429496	8.905907571	479.6372287	14.17093439	1559.173051	35.57054502	285.8429496	8.905907571	18.33298423
Spot 39	239.6278054	13732.14357	3.90752045	10.00361949	1.013790612	3.459749413	2.014527387	0.251856138	1.740789444	0.864118034	1448.041	22.57690169	1518.091668	15.86984316	1617.172308	18.87659221	1617.172308	18.87659221	89.5415407
Spot 40	363.1451665	1087.958566	2.356951253	20.11947659	3.791417564	0.05511333	7.798581662	0.011063174	3.794576547	0.48657265	70.92618803	2.676597121	54.47345621	4.136237643	NA	NA	70.92618803	2.676597121	
Spot 41	122.4304094	2336.842557	1.806662202	2.039848162	50	0.520468173	50.15437488	0.007702097	3.932057021	0.078399083	49.46067466	1.937380126	425.4640767	176.0670142	4211.716541	NA	49.46067466	1.937380126	1.174359057
Spot 43	707.3163853	3205.235838	2.726891573	19.29658977	3.204144449	0.049647331	5.413484059	0.007585079	3.905672424	0.721471123	48.71205293	1.895363139	49.19960622	2.599921405	73.01971596	NA	48.71205293	1.895363139	66.71082226
Spot 44	447.2866452	6522.943273	5.080796971	12.52692211	6.477796896	0.28816294	7.545873441	0.026756524	3.854356802	0.510790014	170.2164548	6.474891319	257.1123783	17.14146782	1149.657323	128.9598539	170.2164548	6.474891319	14.8058427
Spot 47	1086.168806	14331.72673	1.934007567	21.25295589	1.453347	0.043001332	1.9639304	0.006732492	1.278875343	0.651181601	43.25498944	0.551325649	42.75011763	0.822153947	14.53281196	NA	43.25498944	0.551325649	297.6367516
Spot 48	327.435959	2780.890706	6.333668738	18.82489665	2.821348129	0.066672273	4.232538524	0.010046942	2.198033336	0.519317975	64.44356127	1.409434323	65.53665782	2.686247977	105.6097551	85.51832651	64.44356127	1.409434323	61.02046276
Spot 49	4532.931944	12498.64033	2.300320916	19.81351322	1.126323723	0.037291254	3.007688318	0.005461953	2.687726214	0.893618597	35.11419982	0.941207811	37.17596776	1.097916166	172.3794357	31.49863071	35.11419982	0.941207811	20.37029514
Spot 53	430.823624	7008254.391	1.808905955	19.73492596	3.527877726	0.049126779	4.226260877	0.006994239	2.327092552	0.550626812	44.93081678	1.041946355	48.69592264	2.009449516	238.2081994	81.3875494	44.93081678	1.041946355	18.86199421
Spot 55	526.795116	2484.958409	1.271514606	19.64822548	3.578220758	0.046550198	4.276822285	0.007473627	2.023731668	0.473185822	47.99895674	0.967762722	46.19914655	1.931581821	NA	NA	47.99895674	0.967762722	
Spot 56	404.3935751	4702.563711	1.850609689	20.28788687	2.179392749	0.086327742	2.95549683	0.013503542	1.646452322	0.557081403	86.46692517	1.414131517	84.07672641	2.38479316	16.68138367	NA	86.46692517	1.414131517	518.3438429
Spot 57	1398.846036	9671.34245	3.700774259	20.65456178	1.083628872	0.087179992	1.532368112	0.013421081	1.036525867	0.676420932	85.94241026	0.884903526	84.87300655	1.247695501	54.89144622	26.91131873	85.94241026	0.884903526	156.5679467
Spot 58	165.9510019	818.4175269	2.720357654	17.91610368	5.209853809	0.040056937	10.80171064	0.007701675	5.009855976	0.46380209	49.45797713	2.468292857	39.87963489	4.224210717	NA	NA	49.45797713	2.468292857	
Spot 59	108.6223417	25285.81528	1.939887261	5.25638995	0.541890418	12.64861435	1.758494709	0.481903208	1.672201037	0.950927534	2535.550123	35.05507928	2653.843736	16.54869745	2745.283133	8.947492049	2745.283133	8.947492049	92.36024117
Spot 60	131.5362143	23889.07674	4.745207697	9.276913922	1.223604633	4.369086015	2.086970553	0.2946018	1.686591886	0.808153179	1664.484496	24.74169985	1706.511339	17.24559657	1758.483023	22.47701984	1758.483023	22.47701984	94.65456726
Spot 61	222.1025393	1396.922027	2.849734895	16.65073175	5.545792933	0.052224917	12.4007466	0.007625047	2.841071326	0.229104861	48.96775376	1.38593829	51.68999445	6.249602649	179.7713448	NA	48.96775376	1.38593829	27.23890941
Spot 62	67.83509437	23311.37488	2.434429232	9.889699918	0.949861267	3.869508661	1.524326008	0.278258614	1.191915698	0.781929647	1582.586264	16.72609695	1607.344307	12.29984653	1639.922605	17.64080076	1639.922605	17.64080076	96.50371666
Spot 64	87.64921396	16555.50629	1.411190189	12.41448489	0.850587462	2.198798407	1.378506739	0.199796931	1.083987048	0.786348747	1174.22929	11.63653921	1180.662275	9.621667518	1192.462373	16.80703665	1192.462373	16.80703665	98.47097209
Spot 66	272.000527	40317.18619	4.464190717	9.30365824	0.778855917	4.546101418	1.587142489	0.306901104	1.381885819	0.870675336	1725.43926	20.91932252	1739.447869	13.21057271	1756.31599	14.27930222	1756.31599	14.27930222	98.24196043
Spot 67	177.3820502	69817.82961	2.415471036	5.125480204	0.593709548	13.46942983	1.755938302	0.499809629	1.65250697	0.941096261	2612.977832	35.50049242	2713.142241	16.59875981	2788.587114	9.721699986	2788.587114	9.721699986	93.70257139
Spot 68	663.940692	10170.82032	1.194332415	18.69157981	2.851973405	0.049504411	3.371317731	0.006878482	1.638845512	0.486114227	44.18974034	0.721725065	49.06134304	1.614691634	294.0692049	67.27272135	44.18974034	0.721725065	15.02698671
Spot 69	293.1544255	897.3185996	1.256941329	12.81263717	6.782607446	0.06111951	14.93314291	0.00714327	1.816544438	0.121645152	45.88478823	0.830558161	60.2370845	8.733883795	676.026722	318.4901975	45.88478823	0.830558161	6.787422262
Spot 70	1223.901246	47767.02006	1.545358012	10.68548232	0.818888701	3.307713106	1.445160045	0.256443704	1.190620264	0.823867411	1471.62142	15.6653945	1482.872683	11.26794572	1498.988699	15.48952882	1498.988699	15.48952882	98.17428386
Spot 71	316.8317307	2510.615825	2.239659959	17.05024833	5.69435521	0.057938769	7.371104017	0.007913422	4.411841673	0.598532006	50.8124111	2.232951288	57.18886908	4.098958701	333.1292736	133.9657429	50.8124111	2.232951288	15.25306094
Spot 72	698.1345461	262255.906	2.186931105	19.86544821	1.629479352	0.051111506	2.008693147	0.007341349	1.174582872	0.584749778	47.15250316	0.551824597	50.61499856	0.991775861	217.8293096	37.7202491	47.15250316	0.551824597	21.64653749
Spot 73	1143.206535	7446.644418	4.467449796	19.92264356	2.160943009	0.047748046	2.710909774	0.007152707	1.194630952	0.44067529	45.94518811	0.546924093	47.36065666	1.254422796	119.6131336	57.3548183	45.94518811	0.546924093	38.41149105
Spot 75	1098.254662	3670.963836	1.948717366	20.13063468	2.323764051	0.042682437	3.500957157	0.006753896	1.9686228	0.56230988	43.39204244	0.851357108	42.43961946	1.455171422	NA	NA	43.39204244	0.851357108	
Spot 76	50.07350797	1195.103842	1.714054073	15.97856966	1.821739467	0.667240267	2.426214238	0.095760656	1.57411268	0.648793769	589.5167437	8.868000425	519.0330757	9.859542505	219.6948356	42.73010141	589.5167437	8.868000425	268.3343658
Spot 77	347.2139023	85079.57897	4.250930251	6.243552678	1.175922214	9.507870246	3.793312241	0.428933724	3.606433142	0.950734586	2300.909065	69.78967322	2388.30738	34.86484025	2463.71158	19.86740794	2463.71158	19.86740794	93.39198159
Spot 78	222.9775196	30255.17571	3.303027418	12.37401679	0.739566247	2.203735957	1.706870207	0.197995629	1.531586498	0.897306949	1164.543764	16.31777844	1182.228375	11.9221123	1214.715551	14.84095458	1214.715551	14.84095458	95.86966781
Spot 79	436.5566889	47749.84889	3.19752061	9.997034982	0.753391253	3.594227454	1.529963568	0.260137246	1.331204707	0.870089154	1490.544015	17.71531313	1548.256703	12.15415599	1627.926365	14.01997379	1627.926365	14.01997379	91.56089905
Spot 80	59.64594372	15920.81088	1.696678675	5.567755929	0.888420397	11.6033498	2.604280075	0.468382872	2.445886625	0.939179564	2476.465483	50.29502573	2572.942718	24.34995907	2649.832623	14.83639333	2649.832623	14.83639333	93.45743053
Spot 82	477.5139627	8340907.951	190.2158351	9.975061952	0.753436911	3.822635533	1.271062927	0.275388795	1.023686371	0.805378199	1568.097144	14.24916786	1597.523044	10.23034097	1636.542408	13.99359053	1636.542408	13.99359053	95.8176908
Spot 83	654.8942465	22830.07229	1.462090675	19.69998321	2.578054052	0.050870263	3.469084139	0.007326783	2.320846802	0.669008507	47.05928833	1.088197207	50.381929	1.705139961	211.4273619	59.75971919	47.05928833	1.088197207	22.25789884
Spot 85	239.4855347	122733.206	4.708396856	9.750562932	4.235014546	4.106891533	7.000795699	0.289365763	5.574562991	0.796275628	1638.359005	80.65340431	1655.674375	57.22600067	1677.696503	78.27190972	1677.696503	78.27190972	97.65526732
Spot 86	485.9123289	8956.841641	2.991107468	19.53811665	3.406906602	0.050444276	3.757352108	0.007347857	1.564730224	0.416444927	47.19415143	0.735764605	49.97024355	1.832108329	185.2203423	79.58031309	47.19415143	0.735764605	25.48000443

Spot 87	599.8949423	1991.118097	1.955552142	17.8530881	4.596768992	0.048474943	7.380164302	0.007192452	2.115272433	0.2866159	46.19957639	0.973753439	48.06485576	3.464630135	142.1105419	NA	46.19957639	0.973753439	32.5096054
Spot 88	126.4583909	10646.07703	1.723143343	16.55072827	2.065747853	0.762775123	2.600450735	0.093144076	1.575847311	0.605990066	574.1048667	8.655864203	575.6098309	11.42605947	581.5751609	44.90868067	574.1048667	8.655864203	98.71550667
Spot 89	270.5217343	22695.44447	3.953639865	19.39341912	3.929079142	0.053823104	4.368008887	0.007623556	1.90830713	0.436882612	48.95821772	0.930734395	53.23105382	2.265244953	250.0339857	90.42497517	48.95821772	0.930734395	19.58062524
Spot 90	257.3241241	2968.877174	2.555709192	18.22591327	3.615485964	0.102256871	4.199016857	0.014775575	2.090353733	0.4978198	94.5526492	1.962060477	98.85746934	3.955390897	203.9384199	84.51891664	94.5526492	1.962060477	46.36333324
Spot 91	222.9276656	1287.933591	1.971088721	20.18301343	3.38586048	0.039036128	4.854380219	0.007425662	3.015060702	0.621101061	47.69204108	1.432637987	38.88255392	1.851826371	NA	NA	47.69204108	1.432637987	
Spot 92	273.9965908	4471.915432	2.210026774	16.19735107	5.987686403	0.061981085	6.756171259	0.007649077	3.102338265	0.459185853	49.1214876	1.518123361	61.06118916	4.003826095	558.5730849	130.9605948	49.1214876	1.518123361	8.794102139
Spot 93	1075.376067	4476.276817	0.772091956	20.44779987	1.841964856	0.046725937	2.609866425	0.007387722	1.253156966	0.480161342	47.44925903	0.592430709	46.36963713	1.18296915	NA	NA	47.44925903	0.592430709	
Spot 94	136.1183384	32214.03922	2.882072463	11.4372371	0.845132211	2.859364396	1.501306848	0.236943773	1.240494074	0.826276171	1370.788964	15.31824664	1371.277358	11.29460396	1372.021019	16.26977439	1372.021019	16.26977439	99.91020145
Spot 96	590.7046652	2008.940288	2.210462222	20.88246373	2.017556822	0.042738461	2.84069217	0.007610289	1.79384109	0.631480281	48.87333927	0.873395052	42.49417497	1.182218549	NA	NA	48.87333927	0.873395052	
Spot 97	542.1199863	4812.050376	1.161515655	17.58917716	5.285894364	0.054200169	5.731953783	0.007252246	2.190281556	0.382117798	46.58227103	1.016605442	53.59429933	2.99234323	379.4899338	119.2031228	46.58227103	1.016605442	12.27496881
Spot 98	178.0490589	6067.951738	1.730031876	17.79317911	4.518708597	0.059475186	7.024540825	0.007961258	5.375637746	0.765265358	51.1183498	2.737071008	58.66241321	4.004009689	378.5897136	101.7422708	51.1183498	2.737071008	13.50230816
Spot 99	134.1261815	61854.84666	2.463879376	6.203315689	0.649570615	10.33786448	1.40282699	0.462297444	1.24326407	0.886256166	2449.69406	25.33784042	2465.500292	12.9884487	2478.542557	10.96298346	2478.542557	10.96298346	98.8360701
Spot 101	170.9502898	1581.144236	1.356500541	17.88071434	4.417601952	0.04773785	5.239187706	0.007378122	2.745016944	0.523939415	47.38782642	1.296034448	47.35077598	2.423845415	45.48230341	NA	47.38782642	1.296034448	104.1895921
Spot 102	397.2733875	2609.788098	2.883070046	19.89065097	1.632304047	0.089873094	2.84866299	0.014513685	1.662188005	0.583497595	92.88876742	1.532915284	87.38514678	2.385204083	NA	NA	92.88876742	1.532915284	
Spot 103	100.0033792	37385.164	2.205911363	5.489551844	0.836321275	10.78799133	1.72860586	0.427296175	1.512823554	0.875169747	2293.517279	29.19606729	2505.032573	16.06434068	2681.224357	13.8317585	2681.224357	13.8317585	85.53992408
Spot 104	98.58129993	2582.573238	2.454479831	16.62705584	1.505755436	0.662083525	2.351428841	0.087498491	1.80161681	0.7661796	540.7258448	9.344430465	515.8876487	9.511179756	407.2994032	33.81551117	540.7258448	9.344430465	132.758811
Spot 106	447.3416454	36396.68151	1.464509745	20.37867805	3.933640709	0.05434244	4.867881151	0.008036552	2.867290377	0.589022264	51.59987811	1.473612782	53.73132236	2.547582361	149.8277087	92.22772929	51.59987811	1.473612782	34.43947622
Spot 107	166.3757113	4813.587802	2.482250685	17.90929303	1.135083727	0.497279821	1.636981491	0.067783126	1.070787848	0.654123369	422.7858446	4.381877629	409.8593787	5.520467069	337.6599563	28.04375552	422.7858446	4.381877629	125.210537
Spot 108	742.6293725	7241.7905	1.552033938	20.98093937	2.37304495	0.045609701	3.190820103	0.007195743	1.215095466	0.380809769	46.22063967	0.559616283	45.28624808	1.41325371	NA	NA	46.22063967	0.559616283	
Spot 110	176.7491422	1024.625133	4.151928562	19.43729886	4.639798994	0.041151783	10.2483443	0.00803492	4.518654443	0.440915558	51.58943713	2.321845456	40.94794566	4.113017962	NA	NA	51.58943713	2.321845456	
Spot 112	2444.679925	14631.54743	0.598069902	20.68836378	1.054911522	0.04257115	1.531006237	0.006465247	1.061395122	0.693266361	41.54350983	0.439523027	42.33124029	0.634770315	87.22795187	26.16730581	41.54350983	0.439523027	47.62637313
Spot 113	464.4955827	2044.355561	1.079003822	20.75292497	2.625085364	0.041127778	5.92670892	0.007227308	2.026766569	0.341971674	46.42266966	0.937499489	40.92453434	2.377253614	NA	NA	46.42266966	0.937499489	
Spot 114	291.6055179	1571.552586	1.812371953	18.18046389	3.242011564	0.045962523	8.041485096	0.007242173	2.362968279	0.29384725	46.51780444	1.095244538	45.62881227	3.588027084	-0.827899557	NA	46.51780444	1.095244538	-5618.773922
Spot 115	235.3923016	44942.10673	6.521214971	9.442808816	0.594532116	4.362032266	1.341988521	0.296691607	1.202380645	0.895969396	1674.882211	17.73494472	1705.176481	11.08550333	1742.584671	10.91990233	1742.584671	10.91990233	96.11482526
Spot 116	403.1944525	1040.46441	2.005426908	20.1892322	4.105454736	0.036297586	5.070381234	0.007424513	2.126451878	0.419386981	47.68468721	1.010250872	36.20282044	1.803284449	NA	NA	47.68468721	1.010250872	
Spot 117	729.1460196	21794.49069	1.785834703	20.80831747	2.184851206	0.046219939	2.654613178	0.00700322	1.500017388	0.565060627	44.98830553	0.672483112	45.87867198	1.190796994	92.66468479	51.86166608	44.98830553	0.672483112	48.54956948
Spot 118	202.403422	35872.82015	3.064890967	5.624206754	0.616465613	9.956317302	1.84249334	0.402780291	1.735985412	0.942193589	2181.828782	32.13264159	2430.741953	17.00241267	2646.195451	10.2435615	2646.195451	10.2435615	82.45153548
Spot 120	114.5959326	105431.1077	1.915708497	9.86989384	0.694041119	3.893410169	1.333453187	0.276423841	1.138576956	0.853855964	1573.326633	15.89505613	1612.316024	10.77314534	1663.600097	12.84471457	1663.600097	12.84471457	94.57360791
Spot 121	73.26744552	33006.6517	1.611613642	9.272547742	1.414491907	4.012271048	2.131612828	0.268305755	1.594610266	0.748076876	1532.196347	21.74605254	1636.684891	17.32750793	1773.650073	25.82132813	1773.650073	25.82132813	86.38661987
Spot 122	321.6272231	32038.9759	3.793830598	12.59338274	0.800841083	2.124097502	1.463342936	0.193292792	1.221552874	0.834768695	1139.187994	12.7555645	1156.668977	10.10276441	1189.570955	15.90718182	1189.570955	15.90718182	95.76461068
Spot 124	703.2105001	45514.12666	2.529541191	6.462774896	0.749679592	8.290247753	2.22490314	0.385705216	2.094791222	0.941520188	2102.879558	37.5879407	2263.253512	20.16221807	2411.519562	12.73466017	2411.519562	12.73466017	87.20143065
Spot 125	82.67940124	41115.95609	2.209801154	8.751916455	1.018721612	5.025256651	1.944718851	0.317014871	1.656472342	0.851779856	1775.134337	25.70358212	1823.587426	16.47052791	1879.369242	18.35855442	1879.369242	18.35855442	94.4537293
Spot 126	304.1941836	34188.92231	2.721179003	9.673798483	0.498222606	4.205004075	1.260188866	0.293506494	1.156720335	0.917894425	1659.02816	16.91985648	1674.996685	10.33774705	1695.045172	9.216975805	1695.045172	9.216975805	97.87515918
Spot 127	1222.466774	4530.792776	1.705836821	20.67005486	1.968520277	0.04361243	2.775036247	0.006953355	1.660584786	0.598401116	44.6690888	0.739204058	43.34485927	1.177524102	NA	NA	44.6690888	0.739204058	
Spot 128	432.4955064	113923.7256	3.761076009	8.264073098	0.563167587	5.258572504	1.338587149	0.313132999	1.214338137	0.90717899	1756.105621	18.66719983	1862.163908	11.42056142	1982.705288	10.0260325	1982.705288	10.0260325	88.57118766
Spot 129	53.08820882	14786.8301	3.291561277	10.14359406	0.773743256	3.738660383	1.737959841	0.275853554	1.499700617	0.862908671	1570.445826	20.90268393	1579.68673	13.92378473	1592.031208	16.40685012	1592.031208	16.40685012	98.64416087
Spot 130	936.4271761	3077.776974	1.160925245	18.69272584	3.087181131	0.046321405	3.581815016	0.006852565	1.273014481	0.355410448	44.02380742	0.558520153	45.97714311	1.610089601	149.078496	78.5201414	44.02380742	0.558520153	29.5306222
Spot 131	242.0608789	1171.652703	2.181146669	18.95010354	3.495030246	0.041926514	10.89569008	0.007543582	5.383895628	0.494130761	48.44655515	2.598535525	41.70322081	4.451835428	NA	NA	48.44655515	2.598535525	
Spot 132	809.553619	3082.627205	1.184447795	19.71723885	3.319460207	0.045895892	4.028199682	0.007202015	2.055968513	0.510393892	46.26078508	0.947702661	45.56412737	1.794844009	9.071227815	NA	46.26078508	0.947702661	509.9726963
Spot 133	58.15214053	33974.1824	1.734163334	8.829174648	0.965342877	4.649503187	1.838997355	0.296740667	1.56382803	0.850369918	1675.126106	23.06922423	1758.204407	15.3688181	1858.391984	17.48025247	1858.391984	17.48025247	90.13847028
Spot 135	200.5201543	978901.0804	1.42025138	27.97597159	2.35985851	0.049526516	3.553965054	0.009984075	2.657392597	0.747726147	64.04231308	1.693430054	49.08272839	1.702894847	NA	NA	64.04231308	1.693430054	
Spot 136	405.6365973	19226.63837	1.95540051	20.28809001	2.317729314	0.050460506	2.728325833	0.007490391	1.438623396	0.527291637	48.10621806	0.689491454	49.98593191	1.330755487	141.0612477	54.4275339	48.10621806	0.689491454	34.10307144
Spot 137	101.2841231	2654.900437	4.954993699	19.06471513	5.327065998	0.094859593	6.940439843	0.014571697	4.31216289	0.621309742	93.25737272	3.992462128	92.02023616	6.105833667	60.08272408	NA	93.25737272	3.992462128	155.2149543
Spot 138	293.5537985	814.9804991	2.754483302	19.99695712	3.901052383	0.035601557	7.217402387	0.008133012	5.434079415	0.752913462	52.21671311	2.826036773	35.52060914	2.519347137	NA	NA	52.21671311	2.826036773	
Spot 139	212.3034315	3202.90146	2.609881428	20.09948262	2.850831323	0.046597353	6.167524551	0.007422641	1.869799804	0.303168603	47.67270894	0.888096339	46.24489578	2.7881973	NA	NA	47.67270894	0.888096339	
Spot 140	477.7373012	1053.075264	2.872738588	21.88417968	2.907200374	0.034138622	4.462348744	0.007819259	3.132768869	0.702044831	50.21013094	1.566857455	34.08522215	1.495756723	NA	NA	50.21013094	1.566857455	
Spot 143	621.7932903	8308.860035	1.703458963	20.71706121	2.392200562	0.048399677	3.167291977	0.007483836	1.596482794	0.504052928	48.06428002	0.764484436	47.99196294	1.484683591	44.37571159	NA	48.06428002	0.764484436	108.3121336
Spot 144	251.507895	531924.8412	11.61134584	5.320341312	0.424820824	13.21826533	1.123648654	0.505713433	1.040246862	0.925775916	2638.303482	22.52260145	2695.362166	10.60728152	2738.415474	6.98689835	2738.415474	6.98689835	96.34416351
Spot 145	64.90510109	20667.24232	2.146827536	13.90618036	1.534285283	1.593185311	2.154054289	0.160842879	1.509438668	0.700743094	961.4592191	13.48226028	967.5452808	13.43830989	981.4165087	31.29909197	981.4165087	31.29909197	97.96648116
Spot 146	405.5074849	4476.489592	0.626307108	14.11523516	1.206634816	0.908244865	1.808728371	0.096544507	1.346452079	0.744419174	594.1265327	7.642063059	656.1241822	8.741437151	875.5620581	25.00158946	594.1265327	7.642063059	67.85658734
Spot 147	226.9602462	1861.43712	1.521993744	19.37413164	4.028493698	0.046440245	8.3942367	0.007651145	3.552658615	0.423225928	49.13472029	1.738953325	46.09246217	3.78262422	NA	NA	49.13472029	1.738953325	
Spot 149	77.50502622	147090.8429	1.749811084	5.514345261	0.849316532	11.75726849	1.793298412	0.465964274	1.579424079	0.880736897	2465.838733	32.36307968	2585.267997	16.78304512	2680.242487	14.047935	2680.242487	14.047935	92.00058371
Spot 150	272.5072249	57116.27405	4.547698937	14.28592815	0.67491359	1.474978128	1.760034013	0.151915735	1.624912073	0.923227654	911.6932353	13.81436049	920.1721671	10.65077265	940.5689287	13.85676475	940.5689287	13.85676475	96.92997583
Spot 151	255.2728994	124069.3401	1.587443372	11.10522944	0.874143047	2.789469763	1.658591266	0.222815022	1.409535095	0.84983873	1296.732287	16.55688972	1352.71981	12.39749886	1442.349218	16.65691106	1442.349218	16.65691106	89.90418344
Spot 152	1522.81032	6266.260303	0.634538669	20.02485221	1.684761826	0.044878285	2.03393682	0.00677572	1.099418197	0.540537044	43.53178343	0.476984032	44.57572755	0.887029435	101.1108714	40.45883696	43.53178343	0.476984032	43.05351424
Spot 153	370.765027	2106.971928	1.850894387	20.90366526	3.572701472	0.042802421	5.521806969	0.007542078	1.844386348	0.334018621	48.43693097	0.890016268	42.55645513	2.301326189	NA	NA	48.43693097	0.890016268	
Spot 155	90.84171188	26136.90233	2.351085045	5.87373471	1.349822886	10.64944852	3.087001395	0.450834971	2.775648751	0.899140751	2398.963627	55.60233926	2493.028219	28.66182336	2570.567361	22.58590571	2570.567361	22.58590571	93.32428566
Spot 156	1084.108877	5120.111884	0.945349524	19.38342553	2.655820711	0.047452451	3.18360075	0.007001662	1.432139438	0.449848945	44.97833203	0.64191044	47.07415244	1.464445261	155.1916428	66.57462	44.97833203	0.64191044	28.98244469
Spot 158	1247.007809	11867.27313	1.139999199	20.36078001	2.693771005	0.044456469	3.244908001	0.006673594	1.805681062	0.556466027	42.87783657	0.771667789	44.16573586	1.4024171	114.6554009	63.58956576	42.87783657	0.771667789	37.39713633
Spot 159	283.7243735	123416.1142	4.624208043	9.039157446	5.283089657	0.926978023	5.584366999	0.060274912	1.80944242	0.324019252	377.2971808	6.631033529	666.0435443	27.28356036	1824.645962	95.89645647	377.2971808	6.631033529	20.67782949
Spot 160	80.21216728	15848.11604	1.606636162	5.488862709	0.863157059	10.49609243	1.64704969	0.41579127	1.398290591	0.848966853	2241.344571	26.47245502	2479.572716	15.27027125	2680.998469	14.39536799	2680.998469	14.39536799	83.60111343
Spot 161	83.94610639	15451.60253	3.270148153	9.757894762	1.15465497	4.222172997	1.871507497	0.298657103	1.468614166	0.784722567	1684.646141	21.77238084	1678.340456	15.3652418	1670.448807	21.45099513	1670.448807	21.45099513	100.8499113
Spot 162	1636.899719	2793.611122	3.223068404	19.11533245	2.213180066	0.03883757	3.759594745	0.005935358	3.031909985	0.806445958	38.14867397	1.153217838	38.68849729	1.427169738	72.30529888	52.85374425	38.14867397	1.153217838	52.76055083
Spot 163	238.3012154	621.3909156	1.476477878	14.24411721	8.01464953	0.044113785	9.071066481	0.006823446	2.893934119	0.319029094	43.83736809	1.264320833	43.8325359	3.891498609	43.56560971	NA	43.83736809	1.264320833	100.6237911
Spot 164	533.8009185	9703.304646	2.222569917	20.91324253	2.439547911	0.048179034	2.884317289	0.007473264	1.468581637	0.509160918	47.99663359	0.702252204	47.77824615	1.346157334	36.8095658	NA	47.99663359	0.702252204	130.3917407
Spot 165	508.6964707	5055.390688	2.176714666	19.50726842	2.785065642	0.05902434	5.436753145	0.008766788	4.661818808	0.857463763	56.2680581	2.611700256	58.23023838	3.076777223	139.6718241	65.70435149	56.2680581	2.611700256	40.28590481
Spot 166	553.4285516	8919.193966	2.989420148	17.23776735	1.228740033	0.37168985	2.26612654	0.047339434	1.53388505	0.676875286	298.1664884	4.469374008	320.9051601	6.235112634	489.3868236	36.82317738	298.1664884	4.469374008	60.92654604
Spot 167	72.72221674	7575.415743	1.064833379	9.182454751	1.626848754	4.0360987	2.567674564	0.270593454	1.933140169	0.75287585	1543.813559	26.53961862	1641.500447	20.89771242	1768.958871	30.86532656	1768.958871	30.86532656	87.2724394
Spot 170	219.7654558	1484.927424	2.157532994	18.77915351	3.514264395	0.088943767	8.911257472	0.014779764	1.967803452	0.220822197	94.57926005	1.847547608	86.51896803	7.390718132	NA	NA	94.57926005	1.847547608	
Spot 171	222.6034726	870.3828241	2.315977812	19.18342948	4.755813779	0.0380655	16.08290801	0.007842406	5.822644634	0.362039292	50.35819104	2.920755656	37.93357904	5.988338066	NA	NA	50.35819104	2.920755656	
Spot 172	302.0135756	48785.42751	18.22801163	10.84336871	0.692563726	3.096586977	1.47415488	0.24210445	1.300743051	0.882365258	1397.628226	16.34388529	1431.846659	11.31493606	1483.055704	13.14593355	1483.055704	13.14593355	94.23976604
Spot 175	292.980847	1358949.566	2.736907421	16.78636248	0.882055193	0.744440286	1.798040443	0.089983903	1.566821006	0.871404763	555.4419227	8.338397134	564.9934012	7.791330912	603.6165563	19.06546135	555.4419227	8.338397134	92.01900062
Spot 178	367.3572172	1930.129275	2.9283094	15.97218112	4.833068933	0.056150819	5.88839323	0.007346161	3.176547815	0.539459185	47.18330133	1.493328421	55.47138735	3.178764008	429.8407509	110.5520805	47.18330133	1.493328421	10.97692604
Spot 179	56.28380369	11297.88103	1.834889352	6.307120343	0.671675188	9.406935931	1.524271809	0.430001883	1.366471806	0.896475155	2305.726098	26.48836016	2378.50688	13.99088275	2441.451281	11.43774838	2441.451281	11.43774838	94.44079904
Spot 180	176.6619367	1215.182949	1.457610213	21.42832825	4.226233012	0.039686687	8.024266841	0.008323772	5.223213992	0.650927255	53.43639339	2.779561097	39.51810423	3.110133212	NA	NA	53.43639339	2.779561097	
Spot 182	368.8177769	34245.34749	2.352543122	13.31257317	0.69159695	1.71381087	2.335353098	0.165098653	2.230074364	0.954919565	985.0492458	20.37135076	1013.711603	14.97604961	1076.145745	13.89975673	1076.145745	13.89975673	91.53492921
Spot 183	91.54948199	23895.43611	2.760306889	17.99397134	1.948294149	0.473896515	2.601255996	0.06204683	1.717993249	0.660447588	388.0613568	6.470170659	393.8768184	8.492580167	428.1383134	43.57245856	388.0613568	6.470170659	90.63925012
Spot 184	1431.565495	346969.7323	0.552409582	18.90670362	2.468241691	0.051015129	3.341058595	0.00694537	2.251767189	0.673968183	44.61796559	1.001223805	50.52189305	1.646661771	340.4387728	55.88214645	44.61796559	1.001223805	13.10601763
Spot 185	1255.850777	4933.906773	0.833525667	19.96480814	1.637821707	0.044897181	2.227813428	0.006858744	1.39473224	0.626054329	44.06336731	0.612470389	44.59408931	0.971973386	73.24744617	41.30251437	44.06336731	0.612470389	60.15686501
Spot 186	80.62362025	4645.926424	2.988001438	14.93171696	1.328515954	1.15348317	1.892580086	0.129922131	1.313366595	0.693955624	787.4212369	9.735070941	778.8867445	10.29363666	754.4872386	28.76397716	787.4212369	9.735070941	104.3650835
Spot 187	259.1136421	7230.478889	2.911576926	17.9643001	0.985331846	0.455390516	1.917156914	0.061070387	1.632807583	0.851681764	382.131814	6.058147175	381.0471242	6.091120923	374.4399067	22.60588577	382.131814	6.058147175	102.0542435
Spot 188	376.5904774	3728.484429	2.349332254	20.67556709	2.911917339	0.045765457	3.386560462	0.007417201	1.628865543	0.480979318	47.6378991	0.773097281	45.43749013	1.50484779	NA	NA	47.6378991	0.773097281	
Spot 189	498.8244926	31739.10969	2.237006562	10.3573368	0.672174622	3.099535074	1.701962362	0.23206486	1.56020153	0.916707423	1345.311911	18.94418682	1432.577114	13.0666959	1564.671797	12.74699367	1564.671797	12.74699367	85.98045379
Spot 190	534.6163826	36328.24614	3.809348902	19.46253689	3.02424842	0.061582257	3.525537136	0.008688011	1.811967932	0.51395514	55.76462188	1.006079262	60.67978939	2.076623486	259.1613108	69.47412715	55.76462188	1.006079262	21.51734057
Spot 191	420.1660034	2011.317407	2.068844614	21.56572377	2.522425018	0.040228749	7.42359297	0.007428326	3.316774503	0.446788303	47.70908804	1.576561737	40.04735726	2.915096456	NA	NA	47.70908804	1.576561737	
Spot 192	270.2471032	473661.5024	2.880855207	9.411744006	0.783150272	4.279001374	1.522216084	0.289708334	1.305303516	0.857502118	1640.071526	18.90168151	1689.3303	12.52907211	1751.010026	14.33451425	1751.010026	14.33451425	93.66431383
Spot 193	148.0005611	1435.211885	1.06636475	18.3089905	4.437676261	0.047288781	8.128377329	0.007679393	4.292478669	0.528085557	49.31543146	2.108778031	46.91548133	3.726725352	NA	NA	49.31543146	2.108778031	
Spot 195	294.20281	708.6144622	2.665202802	19.71719516	3.78972925	0.029724031	5.403282248	0.007263711	2.748302649	0.508635774	46.6556446	1.277609435	29.7414173	1.583706751	NA	NA	46.6556446	1.277609435	
Spot 196	17.64884819	8835.108567	1.286814026	10.05305099	1.417448799	3.77598546	2.485993995	0.277039865	1.95325559	0.785704066	1576.43703	27.31603704	1587.653279	19.95966448	1602.564618	28.68598114	1602.564618	28.68598114	98.36963902
Spot 197	60.56746163	5934.731781	0.638526819	13.15132048	4.041458478	0.811007629	4.667512913	0.079117269	2.330575106	0.499318406	490.8516581	11.01499684	603.0191311	21.22674281	1050.869742	81.52938726	490.8516581	11.01499684	46.7090866
Spot 198	61.11301773	2198.701887	0.252176747	15.78398921	1.540789915	0.679738926	2.470492652	0.086056857	1.598221108	0.646924048	532.1745351	8.163722221	526.6166219	10.15145517	502.5906067	41.48123911	532.1745351	8.163722221	105.8862876
Spot 200	157.1981952	1589.011476	0.976639257	10.77300476	9.694618077	0.146912906	10.73230386	0.012569913	3.181824476	0.29647171	80.52581564	2.546253785	139.1825186	13.95981756	1310.194354	199.4027378	80.52581564	2.546253785	6.146096983

Spot 201	68.56054618	20043.90194	1.68939968	11.0571393	0.85297464	3.006250678	2.614710764	0.240641725	2.470049687	0.944674157	1390.032336	30.88529596	1409.205271	19.92491033	1438.298751	16.35150341	1438.298751	16.35150341	96.64420096
Spot 202	292.8162152	13624.37611	1.422289521	19.34223285	4.520618256	0.051294853	5.13324335	0.007279462	2.429879343	0.473361416	46.75645157	1.132015101	50.79209787	2.543149682	245.5985178	104.184653	46.75645157	1.132015101	19.03775804
Spot 203	119.7482832	1779.185395	1.398978298	18.93403254	5.308498925	0.04904845	7.808586784	0.007921181	5.070276823	0.649320673	50.86203306	2.568699201	48.62011029	3.707097655	NA	NA	50.86203306	2.568699201	
Spot 204	719.7597915	5145.947341	1.45297475	13.95108717	3.809992248	0.52436636	5.053824587	0.054716954	3.239293552	0.640958841	343.4162209	10.83315382	428.0639918	17.65384456	913.7627518	79.84246266	343.4162209	10.83315382	37.58264607
Spot 205	367.2677393	38550.94171	5.208026574	11.77936972	5.044092951	0.90493981	7.390931418	0.076941933	5.401806373	0.730869503	477.8435517	24.87884294	654.3640273	35.66531578	1322.376658	97.78470303	1322.376658	97.78470303	36.13520767
Spot 206	244.3686873	1459.421511	1.530145822	19.64434982	4.144599567	0.040167722	5.53333288	0.007093506	1.614178973	0.291719115	45.56625765	0.732927565	39.98778591	2.169657568	NA	NA	45.56625765	0.732927565	
Spot 207	201.861777	1660.589584	1.586487517	10.97476514	6.146470292	0.093711357	7.303160448	0.008151981	3.733922975	0.511274948	52.33800707	1.946349099	90.95479232	6.3538349	1277.954941	122.4732419	52.33800707	1.946349099	4.095450112
Spot 210	55.79411181	128142.0568	1.863973651	14.32156432	5.285910249	0.706632941	6.079160793	0.072845428	3.002556956	0.493909778	453.2757285	13.14241589	542.7449755	25.56342499	938.7300903	108.453561	453.2757285	13.14241589	48.28605509
Spot 211	426.6335416	2071.945313	1.442160326	19.42821975	4.398787557	0.048038852	5.401466199	0.007790542	3.023546982	0.559764122	50.02644891	1.506719316	47.64244059	2.513956146	NA	NA	50.02644891	1.506719316	
Spot 212	148.1312253	19208.27574	2.035910407	16.06609738	7.494220797	0.067068707	8.29232108	0.007838903	3.549315455	0.428024364	50.33578066	1.779618714	65.91395908	5.29221526	675.9385096	160.4495387	50.33578066	1.779618714	7.446798776
Spot 213	999.7363829	7388.775759	6.651426324	12.85776847	2.92291181	0.752073733	3.261209161	0.071236705	1.402538127	0.430066904	443.6021307	6.012448761	569.4268939	14.21493824	1109.978269	58.82318689	443.6021307	6.012448761	39.96493834
Spot 214	157.2704419	5980.730283	3.906493887	10.0911649	0.820036409	1.345651643	2.393554648	0.099856144	2.24398953	0.937513389	613.5657919	13.1334414	865.6782751	13.94343212	1581.358554	15.57764285	1581.358554	15.57764285	38.79991609
Spot 215	112.2008703	19669.50055	1.660328923	15.9206466	1.260294492	0.794114075	1.800264021	0.091875778	1.280184251	0.711109168	566.6212077	6.944142963	593.5029178	8.091110739	697.6363727	26.94461772	566.6212077	6.944142963	81.22013557
Spot 217	339.9628402	8487.704976	2.758124631	15.2888721	4.407506132	0.075539597	5.15540114	0.008516619	2.635483966	0.511208322	54.66918488	1.434705476	73.94271899	3.676567418	752.4426571	93.58784645	54.66918488	1.434705476	7.265561617
Spot 218	199.2078175	19144.27681	4.247028683	16.94521305	5.163447636	0.139341868	6.590225188	0.017186038	4.095084169	0.621387593	109.8470846	4.460222209	132.4575184	8.184028655	559.8570454	112.6406605	109.8470846	4.460222209	19.62055948
Spot 219	207.1941974	183967.3256	3.911959667	10.58166698	0.747389531	3.101279753	1.461971813	0.236005795	1.256484949	0.8594454	1365.898776	15.46601723	1433.009149	11.22556356	1534.096761	14.06653018	1534.096761	14.06653018	89.03602502
Spot 220	250.8255601	3288.63829	2.100096231	14.57056181	6.865725982	0.070915966	7.700236254	0.007933209	3.390965307	0.440371593	50.9389647	1.72051603	69.56828508	5.177574497	768.8904103	145.7619949	50.9389647	1.72051603	6.624996751
Spot 222	229.6222685	2632.497844	1.504524114	7.370006083	6.86437485	0.153072029	8.599488375	0.008418171	5.132051008	0.596785621	54.03987491	2.761762105	144.6207143	11.59206464	2123.124119	121.0227457	54.03987491	2.761762105	2.545299845
Spot 223	695.365078	2014.842108	1.380354863	18.8111992	2.543155279	0.044904582	3.036782001	0.007041326	1.612032007	0.530835604	45.23224504	0.726606118	44.60128131	1.325127894	10.77630151	NA	45.23224504	0.726606118	419.7381169
Spot 224	267.4786371	55002.78938	2.521006449	18.86199352	3.330340635	0.09975791	3.815632527	0.013603884	1.862223486	0.488051057	87.10512224	1.61118227	96.55284935	3.514377699	336.6681585	75.45433945	87.10512224	1.61118227	25.87269394
Spot 227	536.8408982	5283.726519	2.324673503	20.95940593	2.207720067	0.045751096	3.455026007	0.00732872	1.330913483	0.385210844	47.07168709	0.624201699	45.42354655	1.534810425	NA	NA	47.07168709	0.624201699	
Spot 228	538.8931519	8627.96502	2.382614607	21.08164546	1.635327385	0.088608027	2.629173557	0.013919978	1.423223866	0.541319862	89.11513118	1.259581554	86.20585909	2.172958148	6.349501081	NA	89.11513118	1.259581554	1403.498165
Spot 230	476.8517312	3327.199194	2.663233587	20.00958925	3.086678533	0.045961477	3.786799724	0.007247095	1.997009385	0.527360708	46.54930596	0.926245798	45.62779714	1.68958846	NA	NA	46.54930596	0.926245798	
Spot 231	51.7242834	7731.668948	1.657326608	12.48610284	2.336257694	2.053681525	3.681351667	0.188374075	2.839208586	0.771240795	1112.561158	29.0125834	1133.52076	25.14405571	1173.902374	46.36806485	1173.902374	46.36806485	94.77458963
Spot 233	108.1758184	13117.38352	3.055786738	12.88063118	1.053727624	2.027652239	2.920130786	0.19008698	2.717997376	0.93077933	1121.846232	27.98618067	1124.828634	19.85980914	1130.604241	21.26003546	1130.604241	21.26003546	99.22536909
Spot 234	372.3650591	32277.38186	3.95523445	10.36939757	1.311545448	3.392314574	2.024747052	0.253356729	1.542048662	0.761600646	1455.763643	20.09441823	1502.621035	15.87957125	1569.317219	24.58275755	1569.317219	24.58275755	92.76414133
Spot 235	355.1959401	4883.388272	1.405346439	17.51480892	5.496670869	0.061189646	6.413186578	0.008110857	3.208477347	0.500293779	52.07504048	1.664085507	60.30419474	3.754833647	400.5924619	124.4886005	52.07504048	1.664085507	12.99950584
Spot 236	373.6782693	235846.6673	14.72690638	12.2399262	0.69844915	2.067281439	2.523786722	0.181570751	2.425213713	0.960942417	1075.550029	24.0246124	1138.032842	17.27310572	1259.187851	13.63823902	1259.187851	13.63823902	85.4161695
Spot 237	309.1521466	1135.550023	2.407434412	17.59776955	4.932010999	0.044694468	9.301413609	0.007324094	2.495407255	0.268282582	47.04208051	1.169618723	44.39708339	4.040597934	NA	NA	47.04208051	1.169618723	
Spot 238	283.3718925	1545.65426	2.593714159	19.30144768	3.998106527	0.045795697	9.114021112	0.007791337	2.805176195	0.307786888	50.03153416	1.398040495	45.46685063	4.052472404	NA	NA	50.03153416	1.398040495	
Spot 239	128.1290251	5078.615015	2.735023092	16.77858071	2.147834012	0.622028001	3.725675069	0.07869522	1.696035055	0.455228925	488.3299321	7.976325137	491.1176509	14.50828332	504.1335581	73.03607003	488.3299321	7.976325137	96.86519064
Spot 240	389.0172406	5461.247144	2.528481101	17.63873982	3.568740684	0.055586791	4.293370306	0.007384029	2.36287905	0.550355288	47.42563055	1.11649828	54.92898692	2.295655199	395.7775812	80.40088128	47.42563055	1.11649828	11.98289969
Spot 241	509.5922459	1794.308718	1.108290881	13.65178099	7.710582062	0.059150618	9.942387547	0.006508755	2.757134862	0.277311144	41.82216987	1.149361271	58.35130528	5.638020144	803.5408803	200.4623182	41.82216987	1.149361271	5.204734556
Spot 242	1025.291664	27275.06468	2.011346691	19.75528184	1.735728878	0.090043438	2.171416434	0.012900144	1.290039723	0.594100562	82.62785437	1.059129877	87.54383561	1.821301139	223.7286113	40.39756269	82.62785437	1.059129877	36.93218041
Spot 243	111.961769	5187.538722	2.495938437	17.38907317	2.277200419	0.441527363	3.150713553	0.057968796	1.301296766	0.413016526	363.2608541	4.59638135	371.3288523	9.799119349	421.9708717	64.05849858	363.2608541	4.59638135	86.08671321
Spot 244	275.4053361	2636.218539	3.120255903	18.3781788	4.213094574	0.051293355	4.753640698	0.007544893	2.111526783	0.444191498	48.45494169	1.019303446	50.79065087	2.355017976	162.4229699	99.63542462	48.45494169	1.019303446	29.83256722
Spot 245	113.9788333	50383.6238	1.664581938	10.0452699	0.707467469	3.575311666	1.458872652	0.258611071	1.275468716	0.874283793	1482.731913	16.89447013	1544.067442	11.57602169	1629.055579	13.16363597	1629.055579	13.16363597	91.01788374
Spot 246	209.3594601	3857.062782	1.726440792	19.45577018	3.301758865	0.09439402	4.779975164	0.014248566	2.341242316	0.489802193	91.20392559	2.120270804	91.58836719	4.186284898	101.6376786	98.57264566	91.20392559	2.120270804	89.73436506
Spot 247	354.4995982	2871.958683	2.097267958	11.09710249	10.56761291	0.095454404	11.2043895	0.008043594	3.531492961	0.315188343	51.64491293	1.816550226	92.57171988	9.913649817	1339.706286	206.0706468	51.64491293	1.816550226	3.854942942
Spot 248	766.3816915	9493.64838	1.685956874	20.27564883	2.243657007	0.047742488	3.131606838	0.00716735	1.970009886	0.629073185	46.03891736	0.903740228	47.35527024	1.448931745	114.4989374	57.43623232	46.03891736	0.903740228	40.20903462
Spot 250	609.0835583	10171.71543	1.132475333	20.40150076	2.564941881	0.047463606	3.00114124	0.007151087	1.543947574	0.514453486	45.93482404	0.706688809	47.08496551	1.380824228	106.0303833	60.80909224	45.93482404	0.706688809	43.32232195
Spot 251	648.2245389	3450.011024	1.279466878	19.02619799	3.200800681	0.047160847	3.680657058	0.006999793	1.786014895	0.485243495	44.96636827	0.800311544	46.79143724	1.68315405	141.3425962	75.552294	44.96636827	0.800311544	31.81374157
Spot 252	225.3540811	27130.19551	1.705608149	15.37669262	0.957934624	0.853012669	1.699268625	0.094769222	1.402597381	0.825412392	583.6814475	7.827015196	626.3012481	7.942878157	783.3868737	20.15343893	583.6814475	7.827015196	74.50743267
Spot 253	171.410531	1015.37021	2.183693048	22.12162798	3.806896342	0.033617689	8.34531863	0.007940108	5.554313669	0.665560408	50.9830841	2.820592207	33.57360775	2.756016535	NA	NA	50.9830841	2.820592207	
Spot 254	770.1040679	17826.62736	1.393585099	20.53098022	2.057670716	0.048575986	2.785785655	0.007271227	1.870605659	0.671482264	46.70374996	0.870485887	48.16270448	1.310386962	121.4208896	48.62041448	46.70374996	0.870485887	38.46434507
Spot 255	330.2678516	2514.550801	3.032556935	17.12734289	5.423327815	0.053243782	6.526921481	0.007266248	3.425252196	0.524788326	46.67188382	1.592856678	52.67270965	3.350270448	334.9711664	126.0139722	46.67188382	1.592856678	13.93310485
Spot 256	313.4076417	3269.976452	2.796497862	20.21698064	3.878385437	0.04710711	4.832106083	0.007518729	1.808029962	0.374170172	48.28753772	0.869791457	46.73932883	2.207305286	NA	NA	48.28753772	0.869791457	
Spot 257	278.3461812	44170.90953	8.58522961	9.199882774	0.702397611	4.589087488	1.587900894	0.303635992	1.423392673	0.896398937	1709.313635	21.37181621	1747.287438	13.23924879	1793.011832	12.81750187	1793.011832	12.81750187	95.33197744
Spot 258	464.3030646	2005.33979	2.277124436	21.29162342	1.533852495	0.07177862	2.696606256	0.013019832	1.634439513	0.606109813	83.38954051	1.354174072	70.38587589	1.833740741	NA	NA	83.38954051	1.354174072	
Spot 259	263.2257993	2165.451838	3.040214538	22.7106027	3.277404688	0.038516787	4.241079914	0.007439899	2.219499632	0.523333603	47.78314053	1.056625755	38.37490909	1.597141004	NA	NA	47.78314053	1.056625755	
Spot 260	665.7499773	3461.355814	2.933709814	19.00173549	3.220971337	0.04937369	3.852162003	0.00733023	1.533612011	0.398117216	47.08134872	0.719414903	48.93486373	1.840349657	140.7264344	82.97066874	47.08134872	0.719414903	33.45593805
Spot 261	48.26360441	6442.941113	1.1836666	10.63900906	1.512694347	3.01487556	2.159017305	0.235723362	1.537898815	0.712314261	1364.425574	18.91161351	1411.388895	16.46347058	1482.99572	28.71828285	1482.99572	28.71828285	92.00468726
Spot 263	440.6824265	679.9743214	2.476713819	16.63882458	3.49055092	0.038106677	4.445522827	0.00718355	2.051558973	0.461488795	46.14260022	0.943262758	37.97385477	1.656960793	NA	NA	46.14260022	0.943262758	
Spot 264	410.2269031	2162.162664	1.608479331	19.72576643	3.844567395	0.046010053	5.332437842	0.007543387	2.797981167	0.52470957	48.44530199	1.350409873	45.67495191	2.381625014	NA	NA	48.44530199	1.350409873	
Spot 265	211.0804977	30557.44194	2.07861192	16.90584516	4.518479179	0.123842853	4.844292013	0.015154153	1.746380504	0.360502732	96.95713551	1.680570579	118.5499631	5.420379708	577.0434857	98.26751774	96.95713551	1.680570579	16.80239669
Spot 266	531.0036618	2053.067013	3.540910031	16.68443105	3.151161794	0.052691381	4.49393354	0.007166374	1.537742234	0.342181792	46.03266851	0.70534243	52.140026	2.283998434	342.6914518	95.60580212	46.03266851	0.70534243	13.43268654
Spot 267	543.1280798	3073.486944	1.761383972	19.30228706	3.529145887	0.047329018	5.326995154	0.007230273	2.07788886	0.390067721	46.44164139	0.961537957	46.95449162	2.444316337	73.2432016	NA	46.44164139	0.961537957	63.40744312
Spot 268	113.8572221	1626.615737	1.645530119	21.31137036	3.905017231	0.036972438	6.909723406	0.007035487	5.297994769	0.76674484	45.19486333	2.386047716	36.86383777	2.501510513	NA	NA	45.19486333	2.386047716	
Spot 269	520.5731453	3607.222511	2.455361362	19.90635619	2.247317576	0.047082588	5.02855197	0.007327487	2.197206546	0.436946174	47.06379893	1.030323226	46.71554981	2.295900071	28.86637352	NA	47.06379893	1.030323226	163.0402201
Spot 270	244.9549774	44429.1532	6.780313293	9.300476988	0.617356247	4.520915917	1.106927847	0.302652595	0.917569287	0.82893324	1704.448947	13.74274615	1734.826393	9.203995876	1771.639664	11.30332243	1771.639664	11.30332243	96.2074276
Spot 271	651.7633962	5190.500805	2.015620685	22.61073732	1.849207645	0.044153739	4.452558666	0.007662474	2.08440844	0.468137221	49.20719816	1.021774301	43.87139014	1.911802901	NA	NA	49.20719816	1.021774301	
Spot 273	161.4064811	1221.548654	3.579647453	19.60506925	3.583641663	0.076881183	6.118827361	0.014233361	2.043052528	0.333896089	91.10728896	1.848278182	75.2084782	4.435607831	NA	NA	91.10728896	1.848278182	
Spot 274	172.5693443	32635.83452	1.307283311	10.6851906	1.466858279	2.857985621	4.142656827	0.220311574	3.874097905	0.935172298	1283.521129	45.08815485	1370.914543	31.17056673	1509.809634	27.70710411	1509.809634	27.70710411	85.01211673
Spot 276	173.7923101	788.0907253	1.252083703	19.35329455	4.477356355	0.034018427	8.090959867	0.007501026	3.597430344	0.444623432	48.17426997	1.72657643	33.96720057	2.702818851	NA	NA	48.17426997	1.72657643	
Spot 277	498.9482844	41011.73217	1.731615709	20.49359418	1.63126607	0.089935118	2.127172406	0.013337327	1.364720332	0.641565455	85.40962626	1.157914904	87.44293047	1.782221638	143.2886159	38.2912052	85.40962626	1.157914904	59.60670756
Spot 278	172.9043042	11610.96023	1.483025919	17.1556304	4.732556764	0.059676358	6.113235666	0.007517677	3.832930203	0.626988785	48.28080955	1.843657073	58.8551951	3.495681294	513.5434643	104.6833258	48.28080955	1.843657073	9.401504042
Spot 279	508.7587766	1560.708139	1.361818077	18.77718387	3.522258172	0.04397983	4.641484542	0.007222836	2.389146467	0.514737568	46.39404383	1.104442634	43.70225875	1.985403635	NA	NA	46.39404383	1.104442634	
Spot 281	449.8407533	235383.3931	2.342450978	17.00291703	4.549045941	0.057313339	4.789979492	0.007006173	1.500027728	0.31315953	45.00721226	0.672769381	56.58841901	2.636431778	579.2015673	98.8605048	45.00721226	0.672769381	7.770561201
Spot 282	834.2446668	15589.10753	1.117966388	15.48021658	5.135291377	0.063077057	5.495350265	0.007115048	1.955988222	0.355935132	45.70414466	0.890806117	62.10853067	3.310804239	751.4030401	108.5120353	45.70414466	0.890806117	6.082507285
Spot 283	200.1532284	4119.14998	1.738774823	15.85222081	6.528659269	0.063157902	7.056411004	0.007604757	2.596451319	0.367956362	48.83794828	1.263262297	62.18574598	4.256437353	611.9674281	141.8911443	48.83794828	1.263262297	7.980481646
Spot 284	114.9338217	4463.174856	2.215351064	15.03789625	1.057441739	1.106030368	1.920211711	0.125397696	1.59958005	0.833022755	761.5566828	11.48968649	756.2622056	10.23991071	740.6178098	22.47407921	761.5566828	11.48968649	102.8272171
Spot 285	55.51550005	21796.45715	1.493596934	4.837528376	0.884565761	13.84084171	2.326414027	0.481613571	2.150599618	0.924426862	2534.290052	45.06595859	2738.876941	22.03378198	2893.371173	14.39258472	2893.371173	14.39258472	87.58952447
Spot 286	121.9124227	43755.0555	2.627650049	11.69142728	0.799651745	2.576371368	1.771849091	0.216908483	1.580579639	0.892050935	1265.518857	18.16161047	1293.952076	12.96122599	1341.424013	15.47075375	1341.424013	15.47075375	94.34144948
Spot 287	719.410655	3254.593036	1.512063279	18.4086763	3.869855811	0.046528968	4.772192138	0.006703334	1.800380784	0.377264941	43.06827788	0.772808574	46.17854833	2.154371767	210.8001223	102.4871148	43.06827788	0.772808574	20.43086001
Spot 288	501.928659	4428.282139	1.492574654	14.43398252	5.998815634	0.069671794	6.198376911	0.007570543	1.529464643	0.246752443	48.61905237	0.740814086	68.38794403	4.099366049	829.8556066	125.3615515	48.61905237	0.740814086	5.858736385
Spot 290	341.1093769	4697.417431	2.67379838	17.98189347	3.692270382	0.054768219	4.607006336	0.007496896	2.71632371	0.589607114	48.14784174	1.302979269	54.14128556	2.428964295	328.1152972	84.44859874	48.14784174	1.302979269	14.67406188
Spot 292	222.0179743	13199.05269	1.085025543	13.56517367	0.677450819	1.57184221	1.622547198	0.155469402	1.472369259	0.9074431	931.5498499	12.77091443	959.153633	10.06945843	1022.979396	13.79759621	1022.979396	13.79759621	91.06242544
Spot 293	494.4921705	2428.373661	1.647018039	20.38469468	2.541847917	0.043158742	3.322536583	0.007221401	1.38209642	0.415976284	46.38486384	0.638782624	42.90334722	1.395784357	NA	NA	46.38486384	0.638782624	
Spot 294	822.2686089	2100.559687	2.013714162	20.75385746	2.08617572	0.041192699	3.029732699	0.007201657	1.833356861	0.605121654	46.25849134	0.845047637	40.98784813	1.217092453	NA	NA	46.25849134	0.845047637	
Spot 295	1019.832156	5754.538635	0.876475951	20.831582	2.195540054	0.04126784	2.536879272	0.006528653	1.244174233	0.49043494	41.94961513	0.520231781	41.06112399	1.020890456	NA	NA	41.94961513	0.520231781	
Spot 296	265.8880528	30995.15341	4.107764816	10.04009443	0.811033819	3.683940813	1.407029656	0.26702413	1.147359562	0.81544803	1525.678943	15.58777806	1567.893395	11.23704543	1625.182071	15.14694312	1625.182071	15.14694312	93.87741655
Spot 298	80.93518344	5998.30862	1.658846916	16.36333996	5.873690122	0.119228303	6.682975409	0.014601697	2.811197023	0.420650511	93.44798331	2.608058038	114.3721715	7.228826332	575.2053696	131.9366748	93.44798331	2.608058038	16.24602068
Spot 301	82.78580391	31475.45556	4.095709674	13.87323976	0.962402314	1.633759966	1.786693455	0.163763245	1.5042946	0.841943309	977.6562817	13.64594287	983.3096106	11.25407482	995.9329774	19.5837005	995.9329774	19.5837005	98.16486689
Spot 302	377.5862992	2525.347596	0.884307196	19.96254375	3.490504915	0.048245446	8.37248625	0.007833167	5.533684606	0.66093684	50.29909202	2.772562554	47.84257772	3.912729678	NA	NA	50.29909202	2.772562554	
Spot 303	114.5027696	79272.82207	1.804236313	12.48699251	0.781249927	2.284618181	1.69980007	0.205281493	1.50948049	0.888034138	1203.630256	16.57326122	1207.544717	12.00540254	1214.55884	15.37422909	1214.55884	15.37422909	99.1002014
Spot 305	97.2179637	129524.6736	1.815933826	9.730773152	0.721413688	3.930200981	1.317774632	0.274519231	1.102764367	0.836838363	1563.700461	15.31186628	1619.921566	10.66687401	1693.743124	13.29965434	1693.743124	13.29965434	92.32217318
Spot 307	292.7932044	1300.934702	2.862148325	20.20569433	3.355359394	0.038152628	5.831642365	0.007199277	2.017858024	0.346018822	46.24326147	0.929784483	38.01879891	2.176129343	NA	NA	46.24326147	0.929784483	
Spot 308	605.9753118	4012.992584	7.338939219	28.74474522	1.275776493	0.042596195	1.730264937	0.009842697	0.973158476	0.562433218	63.13987388	0.611451694	42.35563144	0.717789761	NA	NA	63.13987388	0.611451694	
Spot 309	244.8265951	7009.865492	2.520069678	19.19880851	2.967023981	0.050148453	3.452870799	0.007194009	1.760360785	0.509825269	46.20954641	0.810546167	49.68425407	1.674239071	220.7191362	68.74739754	46.20954641	0.810546167	20.93590397
Spot 310	160.3256095	39414.47733	2.598351305	12.52707744	0.909341667	2.021531754	1.331095814	0.182895323	0.968505343	0.727600021	1082.772583	9.653322973	1122.773931	9.042824766	1200.993685	17.98079233	1200.993685	17.98079233	90.15639274
Spot 311	463.4010732	15573.93489	5.785584528	21.2628259	2.161872499	0.047746102	3.580294935	0.007449728	2.818586918	0.787249925	47.84603148	1.343589697	47.3587728	1.656650772	22.73450139	NA	47.84603148	1.343589697	210.4556008
Spot 313	447.3504647	4994.825252	2.600240461	21.0907556	1.69231068	0.08947321	4.002485346	0.01447317	1.406293477	0.35135506	92.63131781	1.293353565	87.01252597	3.337626157	NA	NA	92.63131781	1.293353565	

Spot 315	253.0903338	716.2799014	1.430852006	15.65561852	5.284308737	0.044105957	21.93922173	0.007353963	4.850770781	0.221100404	47.23322954	2.282802471	43.82492288	9.410576618	NA	NA	47.23322954	2.282802471

1. Analyses with >10% uncertainty (1-sigma) in 206Pb/238U age are not included.
2. Analyses with >10% uncertainty (1-sigma) in 206Pb/207Pb age are not included, unless 206Pb/238U age is <400 Ma.
3. Best age is determined from 206Pb/238U age for analyses with 206Pb/238U age <900 Ma and from 206Pb/207Pb age for analyses with 206Pb/238Uage >900 Ma.
4. Concordance is based on 206Pb/238U age / 206Pb/207Pb age. Value is not reported for 206Pb/238U ages <400 Ma because of large uncertainty in 206Pb/207Pb age.
5. Analyses with 206Pb/238U age >400 Ma and with >20% discordance (<80% concordance) are not included.
6. Analyses with 206Pb/238U age >400 Ma and with >5% reverse discordance (<105% concordance) are not included.
7. All uncertainties are reported at the 2-sigma level, and include only measurement errors.
8. Systematic errors are as follows (at 2-sigma level): [sample 1: xxx% (206Pb/238U) & xxx% (206Pb/207Pb)]
9. Analyses conducted by LA-ICPMS, as described by Gehrels et al. (2008) and Gehrels and Pecha (2014).
10. U concentration and U/Th are calibrated relative to FC-1 zircon standard and are accurate to ~20%.
11. Common Pb correction is from measured 204Pb with common Pb composition interpreted from Stacey and Kramers (1975).
12. Common Pb composition assigned uncertainties of 1.5 for 206Pb/204Pb, 0.3 for 207Pb/204Pb, and 2.0 for 208Pb/204Pb.
13. U/Pb and 206Pb/207Pb fractionation is calibrated relative to fragments of large Sri Lanka zircons and individual crystals of FC-1, and R33.
14. U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U/235U = 137.82.
15. Weighted mean and concordia plots determined with Isoplot (Ludwig, 2008).

Aliquot Name	NFT2_18
Stratigraphic Formation Name	
Stratigraphic Age	
Rock Type	
Mineral	Zircon
Method	U-Pb
Latitude	
Longitude	
Internal Uncertainty Level	one sigma
External Uncertainty 206/238 (% two sigma)	0.85948545
External Uncertainty 206/207 (% two sigma)	0.6304977
Analysis Purpose	
Laboratory Name	Arizona LaserChron Center
Analyst Name	
Aliquot Reference	
Aliquot Instrumental Method	LA-ICPMS
Aliquot Instrumental Reference	Gehrels, G.E., Valencia, V., Ruiz, J., 2008, Enhanced precision, accuracy, efficiency, and spatial resolution of U-Pb ages by laser ablation-multicollector-inductively coupled plasma-mass spectrometry: Geochemistry, Geophysics, Geosystems, v. 9, Q03017, doi:10.1029/2007GC001805. Gehrels, G. and Pecha, M., 2014, Detrital zircon U-Pb geochronology and Hf isotope geochemistry of Paleozoic and Triassic passive margin strata of western North America: Geosphere, v. 10 (1), p. 49-65.

				Isotope ratios							Apparent ages (Ma)								
Analysis	U (ppm)	206Pb 204Pb	U/Th	206Pb* 207Pb*	± (%)	207Pb* 235U*	± (%)	206Pb* 238U	± (%)	error corr.	206Pb* 238U*	± (Ma)	207Pb* 235U	± (Ma)	206Pb* 207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)
-#4 NFT2 Spot 0	128	123042	1.8	5.5114	0.9	12.8712	1.4	0.5147	1.2	0.81	2676.8	25.4	2670.3	13.6	2665.4	14.1	2665.4	14.1	100.4
-#4 NFT2 Spot 2	202	93096	1.5	7.8663	0.7	6.7431	1.3	0.3849	1.1	0.84	2099.0	19.9	2078.3	11.7	2057.8	12.5	2057.8	12.5	102.0
-#4 NFT2 Spot 3	1545	24995	2.8	12.4463	0.8	1.0577	1.8	0.0955	1.7	0.90	588.1	9.3	732.7	9.6	1204.6	16.1	588.1	9.3	48.8
-#4 NFT2 Spot 5	163	31506	2.2	5.5487	1.1	12.7859	1.8	0.5148	1.4	0.80	2676.9	30.9	2664.0	16.6	2654.2	17.4	2654.2	17.4	100.9
-#4 NFT2 Spot 6	125	96782	1.7	5.5333	1.0	12.8942	1.5	0.5177	1.1	0.75	2689.3	25.2	2671.9	14.3	2658.8	16.5	2658.8	16.5	101.1
-#4 NFT2 Spot 8	681	11437	2.9	16.3108	1.8	0.5444	2.1	0.0644	1.1	0.55	402.5	4.5	441.3	7.5	649.2	37.7	402.5	4.5	62.0
-#4 NFT2 Spot 9	457	96871	9.9	11.5777	0.6	2.8526	1.2	0.2396	1.0	0.87	1384.8	12.8	1369.5	8.9	1345.7	11.5	1345.7	11.5	102.9
-#4 NFT2 Spot 10	380	91248	3.2	9.5909	0.7	4.3366	1.5	0.3018	1.3	0.89	1700.1	19.8	1700.3	12.3	1700.6	12.7	1700.6	12.7	100.0
-#4 NFT2 Spot 11	98	38794	6.4	9.9867	0.8	3.9353	1.4	0.2852	1.1	0.80	1617.3	16.1	1621.0	11.4	1625.7	15.8	1625.7	15.8	99.5
-#4 NFT2 Spot 12	785	68337	1.6	19.5875	1.0	0.2948	1.4	0.0419	1.0	0.73	264.6	2.7	262.3	3.3	242.2	22.3	264.6	2.7	NA
-#4 NFT2 Spot 13	52	1822	0.9	9.5422	13.6	0.3924	13.7	0.0272	1.5	0.11	172.8	2.6	336.1	39.1	1709.9	250.9	172.8	2.6	NA
-#4 NFT2 Spot 15	145	1980587	1.3	5.5080	0.7	12.8505	1.3	0.5136	1.1	0.84	2671.9	23.1	2668.8	11.8	2666.4	11.1	2666.4	11.1	100.2
-#4 NFT2 Spot 16	284	150388	3.9	9.7121	0.7	4.2121	1.3	0.2968	1.1	0.83	1675.5	15.7	1676.4	10.5	1677.4	13.3	1677.4	13.3	99.9
-#4 NFT2 Spot 17	99	72839	1.3	5.3427	0.9	13.6719	1.6	0.5300	1.4	0.84	2741.5	30.6	2727.3	15.5	2716.7	14.7	2716.7	14.7	100.9
-#4 NFT2 Spot 18	482	67399	3.6	9.3737	0.7	4.2194	1.5	0.2870	1.3	0.88	1626.4	18.8	1677.8	12.2	1742.7	13.0	1742.7	13.0	93.3
-#4 NFT2 Spot 19	44	13782	1.0	17.4432	1.9	0.8040	2.3	0.1018	1.2	0.54	624.7	7.4	599.1	10.4	503.2	42.6	624.7	7.4	124.1
-#4 NFT2 Spot 20	61	48522	1.6	6.1374	1.1	10.5446	1.6	0.4696	1.1	0.73	2481.7	23.4	2483.8	14.4	2485.6	17.8	2485.6	17.8	99.8
-#4 NFT2 Spot 21	496	317798	6.9	16.2979	0.9	0.8813	1.5	0.1042	1.3	0.82	639.1	7.7	641.7	7.4	650.9	19.0	639.1	7.7	98.2
-#4 NFT2 Spot 22	191	74100	4.6	12.0656	1.0	2.4792	1.5	0.2170	1.2	0.78	1266.2	13.4	1266.0	10.9	1265.5	18.6	1265.5	18.6	100.1
-#4 NFT2 Spot 23	88	65073	1.2	11.1716	0.9	3.0570	1.4	0.2478	1.1	0.77	1427.1	14.1	1422.0	10.9	1414.3	17.3	1414.3	17.3	100.9
-#4 NFT2 Spot 24	412	77706	2.8	6.3579	0.6	9.5642	1.7	0.4412	1.6	0.93	2356.1	31.6	2393.7	15.9	2425.9	11.0	2425.9	11.0	97.1
-#4 NFT2 Spot 25	266	83063	3.3	11.5911	0.8	2.7597	1.3	0.2321	1.0	0.80	1345.5	12.1	1344.7	9.3	1343.4	14.7	1343.4	14.7	100.2
-#4 NFT2 Spot 26	101	9005	6.0	17.3502	1.3	0.7072	1.5	0.0890	0.9	0.57	549.8	4.6	543.1	6.4	515.0	27.6	549.8	4.6	106.8
-#4 NFT2 Spot 27	206	64382	1.8	21.0788	2.4	0.0735	2.8	0.0112	1.4	0.49	72.1	1.0	72.0	1.9	70.5	57.9	72.1	1.0	NA
-#4 NFT2 Spot 28	150	1439239	3.9	9.7338	0.9	4.2044	1.5	0.2969	1.2	0.82	1676.1	18.2	1674.9	12.3	1673.3	15.9	1673.3	15.9	100.2
-#4 NFT2 Spot 29	293	115771	5.2	9.6297	0.7	4.1603	1.2	0.2907	1.0	0.82	1644.9	14.7	1666.2	10.1	1693.1	13.2	1693.1	13.2	97.2
-#4 NFT2 Spot 31	308	98890	2.7	9.3339	0.9	4.8165	1.7	0.3262	1.4	0.83	1819.9	21.7	1787.8	13.9	1750.4	16.9	1750.4	16.9	104.0
-#4 NFT2 Spot 32	78	29228	1.8	9.7111	0.6	4.3763	1.2	0.3084	1.0	0.85	1732.7	15.4	1707.9	9.8	1677.6	11.5	1677.6	11.5	103.3
-#4 NFT2 Spot 33	67	465564	1.6	9.9081	1.0	4.1942	1.6	0.3015	1.3	0.79	1698.9	19.1	1672.9	13.2	1640.4	18.2	1640.4	18.2	103.6
-#4 NFT2 Spot 34	312	90887	3.2	9.2969	0.6	4.7020	1.2	0.3172	1.0	0.85	1775.9	15.9	1767.6	10.1	1757.7	11.6	1757.7	11.6	101.0
-#4 NFT2 Spot 35	451	25168	1.6	9.2833	0.9	3.8700	1.4	0.2607	1.2	0.80	1493.3	15.4	1607.4	11.7	1760.4	15.8	1760.4	15.8	84.8
-#4 NFT2 Spot 36	111	60219	3.0	9.3113	0.8	4.7156	1.6	0.3186	1.4	0.85	1782.8	21.2	1770.0	13.4	1754.9	15.3	1754.9	15.3	101.6
-#4 NFT2 Spot 37	96	167207	2.4	5.3815	0.8	13.1578	1.3	0.5138	1.0	0.77	2672.7	22.1	2691.0	12.4	2704.8	13.9	2704.8	13.9	98.8
-#4 NFT2 Spot 38	226	166827	3.8	5.3650	0.9	12.6046	1.3	0.4907	1.0	0.75	2573.6	21.6	2650.6	12.7	2709.9	14.6	2709.9	14.6	95.0
-#4 NFT2 Spot 39	140	74368	2.1	5.5890	0.7	12.7533	1.5	0.5172	1.3	0.86	2687.2	27.6	2661.6	13.7	2642.2	12.2	2642.2	12.2	101.7
-#4 NFT2 Spot 40	71	21036	3.1	13.9438	1.0	1.6375	1.4	0.1657	1.1	0.74	988.2	9.7	984.8	9.0	977.0	19.8	977.0	19.8	101.2
-#4 NFT2 Spot 41	203	184558	2.8	9.0564	0.9	4.9204	1.3	0.3233	1.0	0.75	1805.9	15.7	1805.8	11.2	1805.5	15.9	1805.5	15.9	100.0
-#4 NFT2 Spot 42	113	155718	3.2	9.4705	0.9	4.4593	1.5	0.3064	1.2	0.80	1723.1	18.2	1723.4	12.4	1723.8	16.4	1723.8	16.4	100.0
-#4 NFT2 Spot 43	213	104628	2.0	5.6199	0.6	10.9917	1.3	0.4482	1.1	0.88	2387.3	22.8	2522.4	12.1	2633.0	10.4	2633.0	10.4	90.7
-#4 NFT2 Spot 44	330	155390	5.5	9.7833	0.7	4.1763	1.2	0.2965	1.0	0.82	1673.7	14.8	1669.4	10.0	1663.9	12.8	1663.9	12.8	100.6
-#4 NFT2 Spot 45	201	64160	5.3	9.6229	0.7	4.3096	1.3	0.3009	1.1	0.84	1695.8	16.8	1695.2	11.1	1694.4	13.6	1694.4	13.6	100.1
-#4 NFT2 Spot 46	71	77375	2.9	5.3497	0.9	13.6428	1.5	0.5296	1.1	0.78	2739.6	25.7	2725.2	13.9	2714.6	15.0	2714.6	15.0	100.9
-#4 NFT2 Spot 47	1362	68306	2.0	20.8705	1.0	0.0996	1.6	0.0151	1.3	0.79	96.5	1.2	96.4	1.5	94.0	23.7	96.5	1.2	NA
-#4 NFT2 Spot 48	359	70918	2.3	18.0174	1.0	0.5139	1.6	0.0672	1.3	0.78	419.2	5.2	421.1	5.7	431.5	23.1	419.2	5.2	97.1
-#4 NFT2 Spot 49	1223	299857	3.0	9.4115	0.7	4.2367	1.5	0.2893	1.3	0.86	1638.1	18.6	1681.2	12.2	1735.3	13.7	1735.3	13.7	94.4
-#4 NFT2 Spot 50	114	135175	2.0	17.1768	1.2	0.7034	1.7	0.0877	1.3	0.72	541.7	6.5	540.8	7.3	537.0	26.6	541.7	6.5	100.9
-#4 NFT2 Spot 51	2037	1244	27.3	4.5735	0.8	2.1609	1.7	0.0717	1.5	0.89	446.4	6.4	1168.6	11.7	2970.1	12.5	2970.1	12.5	15.0
-#4 NFT2 Spot 53	60	119424	2.2	5.2930	0.7	13.8518	1.4	0.5320	1.2	0.86	2749.8	26.5	2739.6	13.1	2732.1	11.8	2732.1	11.8	100.6
-#4 NFT2 Spot 54	417	45336	3.1	20.2724	1.3	0.1037	1.9	0.0153	1.3	0.71	97.6	1.3	100.2	1.8	162.4	30.5	97.6	1.3	NA
-#4 NFT2 Spot 55	381	874946	3.1	9.5028	1.1	4.0916	1.6	0.2821	1.2	0.73	1602.0	16.3	1652.6	12.8	1717.6	19.6	1717.6	19.6	93.3
-#4 NFT2 Spot 57	1028	8652	3.4	15.7025	1.4	0.1312	1.8	0.0150	1.1	0.62	95.7	1.1	125.2	2.1	730.3	30.3	95.7	1.1	NA
-#4 NFT2 Spot 58	924	141800	5.1	9.4926	0.8	4.2184	1.4	0.2905	1.2	0.84	1644.3	17.1	1677.6	11.6	1719.5	14.2	1719.5	14.2	95.6
-#4 NFT2 Spot 59	69	8349	2.7	19.8598	3.3	0.0760	3.5	0.0110	1.2	0.35	70.2	0.9	74.4	2.5	210.3	76.7	70.2	0.9	NA
-#4 NFT2 Spot 60	189	54763	2.0	9.6154	0.9	4.2557	1.4	0.2969	1.1	0.78	1676.0	16.6	1684.8	11.8	1695.9	16.6	1695.9	16.6	98.8
-#4 NFT2 Spot 61	483	202977	3.2	20.3742	1.3	0.0988	1.8	0.0146	1.2	0.68	93.5	1.1	95.7	1.6	150.7	30.7	93.5	1.1	NA
-#4 NFT2 Spot 62	239	64826	3.4	13.5241	0.8	1.7717	1.5	0.1738	1.3	0.87	1033.3	12.6	1035.1	9.9	1039.0	15.4	1039.0	15.4	99.5
-#4 NFT2 Spot 63	97	12986	2.1	17.1485	1.5	0.6932	1.8	0.0863	1.0	0.57	533.4	5.1	534.7	7.3	540.6	31.8	533.4	5.1	98.7
-#4 NFT2 Spot 64	518	133664	7.0	9.4713	1.0	4.5379	1.6	0.3119	1.3	0.80	1749.8	20.2	1737.9	13.6	1723.7	18.0	1723.7	18.0	101.5
-#4 NFT2 Spot 65	78	82386	1.3	5.3261	0.9	13.5392	1.4	0.5232	1.1	0.80	2712.8	25.0	2718.0	13.4	2721.9	14.1	2721.9	14.1	99.7
-#4 NFT2 Spot 66	93	57680	0.7	7.8900	0.8	6.4099	1.4	0.3670	1.2	0.83	2015.1	20.3	2033.6	12.4	2052.5	14.1	2052.5	14.1	98.2
-#4 NFT2 Spot 67	136	68192	1.5	5.2480	0.9	13.5134	1.6	0.5146	1.3	0.81	2676.1	27.6	2716.2	14.8	2746.2	15.2	2746.2	15.2	97.4
-#4 NFT2 Spot 68	73	60151	2.3	5.3262	0.9	13.8782	1.3	0.5363	1.0	0.74	2768.1	22.4	2741.4	12.8	2721.8	15.0	2721.8	15.0	101.7
-#4 NFT2 Spot 69	460	1682893	5.0	9.2357	0.7	4.7884	1.5	0.3209	1.3	0.86	1794.0	19.6	1782.9	12.2	1769.8	13.6	1769.8	13.6	101.4
-#4 NFT2 Spot 70	314	183989	1.2	12.3585	0.8	2.2419	1.4	0.2010	1.2	0.82	1180.9	12.7	1194.3	10.1	1218.5	16.4	1218.5	16.4	96.9
-#4 NFT2 Spot 71	125	42403	2.1	10.1364	1.2	3.7331	1.9	0.2746	1.4	0.74	1563.9	19.3	1578.5	15.0	1598.0	23.3	1598.0	23.3	97.9
-#4 NFT2 Spot 72	268	61307	4.0	13.2222	1.0	1.9174	1.5	0.1840	1.2	0.77	1088.6	12.0	1087.2	10.3	1084.4	19.7	1084.4	19.7	100.4
-#4 NFT2 Spot 73	149	61904	1.2	10.1385	1.0	3.8171	1.3	0.2808	0.9	0.65	1595.4	12.5	1596.3	10.8	1597.6	19.0	1597.6	19.0	99.9
-#4 NFT2 Spot 75	479	8305	2.2	21.3765	1.5	0.1049	1.9	0.0163	1.1	0.59	104.0	1.2	101.3	1.8	37.0	36.9	104.0	1.2	NA
-#4 NFT2 Spot 76	1007	25099	11.8	20.9407	1.1	0.0715	1.8	0.0109	1.4	0.78	69.7	1.0	70.2	1.2	86.1	27.0	69.7	1.0	NA
-#4 NFT2 Spot 77	211	9808	3.6	21.5585	2.5	0.0718	3.4	0.0112	2.3	0.67	72.0	1.6	70.4	2.3	16.6	61.0	72.0	1.6	NA
-#4 NFT2 Spot 78	419	302790	1.1	16.3976	0.9	0.8080	1.5	0.0961	1.2	0.82	591.7	6.9	601.3	6.8	637.8	18.7	591.7	6.9	92.8
-#4 NFT2 Spot 79	272	42346	3.0	20.1958	1.9	0.0792	2.9	0.0116	2.2	0.76	74.4	1.6	77.4	2.2	171.3	43.9	74.4	1.6	NA
-#4 NFT2 Spot 80	1539	2072099	108.6	9.3737	0.9	4.1758	1.5	0.2840	1.2	0.82	1611.5	17.7	1669.3	12.3	1742.7	15.6	1742.7	15.6	92.5
-#4 NFT2 Spot 81	69	6139	1.2	18.7679	1.8	0.3745	2.1	0.0510	1.1	0.52	320.7	3.4	323.0	5.9	339.9	41.2	320.7	3.4	NA

-#4 NFT2 Spot 82	171	48886	2.4	11.0435	0.9	3.0853	1.4	0.2472	1.0	0.76	1424.1	13.2	1429.0	10.4	1436.3	16.7	1436.3	16.7	99.2
-#4 NFT2 Spot 83	238	37023	2.4	9.3383	1.2	4.7059	1.7	0.3189	1.2	0.71	1784.2	18.9	1768.3	14.3	1749.6	22.1	1749.6	22.1	102.0
-#4 NFT2 Spot 84	94	56098	1.6	5.2988	1.0	13.7404	1.6	0.5283	1.2	0.76	2734.2	26.5	2732.0	14.8	2730.3	16.8	2730.3	16.8	100.1
-#4 NFT2 Spot 86	260	12015	3.7	20.4447	1.6	0.0772	2.3	0.0114	1.7	0.72	73.4	1.2	75.5	1.7	142.6	38.2	73.4	1.2	NA
-#4 NFT2 Spot 87	140	242155	1.7	9.4396	0.7	4.4222	1.2	0.3029	1.0	0.80	1705.6	14.5	1716.5	10.0	1729.8	13.4	1729.8	13.4	98.6
-#4 NFT2 Spot 88	345	11132	5.1	21.2831	1.6	0.0980	1.9	0.0151	1.0	0.53	96.8	1.0	94.9	1.7	47.5	38.7	96.8	1.0	NA
-#4 NFT2 Spot 89	40	26918	1.6	9.7564	0.9	4.2109	1.4	0.2981	1.1	0.78	1681.8	16.4	1676.2	11.6	1669.0	16.4	1669.0	16.4	100.8
-#4 NFT2 Spot 90	95	1240	3.1	27.1347	6.7	0.0590	6.9	0.0116	1.6	0.23	74.5	1.2	58.2	3.9	NA	NA	74.5	1.2	NA
-#4 NFT2 Spot 91	157	460224	2.1	9.1415	0.8	4.6632	1.7	0.3093	1.5	0.88	1737.3	23.3	1760.7	14.5	1788.5	14.9	1788.5	14.9	97.1
-#4 NFT2 Spot 92	680	13238	1.7	20.4834	1.0	0.1474	1.6	0.0219	1.2	0.78	139.7	1.7	139.7	2.0	138.2	22.9	139.7	1.7	NA
-#4 NFT2 Spot 93	152	69216	6.9	10.1098	0.9	3.9378	1.3	0.2889	1.0	0.74	1635.8	14.5	1621.5	10.9	1602.9	16.8	1602.9	16.8	102.1
-#4 NFT2 Spot 95	141	63484	2.3	12.4898	0.8	2.2887	1.4	0.2074	1.1	0.80	1215.0	12.0	1208.8	9.5	1197.8	16.0	1197.8	16.0	101.4
-#4 NFT2 Spot 96	67	60972	1.6	5.3679	0.8	13.6445	1.6	0.5314	1.4	0.88	2747.5	30.9	2725.4	14.9	2709.0	12.6	2709.0	12.6	101.4
-#4 NFT2 Spot 97	170	57073	3.4	5.3392	0.8	13.2183	1.8	0.5121	1.6	0.88	2665.5	34.4	2695.4	16.9	2717.8	13.9	2717.8	13.9	98.1
-#4 NFT2 Spot 98	371	13332	1.0	20.3786	1.5	0.1763	1.9	0.0261	1.1	0.60	165.9	1.8	164.8	2.9	150.2	35.0	165.9	1.8	NA
-#4 NFT2 Spot 99	100	20693	2.6	11.6088	0.8	2.8263	1.4	0.2381	1.1	0.84	1376.6	14.1	1362.5	10.2	1340.5	14.5	1340.5	14.5	102.7
-#4 NFT2 Spot 101	1449	100287	3.8	9.4104	0.7	4.1672	1.2	0.2845	1.0	0.80	1614.2	14.2	1667.6	10.2	1735.5	13.7	1735.5	13.7	93.0
-#4 NFT2 Spot 102	750	643802	16.7	9.6742	0.8	4.1268	1.5	0.2897	1.2	0.83	1639.9	17.9	1659.6	12.1	1684.6	15.2	1684.6	15.2	97.3
-#4 NFT2 Spot 103	240	364807	4.5	9.4335	0.9	4.5020	1.4	0.3082	1.1	0.76	1731.6	16.0	1731.3	11.5	1731.0	16.6	1731.0	16.6	100.0
-#4 NFT2 Spot 104	1232	6213705	11.6	6.4668	1.2	7.6846	1.7	0.3606	1.2	0.72	1984.9	20.7	2194.8	15.2	2397.1	20.0	2397.1	20.0	82.8
-#4 NFT2 Spot 105	196	176865	4.0	9.6562	0.7	4.2286	1.4	0.2963	1.2	0.86	1672.8	17.8	1679.6	11.5	1688.1	13.1	1688.1	13.1	99.1
-#4 NFT2 Spot 106	522	327114	3.0	9.5331	0.8	4.3517	1.5	0.3010	1.3	0.87	1696.3	20.1	1703.2	12.7	1711.7	13.9	1711.7	13.9	99.1
-#4 NFT2 Spot 107	617	269231	5.4	9.5376	1.0	4.2578	1.5	0.2947	1.0	0.72	1664.7	15.3	1685.2	12.0	1710.8	18.7	1710.8	18.7	97.3
-#4 NFT2 Spot 108	152	79018	4.2	10.9942	0.8	3.0937	2.1	0.2468	2.0	0.93	1421.9	25.2	1431.1	16.2	1444.9	14.3	1444.9	14.3	98.4
-#4 NFT2 Spot 109	161	2108	4.3	23.9939	4.7	0.0646	4.9	0.0112	1.2	0.25	72.1	0.9	63.5	3.0	NA	NA	72.1	0.9	NA
-#4 NFT2 Spot 110	296	19046	3.4	20.7080	1.5	0.1051	2.0	0.0158	1.3	0.63	101.0	1.3	101.5	1.9	112.5	36.5	101.0	1.3	NA
-#4 NFT2 Spot 111	164	43831	5.6	8.7966	0.9	5.2014	1.3	0.3320	1.0	0.72	1848.0	15.6	1852.8	11.5	1858.3	16.9	1858.3	16.9	99.4
-#4 NFT2 Spot 112	488	13615	4.2	21.3187	1.2	0.0967	1.9	0.0150	1.4	0.75	95.7	1.3	93.8	1.7	43.4	29.5	95.7	1.3	NA
-#4 NFT2 Spot 113	193	83706	3.1	9.2615	0.7	4.6131	1.4	0.3100	1.2	0.86	1740.7	18.9	1751.6	12.1	1764.7	13.6	1764.7	13.6	98.6
-#4 NFT2 Spot 114	300	111397	3.5	12.9127	0.7	2.0984	1.2	0.1966	1.0	0.81	1157.0	10.5	1148.3	8.5	1131.7	14.6	1131.7	14.6	102.2
-#4 NFT2 Spot 115	642	222554	9.2	9.5554	0.7	4.0739	1.3	0.2825	1.1	0.86	1603.7	16.1	1649.1	10.8	1707.4	12.4	1707.4	12.4	93.9
-#4 NFT2 Spot 116	174	64329	4.8	13.7996	0.9	1.6523	1.7	0.1654	1.4	0.86	987.0	13.2	990.5	10.6	998.1	17.4	998.1	17.4	98.9
-#4 NFT2 Spot 117	289	10414	3.6	20.3067	1.3	0.2322	1.8	0.0342	1.3	0.71	216.9	2.7	212.0	3.4	158.5	29.4	216.9	2.7	NA
-#4 NFT2 Spot 119	205	67057	2.2	9.7292	0.8	4.2943	1.6	0.3031	1.4	0.87	1706.9	20.9	1692.3	13.3	1674.2	14.9	1674.2	14.9	102.0
-#4 NFT2 Spot 120	336	230432	2.2	12.8813	0.8	2.0323	1.4	0.1899	1.2	0.83	1121.1	12.2	1126.4	9.8	1136.6	16.0	1136.6	16.0	98.6
-#4 NFT2 Spot 121	886	32740	2.9	21.1118	1.3	0.0739	1.7	0.0113	1.1	0.64	72.6	0.8	72.4	1.2	66.7	31.5	72.6	0.8	NA
-#4 NFT2 Spot 122	577	188384	1.7	11.1688	0.7	2.9854	1.4	0.2419	1.2	0.85	1396.8	14.9	1403.9	10.6	1414.8	13.9	1414.8	13.9	98.7
-#4 NFT2 Spot 123	220	45393	2.2	9.7344	0.8	4.2393	1.3	0.2994	1.0	0.80	1688.5	14.9	1681.7	10.4	1673.2	14.1	1673.2	14.1	100.9
-#4 NFT2 Spot 125	169	7064683	2.5	20.1106	1.9	0.1022	2.5	0.0149	1.6	0.64	95.4	1.5	98.8	2.3	181.1	44.0	95.4	1.5	NA
-#4 NFT2 Spot 126	977	227210	3.9	9.6160	0.8	4.1788	1.4	0.2916	1.1	0.83	1649.4	16.7	1669.9	11.4	1695.8	14.3	1695.8	14.3	97.3
-#4 NFT2 Spot 127	54	95014	2.4	5.3576	0.7	13.3878	1.3	0.5204	1.1	0.85	2701.0	24.0	2707.4	12.1	2712.1	11.1	2712.1	11.1	99.6
-#4 NFT2 Spot 128	193	68073	1.1	11.4056	1.0	2.8175	1.6	0.2332	1.2	0.77	1351.1	14.5	1360.2	11.6	1374.5	19.1	1374.5	19.1	98.3
-#4 NFT2 Spot 129	474	169983	9.9	9.9234	0.7	3.8819	1.4	0.2795	1.2	0.87	1588.9	17.3	1609.9	11.4	1637.5	12.7	1637.5	12.7	97.0
-#4 NFT2 Spot 130	193	61469	6.3	13.1494	0.9	1.9169	1.5	0.1829	1.1	0.77	1082.7	11.3	1087.0	9.9	1095.5	19.0	1095.5	19.0	98.8
-#4 NFT2 Spot 131	294	120708	3.7	9.7884	0.8	4.2307	1.4	0.3005	1.2	0.83	1693.7	17.5	1680.0	11.5	1663.0	14.4	1663.0	14.4	101.8
-#4 NFT2 Spot 132	348	1766184	2.2	9.2907	0.7	4.6588	1.1	0.3141	0.8	0.72	1760.7	11.9	1759.9	8.9	1758.9	13.5	1758.9	13.5	100.1
-#4 NFT2 Spot 133	296	35555	2.9	11.5439	0.9	2.7668	1.5	0.2317	1.1	0.76	1343.6	13.5	1346.6	10.9	1351.3	18.2	1351.3	18.2	99.4
-#4 NFT2 Spot 134	102	42089	1.1	5.3233	0.9	13.6718	1.5	0.5281	1.1	0.77	2733.3	25.3	2727.2	13.9	2722.7	15.4	2722.7	15.4	100.4
-#4 NFT2 Spot 135	27	1731	1.0	23.1748	3.8	0.1527	4.1	0.0257	1.5	0.38	163.4	2.5	144.3	5.5	NA	NA	163.4	2.5	NA
-#4 NFT2 Spot 136	317	60512	1.6	16.3798	0.9	0.8460	1.4	0.1005	1.1	0.78	617.6	6.5	622.4	6.5	640.1	18.7	617.6	6.5	96.5
-#4 NFT2 Spot 137	373	26568	7.0	9.0105	0.7	3.8872	1.3	0.2541	1.1	0.84	1459.8	14.6	1611.0	10.7	1814.7	12.9	1814.7	12.9	80.4
-#4 NFT2 Spot 138	50	57032	0.5	10.8502	1.0	3.3713	1.5	0.2654	1.1	0.74	1517.5	14.9	1497.7	11.7	1469.9	19.2	1469.9	19.2	103.2
-#4 NFT2 Spot 139	446	1524274	2.3	11.0837	0.8	3.1531	1.4	0.2536	1.2	0.84	1456.9	15.6	1445.8	11.0	1429.4	14.7	1429.4	14.7	101.9
-#4 NFT2 Spot 140	40	2707	2.3	22.0468	7.3	0.0701	7.5	0.0112	2.0	0.27	71.9	1.4	68.8	5.0	NA	NA	71.9	1.4	NA
-#4 NFT2 Spot 141	140	68563	1.2	11.2524	0.9	2.9474	1.4	0.2406	1.1	0.79	1390.0	14.2	1394.2	10.9	1400.5	17.0	1400.5	17.0	99.3
-#4 NFT2 Spot 142	114	76532	3.1	9.5362	0.9	4.5002	1.6	0.3114	1.3	0.82	1747.5	20.0	1731.0	13.2	1711.1	16.7	1711.1	16.7	102.1
-#4 NFT2 Spot 143	698	120331	5.0	19.2669	1.1	0.2491	1.9	0.0348	1.5	0.80	220.7	3.2	225.8	3.8	280.1	25.8	220.7	3.2	NA
-#4 NFT2 Spot 144	60	19133	2.3	21.0104	3.0	0.0772	3.3	0.0118	1.5	0.46	75.4	1.1	75.5	2.4	78.2	70.3	75.4	1.1	NA
-#4 NFT2 Spot 145	423	8940	2.8	21.2011	1.5	0.1026	1.9	0.0158	1.2	0.62	100.9	1.2	99.1	1.8	56.7	35.4	100.9	1.2	NA
-#4 NFT2 Spot 146	119	41473	1.6	5.4068	0.9	13.5228	1.5	0.5305	1.2	0.81	2743.6	26.3	2716.9	13.8	2697.0	14.1	2697.0	14.1	101.7
-#4 NFT2 Spot 147	188	244683	2.2	6.1788	0.7	10.4207	1.3	0.4672	1.1	0.84	2471.2	22.6	2472.9	12.1	2474.3	12.0	2474.3	12.0	99.9
-#4 NFT2 Spot 148	347	769397	4.8	9.9265	0.9	3.9504	1.7	0.2845	1.4	0.85	1614.1	20.3	1624.1	13.6	1637.0	16.7	1637.0	16.7	98.6
-#4 NFT2 Spot 149	103	176381	3.6	9.3624	0.8	4.4981	1.2	0.3056	0.8	0.70	1718.9	12.1	1730.6	9.6	1744.9	15.1	1744.9	15.1	98.5
-#4 NFT2 Spot 150	268	85305	4.6	9.1316	1.0	4.6533	1.7	0.3083	1.4	0.82	1732.4	21.3	1758.9	14.2	1790.5	17.6	1790.5	17.6	96.8
-#4 NFT2 Spot 151	113	369974	1.2	11.2837	0.8	2.9429	1.6	0.2409	1.4	0.87	1391.6	17.3	1393.0	12.1	1395.2	15.1	1395.2	15.1	99.7
-#4 NFT2 Spot 152	153	206765	3.4	9.4845	0.7	4.4542	1.2	0.3065	0.9	0.78	1723.6	14.2	1722.5	9.9	1721.1	13.7	1721.1	13.7	100.1
-#4 NFT2 Spot 153	229	193146	3.2	9.5644	0.8	4.3443	1.6	0.3015	1.4	0.86	1698.7	20.3	1701.8	13.0	1705.7	14.9	1705.7	14.9	99.6
-#4 NFT2 Spot 154	21	27037	0.3	12.8396	1.7	1.9712	2.1	0.1836	1.3	0.62	1086.8	13.1	1105.7	14.2	1143.1	32.9	1143.1	32.9	95.1
-#4 NFT2 Spot 155	52	26389	2.2	5.4520	0.9	12.9178	1.8	0.5110	1.6	0.87	2660.9	34.0	2673.7	17.0	2683.3	14.9	2683.3	14.9	99.2
-#4 NFT2 Spot 156	144	499920	1.4	5.4421	0.9	13.4003	1.4	0.5291	1.1	0.79	2737.8	25.4	2708.3	13.7	2686.3	14.7	2686.3	14.7	101.9
-#4 NFT2 Spot 157	232	3687	3.5	22.7482	4.9	0.0857	5.1	0.0141	1.6	0.31	90.6	1.4	83.5	4.1	NA	NA	90.6	1.4	NA
-#4 NFT2 Spot 158	39	31784	2.8	5.2821	0.8	13.5848	1.4	0.5206	1.2	0.83	2701.9	26.5	2721.2	13.7	2735.5	13.4	2735.5	13.4	98.8
-#4 NFT2 Spot 159	319	5895	4.8	21.2370	2.9	0.1560	3.3	0.0240	1.5	0.47	153.2	2.3	147.2	4.5	52.7	68.7	153.2	2.3	NA
-#4 NFT2 Spot 160	40	36751	3.5	6.9221	2.1	8.2506	2.4	0.4144	1.3	0.52	2235.0	23.8	2258.9	22.0	2280.7	35.9	2280.7	35.9	98.0
-#4 NFT2 Spot 161	484	1150029	2.5	9.6116	0.7	4.4437	1.7	0.3099	1.5	0.90	1740.3	22.9	1720.5	13.8	1696.6	13.3	1696.6	13.3	102.6
-#4 NFT2 Spot 162	215	750288	4.2	9.3346	0.8	4.6300	1.6	0.3136	1.3	0.87	1758.4	20.7	1754.7	13.0	1750.3	14.1	1750.3	14.1	100.5
-#4 NFT2 Spot 163	65	37006	2.2	5.3102	0.9	13.5580	1.5	0.5224	1.1	0.77	2709.3	24.9	2719.3	13.8	2726.8	15.3	2726.8	15.3	99.4
-#4 NFT2 Spot 164	75	79630	2.1	5.3991	0.8	13.1121	1.6	0.5137	1.4	0.88	2672.3	30.5	2687.8	15.0	2699.4	12.6	2699.4	12.6	99.0
-#4 NFT2 Spot 165	173	139885	1.0	5.3741	0.8	13.6513	1.8	0.5323	1.6	0.88	2751.2	34.9	2725.8	16.7	2707.1	13.6	2707.1	13.6	101.6
-#4 NFT2 Spot 166	187	33757	1.9	16.4213	1.0	0.8436	1.5	0.1005	1.2	0.78	617.5	7.0	621.2	7.1	634.7	20.8	617.5	7.0	97.3
-#4 NFT2 Spot 167	51	64889	1.9	5.3019	0.8	13.7491	1.8	0.5289	1.6	0.89	2736.9	34.8	2732.6	16.6	2729.4	13.3	2729.4	13.3	100.3
-#4 NFT2 Spot 168	533	57655	4.0	19.7093	1.2	0.1009	1.6	0.0144	1.0	0.64	92.3	0.9	97.6	1.5	227.9	28.0	92.3	0.9	NA
-#4 NFT2 Spot 169	62	101751	1.9	5.2712	0.9	14.1163	1.4	0.5399	1.1	0.78	2783.0	25.3	2757.6	13.6	2738.9	14.7	2738.9	14.7	101.6
-#4 NFT2 Spot 170	243	99168	4.0	9.4926	1.1	4.4853	1.7	0.3089	1.3	0.78	1735.5	20.5	1728.3	14.4	1719.5	20.2	1719.5	20.2	100.9
-#4 NFT2 Spot 171	368	34076	2.5	20.4434	1.2	0.1007	1.7	0.0149	1.3	0.73	95.6	1.2	97.4	1.6	142.8	28.1	95.6	1.2	NA
-#4 NFT2 Spot 172	461	67763	3.6	8.8141	1.0	4.9118	1.6	0.3141	1.3	0.80	1761.0	19.8	1804.3	13.6	1854.7	17.6	1854.7	17.6	94.9
-#4 NFT2 Spot 173	188	21876	7.1	19.1218	1.2	0.3384	1.6	0.0469	1.0	0.62	295.8	2.8	295.9	4.0	297.4	28.3	295.8	2.8	NA
-#4 NFT2 Spot 174	338	225609	1.5	13.7584	1.0	1.7134	1.6	0.1710	1.2	0.78	1017.9	11.7	1013.6	10.3	1004.2	20.4	1004.2	20.4	101.4
-#4 NFT2 Spot 175	69	61303	2.6	9.7693	0.8	4.2202	1.2	0.2991	0.9	0.75	1687.1	13.7	1677.9	10.2	1666.6	15.2	1666.6	15.2	101.2
-#4 NFT2 Spot 176	36	68476	1.6	5.3228	0.8	13.1912	1.6	0.5095	1.4	0.86	2654.3	29.7	2693.4	15.1	2722.9	13.6	2722.9	13.6	97.5
-#4 NFT2 Spot 177	578	989317	3.5	12.6373	0.8	2.1062	1.6	0.1931	1.4	0.88	1138.3	14.6	1150.8	10.9	1174.6	14.9	1174.6	14.9	96.9
-#4 NFT2 Spot 178	523	71141	3.0	18.6073	0.9	0.3891	1.5	0.0525	1.2	0.80	330.0	3.8	333.7	4.2	359.3	19.7	330.0	3.8	NA
-#4 NFT2 Spot 179	43	58428	1.0	8.8912	0.9	5.2112	1.3	0.3362	0.9	0.70	1868.3	14.9	1854.5	11.1	1838.9	16.8	1838.9	16.8	101.6
-#4 NFT2 Spot 180	91	55224	2.1	9.6543	0.8	4.2192	1.6	0.2956	1.3	0.84	1669.2	19.2	1677.8	12.8	1688.4	15.7	1688.4	15.7	98.9
-#4 NFT2 Spot 181	80	53444	3.9	11.1904	1.1	3.1632	1.7	0.2568	1.4	0.79	1473.6	18.0	1448.2	13.3	1411.1	20.1	1411.1	20.1	104.4
-#4 NFT2 Spot 182	634	287269	6.5	13.5488	0.7	1.7691	1.3	0.1739	1.1	0.83	1033.6	10.6	1034.2	8.7	1035.3	15.2	1035.3	15.2	99.8
-#4 NFT2 Spot 183	415	323693	6.4	9.9374	0.9	3.8863	1.5	0.2802	1.2	0.80	1592.5	17.0	1610.8	12.1	1634.9	16.7	1634.9	16.7	97.4
-#4 NFT2 Spot 184	251	24078	2.3	19.7998	1.3	0.1918	1.8	0.0276	1.3	0.71	175.2	2.2	178.2	3.0	217.3	29.9	175.2	2.2	NA
-#4 NFT2 Spot 185	104	14732	2.3	16.6801	1.9	0.6252	2.2	0.0757	1.3	0.56	470.2	5.7	493.1	8.7	600.9	40.2	470.2	5.7	78.3
-#4 NFT2 Spot 187	840	123579	3.7	20.6693	0.9	0.1013	1.6	0.0152	1.3	0.84	97.2	1.3	98.0	1.5	116.9	20.1	97.2	1.3	NA
-#4 NFT2 Spot 188	630	17620	2.1	21.0407	1.4	0.0997	1.9	0.0152	1.3	0.68	97.4	1.2	96.5	1.7	74.7	32.4	97.4	1.2	NA
-#4 NFT2 Spot 189	172	61661	5.0	8.7526	0.9	5.2801	1.4	0.3353	1.1	0.78	1864.1	17.4	1865.6	11.7	1867.3	15.4	1867.3	15.4	99.8
-#4 NFT2 Spot 190	99	98329	1.7	6.2602	1.0	10.3506	1.6	0.4702	1.3	0.77	2484.3	26.0	2466.6	15.1	2452.2	17.4	2452.2	17.4	101.3
-#4 NFT2 Spot 191	82	16851	1.3	11.5242	1.0	2.8993	1.6	0.2424	1.3	0.79	1399.4	16.0	1381.7	12.2	1354.6	19.1	1354.6	19.1	103.3
-#4 NFT2 Spot 192	224	458202	2.5	6.3095	0.7	10.1861	1.3	0.4663	1.1	0.86	2467.4	23.2	2451.8	12.1	2438.9	11.3	2438.9	11.3	101.2

-#4 NFT2 Spot 193	93	47999	3.0	8.8864	0.9	5.1360	1.5	0.3312	1.2	0.81	1844.0	19.8	1842.1	13.0	1839.9	16.4	1839.9	16.4	100.2
-#4 NFT2 Spot 194	98	94677	1.2	5.3874	0.8	13.5428	1.4	0.5294	1.2	0.81	2738.9	25.7	2718.3	13.5	2703.0	14.0	2703.0	14.0	101.3
-#4 NFT2 Spot 196	141	58279	2.0	16.9252	0.9	0.6989	1.3	0.0858	1.0	0.76	530.8	5.1	538.1	5.5	569.3	18.6	530.8	5.1	93.2
-#4 NFT2 Spot 197	122	101439	5.0	5.4124	0.8	13.7757	1.6	0.5410	1.3	0.85	2787.6	29.8	2734.4	14.7	2695.3	13.7	2695.3	13.7	103.4
-#4 NFT2 Spot 198	116	63507	1.6	12.1848	0.9	2.4558	1.5	0.2171	1.1	0.79	1266.7	13.2	1259.1	10.5	1246.3	17.7	1246.3	17.7	101.6
-#4 NFT2 Spot 199	439	239413	1.4	11.1395	1.0	2.9706	2.3	0.2401	2.0	0.89	1387.2	25.5	1400.1	17.4	1419.8	19.8	1419.8	19.8	97.7
-#4 NFT2 Spot 200	78	34462	1.6	13.8387	0.9	1.7346	1.4	0.1742	1.1	0.77	1035.0	10.1	1021.4	8.9	992.4	18.1	992.4	18.1	104.3
-#4 NFT2 Spot 202	456	67868	1.8	18.1865	0.8	0.5089	1.4	0.0672	1.2	0.84	419.0	4.7	417.7	4.7	410.7	16.9	419.0	4.7	102.0
-#4 NFT2 Spot 203	85	163930	2.2	16.1258	1.2	0.9023	1.9	0.1056	1.5	0.78	647.0	9.2	653.0	9.3	673.6	26.0	647.0	9.2	96.0
-#4 NFT2 Spot 204	413	77281	2.1	5.4896	0.8	11.2178	1.5	0.4468	1.3	0.87	2381.1	26.4	2541.4	14.3	2671.9	12.6	2671.9	12.6	89.1
-#4 NFT2 Spot 205	113	67599	4.1	6.3454	1.2	10.2054	2.3	0.4699	2.0	0.85	2483.0	41.2	2453.6	21.7	2429.3	20.7	2429.3	20.7	102.2
-#4 NFT2 Spot 206	284	11784	3.0	20.1505	1.6	0.1009	2.0	0.0148	1.1	0.57	94.4	1.1	97.6	1.9	176.5	38.4	94.4	1.1	NA
-#4 NFT2 Spot 207	365	556679	4.7	9.5546	0.7	4.3739	1.4	0.3032	1.2	0.85	1707.3	17.8	1707.4	11.5	1707.5	13.4	1707.5	13.4	100.0
-#4 NFT2 Spot 208	515	522998	4.0	9.5764	0.8	3.9125	1.5	0.2719	1.2	0.85	1550.2	17.2	1616.3	11.8	1703.4	14.1	1703.4	14.1	91.0
-#4 NFT2 Spot 209	106	76471	3.1	5.3426	0.8	13.5398	1.5	0.5249	1.3	0.84	2719.8	28.0	2718.1	14.2	2716.8	13.6	2716.8	13.6	100.1
-#4 NFT2 Spot 210	1815	124076	9.9	9.9010	0.8	3.3840	1.3	0.2431	1.0	0.79	1402.8	12.9	1500.7	10.2	1641.8	15.0	1641.8	15.0	85.4
-#4 NFT2 Spot 211	24	85791	1.9	8.8502	1.0	5.2040	1.6	0.3342	1.2	0.75	1858.6	19.0	1853.3	13.3	1847.3	18.5	1847.3	18.5	100.6
-#4 NFT2 Spot 212	95	1036219	4.0	5.3656	0.8	13.3609	1.2	0.5202	0.9	0.76	2699.9	19.4	2705.5	11.0	2709.7	12.6	2709.7	12.6	99.6
-#4 NFT2 Spot 213	80	3878	2.5	19.1669	4.5	0.0820	4.7	0.0114	1.3	0.29	73.1	1.0	80.1	3.6	292.0	101.9	73.1	1.0	NA
-#4 NFT2 Spot 214	244	68768	5.5	9.2436	0.8	4.5922	1.6	0.3080	1.4	0.88	1730.8	21.4	1747.9	13.3	1768.2	13.7	1768.2	13.7	97.9
-#4 NFT2 Spot 215	521	40554	1.4	17.2466	0.8	0.6916	1.5	0.0865	1.2	0.83	535.1	6.4	533.8	6.2	528.2	17.9	535.1	6.4	101.3
-#4 NFT2 Spot 216	175	151832	4.4	5.4037	0.9	13.3398	1.4	0.5230	1.1	0.76	2712.0	23.5	2704.0	13.2	2698.0	15.1	2698.0	15.1	100.5
-#4 NFT2 Spot 217	107	59098	1.6	9.6491	0.8	4.3647	1.6	0.3056	1.4	0.87	1718.9	21.3	1705.7	13.3	1689.4	14.6	1689.4	14.6	101.7
-#4 NFT2 Spot 219	1324	332467	3.1	19.6184	1.2	0.2446	1.8	0.0348	1.4	0.75	220.6	3.0	222.2	3.7	238.6	27.7	220.6	3.0	NA
-#4 NFT2 Spot 220	208	117218	4.6	9.1824	0.7	3.9735	1.5	0.2647	1.3	0.89	1514.0	18.2	1628.8	12.4	1780.3	12.9	1780.3	12.9	85.0
-#4 NFT2 Spot 221	490	35779	2.3	21.0249	1.4	0.0768	2.0	0.0117	1.5	0.72	75.1	1.1	75.2	1.5	76.5	33.4	75.1	1.1	NA
-#4 NFT2 Spot 222	32	27223	#####	9.1699	1.4	4.8975	2.0	0.3259	1.5	0.73	1818.3	23.4	1801.8	17.0	1782.8	25.2	1782.8	25.2	102.0
-#4 NFT2 Spot 223	1890	30175	3.4	20.7570	0.8	0.0960	1.4	0.0145	1.1	0.83	92.5	1.0	93.0	1.2	106.9	18.0	92.5	1.0	NA
-#4 NFT2 Spot 224	16	672	1.5	30.0827	7.8	0.0543	8.1	0.0118	2.2	0.27	75.9	1.6	53.7	4.2	NA	NA	75.9	1.6	NA
-#4 NFT2 Spot 225	389	237483	2.3	20.0192	1.2	0.1830	1.6	0.0266	1.1	0.69	169.1	1.9	170.7	2.6	191.8	27.6	169.1	1.9	NA
-#4 NFT2 Spot 227	94	205323	4.5	12.8543	1.0	2.0744	1.7	0.1935	1.4	0.80	1140.2	14.6	1140.4	11.9	1140.8	20.5	1140.8	20.5	99.9
-#4 NFT2 Spot 228	302	4857	3.6	21.7315	1.9	0.0898	2.3	0.0142	1.3	0.57	90.7	1.2	87.4	1.9	NA	NA	90.7	1.2	NA
-#4 NFT2 Spot 229	129	42001	1.9	5.3441	0.8	12.8893	1.5	0.4998	1.3	0.84	2612.9	27.7	2671.6	14.5	2716.3	13.7	2716.3	13.7	96.2
-#4 NFT2 Spot 230	520	77615	3.9	14.0893	0.9	1.5248	1.6	0.1559	1.4	0.84	933.9	11.9	940.4	10.1	955.8	18.4	955.8	18.4	97.7
-#4 NFT2 Spot 231	1160	17245	1.5	17.9064	2.3	0.1976	2.7	0.0257	1.4	0.51	163.4	2.2	183.1	4.6	445.3	52.0	163.4	2.2	NA
-#4 NFT2 Spot 232	248	42920	20.9	9.5212	0.6	4.5549	1.3	0.3147	1.2	0.89	1763.6	18.3	1741.0	11.1	1714.0	11.2	1714.0	11.2	102.9
-#4 NFT2 Spot 233	85	37747	1.8	5.3110	0.8	13.6126	1.6	0.5246	1.4	0.87	2718.5	30.4	2723.1	15.0	2726.5	13.0	2726.5	13.0	99.7
-#4 NFT2 Spot 234	53	27237	1.8	5.3964	1.0	13.7711	1.6	0.5392	1.3	0.78	2780.2	28.3	2734.1	15.2	2700.2	16.5	2700.2	16.5	103.0
-#4 NFT2 Spot 235	157	161059	3.3	5.4396	1.1	13.2057	2.2	0.5212	1.9	0.87	2704.3	42.4	2694.5	20.7	2687.1	17.6	2687.1	17.6	100.6
-#4 NFT2 Spot 236	95	268017	2.8	8.9002	0.8	5.0955	1.6	0.3291	1.3	0.85	1833.8	21.1	1835.4	13.3	1837.1	15.1	1837.1	15.1	99.8
-#4 NFT2 Spot 237	70	126257	2.1	5.3486	0.7	13.4805	1.5	0.5232	1.3	0.90	2712.5	29.2	2713.9	13.9	2714.9	10.7	2714.9	10.7	99.9
-#4 NFT2 Spot 238	45	69662	2.4	5.3235	0.7	13.7704	1.2	0.5319	0.9	0.79	2749.5	21.1	2734.0	11.3	2722.7	12.0	2722.7	12.0	101.0
-#4 NFT2 Spot 239	182	99071	3.7	11.6404	0.8	2.6506	1.3	0.2239	1.0	0.79	1302.3	12.3	1314.8	9.8	1335.2	15.8	1335.2	15.8	97.5
-#4 NFT2 Spot 240	259	40309	4.3	13.3222	0.8	1.8431	1.3	0.1782	1.1	0.78	1056.9	10.2	1061.0	8.9	1069.3	17.0	1069.3	17.0	98.8
-#4 NFT2 Spot 241	418	12332	2.3	20.6536	1.7	0.1019	2.6	0.0153	1.9	0.74	97.7	1.8	98.5	2.4	118.7	40.7	97.7	1.8	NA
-#4 NFT2 Spot 242	227	238893	3.9	10.1152	0.6	3.8113	1.1	0.2797	1.0	0.84	1590.0	13.5	1595.1	9.2	1601.9	11.6	1601.9	11.6	99.3
-#4 NFT2 Spot 243	624	58492	2.4	19.8773	2.2	0.1104	2.7	0.0159	1.5	0.55	101.8	1.5	106.3	2.7	208.3	51.6	101.8	1.5	NA
-#4 NFT2 Spot 244	252	69675	1.7	9.4822	0.7	4.3446	1.3	0.2989	1.0	0.82	1685.9	15.3	1701.9	10.4	1721.6	13.1	1721.6	13.1	97.9
-#4 NFT2 Spot 245	102	2486887	1.3	5.3616	0.9	13.1363	1.3	0.5110	1.0	0.75	2661.1	21.8	2689.5	12.6	2710.9	14.6	2710.9	14.6	98.2
-#4 NFT2 Spot 246	693	170918	2.4	11.2986	0.9	2.9374	1.6	0.2408	1.3	0.83	1390.9	16.4	1391.6	11.9	1392.7	16.6	1392.7	16.6	99.9
-#4 NFT2 Spot 247	86	2292	1.0	7.7602	15.3	0.2309	15.4	0.0130	1.7	0.11	83.3	1.4	211.0	29.3	2081.7	271.0	83.3	1.4	NA
-#4 NFT2 Spot 248	82	60098	1.5	5.3720	0.8	13.4998	1.4	0.5262	1.2	0.81	2725.4	26.1	2715.3	13.7	2707.7	13.9	2707.7	13.9	100.7
-#4 NFT2 Spot 250	104	4548	2.4	21.4541	2.4	0.0907	2.8	0.0141	1.3	0.48	90.3	1.2	88.1	2.3	28.3	58.1	90.3	1.2	NA
-#4 NFT2 Spot 251	1268	55303	3.9	20.3278	1.0	0.0963	1.7	0.0142	1.4	0.80	90.9	1.2	93.3	1.5	156.0	24.2	90.9	1.2	NA
-#4 NFT2 Spot 252	635	869201	12.1	12.9726	0.8	1.8325	1.4	0.1725	1.1	0.80	1025.8	10.5	1057.2	9.2	1122.5	16.8	1122.5	16.8	91.4
-#4 NFT2 Spot 253	687	207922	4.0	12.2631	0.8	2.3841	1.5	0.2121	1.3	0.84	1240.2	14.6	1237.8	10.9	1233.8	16.0	1233.8	16.0	100.5
-#4 NFT2 Spot 254	125	237149	1.2	5.3400	0.9	12.3748	1.7	0.4795	1.4	0.86	2525.0	30.0	2633.3	15.7	2717.6	14.3	2717.6	14.3	92.9
-#4 NFT2 Spot 255	169	16030	4.0	20.5697	1.9	0.0749	2.2	0.0112	1.1	0.50	71.6	0.8	73.3	1.6	128.3	45.7	71.6	0.8	NA
-#4 NFT2 Spot 256	122	96997	1.3	6.2736	0.7	10.0947	1.4	0.4595	1.2	0.86	2437.4	24.7	2443.5	13.1	2448.5	12.5	2448.5	12.5	99.5
-#4 NFT2 Spot 257	47	25489	2.0	5.3688	0.7	13.4629	1.6	0.5244	1.4	0.90	2718.0	32.1	2712.7	15.1	2708.7	11.2	2708.7	11.2	100.3
-#4 NFT2 Spot 258	138	61477	2.4	8.7468	0.9	5.2713	1.6	0.3345	1.3	0.82	1860.4	21.0	1864.2	13.5	1868.5	16.3	1868.5	16.3	99.6
-#4 NFT2 Spot 259	592	384655	1.6	13.3621	0.8	1.9377	1.4	0.1879	1.1	0.82	1109.8	11.2	1094.2	9.0	1063.3	15.7	1063.3	15.7	104.4
-#4 NFT2 Spot 260	197	11379	2.7	20.2573	2.1	0.0978	2.4	0.0144	1.1	0.45	92.0	1.0	94.7	2.2	164.2	50.1	92.0	1.0	NA
-#4 NFT2 Spot 261	459	581567	2.0	9.9607	0.8	4.1460	1.6	0.2996	1.3	0.85	1689.5	20.0	1663.4	12.9	1630.6	15.3	1630.6	15.3	103.6
-#4 NFT2 Spot 262	393	263983	4.0	9.4380	0.8	4.4618	1.7	0.3055	1.4	0.87	1718.8	21.8	1723.9	13.8	1730.1	15.2	1730.1	15.2	99.3
-#4 NFT2 Spot 263	836	211689	5.3	19.9055	0.9	0.2403	1.7	0.0347	1.5	0.85	219.9	3.1	218.7	3.4	205.0	20.8	219.9	3.1	NA
-#4 NFT2 Spot 264	141	403640	4.4	5.3678	0.8	13.0621	1.4	0.5087	1.2	0.82	2651.3	25.5	2684.1	13.5	2709.0	13.6	2709.0	13.6	97.9
-#4 NFT2 Spot 265	184	183670	3.4	11.2492	0.9	2.9091	1.6	0.2374	1.3	0.83	1373.4	16.7	1384.3	12.3	1401.0	17.4	1401.0	17.4	98.0
-#4 NFT2 Spot 266	160	75054	2.1	14.1538	0.8	1.5670	1.4	0.1609	1.2	0.85	961.9	10.8	957.2	8.9	946.5	15.5	946.5	15.5	101.6
-#4 NFT2 Spot 267	122	4553	2.5	20.5161	2.8	0.0781	3.1	0.0116	1.4	0.45	74.5	1.0	76.4	2.3	134.5	65.8	74.5	1.0	NA
-#4 NFT2 Spot 269	179	75984	3.3	13.7123	1.0	1.7309	1.8	0.1722	1.5	0.83	1024.3	14.0	1020.1	11.5	1011.0	20.3	1011.0	20.3	101.3
-#4 NFT2 Spot 270	309	62703	4.1	9.9161	0.7	3.9518	1.2	0.2843	1.0	0.81	1613.1	14.3	1624.4	10.0	1638.9	13.5	1638.9	13.5	98.4
-#4 NFT2 Spot 271	744	28160	2.8	21.1701	1.2	0.0903	1.6	0.0139	1.0	0.64	88.8	0.9	87.8	1.4	60.2	29.7	88.8	0.9	NA
-#4 NFT2 Spot 272	172	79104	2.2	11.0841	0.9	3.0917	1.6	0.2487	1.2	0.79	1431.5	15.9	1430.6	12.0	1429.3	18.1	1429.3	18.1	100.2
-#4 NFT2 Spot 273	279	13730	2.7	20.6027	1.9	0.1024	2.8	0.0153	2.0	0.74	98.0	2.0	99.0	2.6	124.5	43.8	98.0	2.0	NA
-#4 NFT2 Spot 274	359	69099	2.2	18.1928	0.8	0.4421	1.5	0.0584	1.3	0.83	365.6	4.5	371.7	4.7	409.9	18.9	365.6	4.5	NA
-#4 NFT2 Spot 275	465	567900	4.3	5.1535	0.8	13.9789	1.6	0.5227	1.4	0.86	2710.7	30.4	2748.3	15.1	2776.0	13.3	2776.0	13.3	97.6
-#4 NFT2 Spot 276	76	39134	3.7	9.4340	0.9	4.4491	1.3	0.3045	1.0	0.72	1713.8	14.4	1721.5	11.0	1730.9	16.8	1730.9	16.8	99.0
-#4 NFT2 Spot 277	136	49255	2.8	9.7058	0.9	4.3059	1.7	0.3032	1.5	0.85	1707.4	22.1	1694.5	14.2	1678.6	16.6	1678.6	16.6	101.7
-#4 NFT2 Spot 278	49	936	2.2	25.6353	16.9	0.0697	17.0	0.0130	1.8	0.10	83.0	1.5	68.4	11.2	NA	NA	83.0	1.5	NA
-#4 NFT2 Spot 279	517	124117	3.4	8.2306	0.6	5.7329	1.3	0.3424	1.1	0.87	1898.1	18.7	1936.3	11.3	1977.5	11.4	1977.5	11.4	96.0
-#4 NFT2 Spot 280	123	53757	1.6	11.0863	1.0	3.2424	1.8	0.2608	1.4	0.82	1494.0	19.2	1467.4	13.7	1429.0	19.5	1429.0	19.5	104.6
-#4 NFT2 Spot 281	151	74503	4.8	10.1562	0.8	3.8517	1.4	0.2838	1.1	0.83	1610.7	16.0	1603.6	11.0	1594.4	14.3	1594.4	14.3	101.0
-#4 NFT2 Spot 282	192	7632	1.4	21.1642	1.9	0.0864	2.3	0.0133	1.4	0.60	85.0	1.2	84.2	1.9	60.8	44.6	85.0	1.2	NA
-#4 NFT2 Spot 283	220	81119	2.9	9.0574	0.9	4.7706	1.4	0.3135	1.1	0.79	1758.0	17.0	1779.7	11.7	1805.3	15.6	1805.3	15.6	97.4
-#4 NFT2 Spot 284	63	641185	0.4	7.9270	0.9	6.4984	1.6	0.3738	1.3	0.80	2047.1	22.0	2045.7	13.8	2044.2	16.6	2044.2	16.6	100.1
-#4 NFT2 Spot 285	701	316354	1.8	20.1193	1.1	0.1698	1.9	0.0248	1.5	0.81	157.8	2.4	159.2	2.7	180.1	25.3	157.8	2.4	NA
-#4 NFT2 Spot 286	483	9132	3.3	21.4719	1.3	0.1045	1.7	0.0163	1.1	0.67	104.1	1.2	100.9	1.6	26.3	30.3	104.1	1.2	NA
-#4 NFT2 Spot 287	1386	978	8.6	4.0518	1.1	3.3464	2.1	0.0984	1.8	0.84	604.9	10.2	1492.0	16.4	3163.7	17.8	3163.7	17.8	19.1
-#4 NFT2 Spot 288	684	417030	2.6	9.6068	0.9	3.4318	2.7	0.2392	2.5	0.94	1382.6	31.1	1511.7	20.9	1697.5	16.7	1697.5	16.7	81.4
-#4 NFT2 Spot 289	117	72138	5.5	8.7872	1.0	5.2121	1.5	0.3323	1.1	0.72	1849.6	17.2	1854.6	12.6	1860.2	18.5	1860.2	18.5	99.4
-#4 NFT2 Spot 290	70	66076	4.9	9.3044	1.0	4.5522	1.5	0.3073	1.1	0.74	1727.5	16.5	1740.6	12.3	1756.3	18.2	1756.3	18.2	98.4
-#4 NFT2 Spot 291	421	62853	2.2	5.5266	0.8	10.3155	1.5	0.4137	1.3	0.84	2231.6	23.9	2463.5	13.9	2660.8	13.4	2660.8	13.4	83.9
-#4 NFT2 Spot 293	89	1400	2.0	26.3336	5.2	0.0605	5.4	0.0116	1.6	0.30	74.1	1.2	59.6	3.1	NA	NA	74.1	1.2	NA
-#4 NFT2 Spot 294	64	3260	2.2	22.5291	6.4	0.0769	6.6	0.0126	1.7	0.26	80.5	1.3	75.2	4.8	NA	NA	80.5	1.3	NA
-#4 NFT2 Spot 295	106	49446	1.7	10.5781	0.9	3.4439	1.5	0.2643	1.2	0.81	1511.9	16.0	1514.5	11.5	1518.0	16.1	1518.0	16.1	99.6
-#4 NFT2 Spot 296	311	104116	2.4	13.7834	0.8	1.6474	1.2	0.1648	0.8	0.72	983.2	7.7	988.6	7.4	1000.5	16.7	1000.5	16.7	98.3
-#4 NFT2 Spot 297	439	72676	7.7	9.3678	0.8	4.6189	1.5	0.3140	1.3	0.84	1760.1	19.5	1752.7	12.6	1743.8	15.1	1743.8	15.1	100.9
-#4 NFT2 Spot 298	472	24873	3.1	20.1590	1.0	0.1794	1.9	0.0262	1.6	0.84	167.0	2.7	167.6	3.0	175.5	24.5	167.0	2.7	NA
-#4 NFT2 Spot 299	455	45250	1.3	19.9577	1.2	0.1084	1.6	0.0157	1.0	0.66	100.4	1.0	104.5	1.6	198.9	27.6	100.4	1.0	NA
-#4 NFT2 Spot 300	502	1060804	5.4	5.5408	0.8	12.6285	1.4	0.5077	1.2	0.84	2646.8	26.1	2652.3	13.4	2656.6	12.7	2656.6	12.7	99.6
-#4 NFT2 Spot 301	285	9652	2.6	20.8471	1.5	0.1723	2.0	0.0261	1.4	0.69	165.8	2.3	161.4	3.0	96.7	34.6	165.8	2.3	NA
-#4 NFT2 Spot 302	116	90449	1.6	8.7870	0.8	5.2313	1.4	0.3335	1.1	0.83	1855.5	18.5	1857.7	11.8	1860.2	14.1	1860.2	14.1	99.7
-#4 NFT2 Spot 303	296	34296	4.2	13.5921	0.7	1.8095	1.3	0.1785	1.0	0.82	1058.6	10.0	1048.9	8.2	1028.9	14.8	1028.9	14.8	102.9
-#4 NFT2 Spot 304	610	20238	1.3	20.1880	1.0	0.1789	1.6	0.0262	1.2	0.78	166.7	2.0	167.1	2.4	172.2	23.2	166.7	2.0	NA

-#4 NFT2 Spot 305	447	32101	2.6	9.7159	0.9	3.6483	2.1	0.2572	1.9	0.90	1475.5	24.8	1560.1	16.6	1676.7	16.6	1676.7	16.6	88.0
-#4 NFT2 Spot 306	94	544567	2.2	5.3217	0.9	13.6098	1.6	0.5255	1.3	0.81	2722.6	28.1	2722.9	14.9	2723.2	15.3	2723.2	15.3	100.0
-#4 NFT2 Spot 307	924	17261	1.7	20.4265	1.1	0.1594	1.8	0.0236	1.4	0.78	150.6	2.1	150.2	2.5	144.7	26.2	150.6	2.1	NA
-#4 NFT2 Spot 308	68	704994	1.7	5.2919	0.7	13.6503	1.3	0.5241	1.0	0.83	2716.7	23.1	2725.8	11.9	2732.5	11.7	2732.5	11.7	99.4
-#4 NFT2 Spot 309	62	17946	1.4	9.6210	0.9	4.3820	1.4	0.3059	1.1	0.79	1720.5	17.1	1709.0	11.8	1694.8	16.0	1694.8	16.0	101.5
-#4 NFT2 Spot 310	135	76625	679.9	9.2546	0.9	4.6893	1.5	0.3149	1.3	0.83	1764.7	19.8	1765.3	13.0	1766.1	15.8	1766.1	15.8	99.9
-#4 NFT2 Spot 312	76	146644	5.0	11.2319	1.0	2.9736	1.8	0.2423	1.4	0.82	1398.9	18.1	1400.9	13.3	1404.0	19.2	1404.0	19.2	99.6
-#4 NFT2 Spot 313	1760	1102	21.6	4.2088	0.8	2.5910	2.4	0.0791	2.3	0.95	490.9	10.8	1298.1	17.7	3103.2	12.6	3103.2	12.6	15.8
-#4 NFT2 Spot 314	323	292139	2.5	8.8123	0.7	5.2779	1.4	0.3375	1.3	0.88	1874.5	20.4	1865.3	12.2	1855.0	12.5	1855.0	12.5	101.0

1. Analyses with >10% uncertainty (1-sigma) in 206Pb/238U age are not included.
2. Analyses with >10% uncertainty (1-sigma) in 206Pb/207Pb age are not included, unless 206Pb/238U age is <400 Ma.
3. Best age is determined from 206Pb/238U age for analyses with 206Pb/238U age <900 Ma and from 206Pb/207Pb age for analyses with 206Pb/238Uage >900 Ma.
4. Concordance is based on 206Pb/238U age / 206Pb/207Pb age. Value is not reported for 206Pb/238U ages <400 Ma because of large uncertainty in 206Pb/207Pb age.
5. Analyses with 206Pb/238U age >400 Ma and with >20% discordance (<80% concordance) are not included.
6. Analyses with 206Pb/238U age >400 Ma and with >5% reverse discordance (<105% concordance) are not included.
7. All uncertainties are reported at the 2-sigma level, and include only measurement errors.
8. Systematic errors are as follows (at 2-sigma level): [sample 1: xxx% (206Pb/238U) & xxx% (206Pb/207Pb)]
9. Analyses conducted by LA-ICPMS, as described by Gehrels et al. (2008) and Gehrels and Pecha (2014).
10. U concentration and U/Th are calibrated relative to FC-1 zircon standard and are accurate to ~20%.
11. Common Pb correction is from measured 204Pb with common Pb composition interpreted from Stacey and Kramers (1975).
12. Common Pb composition assigned uncertainties of 1.5 for 206Pb/204Pb, 0.3 for 207Pb/204Pb, and 2.0 for 208Pb/204Pb.
13. U/Pb and 206Pb/207Pb fractionation is calibrated relative to fragments of large Sri Lanka zircons and individual crystals of FC-1, and R33.
14. U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U/235U = 137.82.
15. Weighted mean and concordia plots determined with Isoplot (Ludwig, 2008).

Aliquot Name	PL3_18
Stratigraphic Formation Name	
Stratigraphic Age	
Rock Type	
Mineral	Zircon
Method	U-Pb
Latitude	
Longitude	
Internal Uncertainty Level	one sigma
External Uncertainty 206/238 (% two sigma)	0.94780382
External Uncertainty 206/207 (% two sigma)	0.65636216
Analysis Purpose	
Laboratory Name	Arizona LaserChron Center
Analyst Name	
Aliquot Reference	
Aliquot Instrumental Method	LA-ICPMS
Aliquot Instrumental Reference	Gehrels, G.E., Valencia, V., Ruiz, J., 2008, Enhanced precision, accuracy, efficiency, and spatial resolution of U-Pb ages by laser ablation-multicollector-inductively coupled plasma-mass spectrometry: Geochemistry, Geophysics, Geosystems, v. 9, Q03017, doi:10.1029/2007GC001805. Gehrels, G. and Pecha, M., 2014, Detrital zircon U-Pb geochronology and Hf isotope geochemistry of Paleozoic and Triassic passive margin strata of western North America: Geosphere, v. 10 (1), p. 49-65.

				Isotope ratios							Apparent ages (Ma)								
Analysis	U (ppm)	206Pb 204Pb	U/Th	206Pb* 207Pb*	± (%)	207Pb* 235U*	± (%)	206Pb* 238U	± (%)	error corr.	206Pb* 238U*	± (Ma)	207Pb* 235U	± (Ma)	206Pb* 207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)
-#7 PL3 Spot 117	185	15577	1.1	21.3266	3.1	0.0500	3.4	0.0077	1.4	0.42	49.7	0.7	49.6	1.6	42.6	73.4	49.7	0.7	NA
-#7 PL3 Spot 176	1221	3667	3.2	11.1757	4.9	0.5064	5.5	0.0411	2.6	0.47	259.4	6.7	416.0	18.9	1413.6	93.4	259.4	6.7	NA
-#7 PL3 Spot 193	839	4062	3.2	11.2703	5.7	0.5976	6.4	0.0489	2.9	0.45	307.6	8.7	475.7	24.4	1397.5	109.9	307.6	8.7	NA
-#7 PL3 Spot 63	780	7239	4.4	14.9084	1.3	0.4850	2.1	0.0525	1.6	0.76	329.6	5.0	401.5	6.8	839.2	27.9	329.6	5.0	NA
-#7 PL3 Spot 93	957	3259	9.0	11.4325	6.8	0.6372	7.2	0.0529	2.2	0.31	332.0	7.3	500.5	28.5	1370.0	131.9	332.0	7.3	NA
-#7 PL3 Spot 21	160	26492	2.1	18.4289	1.1	0.4315	1.7	0.0577	1.3	0.75	361.6	4.4	364.2	5.1	381.0	25.2	361.6	4.4	NA
-#7 PL3 Spot 211	851	13223	1.5	15.6826	0.9	0.5165	1.7	0.0588	1.4	0.82	368.2	4.9	422.8	5.7	732.9	19.8	368.2	4.9	NA
-#7 PL3 Spot 203	35	10380	22.9	18.0594	1.8	0.4601	2.2	0.0603	1.3	0.60	377.4	4.9	384.4	7.1	426.3	39.9	377.4	4.9	NA
-#7 PL3 Spot 136	469	7660	1.7	14.2549	1.4	0.5988	1.9	0.0619	1.4	0.71	387.4	5.2	476.5	7.4	931.9	27.8	387.4	5.2	NA
-#7 PL3 Spot 109	198	35750	5.4	18.2242	1.0	0.4943	1.6	0.0654	1.2	0.74	408.2	4.6	407.9	5.2	406.0	23.3	408.2	4.6	100.5
-#7 PL3 Spot 90	200	13022	1.3	18.1965	0.9	0.5220	1.4	0.0689	1.2	0.80	429.6	4.8	426.5	5.0	409.4	19.4	429.6	4.8	104.9
-#7 PL3 Spot 28	254	20306	2.2	17.8761	1.0	0.5357	1.6	0.0695	1.3	0.80	433.1	5.4	435.6	5.7	449.0	21.2	433.1	5.4	96.4
-#7 PL3 Spot 202	485	72783	0.9	18.0075	0.9	0.5328	1.5	0.0696	1.2	0.81	433.9	5.1	433.7	5.3	432.7	19.5	433.9	5.1	100.3
-#7 PL3 Spot 31	308	34562	2.1	17.6420	1.0	0.5441	1.5	0.0696	1.1	0.76	434.0	4.8	441.1	5.4	478.2	21.8	434.0	4.8	90.8
-#7 PL3 Spot 126	360	41257	2.0	17.7251	0.9	0.5527	1.5	0.0711	1.2	0.80	442.7	5.1	446.8	5.4	467.9	19.8	442.7	5.1	94.6
-#7 PL3 Spot 167	131	42342	2.2	17.6248	1.1	0.5565	1.7	0.0712	1.4	0.79	443.2	5.9	449.2	6.3	480.4	23.5	443.2	5.9	92.3
-#7 PL3 Spot 56	57	35788	1.8	17.9596	1.4	0.5484	1.8	0.0715	1.2	0.65	445.0	5.0	444.0	6.4	438.7	30.1	445.0	5.0	101.4
-#7 PL3 Spot 74	447	138658	0.8	17.9509	0.9	0.5525	1.4	0.0720	1.1	0.77	447.9	4.6	446.6	5.0	439.7	19.8	447.9	4.6	101.9
-#7 PL3 Spot 58	126	6877	0.9	18.4568	1.3	0.5477	1.7	0.0733	1.1	0.64	456.3	4.9	443.5	6.2	377.6	30.0	456.3	4.9	120.8
-#7 PL3 Spot 123	563	55405	3.0	18.0654	0.9	0.5649	1.4	0.0740	1.1	0.79	460.5	4.9	454.7	5.2	425.6	19.5	460.5	4.9	108.2
-#7 PL3 Spot 79	242	4781	2.7	12.9351	5.4	0.7895	5.6	0.0741	1.6	0.29	460.8	7.3	590.9	25.2	1128.3	107.2	460.8	7.3	40.8
-#7 PL3 Spot 78	563	6011	12.1	13.7851	4.1	0.7635	4.3	0.0764	1.3	0.31	474.4	6.1	576.0	18.9	1000.3	83.1	474.4	6.1	47.4
-#7 PL3 Spot 95	426	80924	0.8	17.4624	0.9	0.6676	1.6	0.0846	1.4	0.83	523.5	6.8	519.3	6.7	500.8	20.3	523.5	6.8	104.5
-#7 PL3 Spot 77	677	25816	1.8	15.3751	0.6	0.8241	1.5	0.0919	1.4	0.91	567.0	7.3	610.3	6.9	774.7	13.3	567.0	7.3	73.2
-#7 PL3 Spot 133	420	1701470	1.7	16.2380	0.8	0.8632	1.4	0.1017	1.1	0.83	624.4	6.7	631.9	6.4	658.8	16.2	624.4	6.7	94.8
-#7 PL3 Spot 166	86	7739	1.8	17.1637	1.0	0.8350	1.6	0.1040	1.2	0.75	637.8	7.1	616.4	7.2	538.7	22.5	637.8	7.1	118.4
-#7 PL3 Spot 229	326	7970	1.4	12.9044	2.0	1.1540	2.5	0.1081	1.4	0.56	661.4	8.7	779.1	13.4	1133.0	40.5	661.4	8.7	58.4
-#7 PL3 Spot 44	155	63226	1.6	15.8433	1.1	0.9707	1.9	0.1116	1.6	0.81	682.0	10.1	688.8	9.7	711.3	24.0	682.0	10.1	95.9
-#7 PL3 Spot 212	105	526676	1.5	15.6292	1.3	1.0507	2.0	0.1192	1.5	0.76	725.7	10.4	729.2	10.4	740.1	27.4	725.7	10.4	98.1
-#7 PL3 Spot 13	82	31057	1.8	15.3978	1.2	1.1126	1.8	0.1243	1.3	0.74	755.3	9.5	759.4	9.7	771.6	25.9	755.3	9.5	97.9
-#7 PL3 Spot 62	378	244379	0.7	15.2505	0.9	1.1543	1.8	0.1277	1.5	0.85	774.9	10.8	779.3	9.5	791.8	19.5	774.9	10.8	97.9
-#7 PL3 Spot 16	424	116587	4.7	14.3523	1.0	1.4939	1.8	0.1556	1.5	0.85	932.1	13.3	927.9	11.0	917.9	19.9	917.9	19.9	101.5
-#7 PL3 Spot 233	270	38990	2.3	14.2942	1.0	1.5062	1.9	0.1562	1.6	0.84	935.7	14.3	932.9	11.9	926.3	21.5	926.3	21.5	101.0
-#7 PL3 Spot 69	330	63098	5.1	14.1372	0.7	1.5602	1.6	0.1600	1.4	0.88	957.0	12.2	954.6	9.6	948.9	15.2	948.9	15.2	100.9
-#7 PL3 Spot 75	254	76832	1.6	13.9985	1.0	1.5847	1.7	0.1610	1.4	0.81	962.1	12.6	964.2	10.7	969.0	20.4	969.0	20.4	99.3
-#7 PL3 Spot 53	128	41594	2.6	13.9982	1.0	1.5724	1.6	0.1597	1.3	0.77	955.1	11.2	959.4	10.2	969.1	21.4	969.1	21.4	98.6
-#7 PL3 Spot 130	51	9027	1.6	13.9343	1.4	1.7078	2.1	0.1727	1.5	0.75	1026.8	14.6	1011.5	13.2	978.4	27.8	978.4	27.8	104.9
-#7 PL3 Spot 57	107	59750	2.3	13.9166	1.2	1.6334	1.7	0.1649	1.2	0.71	984.2	10.9	983.2	10.6	981.0	24.1	981.0	24.1	100.3
-#7 PL3 Spot 153	157	26866	1.7	13.8011	1.2	1.6015	1.6	0.1604	1.0	0.64	958.8	9.3	970.8	10.1	997.9	25.0	997.9	25.0	96.1
-#7 PL3 Spot 220	125	80227	1.5	13.7887	1.1	1.6230	1.7	0.1624	1.3	0.76	970.0	11.5	979.2	10.5	999.7	21.9	999.7	21.9	97.0
-#7 PL3 Spot 97	100	18314	3.4	13.7466	0.8	1.7070	1.5	0.1703	1.2	0.83	1013.5	11.5	1011.1	9.5	1006.0	17.1	1006.0	17.1	100.8
-#7 PL3 Spot 80	133	36889	1.1	13.7225	1.0	1.6333	1.4	0.1626	1.0	0.69	971.4	8.7	983.1	8.8	1009.5	20.4	1009.5	20.4	96.2
-#7 PL3 Spot 110	302	90132	3.0	13.6755	0.9	1.7167	1.4	0.1703	1.1	0.79	1014.0	10.6	1014.8	9.1	1016.5	17.5	1016.5	17.5	99.8
-#7 PL3 Spot 51	283	632753	0.6	13.6714	0.8	1.6796	1.6	0.1666	1.5	0.89	993.4	13.5	1000.8	10.5	1017.1	15.3	1017.1	15.3	97.7
-#7 PL3 Spot 121	214	54236466	3.0	13.6614	1.0	1.7245	1.8	0.1709	1.5	0.83	1017.3	14.4	1017.7	11.8	1018.6	20.7	1018.6	20.7	99.9
-#7 PL3 Spot 86	48	29167	3.3	13.6565	1.2	1.6190	1.8	0.1604	1.4	0.75	959.1	12.3	977.6	11.5	1019.3	24.4	1019.3	24.4	94.1
-#7 PL3 Spot 82	126	61891	2.5	13.6457	0.8	1.7350	1.4	0.1718	1.2	0.81	1021.9	10.9	1021.6	9.1	1020.9	16.7	1020.9	16.7	100.1
-#7 PL3 Spot 145	422	164167	0.7	13.6349	0.8	1.7488	1.2	0.1730	0.9	0.76	1028.7	8.5	1026.7	7.6	1022.5	15.5	1022.5	15.5	100.6
-#7 PL3 Spot 155	102	37894	2.3	13.6267	1.3	1.7448	1.8	0.1725	1.3	0.71	1026.0	11.9	1025.3	11.5	1023.7	25.4	1023.7	25.4	100.2
-#7 PL3 Spot 135	186	30830	2.3	13.5893	0.7	1.7394	1.2	0.1715	1.0	0.83	1020.4	9.7	1023.3	8.0	1029.3	14.1	1029.3	14.1	99.1
-#7 PL3 Spot 116	169	25804	3.6	13.5576	0.8	1.7509	1.4	0.1722	1.2	0.81	1024.4	11.1	1027.5	9.3	1034.0	16.9	1034.0	16.9	99.1
-#7 PL3 Spot 230	280	26411	1.8	13.5546	0.9	1.7522	1.8	0.1723	1.5	0.86	1024.9	14.4	1028.0	11.4	1034.4	18.1	1034.4	18.1	99.1
-#7 PL3 Spot 146	406	113367	4.4	13.5092	0.9	1.7445	1.7	0.1710	1.5	0.85	1017.6	13.9	1025.1	11.3	1041.2	18.6	1041.2	18.6	97.7
-#7 PL3 Spot 182	159	23480	1.8	13.4785	1.0	1.7779	1.6	0.1739	1.2	0.77	1033.4	11.8	1037.4	10.4	1045.8	20.7	1045.8	20.7	98.8
-#7 PL3 Spot 142	106	30628	2.4	13.4730	0.7	1.7745	1.4	0.1735	1.2	0.84	1031.2	11.0	1036.2	8.9	1046.7	15.0	1046.7	15.0	98.5
-#7 PL3 Spot 184	213	124355	2.9	13.4487	0.9	1.7440	1.3	0.1702	1.0	0.76	1013.1	9.5	1024.9	8.7	1050.3	17.6	1050.3	17.6	96.5
-#7 PL3 Spot 122	291	94351	1.4	13.4454	0.6	1.8242	1.2	0.1780	1.0	0.87	1055.8	10.1	1054.2	7.8	1050.8	11.8	1050.8	11.8	100.5
-#7 PL3 Spot 232	59	53917	1.8	13.4372	1.2	1.7370	2.1	0.1694	1.6	0.80	1008.6	15.3	1022.4	13.3	1052.0	25.1	1052.0	25.1	95.9
-#7 PL3 Spot 107	144	23692	1.5	13.4039	0.9	1.8514	1.5	0.1801	1.1	0.79	1067.3	11.3	1063.9	9.6	1057.0	18.1	1057.0	18.1	101.0
-#7 PL3 Spot 38	253	80316	2.4	13.4031	0.6	1.8544	1.2	0.1803	1.1	0.85	1068.8	10.4	1065.0	8.1	1057.1	12.9	1057.1	12.9	101.1
-#7 PL3 Spot 178	48	16539	0.4	13.3967	1.1	1.8640	1.8	0.1812	1.4	0.78	1073.5	13.8	1068.4	11.8	1058.1	22.4	1058.1	22.4	101.4
-#7 PL3 Spot 140	243	906041	2.5	13.3868	0.8	1.7306	1.7	0.1681	1.5	0.89	1001.6	13.6	1020.0	10.7	1059.6	15.5	1059.6	15.5	94.5
-#7 PL3 Spot 199	65	14505	1.5	13.3697	0.8	1.8107	1.3	0.1757	1.0	0.77	1043.2	9.9	1049.3	8.7	1062.2	17.0	1062.2	17.0	98.2
-#7 PL3 Spot 84	346	181854	5.6	13.3273	0.9	1.8491	1.9	0.1788	1.6	0.88	1060.5	16.0	1063.1	12.2	1068.6	17.6	1068.6	17.6	99.2
-#7 PL3 Spot 87	244	235921	2.1	13.3182	0.9	1.8421	1.6	0.1780	1.3	0.83	1056.1	12.5	1060.6	10.2	1069.9	17.6	1069.9	17.6	98.7
-#7 PL3 Spot 207	63	74697	1.8	13.3136	1.1	1.8083	1.4	0.1747	0.8	0.62	1037.9	8.0	1048.5	8.9	1070.6	21.4	1070.6	21.4	96.9
-#7 PL3 Spot 227	113	51803	2.8	13.2826	1.0	1.8871	1.4	0.1819	1.0	0.70	1077.2	9.5	1076.6	9.0	1075.3	19.3	1075.3	19.3	100.2
-#7 PL3 Spot 33	82	195709	2.1	13.2339	1.2	1.8374	1.9	0.1764	1.5	0.80	1047.5	14.6	1058.9	12.5	1082.7	23.1	1082.7	23.1	96.7
-#7 PL3 Spot 198	43	26625	0.9	13.2241	1.2	1.8870	1.7	0.1811	1.2	0.73	1072.7	12.2	1076.5	11.2	1084.1	23.1	1084.1	23.1	98.9
-#7 PL3 Spot 194	65	18445	1.6	13.1933	1.0	1.9000	1.7	0.1819	1.3	0.78	1077.3	12.8	1081.1	11.0	1088.8	20.6	1088.8	20.6	98.9
-#7 PL3 Spot 144	94	91555	1.5	13.1889	0.7	1.8501	1.3	0.1770	1.1	0.82	1050.8	10.4	1063.5	8.6	1089.5	14.8	1089.5	14.8	96.5
-#7 PL3 Spot 73	171	72314	2.7	13.1855	0.7	1.9333	1.4	0.1850	1.1	0.83	1094.0	11.4	1092.7	9.1	1090.0	15.0	1090.0	15.0	100.4
-#7 PL3 Spot 163	119	51009	2.7	13.1633	0.8	1.7924	1.5	0.1712	1.3	0.84	1018.7	12.2	1042.7	10.0	1093.4	16.7	1093.4	16.7	93.2
-#7 PL3 Spot 59	292	193125	3.1	13.1436	0.9	1.9194	1.6	0.1830	1.3	0.82	1083.6	13.3	1087.9	10.8	1096.4	18.5	1096.4	18.5	98.8

-#7 PL3 Spot 179	97	66867	2.0	13.0878	1.0	1.8919	1.6	0.1797	1.2	0.78	1065.1	12.1	1078.3	10.5	1104.9	19.7	1104.9	19.7	96.4
-#7 PL3 Spot 186	53	31997	1.3	13.0683	1.0	2.0310	1.4	0.1926	1.0	0.74	1135.4	10.8	1126.0	9.6	1107.8	19.0	1107.8	19.0	102.5
-#7 PL3 Spot 7	55	12500	2.4	13.0391	1.1	2.0943	1.7	0.1981	1.3	0.76	1165.3	13.6	1146.9	11.6	1112.3	22.0	1112.3	22.0	104.8
-#7 PL3 Spot 40	109	70235	2.6	13.0300	0.9	1.9979	1.6	0.1889	1.3	0.82	1115.4	13.5	1114.8	10.9	1113.7	18.4	1113.7	18.4	100.1
-#7 PL3 Spot 175	280	47434	2.7	13.0230	0.7	1.9143	1.1	0.1809	0.9	0.78	1071.8	8.4	1086.1	7.3	1114.8	13.7	1114.8	13.7	96.1
-#7 PL3 Spot 12	317	385832	2.1	12.9836	0.9	2.0657	1.5	0.1946	1.2	0.80	1146.3	12.8	1137.5	10.4	1120.8	18.2	1120.8	18.2	102.3
-#7 PL3 Spot 217	81	18746	2.2	12.9822	1.3	2.0134	1.6	0.1897	1.0	0.63	1119.5	10.5	1120.1	11.0	1121.1	25.0	1121.1	25.0	99.9
-#7 PL3 Spot 88	75	20411	2.2	12.9557	1.0	2.0525	1.6	0.1929	1.3	0.78	1137.3	13.2	1133.1	11.1	1125.1	20.4	1125.1	20.4	101.1
-#7 PL3 Spot 171	411	73103	4.3	12.9519	0.9	1.9172	1.2	0.1802	0.9	0.72	1067.9	8.7	1087.1	8.2	1125.7	17.2	1125.7	17.2	94.9
-#7 PL3 Spot 89	25	23454	2.0	12.9449	1.2	1.9777	1.8	0.1858	1.3	0.72	1098.3	12.8	1107.9	11.9	1126.8	24.4	1126.8	24.4	97.5
-#7 PL3 Spot 67	697	58624	2.8	12.9380	0.9	1.8269	1.9	0.1715	1.7	0.88	1020.4	15.9	1055.2	12.6	1127.9	18.3	1127.9	18.3	90.5
-#7 PL3 Spot 152	26	24765	1.7	12.8735	1.2	2.0633	1.8	0.1927	1.3	0.72	1136.2	13.5	1136.7	12.2	1137.8	24.6	1137.8	24.6	99.9
-#7 PL3 Spot 48	120	66530	1.0	12.8585	0.9	2.1831	1.3	0.2037	0.9	0.72	1195.1	10.1	1175.7	8.9	1140.1	17.6	1140.1	17.6	104.8
-#7 PL3 Spot 41	305	76040	2.2	12.8569	0.8	2.0906	1.7	0.1950	1.5	0.87	1148.6	15.4	1145.7	11.5	1140.4	16.4	1140.4	16.4	100.7
-#7 PL3 Spot 35	105	19922	2.3	12.8380	1.1	2.0830	1.6	0.1940	1.2	0.75	1143.2	12.8	1143.2	11.2	1143.3	21.3	1143.3	21.3	100.0
-#7 PL3 Spot 106	223	265324	1.7	12.8280	1.0	2.0814	1.6	0.1937	1.3	0.80	1141.6	13.7	1142.7	11.3	1144.9	19.8	1144.9	19.8	99.7
-#7 PL3 Spot 172	242	86878	2.7	12.8117	0.7	2.0413	1.4	0.1898	1.3	0.89	1120.1	13.0	1129.4	9.7	1147.4	13.1	1147.4	13.1	97.6
-#7 PL3 Spot 158	92	43762	1.4	12.8012	1.0	2.1231	1.6	0.1972	1.2	0.78	1160.3	13.2	1156.4	11.1	1149.0	20.1	1149.0	20.1	101.0
-#7 PL3 Spot 72	99	30899	3.9	12.7919	0.9	2.0438	1.5	0.1897	1.2	0.79	1119.7	12.5	1130.2	10.5	1150.4	18.6	1150.4	18.6	97.3
-#7 PL3 Spot 150	133	228570	2.1	12.7885	0.8	2.0456	1.2	0.1898	0.9	0.78	1120.4	9.6	1130.8	8.2	1151.0	14.9	1151.0	14.9	97.3
-#7 PL3 Spot 17	137	38535	2.8	12.7814	0.9	2.0693	1.3	0.1919	0.9	0.73	1131.7	9.8	1138.7	8.9	1152.1	17.8	1152.1	17.8	98.2
-#7 PL3 Spot 112	172	145177	2.0	12.7707	0.9	2.1401	1.5	0.1983	1.2	0.81	1166.2	12.7	1161.8	10.1	1153.7	16.9	1153.7	16.9	101.1
-#7 PL3 Spot 50	78	54958	3.9	12.7691	0.8	2.1183	1.3	0.1963	1.0	0.77	1155.2	10.1	1154.8	8.6	1154.0	15.9	1154.0	15.9	100.1
-#7 PL3 Spot 132	201	67077	3.2	12.7515	0.7	2.1664	1.1	0.2004	0.8	0.75	1177.7	8.9	1170.3	7.6	1156.7	14.4	1156.7	14.4	101.8
-#7 PL3 Spot 222	230	174810	2.0	12.7121	0.9	2.1655	1.3	0.1997	0.9	0.68	1173.9	9.6	1170.1	9.0	1162.8	18.8	1162.8	18.8	101.0
-#7 PL3 Spot 120	804	95439	1.3	12.7094	0.8	2.1017	1.5	0.1938	1.3	0.86	1142.0	13.9	1149.4	10.6	1163.3	15.3	1163.3	15.3	98.2
-#7 PL3 Spot 128	300	154502	3.7	12.6952	0.6	2.1485	1.2	0.1979	1.0	0.84	1164.1	10.6	1164.6	8.1	1165.5	12.6	1165.5	12.6	99.9
-#7 PL3 Spot 138	391	67715	2.2	12.6607	0.6	2.1573	1.1	0.1982	0.9	0.81	1165.5	9.3	1167.4	7.5	1170.9	12.7	1170.9	12.7	99.5
-#7 PL3 Spot 195	97	31822	3.2	12.6481	1.0	2.0306	1.6	0.1864	1.3	0.79	1101.6	13.0	1125.8	11.1	1172.9	19.7	1172.9	19.7	93.9
-#7 PL3 Spot 208	70	12694	2.0	12.6476	0.9	2.1403	1.4	0.1964	1.2	0.80	1156.0	12.3	1161.9	10.0	1172.9	17.1	1172.9	17.1	98.6
-#7 PL3 Spot 113	238	14602435	2.8	12.6434	0.9	2.0958	1.6	0.1923	1.3	0.81	1133.6	13.7	1147.4	11.1	1173.6	18.7	1173.6	18.7	96.6
-#7 PL3 Spot 177	46	108138	1.8	12.6409	1.2	2.1560	1.8	0.1977	1.4	0.74	1163.2	14.4	1167.0	12.7	1174.0	24.2	1174.0	24.2	99.1
-#7 PL3 Spot 210	602	143503	2.5	12.6322	0.8	2.0409	1.5	0.1871	1.3	0.85	1105.4	13.0	1129.2	10.3	1175.4	15.8	1175.4	15.8	94.0
-#7 PL3 Spot 6	343	79649	2.1	12.6299	0.9	2.1618	1.7	0.1981	1.5	0.86	1165.1	15.5	1168.8	11.8	1175.7	17.3	1175.7	17.3	99.1
-#7 PL3 Spot 183	94	18701	3.0	12.5753	1.1	2.1714	1.9	0.1981	1.6	0.81	1165.3	16.5	1171.9	13.4	1184.3	22.4	1184.3	22.4	98.4
-#7 PL3 Spot 223	41	17174	3.2	12.5676	1.1	2.1428	1.7	0.1954	1.2	0.74	1150.6	13.2	1162.7	11.7	1185.5	22.4	1185.5	22.4	97.1
-#7 PL3 Spot 26	348	195424	2.2	12.5541	0.8	2.2235	1.6	0.2025	1.3	0.84	1188.9	14.3	1188.5	11.0	1187.6	16.7	1187.6	16.7	100.1
-#7 PL3 Spot 201	360	72832	1.9	12.5477	1.0	2.2324	1.4	0.2032	1.0	0.72	1192.8	10.8	1191.3	9.7	1188.6	19.0	1188.6	19.0	100.4
-#7 PL3 Spot 96	153	248712	2.0	12.4656	1.0	2.1774	1.4	0.1969	1.1	0.75	1158.9	11.4	1173.8	10.1	1201.5	19.0	1201.5	19.0	96.4
-#7 PL3 Spot 103	57	187183	1.5	12.4596	0.9	2.2099	1.4	0.1998	1.1	0.75	1174.2	11.4	1184.2	9.9	1202.5	18.6	1202.5	18.6	97.6
-#7 PL3 Spot 129	672	105238	1.7	12.4070	0.9	2.4075	1.6	0.2167	1.3	0.82	1264.6	14.9	1244.8	11.4	1210.8	17.9	1210.8	17.9	104.4
-#7 PL3 Spot 225	129	66834	0.9	12.3690	1.1	2.2230	1.6	0.1995	1.2	0.73	1172.7	12.7	1188.3	11.4	1216.9	21.9	1216.9	21.9	96.4
-#7 PL3 Spot 206	833	311824	1.8	12.3612	0.7	2.3735	1.6	0.2129	1.4	0.88	1244.2	15.6	1234.7	11.2	1218.1	14.6	1218.1	14.6	102.1
-#7 PL3 Spot 5	82	22404	3.1	12.2901	1.1	2.3425	1.7	0.2089	1.2	0.74	1222.9	13.7	1225.3	11.8	1229.5	21.8	1229.5	21.8	99.5
-#7 PL3 Spot 180	147	96695	3.0	12.2611	1.0	2.3941	1.6	0.2130	1.3	0.80	1244.7	14.3	1240.8	11.4	1234.1	18.9	1234.1	18.9	100.9
-#7 PL3 Spot 68	241	88622	2.0	12.2113	0.8	2.4042	1.6	0.2130	1.3	0.84	1244.9	14.9	1243.9	11.2	1242.1	16.5	1242.1	16.5	100.2
-#7 PL3 Spot 214	1484	14050	2.0	12.0695	1.0	1.2282	2.4	0.1076	2.2	0.91	658.6	13.9	813.5	13.6	1264.9	19.5	1264.9	19.5	52.1
-#7 PL3 Spot 111	221	39981	1.9	11.9929	1.0	2.5239	1.8	0.2196	1.5	0.84	1279.9	17.9	1278.9	13.3	1277.3	19.2	1277.3	19.2	100.2
-#7 PL3 Spot 91	234	75383	2.1	11.9111	0.8	2.4684	1.5	0.2133	1.2	0.83	1246.5	14.0	1262.8	10.7	1290.7	16.1	1290.7	16.1	96.6
-#7 PL3 Spot 32	236	97665	1.6	11.8392	0.8	2.6275	1.5	0.2257	1.3	0.86	1312.0	15.4	1308.4	11.1	1302.4	14.7	1302.4	14.7	100.7
-#7 PL3 Spot 190	182	33024	1.5	11.8072	0.8	2.6323	1.5	0.2255	1.3	0.86	1310.9	15.0	1309.7	10.8	1307.7	14.7	1307.7	14.7	100.2
-#7 PL3 Spot 20	41	29068	1.4	11.6885	1.1	2.6262	2.0	0.2227	1.7	0.85	1296.3	19.5	1308.0	14.5	1327.3	20.3	1327.3	20.3	97.7
-#7 PL3 Spot 27	151	60859	2.6	11.6511	0.8	2.6956	1.4	0.2279	1.2	0.84	1323.4	14.1	1327.2	10.4	1333.5	14.9	1333.5	14.9	99.2
-#7 PL3 Spot 170	369	1443530	22.8	11.5525	0.8	2.5445	1.7	0.2133	1.5	0.88	1246.3	16.7	1284.9	12.3	1349.9	15.6	1349.9	15.6	92.3
-#7 PL3 Spot 213	177	58385	4.0	11.4676	0.9	2.7195	1.7	0.2263	1.5	0.85	1315.0	17.7	1333.8	13.0	1364.1	17.5	1364.1	17.5	96.4
-#7 PL3 Spot 114	403	402388	2.6	11.4102	0.8	2.9157	1.3	0.2414	1.0	0.79	1393.9	13.0	1386.0	9.9	1373.8	15.4	1373.8	15.4	101.5
-#7 PL3 Spot 0	20	68030	1.5	11.3189	1.0	2.8527	1.6	0.2343	1.3	0.79	1356.9	15.6	1369.5	12.0	1389.2	18.6	1389.2	18.6	97.7
-#7 PL3 Spot 159	90	71555	2.1	11.1803	1.0	2.9678	1.7	0.2408	1.4	0.82	1390.6	17.6	1399.4	13.0	1412.8	18.9	1412.8	18.9	98.4
-#7 PL3 Spot 141	295	87265	1.2	10.9442	0.6	3.1955	1.3	0.2538	1.1	0.86	1457.8	14.1	1456.1	9.7	1453.5	12.0	1453.5	12.0	100.3
-#7 PL3 Spot 236	401	188806	2.3	10.9342	0.7	3.2006	1.3	0.2539	1.1	0.86	1458.7	14.8	1457.3	10.3	1455.3	13.1	1455.3	13.1	100.2
-#7 PL3 Spot 218	90	60430	2.5	10.9024	0.9	3.1805	1.5	0.2516	1.2	0.79	1446.7	15.8	1452.4	11.9	1460.8	17.8	1460.8	17.8	99.0
-#7 PL3 Spot 226	146	39974	1.2	10.8610	0.8	3.2328	1.6	0.2548	1.4	0.87	1463.0	17.9	1465.1	12.2	1468.0	14.9	1468.0	14.9	99.7
-#7 PL3 Spot 231	370	6822	2.1	10.8550	1.3	1.3953	1.9	0.1099	1.4	0.74	672.2	8.8	887.0	11.0	1469.1	23.9	1469.1	23.9	45.8
-#7 PL3 Spot 235	154	34375	2.6	10.8487	1.1	3.2155	1.7	0.2531	1.3	0.78	1454.5	17.3	1460.9	13.2	1470.2	20.1	1470.2	20.1	98.9
-#7 PL3 Spot 30	80	64045	1.2	10.8041	1.1	3.2718	1.6	0.2565	1.1	0.69	1471.8	14.2	1474.4	12.1	1478.0	21.3	1478.0	21.3	99.6
-#7 PL3 Spot 161	88	42016	3.1	10.8003	0.8	3.2557	1.3	0.2551	1.1	0.79	1464.9	13.8	1470.5	10.4	1478.7	15.8	1478.7	15.8	99.1
-#7 PL3 Spot 54	175	31117	2.1	10.7586	0.9	3.2838	1.4	0.2563	1.1	0.75	1471.1	14.3	1477.2	11.2	1486.0	18.0	1486.0	18.0	99.0
-#7 PL3 Spot 156	243	110482	2.0	10.7307	0.7	3.4146	1.3	0.2659	1.1	0.84	1519.8	14.9	1507.8	10.3	1490.9	13.5	1490.9	13.5	101.9
-#7 PL3 Spot 216	323	110240	3.9	10.7293	0.9	3.3680	1.6	0.2622	1.3	0.80	1501.1	16.8	1497.0	12.2	1491.2	17.6	1491.2	17.6	100.7
-#7 PL3 Spot 4	205	28806	3.1	10.5657	0.7	3.4311	1.1	0.2630	0.9	0.81	1505.4	12.3	1511.6	8.9	1520.2	12.5	1520.2	12.5	99.0
-#7 PL3 Spot 43	81	179998	1.7	10.5428	1.2	3.4066	1.9	0.2606	1.5	0.78	1492.9	19.5	1505.9	14.6	1524.3	21.9	1524.3	21.9	97.9
-#7 PL3 Spot 10	189	66198	1.4	10.5055	0.8	3.5449	1.3	0.2702	1.0	0.76	1541.9	13.1	1537.3	10.0	1531.0	15.5	1531.0	15.5	100.7
-#7 PL3 Spot 18	174	95961	3.0	10.5015	0.8	3.5270	1.3	0.2687	1.0	0.79	1534.4	13.9	1533.3	10.1	1531.7	14.6	1531.7	14.6	100.2
-#7 PL3 Spot 14	181	121962	2.0	10.4894	0.8	3.3713	1.5	0.2566	1.3	0.86	1472.3	16.9	1497.7	11.7	1533.9	14.3	1533.9	14.3	96.0
-#7 PL3 Spot 25	197	52965	1.0	10.2532	0.9	3.7626	1.3	0.2799	1.0	0.76	1591.0	14.2	1584.8	10.6	1576.6	16.2	1576.6	16.2	100.9
-#7 PL3 Spot 160	54	73067	1.4	10.1366	0.8	3.9915	1.2	0.2936	0.8	0.71	1659.4	12.0	1632.5	9.4	1598.0	15.3	1598.0	15.3	103.8
-#7 PL3 Spot 105	273	176238	5.5	10.1289	0.8	3.1728	1.6	0.2332	1.4	0.88	1351.1	17.4	1450.6	12.5	1599.4	14.2	1599.4	14.2	84.5
-#7 PL3 Spot 83	304	63260	1.8	10.0964	0.9	3.8605	1.3	0.2828	1.0	0.72	1605.5	13.8	1605.5	10.8	1605.4	17.4	1605.4	17.4	100.0
-#7 PL3 Spot 147	264	69258	3.1	10.0766	0.7	3.8329	1.3	0.2802	1.1	0.86	1592.6	15.3	1599.7	10.2	1609.1	12.3	1609.1	12.3	99.0
-#7 PL3 Spot 188	597	146893	1.6	10.0086	0.8	3.9446	1.4	0.2865	1.1	0.82	1623.8	16.3	1622.9	11.2	1621.7	14.6	1621.7	14.6	100.1
-#7 PL3 Spot 196	182	121852	1.6	9.9889	0.9	3.6326	1.4	0.2633	1.0	0.77	1506.6	13.9	1556.7	10.7	1625.3	16.1	1625.3	16.1	92.7
-#7 PL3 Spot 37	66	817815	1.4	9.9851	0.8	3.8600	1.5	0.2797	1.2	0.84	1589.6	17.4	1605.4	11.9	1626.0	14.8	1626.0	14.8	97.8
-#7 PL3 Spot 205	192	112680	3.0	9.9841	0.9	4.0008	1.6	0.2898	1.4	0.85	1640.7	20.3	1634.4	13.3	1626.2	15.8	1626.2	15.8	100.9
-#7 PL3 Spot 9	91	36944	2.0	9.9246	1.0	3.6305	1.5	0.2614	1.1	0.73	1497.2	14.3	1556.2	11.7	1637.3	18.7	1637.3	18.7	91.4
-#7 PL3 Spot 46	159	113613	3.0	9.9097	0.7	3.9613	1.0	0.2848	0.8	0.74	1615.6	10.9	1626.3	8.4	1640.1	12.8	1640.1	12.8	98.5
-#7 PL3 Spot 100	73	66849	1.4	9.9089	0.9	3.9677	1.3	0.2853	1.0	0.76	1617.8	14.7	1627.6	10.9	1640.3	16.2	1640.3	16.2	98.6
-#7 PL3 Spot 162	29	60348	0.6	9.8968	1.0	3.9365	1.6	0.2827	1.3	0.80	1604.8	18.3	1621.2	13.0	1642.5	17.8	1642.5	17.8	97.7
-#7 PL3 Spot 29	439	111254	6.0	9.8759	0.8	3.7924	1.7	0.2718	1.5	0.87	1549.7	20.7	1591.1	13.9	1646.5	15.7	1646.5	15.7	94.1
-#7 PL3 Spot 104	255	61337	1.7	9.8702	0.7	4.0417	1.3	0.2894	1.1	0.84	1638.8	15.9	1642.6	10.6	1647.5	13.0	1647.5	13.0	99.5
-#7 PL3 Spot 224	214	108567	2.2	9.8542	0.7	3.9925	1.2	0.2855	1.0	0.85	1618.8	14.8	1632.7	9.9	1650.5	12.1	1650.5	12.1	98.1
-#7 PL3 Spot 149	137	51898	1.3	9.7818	0.7	4.0187	1.5	0.2852	1.4	0.90	1617.6	19.7	1638.0	12.4	1664.2	12.2	1664.2	12.2	97.2
-#7 PL3 Spot 192	615	74003	1.9	9.7387	0.7	3.8300	1.6	0.2706	1.4	0.89	1544.0	19.8	1599.1	13.0	1672.3	13.6	1672.3	13.6	92.3
-#7 PL3 Spot 76	86	220346	1.6	9.6689	0.8	4.2217	1.4	0.2962	1.1	0.81	1672.3	16.6	1678.2	11.5	1685.6	15.2	1685.6	15.2	99.2
-#7 PL3 Spot 101	231	715738	2.6	9.6658	0.8	4.0597	1.8	0.2847	1.6	0.90	1615.1	23.1	1646.2	14.7	1686.2	14.6	1686.2	14.6	95.8
-#7 PL3 Spot 197	738	3952	2.9	9.6072	1.1	1.1695	2.2	0.0815	1.9	0.87	505.2	9.4	786.4	12.3	1697.4	20.7	1697.4	20.7	29.8
-#7 PL3 Spot 164	184	410498	1.0	9.5054	0.7	4.2889	1.4	0.2958	1.2	0.88	1670.5	18.2	1691.2	11.6	1717.0	12.3	1717.0	12.3	97.3
-#7 PL3 Spot 157	438	128059	3.2	9.4897	0.8	4.5060	1.4	0.3103	1.1	0.82	1742.0	16.9	1732.1	11.2	1720.1	14.2	1720.1	14.2	101.3
-#7 PL3 Spot 8	233	109835	2.9	9.4239	0.8	4.5117	1.4	0.3085	1.2	0.84	1733.3	18.3	1733.1	12.0	1732.9	14.6	1732.9	14.6	100.0
-#7 PL3 Spot 42	184	64174	1.7	9.4221	0.9	4.5634	1.4	0.3120	1.1	0.76	1750.4	16.2	1742.6	11.6	1733.2	16.7	1733.2	16.7	101.0
-#7 PL3 Spot 139	523	250545	1.8	9.4045	0.8	4.2413	1.5	0.2894	1.2	0.82	1638.6	17.6	1682.0	12.1	1736.6	15.5	1736.6	15.5	94.4
-#7 PL3 Spot 92	293	98298	2.4	9.3878	0.9	4.5599	1.4	0.3106	1.1	0.79	1743.7	16.6	1742.0	11.5	1739.9	15.6	1739.9	15.6	100.2
-#7 PL3 Spot 22	978	258269	8.1	9.3823	0.8	4.5202	1.4	0.3077	1.1	0.80	1729.5	17.1	1734.7	11.7	1741.0	15.5	1741.0	15.5	99.3
-#7 PL3 Spot 219	157	5213824	4.2	9.3584	0.7	4.5483	1.4	0.3088	1.3	0.89	1735.0	19.1	1739.8	11.8	1745.7	12.1	1745.7	12.1	99.4
-#7 PL3 Spot 99	269	66215	3.4	9.3541	0.8	4.5972	1.5	0.3120	1.2	0.83	1750.6	18.8	1748.8	12.3	1746.5	15.0	1746.5	15.0	100.2
-#7 PL3 Spot 47	103	70569	1.2	9.2739	0.9	4.7619	1.5	0.3204	1.2	0.82	1791.8	18.8	1778.2	12.4	1762.2	15.5	1762.2	15.5	101.7

-#7 PL3 Spot 36	66	25503	1.5	9.2397	1.0	4.7343	1.6	0.3174	1.3	0.79	1777.0	20.1	1773.3	13.8	1769.0	18.5	1769.0	18.5	100.5
-#7 PL3 Spot 124	158	56665	2.0	9.2265	1.0	4.6448	1.5	0.3109	1.1	0.74	1745.4	16.9	1757.4	12.4	1771.6	18.3	1771.6	18.3	98.5
-#7 PL3 Spot 81	857	54864	3.0	9.1680	0.9	4.1755	2.1	0.2778	2.0	0.92	1580.1	27.5	1669.2	17.5	1783.2	15.6	1783.2	15.6	88.6
-#7 PL3 Spot 39	340	141455	4.9	9.1419	0.8	4.6471	1.3	0.3083	1.1	0.82	1732.1	16.3	1757.8	11.0	1788.4	13.9	1788.4	13.9	96.9
-#7 PL3 Spot 71	185	69395	1.5	9.1344	0.8	4.7581	1.3	0.3154	1.0	0.79	1767.0	15.8	1777.5	10.9	1789.9	14.5	1789.9	14.5	98.7
-#7 PL3 Spot 234	492	113399	4.2	9.0682	0.8	4.7228	1.4	0.3108	1.2	0.82	1744.4	18.1	1771.3	12.1	1803.1	14.8	1803.1	14.8	96.7
-#7 PL3 Spot 60	392	994692	2.2	9.0110	0.7	4.8744	1.6	0.3187	1.4	0.88	1783.4	21.9	1797.8	13.4	1814.6	13.5	1814.6	13.5	98.3
-#7 PL3 Spot 19	36	282751	4.0	9.0105	1.0	5.0719	1.7	0.3316	1.4	0.82	1846.1	22.3	1831.4	14.4	1814.8	17.8	1814.8	17.8	101.7
-#7 PL3 Spot 108	435	232723	3.3	8.9989	0.8	5.1197	1.5	0.3343	1.3	0.87	1859.2	21.3	1839.4	13.0	1817.1	13.8	1817.1	13.8	102.3
-#7 PL3 Spot 200	248	434094	3.0	8.9964	0.8	4.9755	1.6	0.3248	1.4	0.88	1813.0	22.6	1815.2	13.7	1817.6	14.0	1817.6	14.0	99.7
-#7 PL3 Spot 24	264	42590	3.8	8.9858	0.7	4.5671	1.5	0.2978	1.4	0.89	1680.3	20.2	1743.3	12.8	1819.7	12.7	1819.7	12.7	92.3
-#7 PL3 Spot 45	49	23160	2.4	8.9775	0.7	4.3899	1.5	0.2860	1.3	0.89	1621.3	19.2	1710.4	12.5	1821.4	12.6	1821.4	12.6	89.0
-#7 PL3 Spot 228	76	219728	3.4	8.9749	0.8	4.9098	1.5	0.3197	1.2	0.83	1788.4	19.1	1803.9	12.5	1821.9	15.1	1821.9	15.1	98.2
-#7 PL3 Spot 143	501	46819	1.0	8.9658	0.8	4.6379	1.6	0.3017	1.4	0.85	1699.8	20.6	1756.1	13.5	1823.8	15.2	1823.8	15.2	93.2
-#7 PL3 Spot 169	171	117601	0.9	8.9559	0.8	5.0492	1.4	0.3281	1.1	0.80	1829.2	17.8	1827.6	11.8	1825.8	15.0	1825.8	15.0	100.2
-#7 PL3 Spot 137	48	61934	0.9	8.9419	0.9	5.1270	1.6	0.3326	1.3	0.84	1851.2	21.5	1840.6	13.5	1828.6	15.5	1828.6	15.5	101.2
-#7 PL3 Spot 173	340	298934	2.1	8.9036	0.6	5.1694	1.3	0.3340	1.1	0.86	1857.5	17.6	1847.6	10.8	1836.4	11.5	1836.4	11.5	101.2
-#7 PL3 Spot 209	180	1462835	0.9	8.7458	0.8	5.0167	1.6	0.3184	1.4	0.87	1781.7	21.6	1822.1	13.6	1868.7	14.4	1868.7	14.4	95.3
-#7 PL3 Spot 174	1180	87901	4.3	8.5887	0.7	4.7385	1.3	0.2953	1.1	0.84	1668.0	16.5	1774.1	11.2	1901.3	13.2	1901.3	13.2	87.7
-#7 PL3 Spot 1	138	338601	1.6	8.5120	0.8	5.6689	1.8	0.3501	1.6	0.90	1935.2	26.5	1926.6	15.2	1917.5	13.8	1917.5	13.8	100.9
-#7 PL3 Spot 154	165	1328013	1.2	8.1461	0.8	6.0609	1.3	0.3582	1.1	0.79	1973.8	18.1	1984.6	11.7	1995.9	14.5	1995.9	14.5	98.9
-#7 PL3 Spot 191	162	142909	1.6	8.1242	0.8	6.1634	1.7	0.3633	1.5	0.87	1997.9	25.4	1999.3	14.8	2000.7	14.8	2000.7	14.8	99.9
-#7 PL3 Spot 148	128	51995	1.8	8.1084	0.7	6.1979	1.2	0.3646	0.9	0.80	2004.1	16.3	2004.1	10.3	2004.2	12.5	2004.2	12.5	100.0
-#7 PL3 Spot 61	697	65260	1.4	8.0229	0.7	5.6691	1.3	0.3300	1.0	0.82	1838.5	16.8	1926.7	11.1	2022.9	13.1	2022.9	13.1	90.9
-#7 PL3 Spot 134	426	275041	2.7	7.9443	0.7	6.1982	1.5	0.3573	1.3	0.88	1969.3	22.4	2004.2	13.1	2040.4	12.6	2040.4	12.6	96.5
-#7 PL3 Spot 55	645	3172	3.6	7.2649	0.8	1.7946	3.2	0.0946	3.1	0.97	582.7	17.2	1043.5	20.8	2197.0	13.9	2197.0	13.9	26.5
-#7 PL3 Spot 3	448	241225	1.7	7.1947	0.7	6.7124	1.4	0.3504	1.2	0.87	1936.6	20.0	2074.3	12.2	2213.9	12.0	2213.9	12.0	87.5
-#7 PL3 Spot 98	85	85107	1.3	6.3794	1.0	9.7249	1.8	0.4501	1.5	0.84	2395.9	29.4	2409.1	16.1	2420.2	16.2	2420.2	16.2	99.0
-#7 PL3 Spot 11	225	984949	4.2	6.1363	0.9	10.2702	1.5	0.4573	1.2	0.80	2427.5	24.6	2459.4	14.1	2485.9	15.4	2485.9	15.4	97.6
-#7 PL3 Spot 102	96	33385	0.9	6.0184	0.8	11.0691	1.4	0.4834	1.1	0.81	2542.0	23.3	2529.0	12.8	2518.5	13.6	2518.5	13.6	100.9
-#7 PL3 Spot 131	659	1805711	2.1	6.0044	0.6	10.8907	1.4	0.4745	1.3	0.90	2503.1	26.7	2513.8	13.2	2522.5	10.2	2522.5	10.2	99.2
-#7 PL3 Spot 119	169	118703	2.6	5.9915	0.8	10.8524	1.4	0.4718	1.2	0.81	2491.4	23.8	2510.6	13.2	2526.1	14.0	2526.1	14.0	98.6
-#7 PL3 Spot 65	44	64608	0.8	5.7417	1.0	11.8345	1.6	0.4930	1.3	0.79	2583.8	27.6	2591.4	15.4	2597.3	17.0	2597.3	17.0	99.5
-#7 PL3 Spot 125	95	47188	0.8	5.6467	0.8	11.8780	1.2	0.4867	1.0	0.77	2556.2	20.1	2594.8	11.6	2625.1	13.1	2625.1	13.1	97.4
-#7 PL3 Spot 49	272	54357	1.9	5.4405	1.0	10.5158	1.8	0.4151	1.5	0.84	2238.3	28.6	2481.3	16.7	2686.8	16.1	2686.8	16.1	83.3
-#7 PL3 Spot 118	166	419517	1.0	5.3109	0.8	13.9721	1.3	0.5384	1.1	0.81	2776.8	23.8	2747.8	12.4	2726.6	12.6	2726.6	12.6	101.8
-#7 PL3 Spot 187	70	2905876	0.7	5.3046	0.9	13.5393	1.6	0.5211	1.3	0.81	2703.9	29.0	2718.0	15.2	2728.5	15.4	2728.5	15.4	99.1
-#7 PL3 Spot 64	201	144182	1.8	5.2577	0.8	13.9815	1.8	0.5334	1.6	0.90	2755.7	36.2	2748.5	17.1	2743.1	13.1	2743.1	13.1	100.5
-#7 PL3 Spot 66	22	459109	1.3	5.1715	0.9	14.4450	1.3	0.5420	1.0	0.75	2791.9	22.7	2779.4	12.6	2770.3	14.3	2770.3	14.3	100.8
-#7 PL3 Spot 52	43	62057	0.8	5.1232	0.8	14.5535	1.4	0.5410	1.2	0.81	2787.7	26.3	2786.5	13.6	2785.7	13.8	2785.7	13.8	100.1
-#7 PL3 Spot 70	624	2713504	95.6	5.0584	0.9	13.1693	1.8	0.4834	1.6	0.87	2541.9	32.6	2691.9	16.9	2806.5	14.5	2806.5	14.5	90.6
-#7 PL3 Spot 189	317	272984	2.2	4.9099	0.7	15.1222	1.4	0.5387	1.2	0.85	2778.1	27.4	2823.0	13.6	2855.1	12.1	2855.1	12.1	97.3
-#7 PL3 Spot 185	380	285880	0.8	4.8368	0.8	15.9290	1.5	0.5590	1.3	0.85	2862.6	30.1	2872.5	14.7	2879.5	13.2	2879.5	13.2	99.4
-#7 PL3 Spot 34	73	140139	1.1	4.6404	0.9	17.4771	1.6	0.5885	1.3	0.81	2983.2	30.1	2961.4	15.0	2946.6	14.9	2946.6	14.9	101.2

1. Analyses with >10% uncertainty (1-sigma) in 206Pb/238U age are not included.
2. Analyses with >10% uncertainty (1-sigma) in 206Pb/207Pb age are not included, unless 206Pb/238U age is <400 Ma.
3. Best age is determined from 206Pb/238U age for analyses with 206Pb/238U age <900 Ma and from 206Pb/207Pb age for analyses with 206Pb/238Uage >900 Ma.
4. Concordance is based on 206Pb/238U age / 206Pb/207Pb age. Value is not reported for 206Pb/238U ages <400 Ma because of large uncertainty in 206Pb/207Pb age.
5. Analyses with 206Pb/238U age >400 Ma and with >20% discordance (<80% concordance) are not included.
6. Analyses with 206Pb/238U age >400 Ma and with >5% reverse discordance (<105% concordance) are not included.
7. All uncertainties are reported at the 2-sigma level, and include only measurement errors.
8. Systematic errors are as follows (at 2-sigma level): [sample 1: xxx% (206Pb/238U) & xxx% (206Pb/207Pb)]
9. Analyses conducted by LA-ICPMS, as described by Gehrels et al. (2008) and Gehrels and Pecha (2014).
10. U concentration and U/Th are calibrated relative to FC-1 zircon standard and are accurate to ~20%.
11. Common Pb correction is from measured 204Pb with common Pb composition interpreted from Stacey and Kramers (1975).
12. Common Pb composition assigned uncertainties of 1.5 for 206Pb/204Pb, 0.3 for 207Pb/204Pb, and 2.0 for 208Pb/204Pb.
13. U/Pb and 206Pb/207Pb fractionation is calibrated relative to fragments of large Sri Lanka zircons and individual crystals of FC-1, and R33.
14. U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U/235U = 137.82.
15. Weighted mean and concordia plots determined with Isoplot (Ludwig, 2008).

Aliquot Name	RR1_20
Stratigraphic Formation Name	
Stratigraphic Age	
Rock Type	
Mineral	Zircon
Method	U-Pb
Latitude	
Longitude	
Internal Uncertainty Level	one sigma
External Uncertainty 206/238 (% two sigma)	1.157733168
External Uncertainty 206/207 (% two sigma)	1.108236189
Analysis Purpose	
Laboratory Name	Arizona LaserChron Center
Analyst Name	
Aliquot Reference	
Aliquot Instrumental Method	LA-ICPMS
Aliquot Instrumental Reference	Gehrels, G.E., Valencia, V., Ruiz, J., 2008, Enhanced precision, accuracy, efficiency, and spatial resolution of U-Pb ages by laser ablation-multicollector-inductively coupled plasma-mass spectrometry: Geochemistry, Geophysics, Geosystems, v. 9, Q03017, doi:10.1029/2007GC001805. Gehrels, G. and Pecha, M., 2014, Detrital zircon U-Pb geochronology and Hf isotope geochemistry of Paleozoic and Triassic passive margin strata of western North America: Geosphere, v. 10 (1), p. 49-65.

				Isotope ratios								Apparent ages (Ma)							
Analysis	U (ppm)	206Pb 204Pb	U/Th	206Pb* 207Pb*	± (%)	207Pb* 235U	± (%)	206Pb* 238U	± (%)	error corr.	206Pb* 238U	± (Ma)	207Pb* 235U	± (Ma)	206Pb* 207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)
Spot 1	2668.552812	8065.959359	18.46839426	10.87794501	0.720249778	1.132960318	1.430675345	0.091173316	1.235852039	0.863824238	562.4725502	6.656697988	769.1636649	7.716338784	1428.162936	13.76047665	1428.162936	13.76047665	39.38434026
Spot 2	141.243248	10056.46905	0.611515591	18.07421806	1.094537283	0.490860061	3.362121628	0.066134623	3.155333863	0.938494859	412.8258243	12.61772084	405.4964465	11.24040314	363.9384786	26.17803803	412.8258243	12.61772084	113.4328598
Spot 3	234.7933279	59020.93599	3.156674792	9.829523809	0.70345498	4.10409108	1.35472077	0.293497885	1.157314814	0.854282919	1658.985254	16.92816833	1655.11742	11.06102702	1650.195582	13.05604793	1650.195582	13.05604793	100.5326442
Spot 4	116.1158848	18737.59276	1.39687552	9.718240931	1.01583891	4.312412917	3.040745562	0.306382503	2.865755899	0.942451725	1722.880704	43.3268928	1695.736551	25.06840671	1662.328805	18.8184662	1662.328805	18.8184662	103.6425946
Spot 5	230.7885176	16334.86368	1.560770395	11.01862416	0.768122425	2.90814551	1.859219014	0.234804962	1.692448775	0.910300918	1359.63276	20.74646662	1384.031038	14.04861728	1421.83852	14.70579512	1421.83852	14.70579512	95.62497711
Spot 6	252.4330504	192333.4995	1.741885677	11.48193619	0.758932251	2.737602913	1.296372005	0.228355406	1.050993364	0.81071896	1325.874012	12.59522666	1338.726175	9.641617585	1359.315968	14.62726382	1359.315968	14.62726382	97.53979525
Spot 7	238.6775933	4987.461472	6.425637929	19.00055616	2.626661979	0.182173833	2.849350709	0.02661684	1.030665679	0.361719488	169.339401	1.722598794	169.9294059	4.458443464	178.1290322	61.96672206	169.339401	1.722598794	95.06558187
Spot 8	126.3931307	33203.63252	2.610667805	5.422385663	0.600542501	12.5241686	1.376445864	0.493925915	1.237993439	0.899413098	2587.638982	26.38588868	2644.54318	12.94347525	2688.359044	9.942786219	2688.359044	9.942786219	96.25347432
Spot 9	385.6283819	73626.35634	4.015787171	13.56887717	0.622553252	1.737177556	1.123978892	0.171631812	0.935362995	0.832189112	1021.095812	8.832940258	1022.416917	7.243303321	1025.228037	12.60843013	1025.228037	12.60843013	99.59694574
Spot 10	400.238383	176618.3296	3.280377856	10.48274135	0.6028305	3.010143674	1.334505628	0.22864122	1.190586772	0.892155677	1327.373795	14.2826705	1410.19147	10.17166714	1537.625651	11.34161324	1537.625651	11.34161324	86.32620001
xx	3289.97809	85405.69912	0.941510924	18.62266183	0.589736659	0.436223327	1.039667617	0.059002699	0.855777778	0.823126319	369.5575533	3.073647481	367.5859051	3.206363681	355.1705792	13.33392335	369.5575533	3.073647481	104.0507224
Spot 11	257.8946106	29927.5986	4.34000232	9.983658666	0.584734638	3.964088268	1.130731048	0.287848212	0.967642451	0.855767118	1630.767269	13.94224312	1626.876833	9.168638561	1621.830671	10.88401662	1621.830671	10.88401662	100.5510192
Spot 14	2041.76521	2051257.557	5.457187435	11.07536637	0.518927141	3.020963291	1.069312453	0.241217397	0.934956546	0.874352995	1393.022853	11.7130739	1412.927348	8.157540123	1443.049561	9.887107653	1443.049561	9.887107653	96.5332647
Spot 15	93.90290226	33145.74636	1.881870633	18.12159585	1.943899989	0.516865356	2.989885368	0.068064863	2.27169755	0.759794196	424.4865219	9.332421907	423.0552265	10.34498502	415.2415976	43.45338389	424.4865219	9.332421907	102.2263965
Spot 16	84.63866153	18196.79539	0.99790998	8.128134642	0.686387592	6.136148775	2.559960061	0.361698654	2.465645812	0.963157922	1990.220342	42.22026842	1995.403608	22.35451464	2000.758382	12.22823557	2000.758382	12.22823557	99.47329776
Spot 17	345.7891218	81758.52915	36.10699084	5.588380678	0.480397456	13.23642741	1.312513543	0.533687447	1.221425144	0.930600031	2756.969745	27.39919488	2696.658365	12.39153271	2651.748072	7.96984002	2651.748072	7.96984002	103.9680117
Spot 18	133.5885873	380056.7113	1.994031713	11.60828835	0.741828149	2.686878733	1.653155107	0.224944001	1.477366784	0.893664955	1307.94604	17.48903238	1324.851732	12.23358489	1352.277201	14.31257589	1352.277201	14.31257589	96.72174008
Spot 19	265.3789134	1361290.176	2.601340555	9.425837161	0.63998964	4.530801214	1.203324614	0.308153904	1.019020798	0.846837824	1731.615857	15.47429672	1736.642829	10.0095312	1742.684761	11.7259145	1742.684761	11.7259145	99.36483609
Spot 20	101.418839	48515.15469	1.219026495	10.530411	0.767134778	3.249051319	1.417846147	0.247594511	1.192008623	0.840717891	1426.058378	15.24986396	1468.950336	11.00881641	1531.484115	14.45411074	1531.484115	14.45411074	93.11610642
Spot 24	137.763269	69328.56238	1.547282851	9.942877719	0.671258225	4.09337564	1.936658675	0.294226005	1.816531917	0.937972159	1662.612969	26.62162983	1652.983501	15.80498043	1640.74903	12.46424198	1640.74903	12.46424198	101.3325585
Spot 25	183.9450461	186205.7478	3.135100378	13.76659855	2.398153497	1.801109176	4.592326246	0.179078515	3.916415058	0.852817254	1061.938524	38.345358	1045.860256	29.99155064	1012.405863	48.61689302	1012.405863	48.61689302	104.8925695
xx	815.8754726	39859.08701	5.741225984	17.35095881	1.354958584	0.76436524	2.137033656	0.096293889	1.650659002	0.772406647	592.6530194	9.346469834	576.5253475	9.400828231	513.4425802	29.81025555	592.6530194	9.346469834	115.4273218
Spot 26	103.4805739	61431.58253	3.372680331	7.956107539	0.600402419	6.51491802	1.82841573	0.374605155	1.727019107	0.944544	2051.033228	30.3399133	2047.916042	16.09629582	2044.762172	10.61026808	2044.762172	10.61026808	100.3066888
Spot 27	162.7558411	479950.8669	1.185900858	5.562908806	0.964444472	10.74632715	2.312478999	0.431363463	2.101762579	0.908878558	2311.861148	40.83204193	2501.437385	21.48475868	2659.128627	15.98810105	2659.128627	15.98810105	86.94055356
Spot 28	630.2973164	27755.13478	1.68436183	11.79468846	0.637936835	2.28653506	1.444111357	0.195741233	1.294102438	0.896123718	1152.401428	13.65628665	1208.137114	10.20198788	1309.15736	12.43831092	1309.15736	12.43831092	88.02619634
Spot 29	899.3749528	97371.974	1.821210591	20.57553272	1.335206326	0.095866268	1.564600695	0.01424222	0.815499529	0.521218948	91.16359302	0.738206604	92.9534074	1.389766903	139.11598	31.34239117	91.16359302	0.738206604	65.5306407
Spot 30	63.12101029	15521.01331	2.163993851	13.15486315	1.816706986	1.943186582	2.573995159	0.186235865	1.81704653	0.70592461	1100.951847	18.38982948	1096.098762	17.25743153	1086.477788	36.54746141	1086.477788	36.54746141	101.3322002
Spot 31	142.3350522	12699.10217	1.226797173	9.291510285	2.362433634	3.948446047	4.522147573	0.266732431	3.855640417	0.852612692	1524.194654	52.33776891	1623.672232	36.65393432	1755.093145	43.23713331	1755.093145	43.23713331	86.84408906
Spot 34	56.19474722	18356.12523	1.113124511	5.425496134	0.726711297	12.68166824	2.548283101	0.496844225	2.441525905	0.958106226	2600.219448	52.24355121	2656.299794	23.98809189	2699.274726	12.05030772	2699.274726	12.05030772	96.33030027
Spot 36	376.0438498	59682.39464	2.665932981	17.40723145	1.241012167	0.570716707	1.720340756	0.071552376	1.190821939	0.692201202	445.5014703	5.125966685	458.4779578	6.347062408	524.0240497	27.2218078	445.5014703	5.125966685	85.01546265
Spot 37	369.8181601	33479.75854	2.495402383	9.387117748	0.546277286	4.502773408	1.062185671	0.30430053	0.910761659	0.857441108	1712.598902	13.69773111	1731.484207	8.825508716	1754.364276	10.00144777	1754.364276	10.00144777	97.61934426
Spot 39	40.76255852	44371.15913	0.972957406	5.495768278	0.734018644	12.54192601	1.311201019	0.496699558	1.0862997	0.828476858	2599.596386	23.2396129	2645.875518	12.33117146	2681.448615	12.14367698	2681.448615	12.14367698	96.94746233
Spot 40	411.5463755	17626.11982	5.472956037	10.83465635	3.749887574	0.534556431	4.333220959	0.042027888	2.169188942	0.500595045	265.3905383	5.639932756	434.8290288	15.32796246	1472.468695	71.21145547	265.3905383	5.639932756	18.02350972
Spot 41	97.62740409	23093.09299	2.280705594	10.08965657	0.652553077	3.820757701	1.376864347	0.279023532	1.210804363	0.879392632	1586.442682	17.02768038	1597.127598	11.08083527	1611.238952	12.21306368	1611.238952	12.21306368	98.46104328
Spot 42	822.2140887	12652.94693	1.391473697	20.18711668	1.264308714	0.160822858	2.779220197	0.023919282	2.456276145	0.88380048	152.3783882	3.698944912	151.4231755	3.909640634	136.4709761	30.55205671	152.3783882	3.698944912	111.6562602
Spot 43	72.75141399	170575.8559	2.118146255	6.369587423	0.911095997	9.989999465	1.555682643	0.458011158	1.260972382	0.810558881	2430.770583	25.53531753	2433.858679	14.35977591	2436.42597	15.43459955	2436.42597	15.43459955	99.76788183
Spot 44	297.1052358	31968.30151	1.978190175	9.083091802	0.784898842	4.750601771	1.36194762	0.311640432	1.111435061	0.816063001	1748.774164	17.02324346	1776.21415	11.42467817	1808.602746	14.30556982	1808.602746	14.30556982	96.69199983
Spot 45	49.87872322	24356.40404	0.75321398	13.3134068	1.52312024	1.833419511	2.266624147	0.176983173	1.678272919	0.740428413	1050.472404	16.26834738	1057.505498	14.89332044	1072.070867	30.60635916	1072.070867	30.60635916	97.9853512
Spot 46	144.8076792	18154.75223	1.555335525	17.41572448	1.514945852	0.559343991	2.538920691	0.071094673	2.015458743	0.79382501	442.7473584	8.623857588	451.0993699	9.247580044	493.8885314	34.05958425	442.7473584	8.623857588	89.64519933
Spot 47	103.8836167	37105.67794	0.821261732	5.518880556	0.773410544	11.77869577	1.654349595	0.468652579	1.462275675	0.883897623	2477.649428	30.08032693	2586.972017	15.4846552	2673.735614	12.80806683	2673.735614	12.80806683	92.66620887
Spot 48	157.2005158	29948.81835	1.46298871	10.70083612	0.74780817	3.402684552	1.346524578	0.263335293	1.115678692	0.828561699	1506.883364	14.99162006	1505.015465	10.56729896	1502.370441	14.25055681	1502.370441	14.25055681	100.3003869
Spot 49	85.92543634	25139.30405	1.588206675	5.340450707	0.648106941	13.35826813	1.758910159	0.513817481	1.63405251	0.929014198	2672.906323	35.75394985	2705.311421	16.61729904	2729.595867	10.71512871	2729.595867	10.71512871	97.92315247
Spot 50	365.0186414	19171.27044	1.553136655	18.81098642	1.719650655	0.289097666	2.419557832	0.039638201	1.693729066	0.699829962	250.589968	4.161774162	257.8489005	5.50971257	324.3948927	39.22823719	250.589968	4.161774162	77.24843196
Spot 52	57.70206999	3171.769353	1.355997735	20.70939375	1.964444522	0.693199687	3.155302168	0.114199239	1.649729715	0.522843654	697.0892863	10.90013228	534.7210689	13.11732273	NA	NA	697.0892863	10.90013228	
Spot 53	292.5784842	139026.1714	2.279673013	12.90294228	0.523773856	2.071554735	1.19504779	0.192389606	1.074120104	0.898809331	1134.306951	11.17210242	1139.446476	8.183945751	1149.228204	10.40387851	1149.228204	10.40387851	98.70162834
Spot 54	363.9823041	16553.51754	2.22807121	9.185363467	0.545000542	4.404907353	1.143899944	0.293054952	0.987159785	0.862977387	1656.777426	14.42243091	1713.263248	9.46627368	1783.003352	10.53607901	1783.003352	10.53607901	92.92060072
Spot 55	429.2145366	23297.75197	2.072712101	17.70520525	0.866252327	0.531858158	1.454107836	0.068447209	1.145805375	0.787978269	426.7937955	4.73185918	433.0420681	5.126340943	466.4361045	19.82979238	426.7937955	4.73185918	91.50102048
Spot 56	146.9876298	83449.83951	1.690570865	11.06572189	0.949116052	3.18053578	1.564469867	0.253854191	1.243570735	0.794883149	1458.321742	16.23031385	1452.443941	12.0860939	1443.835366	18.0846221	1443.835366	18.0846221	101.0033261
Spot 57	95.62854299	32798.74825	1.947938804	6.150602957	0.604872723	10.57700945	1.22347766	0.469462087	1.063057962	0.868882201	2481.201655	21.89368975	2486.694611	11.35038383	2491.171889	10.20520976	2491.171889	10.20520976	99.59977736
Spot 58	118.6626439	27308.12316	3.011047646	9.406237408	0.721759386	4.330865794	1.505149924	0.294671049	1.317173761	0.875111336	1664.829308	19.32593923	1699.257413	12.41676026	1741.970667	13.34678749	1741.970667	13.34678749	95.57160404
Spot 59	1347.138548	63116.29661	6.805954178	21.05255829	1.475184543	0.09197041	2.694736659	0.013992211	2.254713269	0.836710059	89.57436641	2.005678246	89.33723932	2.304539947	82.98321269	35.03128128	89.57436641	2.005678246	107.9427555
Spot 60	441.1505039	61191.52751	0.599712298	6.087400846	0.748992646	8.417651315	1.532744025	0.368942862	1.337256747	0.872459279	2024.424228	23.23318093	2277.083544	13.91153461	2512.364242	12.59196152	2512.364242	12.59196152	80.57845251
Spot 61	265.2620914	62292.6761	1.335198186	13.22022014	0.727635487	1.870211566	2.975798863	0.178385306	2.885280075	0.969581685	1058.147405	28.15663183	1070.605416	19.69086296	1096.089833	14.58026275	1096.089833	14.58026275	96.53838338
Spot 62	241.4913712	7085.300723	1.904047604	17.92149745	4.194532162	0.120891364	4.637298686	0.016183773	1.958075841	0.422244926	103.4921012	2.010274038	115.8798088	5.078440365	378.3897704	94.59312742	103.4921012	2.010274038	27.35066044
Spot 64	53.83363557	12642.99285	1.7662792	12.53076234	2.194210514	1.960664289	2.61958968	0.178940447	1.346202636	0.513898282	1061.183616	13.1718233	1102.110641	17.61654866	1183.839093	44.41233251	1183.839093	44.41233251	89.63917673
Spot 65	835.7222045	249251.2473	5.043259753	9.676463296	0.614838588	4.339606847	1.307401404	0.301592376	1.153806131	0.882518657	1699.200125	17.23445067	1700.920979	10.78937548	1703.026809	11.32133315	1703.026809	11.32133315	99.77530102
Spot 66	292.6814044	159733.9028	1.843178861	10.83340805	0.652627153	3.211463153	1.342971795	0.249976993	1.173725359	0.87397618	1438.357105	15.1315533	1459.928039	10.39876883	1491.439441	12.35424383	1491.439441	12.35424383	96.44086546
Spot 67	133.3428853	29008.82966	1.504556968	17.00286205	1.339988395	0.601067564	1.914448699	0.073991044	1.367039021	0.714064065	460.1557287	6.07124477	477.9109854	7.297847014	564.0210635	29.19918561	460.1557287	6.07124477	81.58484824
Spot 68	2011.54285	7133.617741	4.239462924	20.13911665	1.976190434	0.046936294	3.138377506	0.007081128	1.494082661	0.476068497	45.4870227	0.677221615	46.57367489	1.428643661	102.9002104	65.2620435	45.4870227	0.677221615	44.20498514
Spot 69	136.3171652	30900.25547	1.063868268	11.17780231	0.647225354	2.812972882	1.553209627	0.226869868	1.411554588	0.908798506	1318.073187	16.82655417	1358.997988	11.63538671	1423.949473	12.37935534	1423.949473	12.37935534	92.56460372
Spot 70	248.6440207	14152.15535	2.561031353	18.19099961	1.477123469	0.40771037	2.027963391	0.054262204	1.309654035	0.645797671	340.6361928	4.345338847	347.2249923	5.963942721	391.5226838	34.74649689	340.6361928	4.345338847	87.0029265
Spot 71	403.5978774	34360.13217	0.932503016	20.37480454	1.193865423	0.176710867	1.609228763	0.026078255	1.078937338	0.670468589	165.9565886	1.767715961	165.2263242	2.453816236	154.7998107	27.93564256	165.9565886	1.767715961	107.2072297
Spot 72	129.3064303	52330.53765	3.020039478	9.144557838	0.55201537	4.963700628	1.835130228	0.327102354	1.750070983	0.953649477	1824.321574	27.80710732	1813.160582	15.51030446	1800.341644	10.04744045	1800.341644	10.04744045	101.3319656
Spot 73	300.2929653	26442.73087	2.786967872	12.17118114	0.74498516	2.425329509	1.732595801	0.213605515	1.558920436	0.899760022	1247.998023	17.68797703	1250.137253	12.45711149	1253.842545	14.79023853	1253.842545	14.79023853	99.53387116
Spot 75	42.64438708	23168.98374	0.747264968	13.50900311	4.575846656	1.030128722	5.06194847	0.100883746	2.164437567	0.427589807	619.585897	12.78626134	718.9919288	26.08621596	1043.052752	92.36950689	619.585897	12.78626134	59.40120437
Spot 76	265.4715736	30713.075	42.19886964	9.11951695	0.621073398	4.259622115	2.293307875	0.280558399	2.207273733	0.962484696	1594.173936	31.17465612	1685.595962	18.86074084	1801.28792	11.32029877	1801.28792	11.32029877	88.50189462

Spot 77	41.70497294	5989.953707	2.164963953	9.4133716	1.497045104	4.281778745	2.515019714	0.296080256	1.996494911	0.793828732	1671.842203	29.40133001	1689.86437	20.70501313	1712.282305	28.13421198	1712.282305	28.13421198	97.63823396
Spot 78	2607.894705	265612.4488	2.938566175	5.242296773	0.599368949	11.85678631	1.409729084	0.446894721	1.27596724	0.905115213	2381.432319	25.40553067	2593.158135	13.20154036	2762.983889	9.8400449	2762.983889	9.8400449	86.19059735
Spot 79	117.6925193	186802.4459	1.73961477	3.957999978	0.482500554	21.79838215	1.237992467	0.620313718	1.140095632	0.920922915	3111.167019	28.13678824	3174.787607	12.01955614	3215.231105	7.616788808	3215.231105	7.616788808	96.76340261
Spot 80	257.0007953	27502.68246	1.445036843	16.72994368	1.726894493	0.858055926	2.734624509	0.104103995	2.113911566	0.773017121	638.4150966	12.84881306	629.0610144	12.82352771	595.5768768	37.61072787	638.4150966	12.84881306	107.1927272
Spot 81	171.7692836	117068.6979	1.857945019	9.655216744	0.81159394	4.211597655	1.621353711	0.29271147	1.403596832	0.865694402	1655.064802	20.48802927	1676.282135	13.3048055	1702.929731	14.94528631	1702.929731	14.94528631	97.18925989
Spot 82	57.39135633	5939.14469	1.649403338	15.45514264	2.146264858	0.981507805	3.262015316	0.113326878	1.54429933	0.473418786	692.0400982	10.1335188	694.3778979	16.40784995	701.9749389	61.15906273	692.0400982	10.1335188	98.58473
Spot 84	108.6478068	19345.29801	1.736712807	9.165717712	0.752831652	4.815840454	1.54989346	0.319339653	1.346450662	0.86873756	1786.503457	21.00905032	1787.668485	13.03212417	1789.0112	13.98418322	1789.0112	13.98418322	99.85982519
Spot 85	173.6312779	12018.33875	1.234853841	16.15643365	1.093490009	0.906132789	1.953227197	0.107319086	1.605723038	0.82208718	657.1594291	10.03213518	654.9997173	9.428309892	647.5885895	23.90873602	657.1594291	10.03213518	101.4779197
Spot 86	110.4448172	42646.68852	2.877446899	9.990784191	0.701744107	3.240212719	2.010960655	0.233651106	1.884370981	0.937050149	1353.606133	23.00710348	1466.836003	15.60463272	1634.784787	13.0452139	1634.784787	13.0452139	82.80026486
Spot 87	216.2072033	37350.4894	2.53699801	11.55861761	0.627762001	2.714200727	1.424095696	0.227013032	1.27697941	0.896694944	1318.825377	15.23016197	1332.348589	10.56723475	1354.131429	12.15812867	1354.131429	12.15812867	97.39271602
Spot 88	126.7705042	51187.50679	0.924563538	9.902601781	0.913728573	4.141517819	2.323762678	0.296265004	2.136156345	0.919266139	1672.761036	31.47322524	1662.535748	19.00818281	1649.628486	16.95892833	1649.628486	16.95892833	101.4022885
Spot 89	535.7579233	13832.69318	0.993244279	9.584905799	1.22260296	3.968646315	2.386413787	0.276686065	2.049259929	0.858719448	1574.650825	28.6299954	1627.808734	19.35675614	1697.194417	22.5368941	1697.194417	22.5368941	92.77963733
Spot 90	235.3012284	11646.23706	2.058459896	9.146637423	0.615640466	4.078459241	1.820704684	0.271671754	1.713391539	0.941059554	1549.28204	23.5964258	1650.0055	14.84788274	1780.752397	11.23006082	1780.752397	11.23006082	87.00154173
Spot 91	195.6312145	90154.96686	1.278069011	6.289313994	0.435510491	9.869468219	1.340271771	0.447597951	1.267509277	0.945710642	2384.564689	25.26455806	2422.661094	12.35747323	2454.80847	7.36672788	2454.80847	7.36672788	97.13852293
Spot 92	63.54349707	30516.0617	2.085904745	17.22975884	2.969539641	0.743757508	5.624218544	0.093088445	4.774472895	0.848913117	573.776797	26.21117586	564.5958999	24.36243526	527.7958432	65.14115331	573.776797	26.21117586	108.7118825
Spot 93	62.74523503	15922.12318	0.82832694	5.409429256	0.622865163	13.46434806	1.646588276	0.527460311	1.522553069	0.924671389	2730.74249	33.89335016	2712.785569	15.56450843	2699.424557	10.3541208	2699.424557	10.3541208	101.1601707
Spot 94	59.01889249	400275.4235	3.65580761	12.39836089	4.354850655	2.18777482	6.188630438	0.195720324	4.397092476	0.7105114	1152.288706	46.39782467	1177.157054	43.15198648	1223.146562	85.60272731	1223.146562	85.60272731	94.2069203
Spot 95	225.5921092	14740.94847	1.956424086	9.339807248	0.87557239	4.401649454	1.738455472	0.299087797	1.501174835	0.863510662	1686.783712	22.27980577	1712.651024	14.38505716	1744.412119	16.06130553	1744.412119	16.06130553	96.69639954
Spot 97	1080.194246	12761.5096	2.036955567	20.74640412	1.093138901	0.091056493	1.755106666	0.013988917	1.325111053	0.755003145	89.55342791	1.17847774	88.4870653	1.487296026	59.80094155	27.43280053	89.55342791	1.17847774	149.7525383
Spot 98	201.9730476	75075.73466	5.003924142	8.393476388	0.571245723	5.119149219	1.220667783	0.311004446	1.078671075	0.883672929	1745.647677	16.49569506	1839.288288	10.36929513	1946.941432	10.21463541	1946.941432	10.21463541	89.66102674
Spot 99	929.2521668	55237.53702	2.145865396	9.907206276	0.643264756	3.637447333	1.494883748	0.261092769	1.348900322	0.90234463	1495.430279	18.00308788	1557.764199	11.90624893	1643.318794	11.95643647	1643.318794	11.95643647	91.00061926
Spot 100	224.4462505	35088.9782	3.766217588	12.46302219	0.796098585	2.243058762	1.478414522	0.203058547	1.245694908	0.842588387	1191.729919	13.55392402	1194.61537	10.38310154	1199.841109	15.68923141	1199.841109	15.68923141	99.32397795
Spot 101	210.4318212	28629.05119	2.925190003	13.00086821	1.252336899	2.028361256	2.332237172	0.191595977	1.966737057	0.843283471	1130.014928	20.38559122	1125.066389	15.86264401	1115.543391	25.02758962	1115.543391	25.02758962	101.2972634
Spot 102	94.60774168	825.377223	2.154284825	4.05959888	2.656565076	18.19089907	3.28242485	0.564151123	1.898960164	0.578523576	2883.759957	44.1527336	2999.884409	31.60266788	3078.65069	42.76194869	3078.65069	42.76194869	93.66960552
Spot 103	86.21331584	5372.692324	1.450559801	18.857975	2.104249284	0.456229114	2.664015454	0.065483494	1.620980908	0.608472787	408.8875516	6.422163661	381.632021	8.474811001	219.4529076	48.92596948	408.8875516	6.422163661	186.3213188
Spot 104	76.69291529	3810.577596	1.45238119	16.04305433	1.68832147	0.783238481	3.27947007	0.096615597	1.483820831	0.4524575	594.5444431	8.427383139	587.3291185	14.62676251	559.5190982	63.75603882	594.5444431	8.427383139	106.2599016
Spot 105	139.9326217	42102.17546	1.742712706	10.50386579	0.886652501	3.551171108	1.704994795	0.27027543	1.455267679	0.853532036	1542.199843	19.96048759	1538.695828	13.50911898	1533.865996	16.72057883	1533.865996	16.72057883	100.543323
Spot 106	171.8292383	52791.81438	11.34609094	14.54217748	2.356558102	0.997319594	3.36330757	0.105139423	2.39957611	0.713457232	644.4577086	14.7164144	702.4481685	17.05391597	892.6687899	48.65399172	644.4577086	14.7164144	72.19449318
Spot 107	891.6337452	173200.0341	3.595119908	9.794381891	0.530968839	4.333750597	1.384343727	0.306729681	1.27846042	0.923513716	1724.593647	19.34536125	1699.80674	11.42150605	1669.362657	9.81891091	1669.362657	9.81891091	103.3085076
Spot 108	355.9149473	207056.4061	2.596096815	13.42419047	0.76354584	1.749909457	1.354261677	0.169778481	1.118480408	0.825896817	1010.890559	10.46468073	1027.128991	8.750652446	1061.900747	15.34714839	1061.900747	15.34714839	95.19633188
Spot 109	236.7946774	40504.83848	2.658515262	11.56762586	0.692811323	2.77809365	1.53801761	0.232974857	1.371606056	0.891801269	1350.071443	16.70718978	1349.667012	11.48375446	1349.008249	13.43142167	1349.008249	13.43142167	100.0788131
Spot 110	419.9135618	28772.12311	2.428321502	19.88413636	2.624316186	0.11384962	3.726635788	0.016517598	2.645613111	0.709919955	105.6094542	2.77125548	109.4807756	3.867710749	194.5522627	61.02508431	105.6094542	2.77125548	54.28333382
Spot 111	127.4515152	37460.72655	0.921700377	10.61703991	0.76240295	3.477522851	2.089459892	0.267701393	1.944303254	0.93052911	1529.123828	26.46782854	1522.130231	16.47912923	1512.403352	14.44295879	1512.403352	14.44295879	101.1055567
Spot 113	178.6301758	194659.4133	1.661649956	8.790786296	0.545273496	5.239652542	1.662146135	0.332317434	1.570159261	0.94465777	1849.604237	25.24698637	1859.089708	14.1732485	1869.698698	9.837747151	1869.698698	9.837747151	98.92525672
Spot 115	95.15598548	52769.38048	1.175160539	8.85616203	0.771085121	5.192935099	1.814009885	0.332002594	1.641813715	0.905074293	1848.080706	26.38037199	1851.458742	15.4461207	1855.237906	13.94007455	1855.237906	13.94007455	99.61421659
Spot 117	109.1585264	33125.73664	1.18128394	15.49540559	1.355966286	1.018494429	2.282548894	0.114430477	1.834030405	0.803501037	698.4270188	12.13986835	713.1562182	11.69500217	759.7780241	28.63657268	698.4270188	12.13986835	91.92514085
Spot 118	139.199599	11314.19066	2.117076808	18.62101056	1.105699935	0.56667046	1.762911702	0.07786762	1.352299755	0.76708309	483.3822009	6.297711922	455.8589039	6.474694427	319.3887725	25.70692502	483.3822009	6.297711922	151.3460217
Spot 119	271.7480683	182892.4932	2.368106587	9.274106166	0.643026167	4.760812344	1.489538197	0.318330215	1.343590044	0.902017851	1781.569364	20.91414736	1778.015431	12.49973563	1773.830486	11.73608031	1773.830486	11.73608031	100.4362806
Spot 120	238.8420069	32145.76069	2.481103054	11.38644582	0.592175033	3.013632905	1.570783845	0.248460763	1.452737874	0.924849004	1430.532813	18.63758301	1411.074572	11.97620375	1381.796637	11.47784257	1381.796637	11.47784257	103.5270151
Spot 122	329.9838198	58198677.43	2.289849138	17.55880643	1.395682692	0.606644221	1.791833994	0.076797342	1.12371655	0.627132063	476.9779974	5.166391247	481.4415079	6.869872193	502.7376166	30.70551898	476.9779974	5.166391247	94.87613055
Spot 124	455.0218984	10047.78988	1.607452593	9.425571285	0.766419559	4.578456496	1.528153267	0.315160397	1.31767149	0.862263961	1766.050816	20.35540342	1745.354241	12.73575337	1720.633246	14.22173631	1720.633246	14.22173631	102.6395846
Spot 125	133.6772024	56652.96411	1.712240002	11.57158246	0.766163928	2.799280256	1.611271318	0.234158611	1.417354661	0.879649905	1356.25754	17.3355228	1355.345121	12.05491192	1353.887533	14.78107827	1353.887533	14.78107827	100.175052
Spot 126	62.56353281	76153.93705	2.740322289	10.49444541	1.456147867	3.110173561	2.980925504	0.235722745	2.601066419	0.872570084	1364.422352	31.98553805	1435.208668	22.90757782	1541.741846	27.3804711	1541.741846	27.3804711	88.49875587
Spot 127	1088.387297	14797.93673	2.844180509	18.68269653	2.057884489	0.105262284	2.403535079	0.014451144	1.177366498	0.489847853	92.49135324	1.081187382	101.6222452	2.324280691	321.4654689	47.61061384	92.49135324	1.081187382	28.7717849
Spot 128	72.78575382	12866.45077	2.083179834	15.48938949	3.58033003	0.574551263	4.485710058	0.065327145	2.675717901	0.596498183	407.9415356	10.57717298	460.9537688	16.62156371	734.6034365	76.2681136	407.9415356	10.57717298	55.53221172
Spot 129	243.5766908	21209.66909	1.661714768	11.19222456	0.721032007	2.884830685	1.550520807	0.234926145	1.371640816	0.884632318	1360.26538	16.82092826	1377.955426	11.69162657	1405.453942	13.84560608	1405.453942	13.84560608	96.78477106
Spot 130	277.9635374	49435.66585	2.049754247	8.852427467	0.594686313	5.311010294	1.330935272	0.340388052	1.190150979	0.894221532	1888.536103	19.48342685	1870.635908	11.37321534	1850.793676	10.77113154	1850.793676	10.77113154	102.0392563
Spot 131	144.5252543	43367.22652	2.745131966	11.36517714	0.761649434	2.83373333	1.398708112	0.233460488	1.173027247	0.838650492	1352.609986	14.312489	1364.511437	10.49807223	1383.181378	14.63385694	1383.181378	14.63385694	97.78977704
Spot 132	227.1704125	216627.5493	1.70177315	5.600137039	0.622849053	12.09023832	1.256925522	0.489165526	1.091750363	0.868587951	2567.064713	23.11832055	2611.42995	11.78816687	2645.998635	10.33484386	2645.998635	10.33484386	97.01685702
Spot 133	62.21369396	8839.427154	0.982347609	9.732755459	0.772396762	3.952929003	1.689482425	0.282091322	1.495487536	0.885174959	1601.886157	21.2115955	1624.591683	13.69199786	1654.110463	14.56465326	1654.110463	14.56465326	96.84275585
Spot 134	284.0082584	5214.458869	1.39429882	18.31261994	1.236276682	0.370834147	2.602510549	0.051723057	2.289019728	0.87954292	325.0915445	7.256892916	320.2715348	7.148655831	285.3665855	28.31818208	325.0915445	7.256892916	113.9206764
Spot 136	216.670901	29214.9364	2.334522184	13.30556395	0.819493022	1.826651987	1.766470802	0.17673686	1.562717747	0.884655294	1049.123191	15.13029253	1055.07739	11.59147522	1067.43682	16.55638252	1067.43682	16.55638252	98.28433606
Spot 138	101.3175374	9677.972967	1.132035214	16.48005689	1.743938887	0.826219533	2.512688585	0.101009081	1.802831544	0.717491039	620.31978	10.66211272	611.512414	11.5432941	579.0142557	38.0153629	620.31978	10.66211272	107.1337664
Spot 139	40.06520753	8847.318421	2.580738257	9.380990531	1.520948738	4.30488757	2.588848914	0.295909605	1.993853097	0.770169741	1670.993368	29.3493655	1694.297181	21.33468084	1723.236189	30.33123037	1723.236189	30.33123037	96.96833079
Spot 140	63.12806069	31150.41316	1.485556783	9.514641047	0.747132382	4.50412557	1.375970387	0.310766496	1.153632485	0.838413745	1744.477535	17.63175832	1731.73368	11.43350825	1716.353823	13.78647146	1716.353823	13.78647146	101.6385731
Spot 141	103.717501	48688.14652	1.295719758	9.66032864	0.789196308	4.241656067	1.377853835	0.29670555	1.128855433	0.81928533	1674.951526	16.65105667	1682.121635	11.32186541	1691.058695	14.56997087	1691.058695	14.56997087	99.04750973
Spot 143	245.0695017	33578.76952	2.179629362	9.759769976	0.740040446	4.280324275	1.473610816	0.30287668	1.272850353	0.8637629	1705.557779	19.07477156	1689.58472	12.12968289	1669.800111	13.73110343	1669.800111	13.73110343	102.141434
Spot 144	56.70314369	19596.66073	2.161447674	5.242528624	3.20647801	14.4341968	6.525226749	0.548269724	5.682261773	0.870814455	2817.972606	129.7315808	2778.682661	62.04032752	2750.262005	52.73445083	2750.262005	52.73445083	102.4619691
Spot 145	116.4785719	46836.11939	2.266068489	11.06629884	1.770871612	3.026961901	3.142072509	0.242730171	2.595245196	0.825966043	1400.874842	32.67738088	1414.441002	23.9859166	1434.913076	33.78705553	1434.913076	33.78705553	97.62785396
Spot 146	98.38642065	30937.44581	1.438323247	9.732271562	0.637102739	4.096555571	1.393783862	0.28919546	1.239569944	0.889355931	1637.507491	17.92516102	1653.617234	11.37589564	1674.127746	11.77733293	1674.127746	11.77733293	97.812577
Spot 147	33.66073957	6951.026979	2.176752158	12.12127161	2.819610092	2.122936887	3.596629821	0.190538632	2.209270357	0.614261258	1124.292257	22.79336424	1156.291688	24.83053557	1216.767961	55.82394045	1216.767961	55.82394045	92.39988996
Spot 148	167.4388243	34674.9857	0.710627876	5.461043879	0.599720266	11.01388314	1.574849582	0.43525058	1.456164163	0.924636981	2329.343782	28.46708477	2524.306147	14.6607514	2684.992717	9.91506131	2684.992717	9.91506131	86.75419368
Spot 149	9.585622759	5842.615085	0.280691306	4.237565743	1.473779602	17.86120595	2.46782508	0.551407656	1.978583397	0.80175188	2831.024554	45.33426581	2982.288894	23.7336584	3085.927284	23.53941261	3085.927284	23.53941261	91.73983354
Spot 150	168.8850341	64617.73057	4.974809289	9.578579473	0.756420541	4.446935727	1.731581232	0.308413791	1.557322354	0.899364307	1732.896421	23.6639561	1721.128292	14.35523532	1706.826277	13.93362754	1706.826277	13.93362754	101.5274047
Spot 151	70.59513569	22347.1979	1.553801348	12.06638949	2.043278784	2.372285574	2.83811375	0.208424279	1.968937692	0.693748689	1220.417483	21.89176175	1234.290223	20.27496186	1258.597981	39.96125881	1258.597981	39.96125881	96.96642626
Spot 152	24.84430006	34587.64297	1.270222529	5.096076597	0.705208453	14.70962831	1.577687335	0.542605983	1.411278907	0.894523823	2794.347673	32.00104718	2796.642933	15.00093172	2798.285075	11.54154914	2798.285075	11.54154914	99.85929235
Spot 153	100.1964709	31831.14385	2.322566365	9.339886112	0.655886462	4.837943065	1.17261603	0.327815566	0.970721683	0.827825697	1827.78508	15.44918536	1791.520049	9.867344848	1749.533547	12.04240066	1749.533547	12.04240066	104.4727084
Spot 154	244.7992708	94147.83592	0.785228257	8.651591168	0.674919636	5.235516963	1.750943135	0.327602937	1.615616498	0.922712146	1826.752703	25.70031035	1858.416499	14.92864359	1894.012909	12.14022096	1894.012909	12.14022096	96.44879899
Spot 155	61.26642187	11968.11535	1.032428868	5.412714226	0.652135308	13.00296192	1.46760827	0.511195311	1.314704732	0.895814475	2661.730439	28.66919899	2679.868886	13.83851001	2693.566481	10.77416856	2693.566481	10.77416856	98.81807106
Spot 156	146.7742665	24089.49684	2.712912328	9.263469652	0.661619	4.901252387	1.86719268	0.329692175	1.744377732	0.934224813	1836.889397	27.88168226	1802.472049	15.74768588	1762.874974	12.17368177	1762.874974	12.17368177	104.1985066
Spot 157	721.0502372	112941.1303	2.759936982	10.01402175	0.78543076	3.507581404	1.345733593	0.25403971	1.092700668	0.811973985	1459.275478	14.26955544	1528.923933	10.63332432	1626.655279	14.60595292	1626.655279	14.60595292	89.7101861
Spot 158	184.2467852	9902.079532	1.531661268	17.77691699	2.052994114	0.551284857	2.543793218	0.072780226	0.978405539	0.384624635	452.8839352	4.278975606	445.8379725	9.179268141	409.62093	52.55129194	452.8839352	4.278975606	110.5617175
Spot 159	51.89137958	2082.444953	2.853817404	10.39866384	3.648285963	2.454344634	4.498059749	0.19868877	2.580808613	0.573760412	1168.272473	27.57677896	1258.70209	32.46182546	1416.791937	70.46546699	1416.791937	70.46546699	82.4590007
Spot 161	220.8629854	37050.79719	1.572777881	6.010743994	0.696969088	10.90068401	1.878130822	0.475508492	1.743932049	0.928546632	2507.672331	36.23004728	2514.693485	17.46949801	2520.351068	11.71107989	2520.351068	11.71107989	99.49694561
Spot 162	198.7842929	43502.8387	4.646467143	10.02895508	0.667318227	4.033461272	1.110322033	0.29390853	0.885232672	0.797275606	1661.031465	12.96238273	1640.968547	9.034445222	1615.344011	12.48010927	1615.344011	12.48010927	102.828342
Spot 163	165.3183683	35958.17885	2.166708825	10.23811752	0.784576996	3.47441132	1.995308241	0.258642195	1.833010753	0.918660443	1482.891327	24.28188303	1521.424374	15.73330596	1575.429526	14.75486317	1575.429526	14.75486317	94.1261607
Spot 164	252.8626652	5149.045715	1.45122028	18.77618041	1.918726165	0.187515833	3.633739591	0.026945677	1.397363738	0.384552526	171.4039331	2.36357468	174.5073767	5.826221781	216.7505249	77.69068927	171.4039331	2.36357468	79.07890102
Spot 166	52.83267101	5649.383453	1.774036182	8.315656188	1.703620421	5.152282087	2.340063591	0.316586536	1.603261943	0.685136058	1773.03742	24.85237354	1844.77137	19.90107646	1926.652953	30.54433274	1926.652953	30.54433274	92.02681873
Spot 167	197.148719	52444.06563	3.133729615	13.366451	0.861738013	1.836374817	1.530272915	0.178435365	1.263227085	0.82549137	1058.421251	12.33034788	1058.564009	10.06029512	1058.87645	17.40427888	1058.87645	17.40427888	99.95701114
Spot 168	27.18946848	38088.29892	1.078366555	5.291314572	0.906210838	12.36377219	2.288615055	0.474428732	2.101463674	0.91822505	2502.953197	43.59070664	2632.428774	21.5025272	2733.533766	14.91840002	2733.533766	14.91840002	91.56474408
Spot 170	171.801413	209408.363	2.676941023	9.234345594	0.740191959	4.863000777	1.435858549	0.32531391	1.23036579	0.856885096	1815.628328	19.46873126	1795.868965	12.09334634	1772.983545	13.51118159	1772.983545	13.51118159	102.4052554
Spot 171	237.9687412	31790.17939	2.33760291	9.8018528	0.821179847	3.609658106	1.603155988	0.257246238	1.375407343	0.857937315	1475.737655	18.14175836	1551.66136	12.74752469	1656.617917	15.25624285	1656.617917	15.25624285	89.08135302
Spot 172	48.08659749	33151.80087	1.384871808	15.77881517	1.65894203	0.954982148	2.886042558	0.109848294	2.360090172	0.817760003	671.8667785	15.05834663	680.6935696	14.31574236	709.9773334	35.30798623	671.8667785	15.05834663	94.63214484
Spot 174	208.769617	94754.51609	3.08787009	5.346237852	0.765089256	10.31645913	1.820989431	0.4014148	1.652456156	0.907449614	2175.55067	30.51251985	2463.581486	16.85766186	2710.604874	12.62218237	2710.604874	12.62218237	80.26070826
Spot 176	212.8556349	2488407.483	1.111265154	8.019637635	0.604653967	6.510816942	1.278578371	0.379771542	1.126568342	0.881110121	2075.216351	19.98906017	2047.361771	11.25442616	2019.407252	10.71825976	2019.407252	10.71825976	102.7636376
Spot 177	157.3826921	5040.694846	2.135183789	18.56700419	2.699823	0.288325057	3.116023186	0.041158929	1.538795234	0.49383305	260.0125525	3.921444977	257.2401576	7.080999511	232.0259412	62.57924346	260.0125525	3.921444977	112.0618458
Spot 178	882.1898873	15883.75338	4.384012865	9.879887197	0.622676312	3.458651904	1.128913778	0.25067092	0.938951919	0.83173041	1441.934849	12.13173668	1517.841759	8.892115056	1625.356653	11.6556938	1625.356653	11.6556938	88.71498119
Spot 181	77.0295141	32368.62787	3.318250262	12.53420176	0.68422195	2.274760134	1.425906245	0.209278739	1.247723308	0.875038813	1224.974041	13.91989182	1204.492689	10.05752679	1167.933018	13.68846635	1167.933018	13.68846635	104.8839293
Spot 183	233.1640199	283771.4757	2.838016957	9.446151122	0.716848291	4.557308869	1.526482606	0.314392708	1.347693162	0.882874889	1762.286801	20.78059882	1741.497664	12.71125367	1716.606553	13.1774417	1716.606553	13.1774417	102.6610785
Spot 184	146.4886108	9147.659847	1.257552663	8.911142555	0.967208949	4.37713092	2.32062465	0.288469374	2.015754157	0.868625677	1633.875789	29.09272015	1708.031625	19.18339217	1800.207223	20.91712729	1800.207223	20.91712729	90.76042846
Spot 185	134.7631146	30648.71682	2.477351818	10.96594712	0.769578058	3.184593232	1.467346375	0.256504611	1.246723568	0.849645039	1471.933909	16.40666847	1453.428951	11.33917158	1426.456439	14.77668334	1426.456439	14.77668334	103.1881429
Spot 186	397.5893308	14086.15605	4.695272704	9.368444817	1.155774625	1.583779801	3.252210502	0.109435073	3.026076705	0.930467663	669.4661863	19.24217087	963.855781	20.24442286	1713.652359	21.91289425	1713.652359	21.91289425	39.06662764

Spot 187	104.1997992	27503.61729	2.356686281	10.89907137	0.961746234	3.121691655	2.265349012	0.250038831	2.046619928	0.903445746	1438.676008	26.39014558	1438.050135	17.42296872	1437.10585	18.518675	1437.10585	18.518675	100.1092583
Spot 188	77.51135633	39327.61482	2.208178153	13.01262509	0.852036361	1.904483842	1.497085853	0.181975275	1.230835343	0.822154148	1077.756651	12.21582142	1082.657963	9.967790356	1092.554099	17.06632706	1092.554099	17.06632706	98.6456096
Spot 189	252.7416355	25031.56642	1.105599423	15.81702438	1.533251326	0.613164378	2.597134657	0.071455438	2.08808752	0.803996633	444.9182714	8.976940723	485.5538428	10.02390125	682.2014893	32.97294523	444.9182714	8.976940723	65.21801526
Spot 190	196.7670329	202671.7607	3.341371767	9.536935852	0.502201814	4.43723595	1.370265914	0.309071669	1.274918514	0.930416863	1736.136898	19.40428829	1719.31851	11.35500193	1698.884093	9.251814711	1698.884093	9.251814711	102.1927809
Spot 191	213.704552	513767.5483	3.108346515	9.1421286	0.649112342	4.781573727	1.298620986	0.319140526	1.124753042	0.866113404	1785.530431	17.54152506	1781.66819	10.90570675	1777.132163	11.84225704	1777.132163	11.84225704	100.4725742
Spot 192	294.1644791	14832.1414	3.451832301	18.31916222	1.232305816	0.38187554	1.825236398	0.051999243	1.342120168	0.735313064	326.7841715	4.276527456	328.4171835	5.12159964	340.0278406	27.98982583	326.7841715	4.276527456	96.10512213
Spot 193	113.6924682	20927.33997	3.148621974	9.995540331	0.858718139	3.824510186	1.691367941	0.280868303	1.454352238	0.85986745	1595.733824	20.55831579	1597.917666	13.61496804	1600.782046	16.11158083	1600.782046	16.11158083	99.68464024
Spot 194	377.372853	54185.31395	1.323692534	9.595918823	0.657553862	3.889763068	1.669587999	0.273176687	1.534290579	0.918963588	1556.906404	21.22180644	1611.558968	13.48652605	1683.707048	12.15476057	1683.707048	12.15476057	92.46896042
Spot 196	103.9061895	10033.29125	4.381095214	9.52330307	0.673225937	4.345057827	1.738136796	0.306260808	1.527713419	0.87893739	1722.280167	23.08997611	1701.957012	14.34782004	1677.007515	15.31558734	1677.007515	15.31558734	102.6996094
Spot 197	177.6056689	31241.61907	2.158091531	9.857143446	0.746373186	4.076333539	1.675301314	0.294811668	1.498206263	0.894290627	1665.529438	21.99021934	1649.5804	13.66056316	1629.304928	13.93502711	1629.304928	13.93502711	102.2233107
Spot 198	21.33184708	20543.29248	2.133552703	5.278276776	0.948914913	12.18133886	1.685127465	0.471173017	1.392354102	0.826260405	2488.703005	28.7466634	2618.471957	15.8136921	2720.390513	15.64166772	2720.390513	15.64166772	91.48329967
Spot 199	78.06641112	36783.42181	1.335777078	12.09569119	0.942825049	2.307705085	1.339195112	0.204913962	0.950657415	0.709872226	1201.664227	10.42216962	1214.65667	9.487240939	1237.810079	18.5112255	1237.810079	18.5112255	97.07985477
Spot 202	253.034732	75904.69429	4.077251876	9.583419288	0.897742886	4.23789511	1.795376607	0.297691891	1.55472261	0.865959044	1679.853139	22.99155661	1681.392822	14.75059124	1683.297614	16.57737424	1683.297614	16.57737424	99.79537334
Spot 204	96.15922261	29092.59755	3.932595095	9.711872382	0.811337921	3.868080972	2.915119843	0.275763359	2.79893188	0.960142989	1569.990087	39.00158608	1607.046564	23.5234911	1655.943765	15.09404439	1655.943765	15.09404439	94.80938426
Spot 205	201.4714695	22011.0316	3.171992212	12.97590728	0.896877136	1.980835591	1.622067506	0.189484154	1.334686187	0.822830235	1118.580043	13.70604843	1109.005088	10.94525952	1090.259373	18.44952586	1090.259373	18.44952586	102.5976084
Spot 206	106.9065047	13624.72805	1.379436572	5.744230756	0.588698084	10.85083108	1.640363761	0.458043057	1.531052211	0.933361397	2430.911616	31.00612623	2510.431029	15.25165356	2575.367383	9.83921881	2575.367383	9.83921881	94.39086757
Spot 207	214.819011	46301.05122	1.372265573	17.32059929	1.271099517	0.582392215	1.871119771	0.074146216	1.372775486	0.733665214	461.0870498	6.108624667	465.9976261	6.992617735	490.2439905	28.02500953	461.0870498	6.108624667	94.0525654
Spot 208	132.3681131	32389.12844	0.97385558	9.762138102	0.698590234	4.141479177	1.191033156	0.296573535	0.964575644	0.809864645	1674.295199	14.22297489	1662.528117	9.741694101	1647.681032	12.95797825	1647.681032	12.95797825	101.6152499
Spot 209	298.1489953	105427.6482	3.033258365	9.516916004	0.715661811	4.355070243	1.224520934	0.303432726	0.993567787	0.81139306	1708.308416	14.91043387	1703.857258	10.11207948	1698.372494	13.1871735	1698.372494	13.1871735	100.585026
Spot 212	156.9061296	58285.93936	2.130536997	9.654449658	0.61119992	4.082183632	1.669810782	0.288829262	1.553800779	0.93052506	1635.676115	22.44714429	1650.749879	13.61963285	1669.972619	11.30774518	1669.972619	11.30774518	97.94628343
Spot 213	114.8126533	18453.62122	1.236415622	9.87521856	1.089597172	3.811673817	2.995694372	0.277036978	2.789205603	0.931071484	1576.422455	39.0066185	1595.21248	24.10063638	1620.112262	20.34082906	1620.112262	20.34082906	97.30328524
Spot 214	428.4798113	77577.86131	1.795676007	18.89992142	1.846065676	0.506119075	3.433049407	0.070146735	2.894251497	0.843055591	437.0396449	12.22979355	415.8361107	11.71446959	299.8422694	42.09226535	437.0396449	12.22979355	145.7565158
Spot 215	396.6154018	20577.18737	3.045368009	17.72782966	0.965695613	0.525231347	1.655404054	0.068902651	1.316645316	0.795361901	429.5410982	5.471228945	428.6399972	5.788333492	423.7777538	22.38973138	429.5410982	5.471228945	101.3599922
Spot 216	108.3823119	12968.12397	2.392428361	5.489898557	1.007513708	10.53470671	3.95673195	0.424816933	3.826223636	0.967016134	2282.30999	73.54449128	2482.977575	36.70891826	2651.506797	16.71636254	2651.506797	16.71636254	86.07596225
Spot 217	155.425494	50346.92284	7.354387016	12.06679622	1.138689792	2.44588638	1.646717579	0.216391128	1.188850977	0.721951956	1262.777652	13.63366063	1256.21279	11.86872689	1244.973616	22.32293237	1244.973616	22.32293237	101.4300734
Spot 218	61.27478408	18555.52413	2.015093787	9.048076625	1.019656147	4.750097536	1.360391065	0.316017132	0.896169076	0.658758425	1770.24884	13.8726016	1776.125113	11.41140927	1783.020922	18.66020953	1783.020922	18.66020953	99.28368297
Spot 219	242.4333639	33136.1326	3.186819285	8.811398327	0.474205517	5.166096258	1.158570066	0.332764862	1.055682126	0.911194029	1851.768757	16.99167948	1847.048729	9.856393833	1841.72103	8.640480781	1841.72103	8.640480781	100.5455618
Spot 220	80.53598208	62238.28889	1.390542807	5.370431244	0.802967988	12.91331442	1.40655688	0.505671901	1.154780168	0.820997845	2638.125667	25.00104578	2673.347468	13.25619883	2700.083759	13.25797499	2700.083759	13.25797499	97.70532705
Spot 221	212.7765926	2738800.439	3.620063477	10.70104966	0.864382079	3.455669369	1.600289684	0.269371997	1.346763043	0.841574533	1537.613456	18.42358364	1517.16231	12.60288706	1488.72279	16.36846054	1488.72279	16.36846054	103.2840678
Spot 222	139.3111284	12806.22175	0.80245546	18.00802457	1.215107365	0.650130432	1.959235294	0.087063149	1.392375757	0.710673068	538.144728	7.188767448	508.5590033	7.838037811	377.615186	30.99145481	538.144728	7.188767448	142.5114105
Spot 223	132.5570875	61663.76286	2.294243159	11.90780625	1.792919316	2.343192575	2.483092756	0.203561198	1.717877171	0.691829641	1194.422737	18.73002496	1225.492422	17.67312282	1280.574902	34.94016496	1280.574902	34.94016496	93.27238377
Spot 224	176.4753762	368132.5919	0.737674422	11.40846398	0.932532194	2.851831308	2.154117227	0.236932979	1.941804463	0.901438621	1370.732711	23.97756349	1369.293496	16.19543603	1367.032011	17.95379641	1367.032011	17.95379641	100.2707106
Spot 226	537.3807265	722813.6483	1.466867903	9.342766483	0.724279339	4.546795388	1.628633018	0.309274235	1.458720286	0.895671566	1737.134339	22.21289002	1739.574913	13.55633255	1742.492083	13.27086596	1742.492083	13.27086596	99.69252406
Spot 227	31.38324383	35044.33085	1.272210152	5.577967293	3.101485779	12.60640177	6.022640461	0.512852002	5.162621467	0.857202335	2668.793634	112.8310021	2650.698482	56.71736654	2636.905614	51.52683958	2636.905614	51.52683958	101.209297
Spot 229	57.47737135	34174.73981	1.549162043	6.3875168	0.850108853	9.658297946	1.789385334	0.44967565	1.574440305	0.879877729	2393.810422	31.48301992	2402.740254	16.46586663	2410.303999	14.44297227	2410.303999	14.44297227	99.31570556
Spot 230	98.51098331	28132.0452	5.239132733	8.889230045	0.885728781	5.244573804	2.040050789	0.340463262	1.83739287	0.900660356	1888.897805	30.08421785	1859.890232	17.39885992	1827.598927	16.0731245	1827.598927	16.0731245	103.3540662
Spot 231	299.9659007	46049.67377	2.949448977	11.26576468	1.811504538	0.536629991	2.666199651	0.044112803	1.955905793	0.733593147	278.2757921	5.327009464	436.2001328	9.454547849	1387.44691	34.78798678	278.2757921	5.327009464	20.05668037
Spot 232	382.0914154	5172.798396	1.883131939	19.80000514	2.90548196	0.096159603	3.641991302	0.014674104	1.346209764	0.369635634	93.90801975	1.2550354	93.22516215	3.244062111	75.76318091	NA	93.90801975	1.2550354	123.9494153
Spot 234	1268.535583	2971.799121	2.930038223	15.3716884	2.30208618	0.204585687	2.941259316	0.024638209	1.799671782	0.611871171	156.9030387	2.789652678	188.9990147	5.072293639	611.5886664	50.27739282	156.9030387	2.789652678	25.6549945
Spot 236	130.6423566	55625.49781	1.652418346	10.10138294	0.955633293	3.788152031	3.061242659	0.277979309	2.908166538	0.949995431	1581.177537	40.77856319	1590.236625	24.5964297	1602.250552	17.83314106	1602.250552	17.83314106	98.68478657
Spot 237	606.9912072	14698.34141	2.005030068	17.07680799	2.707705593	0.168525109	4.120421975	0.021212969	3.08977205	0.74986787	135.3173612	4.137422128	158.1381557	6.033971917	515.2643122	59.87256972	135.3173612	4.137422128	26.26173753
Spot 238	112.8773624	84125.41308	2.008713964	9.559576978	0.784101177	4.571532452	1.419034555	0.317136391	1.182682523	0.833441666	1775.729115	18.35704992	1744.093153	11.8230534	1706.354378	14.43374381	1706.354378	14.43374381	104.06567
Spot 239	325.6967866	50946.73915	2.974561938	9.54030076	0.866082303	4.358359465	1.990326181	0.302042997	1.791565622	0.900136691	1701.431536	26.79149022	1704.480742	16.43929968	1708.213037	15.95488568	1708.213037	15.95488568	99.60300614
Spot 240	192.7738969	69368.46298	1.476446615	9.886759263	0.78663171	3.861924753	1.429959535	0.276888303	1.193988257	0.834980451	1575.671908	16.69056092	1605.761689	11.53368035	1645.443489	14.59796814	1645.443489	14.59796814	95.75970968
Spot 241	74.2253304	19237.84491	1.767741652	9.453645252	0.940771217	4.363473156	1.964258595	0.300572491	1.721228276	0.876273766	1694.146949	25.64328359	1705.449299	16.22750467	1719.345306	17.39197825	1719.345306	17.39197825	98.53442137
Spot 242	45.78923624	4585.626783	2.468855749	9.885166894	2.067234324	3.702737079	3.271223673	0.273020289	2.302567199	0.703885588	1556.11447	31.83417841	1571.959889	26.15823214	1593.280703	43.40018576	1593.280703	43.40018576	97.66731422
Spot 243	186.1014796	90471.49122	1.314279977	9.655877427	0.657454589	3.945363682	1.473457072	0.276372845	1.318605909	0.894906227	1573.069074	18.40569479	1623.039557	11.93647824	1688.433238	12.13171992	1688.433238	12.13171992	93.16738377
Spot 244	62.99968006	119577.726	2.956250041	11.83628597	1.341798269	2.342506578	1.86290689	0.201132223	1.292269478	0.693684416	1181.399716	13.94963376	1225.284051	13.25727562	1303.361194	26.06591873	1303.361194	26.06591873	90.6425419
Spot 245	90.93888597	28757.6999	2.529306415	12.5510869	0.921260821	2.117094705	2.138560255	0.193587958	1.927168785	0.901152437	1140.782346	20.14945401	1154.390398	14.74932803	1180.049475	18.34753831	1180.049475	18.34753831	96.67241675
Spot 246	232.4238461	65408.00466	3.76213565	9.498738875	0.650101109	4.457903644	1.402134123	0.307205285	1.242104291	0.885866959	1726.939489	18.81752012	1723.170806	11.62902409	1718.578968	11.9564595	1718.578968	11.9564595	100.4864787
Spot 247	135.0237004	15365.04216	1.130394287	14.43312968	2.806244904	0.976310803	3.49075	0.103420018	2.038683328	0.584024444	634.4203975	12.31777473	691.7113023	17.51154896	882.7476934	58.60964827	634.4203975	12.31777473	71.86882529
Spot 249	220.9287141	7217.700844	3.041069282	18.39768788	1.418300375	0.452506756	1.826916407	0.06267944	0.908797167	0.497448687	391.9000295	3.455477264	379.0332143	5.779099647	301.1369629	36.12948511	391.9000295	3.455477264	130.1401282
Spot 250	132.190474	125414.2344	2.19097986	13.65265752	1.528911967	1.747836925	2.718725908	0.173296101	2.248077864	0.826886542	1030.246372	21.40485624	1026.363435	17.56097359	1018.076711	30.98502799	1018.076711	30.98502799	101.1953579
Spot 251	66.77079728	16183.39942	0.899619568	15.95456207	2.075003633	0.866482289	2.657640414	0.101688278	1.657423259	0.623644663	624.2952528	9.861980437	633.6554102	12.5280646	667.1701015	44.48396787	624.2952528	9.861980437	93.57362558
Spot 252	149.8925411	30756.5363	3.06408458	13.17066627	1.764026035	1.72999141	2.073889759	0.166225153	1.089422198	0.525303813	991.2790845	10.00988556	1019.747639	13.34514354	1081.357374	35.40388512	1081.357374	35.40388512	91.66988717
Spot 253	155.2579313	34930.8579	1.482822032	8.985115843	0.891913278	4.981582568	1.617077705	0.325824327	1.348538993	0.833935802	1818.110553	21.36391431	1816.200616	13.67534493	1813.995572	16.20795308	1813.995572	16.20795308	100.2268462
Spot 254	164.1193766	39757.59451	5.277071551	9.164014843	0.680349746	4.719010082	1.3631002	0.314685176	1.180359186	0.865937212	1763.721046	18.21327582	1770.62063	11.42105045	1778.752547	12.43546021	1778.752547	12.43546021	99.15494143
Spot 255	32.5594357	6241.007835	4.043379197	12.51206498	2.863939969	1.944682731	3.415841772	0.181490874	1.834065023	0.536929151	1075.114223	18.16178393	1096.614794	22.90928782	1139.539563	57.30424197	1139.539563	57.30424197	94.34637095
Spot 256	157.1964492	21010.11897	2.636486038	11.1329505	0.658891861	3.118406247	1.636410418	0.253476239	1.489494505	0.91022062	1456.378291	19.41688562	1437.240448	12.58194787	1409.009175	12.97151211	1409.009175	12.97151211	103.3618742
Spot 258	135.4682575	9060.501305	1.601295468	17.55400497	1.166508125	0.513077951	2.242127215	0.067164567	1.581079105	0.705169222	419.0504058	6.414765325	420.5167838	7.720058273	428.5448932	35.45969117	419.0504058	6.414765325	97.78448245
Spot 259	153.9978442	9769.482223	1.272906998	9.836542665	0.526783144	3.932078721	1.527065366	0.284219585	1.433141925	0.938494158	1612.578289	20.44671649	1620.308216	12.3623547	1630.345702	9.799425613	1630.345702	9.799425613	98.91020582
Spot 260	47.20293452	30921.51272	1.52616354	10.46962364	1.405860797	3.209782772	2.320055768	0.244410796	1.845245473	0.79534531	1409.586861	23.36312169	1459.522819	17.96344364	1532.956736	26.4740072	1532.956736	26.4740072	91.952162
Spot 261	111.5835165	67197.60497	1.967948394	10.64638862	0.854561317	3.396453146	1.295549971	0.262334612	0.973328518	0.751285972	1501.775169	13.03945231	1503.577309	10.16299614	1506.101228	16.15234717	1506.101228	16.15234717	99.71276441
Spot 263	247.057902	28890.18019	2.490237404	20.34362685	2.610870328	0.086298811	3.407916432	0.012842165	2.183369146	0.640675671	82.25884798	1.784604003	84.04968483	2.749004288	135.2559066	61.49312833	82.25884798	1.784604003	60.81719465
Spot 265	80.4971546	30539.60399	1.296442539	12.29591184	0.948087946	2.054836309	1.735618758	0.184246456	1.45296224	0.83714366	1090.131638	14.57237446	1133.904666	11.85477363	1218.697138	18.67404232	1218.697138	18.67404232	89.45057837
Spot 266	94.73565899	12040.30139	3.792550281	17.11395257	1.301033705	0.733616339	1.716312589	0.092954544	1.116069333	0.6502716	572.9870759	6.118965946	558.6734995	7.374794769	500.758605	28.71342122	572.9870759	6.118965946	114.4238102
Spot 267	251.1659324	40231.51672	2.15002895	9.516184464	0.581476882	4.351166151	1.179911966	0.301204633	1.026022505	0.869575472	1697.279462	15.31059104	1703.116728	9.742043704	1710.288153	10.71850903	1710.288153	10.71850903	99.23938597
Spot 268	539.3664923	2934.419023	2.886344509	13.86558021	3.015579065	0.616781209	4.919620991	0.066519235	1.335057223	0.271373999	415.1509685	5.367805087	487.8278569	19.05866321	845.4694837	98.54814471	415.1509685	5.367805087	49.1030104
Spot 269	253.538108	24385.20491	3.400180929	12.11782811	0.591077958	2.389892741	1.327512472	0.211453979	1.18858474	0.895347325	1236.559379	13.37389533	1239.577886	9.503282828	1244.847615	11.58025651	1244.847615	11.58025651	99.3341968
Spot 270	695.7150088	30830987.53	12.67361407	11.59096454	0.761046982	2.80445587	1.261564013	0.235675688	1.006156673	0.797547062	1364.176863	12.37071015	1356.727397	9.44295201	1344.990156	14.69640437	1344.990156	14.69640437	101.4265314
Spot 271	53.67876431	11916.27919	1.310327954	5.45692979	0.812397765	11.70379569	2.846090471	0.465644222	2.726542515	0.957995729	2464.431187	55.84277618	2581.003017	26.6300144	2673.835936	13.51154609	2673.835936	13.51154609	92.16837702
Spot 272	69.58295185	6094.527064	1.465847556	8.919862374	0.827816951	4.674772764	1.724486223	0.308438014	1.512171951	0.876882593	1733.015762	22.97925625	1762.735971	14.42550039	1798.123883	15.08686547	1798.123883	15.08686547	96.3791082
Spot 273	141.4558969	37166.11417	3.458604857	9.564009423	0.567725949	4.265694851	1.749670916	0.296827006	1.654675317	0.945706591	1675.555305	24.41487115	1686.767642	14.39293838	1700.721146	10.47425555	1700.721146	10.47425555	98.5202841
Spot 275	83.60001324	51486.39523	2.433984727	13.03890327	1.150492084	2.03133966	2.212222599	0.192739701	1.889442655	0.854092466	1136.19939	19.68243272	1126.064531	15.05353506	1106.550631	22.97772055	1106.550631	22.97772055	102.6793857
Spot 276	679.0148267	16962.25069	1.263730568	20.347597	1.948369479	0.097709876	2.30073015	0.01467536	1.219530965	0.530062583	93.91599718	1.137032018	94.66018063	2.079443349	113.4534585	46.03563789	93.91599718	1.137032018	82.7793162
Spot 278	190.9982048	34219.17913	3.557111257	12.34877867	0.646189594	2.239674868	1.657076291	0.201194248	1.523199892	0.919209273	1181.732594	16.44668462	1193.555339	11.63255095	1215.017441	12.85368828	1215.017441	12.85368828	97.26054572
Spot 280	334.2611172	52591.55171	2.893869103	10.79401604	0.630108989	3.352393521	2.292606666	0.262473917	2.203914971	0.961314038	1502.486526	29.53791379	1493.350184	17.93211216	1480.386177	11.97189188	1480.386177	11.97189188	101.4928773
Spot 281	201.9657724	16185.56808	1.636365316	17.08948082	1.445584013	0.567493693	2.303129747	0.071238363	1.786651422	0.775749358	443.6121072	7.659246643	456.3923137	8.466689204	521.2479142	31.88305463	443.6121072	7.659246643	85.10578079
Spot 282	88.8865305	11831.94728	1.283885901	13.43951014	0.875675997	1.753755241	1.5889025	0.173276354	1.322380084	0.832260056	1030.137874	12.58966112	1028.548025	10.27508985	1025.150087	17.83949203	1025.150087	17.83949203	100.4865421
Spot 283	43.09938727	2452.340195	2.891994064	15.28944195	4.410978493	0.507469325	6.819282608	0.061631131	5.189827301	0.7610518	385.537651	19.42222216	416.7460028	23.31343237	593.3965701	95.90309315	385.537651	19.42222216	64.97133121
Spot 284	49.93603755	5380.053784	1.133622534	13.09083217	1.78990582	1.714356012	2.25696032	0.16819608	1.34167786	0.594462316	1002.164365	12.45280319	1013.915549	14.47496288	1039.366951	36.6405678	1039.366951	36.6405678	96.4206495
Spot 285	34.5429603	2631.964018	0.606540551	14.98641993	3.681774726	0.891473432	5.881091853	0.105422595	4.530554591	0.770359434	646.1092699	27.85336303	647.160602	28.15187287	650.851476	80.5449797	646.1092699	27.85336303	99.27138429
Spot 286	159.6509427	27519.63348	3.225652132	13.59292724	0.774166413	1.756828814	2.630355647	0.174155089	2.511211384	0.954704124	1034.964163	24.01121797	1029.680702	17.0217697	1018.4549	15.85050681	1018.4549	15.85050681	101.6210107
Spot 287	59.10661255	2721.109408	2.602746748	17.07936581	2.359752431	0.576081826	3.443115824	0.078441697	2.26775683	0.65863507	486.8146727	10.63323453	461.9403057	12.77938301	340.0919927	58.65377507	486.8146727	10.63323453	143.1420566
Spot 290	87.93104411	31126.79574	1.513686204	5.537562015	0.762390127	12.20540342	1.716173806	0.491331153	1.536928495	0.895555269	2576.432635	32.64192717	2620.324005	16.10749752	2654.398788	12.66444096	2654.398788	12.66444096	97.06275661
Spot 291	330.4780141	35654.93742	0.918743021	16.57707317	1.036601226	0.881343526	1.414425437	0.106696065	0.960443259	0.67903421	653.5314028	5.969116843	641.7080398	6.728115528	600.2857606	22.45930648	653.5314028	5.969116843	108.8700492
Spot 292	200.3730757	10551.22195	1.933731295	9.225375395	1.026667022	4.361214638	1.449546733	0.295362221	1.021385026	0.70462373	1668.269868	15.01316285	1705.021639	11.97364915	1750.466602	18.82863003	1750.466602	18.82863003	95.30429583
Spot 293	470.9007424	3161.602797	3.766344082	13.40871763	2.527861006	0.540153092	3.567991164	0.055932244	2.504754609	0.702006954	350.8397783	8.552829974	438.5254828	12.70659901	929.5398319	52.18503987	350.8397783	8.552829974	37.74338294
Spot 294	243.3752835	270889.7103	1.659281511	9.752252632	0.617971324	4.264058721	1.055928409	0.301789784	0.856210199	0.810860085	1700.177758	12.79566462	1686.452099	8.685152091	1669.407504	11.42766251	1669.407504	11.42766251	101.8431841
Spot 295	37.62589015	7672.037599	1.935832958	15.53145045	2.911755345	0.868005821	3.459862429	0.100792468	1.864357845	0.538853172	619.0513833	11.0045055	634.4838869	16.32565352	689.8642751	62.1814764	619.0513833	11.0045055	89.73524295
xx	633.0554125	55143.35385	6.162057412	14.36160525	3.095222439	0.86397995	3.369666441	0.090394965	1.331202844	0.395054783	557.872579	7.114150066	632.2932018	15.86041585	908.2556581	63.7786361	557.872579	7.114150066	61.42241713
Spot 296	66.34350466	127180.9017	2.050451394	12.33803959	1.216693482	2.329759384	1.931541815	0.208913718	1.500140503	0.776654428	1223.027898	16.71178224	1221.40432	13.72330406	1218.530352	23.90444477	1218.530352	23.90444477	100.369096

Spot 298	119.8595957	13284.48723	0.912969096	18.04026703	2.007423842	0.481612388	2.511429313	0.06433531	1.484054977	0.590920465	401.9370337	5.782814215	399.1785007	8.289408974	383.2180118	45.5336677	401.9370337	5.782814215	104.8846926
Spot 299	100.3152422	9417.963801	1.960347483	5.624786759	1.478206906	9.668879437	2.680349298	0.397680264	2.235791974	0.834142019	2158.349123	41.00923446	2403.747819	24.66971229	2618.694239	24.59632728	2618.694239	24.59632728	82.42081459
Spot 300	298.6487332	47639.8159	0.45495501	11.06305575	0.672653624	3.061593118	1.629807342	0.246726255	1.484475376	0.910828745	1421.570472	18.93811344	1423.135798	12.47495794	1425.459652	12.84866383	1425.459652	12.84866383	99.72716314
Spot 301	86.30733917	16862.04548	1.868156187	8.360515465	1.142303628	5.970777672	2.254582965	0.364866462	1.934994022	0.858249198	2005.19964	33.34613394	1971.596479	19.61100259	1936.503603	20.7093991	1936.503603	20.7093991	103.5474262
Spot 302	103.483925	22385.28666	1.056377151	9.678449478	0.544532769	4.293000192	1.666831826	0.30347911	1.574273262	0.944470365	1708.537813	23.62789303	1692.019322	13.7279963	1671.593835	10.12544624	1671.593835	10.12544624	102.210105
Spot 303	600.0587283	3764.688685	1.354549012	13.77929056	3.184133297	0.466359439	5.126284438	0.049243289	4.016806811	0.783570803	309.8741487	12.15263678	388.6711244	16.55584785	889.3644618	65.79228196	309.8741487	12.15263678	34.84220047
Spot 305	138.2840451	9480.629853	1.367565589	16.64764642	1.231862093	0.776497294	1.987507928	0.096207693	1.466803375	0.738011333	592.1461522	8.29864722	583.4833868	8.821147875	549.8908931	29.30441899	592.1461522	8.29864722	107.6842988
xx	2321.377904	1727664.86	2.020477311	13.63138239	0.502333986	1.79711921	1.508058785	0.177696317	1.421935955	0.942891596	1054.377155	13.83069539	1044.412889	9.83847266	1023.605484	10.16486608	1023.605484	10.16486608	103.0062042
Spot 306	463.9255572	11342.87858	4.502519286	9.44475849	0.497519867	3.83206005	1.189857958	0.26552776	1.080800739	0.908344338	1518.061155	14.6185009	1599.505395	9.581597075	1708.501612	9.156331393	1708.501612	9.156331393	88.85336394
Spot 307	125.1298622	12582.28696	2.531464565	12.11745898	1.000991099	2.407634067	1.359469331	0.214508481	0.908333227	0.66815279	1252.792602	10.34207527	1244.878132	9.753269177	1231.230083	19.85072878	1231.230083	19.85072878	101.7512989
Spot 309	132.4284166	90294.43042	1.215534848	9.011329809	0.558991104	5.086863014	1.123251894	0.332918596	0.974236709	0.867335915	1852.512305	15.68620839	1833.916682	9.53183118	1812.858569	10.15445882	1812.858569	10.15445882	102.1873596
Spot 310	152.5673141	11613.70671	2.715554969	9.622626725	0.869021718	4.311855539	1.743341656	0.303767692	1.511185882	0.866832888	1709.964851	22.69756429	1695.630011	14.37008571	1677.936993	16.0573481	1677.936993	16.0573481	101.9087641
Spot 311	226.8143282	103094.481	2.160077113	18.53688475	0.870146954	0.453066353	1.393740664	0.060950187	1.088739015	0.78116327	381.4015099	4.032014595	379.4243287	4.412563622	367.3547455	19.60890972	381.4015099	4.032014595	103.8237602
Spot 312	370.6322251	30438.53213	1.885499006	9.116321957	0.612273786	4.362848525	1.254312022	0.289064762	1.093860816	0.872080309	1636.853923	15.81253713	1705.33104	10.36156067	1790.503484	11.1797454	1790.503484	11.1797454	91.41863941
Spot 313	461.4880263	118963.3281	3.315209533	9.448049835	0.722182141	4.453630678	1.733085529	0.304902653	1.575420892	0.909026627	1715.574166	23.73011575	1722.375556	14.37167483	1730.635728	13.25314675	1730.635728	13.25314675	99.12970931
Spot 315	46.43529711	25190.14545	1.118325306	6.291935272	0.735558817	9.921094024	1.607718889	0.452535977	1.428270096	0.888382979	2406.517185	28.68518326	2427.472357	14.83079142	2445.071645	12.49517766	2445.071645	12.49517766	98.42317667

1. Analyses with >10% uncertainty (1-sigma) in 206Pb/238U age are not included.
2. Analyses with >10% uncertainty (1-sigma) in 206Pb/207Pb age are not included, unless 206Pb/238U age is <400 Ma.
3. Best age is determined from 206Pb/238U age for analyses with 206Pb/238U age <900 Ma and from 206Pb/207Pb age for analyses with 206Pb/238Uage >900 Ma.
4. Concordance is based on 206Pb/238U age / 206Pb/207Pb age. Value is not reported for 206Pb/238U ages <400 Ma because of large uncertainty in 206Pb/207Pb age.
5. Analyses with 206Pb/238U age >400 Ma and with >20% discordance (<80% concordance) are not included.
6. Analyses with 206Pb/238U age >400 Ma and with >5% reverse discordance (<105% concordance) are not included.
7. All uncertainties are reported at the 2-sigma level, and include only measurement errors.
8. Systematic errors are as follows (at 2-sigma level): [sample 1: xxx% (206Pb/238U) & xxx% (206Pb/207Pb)]
9. Analyses conducted by LA-ICPMS, as described by Gehrels et al. (2008) and Gehrels and Pecha (2014).
10. U concentration and U/Th are calibrated relative to FC-1 zircon standard and are accurate to ~20%.
11. Common Pb correction is from measured 204Pb with common Pb composition interpreted from Stacey and Kramers (1975).
12. Common Pb composition assigned uncertainties of 1.5 for 206Pb/204Pb, 0.3 for 207Pb/204Pb, and 2.0 for 208Pb/204Pb.
13. U/Pb and 206Pb/207Pb fractionation is calibrated relative to fragments of large Sri Lanka zircons and individual crystals of FC-1, and R33.
14. U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U/235U = 137.82.
15. Weighted mean and concordia plots determined with Isoplot (Ludwig, 2008).

Aliquot Name	RR2_20
Stratigraphic Formation Name	
Stratigraphic Age	
Rock Type	
Mineral	Zircon
Method	U-Pb
Latitude	
Longitude	
Internal Uncertainty Level	one sigma
External Uncertainty 206/238 (% two sigma)	1.32390708
External Uncertainty 206/207 (% two sigma)	1.02439108
Analysis Purpose	
Laboratory Name	Arizona LaserChron Center
Analyst Name	
Aliquot Reference	
Aliquot Instrumental Method	LA-ICPMS
Aliquot Instrumental Reference	Gehrels, G.E., Valencia, V., Ruiz, J., 2008, Enhanced precision, accuracy, efficiency, and spatial resolution of U-Pb ages by laser ablation-multicollector-inductively coupled plasma-mass spectrometry: Geochemistry, Geophysics, Geosystems, v. 9, Q03017, doi:10.1029/2007GC001805. Gehrels, G. and Pecha, M., 2014, Detrital zircon U-Pb geochronology and Hf isotope geochemistry of Paleozoic and Triassic passive margin strata of western North America: Geosphere, v. 10 (1), p. 49-65.

						Isotope ratios							Apparent ages (Ma)						
Analysis	U (ppm)	206Pb 204Pb	U/Th	206Pb* 207Pb*	± (%)	207Pb* 235U	± (%)	206Pb* 238U	± (%)	error corr.	206Pb* 238U	± (Ma)	207Pb* 235U	± (Ma)	206Pb* 207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)
Spot 1	258.319548	57431.63253	2.656831513	9.647230395	1.056631142	4.297077447	2.147569346	0.300215814	1.869405278	0.870474931	1692.378802	27.82546873	1692.801181	17.6912251	1693.308508	19.48965342	1693.308508	19.48965342	99.94509534
Spot 2	129.332964	1204.119109	2.219025697	16.51965136	6.485379612	0.082482695	12.08707255	0.012342547	5.094272979	0.421464582	79.07815597	4.003849831	80.47641209	9.352015094	122.2050574	NA	79.07815597	4.003849831	64.70939717
Spot 3	117.115823	17634.85718	0.893567147	6.175682756	0.704627415	9.824865182	2.36232589	0.440338985	2.253490123	0.953928555	2352.157886	44.41228896	2418.485881	21.77410875	2474.774029	11.96000488	2474.774029	11.96000488	95.04536006
Spot 4	121.009656	48487.41598	0.877299861	6.339954154	1.209226384	9.106256352	2.27033724	0.417835901	1.921412058	0.846311299	2250.647513	36.50254476	2348.738054	20.77449323	2435.03977	20.49181731	2435.03977	20.49181731	92.42754641
Spot 5	210.50486	277502.0155	5.378904486	9.04818131	0.52738904	4.721535761	1.688180344	0.308991641	1.603687051	0.949950079	1735.742796	24.40336751	1771.068954	14.1464515	1812.961321	9.578847926	1812.961321	9.578847926	95.74075165
Spot 6	170.369418	39963.95201	1.778455308	5.560933125	0.57309414	11.19495842	2.86051258	0.450840956	2.802355398	0.979668965	2398.990221	56.13787267	2539.495986	26.66955613	2653.716299	9.51828366	2653.716299	9.51828366	90.40115636
Spot 7	229.805186	2283.388063	2.093085725	16.97946957	4.361318176	0.11341909	6.506496394	0.015626938	3.794224343	0.583144001	99.958707	3.763404764	109.0882294	6.729936409	313.2631397	120.3128452	99.958707	3.763404764	31.9088633
Spot 9	94.8551003	45497.3365	4.174560438	12.87324144	1.749854146	1.933900905	4.526613015	0.180924554	4.174502457	0.92221324	1072.023541	41.22913332	1092.890191	30.30546725	1134.715748	34.83962733	1134.715748	34.83962733	94.47507384
Spot 10	157.912675	49931.9539	3.945158308	9.757819824	0.950360793	4.402907841	3.306587874	0.311383303	3.16693788	0.957766132	1747.510308	48.47653923	1712.887544	27.3669979	1670.794116	17.58048586	1670.794116	17.58048586	104.5916006
Spot 11	150.050637	22447.13869	2.219096485	11.9268452	0.726205431	2.605009996	1.344084087	0.226271001	1.127554007	0.838901389	1314.925754	13.41215686	1302.05061	9.862180058	1280.877221	14.23740051	1280.877221	14.23740051	102.6582198
Spot 12	158.308809	736.3999382	2.683074755	12.29941187	9.658186487	0.120207562	10.34116388	0.014101727	3.598969384	0.348023629	90.2705725	3.226169436	115.260183	11.26809365	668.0525603	207.9950945	90.2705725	3.226169436	13.51249555
Spot 13	165.426984	8965.314075	2.354628085	5.291043236	0.673399431	11.5933121	1.5542749	0.446602749	1.400455642	0.901034715	2380.131349	27.87163045	2572.133713	14.52964309	2727.111416	11.10115189	2727.111416	11.10115189	87.27664501
Spot 15	574.31413	33806.04628	5.919205751	9.709718378	0.554906305	4.161520231	1.280401857	0.293224482	1.153880305	0.90118606	1657.622548	16.86577362	1666.478301	10.48252752	1677.635647	10.2533513	1677.635647	10.2533513	98.80706521
Spot 16	181.611426	2634.672073	1.452268773	18.36511799	4.320341378	0.102309551	5.486480138	0.015135856	2.736133248	0.498704667	96.84094635	2.629894289	98.90599627	5.170589783	148.9941708	111.5487375	96.84094635	2.629894289	64.99646651
Spot 17	310.125162	29488.71307	6.521831845	13.28397442	0.64952213	1.846062022	1.431517361	0.178399047	1.269005186	0.886475582	1058.22258	12.38460858	1062.025986	9.42846384	1069.869107	13.30924122	1069.869107	13.30924122	98.91140641
Spot 18	457.156962	81087.28998	3.423328414	13.13799918	0.732246225	1.899255074	1.393790444	0.180776655	1.185915487	0.850856377	1071.216145	11.70434223	1080.828383	9.271208148	1100.278999	14.64852552	1100.278999	14.64852552	97.35859229
Spot 19	126.605532	11255.4118	1.820875524	11.37424969	0.96166432	2.719961491	1.715436089	0.226829389	1.411274094	0.822691153	1317.860491	16.8207638	1333.922238	12.73654227	1359.778653	18.79393439	1359.778653	18.79393439	96.91728045
Spot 20	48.8284039	32998.758	1.48742841	5.36509189	0.817807481	13.22929689	1.753521206	0.51403647	1.551107824	0.884567474	2673.838795	33.94859496	2696.149668	16.55513534	2712.904843	13.48959212	2712.904843	13.48959212	98.55999196
Spot 21	316.084459	39539.67951	2.31907411	9.491045718	0.669699759	4.236482758	1.384977586	0.291592073	1.210977557	0.874366177	1649.480241	17.62405032	1681.118996	11.37775551	1720.81212	12.34960662	1720.81212	12.34960662	95.85475491
Spot 22	82.7042027	44480.4527	1.544602107	5.38864781	0.699536385	12.7223521	1.407759244	0.496265458	1.221568413	0.867739578	2597.726407	26.1182319	2659.31466	13.25323237	2706.486733	11.54732022	2706.486733	11.54732022	95.98149422
Spot 23	99.4340003	57200.65291	1.356075379	5.386613009	0.557009855	13.04870553	1.314386384	0.50863552	1.19044389	0.905703151	2650.801697	25.87330001	2683.180442	12.39668771	2707.654737	9.194511826	2707.654737	9.194511826	97.90028473
Spot 24	304.739788	31039.97511	4.541985732	9.672443632	1.195426519	4.026712796	1.768107971	0.282731689	1.301124732	0.735885338	1605.105148	18.48744914	1639.606286	14.38249789	1684.117892	22.09785682	1684.117892	22.09785682	95.30836029
Spot 25	892.55702	11320.3115	4.397435177	19.52894784	1.393059818	0.070888101	2.086560637	0.010270173	1.495752284	0.716850619	65.86812381	0.980207667	69.54186467	1.402459886	197.8076113	33.79964141	65.86812381	0.980207667	33.29908459
Spot 26	212.50818	31069.31953	3.961823615	9.209563596	0.716472004	4.268040366	1.86593707	0.28534922	1.720933593	0.922289192	1618.246242	24.62861459	1687.219827	15.35109696	1774.03487	13.16241222	1774.03487	13.16241222	91.21840102
Spot 27	264.30298	1728.793993	1.873044084	18.29442931	4.04391356	0.093363265	5.823190983	0.014640268	2.932646083	0.503614958	93.69304944	2.727814479	90.63157834	5.049008211	10.72541562	NA	93.69304944	2.727814479	873.5610144
Spot 28	451.653677	304598.5826	7.850923817	9.267780706	0.848166764	4.232567999	2.835145246	0.283735378	2.705302294	0.954202363	1610.147248	38.5458087	1680.359619	23.29005105	1769.152174	15.48972877	1769.152174	15.48972877	91.01236582
Spot 29	271.984821	3241.099273	10.86632166	15.0919934	6.217086135	0.055687138	7.857750112	0.006518395	4.344162442	0.552850674	41.88391349	1.813607185	55.02550683	4.208722368	672.7153719	140.1956776	41.88391349	1.813607185	6.226097283
Spot 30	329.237522	21086.57704	5.326951065	6.26234276	0.599700695	9.404586522	1.677161894	0.427543204	1.566237077	0.933861592	2294.632896	30.23915413	2378.277627	15.39405557	2450.73461	10.14805097	2450.73461	10.14805097	93.63041131
Spot 31	529.838	68351.71558	1.390569896	12.50298495	4.006078749	0.773337579	4.203931733	0.070109712	1.274419157	0.303149346	436.8166169	5.38245583	581.6757974	18.61709545	1196.974007	79.02091385	436.8166169	5.38245583	36.49340873
Spot 32	1039.37041	25535.15891	3.10786894	20.1917526	2.180945153	0.096224676	2.767821606	0.01421744	1.690046781	0.610605386	91.00609322	1.527239946	93.28543843	2.466923857	151.9700187	51.34367735	91.00609322	1.527239946	59.88424165
Spot 35	83.902922	28425.92455	1.520177295	5.32541288	0.680718373	13.2238139	1.703409279	0.509848821	1.561439461	0.916655486	2655.984059	33.99032648	2695.758334	16.08147563	2725.704906	11.21218768	2725.704906	11.21218768	97.4420985
Spot 36	192.30039	129050.4945	4.96056019	5.411595487	0.596027705	12.61236916	1.47155572	0.493282192	1.345442712	0.914299536	2584.860665	28.65100279	2651.143703	13.84511258	2702.107684	9.840833793	2702.107684	9.840833793	95.66090503
Spot 37	324.265718	999412.0064	5.101073821	10.01976068	0.651238181	3.933612944	1.566937408	0.284748755	1.425195305	0.90954195	1615.234022	20.36280776	1620.624022	12.68617523	1627.612847	12.10765808	1627.612847	12.10765808	99.23944908
Spot 38	89.3892627	57120.91076	1.614415493	5.955288188	0.97430809	10.13816878	1.70475998	0.436697853	1.398870921	0.820567668	2335.840917	27.41031831	2447.456809	15.75700725	2541.540538	16.33355501	2541.540538	16.33355501	91.90649853
Spot 39	242.813344	29541.00082	2.618836443	17.72292442	0.929973775	0.523081056	1.653641713	0.067608683	1.364969702	0.825432554	421.7326148	5.572264269	427.2074872	5.766628503	456.8718179	20.71031602	421.7326148	5.572264269	92.30873918
Spot 40	1112.73999	814723.2117	8.933260533	9.855573027	0.596589766	4.200847007	0.999509178	0.299128843	0.801934662	0.802328462	1686.987391	11.90320054	1674.185407	8.197641458	1658.159905	11.04801376	1658.159905	11.04801376	101.7385227
Spot 44	466.904688	158776.9156	3.715642426	9.213904216	0.590120181	4.575259976	1.67857078	0.304664164	1.571411993	0.936160698	1714.395889	23.65553957	1744.772248	13.9877446	1781.351913	10.76057394	1781.351913	10.76057394	96.24128038
Spot 46	172.859789	29413.14656	1.920533997	6.279804019	0.693476918	9.630363815	1.722558372	0.438156524	1.576712855	0.915332032	2342.382604	30.96686786	2400.075562	15.84651192	2449.385508	11.73775462	2449.385508	11.73775462	95.63143884
Spot 47	217.454282	22589.96479	12.76969651	9.941590245	0.880834676	3.917989027	1.388797474	0.28315386	1.07359479	0.773039129	1607.226432	15.27225492	1617.403374	11.2347189	1630.656106	16.37354366	1630.656106	16.37354366	98.56317507
Spot 49	1024.02556	4532.15587	12.30368337	15.840093	1.935505587	0.237507468	3.930985801	0.028650899	2.469774025	0.628283629	182.0991884	4.434510953	216.377367	7.660710786	607.9690294	66.13328061	182.0991884	4.434510953	29.95205012
Spot 51	220.929736	1411.236109	1.199230707	18.09825132	3.53699649	0.165326122	4.283049984	0.026696861	1.962630753	0.458232045	169.8418591	3.289840298	155.3546034	6.16996068	NA	NA	169.8418591	3.289840298	
Spot 52	515.831543	30255.94459	4.863111325	9.831648134	0.74786158	3.653464692	2.6483734	0.260834691	2.539211793	0.95878164	1494.110909	33.86322598	1561.265205	21.11544398	1653.300887	13.94478835	1653.300887	13.94478835	90.37138493
Spot 53	308.998767	7365.58489	2.677699048	21.6515141	2.258995709	0.101717712	4.080934795	0.01663807	3.23697027	0.793193333	106.3734025	3.415022308	98.36068288	3.82576134	NA	NA	106.3734025	3.415022308	
Spot 54	73.2344871	27048.65735	1.962094172	5.477885874	0.649634642	12.53310124	1.429311485	0.497293768	1.27236203	0.890192266	2602.15519	27.24190604	2645.213615	13.44136512	2678.306099	10.7715867	2678.306099	10.7715867	97.15675108
Spot 55	21.3690197	7746.14302	1.121273571	9.810831319	3.414110022	3.630600485	6.660539658	0.26193199	5.71292516	0.857727069	1499.718754	76.44510636	1556.263953	53.07325614	1633.861812	63.63287224	1633.861812	63.63287224	91.78981619
Spot 56	204.790687	1217475.149	3.801240763	9.609496692	0.695065366	4.304195099	1.338406637	0.298891339	1.143772904	0.854578027	1685.808762	16.96678362	1694.16463	11.0282735	1704.501382	12.7964115	1704.501382	12.7964115	98.90333791
Spot 57	123.824886	11442.94625	1.546445376	11.24831292	1.496364807	2.812627907	2.3440107	0.231781484	1.80364076	0.769467801	1343.829058	21.87837096	1358.906119	17.55984396	1382.685787	28.76154671	1382.685787	28.76154671	97.18976429
Spot 58	102.105459	21056.64944	1.463967613	5.394769161	0.580464787	12.41609642	1.532850834	0.485492464	1.417078837	0.924472758	2551.144838	29.85570722	2636.39662	14.40515203	2702.49296	9.648286106	2702.49296	9.648286106	94.39968486
Spot 60	28.744168	26403.78314	1.351700904	7.890039183	1.612683493	6.729148604	2.292323509	0.384854779	1.628610798	0.710462896	2098.922041	29.17636146	2076.457039	20.26711587	2054.231527	28.479247	2054.231527	28.479247	102.1755344
Spot 61	280.481114	141144.9605	3.625064182	5.676829478	0.638813117	11.51706176	1.223422788	0.472645998	1.043396123	0.852849998	2495.154109	21.58771475	2565.967056	11.4304709	2622.38585	10.62687078	2622.38585	10.62687078	95.14824482
Spot 62	165.571989	4796.681038	3.3331488	18.25356984	5.801290947	0.084128609	6.626745015	0.011752772	3.16512089	0.47762829	75.32148226	2.37014245	82.01912919	5.2215195	281.738827	133.2910689	75.32148226	2.37014245	26.73450552
Spot 63	128.333339	18060.10714	5.213916087	13.50082379	0.9741238	1.67943863	1.453771601	0.165565752	1.045595969	0.719229876	987.6331547	9.574501088	1000.768956	9.252485985	1029.636739	20.44010814	1029.636739	20.44010814	95.92054334
Spot 64	74.860081	35743.44241	1.682609208	5.363588115	0.745693964	13.71645321	1.178624428	0.532448973	0.912413181	0.774133947	2751.762075	20.43634297	2730.330643	11.1547924	2714.503579	12.30396077	2714.503579	12.30396077	101.3725713
Spot 65	91.4642571	9385.056148	1.945820195	8.899235063	0.869894797	4.877394152	1.913810225	0.317909023	1.699899084	0.888227611	1779.509474	26.43389755	1798.358625	16.12754776	1820.267921	15.95609568	1820.267921	15.95609568	97.7608545
Spot 66	112.912367	26942.9722	1.333718986	5.325705125	0.870698978	13.36641777	1.650513859	0.515912683	1.401487393	0.849121857	2681.822328	30.74770548	2705.887581	15.59372126	2723.897377	14.3609581	2723.897377	14.3609581	98.45533648
Spot 67	94.2455724	11978.49733	1.416037769	5.387543984	0.600202134	12.25563665	2.757929535	0.480017748	2.691819729	0.976029189	2527.34298	56.28148965	2624.179184	25.89658592	2699.740312	9.912374197	2699.740312	9.912374197	93.61429946
Spot 68	374.782032	20729.55286	5.691256947	9.12879887	2.335384274	3.739752537	2.779440537	0.248606025	1.502004847	0.540398266	1431.282832	19.2786695	1579.920726	22.27122642	1784.445368	42.63390254	1784.445368	42.63390254	80.20883451
Spot 69	85.9444127	48564.81618	1.233069369	11.03635966	0.796411738	3.110617923	2.088234926	0.249282308	1.930108399	0.924277424	1434.773456	24.82749596	1435.318438	16.04667208	1436.107668	15.20197765	1436.107668	15.20197765	99.90709527
Spot 70	64.7753245	12306.14442	2.273574681	5.366480199	0.733289051	12.55168081	2.040617687	0.490153206	1.903411225	0.932762289	2571.338839	40.36058312	2646.606676	19.19340385	2704.649918	12.14264716	2704.649918	12.14264716	95.07104122
Spot 71	88.4097922	7135.133261	3.98534628	13.08145982	2.131397995	1.802591579	2.806458764	0.175220861	1.742435728	0.620866321	1040.812874	16.7472024	1046.397475	18.33045633	1058.094688	44.29389945	1058.094688	44.29389945	98.36670433
Spot 72	361.170698	36086.20186	6.806163646	10.04470722	0.521638808	3.94573709	1.492226137	0.287994637	1.397546454	0.936551384	1631.500168	20.14448723	1623.116222	12.08877211	1612.24749	9.743708426	1612.24749	9.743708426	101.1941516
Spot 73	247.897521	3121.710558	2.656273236	19.1386574	3.992179318	0.099046403	7.705846735	0.015086751	4.306773399	0.558896841	96.52910626	4.126319423	95.89571757	7.051474475	80.1487322	NA	96.52910626	4.126319423	120.4374712
Spot 74	594.777597	113669.1756	2.511213148	5.427575048	0.570446312	13.06603516	1.402961021	0.513633526	1.281743919	0.913599095	2672.122928	28.03850379	2684.432185	13.23342401	2693.699759	9.422751056	2693.699759	9.422751056	99.198989
Spot 75	86.3863857	698122.89	1.449447854	5.386437783	0.77160253	12.89236178	1.422032319	0.5027226	1.194489618	0.839987673	2625.486089	25.76039323	2671.817208	13.4004996	2707.059429	12.73359575	2707.059429	12.73359575	96.98664394

Spot 76	568.51112	90643.37264	3.117142009	9.653006235	0.688656009	4.437871497	1.720185607	0.310615147	1.576321106	0.916366873	1743.733152	24.08309862	1719.437189	14.25540417	1689.964247	12.70346802	1689.964247	12.70346802	103.1816593
Spot 77	543.038904	2800.978767	3.456962464	19.10780629	2.493409979	0.090491292	3.845414031	0.013921718	1.467191333	0.381543137	89.12619666	1.298653764	87.96092933	3.240104954	56.46231085	NA	89.12619666	1.298653764	157.8507775
Spot 78	185.958418	30457.66567	3.274506442	6.17364167	1.205629189	10.18488652	2.007237349	0.456409789	1.604525842	0.79937026	2423.68644	32.41454601	2451.706807	18.56101074	2475.014125	20.35250898	2475.014125	20.35250898	97.92616598
Spot 80	74.9681351	48377.90797	1.093467623	5.40864364	0.814763222	13.115154	1.281556226	0.514280045	0.98914024	0.771827424	2674.8758	21.655648	2687.971744	12.09138019	2697.820411	13.4557773	2697.820411	13.4557773	99.14951304
Spot 81	179.560872	3583.831333	3.016394062	19.02414517	2.873772829	0.176601066	5.686366967	0.02638921	2.4486097	0.430610566	167.9098904	4.058374672	165.1315729	8.666413828	125.4633612	120.9070636	167.9098904	4.058374672	133.8318125
Spot 85	49.3750274	24384.4037	2.064037164	5.175277013	0.876152513	11.13418531	1.817976743	0.418269095	1.592811767	0.876145294	2252.616799	30.28189106	2534.423213	16.93972458	2768.429388	14.38021178	2768.429388	14.38021178	81.36804244
Spot 87	127.710276	27506.51491	1.694671086	5.112566699	0.612803252	13.93754965	1.515021802	0.516842281	1.385076318	0.914228637	2685.774229	30.4237499	2745.472055	14.35439158	2789.657415	10.05052702	2789.657415	10.05052702	96.27613103
Spot 88	196.751407	30551.09278	16.18574819	9.70471527	0.878469397	4.011235135	1.524109817	0.282961371	1.242635223	0.815318692	1606.25932	17.66755792	1636.475015	12.38799605	1675.504834	16.30720008	1675.504834	16.30720008	95.86718508
Spot 89	108.078244	12755.75642	1.86071594	9.565524769	0.928837176	4.405325256	1.519445521	0.308127845	1.159990229	0.763429957	1731.487442	17.61385327	1713.341754	12.57457722	1691.21689	18.09915453	1691.21689	18.09915453	102.3811583
Spot 90	31.6276916	9465.499371	1.222220696	9.785953038	2.021946102	3.933367324	3.383538961	0.282584061	2.694390456	0.796323165	1604.363195	38.26887209	1620.57347	27.39854698	1641.673477	37.98664622	1641.673477	37.98664622	97.72730193
Spot 92	41.7478593	4933.547379	3.795413477	9.804146156	1.515786455	3.979036159	2.459604825	0.290035738	1.929826142	0.784608211	1641.707795	27.96976958	1629.929766	19.9610689	1614.746516	28.40191162	1614.746516	28.40191162	101.6696911
Spot 93	99.4345815	40865.86138	1.855184318	17.08358024	4.553189219	0.107342095	6.188506603	0.013351762	4.191189441	0.677253772	85.50145088	3.55986796	103.5311315	6.09128944	541.3464845	99.62716319	85.50145088	3.55986796	15.79421929
Spot 94	296.893635	1440.481912	4.770126506	20.53998095	1.920595441	0.08571223	2.848009707	0.016185929	1.982418247	0.69607145	103.5057729	2.035532075	83.50124874	2.28296983	NA	NA	103.5057729	2.035532075	
Spot 95	239.891325	740.7517627	2.156162022	15.24095809	5.895325549	0.076624605	10.10006935	0.012150694	2.525713116	0.250068888	77.85635404	1.954601132	74.96652401	7.299039177	NA	NA	77.85635404	1.954601132	
Spot 97	81.1297884	26973.1335	2.9205757	5.3999403	0.691942286	12.75224678	1.487068468	0.499441018	1.316248111	0.885129461	2611.393288	28.26269482	2661.524306	14.00236699	2699.831269	11.42773245	2699.831269	11.42773245	96.72431453
Spot 98	175.12944	104808.5211	3.770686385	4.915270874	0.572812488	14.86489838	1.530288747	0.528938734	1.419038043	0.927300841	2736.978932	31.64688881	2806.629456	14.55987712	2857.052541	9.324554487	2857.052541	9.324554487	95.79729085
Spot 99	389.948617	3753.225669	1.425623338	20.15867869	1.992737633	0.165981252	2.503706787	0.026296811	1.452418203	0.580107148	167.3295382	2.399053969	155.9252768	3.618950851	NA	NA	167.3295382	2.399053969	
Spot 100	427.763171	4895.669316	1.351356747	15.42135742	1.86330747	0.547173603	2.342284167	0.06396556	1.387694845	0.592453667	399.6971613	5.378125326	443.1434073	8.411346395	675.5197297	40.32771524	399.6971613	5.378125326	59.16883605
Spot 101	223.656566	41338.07962	2.150214428	9.714052412	0.532652918	4.220143544	1.484525692	0.297313585	1.385104561	0.933028353	1677.97359	20.46312754	1677.945779	12.18661971	1677.893813	9.868153578	1677.893813	9.868153578	100.0047546
Spot 102	119.439309	28604.69385	2.77079754	5.444200156	0.483818544	12.81596327	1.141929346	0.505330451	1.033671124	0.905197093	2636.663613	22.36896837	2666.217883	10.75611589	2688.696655	8.019350852	2688.696655	8.019350852	98.06474849
Spot 103	457.722893	13817.40618	2.433930973	11.84141391	1.79927578	0.839405031	3.127545551	0.072699583	2.549555833	0.815193829	452.3993316	11.1387633	618.8172478	14.49296501	1286.524609	35.27255232	452.3993316	11.1387633	35.16445224
Spot 104	70.8084764	32241.58553	1.514789923	16.53860038	2.352229589	0.823041098	3.42968669	0.099094075	2.495866012	0.727724203	609.0976435	14.50617877	609.7436561	15.72331563	612.123862	50.85305434	609.0976435	14.50617877	99.50561992
Spot 105	439.846222	41193.40965	4.355960722	12.83070891	0.838159707	1.907924009	1.54681327	0.177518306	1.298508453	0.839473308	1053.402698	12.61940909	1083.859905	10.30530218	1145.600455	16.682949	1145.600455	16.682949	91.95201464
Spot 107	105.076631	13102.52927	3.508160275	9.947800897	0.734372335	3.883828413	1.439401282	0.281874871	1.210888675	0.841244683	1600.797736	17.16461928	1610.32586	11.62332557	1622.789922	14.47782537	1622.789922	14.47782537	98.64479158
Spot 108	21.7254071	2678.623976	1.269937776	13.21450826	4.943664593	1.578413969	7.244599233	0.16200003	5.195914923	0.717212196	967.8819277	46.69783953	961.7449047	45.06065668	947.7255091	103.4224067	947.7255091	103.4224067	102.1268203
Spot 109	99.071767	9977.349372	3.535312004	12.68269025	0.753394747	2.034950568	1.183599918	0.189741872	0.876531492	0.740564002	1119.976593	9.011486707	1127.273328	8.058351314	1141.376267	15.79624224	1141.376267	15.79624224	98.12509912
Spot 110	391.348164	34485.77858	2.630765214	9.558838804	0.884503031	3.905617669	1.98274565	0.270562684	1.773742867	0.894589211	1543.657439	24.34908998	1614.845927	16.02983394	1708.923045	16.30435566	1708.923045	16.30435566	90.32925405
Spot 111	111.172715	87092.90279	10.66723761	5.464538086	0.738785523	13.24236845	1.569357409	0.522841634	1.38457491	0.882255949	2711.220536	30.64455759	2697.082009	14.8171968	2686.494314	12.21246528	2686.494314	12.21246528	100.9203899
Spot 113	201.614279	43183.75327	1.495281354	6.229363521	0.603763954	9.479937577	1.567805297	0.427133152	1.446626586	0.922708061	2292.780938	27.91104822	2385.604633	14.40117537	2465.84779	10.20714358	2465.84779	10.20714358	92.98144629
Spot 114	485.986856	21842.59582	4.269051142	20.59319322	2.071791908	0.091759026	3.134721323	0.013835002	2.349409519	0.749479548	88.57483697	2.066754427	89.14066166	2.675172903	104.299231	49.05906973	88.57483697	2.066754427	84.92376799
Spot 115	290.863413	20274.82103	5.125252526	11.41716409	6.037814529	2.456948787	7.882756655	0.204132908	5.06487711	0.642526128	1197.484153	55.35239127	1259.467276	56.94638958	1366.964478	116.3777547	1366.964478	116.3777547	87.60170233
Spot 116	757.452116	8785.393247	3.257941945	19.97091287	1.938539274	0.095933674	2.315750064	0.014311914	1.15121863	0.497125595	91.60654604	1.047133882	93.0158607	2.058301529	129.3345688	47.27659684	91.60654604	1.047133882	70.82912707
Spot 117	61.0191193	94092.25171	3.546093318	11.71898366	0.97292593	2.665816097	1.654180823	0.225710246	1.337793028	0.808734456	1311.977235	15.88076686	1319.034354	12.21499671	1330.501774	18.82764613	1330.501774	18.82764613	98.60770279
Spot 118	49.5718181	17075.17483	1.774935277	5.33879206	0.832701849	13.00418052	1.856056261	0.502616768	1.657497758	0.893021291	2625.032073	35.74080643	2679.957246	17.50206711	2721.648134	13.76161961	2721.648134	13.76161961	96.45008996
Spot 119	34.6036056	3516.899809	0.833810028	17.88660449	2.842384083	0.558352361	4.7739008	0.077862485	3.090303991	0.647333097	483.3514856	14.39080314	450.4534543	17.36954148	285.8178352	83.22134612	483.3514856	14.39080314	169.1117299
Spot 120	237.658263	1707.268	3.13105218	20.86445194	3.278635019	0.070623294	4.41397616	0.013003721	2.215797029	0.501995695	83.28701953	1.833600879	69.29075138	2.956462686	NA	NA	83.28701953	1.833600879	
Spot 121	197.441555	52349.71949	3.413099781	9.429180132	0.699300289	4.451216233	2.16453715	0.303616661	2.048370572	0.946331909	1709.218042	30.75429147	1721.925923	17.94838873	1737.394457	12.82621455	1737.394457	12.82621455	98.37823729
Spot 123	100.393434	20798.60087	1.980629778	5.449974324	0.671131072	13.38725792	1.452771625	0.527793665	1.288415749	0.886867369	2732.149207	28.69304018	2707.359444	13.72673712	2688.893346	11.09238803	2688.893346	11.09238803	101.6086864
Spot 124	219.97435	32579.01466	1.653456076	11.29279681	0.621805273	3.00169589	1.472068793	0.245630962	1.330959038	0.904141875	1415.904581	16.9191136	1408.050204	11.21239213	1396.164338	12.05922078	1396.164338	12.05922078	101.4138911
Spot 125	124.591999	35854.53377	3.773753787	9.702978047	0.725859755	4.246046438	2.00814234	0.298122952	1.871209989	0.931811432	1681.994123	27.70275689	1682.971756	16.50498981	1684.173826	13.45462347	1684.173826	13.45462347	99.87057733
Spot 126	117.093199	31394.02248	1.922311354	6.358533383	0.795054763	9.937200859	1.76484	0.456693366	1.575069828	0.892471741	2424.941496	31.83303954	2428.968778	16.28284748	2432.328511	13.49210619	2432.328511	13.49210619	99.69629859
Spot 127	67.5871794	774.9828201	1.97945179	15.77227839	5.933485887	0.162245205	6.82243245	0.026400522	2.611101212	0.382722912	167.9809403	4.32949891	152.6665542	9.670666209	NA	NA	167.9809403	4.32949891	
Spot 128	79.8913951	9371.73456	1.101644821	5.370074142	0.871199943	12.9408263	1.912966101	0.504110591	1.70297069	0.890225231	2631.437578	36.79392742	2675.353281	18.03251621	2708.701257	14.37828666	2708.701257	14.37828666	97.14757472
Spot 129	103.938145	282362.6966	0.904540285	5.389835844	0.385064041	13.4087464	2.478264786	0.52068201	2.448167018	0.987855306	2702.07204	54.03853733	2708.874865	23.42160284	2713.940716	6.350417944	2713.940716	6.350417944	99.56267741
Spot 130	265.585917	6158.205097	4.086369034	10.96098919	3.312969847	2.456095382	3.742869918	0.198852522	1.248392296	0.333538788	1169.153055	13.34858552	1259.216581	27.01447962	1416.580164	67.49181729	1416.580164	67.49181729	82.53349049
Spot 131	928.407008	14374.29253	1.993310944	18.19061709	2.39678147	0.112551239	2.864751184	0.01502549	1.467315366	0.512196443	96.14005454	1.400210684	108.2964836	2.942715618	384.631424	55.28452372	96.14005454	1.400210684	24.99537181
Spot 132	88.8629294	88006.46747	6.290104001	9.486385589	0.560405694	4.505451787	1.703177964	0.308309639	1.608335607	0.944314476	1732.383254	24.43281598	1731.978307	14.15348697	1731.473424	10.28395425	1731.473424	10.28395425	100.0525466
Spot 133	116.664018	34252.02629	1.655986214	9.210620274	0.578564575	4.504229226	2.919639707	0.299696425	2.86150203	0.98008738	1689.803178	42.53615254	1731.752802	24.26419016	1782.798499	10.56909761	1782.798499	10.56909761	94.7837447
Spot 134	181.177664	80375.22477	2.403580056	9.579915641	0.900318101	4.193210708	1.653996867	0.288948142	1.38745029	0.838846988	1636.270697	20.05032881	1672.693445	13.56129482	1718.683865	16.54745075	1718.683865	16.54745075	95.2048675
Spot 135	38.2767349	17479.28697	1.306070437	5.412287236	1.265803829	11.77996561	2.62257617	0.459591244	2.294927363	0.875066047	2437.752954	46.58383148	2587.072913	24.55030975	2706.178595	20.94653669	2706.178595	20.94653669	90.08100789
Spot 136	95.8609547	24031.22351	2.745677427	9.833762154	0.602310329	3.865694111	1.560526688	0.274534638	1.439331502	0.922336999	1563.778385	19.98600224	1606.548591	12.58942943	1663.070257	11.15913453	1663.070257	11.15913453	94.02960448
Spot 137	56.48307	12679.73151	2.478650179	13.1499845	1.50431279	1.910505073	2.10828101	0.183113278	1.456399342	0.69079944	1083.960257	14.53091368	1084.760756	14.05290046	1086.353627	30.55844663	1086.353627	30.55844663	99.77968779
Spot 138	143.823236	149550.3185	1.869541705	13.31915521	0.603217298	1.992681668	1.825391736	0.190817969	1.722840475	0.943819587	1125.804609	17.79665022	1113.032304	12.34197835	1088.151935	12.10813771	1088.151935	12.10813771	103.4602405
Spot 139	246.503199	28148.40533	3.230302074	9.451332954	0.525695973	4.321329634	1.217534628	0.293602625	1.097305062	0.901251625	1659.507225	16.05482336	1697.43941	10.03974353	1744.583824	9.663219723	1744.583824	9.663219723	95.12338718
Spot 141	78.2062661	31808.87395	1.170715531	5.367023175	0.554893568	12.73779206	1.348841606	0.490195843	1.228996442	0.911149564	2571.523284	26.06138388	2660.456495	12.69961999	2728.773969	9.150483704	2728.773969	9.150483704	94.23731364
Spot 142	244.132654	2291.320701	3.273083838	20.03457919	2.655090245	0.093960529	4.821878851	0.015478114	1.635328356	0.339147541	99.01401933	1.606832665	91.1860935	4.205256499	NA	NA	99.01401933	1.606832665	
Spot 143	52.5781494	13652.02756	1.518671675	5.321400548	0.871494396	12.97208843	1.689602688	0.496291434	1.440840973	0.852769105	2597.838318	30.80762015	2677.627716	15.92937382	2738.427394	14.51731397	2738.427394	14.51731397	94.86606525
Spot 144	591.428027	61060.57672	2.480576574	9.610219075	0.619870672	3.464720361	1.274146659	0.238898075	1.112091632	0.873456461	1380.9659	13.83428204	1519.222809	10.04008546	1717.535856	11.40432903	1717.535856	11.40432903	80.40390507
Spot 145	390.764005	57211.62497	4.057377984	8.704158095	0.67772969	4.579868386	1.226200888	0.285987113	1.021488623	0.833051609	1621.444672	14.64408811	1745.611199	10.21963168	1897.718271	12.19524427	1897.718271	12.19524427	85.44180117
Spot 146	34.9209745	2642.75819	2.572305109	9.348365073	1.821089116	4.128838633	2.236995111	0.290412377	1.220348137	0.545530087	1643.589618	17.70474359	1660.028681	18.28734988	1680.872392	34.62319814	1680.872392	34.62319814	97.78193905
Spot 148	70.9717458	27927.59579	1.430565676	5.166012421	0.902500321	13.67468289	1.610160206	0.506881686	1.332882062	0.827794686	2643.303186	28.90282438	2727.444541	15.23632167	2790.344763	14.79046976	2790.344763	14.79046976	94.73034375
Spot 150	131.251681	19505.90879	1.677170417	5.366800453	0.580553611	13.02396818	1.18452474	0.503064939	1.032367505	0.871545752	2626.954493	22.27412054	2681.390952	11.17027782	2722.684999	9.570429196	2722.684999	9.570429196	96.48396691
Spot 151	57.220706	5489.820713	3.233648964	11.17728535	1.824365934	2.968928239	3.499408776	0.245016277	2.601317633	0.743359179	1412.722666	33.00162244	1399.701572	26.58583281	1379.904043	44.9903099	1379.904043	44.9903099	102.3783265
Spot 152	248.032134	70827.09924	4.878828454	10.05034747	0.593603428	3.971338082	1.507213172	0.286872113	1.385368211	0.919158774	1625.879487	19.90846367	1628.35867	12.2261337	1631.545387	11.03166158	1631.545387	11.03166158	99.65272798
Spot 154	157.811028	16133.47826	2.962515881	9.723204448	0.72456494	4.069472217	1.378226514	0.286222016	1.170205501	0.849066165	1622.62209	16.78681946	1648.20705	11.23423676	1680.967063	13.44640949	1680.967063	13.44640949	96.52908294
Spot 155	77.6133995	20373.85645	4.389718009	5.466323633	0.629973503	12.75074612	1.326694996	0.501646304	1.165444226	0.878456788	2620.867314	25.09815861	2661.4135	12.49200781	2692.358613	10.47257377	2692.358613	10.47257377	97.34465912
Spot 156	429.170635	3103.921724	2.550560613	19.81977681	2.282898952	0.075213341	4.233684794	0.011810109	2.253585254	0.532298781	75.68679422	1.695692504	73.63466361	3.007114304	7.514763828	NA	75.68679422	1.695692504	1007.174623
Spot 157	399.721284	2298.768267	4.330877314	16.71122114	4.685062499	0.084179721	5.593774122	0.011295016	1.815125225	0.324490261	72.404211	1.306874166	82.06699886	4.410052612	373.2336514	119.1623059	72.404211	1.306874166	19.39916477
Spot 158	389.720073	33053.07332	4.240743286	10.07249134	0.519758904	3.932120622	1.431584694	0.285492134	1.333776291	0.931678228	1618.962958	19.09533107	1620.316842	11.58934678	1622.057342	9.675608977	1622.057342	9.675608977	99.8092309
Spot 160	87.0409108	34102.67837	1.345426247	5.379916389	0.817202553	13.20154247	2.210744639	0.510814243	2.05397628	0.929087984	2660.104685	44.76849954	2694.167217	20.86982473	2719.810105	13.47749195	2719.810105	13.47749195	97.80479452
Spot 161	102.84003	30998.06852	1.748608622	5.359760621	0.583470444	12.71038168	1.23272537	0.490061025	1.085061187	0.880213236	2570.940053	23.00490198	2658.428525	11.60444032	2725.678802	9.634091775	2725.678802	9.634091775	94.32292795
Spot 162	69.968522	25713.29702	3.411964611	5.44625319	1.366729912	12.26621395	2.893340403	0.480801218	2.549764187	0.88125275	2530.754584	53.36996783	2624.989083	27.17043677	2698.471707	22.58345352	2698.471707	22.58345352	93.78473666
Spot 163	147.401609	35637.79427	3.521008665	5.390782628	0.670002208	11.213887	2.323966139	0.435240934	2.22514352	0.957476739	2329.300455	43.49984868	2541.070806	21.66845287	2714.741316	11.05684256	2714.741316	11.05684256	85.80193042
Spot 164	507.441896	7594.676146	3.039894204	20.02159108	2.551266969	0.097318589	3.039677052	0.014608405	1.564190387	0.514590978	93.4906059	1.451817986	94.29817481	2.737294183	114.7523818	61.48102893	93.4906059	1.451817986	81.47160385
Spot 166	200.486402	52190.31155	3.10788296	18.23350142	3.250888951	0.11746241	3.852101512	0.015512311	2.066494188	0.536458912	99.23110565	2.034903057	112.7688579	4.111459279	408.8969194	72.7568256	99.23110565	2.034903057	24.2680003
Spot 167	269.483132	57506.09543	2.417436433	9.725470239	0.759460047	4.278862293	1.555900569	0.300557342	1.357566672	0.872527911	1694.071861	20.22453916	1689.303549	12.80627295	1683.373154	14.03418562	1683.373154	14.03418562	100.6355517
Spot 168	4526.71814	16803.71773	3.265346451	20.86262612	0.638191227	0.087593158	1.389080869	0.013414039	1.232970385	0.887615986	85.89761668	1.052067289	85.25881418	1.135955558	67.4276072	15.22546891	85.89761668	1.052067289	127.3923549
Spot 169	1367.81726	582516.8248	5.664070522	20.55460923	0.886431437	0.101332526	1.335801713	0.015011731	0.999302394	0.748091864	96.05266959	0.952741005	98.00561869	1.24796535	145.8054735	20.79119521	96.05266959	0.952741005	65.87727285
Spot 170	392.308154	281612.6662	3.966321745	12.71404278	0.662441232	2.138038931	1.761444925	0.195940067	1.632132343	0.926587212	1153.473282	17.23806235	1161.190091	12.18644725	1175.635322	13.12390731	1175.635322	13.12390731	98.11488817
Spot 171	74.2639839	25860.51314	0.591285661	5.664509589	0.653698441	11.3123513	1.395212231	0.462843304	1.231379804	0.882575264	2452.099988	25.11589199	2549.223668	13.01684882	2627.414597	10.90719487	2627.414597	10.90719487	93.32748593
Spot 172	206.672587	27542.55833	1.078652256	17.32785381	0.974374753	0.700834997	1.788891129	0.088286817	1.499713619	0.838348178	545.3971483	7.842946421	539.2895418	7.484715281	513.5479266	21.41989607	545.3971483	7.842946421	106.2018012
Spot 173	2814.42744	28204.65028	5.466054138	20.18625703	1.051853444	0.101004185	1.539545042	0.014827769	1.107965495	0.719670724	94.88420248	1.043585173	97.70285754	1.434078748	167.0276861	24.99652116	94.88420248	1.043585173	56.80746988
Spot 175	119.092944	39331.46812	2.34517542	10.60915001	0.693992054	3.232808855	1.268346054	0.247721953	1.059825946	0.835596833	1426.716849	13.56438392	1465.061486	9.836319523	1521.074677	13.13587356	1521.074677	13.13587356	93.79663409
Spot 176	53.6890629	56446.3884	2.23301258	5.395548619	0.556817708	13.16514288	1.264661222	0.511726971	1.135473723	0.897848137	2663.997979	24.77777918	2691.561375	11.93517335	2712.314047	9.18471763	2712.314047	9.18471763	98.21864035
Spot 177	90.9637993	27754.10723	1.536699672	6.402342169	0.702472646	9.347779225	2.038014745	0.431912409	1.913069966	0.938692897	2314.332958	37.19915792	2372.718616	18.69595269	2423.249089	11.91794972	2423.249089	11.91794972	95.50536793
Spot 178	38.8777232	35744.74224	1.505995626	5.402423759	0.736931872	11.69693767	1.661919872	0.455553473	1.489515473	0.896261907	2419.895066	30.05228977	2580.454725	15.54701855	2709.068364	12.16192828	2709.068364	12.16192828	89.32572902
Spot 179	1498.23993	19720.64718	4.80562516	20.7930394	1.040313045	0.100938857	1.440051116	0.015369562	0.931346566	0.646745491	98.3248807	0.908797007	97.64260791	1.34061247	80.98952062	26.07583891	98.3248807	0.908797007	121.4044483
Spot 180	1860.22475	1072534.26	14.93684278	6.502954137	0.749941682	8.518778336	1.663959866	0.399386736	1.485378707	0.892677004	2166.214954	27.32837984	2287.928633	15.12171218	2398.493024	12.75605591	2398.493024	12.75605591	90.31566624

Spot 182	357.913342	85992.13173	20.78207056	9.85277794	0.632312874	3.988508408	1.290266352	0.283742453	1.124620745	0.87161906	1610.182775	16.02402468	1631.859622	10.47525232	1659.898075	11.70994541	1659.898075	11.70994541	97.00491853
Spot 183	53.2011938	19578.54257	1.630141604	5.491481352	1.650648877	12.11063711	4.911312871	0.481076972	4.62546144	0.941797349	2531.954921	96.85964888	2613.01101	46.09660313	2676.427178	27.32421473	2676.427178	27.32421473	94.6020479
Spot 184	138.331756	16101.1296	1.85022853	11.38958772	1.469574142	2.788435949	2.201461352	0.231393421	1.616796634	0.734419722	1341.797844	19.58524982	1352.442763	16.45431146	1369.298312	28.75706471	1369.298312	28.75706471	97.99163788
Spot 186	1077.56391	197205.6387	163.1735872	6.15734188	1.844383177	9.773094091	2.718714204	0.43444821	1.997411623	0.73468981	2325.738936	38.99816885	2413.618051	25.04800701	2488.578646	31.08322667	2488.578646	31.08322667	93.45651744
Spot 187	475.951198	4567.198948	3.70339742	8.956320696	1.033610706	3.867743177	2.222885525	0.256852072	1.962863927	0.883025196	1473.71629	25.85887561	1606.976104	17.93585759	1786.306126	19.01283046	1786.306126	19.01283046	82.50076896
Spot 188	538.888144	23996.39672	4.03815716	12.53500755	0.514270874	2.102975167	1.260231637	0.191653731	1.1500208	0.912547159	1130.327365	11.9231662	1149.780558	8.672547635	1186.670138	10.17873496	1186.670138	10.17873496	95.2520274
Spot 189	672.152533	2788.72503	4.392841999	20.44452815	1.467818142	0.091948933	3.759842319	0.015208082	1.421119367	0.377973129	97.29958565	1.372360295	89.317268	3.214736331	NA	NA	97.29958565	1.372360295	
Spot 190	641.199065	5385.933362	3.077418724	16.79206912	3.460411141	0.122269471	3.768862498	0.015513726	1.028843802	0.272985232	99.24008636	1.013206512	117.1274294	4.169303691	497.732969	79.907213	99.24008636	1.013206512	19.9384193
Spot 192	109.470801	6033.542082	1.372637269	6.119620132	1.193383363	8.687689118	2.33889125	0.388442781	2.009475934	0.85915749	2115.602371	36.24137433	2305.788614	21.30039793	2478.806236	20.18972874	2478.806236	20.18972874	85.34762986
Spot 195	195.780671	6627.385382	1.814164422	16.42957862	3.993904699	0.362729051	4.940172245	0.044872562	2.724366053	0.551471876	282.9648854	7.542258382	314.250235	13.35272364	553.2818005	89.97405789	282.9648854	7.542258382	51.14299534
Spot 196	85.5915184	34621.10785	2.125909732	8.905407007	0.765851211	4.866910775	1.928967158	0.315692475	1.770004086	0.917591613	1768.658335	27.3782021	1796.545892	16.24933968	1829.056903	13.90105409	1829.056903	13.90105409	96.69783004
Spot 197	278.218184	1372.915588	2.562253004	15.34205407	5.085437073	0.118407469	5.620479947	0.015762485	1.68519395	0.299830969	100.8190014	1.685778979	113.6272229	6.042094	391.0048793	120.418864	100.8190014	1.685778979	25.78458907
Spot 198	63.3959603	183950.4193	1.389529152	5.364982392	0.660689938	13.03344004	1.237620173	0.507719538	1.046513775	0.845585582	2646.886506	22.7179043	2682.076515	11.67162519	2708.697445	10.90150407	2708.697445	10.90150407	97.71805675
Spot 199	69.6008116	31387.76474	1.85076097	5.411160737	0.611589912	12.97395442	2.420211552	0.510442781	2.341307898	0.967398034	2658.519518	51.00685977	2677.763313	22.81967184	2692.310363	10.12592837	2692.310363	10.12592837	98.74491271
Spot 200	269.434583	817485.0269	5.883275573	10.13641534	0.69771036	3.789255068	1.358286075	0.27928589	1.165393189	0.857988027	1587.764859	16.401101	1590.470509	10.91248731	1594.041393	13.02995787	1594.041393	13.02995787	99.60625022
Spot 201	260.640375	31669.09264	4.982716873	10.11666863	0.531527943	3.901952097	1.093190495	0.28824994	0.954740095	0.873351991	1632.777833	13.77124237	1614.08693	8.835875546	1589.773922	9.949744898	1589.773922	9.949744898	102.7050331
Spot 202	273.503012	33220.36926	2.633124854	9.522184301	0.592226741	4.231200222	1.087646254	0.294062815	0.912177867	0.838671456	1661.800085	13.36235823	1680.094166	8.932870071	1702.998988	10.90758372	1702.998988	10.90758372	97.58080286
Spot 203	87.3872433	62651.06056	1.137418168	5.406048542	0.623928607	13.22844873	1.364902028	0.520446258	1.213872322	0.889347584	2701.072571	26.78542427	2696.089142	12.8856422	2692.339763	10.30986026	2692.339763	10.30986026	100.3243576
Spot 204	130.888803	784318.795	3.146869736	9.282020295	0.908997428	4.709555867	1.336684737	0.317229383	0.980025385	0.733176162	1776.18423	15.21487308	1768.940691	11.19577406	1760.383472	16.62072897	1760.383472	16.62072897	100.8975748
Spot 205	313.922897	85116.97981	2.589619786	9.217054237	0.997897612	4.298998826	1.742406873	0.287407078	1.428285954	0.81972011	1628.558765	20.55494927	1693.169419	14.35429672	1774.110689	18.21513309	1774.110689	18.21513309	91.79578116
Spot 206	900.715557	112054.827	33.10515017	6.880068837	0.829635168	8.285920554	1.441054073	0.413213519	1.178256447	0.817635139	2229.596794	22.20887127	2262.780458	13.05719611	2292.901606	14.26603741	2292.901606	14.26603741	97.23909601
Spot 207	123.346966	3579.092364	1.386300527	17.63831651	1.792946832	0.525299354	2.848784134	0.072316456	1.175939099	0.412786313	450.0965038	5.112311266	428.6852704	9.962197975	315.1359191	59.02396794	450.0965038	5.112311266	142.8261511
Spot 208	39.4157055	12499.16744	1.642812349	5.202442993	1.542449745	13.05143459	2.358950623	0.494564657	1.780365177	0.754727615	2590.394619	37.97875209	2683.377669	22.25132409	2754.185309	25.42551931	2754.185309	25.42551931	94.05302578
Spot 209	315.582879	30332.53262	6.494281746	10.02200826	0.99264984	3.857848846	1.70040561	0.28128571	1.377199456	0.809924084	1597.83423	19.49027912	1604.910104	13.71229192	1614.193987	18.57570109	1614.193987	18.57570109	98.98650613
Spot 210	53.9109313	126199.8262	1.387663936	5.423600538	1.079213964	13.35090755	1.969358662	0.524677783	1.647320616	0.836475675	2718.988544	36.54395891	2704.790764	18.60521746	2694.185435	17.82846695	2694.185435	17.82846695	100.9206163
Spot 211	79.3525587	29163.39073	1.652144274	5.411566846	0.759125007	12.38660671	2.043965892	0.486545546	1.897158943	0.928175441	2555.71315	40.02881979	2634.162266	19.20601168	2694.98714	12.56371394	2694.98714	12.56371394	94.83210931
Spot 212	82.2976914	10222.58257	1.989864067	9.686579403	0.884321585	3.83063091	1.652805164	0.272265362	1.393713894	0.843241493	1552.290481	19.22683557	1599.205039	13.30892244	1661.56809	16.44655672	1661.56809	16.44655672	93.42322413
Spot 213	248.976543	69053.79867	1.951388957	10.98528321	0.505296054	3.123066048	1.154304324	0.248574804	1.037652542	0.898941917	1431.121637	13.31721209	1438.388661	8.878143855	1449.13301	9.626487023	1449.13301	9.626487023	98.75709317
Spot 214	149.707955	133726.0442	1.739490987	9.693028505	0.772682244	4.239869247	1.467978923	0.297402981	1.248153073	0.850252721	1678.477789	18.44410844	1681.775443	12.0615236	1685.949606	14.2612083	1685.949606	14.2612083	99.55325968
Spot 215	49.4215298	26120.88197	2.45180697	5.488824848	0.953606086	12.4147387	4.022289654	0.493888275	3.907451658	0.971449596	2587.476562	83.28112385	2636.293858	37.81458459	2673.974502	15.79370198	2673.974502	15.79370198	96.76519203
Spot 217	94.9028345	54037.04736	3.051141545	7.751234337	0.681819301	6.604066904	1.421774075	0.370772264	1.24758164	0.877482338	2033.033212	21.75358097	2059.890565	12.53857294	2086.855818	11.99490121	2086.855818	11.99490121	97.42087568
Spot 218	1181.45389	4077.533157	3.876674931	20.21995703	1.736915112	0.094807577	2.012098462	0.01495239	1.00421908	0.499090427	95.67577499	0.953699624	91.97199489	1.769232191	NA	NA	95.67577499	0.953699624	
Spot 220	188.74336	4632.429313	1.50697189	7.712613084	1.061768284	5.177658165	1.551362544	0.295240334	1.128431095	0.72738065	1667.663264	16.58133662	1848.950868	13.20313881	2059.492311	18.78311405	2059.492311	18.78311405	80.97448361
Spot 221	301.035903	1567.699327	1.803358246	20.68421646	3.044527508	0.095060039	3.775031933	0.017698664	1.94388193	0.514931255	113.0950326	2.179261752	92.20611421	3.327454693	NA	NA	113.0950326	2.179261752	
Spot 222	82.4116359	109388.0673	1.419206074	5.421900109	1.225691925	12.9237275	2.132476666	0.506888256	1.745028472	0.818310699	2643.331292	37.84050221	2674.107122	20.10033058	2697.447094	20.24272936	2697.447094	20.24272936	97.99381414
Spot 225	73.8477256	21501.12812	1.377892012	5.231114062	1.677193731	13.39446376	4.392849561	0.507825808	4.059527976	0.924121785	2647.340861	88.1423049	2707.86787	41.52868181	2753.335506	27.57945892	2753.335506	27.57945892	96.15031858
Spot 226	1033.57003	1077801.66	12.50807384	9.915402676	0.620850991	4.178844085	1.206771384	0.299467474	1.034814575	0.857506723	1688.667493	15.37325429	1669.880572	9.887624669	1646.328994	11.51650315	1646.328994	11.51650315	102.5716912
Spot 227	251.897919	25632.9322	1.437196739	5.620740591	0.957748437	10.45451925	3.577737119	0.425799669	3.447133346	0.963495425	2286.75473	66.36489955	2475.894142	33.16805226	2634.991643	15.91187363	2634.991643	15.91187363	86.78413598
Spot 228	86.848105	194127.3652	1.666988059	13.61559311	2.254032954	1.737836449	3.356010649	0.171337208	2.486391528	0.740877127	1019.474675	23.44549381	1022.66131	21.63317914	1029.467293	45.59198857	1029.467293	45.59198857	99.02934087
Spot 229	85.5021222	639.0619389	2.903804119	6.753028502	8.982087774	0.237146204	11.3891518	0.013475126	5.641678889	0.495355492	86.28617915	4.835555568	216.0809047	22.17100883	2065.688712	174.8831703	86.28617915	4.835555568	4.177114328
Spot 230	151.909211	28976.67325	1.589552342	4.665024314	0.635825806	16.57639003	1.622419021	0.560427598	1.492592405	0.919979602	2868.395713	34.55727461	2910.652917	15.5377136	2939.995398	10.27319809	2939.995398	10.27319809	97.56463275
Spot 231	399.638173	30137.19161	5.772021003	10.00327386	0.67244009	3.972007406	1.45057396	0.288742182	1.284787226	0.885709561	1635.240549	18.55644615	1628.495368	11.76704764	1619.777239	12.53265977	1619.777239	12.53265977	100.9546566
Spot 232	120.186633	38521.24477	4.329379142	9.296488114	0.676699406	4.545891205	1.498708785	0.306717555	1.336031573	0.891455088	1724.533826	20.2159083	1739.409382	12.47431494	1757.325746	12.42135565	1757.325746	12.42135565	98.13398744
Spot 233	11.6478018	13830.48316	1.87344376	5.409561288	2.122896309	13.12357795	2.796810277	0.515415063	1.820822837	0.651035522	2679.705853	39.92242892	2688.577546	26.39357625	2695.239359	35.07286257	2695.239359	35.07286257	99.42366879
Spot 234	43.7350866	7535.348257	2.827366997	11.25736151	1.07674028	2.914227722	1.999480681	0.24239588	1.65445095	0.827440328	1399.140542	20.80840734	1385.610041	15.11668642	1364.815038	21.62371075	1364.815038	21.62371075	102.5150297
Spot 236	383.881926	157284.3124	4.179715549	6.875676065	0.614237656	8.635970991	1.551568593	0.429805079	1.42480516	0.91829982	2304.838848	27.61029508	2300.353429	14.12032121	2296.359475	10.55720625	2296.359475	10.55720625	100.3692529
Spot 237	138.46189	8082.10594	1.084718763	5.245093197	0.79962514	12.15546552	1.589935777	0.464893159	1.374168272	0.864291686	2461.126904	28.11305749	2616.476926	14.9178458	2738.977975	13.15520528	2738.977975	13.15520528	89.85566613
Spot 238	385.221879	67594.39691	0.875608625	18.09656571	2.440124507	0.20250604	3.4267367	0.026596744	2.405878689	0.702090327	169.2132109	4.018098463	187.2445003	5.859575882	421.180409	54.49231578	169.2132109	4.018098463	40.17594534
Spot 239	140.61744	38035.80898	5.362279459	5.377312967	0.550213433	13.38692089	1.427372964	0.521285679	1.316976556	0.92265763	2704.63058	29.09137274	2707.335658	13.48670187	2709.342237	9.081488422	2709.342237	9.081488422	99.82609593
Spot 240	266.809292	45216.33516	3.070863592	10.12630692	0.75233805	3.727487599	1.507941344	0.273055732	1.306396484	0.866344364	1556.293946	18.06334703	1577.289839	12.07315105	1605.471422	14.04419487	1605.471422	14.04419487	96.93688252
Spot 241	170.850995	147132.8107	2.370258854	8.741983188	0.83607243	5.328398352	1.694851325	0.336199149	1.474274365	0.869854684	1868.358597	23.91244202	1873.429638	14.49085055	1879.04336	15.06557004	1879.04336	15.06557004	99.43137221
Spot 242	211.439779	258755.5168	1.666989881	6.339772745	0.995186327	10.12951983	1.903879052	0.463274927	1.623070753	0.852507281	2454.001771	33.12625538	2446.668044	17.5964545	2440.563098	16.85238244	2440.563098	16.85238244	100.5506382
Spot 243	2158.14686	18645.93443	4.402723473	20.94027364	0.977558241	0.090091914	1.442549326	0.013816707	0.975888278	0.676502537	88.458508	0.857360359	87.58899095	1.210552101	63.93274152	25.3238903	88.458508	0.857360359	138.3618251
Spot 244	182.834262	30369.15256	2.21585625	13.39508899	0.741735296	1.760069123	1.417415176	0.170874853	1.206091764	0.850909307	1016.929617	11.34662445	1030.873457	9.178011171	1060.596655	14.98063106	1060.596655	14.98063106	95.88278559
Spot 245	69.9528975	39920.2396	1.793565893	5.328055666	0.678376767	13.00808366	1.223518191	0.499628788	1.017772528	0.831840945	2612.200502	21.85920079	2680.240207	11.53701945	2731.963891	11.17706606	2731.963891	11.17706606	95.61621625
Spot 246	185.031605	15081.9054	2.57952617	23.41362585	3.831776637	0.158260286	4.021699666	0.027298511	1.220867211	0.303569961	173.6183867	2.091360773	149.1791905	5.579685204	NA	NA	173.6183867	2.091360773	
Spot 248	254.690834	3337.669323	2.083267453	17.6329567	4.118089967	0.186868287	4.803446788	0.025782318	2.033369967	0.423314769	164.0970766	3.294590242	173.9535423	7.679346307	310.1264863	99.11104012	164.0970766	3.294590242	52.91295128
Spot 249	63.1665244	30588.39445	1.180541513	5.388261763	0.756185095	12.19374269	1.436567496	0.475302265	1.220733402	0.849757081	2506.771276	25.35304617	2619.426997	13.4818808	2707.679043	12.49717983	2707.679043	12.49717983	92.58007454
Spot 250	299.572873	12841.15123	1.911089968	17.65698161	0.938386349	0.556646022	1.563938663	0.072459688	1.24724062	0.797499703	450.9575101	5.432303618	449.3410378	5.678627726	441.054323	21.01265237	450.9575101	5.432303618	102.2453441
Spot 251	556.881287	2877.563152	2.803096156	19.98525843	2.767445548	0.081965129	3.804500559	0.013191489	1.603447607	0.421460736	84.48179887	1.345783732	79.9908121	2.926473707	NA	NA	84.48179887	1.345783732	
Spot 253	1053.0592	34232.70448	7.074548341	12.74079646	4.576019985	0.315901269	5.203096898	0.029223492	2.475217487	0.475720044	185.6865537	4.530582683	278.7447902	12.68359825	1157.018957	90.81562481	185.6865537	4.530582683	16.04870452
Spot 254	270.550301	37063.7171	17.67665168	9.871784208	0.69005262	3.707550715	1.652149	0.265314293	1.499991492	0.907903277	1516.973694	20.27545767	1572.998685	13.21282636	1648.97642	12.84209905	1648.97642	12.84209905	91.99486878
Spot 255	287.709415	54813.34268	3.419383042	10.95760415	0.546171036	3.216520296	1.209157426	0.254526574	1.078088605	0.891603179	1461.777722	14.10024374	1461.146584	9.366065192	1460.211004	10.40793458	1460.211004	10.40793458	100.107294
Spot 256	155.744032	1787.91182	2.721765707	17.41588896	6.157329774	0.077610321	8.228492473	0.01136495	5.278616754	0.641504719	72.84998686	3.823825123	75.89574409	6.017457161	172.8791355	147.4414644	72.84998686	3.823825123	42.13925912
Spot 257	57.6973367	22509.8476	3.440082289	5.531466552	0.647481986	12.53106099	1.72340473	0.500665844	1.597071005	0.926695266	2616.656927	34.34871601	2645.060524	16.20727735	2666.848268	10.72880041	2666.848268	10.72880041	98.11795285
Spot 258	90.6831511	59256.51266	1.472888238	6.310524625	0.567740674	10.0859507	1.213357346	0.459263813	1.072270907	0.88372227	2436.306664	21.75468462	2442.685286	11.20934341	2447.987463	9.610260158	2447.987463	9.610260158	99.52284071
Spot 259	112.28697	18482.05624	3.957367914	9.446816481	0.80032153	4.593757058	1.636840995	0.31491063	1.423526438	0.869679121	1764.826438	21.97740996	1748.135416	13.64982198	1728.216991	14.83106565	1728.216991	14.83106565	102.1183362
Spot 260	850.442096	72438.99818	7.567895906	16.18463251	0.756288542	0.806825119	1.369465999	0.094366297	1.141226773	0.833337062	581.3084388	6.343727234	600.6713989	6.209403324	674.4723194	16.17499147	581.3084388	6.343727234	86.18714543
Spot 262	22.4653901	8738.805233	1.180617133	8.938468968	1.782705827	4.204957207	3.453556759	0.274555144	2.934494934	0.849702246	1563.882104	40.75006535	1674.987542	28.33698588	1817.124074	33.06347894	1817.124074	33.06347894	86.063584
Spot 263	176.009812	46076.92707	2.78983726	12.40934242	0.968120516	2.269705492	1.745624552	0.203616072	1.451971299	0.831777542	1194.716641	15.83438453	1202.924219	12.30446915	1217.67513	19.05641019	1217.67513	19.05641019	98.11456368
Spot 264	22.8063201	8726.863168	2.509954384	12.51822682	1.537433489	1.975319756	3.476499633	0.18177017	3.00450713	0.864233409	1076.63793	29.79093453	1107.12445	23.4397511	1167.494391	34.64395128	1167.494391	34.64395128	92.21782459
Spot 265	189.350513	107031.7247	3.647213584	9.246344787	0.747684441	4.633515698	3.462436708	0.309230304	3.380744345	0.976406107	1736.918034	51.47611521	1755.326908	28.92413174	1777.298923	13.64067227	1777.298923	13.64067227	97.72796304
Spot 266	101.937898	61893.51794	1.97652134	9.806947211	0.781487301	4.094098788	1.536511729	0.29008649	1.322658225	0.860818827	1641.961404	19.17236989	1653.127653	12.53945967	1667.329766	14.46430747	1667.329766	14.46430747	98.47850366
Spot 267	236.072175	35468.10069	4.410021529	9.614406554	0.626748972	4.254198793	1.351895871	0.295967334	1.197670102	0.8859189	1671.28053	17.63218859	1684.548436	11.11480321	1701.092822	11.54923977	1701.092822	11.54923977	98.24746237
Spot 268	162.183313	7166.962823	3.924151379	9.809485701	0.97784429	3.902857534	1.300680516	0.281227926	0.851476264	0.654639055	1597.543497	12.04823152	1614.274464	10.51355256	1636.147368	18.26113288	1636.147368	18.26113288	97.64056275
Spot 269	77.9001657	47536.84463	1.732038913	5.531105484	2.080370051	12.46380207	3.193662964	0.497578203	2.423073919	0.758713097	2603.379674	51.89984833	2640.000768	30.02813777	2668.180543	34.45542542	2668.180543	34.45542542	97.57134617
Spot 270	571.286585	61954.93596	8.326491463	9.239650182	0.710942864	4.806420807	1.427761962	0.320385398	1.237982845	0.867079302	1791.611037	19.3644934	1786.022583	12.00104942	1779.485322	12.97265324	1779.485322	12.97265324	100.681417
Spot 271	60.2802527	24604.95631	1.490910886	5.429486376	0.58167649	13.1955483	2.096112845	0.5171977	2.013696592	0.960681385	2687.284544	44.25205784	2693.738554	19.78676553	2698.570124	9.612179281	2698.570124	9.612179281	99.5817941
Spot 272	146.326233	786122.1634	2.693948182	5.532580252	0.639579014	12.045208	1.502943211	0.479837868	1.360065061	0.904934432	2526.559438	28.4289675	2607.931018	14.09170875	2671.728927	10.58966849	2671.728927	10.58966849	94.56645889
Spot 273	63.3017591	60759.33539	2.149248795	5.215212884	0.652962187	13.96834875	2.528506771	0.525450755	2.442739355	0.966079816	2722.255881	54.24246439	2747.563475	23.96325599	2766.201412	10.71684708	2766.201412	10.71684708	98.41134016
Spot 275	80.6522794	37231.30118	4.953441903	9.202433717	0.816108251	4.641791788	1.579872412	0.309250725	1.351903447	0.855704193	1737.018587	20.58511326	1756.817493	13.19912035	1780.430238	14.90930781	1780.430238	14.90930781	97.56173257
Spot 276	92.3281824	428548.4309	4.118575538	5.373905755	0.723046629	11.1346279	1.884833175	0.431811487	1.740631953	0.923493907	2313.878592	33.84055642	2534.460248	17.5628657	2716.089478	11.92206949	2716.089478	11.92206949	85.1915451
Spot 278	67.27593	32881.66094	1.087651051	5.33943002	0.718390273	13.0069777	1.60709193	0.502109313	1.437439034	0.894434853	2622.854658	30.97474356	2680.160037	15.15426347	2723.667064	11.83833494	2723.667064	11.83833494	96.29865166
Spot 279	363.113682	2346.293585	2.268241325	18.44426644	2.886523978	0.07112701	4.257964396	0.010708396	2.766028168	0.649612799	68.66377169	1.889180189	69.768365	2.870956906	107.789427	76.46973725	68.66377169	1.889180189	63.70176889
Spot 280	74.5238746	119639.0256	1.925023554	13.07075914	1.556800482	1.808601595	2.045346253	0.170848014	1.326579333	0.648584234	1016.78185	12.47847134	1048.572581	13.37441013	1115.424735	31.07631393	1115.424735	31.07631393	91.15647329
Spot 281	203.890211	3990.876196	2.808320777	19.32238804	3.116951257	0.080506989	5.427767401	0.012088509	2.209619681	0.407095499	77.46028573	1.701335641	78.62148024	4.106383519	114.0598445	NA	77.46028573	1.701335641	67.91196854
Spot 284	85.2142309	306962.7445	1.485633216	5.404209058	0.643570582	12.84038613	1.279818943	0.500463198	1.106233858	0.864367467	2615.786361	23.78558962	2668.011219	12.0567077	2707.826447	10.61988553	2707.826447	10.61988553	96.60096066
Spot 285	81.7550057	37301.22387	0.902530371	5.396716341	0.758616001	13.18617201	1.476987349	0.514432694	1.266968777	0.857806113	2675.525603	27.74376416	2693.067663	13.94079332	2706.246613	12.5287602	2706.246613	12.5287602	98.86481114
Spot 286	160.067581	1137.268833	2.285204025	15.43773346	7.22003165	0.087396473	8.235476924	0.012159926	3.839273017	0.466187089	77.91515316	2.973370514	85.07517111	6.720955108	291.0017079	166.601169	77.91515316	2.973370514	26.77480957
Spot 287	518.65434	167490.3031	1.157279425	9.145546494	0.61198109	4.739396533	1.432779733	0.31302441	1.295503838	0.904189114	1755.572514	19.90965323	1774.233712	12.01396664	1796.247287	11.1403801	1796.247287	11.1403801	97.73556944

Spot 288	215.565976	110448.7935	4.47831077	13.66945104	1.072049441	1.681220331	2.135675412	0.16613657	1.847091084	0.864874444	990.7894156	16.96380787	1001.443914	13.59825718	1024.820455	21.70903558	1024.820455	21.70903558	96.67931693
Spot 289	95.109851	30812.23335	2.514571699	9.591918267	0.689046758	4.217385429	1.425088405	0.293173352	1.247236766	0.875199575	1657.367673	18.22787381	1677.409149	11.69718344	1702.555148	12.69527852	1702.555148	12.69527852	97.34590245
Spot 290	505.186396	305100.9298	38.66857653	9.894154594	0.668058332	3.935175215	1.697698652	0.280801827	1.560729805	0.919320872	1595.399251	22.05797372	1620.945501	13.74606974	1654.259197	12.37792607	1654.259197	12.37792607	96.44191514
Spot 291	203.438199	37392.0609	5.193469006	9.120462019	0.682737065	4.685738255	1.447470321	0.309099543	1.275509086	0.881198784	1736.27416	19.41461429	1764.696125	12.11298953	1798.488683	12.45307097	1798.488683	12.45307097	96.54073312
Spot 292	361.954717	231679.5481	11.00254857	9.22597844	0.71826313	4.672520748	1.704903241	0.310929873	1.546216899	0.90692355	1745.28098	23.64141994	1762.332939	14.26045378	1782.588016	13.09531715	1782.588016	13.09531715	97.90714204
Spot 293	568.561152	3885.161158	2.184195639	21.15601631	2.084839422	0.093186784	3.299098383	0.015460838	1.729952461	0.524371286	98.90435006	1.697939619	90.46767056	2.855527008	NA	NA	98.90435006	1.697939619	
Spot 295	262.271457	25866.27082	4.656328102	10.16803835	0.741835807	3.905489194	1.505714	0.288078842	1.309912933	0.869961316	1631.921602	18.88560031	1614.819335	12.17268325	1592.57592	13.86904479	1592.57592	13.86904479	102.4705687
Spot 296	345.701433	7482.689552	0.982759592	18.79537168	2.771204923	0.183420248	3.164592009	0.0258259	1.489690581	0.47073701	164.3709551	2.417664902	170.9994018	4.98034468	263.735754	64.08581499	164.3709551	2.417664902	62.32410762
Spot 297	219.48083	257744.2103	4.855960202	9.580778139	0.746466474	4.21402941	1.503534243	0.291447713	1.305144382	0.868050986	1648.759692	18.98724017	1676.755807	12.33924815	1711.952502	13.7300106	1711.952502	13.7300106	96.30872878
Spot 299	98.5204695	10239.10559	1.740071763	9.599578155	0.854150759	3.966328238	2.923897394	0.2782887	2.769946127	0.94734724	1582.737989	38.87419554	1627.334906	23.71506007	1685.46485	17.28087651	1685.46485	17.28087651	93.90513176
Spot 300	175.88341	6855.619476	2.876933716	9.304762014	1.297649087	3.949541076	2.557028227	0.270315043	2.202597551	0.861389612	1542.400869	30.21449301	1623.896898	20.72084278	1731.157268	23.8341609	1731.157268	23.8341609	89.09651929
Spot 301	81.0605237	17276.21876	3.181247775	5.323765434	0.702573984	12.42102844	1.956452269	0.479170797	1.825917568	0.933279895	2523.652916	38.1308473	2636.769826	18.38731837	2724.763798	11.57305211	2724.763798	11.57305211	92.61914434
Spot 302	173.979073	1477.35318	2.957151496	11.51942804	9.834041337	0.100740942	12.4215464	0.009421917	5.641293055	0.454153845	60.45322994	3.394403271	97.46005637	11.54370376	1135.312419	220.8690019	60.45322994	3.394403271	5.324810062
Spot 303	448.17447	30617.73147	1.401804426	18.94080103	1.572620758	0.257185544	2.295357177	0.035488674	1.671850707	0.728361897	224.8087945	3.693687654	232.3963319	4.767937494	309.860592	35.82949028	224.8087945	3.693687654	72.55159264
Spot 305	234.896501	3191.546869	3.31616752	13.48783042	4.824749646	0.083341572	5.930572452	0.008646838	3.126682498	0.527214282	55.50148695	1.727906296	81.28173083	4.632610841	925.5492492	103.5774861	55.50148695	1.727906296	5.996600072
Spot 306	81.7226229	9975.972556	0.945458273	5.385743188	0.808372922	12.81446984	1.416243106	0.501950845	1.1628588	0.821086998	2622.174546	25.05260239	2666.10812	13.34010128	2699.591528	13.34690844	2699.591528	13.34690844	97.1322705
Spot 307	102.247452	1069.779434	2.332219479	18.87246633	5.036113724	0.067570717	7.405217355	0.012506156	5.07378848	0.685164018	80.11990175	4.039957367	66.39154093	4.759187049	NA	NA	80.11990175	4.039957367	
Spot 308	71.9973795	17372.69286	1.2007159	5.396064891	0.667835176	12.94399562	2.319230096	0.506582082	2.219666486	0.957070405	2642.021357	48.11395092	2675.584093	21.86361546	2701.032895	11.10017108	2701.032895	11.10017108	97.81522331
Spot 309	136.569633	119191.9059	2.23044009	12.59162358	0.805826595	2.202111365	2.497625562	0.200652189	2.364041436	0.946515551	1178.822887	25.46843361	1181.713351	17.44226187	1187.027203	15.8987995	1187.027203	15.8987995	99.30883503
Spot 310	141.917917	902.3866941	1.627318672	15.86746701	6.215985469	0.080311877	7.835774934	0.012424434	3.641347736	0.464708056	79.5995768	2.880675853	78.43811165	5.91489992	43.17375749	NA	79.5995768	2.880675853	184.3702782
Spot 311	1335.21678	60201.55786	1.84175238	20.95358776	1.044457101	0.100784634	1.454966052	0.01531745	1.012811678	0.696106742	97.99401891	0.984989338	97.50035918	1.352617464	85.46734103	24.78088166	97.99401891	0.984989338	114.6566837
Spot 312	118.84348	8794.724228	2.210644944	16.71236908	1.647956719	0.801620914	3.133939784	0.099413694	2.424292866	0.773560768	610.9720043	14.13152573	597.7425675	14.15970919	547.8835243	43.38480203	610.9720043	14.13152573	111.5149438
Spot 313	249.664964	183223.7028	2.668695829	9.773261021	0.681508616	4.139312665	1.404515909	0.29213391	1.228087356	0.874384795	1652.184014	17.89876345	1662.100165	11.4867797	1674.633695	12.59459819	1674.633695	12.59459819	98.65942737
Spot 314	362.273111	54771.81592	5.078264024	10.07928449	0.719407862	3.971719814	1.177164584	0.289604587	0.931504055	0.791311654	1639.552941	13.48504674	1628.436634	9.548867319	1614.089463	13.40466978	1614.089463	13.40466978	101.5775754
Spot 315	193.004006	24675.29306	2.735625153	9.407385715	0.763448308	4.446620939	1.70147824	0.303532622	1.520342364	0.893542055	1708.802455	22.82153681	1721.06961	14.10545836	1736.007958	14.00881091	1736.007958	14.00881091	98.43286989
xx -fc	158.655004	30446.15355	2.675914086	12.77971749	1.514876213	1.974923927	3.213318065	0.183274792	2.833475678	0.881791226	1084.840239	28.29160629	1106.989357	21.66327042	1150.75072	30.09885231	1150.75072	30.09885231	94.2723928
xx -r33	95.0060981	9195.657445	2.868104377	16.59382782	2.317828154	0.597257098	3.056325791	0.073580649	1.937397376	0.633897532	457.691944	8.559849085	475.4915413	11.60472782	562.2829404	51.50458966	457.691944	8.559849085	81.3988672
xx - fc	591.976208	4156.856509	2.481233774	11.40462996	1.905873303	2.511465414	3.820853524	0.215509382	3.183507225	0.83319269	1258.103038	36.38618509	1275.355077	27.75474555	1304.531734	41.02113841	1304.531734	41.02113841	96.44096847

1. Analyses with >10% uncertainty (1-sigma) in 206Pb/238U age are not included.
2. Analyses with >10% uncertainty (1-sigma) in 206Pb/207Pb age are not included, unless 206Pb/238U age is <400 Ma.
3. Best age is determined from 206Pb/238U age for analyses with 206Pb/238U age <900 Ma and from 206Pb/207Pb age for analyses with 206Pb/238Uage >900 Ma.
4. Concordance is based on 206Pb/238U age / 206Pb/207Pb age. Value is not reported for 206Pb/238U ages <400 Ma because of large uncertainty in 206Pb/207Pb age.
5. Analyses with 206Pb/238U age >400 Ma and with >20% discordance (<80% concordance) are not included.
6. Analyses with 206Pb/238U age >400 Ma and with >5% reverse discordance (<105% concordance) are not included.
7. All uncertainties are reported at the 2-sigma level, and include only measurement errors.
8. Systematic errors are as follows (at 2-sigma level): [sample 1: xxx% (206Pb/238U) & xxx% (206Pb/207Pb)]
9. Analyses conducted by LA-ICPMS, as described by Gehrels et al. (2008) and Gehrels and Pecha (2014).
10. U concentration and U/Th are calibrated relative to FC-1 zircon standard and are accurate to ~20%.
11. Common Pb correction is from measured 204Pb with common Pb composition interpreted from Stacey and Kramers (1975).
12. Common Pb composition assigned uncertainties of 1.5 for 206Pb/204Pb, 0.3 for 207Pb/204Pb, and 2.0 for 208Pb/204Pb.
13. U/Pb and 206Pb/207Pb fractionation is calibrated relative to fragments of large Sri Lanka zircons and individual crystals of FC-1, and R33.
14. U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U/235U = 137.82.
15. Weighted mean and concordia plots determined with Isoplot (Ludwig, 2008).

Aliquot Name	SB3_18
Stratigraphic Formation Name	
Stratigraphic Age	
Rock Type	
Mineral	Zircon
Method	U-Pb
Latitude	
Longitude	
Internal Uncertainty Level	one sigma
External Uncertainty 206/238 (% two sigma)	0.7137438
External Uncertainty 206/207 (% two sigma)	0.61174583
Analysis Purpose	
Laboratory Name	Arizona LaserChron Center
Analyst Name	
Aliquot Reference	
Aliquot Instrumental Method	LA-ICPMS
Aliquot Instrumental Reference	Gehrels, G.E., Valencia, V., Ruiz, J., 2008, Enhanced precision, accuracy, efficiency, and spatial resolution of U-Pb ages by laser ablation-multicollector-inductively coupled plasma-mass spectrometry: Geochemistry, Geophysics, Geosystems, v. 9, Q03017, doi:10.1029/2007GC001805. Gehrels, G. and Pecha, M., 2014, Detrital zircon U-Pb geochronology and Hf isotope geochemistry of Paleozoic and Triassic passive margin strata of western North America: Geosphere, v. 10 (1), p. 49-65.

				Isotope ratios							Apparent ages (Ma)									
Analysis	U (ppm)	206Pb 204Pb	U/Th	206Pb* 207Pb*	± (%)	207Pb* 235U*	± (%)	206Pb* 238U	± (%)	error corr.	206Pb* 238U*	± (Ma)	207Pb* 235U	± (Ma)	206Pb* 207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)	
-Spot 215	272	9685	1.5	20.8784	2.0	0.0586	2.3	0.0089	1.2	0.51	57.0	0.7	57.8	1.3	93.1	47.6	57.0	0.7	98.5	*used for AVG*
-Spot 104	837	20068	4.6	21.2555	1.5	0.0578	2.0	0.0089	1.3	0.66	57.2	0.8	57.1	1.1	50.6	36.0	57.2	0.8	100.3	*used for AVG*
-Spot 28	695	6384	3.8	21.8759	1.6	0.0564	2.1	0.0090	1.4	0.65	57.5	0.8	55.7	1.1	NA	NA	57.5	0.8	103.1	*used for AVG*
-Spot 224	872	42012	6.0	19.9802	1.4	0.0621	1.9	0.0090	1.3	0.69	57.8	0.8	61.2	1.1	196.3	32.3	57.8	0.8	94.4	*used for AVG*
-Spot 169	696	9169	2.8	19.4912	2.9	0.0647	3.1	0.0091	1.3	0.41	58.7	0.7	63.6	1.9	253.6	65.9	58.7	0.7	92.2	*used for AVG*
-Spot 277	513	12964	0.7	21.6550	1.8	0.0584	2.2	0.0092	1.3	0.58	58.9	0.7	57.6	1.2	5.9	42.3	58.9	0.7	102.2	*used for AVG*
-Spot 22	258	4734	1.0	22.1460	2.2	0.0624	2.8	0.0100	1.6	0.59	64.4	1.0	61.5	1.7	NA	NA	64.4	1.0	104.6	
-Spot 178	377	11222	8.1	21.3690	2.5	0.0670	2.8	0.0104	1.2	0.42	66.6	0.8	65.8	1.8	37.8	60.0	66.6	0.8	101.2	
-Spot 271	126	9039	2.1	21.2578	2.6	0.0756	2.9	0.0117	1.3	0.45	74.8	1.0	74.0	2.1	50.3	61.7	74.8	1.0	101.0	
-Spot 44	717	8573	2.6	21.6546	1.3	0.0744	1.8	0.0117	1.3	0.69	74.9	0.9	72.8	1.3	5.9	32.1	74.9	0.9	102.8	
-Spot 141	422	8763	2.0	21.2269	1.6	0.1025	1.9	0.0158	1.0	0.55	101.0	1.1	99.1	1.8	53.8	38.3	101.0	1.1	101.9	
-Spot 254	871	45941	4.9	21.0014	1.0	0.1051	1.8	0.0160	1.5	0.82	102.4	1.5	101.5	1.7	79.2	24.4	102.4	1.5	100.9	
-Spot 208	4446	8471	15.6	10.1632	0.8	0.2581	2.8	0.0190	2.7	0.95	121.6	3.2	233.2	5.9	1593.1	15.7	121.6	3.2	52.1	
-Spot 218	397	46074	1.1	20.2641	1.3	0.1301	1.8	0.0191	1.2	0.66	122.2	1.4	124.2	2.1	163.4	31.2	122.2	1.4	98.4	
-Spot 225	566	38004	1.4	20.2668	1.0	0.1672	1.5	0.0246	1.2	0.77	156.6	1.8	157.0	2.2	163.1	22.5	156.6	1.8	99.7	
-Spot 283	287	6880	2.5	21.2513	1.2	0.1677	1.7	0.0259	1.2	0.71	164.6	1.9	157.4	2.4	51.0	28.3	164.6	1.9	104.5	
-Spot 96	158	12323	2.0	19.8149	1.6	0.2606	1.8	0.0375	0.8	0.47	237.1	1.9	235.1	3.7	215.6	36.3	237.1	1.9	100.8	
-Spot 132	614	63934	2.0	18.7641	0.9	0.3528	1.7	0.0480	1.4	0.84	302.5	4.3	306.9	4.5	340.3	21.0	302.5	4.3	98.6	
-Spot 288	423	126319	1.8	18.8575	0.8	0.3821	1.3	0.0523	1.0	0.75	328.6	3.1	328.6	3.6	329.1	19.0	328.6	3.1	100.0	
-Spot 191	411	92769	2.2	18.5325	1.1	0.4423	1.4	0.0595	0.9	0.63	372.4	3.2	371.8	4.4	368.3	24.4	372.4	3.2	100.2	
-Spot 106	243	133078	3.2	18.4506	1.1	0.4551	1.5	0.0609	1.0	0.68	381.3	3.7	380.9	4.7	378.3	24.3	381.3	3.7	100.1	
-Spot 158	823	43402	3.2	17.4732	0.8	0.5641	1.5	0.0715	1.2	0.85	445.3	5.4	454.2	5.3	499.5	16.7	445.3	5.4	89.1	
-Spot 85	274	86384	2.5	17.6714	0.9	0.5647	1.4	0.0724	1.1	0.78	450.6	4.8	454.6	5.2	474.6	19.7	450.6	4.8	94.9	
-Spot 306	163	14181	1.2	17.9000	1.2	0.5612	1.6	0.0729	1.0	0.63	453.5	4.5	452.3	5.9	446.1	27.8	453.5	4.5	101.7	
-Spot 246	616	3515518	0.7	18.0326	0.7	0.5593	1.3	0.0732	1.1	0.84	455.3	4.9	451.1	4.8	429.6	15.9	455.3	4.9	106.0	
-Spot 152	285	19498	2.9	17.5039	0.8	0.6813	1.2	0.0865	0.9	0.74	535.0	4.4	527.6	4.8	495.6	17.2	535.0	4.4	107.9	
-Spot 226	437	100727	1.7	16.1249	0.9	0.8508	1.7	0.0995	1.4	0.84	611.7	8.3	625.1	7.9	673.7	19.6	611.7	8.3	90.8	
-Spot 142	484	78238	2.2	16.8300	0.8	0.8248	1.3	0.1007	1.0	0.79	618.7	6.1	610.7	6.0	581.5	17.6	618.7	6.1	106.4	
-Spot 35	86	14882	1.9	16.6738	1.2	0.8693	1.9	0.1052	1.4	0.76	644.7	8.7	635.2	8.8	601.7	26.5	644.7	8.7	107.1	
-Spot 75	147	120650	1.9	15.4080	1.2	1.1368	1.6	0.1271	1.1	0.68	771.3	7.8	771.0	8.5	770.2	24.4	771.3	7.8	100.1	
-Spot 30	145	45594	3.1	14.1761	0.7	1.5344	1.1	0.1578	0.8	0.76	944.7	7.1	944.2	6.5	943.3	14.1	943.3	14.1	100.1	
-Spot 118	222	118879	2.6	14.1383	0.8	1.5772	1.5	0.1618	1.2	0.82	966.8	10.8	961.3	9.1	948.7	17.0	948.7	17.0	101.9	
-Spot 302	87	95368	3.1	14.1240	0.9	1.5829	1.7	0.1622	1.4	0.83	969.1	12.5	963.5	10.4	950.8	19.1	950.8	19.1	101.9	
-Spot 263	59	14174	1.1	14.0853	1.5	1.6397	1.9	0.1676	1.2	0.65	998.8	11.4	985.6	12.1	956.4	29.8	956.4	29.8	104.4	
-Spot 51	182	95735	2.7	13.9963	0.8	1.6157	1.3	0.1641	1.0	0.80	979.4	9.5	976.3	8.2	969.3	16.2	969.3	16.2	101.0	
-Spot 260	79	9005	0.6	13.9720	1.0	1.6903	1.4	0.1714	0.9	0.66	1019.6	8.5	1004.9	8.6	972.9	20.7	972.9	20.7	104.8	
-Spot 6	128	49263	2.8	13.9627	0.8	1.6084	1.2	0.1630	0.8	0.71	973.2	7.5	973.5	7.3	974.3	16.7	974.3	16.7	99.9	
-Spot 256	49	85891	3.9	13.8862	1.1	1.6581	1.5	0.1671	1.0	0.65	995.9	8.8	992.7	9.3	985.4	22.7	985.4	22.7	101.1	
-Spot 275	264	103770	3.0	13.8841	0.7	1.6313	1.4	0.1643	1.3	0.89	980.8	11.6	982.3	9.0	985.8	13.4	985.8	13.4	99.5	
-Spot 172	56	788449	1.9	13.8753	1.0	1.6070	1.4	0.1618	0.9	0.68	966.7	8.3	972.9	8.5	987.1	20.2	987.1	20.2	97.9	
-Spot 50	265	54536	2.8	13.8341	0.9	1.6977	1.2	0.1704	0.8	0.68	1014.4	7.9	1007.7	8.0	993.1	18.6	993.1	18.6	102.1	
-Spot 235	596	214488	1.6	13.8271	1.0	1.7106	1.5	0.1716	1.1	0.77	1021.0	10.8	1012.5	9.5	994.1	19.3	994.1	19.3	102.7	
-Spot 153	72	12112	1.5	13.7587	1.0	1.7198	1.3	0.1717	0.9	0.67	1021.4	8.2	1015.9	8.3	1004.2	19.5	1004.2	19.5	101.7	
-Spot 61	216	173305	4.4	13.7544	0.7	1.7553	1.3	0.1752	1.1	0.82	1040.6	10.4	1029.1	8.5	1004.8	15.1	1004.8	15.1	103.6	
-Spot 222	43	11594	0.9	13.6082	1.2	1.8259	1.6	0.1803	1.1	0.68	1068.5	10.7	1054.8	10.5	1026.5	23.8	1026.5	23.8	104.1	
-Spot 102	167	84557	2.9	13.6042	0.9	1.7675	1.3	0.1745	0.9	0.72	1036.7	8.8	1033.6	8.3	1027.1	18.2	1027.1	18.2	100.9	
-Spot 8	240	213866	1.4	13.5974	0.9	1.8036	1.4	0.1779	1.1	0.77	1055.8	10.7	1046.8	9.3	1028.1	18.7	1028.1	18.7	102.7	
-Spot 111	139	59204	2.0	13.5942	0.8	1.8100	1.1	0.1785	0.8	0.74	1058.9	8.0	1049.1	7.3	1028.5	15.3	1028.5	15.3	103.0	
-Spot 217	597	112093	4.5	13.5637	0.8	1.7759	1.4	0.1748	1.2	0.82	1038.4	11.2	1036.7	9.2	1033.1	16.3	1033.1	16.3	100.5	
-Spot 281	16	152622	1.5	13.5582	1.5	1.8415	1.8	0.1812	1.0	0.55	1073.3	9.6	1060.4	11.6	1033.9	29.7	1033.9	29.7	103.8	
-Spot 270	270	119821	1.9	13.5540	0.7	1.7893	1.3	0.1760	1.1	0.82	1044.9	10.5	1041.6	8.6	1034.5	15.1	1034.5	15.1	101.0	
-Spot 249	261	116294	2.1	13.5456	0.8	1.7910	1.4	0.1760	1.1	0.82	1045.2	11.0	1042.2	9.0	1035.8	16.1	1035.8	16.1	100.9	
-Spot 25	244	62628	3.0	13.5354	0.8	1.7628	1.2	0.1731	1.0	0.78	1029.3	9.1	1031.9	8.0	1037.3	15.6	1037.3	15.6	99.2	
-Spot 194	234	56468	2.5	13.5093	0.6	1.8003	1.0	0.1765	0.7	0.75	1047.7	7.1	1045.6	6.4	1041.2	13.1	1041.2	13.1	100.6	
-Spot 241	126	64632	1.1	13.5015	0.8	1.7686	1.4	0.1733	1.1	0.81	1030.0	10.8	1034.0	9.1	1042.4	16.8	1042.4	16.8	98.8	
-Spot 291	262	51793	2.7	13.5009	0.8	1.8332	1.3	0.1796	0.9	0.74	1064.7	9.3	1057.4	8.3	1042.5	17.1	1042.5	17.1	102.1	
-Spot 26	210	91854	3.8	13.4926	0.9	1.7978	1.5	0.1760	1.1	0.77	1045.1	10.7	1044.7	9.5	1043.7	18.8	1043.7	18.8	100.1	
-Spot 257	135	117314	2.8	13.4864	0.8	1.7911	1.2	0.1753	1.0	0.79	1041.1	9.5	1042.2	8.1	1044.7	15.3	1044.7	15.3	99.7	
-Spot 227	170	204255	2.1	13.4640	0.9	1.8502	1.3	0.1807	0.9	0.74	1071.1	9.3	1063.5	8.4	1048.0	17.5	1048.0	17.5	102.2	
-Spot 79	60	11465	1.4	13.4432	1.0	1.8169	1.6	0.1772	1.2	0.77	1051.8	11.8	1051.6	10.3	1051.1	20.2	1051.1	20.2	100.1	
-Spot 287	130	8033540	1.1	13.4398	0.9	1.7587	1.4	0.1715	1.1	0.76	1020.4	10.4	1030.4	9.4	1051.6	18.8	1051.6	18.8	97.0	
-Spot 280	84	31587	1.0	13.4191	0.8	1.8372	1.3	0.1789	1.0	0.78	1060.9	10.1	1058.9	8.7	1054.7	16.9	1054.7	16.9	100.6	
-Spot 98	335	71739	3.4	13.4020	0.6	1.8255	1.0	0.1775	0.8	0.77	1053.4	7.5	1054.6	6.6	1057.3	12.8	1057.3	12.8	99.6	
-Spot 197	156	39293	2.9	13.4013	1.0	1.8549	1.6	0.1804	1.3	0.81	1069.0	13.0	1065.2	10.8	1057.4	19.2	1057.4	19.2	101.1	
-Spot 286	334	93818	1.5	13.3947	0.7	1.8923	1.2	0.1839	1.0	0.81	1088.3	9.5	1078.4	7.8	1058.4	13.8	1058.4	13.8	102.8	
-Spot 76	321	94525	0.5	13.3669	0.7	1.7928	1.4	0.1739	1.2	0.85	1033.4	11.3	1042.8	9.0	1062.6	14.4	1062.6	14.4	97.3	
-Spot 10	342	88330	2.6	13.3651	0.7	1.8086	1.2	0.1754	1.0	0.81	1041.7	9.2	1048.6	7.7	1062.9	13.7	1062.9	13.7	98.0	
-Spot 189	23	31230	0.8	13.3612	1.5	1.8885	2.0	0.1831	1.3	0.66	1083.8	13.2	1077.0	13.3	1063.5	30.3	1063.5	30.3	101.9	
-Spot 143	154	65076	1.6	13.3534	0.8	1.8462	1.3	0.1789	1.0	0.77	1060.8	9.6	1062.1	8.4	1064.6	16.5	1064.6	16.5	99.6	
-Spot 147	105	25060	1.9	13.3486	0.8	1.8223	1.1	0.1765	0.8	0.70	1047.8	7.5	1053.5	7.3	1065.3	15.9	1065.3	15.9	98.4	
-Spot 125	279	115626	2.4	13.3384	0.7	1.9073	1.2	0.1846	1.0	0.79	1092.0	9.6	1083.6	8.1	1066.9	14.8	1066.9	14.8	102.4	
-Spot 100	514	359181	19.7	13.3376	0.9	1.8414	1.3	0.1782	0.9	0.69	1057.2	8.5	1060.4	8.3	1067.0	18.4	1067.0	18.4	99.1	
-Spot 237	76	19515	2.2	13.3230	0.8	1.7803	1.3	0.1721	1.0	0.80	1023.7	9.5	1038.3	8.2	1069.2	15.2	1069.2	15.2	95.7	
-Spot 157	327	97724	2.8	13.3175	0.6	1.9554	1.1	0.1890	0.9	0.80	1115.7	8.7	1100.3	7.2	1070.0	13.0	1070.0	13.0	104.3	

-Spot 86	51	65590	2.5	13.2993	0.9	1.7920	1.4	0.1729	1.1	0.76	1028.2	10.4	1042.5	9.4	1072.8	19.0	1072.8	19.0	95.8
-Spot 214	159	38727	2.6	13.2815	0.9	1.8572	1.5	0.1790	1.2	0.78	1061.4	11.5	1066.0	10.0	1075.5	19.0	1075.5	19.0	98.7
-Spot 59	52	38131	1.3	13.2762	0.8	1.9836	1.4	0.1911	1.1	0.81	1127.2	11.8	1109.9	9.5	1076.2	16.6	1076.2	16.6	104.7
-Spot 198	111	54986	0.9	13.2718	0.9	1.8922	1.4	0.1822	1.1	0.78	1079.1	11.2	1078.3	9.5	1076.9	18.0	1076.9	18.0	100.2
-Spot 40	53	1539224	1.3	13.2647	1.0	1.8631	1.5	0.1793	1.1	0.74	1063.2	10.6	1068.1	9.6	1078.0	19.6	1078.0	19.6	98.6
-Spot 92	213	24381	2.4	13.2291	0.8	1.8477	1.2	0.1774	0.9	0.77	1052.5	9.1	1062.6	8.0	1083.4	15.4	1083.4	15.4	97.2
-Spot 230	232	109739	2.3	13.2210	0.8	1.8710	1.2	0.1795	0.8	0.70	1064.2	8.0	1070.9	7.8	1084.6	16.9	1084.6	16.9	98.1
-Spot 307	501	113971	4.9	13.2205	0.7	1.9062	1.2	0.1829	1.0	0.81	1082.5	9.6	1083.3	7.9	1084.7	13.9	1084.7	13.9	99.8
-Spot 177	648	144206	4.8	13.1963	0.6	1.9887	1.3	0.1904	1.1	0.89	1123.6	11.7	1111.7	8.6	1088.3	11.9	1088.3	11.9	103.2
-Spot 315	288	193403	2.4	13.1933	0.9	1.9117	1.3	0.1830	0.9	0.71	1083.4	9.4	1085.2	8.8	1088.8	18.7	1088.8	18.7	99.5
-Spot 200	493	1813704	3.4	13.1843	0.6	1.6899	1.1	0.1617	0.9	0.84	966.0	8.2	1004.7	6.9	1090.2	11.7	1090.2	11.7	88.6
-Spot 219	165	1127625	1.0	13.1790	0.7	1.8716	1.5	0.1790	1.3	0.87	1061.4	12.5	1071.1	9.7	1091.0	14.3	1091.0	14.3	97.3
-Spot 60	110	112141	3.4	13.1437	1.1	1.9244	1.5	0.1835	1.1	0.69	1086.2	10.5	1089.6	10.2	1096.4	22.0	1096.4	22.0	99.1
-Spot 107	75	35461	1.2	13.1430	0.9	1.9222	1.4	0.1833	1.0	0.75	1085.0	10.2	1088.8	9.2	1096.4	18.2	1096.4	18.2	99.0
-Spot 296	514	180120	6.0	13.1210	0.6	1.8352	1.1	0.1747	1.0	0.86	1038.1	9.3	1058.2	7.4	1099.8	11.4	1099.8	11.4	94.4
-Spot 65	327	578748	1.8	13.1118	0.7	1.9362	1.2	0.1842	1.1	0.85	1089.9	10.6	1093.7	8.3	1101.2	13.2	1101.2	13.2	99.0
-Spot 269	106	104771	1.7	13.0890	1.0	1.9405	1.4	0.1843	0.9	0.63	1090.4	8.6	1095.2	9.1	1104.7	20.9	1104.7	20.9	98.7
-Spot 188	50	8105	2.9	13.0854	1.0	2.0739	1.7	0.1969	1.4	0.81	1158.7	14.8	1140.2	11.8	1105.3	20.1	1105.3	20.1	104.8
-Spot 46	362	55069	2.2	13.0850	0.7	2.0519	1.1	0.1948	0.8	0.76	1147.4	8.9	1132.9	7.6	1105.3	14.5	1105.3	14.5	103.8
-Spot 284	224	255658	3.3	13.0649	0.8	2.0125	1.3	0.1908	1.0	0.78	1125.6	10.1	1119.7	8.5	1108.4	15.7	1108.4	15.7	101.6
-Spot 173	86	18703	2.3	13.0205	0.9	2.0789	1.4	0.1964	1.1	0.80	1156.0	12.1	1141.9	9.8	1115.2	17.1	1115.2	17.1	103.7
-Spot 151	204	296521	1.7	12.9725	0.7	2.0179	1.2	0.1899	1.0	0.83	1121.0	10.5	1121.6	8.3	1122.6	13.7	1122.6	13.7	99.9
-Spot 313	155	24638	3.0	12.9296	0.8	2.1185	1.3	0.1987	1.1	0.82	1168.6	11.7	1154.8	9.2	1129.1	15.3	1129.1	15.3	103.5
-Spot 140	496	63897	27.1	12.9107	0.7	1.9316	1.0	0.1810	0.7	0.73	1072.2	7.1	1092.1	6.6	1132.0	13.6	1132.0	13.6	94.7
-Spot 116	462	102683	3.1	12.9101	0.7	1.8568	1.3	0.1739	1.1	0.84	1033.8	10.6	1065.9	8.7	1132.1	14.2	1132.1	14.2	91.3
-Spot 160	82	28372	2.4	12.8667	1.0	2.1019	1.5	0.1962	1.1	0.72	1155.0	11.3	1149.4	10.2	1138.8	20.3	1138.8	20.3	101.4
-Spot 97	175	133271	3.9	12.8637	0.9	2.0777	1.3	0.1939	1.0	0.74	1142.6	10.2	1141.5	9.0	1139.3	17.6	1139.3	17.6	100.3
-Spot 71	299	223883	3.1	12.8549	0.7	2.0993	1.3	0.1958	1.1	0.85	1152.7	11.5	1148.6	8.7	1140.7	13.2	1140.7	13.2	101.1
-Spot 233	206	3048478	3.2	12.8434	0.8	2.1469	1.4	0.2001	1.2	0.84	1175.7	12.4	1164.1	9.5	1142.4	14.9	1142.4	14.9	102.9
-Spot 239	324	452845	2.4	12.8356	0.9	2.1350	1.2	0.1988	0.9	0.71	1169.1	9.5	1160.2	8.6	1143.7	17.4	1143.7	17.4	102.2
-Spot 72	289	115982	3.0	12.8279	0.9	2.1647	1.4	0.2015	1.1	0.79	1183.3	12.1	1169.8	9.8	1144.9	17.3	1144.9	17.3	103.4
-Spot 299	195	127878	4.5	12.8241	0.8	2.1156	1.4	0.1969	1.1	0.79	1158.4	11.4	1153.9	9.4	1145.5	16.7	1145.5	16.7	101.1
-Spot 20	325	4303506	3.7	12.8198	0.8	2.1371	1.5	0.1988	1.3	0.84	1168.8	13.4	1160.9	10.3	1146.1	15.8	1146.1	15.8	102.0
-Spot 273	71	91550	2.7	12.8134	0.9	2.1075	1.4	0.1959	1.0	0.77	1153.4	11.1	1151.2	9.3	1147.1	17.0	1147.1	17.0	100.6
-Spot 80	701	29269	4.4	12.8088	0.8	1.7340	1.5	0.1612	1.2	0.82	963.2	10.8	1021.2	9.5	1147.8	16.8	1147.8	16.8	83.9
-Spot 209	259	116387	2.9	12.7996	0.7	2.0988	1.3	0.1949	1.0	0.81	1148.0	10.9	1148.4	8.8	1149.2	14.8	1149.2	14.8	99.9
-Spot 259	179	152441	2.6	12.7905	0.8	2.1214	1.6	0.1969	1.3	0.85	1158.5	14.2	1155.8	10.8	1150.6	16.2	1150.6	16.2	100.7
-Spot 126	38	24234	4.3	12.7827	1.1	2.1756	1.4	0.2018	0.9	0.64	1184.9	9.5	1173.3	9.6	1151.9	21.0	1151.9	21.0	102.9
-Spot 53	56	16856	3.0	12.7699	1.0	2.1508	1.5	0.1993	1.1	0.77	1171.5	12.2	1165.3	10.3	1153.8	18.9	1153.8	18.9	101.5
-Spot 78	187	665646	2.7	12.7525	0.8	2.1148	1.5	0.1957	1.3	0.84	1152.1	13.5	1153.7	10.4	1156.5	16.2	1156.5	16.2	99.6
-Spot 297	132	47538	2.2	12.7457	0.9	2.1213	1.2	0.1962	0.9	0.69	1154.7	9.1	1155.8	8.6	1157.6	17.9	1157.6	17.9	99.8
-Spot 39	78	15916	2.9	12.7233	0.9	2.1468	1.4	0.1982	1.0	0.74	1165.6	10.6	1164.0	9.4	1161.1	18.2	1161.1	18.2	100.4
-Spot 162	139	563649	3.2	12.7220	0.8	2.0638	1.2	0.1905	0.9	0.76	1124.1	9.5	1136.9	8.4	1161.3	15.9	1161.3	15.9	96.8
-Spot 250	77	18599	3.0	12.7143	0.8	2.1135	1.4	0.1950	1.1	0.82	1148.3	12.1	1153.2	9.7	1162.5	16.0	1162.5	16.0	98.8
-Spot 77	122	32595	2.4	12.7126	0.8	2.0610	1.4	0.1901	1.1	0.80	1122.0	11.4	1136.0	9.4	1162.8	16.3	1162.8	16.3	96.5
-Spot 54	195	76694	2.0	12.6843	0.8	2.1181	1.3	0.1949	0.9	0.75	1148.1	9.9	1154.7	8.7	1167.2	16.6	1167.2	16.6	98.4
-Spot 186	234	72649	2.0	12.6824	0.8	2.1584	1.4	0.1986	1.1	0.81	1167.9	11.8	1167.8	9.4	1167.5	15.8	1167.5	15.8	100.0
-Spot 240	110	433182	1.7	12.6790	0.7	2.2106	1.5	0.2034	1.4	0.88	1193.4	14.8	1184.4	10.8	1168.0	14.7	1168.0	14.7	102.2
-Spot 138	476	248428	4.3	12.6740	0.8	2.1646	1.2	0.1991	0.9	0.73	1170.2	9.4	1169.7	8.4	1168.8	16.4	1168.8	16.4	100.1
-Spot 203	86	26217	6.5	12.6670	0.9	2.0820	1.7	0.1914	1.5	0.85	1128.7	15.2	1142.9	11.8	1169.9	18.1	1169.9	18.1	96.5
-Spot 187	268	3765335	3.2	12.6366	0.6	2.1299	1.3	0.1953	1.1	0.87	1149.9	11.7	1158.5	8.9	1174.7	12.6	1174.7	12.6	97.9
-Spot 81	249	104702	2.5	12.6150	0.7	2.1594	1.1	0.1977	0.9	0.80	1162.7	9.7	1168.1	7.9	1178.1	13.5	1178.1	13.5	98.7
-Spot 170	91	27280	3.2	12.6111	0.8	2.1104	1.4	0.1931	1.1	0.80	1138.2	11.8	1152.2	9.7	1178.7	16.7	1178.7	16.7	96.6
-Spot 93	129	123893	1.7	12.6100	0.9	2.1460	1.4	0.1964	1.1	0.79	1155.7	11.7	1163.8	9.7	1178.8	17.1	1178.8	17.1	98.0
-Spot 108	474	78547	1.0	12.6008	0.7	2.1177	1.0	0.1936	0.8	0.77	1141.0	8.4	1154.6	7.2	1180.3	13.0	1180.3	13.0	96.7
-Spot 164	84	438888	2.8	12.5867	0.8	2.1460	1.3	0.1960	1.0	0.79	1153.7	11.1	1163.8	9.2	1182.5	16.3	1182.5	16.3	97.6
-Spot 163	81	30945	2.3	12.5803	1.0	2.1626	1.5	0.1974	1.1	0.73	1161.4	11.7	1169.1	10.5	1183.5	20.5	1183.5	20.5	98.1
-Spot 251	278	444914	1.2	12.5581	0.7	2.1666	1.2	0.1974	0.9	0.77	1161.4	9.6	1170.4	8.2	1187.0	14.8	1187.0	14.8	97.8
-Spot 311	64	98568	3.0	12.5379	1.2	2.1935	1.7	0.1995	1.3	0.75	1172.9	13.9	1179.0	12.2	1190.1	23.0	1190.1	23.0	98.6
-Spot 5	220	86524	1.5	12.5022	0.7	2.1649	1.1	0.1964	0.8	0.77	1155.9	8.8	1169.8	7.5	1195.8	13.5	1195.8	13.5	96.7
-Spot 166	126	82729	3.6	12.4769	0.9	2.2118	1.4	0.2002	1.0	0.75	1176.6	11.0	1184.8	9.6	1199.8	18.0	1199.8	18.0	98.1
-Spot 113	303	124464	1.2	12.4732	0.7	2.2814	1.2	0.2065	0.9	0.78	1210.0	10.1	1206.5	8.3	1200.3	14.6	1200.3	14.6	100.8
-Spot 122	74	89272	2.0	12.4612	0.9	2.1604	1.5	0.1953	1.2	0.78	1150.2	12.6	1168.4	10.6	1202.2	18.6	1202.2	18.6	95.7
-Spot 144	159	52711	4.9	12.4429	0.7	2.3423	1.1	0.2115	0.9	0.82	1236.7	10.5	1225.2	8.1	1205.2	13.0	1205.2	13.0	102.6
-Spot 243	202	182802	1.9	12.4204	0.6	2.2735	1.2	0.2049	1.0	0.84	1201.6	10.8	1204.1	8.2	1208.7	12.4	1208.7	12.4	99.4
-Spot 171	119	87408	1.0	12.4080	0.7	2.3903	1.2	0.2152	1.0	0.81	1256.5	11.3	1239.7	8.8	1210.7	14.3	1210.7	14.3	103.8
-Spot 55	598	493428	3.2	12.3972	0.8	2.0450	1.5	0.1840	1.3	0.86	1088.5	12.7	1130.6	10.1	1212.4	15.1	1212.4	15.1	89.8
-Spot 3	100	307035	1.9	12.3910	0.9	2.1519	1.3	0.1935	0.9	0.72	1140.1	9.6	1165.7	8.8	1213.4	17.5	1213.4	17.5	94.0
-Spot 201	476	129532	1.1	12.3896	0.6	2.2949	1.3	0.2063	1.2	0.90	1209.1	13.0	1210.7	9.3	1213.6	11.4	1213.6	11.4	99.6
-Spot 49	629	3352716	4.8	12.3773	0.7	2.1894	1.3	0.1966	1.1	0.85	1157.2	11.5	1177.7	8.9	1215.5	13.2	1215.5	13.2	95.2
-Spot 74	242	73332	2.6	12.3554	0.8	1.9855	1.4	0.1780	1.1	0.81	1056.0	10.8	1110.6	9.2	1219.0	15.9	1219.0	15.9	86.6
-Spot 193	223	75005	4.9	12.3389	0.7	2.3894	1.2	0.2139	0.9	0.79	1249.7	10.7	1239.4	8.6	1221.6	14.5	1221.6	14.5	102.3
-Spot 121	120	45111	2.4	12.3223	0.9	2.2968	1.2	0.2054	0.8	0.68	1204.0	9.0	1211.3	8.5	1224.3	17.2	1224.3	17.2	98.3
-Spot 84	274	179352	3.0	12.2978	0.7	2.3672	1.3	0.2112	1.1	0.84	1235.4	11.9	1232.8	9.0	1228.2	13.5	1228.2	13.5	100.6
-Spot 129	1103	439949	5.0	12.0697	0.7	2.3908	1.4	0.2094	1.1	0.84	1225.5	12.7	1239.8	9.7	1264.9	14.2	1264.9	14.2	96.9
-Spot 37	148	6539665	2.3	12.0179	0.8	2.4994	1.2	0.2179	0.9	0.74	1271.0	10.7	1271.8	9.1	1273.3	16.4	1273.3	16.4	99.8
-Spot 62	643	589511	2.8	11.9579	0.7	2.5571	1.7	0.2219	1.5	0.91	1291.7	18.0	1288.5	12.3	1283.0	13.7	1283.0	13.7	100.7
-Spot 190	193	161815	2.2	11.9491	0.9	2.4863	1.3	0.2156	0.9	0.73	1258.4	10.7	1268.1	9.2	1284.4	16.9	1284.4	16.9	98.0
-Spot 38	278	97423	3.3	11.7698	0.7	2.6555	1.3	0.2268	1.0	0.81	1317.6	12.2	1316.2	9.3	1313.8	14.2	1313.8	14.2	100.3
-Spot 174	384	369910	3.1	11.7360	0.7	2.6831	1.2	0.2285	0.9	0.81	1326.5	11.3	1323.8	8.6	1319.4	13.2	1319.4	13.2	100.5
-Spot 12	200	76816	2.2	11.7189	0.6	2.6647	1.1	0.2266	0.9	0.83	1316.5	10.9	1318.7	8.2	1322.2	12.0	1322.2	12.0	99.6
-Spot 91	79	95140	2.3	11.6852	0.9	2.6764	1.3	0.2269	1.0	0.74	1318.4	11.7	1322.0	9.8	1327.8	17.1	1327.8	17.1	99.3
-Spot 19	166	35293	1.5	11.6309	0.8	2.6402	1.6	0.2228	1.4	0.85	1296.7	16.2	1311.9	11.9	1336.8	16.2	1336.8	16.2	97.0
-Spot 179	62	526124	2.3	11.6111	0.8	2.6684	1.4	0.2248	1.1	0.81	1307.2	13.0	1319.7	10.1	1340.1	15.5	1340.1	15.5	97.5
-Spot 94	257	141684	3.0	11.5927	0.8	2.6936	1.3	0.2266	1.0	0.80	1316.5	12.3	1326.7	9.5	1343.2	15.0	1343.2	15.0	98.0
-Spot 52	191	105238	2.3	11.5057	0.8	2.8292	1.2	0.2362	0.9	0.76	1366.9	11.2	1363.3	9.0	1357.7	15.0	1357.7	15.0	100.7
-Spot 236	260	275053	4.4	11.4936	0.8	2.7978	1.3	0.2333	1.0	0.77	1351.9	11.9	1355.0	9.6	1359.8	15.8	1359.8	15.8	99.4
-Spot 66	387	2401473	2.7	11.4011	0.9	2.8848	1.3	0.2386	1.0	0.74	1379.6	12.1	1377.9	9.9	1375.3	17.0	1375.3	17.0	100.3
-Spot 252	89	1217418	2.0	11.4000	0.8	2.8368	1.4	0.2346	1.2	0.83	1358.8	14.3	1365.3	10.5	1375.5	15.1	1375.5	15.1	98.8
-Spot 128	343	217812	5.2	11.3917	0.7	2.8587	1.0	0.2363	0.8	0.75	1367.4	9.7	1371.1	7.8	1376.9	13.1	1376.9	13.1	99.3
-Spot 220	195	191863	2.7	11.3335	0.8	2.8889	1.4	0.2376	1.1	0.82	1374.0	14.1	1379.0	10.5	1386.7	15.3	1386.7	15.3	99.1
-Spot 267	116	89520	2.2	11.3219	1.0	2.8190	1.3	0.2316	0.9	0.67	1342.8	10.3	1360.6	9.6	1388.7	18.3	1388.7	18.3	96.7
-Spot 9	89	27366	2.3	11.3172	0.9	2.9968	1.5	0.2461	1.2	0.81	1418.3	14.9	1406.8	11.0	1389.5	16.4	1389.5	16.4	102.1
-Spot 21	317	455004	1.4	11.2832	0.7	2.9617	1.2	0.2425	1.0	0.81	1399.5	12.0	1397.9	9.0	1395.3	13.3	1395.3	13.3	100.3
-Spot 58	127	73755	1.3	11.2584	0.7	3.0472	1.2	0.2489	0.9	0.79	1432.9	12.1	1419.5	9.1	1399.5	14.0	1399.5	14.0	102.4
-Spot 279	599	485711	2.1	11.2417	0.6	2.8599	1.5	0.2333	1.4	0.91	1351.6	17.2	1371.4	11.6	1402.3	11.9	1402.3	11.9	96.4
-Spot 156	106	99783	1.7	11.1967	0.9	3.0038	1.4	0.2440	1.1	0.79	1407.6	14.1	1408.6	10.8	1410.0	16.7	1410.0	16.7	99.8
-Spot 135	292	96800	2.4	11.1650	0.6	3.1555	1.1	0.2556	0.9	0.81	1467.5	11.7	1446.4	8.5	1415.4	12.3	1415.4	12.3	103.7
-Spot 223	117	35629	0.6	11.1156	0.9	3.0804	1.5	0.2484	1.3	0.83	1430.5	16.4	1427.8	11.8	1423.9	16.3	1423.9	16.3	100.5
-Spot 274	452	121511	1.9	11.0820	0.7	3.1568	1.2	0.2538	1.0	0.81	1458.2	12.6	1446.7	9.3	1429.7	13.6	1429.7	13.6	102.0
-Spot 229	114	41468	2.0	11.0765	1.2	2.9377	1.6	0.2361	1.1	0.66	1366.4	13.0	1391.7	12.2	1430.6	23.1	1430.6	23.1	95.5
-Spot 131	255	77389	0.9	11.0621	0.7	3.0217	1.3	0.2425	1.1	0.84	1399.9	13.5	1413.1	9.7	1433.1	13.2	1433.1	13.2	97.7
-Spot 175	203	343486	2.2	11.0617	0.7	3.1021	1.3	0.2490	1.1	0.86	1433.2	14.4	1433.2	10.0	1433.2	12.7	1433.2	12.7	100.0
-Spot 199	229	63043	1.3	11.0601	0.7	2.6762	1.3	0.2148	1.1	0.83	1254.2	12.4	1321.9	9.8	1433.5	14.2	1433.5	14.2	87.5
-Spot 123	248	262851	1.9	11.0570	0.7	3.1560	1.4	0.2532	1.2	0.85	1455.0	15.3	1446.5	10.7	1434.0	14.1	1434.0	14.1	101.5

-Spot 43	256	134756	2.6	11.0422	0.6	3.1523	1.3	0.2526	1.2	0.89	1451.7	15.4	1445.6	10.2	1436.5	11.3	1436.5	11.3	101.1
-Spot 253	165	144001	1.4	11.0308	0.7	3.1094	1.2	0.2489	1.0	0.80	1432.7	12.8	1435.0	9.5	1438.5	14.0	1438.5	14.0	99.6
-Spot 148	136	220812	0.9	11.0308	0.9	3.1497	1.3	0.2521	1.0	0.75	1449.3	13.2	1444.9	10.4	1438.5	16.9	1438.5	16.9	100.7
-Spot 293	211	5618156	0.5	11.0270	0.8	3.0791	1.2	0.2464	0.9	0.77	1419.7	11.9	1427.5	9.3	1439.2	14.9	1439.2	14.9	98.6
-Spot 265	479	108125	2.4	11.0269	0.9	3.1442	1.4	0.2516	1.1	0.78	1446.6	14.6	1443.6	11.1	1439.2	17.1	1439.2	17.1	100.5
-Spot 314	98	32784	1.9	11.0231	0.7	3.1001	1.3	0.2480	1.1	0.84	1427.9	13.7	1432.7	9.8	1439.9	13.4	1439.9	13.4	99.2
-Spot 303	149	37692	1.2	11.0180	0.7	2.8147	1.1	0.2250	0.9	0.75	1308.3	10.1	1359.4	8.5	1440.7	14.2	1440.7	14.2	90.8
-Spot 266	244	439657	2.6	11.0056	0.8	3.1816	1.4	0.2541	1.2	0.84	1459.4	15.9	1452.7	11.1	1442.9	14.7	1442.9	14.7	101.1
-Spot 101	818	108018	2.0	11.0008	0.8	2.9174	1.5	0.2329	1.3	0.85	1349.5	15.2	1386.4	11.1	1443.7	14.7	1443.7	14.7	93.5
-Spot 167	90	55848	0.8	10.9966	1.0	3.1583	1.6	0.2520	1.2	0.76	1448.8	15.5	1447.0	12.2	1444.4	19.6	1444.4	19.6	100.3
-Spot 228	156	113019	1.7	10.9890	0.8	3.0999	1.1	0.2472	0.8	0.70	1423.8	9.9	1432.7	8.6	1445.8	15.3	1445.8	15.3	98.5
-Spot 17	231	124011	2.0	10.9765	0.8	2.8975	1.5	0.2308	1.3	0.85	1338.5	15.7	1381.3	11.5	1447.9	15.2	1447.9	15.2	92.4
-Spot 159	202	111385	1.7	10.9763	0.7	3.0951	1.4	0.2465	1.2	0.86	1420.4	15.8	1431.5	11.1	1448.0	14.2	1448.0	14.2	98.1
-Spot 264	270	107834	1.6	10.9601	0.8	2.9603	1.4	0.2354	1.2	0.83	1362.8	14.6	1397.5	10.8	1450.8	14.9	1450.8	14.9	93.9
-Spot 234	259	1814876	3.2	10.9537	0.8	3.1757	1.4	0.2524	1.2	0.84	1450.8	15.0	1451.3	10.7	1451.9	14.5	1451.9	14.5	99.9
-Spot 155	248	44565	0.8	10.9519	0.7	3.0323	1.1	0.2410	0.9	0.80	1391.7	11.3	1415.8	8.6	1452.2	12.8	1452.2	12.8	95.8
-Spot 33	416	235296	4.1	10.9259	0.7	3.1912	1.2	0.2530	1.0	0.82	1453.9	13.4	1455.0	9.7	1456.7	13.5	1456.7	13.5	99.8
-Spot 300	383	136881	2.7	10.9090	0.6	2.8806	1.2	0.2280	1.0	0.86	1324.1	12.2	1376.8	8.9	1459.7	11.3	1459.7	11.3	90.7
-Spot 262	461	159777	3.8	10.8993	0.6	3.2275	1.1	0.2552	0.9	0.83	1465.4	12.3	1463.8	8.8	1461.4	12.1	1461.4	12.1	100.3
-Spot 255	287	165954	2.2	10.8967	0.6	3.1409	1.1	0.2483	0.9	0.85	1429.9	12.1	1442.8	8.6	1461.8	11.1	1461.8	11.1	97.8
-Spot 282	283	144236	1.3	10.8274	0.7	2.6884	2.4	0.2112	2.3	0.95	1235.3	25.5	1325.3	17.6	1473.9	13.4	1473.9	13.4	83.8
-Spot 83	46	42165	0.7	10.8240	1.1	3.2425	1.4	0.2547	0.9	0.66	1462.4	12.2	1467.4	11.0	1474.5	20.1	1474.5	20.1	99.2
-Spot 23	116	158620	2.8	10.8026	0.9	3.2589	1.3	0.2554	1.0	0.72	1466.5	12.7	1471.3	10.5	1478.3	17.7	1478.3	17.7	99.2
-Spot 110	162	92940	3.9	10.8011	0.8	3.1626	1.3	0.2479	1.0	0.76	1427.4	12.5	1448.1	9.8	1478.5	15.6	1478.5	15.6	96.5
-Spot 4	255	221930	2.1	10.7882	0.7	3.2763	1.3	0.2565	1.0	0.82	1471.7	13.6	1475.4	9.8	1480.8	13.7	1480.8	13.7	99.4
-Spot 73	353	107457	1.7	10.7600	0.8	2.7734	1.3	0.2165	1.0	0.80	1263.5	11.5	1348.4	9.4	1485.8	14.2	1485.8	14.2	85.0
-Spot 196	162	128571	3.9	10.6924	0.8	3.3214	1.4	0.2577	1.1	0.80	1478.0	14.9	1486.1	11.0	1497.7	15.9	1497.7	15.9	98.7
-Spot 67	72	10207	1.6	10.3749	1.4	3.3509	1.7	0.2523	1.0	0.59	1450.1	13.0	1493.0	13.3	1554.5	25.7	1554.5	25.7	93.3
-Spot 42	27	237842	1.2	10.2330	1.0	3.5034	1.9	0.2601	1.6	0.84	1490.5	21.1	1528.0	14.9	1580.3	19.1	1580.3	19.1	94.3
-Spot 27	384	359234	4.3	10.1243	0.7	3.8747	1.2	0.2846	1.0	0.85	1614.7	14.8	1608.4	9.9	1600.2	12.2	1600.2	12.2	100.9
-Spot 298	107	87268	1.4	10.0599	0.8	3.8201	1.2	0.2788	0.9	0.73	1585.5	12.4	1597.0	9.7	1612.1	15.3	1612.1	15.3	98.3
-Spot 192	376	122621	6.2	10.0000	0.7	3.9726	1.2	0.2882	1.0	0.82	1632.8	14.6	1628.6	10.1	1623.3	13.3	1623.3	13.3	100.6
-Spot 180	224	316885	2.5	9.9130	0.8	4.0544	1.2	0.2916	0.9	0.76	1649.6	12.7	1645.2	9.4	1639.5	14.0	1639.5	14.0	100.6
-Spot 248	263	122251	5.0	9.8385	0.8	4.0127	1.2	0.2865	0.9	0.76	1623.8	13.5	1636.8	10.1	1653.5	14.9	1653.5	14.9	98.2
-Spot 195	72	30055	3.8	9.8331	1.0	4.0276	1.6	0.2874	1.3	0.81	1628.3	18.8	1639.8	13.2	1654.5	17.6	1654.5	17.6	98.4
-Spot 88	164	239906	0.7	9.8249	0.5	4.1042	1.1	0.2926	1.0	0.88	1654.4	14.5	1655.1	9.2	1656.0	10.1	1656.0	10.1	99.9
-Spot 304	235	126657	1.1	9.8171	0.8	4.0898	1.3	0.2913	1.0	0.77	1648.1	14.5	1652.3	10.5	1657.5	15.1	1657.5	15.1	99.4
-Spot 2	578	4256657	2.2	9.7694	0.6	4.3284	1.2	0.3068	1.1	0.87	1725.0	15.9	1698.8	10.0	1666.5	11.1	1666.5	11.1	103.5
-Spot 312	48	31820	0.8	9.7462	1.0	4.1932	1.7	0.2965	1.3	0.79	1674.1	19.5	1672.7	13.7	1670.9	18.7	1670.9	18.7	100.2
-Spot 114	120	82560	2.1	9.6489	0.9	4.3281	1.3	0.3030	1.0	0.73	1706.2	14.3	1698.7	10.8	1689.5	16.4	1689.5	16.4	101.0
-Spot 185	290	105036	3.0	9.6121	0.8	4.3892	1.3	0.3061	1.1	0.81	1721.6	16.0	1710.3	10.8	1696.5	13.9	1696.5	13.9	101.5
-Spot 294	678	180529	3.1	9.6044	0.7	3.5928	2.1	0.2504	2.0	0.94	1440.4	25.7	1547.9	16.8	1698.0	13.4	1698.0	13.4	84.8
-Spot 63	147	137517	3.4	9.5940	0.7	4.3817	1.3	0.3050	1.2	0.86	1716.2	17.4	1708.9	11.2	1700.0	12.9	1700.0	12.9	101.0
-Spot 245	308	101925	1.7	9.5863	0.8	4.1497	1.5	0.2886	1.2	0.83	1634.7	17.4	1664.2	11.9	1701.5	14.9	1701.5	14.9	96.1
-Spot 45	454	159783	11.8	9.5777	0.9	4.2781	1.3	0.2973	1.0	0.75	1677.9	14.1	1689.2	10.5	1703.1	15.7	1703.1	15.7	98.5
-Spot 29	629	114134	2.4	9.5737	0.6	3.8639	1.2	0.2684	1.1	0.87	1532.7	14.7	1606.2	10.0	1703.9	11.4	1703.9	11.4	90.0
-Spot 221	191	117913	2.5	9.5625	1.0	4.4313	1.4	0.3075	1.1	0.74	1728.2	16.3	1718.2	12.0	1706.0	17.8	1706.0	17.8	101.3
-Spot 130	873	431582	2.0	9.5551	0.8	4.3201	1.4	0.2995	1.1	0.82	1688.9	16.7	1697.2	11.3	1707.5	14.3	1707.5	14.3	98.9
-Spot 137	325	84434	2.9	9.5130	0.9	4.4570	1.3	0.3076	1.0	0.77	1729.1	15.4	1723.0	11.0	1715.6	15.6	1715.6	15.6	100.8
-Spot 136	466	353027	3.0	9.4808	0.6	4.4945	1.2	0.3092	1.0	0.88	1736.7	15.9	1730.0	9.8	1721.8	10.1	1721.8	10.1	100.9
-Spot 68	1110	1271580	1.2	9.4387	0.6	4.4025	1.2	0.3015	1.0	0.87	1698.8	15.2	1712.8	9.7	1730.0	10.5	1730.0	10.5	98.2
-Spot 295	145	28804	0.7	9.3830	1.0	4.4254	1.4	0.3013	1.0	0.72	1697.7	15.1	1717.1	11.6	1740.8	17.7	1740.8	17.7	97.5
-Spot 258	592	74798	16.0	9.3810	1.0	4.3146	2.2	0.2937	2.0	0.90	1659.9	28.8	1696.2	18.1	1741.2	17.7	1741.2	17.7	95.3
-Spot 32	135	174559	2.0	9.3456	0.7	4.8016	1.3	0.3256	1.1	0.83	1817.0	17.0	1785.2	10.8	1748.2	13.0	1748.2	13.0	103.9
-Spot 15	151	94869	0.9	9.3136	0.8	4.5557	1.4	0.3079	1.1	0.82	1730.2	16.9	1741.2	11.3	1754.4	14.4	1754.4	14.4	98.6
-Spot 47	253	131114	3.0	9.3031	0.8	4.4618	1.3	0.3012	1.0	0.78	1697.2	15.1	1723.9	10.8	1756.5	14.9	1756.5	14.9	96.6
-Spot 56	33	16567	0.8	9.2954	0.9	4.7205	1.3	0.3184	1.0	0.74	1781.8	15.5	1770.9	11.2	1758.0	16.4	1758.0	16.4	101.4
-Spot 168	324	288625	5.4	9.2941	0.8	4.7503	1.3	0.3203	1.0	0.79	1791.4	16.2	1776.2	10.9	1758.3	14.5	1758.3	14.5	101.9
-Spot 34	185	109607	3.9	9.2767	0.5	4.5415	1.2	0.3057	1.1	0.91	1719.5	16.4	1738.6	9.9	1761.7	9.0	1761.7	9.0	97.6
-Spot 1	576	564242	1.9	9.2657	0.7	4.3623	1.7	0.2933	1.6	0.92	1657.9	23.4	1705.2	14.4	1763.9	12.4	1763.9	12.4	94.0
-Spot 216	82	71446	7.3	9.2589	0.9	4.8278	1.4	0.3243	1.0	0.73	1810.9	15.7	1789.8	11.5	1765.2	17.2	1765.2	17.2	102.6
-Spot 18	735	55799	2.1	9.2545	0.9	3.9582	1.7	0.2658	1.4	0.84	1519.4	19.3	1625.7	13.8	1766.1	16.8	1766.1	16.8	86.0
-Spot 99	475	606032	4.2	9.2324	0.8	4.7579	1.3	0.3187	1.0	0.81	1783.5	16.3	1777.5	10.9	1770.4	13.9	1770.4	13.9	100.7
-Spot 64	265	299360	3.6	9.2129	0.7	4.6751	1.4	0.3125	1.2	0.88	1753.1	18.8	1762.8	11.6	1774.3	12.0	1774.3	12.0	98.8
-Spot 115	501	85157	2.3	9.2052	0.8	3.6964	1.3	0.2469	1.1	0.79	1422.4	13.5	1570.6	10.7	1775.8	14.9	1775.8	14.9	80.1
-Spot 301	337	110431	4.1	9.2015	0.5	4.6923	1.2	0.3133	1.1	0.90	1756.8	17.0	1765.9	10.2	1776.6	9.7	1776.6	9.7	98.9
-Spot 145	72	156939	5.7	9.1985	0.7	4.7777	1.3	0.3189	1.1	0.85	1784.2	17.3	1781.0	10.9	1777.2	12.4	1777.2	12.4	100.4
-Spot 16	188	175317	3.9	9.1981	0.8	4.8412	1.3	0.3231	1.0	0.77	1804.9	15.8	1792.1	10.9	1777.2	15.1	1777.2	15.1	101.6
-Spot 161	216	99025	4.3	9.1911	0.6	4.9133	1.3	0.3277	1.1	0.87	1827.0	17.6	1804.5	10.7	1778.6	11.3	1778.6	11.3	102.7
-Spot 232	225	141519	2.9	9.1801	0.7	4.6989	1.4	0.3130	1.2	0.86	1755.4	18.0	1767.0	11.4	1780.8	12.5	1780.8	12.5	98.6
-Spot 289	334	117431	8.5	9.1636	0.4	4.7575	1.0	0.3163	0.9	0.90	1771.8	13.7	1777.4	8.3	1784.1	7.8	1784.1	7.8	99.3
-Spot 82	252	937045	2.9	9.1402	0.7	4.9548	1.3	0.3286	1.1	0.83	1831.6	17.3	1811.6	11.0	1788.7	13.2	1788.7	13.2	102.4
-Spot 105	274	151592	4.6	9.1213	0.6	4.6830	1.0	0.3099	0.7	0.75	1740.4	11.1	1764.2	8.2	1792.5	11.8	1792.5	11.8	97.1
-Spot 57	273	235271	1.6	9.1172	0.5	4.7795	1.0	0.3162	0.9	0.86	1771.1	13.9	1781.3	8.7	1793.3	9.7	1793.3	9.7	98.8
-Spot 149	267	201082	3.9	9.0953	0.8	4.7779	1.4	0.3153	1.1	0.83	1766.8	17.6	1781.0	11.6	1797.7	14.1	1797.7	14.1	98.3
-Spot 36	154	1686140	3.3	9.0820	0.7	4.8877	1.2	0.3221	1.0	0.80	1799.9	14.9	1800.1	10.0	1800.4	12.9	1800.4	12.9	100.0
-Spot 247	253	1764554	3.3	9.0721	0.9	4.9315	1.5	0.3246	1.3	0.81	1812.2	19.9	1807.7	13.1	1802.4	16.4	1802.4	16.4	100.5
-Spot 24	258	200118	2.0	9.0558	0.8	4.9831	1.2	0.3274	1.0	0.79	1825.9	15.7	1816.5	10.5	1805.6	13.8	1805.6	13.8	101.1
-Spot 202	184	49690	1.3	9.0461	0.6	5.0359	1.3	0.3305	1.2	0.90	1841.0	19.0	1825.4	11.2	1807.6	10.5	1807.6	10.5	101.8
-Spot 261	372	78567	2.6	9.0439	0.9	3.8783	2.2	0.2545	2.0	0.91	1461.6	26.6	1609.2	18.1	1808.0	17.2	1808.0	17.2	80.8
-Spot 213	114	103741	2.7	9.0355	0.8	5.0204	1.3	0.3291	1.0	0.78	1834.2	16.5	1822.8	11.2	1809.7	15.1	1809.7	15.1	101.4
-Spot 231	94	32828	0.7	9.0067	0.7	5.0664	1.3	0.3311	1.0	0.82	1843.7	16.4	1830.5	10.6	1815.5	13.2	1815.5	13.2	101.6
-Spot 276	488	1277827	1.4	8.9651	0.7	4.9026	1.3	0.3189	1.1	0.85	1784.4	17.9	1802.7	11.3	1823.9	12.8	1823.9	12.8	97.8
-Spot 285	113	81097	3.9	8.9491	0.8	5.0429	1.3	0.3274	1.0	0.76	1826.0	15.8	1826.6	11.0	1827.2	15.2	1827.2	15.2	99.9
-Spot 89	148	96521	1.7	8.9282	0.7	5.1281	1.4	0.3322	1.2	0.86	1849.1	19.9	1840.8	12.3	1831.4	13.5	1831.4	13.5	101.0
-Spot 176	230	826042	2.3	8.8752	0.8	4.9362	1.8	0.3179	1.6	0.90	1779.3	25.1	1808.5	15.1	1842.2	14.0	1842.2	14.0	96.6
-Spot 238	241	870060	1.4	8.8196	0.7	5.0904	1.4	0.3258	1.2	0.84	1817.8	18.4	1834.5	11.7	1853.6	13.3	1853.6	13.3	98.1
-Spot 31	142	77789	1.3	8.8110	0.6	5.0991	1.1	0.3260	0.9	0.83	1818.9	14.3	1836.0	9.3	1855.3	11.0	1855.3	11.0	98.0
-Spot 87	242	2220253	4.3	8.8049	0.7	5.1806	1.1	0.3310	0.9	0.82	1843.1	15.0	1849.4	9.7	1856.6	11.8	1856.6	11.8	99.3
-Spot 154	198	334547	1.2	8.7556	0.7	5.1951	1.3	0.3300	1.1	0.85	1838.6	17.3	1851.8	10.8	1866.7	12.1	1866.7	12.1	98.5
-Spot 69	194	2002751	3.4	8.7124	0.7	5.2982	1.2	0.3349	0.9	0.81	1862.2	15.3	1868.6	10.0	1875.6	12.4	1875.6	12.4	99.3
-Spot 268	162	638794	1.5	8.6805	0.8	5.3586	1.2	0.3375	0.9	0.77	1874.7	15.4	1878.3	10.6	1882.2	14.3	1882.2	14.3	99.6
-Spot 212	161	3904	0.8	8.6276	4.2	1.8132	4.5	0.1135	1.7	0.38	693.1	11.3	1050.2	29.4	1893.2	74.8	1893.2	74.8	36.6
-Spot 242	174	114830	1.9	8.4125	0.8	5.8022	1.3	0.3542	1.1	0.81	1954.5	17.8	1946.7	11.2	1938.5	13.5	1938.5	13.5	100.8
-Spot 90	71	22279	0.7	8.3074	0.8	6.0434	1.5	0.3643	1.3	0.84	2002.4	22.2	1982.1	13.4	1961.0	14.8	1961.0	14.8	102.1
-Spot 308	199	264845	1.8	8.0502	0.7	6.2084	1.2	0.3626	0.9	0.80	1994.7	16.0	2005.6	10.2	2016.9	12.4	2016.9	12.4	98.9
-Spot 95	315	724867	2.1	7.8286	0.6	6.5577	1.2	0.3725	1.0	0.86	2041.1	17.6	2053.7	10.3	2066.3	10.7	2066.3	10.7	98.8
-Spot 146	608	392421	2.9	6.4510	0.6	9.1726	1.2	0.4293	1.1	0.87	2302.8	20.4	2355.4	11.1	2401.2	10.2	2401.2	10.2	95.9
-Spot 109	210	292054	2.1	5.8552	0.7	11.3834	1.4	0.4836	1.2	0.86	2543.0	24.3	2555.1	12.6	2564.6	11.7	2564.6	11.7	99.2
-Spot 70	189	105707	1.2	5.6063	0.8	10.9283	1.4	0.4445	1.1	0.82	2370.9	22.2	2517.0	12.8	2637.1	13.2	2637.1	13.2	89.9
-Spot 210	279	304316	1.1	5.5550	0.9	12.6577	1.4	0.5102	1.0	0.74	2657.4	22.6	2654.5	13.1	2652.3	15.5	2652.3	15.5	100.2
-Spot 290	195	129853	1.4	5.5513	0.8	12.5728	1.1	0.5064	0.8	0.74	2641.3	17.8	2648.2	10.5	2653.4	12.5	2653.4	12.5	99.5
-Spot 48	143	86510	1.0	5.4995	0.6	13.0327	1.1	0.5200	0.9	0.81	2699.4	19.8	2682.0	10.4	2668.9	10.7	2668.9	10.7	101.1
-Spot 292	165	86039	1.4	5.4972	0.7	12.6999	1.2	0.5066	0.9	0.79	2641.9	20.6	2657.7	11.3	2669.6	12.2	2669.6	12.2	99.0
-Spot 14	167	4121273	1.2	5.4903	0.7	12.6955	1.2	0.5058	1.0	0.83	2638.5	22.4	2657.3	11.7	2671.7	11.5	2671.7	11.5	98.8

-Spot 41	103	559022	0.7	5.4786	0.6	12.7827	1.1	0.5081	0.9	0.85	2648.7	20.5	2663.8	10.5	2675.2	9.7	2675.2	9.7	99.0	
-Spot 117	60	63363	2.5	5.4630	0.8	12.9964	1.1	0.5152	0.8	0.69	2678.6	16.5	2679.4	10.3	2680.0	13.1	2680.0	13.1	99.9	
-Spot 120	326	275405	1.0	5.3006	0.9	13.5641	1.4	0.5217	1.1	0.79	2706.3	24.4	2719.8	13.3	2729.8	14.2	2729.8	14.2	99.1	
-Spot 184	104	56371	0.8	5.2714	0.7	13.7532	1.2	0.5260	1.0	0.85	2724.8	23.1	2732.9	11.6	2738.8	10.8	2738.8	10.8	99.5	
-Spot 181	339	156869	2.0	5.1134	0.6	14.6870	1.1	0.5449	0.9	0.83	2804.0	21.5	2795.2	10.9	2788.8	10.5	2788.8	10.5	100.5	
-Spot 305	157	219340	1.9	5.0889	0.7	14.4049	1.7	0.5319	1.6	0.91	2749.4	34.8	2776.8	16.2	2796.7	11.5	2796.7	11.5	98.3	
-Spot 165	139	292535	0.9	4.9185	0.7	15.4022	1.2	0.5497	1.0	0.82	2823.8	21.8	2840.5	11.1	2852.3	10.8	2852.3	10.8	99.0	
-Spot 124	65	36905	1.3	4.7546	0.7	16.8651	1.2	0.5818	1.0	0.82	2956.2	23.8	2927.2	11.8	2907.3	11.5	2907.3	11.5	101.7	
-Spot 13	68	4648	2.0	4.3630	3.4	18.9257	4.8	0.5991	3.4	0.71	3026.4	81.8	3038.0	46.1	3045.8	54.0	3045.8	54.0	99.4	
-Spot 112	86	99397	1.8	4.0006	0.7	22.4514	1.3	0.6517	1.1	0.85	3234.9	28.9	3203.5	13.0	3183.8	11.3	3183.8	11.3	101.6	
-Spot 309	336	572463	3.2	3.1618	0.6	31.4110	1.1	0.7206	1.0	0.83	3498.4	25.7	3532.0	11.3	3551.1	10.0	3551.1	10.0	98.5	
-Spot 278	138	1194	1.3	9.8141	4.2	0.1487	4.5	0.0106	1.7	0.38	67.9	1.1	140.8	5.9	1658.1	77.6	67.9	1.1	48.2	DISCORDANT

1. Analyses with >10% uncertainty (1-sigma) in 206Pb/238U age are not included.
2. Analyses with >10% uncertainty (1-sigma) in 206Pb/207Pb age are not included, unless 206Pb/238U age is <400 Ma.
3. Best age is determined from 206Pb/238U age for analyses with 206Pb/238U age <900 Ma and from 206Pb/207Pb age for analyses with 206Pb/238Uage >900 Ma.
4. Concordance is based on 206Pb/238U age / 206Pb/207Pb age. Value is not reported for 206Pb/238U ages <400 Ma because of large uncertainty in 206Pb/207Pb age.
5. Analyses with 206Pb/238U age >400 Ma and with >20% discordance (<80% concordance) are not included.
6. Analyses with 206Pb/238U age >400 Ma and with >5% reverse discordance (<105% concordance) are not included.
7. All uncertainties are reported at the 2-sigma level, and include only measurement errors.
8. Systematic errors are as follows (at 2-sigma level): [sample 1: xxx% (206Pb/238U) & xxx% (206Pb/207Pb)]
9. Analyses conducted by LA-ICPMS, as described by Gehrels et al. (2008) and Gehrels and Pecha (2014).
10. U concentration and U/Th are calibrated relative to FC-1 zircon standard and are accurate to ~20%.
11. Common Pb correction is from measured 204Pb with common Pb composition interpreted from Stacey and Kramers (1975).
12. Common Pb composition assigned uncertainties of 1.5 for 206Pb/204Pb, 0.3 for 207Pb/204Pb, and 2.0 for 208Pb/204Pb.
13. U/Pb and 206Pb/207Pb fractionation is calibrated relative to fragments of large Sri Lanka zircons and individual crystals of FC-1, and R33.
14. U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U/235U = 137.82.
15. Weighted mean and concordia plots determined with Isoplot (Ludwig, 2008).

Aliquot Name	SB7_18
Stratigraphic Formation Name	
Stratigraphic Age	
Rock Type	
Mineral	Zircon
Method	U-Pb
Latitude	
Longitude	
Internal Uncertainty Level	one sigma
External Uncertainty 206/238 (% two sigma)	1.01195522
External Uncertainty 206/207 (% two sigma)	0.64129457
Analysis Purpose	
Laboratory Name	Arizona LaserChron Center
Analyst Name	
Aliquot Reference	
Aliquot Instrumental Method	LA-ICPMS
Aliquot Instrumental Reference	Gehrels, G.E., Valencia, V., Ruiz, J., 2008, Enhanced precision, accuracy, efficiency, and spatial resolution of U-Pb ages by laser ablation-multicollector-inductively coupled plasma-mass spectrometry: Geochemistry, Geophysics, Geosystems, v. 9, Q03017, doi:10.1029/2007GC001805. Gehrels, G. and Pecha, M., 2014, Detrital zircon U-Pb geochronology and Hf isotope geochemistry of Paleozoic and Triassic passive margin strata of western North America: Geosphere, v. 10 (1), p. 49-65.

				Isotope ratios							Apparent ages (Ma)									
Analysis	U (ppm)	206Pb 204Pb	U/Th	206Pb* 207Pb*	± (%)	207Pb* 235U*	± (%)	206Pb* 238U	± (%)	error corr.	206Pb* 238U*	± (Ma)	207Pb* 235U	± (Ma)	206Pb* 207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)	
-#6 Syn7 Spot 224	4758	3251	8.8	10.4408	1.8	0.3417	2.9	0.0259	2.2	0.78	164.7	3.6	298.4	7.4	1542.6	33.5	164.7	3.6	55.2	* discord*
-#6 Syn7 Spot 308	1371	8370	3.4	10.6359	0.7	0.5365	2.5	0.0414	2.4	0.95	261.5	6.1	436.1	8.8	1507.7	14.0	261.5	6.1	60.0	* discord*
-#6 Syn7 Spot 28	1522	4739	1.9	10.6377	1.2	0.5998	2.6	0.0463	2.3	0.89	291.8	6.6	477.1	9.9	1507.4	23.0	291.8	6.6	61.1	* discord*
-#6 Syn7 Spot 113	945	3885	2.8	10.3306	1.0	0.6781	2.3	0.0508	2.0	0.89	319.6	6.2	525.6	9.3	1562.5	19.7	319.6	6.2	60.8	* discord*
-#6 Syn7 Spot 201	96	6026	1.8	18.5643	1.4	0.5339	1.9	0.0719	1.3	0.67	447.7	5.6	434.4	6.8	364.5	32.5	447.7	5.6	122.8	
-#6 Syn7 Spot 152	489	122139	7.9	17.0607	1.0	0.6162	1.9	0.0763	1.6	0.84	473.9	7.4	487.5	7.5	551.9	22.9	473.9	7.4	85.9	
-#6 Syn7 Spot 112	62	76583	1.9	16.2778	1.3	0.7894	2.0	0.0932	1.5	0.75	574.6	8.2	590.8	8.8	653.5	27.7	574.6	8.2	87.9	
-#6 Syn7 Spot 210	252	39561	3.1	14.2868	0.7	1.5400	1.4	0.1596	1.2	0.87	954.8	10.7	946.5	8.5	927.3	14.0	927.3	14.0	103.0	
-#6 Syn7 Spot 266	98	29835	2.6	14.2665	1.0	1.4850	1.6	0.1537	1.2	0.75	921.8	10.1	924.3	9.5	930.2	21.3	930.2	21.3	99.1	
-#6 Syn7 Spot 59	110	127396	3.2	14.2587	0.9	1.5244	1.4	0.1577	1.1	0.75	944.0	9.5	940.2	8.8	931.3	19.4	931.3	19.4	101.4	
-#6 Syn7 Spot 104	56	69638	1.4	14.2466	1.1	1.5717	1.6	0.1625	1.1	0.72	970.5	10.4	959.1	10.0	933.1	23.0	933.1	23.0	104.0	
-#6 Syn7 Spot 172	243	60376	4.8	14.2378	0.8	1.5260	1.6	0.1576	1.3	0.86	943.7	11.9	940.9	9.7	934.4	16.6	934.4	16.6	101.0	
-#6 Syn7 Spot 307	77	15121	3.1	14.1143	1.3	1.5397	1.9	0.1577	1.3	0.72	943.9	11.6	946.4	11.4	952.2	26.4	952.2	26.4	99.1	
-#6 Syn7 Spot 177	28	3668	1.2	14.0013	1.8	1.6810	2.1	0.1708	1.2	0.56	1016.4	11.3	1001.4	13.6	968.6	36.1	968.6	36.1	104.9	
-#6 Syn7 Spot 13	200	33229	1.9	13.9975	0.7	1.6050	1.3	0.1630	1.1	0.85	973.5	10.0	972.2	8.2	969.2	14.0	969.2	14.0	100.4	
-#6 Syn7 Spot 239	61	22480	3.3	13.9651	1.2	1.6138	1.6	0.1635	0.9	0.60	976.3	8.5	975.6	9.8	973.9	25.4	973.9	25.4	100.2	
-#6 Syn7 Spot 12	135	127537	2.6	13.9107	0.9	1.6011	1.5	0.1616	1.2	0.80	965.7	10.6	970.6	9.3	981.9	18.1	981.9	18.1	98.4	
-#6 Syn7 Spot 25	124	79195	3.0	13.8793	0.7	1.5883	1.2	0.1600	1.0	0.84	956.5	9.1	965.6	7.6	986.5	13.6	986.5	13.6	97.0	
-#6 Syn7 Spot 203	81	17025	0.5	13.8685	1.0	1.6168	1.4	0.1627	0.9	0.70	971.7	8.6	976.7	8.6	988.0	19.9	988.0	19.9	98.3	
-#6 Syn7 Spot 150	127	67301	1.6	13.8242	0.9	1.7118	1.7	0.1717	1.5	0.86	1021.5	13.9	1013.0	11.0	994.6	17.6	994.6	17.6	102.7	
-#6 Syn7 Spot 110	170	28767	2.5	13.8151	0.9	1.6244	1.4	0.1628	1.1	0.78	972.5	9.9	979.7	8.9	995.9	18.2	995.9	18.2	97.7	
-#6 Syn7 Spot 312	70	42698	5.0	13.7846	1.0	1.7131	1.5	0.1713	1.1	0.75	1019.5	10.4	1013.4	9.5	1000.4	20.1	1000.4	20.1	101.9	
-#6 Syn7 Spot 249	101	37132	4.6	13.7772	0.9	1.7533	1.6	0.1753	1.3	0.80	1041.1	12.0	1028.4	10.1	1001.5	19.0	1001.5	19.0	104.0	
-#6 Syn7 Spot 221	121	56532	1.7	13.7756	1.1	1.6018	1.6	0.1601	1.1	0.72	957.4	10.1	970.9	9.9	1001.7	22.5	1001.7	22.5	95.6	
-#6 Syn7 Spot 255	432	122415	2.9	13.7725	0.7	1.6676	1.5	0.1666	1.3	0.87	993.6	12.0	996.3	9.4	1002.1	14.7	1002.1	14.7	99.1	
-#6 Syn7 Spot 129	401	70388	5.7	13.7617	0.7	1.7336	1.4	0.1731	1.2	0.86	1029.2	11.5	1021.1	9.0	1003.7	14.3	1003.7	14.3	102.5	
-#6 Syn7 Spot 264	8	8213	0.9	13.7597	2.7	1.7039	3.0	0.1701	1.4	0.46	1012.8	13.1	1010.0	19.3	1004.0	54.2	1004.0	54.2	100.9	
-#6 Syn7 Spot 49	61	16373	3.5	13.7591	1.3	1.7093	1.7	0.1706	1.1	0.66	1015.6	10.8	1012.0	11.1	1004.1	26.5	1004.1	26.5	101.1	
-#6 Syn7 Spot 284	279	76361	3.3	13.7497	1.0	1.7376	1.5	0.1734	1.1	0.74	1030.5	10.2	1022.6	9.3	1005.5	19.9	1005.5	19.9	102.5	
-#6 Syn7 Spot 137	139	90478	6.6	13.7416	0.7	1.6768	1.4	0.1672	1.2	0.84	996.6	10.8	999.8	8.8	1006.7	15.0	1006.7	15.0	99.0	
-#6 Syn7 Spot 35	350	55684	3.0	13.7409	0.8	1.7042	1.5	0.1699	1.2	0.85	1011.6	11.6	1010.1	9.4	1006.8	15.8	1006.8	15.8	100.5	
-#6 Syn7 Spot 20	106	110454	4.0	13.7178	1.2	1.6953	1.7	0.1687	1.1	0.69	1005.2	10.7	1006.8	10.6	1010.2	24.5	1010.2	24.5	99.5	
-#6 Syn7 Spot 127	179	522268	5.6	13.6848	1.0	1.6955	1.5	0.1684	1.2	0.76	1003.0	10.8	1006.8	9.8	1015.1	20.2	1015.1	20.2	98.8	
-#6 Syn7 Spot 0	230	62397	3.7	13.6820	0.9	1.7256	1.4	0.1713	1.1	0.78	1019.3	10.2	1018.1	8.9	1015.5	17.4	1015.5	17.4	100.4	
-#6 Syn7 Spot 71	210	79687	2.7	13.6760	1.0	1.6763	1.6	0.1663	1.3	0.79	991.9	12.0	999.6	10.4	1016.4	20.2	1016.4	20.2	97.6	
-#6 Syn7 Spot 216	183	62479	5.0	13.6563	1.0	1.6960	1.5	0.1681	1.2	0.77	1001.4	10.8	1007.0	9.6	1019.3	19.4	1019.3	19.4	98.2	
-#6 Syn7 Spot 68	138	34170	1.7	13.6533	1.1	1.7321	1.6	0.1716	1.2	0.74	1020.9	11.1	1020.5	10.1	1019.8	21.3	1019.8	21.3	100.1	
-#6 Syn7 Spot 198	245	343191	2.6	13.6400	1.0	1.7282	1.5	0.1710	1.1	0.76	1017.9	10.6	1019.1	9.6	1021.7	19.6	1021.7	19.6	99.6	
-#6 Syn7 Spot 100	93	84342	1.6	13.6367	1.2	1.7548	1.6	0.1736	1.1	0.67	1032.1	10.5	1028.9	10.6	1022.2	24.7	1022.2	24.7	101.0	
-#6 Syn7 Spot 190	152	125722	2.5	13.6273	1.0	1.8099	1.5	0.1790	1.1	0.75	1061.3	11.0	1049.0	9.8	1023.6	20.2	1023.6	20.2	103.7	
-#6 Syn7 Spot 246	99	131468	3.1	13.6220	1.1	1.7453	1.5	0.1725	1.1	0.71	1025.9	10.1	1025.4	9.7	1024.4	21.6	1024.4	21.6	100.1	
-#6 Syn7 Spot 138	186	39305	2.1	13.6192	1.0	1.7443	1.4	0.1724	1.0	0.68	1025.1	9.0	1025.0	9.1	1024.8	21.0	1024.8	21.0	100.0	
-#6 Syn7 Spot 16	66	128080	3.1	13.6100	1.0	1.7150	1.5	0.1694	1.1	0.75	1008.6	10.5	1014.2	9.5	1026.2	19.8	1026.2	19.8	98.3	
-#6 Syn7 Spot 251	474	121935	4.1	13.5917	0.8	1.7674	1.8	0.1743	1.6	0.90	1035.7	15.7	1033.6	11.8	1028.9	16.0	1028.9	16.0	100.7	
-#6 Syn7 Spot 309	79	66562	3.6	13.5900	1.1	1.7997	1.6	0.1775	1.1	0.73	1053.1	11.1	1045.3	10.2	1029.2	21.5	1029.2	21.5	102.3	
-#6 Syn7 Spot 44	115	31278	2.8	13.5799	0.9	1.7115	1.4	0.1686	1.1	0.79	1004.6	10.5	1012.9	9.1	1030.7	17.5	1030.7	17.5	97.5	
-#6 Syn7 Spot 83	89	13039	2.8	13.5623	1.1	1.8096	1.7	0.1781	1.3	0.76	1056.4	12.8	1048.9	11.4	1033.3	23.0	1033.3	23.0	102.2	
-#6 Syn7 Spot 184	57	12307	1.6	13.5617	1.1	1.8500	1.7	0.1820	1.3	0.78	1078.1	13.0	1063.4	11.1	1033.4	21.5	1033.4	21.5	104.3	
-#6 Syn7 Spot 243	49	46611	1.7	13.5513	1.1	1.7513	1.6	0.1722	1.1	0.71	1024.2	10.4	1027.6	10.0	1034.9	22.1	1034.9	22.1	99.0	
-#6 Syn7 Spot 74	202	77451	2.8	13.5377	0.8	1.7594	1.5	0.1728	1.2	0.83	1027.6	11.4	1030.6	9.4	1037.0	16.3	1037.0	16.3	99.1	
-#6 Syn7 Spot 105	199	304125	2.3	13.5355	0.9	1.7613	1.6	0.1730	1.3	0.83	1028.5	12.3	1031.3	10.1	1037.3	17.5	1037.3	17.5	99.2	
-#6 Syn7 Spot 95	328	40850	3.9	13.5239	0.8	1.8271	1.5	0.1793	1.3	0.84	1063.1	12.3	1055.2	9.8	1039.0	16.5	1039.0	16.5	102.3	
-#6 Syn7 Spot 102	27	12200	1.5	13.5215	1.3	1.7558	1.8	0.1723	1.2	0.69	1024.6	11.6	1029.3	11.5	1039.4	25.9	1039.4	25.9	98.6	
-#6 Syn7 Spot 99	151	840528	1.5	13.4986	1.0	1.7617	1.5	0.1725	1.1	0.77	1026.1	10.9	1031.5	9.7	1042.8	19.4	1042.8	19.4	98.4	
-#6 Syn7 Spot 267	48	23334	1.5	13.4836	1.1	1.8758	1.7	0.1835	1.3	0.78	1086.2	13.2	1072.6	11.2	1045.1	21.3	1045.1	21.3	103.9	
-#6 Syn7 Spot 126	158	421135	3.4	13.4786	1.1	1.7960	1.6	0.1756	1.1	0.72	1043.1	10.9	1044.0	10.3	1045.8	22.2	1045.8	22.2	99.7	
-#6 Syn7 Spot 228	432	72096	3.4	13.4768	1.0	1.8128	1.6	0.1773	1.2	0.76	1052.0	11.6	1050.1	10.3	1046.1	20.6	1046.1	20.6	100.6	
-#6 Syn7 Spot 207	277	95723	4.5	13.4484	0.9	1.7884	1.5	0.1745	1.1	0.77	1036.9	10.9	1041.2	9.6	1050.3	18.8	1050.3	18.8	98.7	
-#6 Syn7 Spot 185	152	57930	3.4	13.4127	1.0	1.8130	1.4	0.1764	1.0	0.71	1047.5	9.6	1050.1	9.2	1055.7	20.1	1055.7	20.1	99.2	
-#6 Syn7 Spot 202	83	21101	1.7	13.3877	1.1	1.8557	1.6	0.1803	1.2	0.73	1068.4	11.7	1065.4	10.7	1059.5	22.3	1059.5	22.3	100.8	
-#6 Syn7 Spot 306	349	151900	1.7	13.3826	1.0	1.8628	1.7	0.1809	1.4	0.80	1071.8	13.7	1068.0	11.4	1060.2	20.8	1060.2	20.8	101.1	
-#6 Syn7 Spot 273	159	35528	2.0	13.3675	0.9	1.8722	1.5	0.1816	1.3	0.82	1075.7	12.5	1071.3	10.2	1062.5	18.0	1062.5	18.0	101.2	
-#6 Syn7 Spot 193	467	143156	4.2	13.3509	1.0	1.8205	2.0	0.1764	1.7	0.85	1047.0	16.3	1052.9	13.0	1065.0	21.0	1065.0	21.0	98.3	
-#6 Syn7 Spot 94	188	42852	1.3	13.3453	0.9	1.8939	1.4	0.1834	1.1	0.76	1085.4	10.5	1078.9	9.2	1065.8	18.0	1065.8	18.0	101.8	
-#6 Syn7 Spot 37	306	80220	4.0	13.3313	0.9	1.7031	1.5	0.1647	1.2	0.78	983.1	10.8	1009.7	9.7	1067.9	19.0	1067.9	19.0	92.1	
-#6 Syn7 Spot 103	140	62116	3.0	13.3265	1.0	1.8912	1.5	0.1829	1.1	0.73	1082.6	10.6	1078.0	9.6	1068.7	19.9	1068.7	19.9	101.3	
-#6 Syn7 Spot 254	142	117249	2.2	13.3050	0.9	1.7874	1.5	0.1725	1.2	0.81	1026.1	11.7	1040.9	10.0	1071.9	18.2	1071.9	18.2	95.7	
-#6 Syn7 Spot 34	219	51642	3.2	13.3006	0.7	1.7712	1.9	0.1709	1.8	0.93	1017.2	16.6	1034.9	12.3	1072.6	13.7	1072.6	13.7	94.8	
-#6 Syn7 Spot 271	384	573134	9.3	13.2999	0.7	1.8720	1.4	0.1806	1.1	0.83	1070.5	11.1	1071.2	8.9	1072.7	14.9	1072.7	14.9	99.8	
-#6 Syn7 Spot 62	38	26608	1.1	13.2932	1.3	1.7465	1.9	0.1685	1.4	0.72	1003.6	12.7	1025.9	12.3	1073.7	26.8	1073.7	26.8	93.5	
-#6 Syn7 Spot 122	245	198812	3.2	13.2909	0.8	1.8346	1.3	0.1769	1.0	0.78	1050.1	9.7	1057.9	8.4	1074.1	16.1	1074.1	16.1	97.8	
-#6 Syn7 Spot 238	238	120750	2.2	13.2892	0.8	1.8379	1.5	0.1772	1.2	0.83	1051.7	11.8	1059.1	9.6	1074.3	16.2	1074.3	16.2	97.9	
-#6 Syn7 Spot 32	226	224251	1.7	13.2815	0.9	1.9031	1.6	0.1834	1.3	0.81	1085.5	12.8	1082.2	10.5	1075.5	18.5	1075.5	18.5	100.9	
-#6 Syn7 Spot 78	119	22122	1.2	13.2769	1.0	1.8510	1.6	0.1783	1.2	0.78	1057.8	12.0	1063.8	10.4	1076.1	19.6	1076.1	19.6	98.3	

-#6 Syn7 Spot 170	61	7756474	1.4	13.2765	1.1	1.8826	1.6	0.1814	1.1	0.70	1074.4	10.8	1075.0	10.5	1076.2	22.7	1076.2	22.7	99.8
-#6 Syn7 Spot 310	440	28744	1.0	13.2721	0.9	1.5235	2.3	0.1467	2.2	0.92	882.5	17.8	939.9	14.3	1076.9	17.8	1076.9	17.8	82.0
-#6 Syn7 Spot 227	473	148198	2.9	13.2628	0.9	1.8830	1.6	0.1812	1.3	0.83	1073.6	13.1	1075.1	10.7	1078.3	18.2	1078.3	18.2	99.6
-#6 Syn7 Spot 296	189	72665	2.1	13.2622	0.8	1.7026	1.5	0.1638	1.3	0.84	978.1	11.7	1009.5	9.8	1078.4	16.5	1078.4	16.5	90.7
-#6 Syn7 Spot 289	57	30509	1.3	13.2449	1.4	1.8590	2.1	0.1787	1.6	0.76	1059.6	15.9	1066.6	14.0	1081.0	27.6	1081.0	27.6	98.0
-#6 Syn7 Spot 253	145	96199	1.3	13.2349	0.8	1.8346	1.5	0.1762	1.2	0.82	1046.1	11.5	1057.9	9.6	1082.5	16.9	1082.5	16.9	96.6
-#6 Syn7 Spot 261	259	83620	2.6	13.2174	0.9	1.9188	1.5	0.1840	1.2	0.80	1088.9	11.9	1087.7	9.9	1085.1	17.9	1085.1	17.9	100.3
-#6 Syn7 Spot 280	124	20002	1.3	13.2076	1.0	1.8997	1.5	0.1821	1.2	0.78	1078.2	11.9	1081.0	10.2	1086.6	19.1	1086.6	19.1	99.2
-#6 Syn7 Spot 281	244	79641	2.1	13.2064	1.0	1.6531	2.1	0.1584	1.9	0.88	947.9	16.7	990.8	13.5	1086.9	20.1	1086.9	20.1	87.2
-#6 Syn7 Spot 182	99	664942	1.9	13.2063	0.7	1.8677	1.4	0.1790	1.2	0.85	1061.3	11.8	1069.7	9.4	1086.9	14.8	1086.9	14.8	97.6
-#6 Syn7 Spot 314	138	64606	1.4	13.2035	1.0	1.5788	1.9	0.1513	1.7	0.87	908.0	14.3	961.9	12.1	1087.3	19.2	1087.3	19.2	83.5
-#6 Syn7 Spot 144	297	68806	2.7	13.2000	0.9	1.8602	1.5	0.1782	1.2	0.80	1057.0	11.5	1067.1	9.8	1087.8	17.9	1087.8	17.9	97.2
-#6 Syn7 Spot 22	220	67415	2.1	13.1976	0.9	1.9429	1.8	0.1860	1.6	0.87	1099.9	16.2	1096.0	12.4	1088.2	18.2	1088.2	18.2	101.1
-#6 Syn7 Spot 218	424	62797	2.4	13.1919	0.9	1.7102	1.6	0.1637	1.3	0.82	977.3	12.2	1012.4	10.5	1089.0	18.8	1089.0	18.8	89.7
-#6 Syn7 Spot 294	59	37224	1.1	13.1848	1.1	1.9378	1.5	0.1854	1.1	0.69	1096.3	10.7	1094.2	10.4	1090.1	22.4	1090.1	22.4	100.6
-#6 Syn7 Spot 40	367	51168	3.6	13.1723	0.9	1.7780	1.5	0.1699	1.2	0.79	1011.7	10.9	1037.4	9.6	1092.0	18.2	1092.0	18.2	92.6
-#6 Syn7 Spot 26	366	112274	1.3	13.1542	0.9	1.8068	1.3	0.1724	1.0	0.76	1025.6	9.6	1047.9	8.6	1094.7	17.1	1094.7	17.1	93.7
-#6 Syn7 Spot 199	134	67637	0.6	13.1482	0.8	1.8962	1.4	0.1809	1.2	0.84	1071.9	11.9	1079.7	9.5	1095.7	15.7	1095.7	15.7	97.8
-#6 Syn7 Spot 31	37	56234	2.4	13.1327	1.3	1.8975	1.6	0.1808	1.0	0.62	1071.4	9.9	1080.2	10.8	1098.0	25.6	1098.0	25.6	97.6
-#6 Syn7 Spot 55	115	256187	1.5	13.1305	0.9	1.8562	1.4	0.1768	1.1	0.79	1049.7	10.9	1065.6	9.4	1098.4	17.4	1098.4	17.4	95.6
-#6 Syn7 Spot 208	65	638949	2.8	13.1122	1.0	1.8687	1.3	0.1778	0.8	0.64	1054.9	8.1	1070.1	8.6	1101.2	19.9	1101.2	19.9	95.8
-#6 Syn7 Spot 3	168	44814	0.7	13.0853	0.7	1.9438	1.0	0.1846	0.7	0.67	1091.8	6.7	1096.3	6.7	1105.3	14.8	1105.3	14.8	98.8
-#6 Syn7 Spot 132	194	132798	1.3	13.0816	1.0	1.7825	1.8	0.1692	1.5	0.84	1007.7	14.1	1039.1	11.7	1105.8	19.4	1105.8	19.4	91.1
-#6 Syn7 Spot 131	41	76048	1.9	13.0595	1.1	1.9228	1.6	0.1822	1.2	0.73	1079.0	11.9	1089.0	10.9	1109.2	22.1	1109.2	22.1	97.3
-#6 Syn7 Spot 63	153	62310	1.0	13.0551	0.9	1.9875	1.5	0.1883	1.2	0.80	1112.0	12.1	1111.3	9.9	1109.9	17.5	1109.9	17.5	100.2
-#6 Syn7 Spot 10	149	72743	1.6	13.0340	0.7	1.9538	1.5	0.1848	1.3	0.88	1093.0	13.0	1099.8	9.9	1113.1	14.1	1113.1	14.1	98.2
-#6 Syn7 Spot 124	193	48636	2.0	12.9995	0.7	1.9758	1.4	0.1864	1.2	0.86	1101.6	12.3	1107.3	9.5	1118.4	14.5	1118.4	14.5	98.5
-#6 Syn7 Spot 116	23	8960	3.9	12.9951	1.5	2.1153	2.0	0.1995	1.3	0.63	1172.4	13.4	1153.8	13.7	1119.1	30.8	1119.1	30.8	104.8
-#6 Syn7 Spot 234	431	336150	2.2	12.9595	0.8	2.0833	1.2	0.1959	0.9	0.75	1153.2	9.4	1143.3	8.1	1124.5	15.5	1124.5	15.5	102.6
-#6 Syn7 Spot 259	386	71883	1.8	12.9572	0.7	2.0561	1.3	0.1933	1.1	0.87	1139.3	12.0	1134.3	9.0	1124.9	13.1	1124.9	13.1	101.3
-#6 Syn7 Spot 176	91	51020	2.6	12.9263	0.9	1.9457	1.6	0.1825	1.2	0.80	1080.6	12.4	1097.0	10.4	1129.7	18.6	1129.7	18.6	95.7
-#6 Syn7 Spot 258	312	464716	3.2	12.9096	0.7	2.0482	1.3	0.1919	1.0	0.83	1131.4	10.8	1131.7	8.6	1132.2	14.2	1132.2	14.2	99.9
-#6 Syn7 Spot 21	110	42760	2.1	12.9063	1.0	2.1019	1.5	0.1968	1.2	0.75	1158.3	12.2	1149.4	10.6	1132.7	20.5	1132.7	20.5	102.3
-#6 Syn7 Spot 33	278	62997	2.0	12.9000	0.8	2.0503	1.2	0.1919	0.9	0.74	1131.7	9.2	1132.4	8.2	1133.7	16.1	1133.7	16.1	99.8
-#6 Syn7 Spot 36	120	74958	3.3	12.8727	0.8	2.0642	1.5	0.1928	1.3	0.84	1136.5	13.2	1137.0	10.4	1137.9	16.5	1137.9	16.5	99.9
-#6 Syn7 Spot 65	73	33290	3.0	12.8506	0.9	2.0324	1.4	0.1895	1.1	0.77	1118.7	11.0	1126.4	9.5	1141.4	17.9	1141.4	17.9	98.0
-#6 Syn7 Spot 96	55	11999	1.5	12.8446	2.1	2.0167	2.5	0.1880	1.3	0.53	1110.3	13.3	1121.1	16.8	1142.3	41.9	1142.3	41.9	97.2
-#6 Syn7 Spot 204	10	5235	2.3	12.8174	1.9	2.1421	2.6	0.1992	1.8	0.67	1171.1	18.8	1162.5	18.1	1146.5	38.5	1146.5	38.5	102.1
-#6 Syn7 Spot 206	245	72610	2.9	12.8097	0.7	2.1230	1.3	0.1973	1.1	0.86	1160.9	11.9	1156.3	9.0	1147.7	13.3	1147.7	13.3	101.2
-#6 Syn7 Spot 120	117	64928	2.2	12.8041	0.8	2.0546	1.4	0.1909	1.1	0.80	1126.2	11.5	1133.8	9.5	1148.6	16.5	1148.6	16.5	98.0
-#6 Syn7 Spot 52	125	343695	1.2	12.7763	0.8	2.0477	1.3	0.1898	1.0	0.77	1120.4	9.9	1131.5	8.6	1152.8	16.0	1152.8	16.0	97.2
-#6 Syn7 Spot 188	109	45117	2.1	12.7651	0.8	2.0804	1.5	0.1927	1.2	0.82	1135.9	12.5	1142.4	10.0	1154.6	16.4	1154.6	16.4	98.4
-#6 Syn7 Spot 231	349	81439	6.1	12.7573	0.7	2.1121	1.4	0.1955	1.2	0.87	1151.2	12.4	1152.8	9.3	1155.8	13.4	1155.8	13.4	99.6
-#6 Syn7 Spot 106	155	51759	3.0	12.7567	0.9	2.1458	1.5	0.1986	1.3	0.83	1167.9	13.7	1163.7	10.7	1155.9	16.9	1155.9	16.9	101.0
-#6 Syn7 Spot 69	383	178603	2.3	12.7526	0.8	2.1402	1.5	0.1980	1.2	0.83	1164.8	12.8	1161.9	10.1	1156.5	16.4	1156.5	16.4	100.7
-#6 Syn7 Spot 290	105	75326	5.9	12.7495	1.0	2.0994	1.6	0.1942	1.3	0.78	1144.1	13.3	1148.6	11.2	1157.0	20.3	1157.0	20.3	98.9
-#6 Syn7 Spot 45	535	412287	3.2	12.7489	0.8	2.0303	1.7	0.1878	1.5	0.87	1109.5	14.9	1125.7	11.4	1157.1	16.2	1157.1	16.2	95.9
-#6 Syn7 Spot 257	166	19029	1.3	12.7466	1.4	1.8665	1.7	0.1726	0.9	0.51	1026.6	8.1	1069.3	11.1	1157.5	28.7	1157.5	28.7	88.7
-#6 Syn7 Spot 42	60	27553	3.5	12.7419	0.9	2.0756	1.3	0.1919	1.0	0.74	1131.6	10.3	1140.8	9.2	1158.2	17.9	1158.2	17.9	97.7
-#6 Syn7 Spot 288	86	37670	3.2	12.7329	1.2	2.1250	1.8	0.1963	1.4	0.75	1155.5	14.3	1156.9	12.4	1159.6	23.6	1159.6	23.6	99.6
-#6 Syn7 Spot 58	187	73927	3.5	12.7300	0.8	2.1086	1.4	0.1948	1.1	0.80	1147.2	11.8	1151.6	9.6	1160.1	16.5	1160.1	16.5	98.9
-#6 Syn7 Spot 181	112	564592	2.4	12.7281	1.2	2.1879	1.8	0.2021	1.4	0.76	1186.4	15.0	1177.2	12.7	1160.3	23.4	1160.3	23.4	102.2
-#6 Syn7 Spot 191	97	1735085	1.8	12.7214	1.1	2.0612	1.5	0.1903	1.1	0.71	1122.8	11.1	1136.0	10.4	1161.4	21.1	1161.4	21.1	96.7
-#6 Syn7 Spot 79	113	132189	1.9	12.7152	0.9	2.1760	1.5	0.2008	1.2	0.81	1179.4	13.2	1173.4	10.6	1162.4	17.8	1162.4	17.8	101.5
-#6 Syn7 Spot 86	384	74176	2.7	12.7097	0.8	1.9547	1.3	0.1803	1.1	0.80	1068.4	10.5	1100.1	9.0	1163.2	15.9	1163.2	15.9	91.8
-#6 Syn7 Spot 80	405	75640	2.3	12.6942	0.9	2.1958	1.5	0.2023	1.3	0.81	1187.4	13.7	1179.7	10.8	1165.6	17.8	1165.6	17.8	101.9
-#6 Syn7 Spot 205	39	70416	3.1	12.6914	1.1	2.0489	1.6	0.1887	1.2	0.75	1114.2	12.2	1131.9	10.9	1166.1	21.0	1166.1	21.0	95.6
-#6 Syn7 Spot 186	157	133668	2.4	12.6868	0.8	2.1273	1.4	0.1958	1.1	0.82	1152.8	11.7	1157.7	9.3	1166.8	15.4	1166.8	15.4	98.8
-#6 Syn7 Spot 108	196	84305	2.5	12.6755	1.0	2.1280	1.5	0.1957	1.2	0.77	1152.3	12.6	1158.0	10.7	1168.6	19.5	1168.6	19.5	98.6
-#6 Syn7 Spot 72	92	18674	2.4	12.6708	0.7	2.1711	1.3	0.1996	1.1	0.84	1173.2	11.8	1171.8	9.2	1169.3	14.3	1169.3	14.3	100.3
-#6 Syn7 Spot 196	242	68702	2.4	12.6646	0.8	2.1814	1.2	0.2005	0.9	0.77	1177.8	10.1	1175.1	8.5	1170.3	15.3	1170.3	15.3	100.6
-#6 Syn7 Spot 212	164	61362	1.5	12.6616	0.8	2.1565	1.4	0.1981	1.2	0.84	1165.2	12.5	1167.1	9.7	1170.8	14.9	1170.8	14.9	99.5
-#6 Syn7 Spot 168	182	156360	6.8	12.6607	0.9	2.1719	1.6	0.1995	1.3	0.83	1172.7	14.0	1172.1	10.9	1170.9	17.1	1170.9	17.1	100.2
-#6 Syn7 Spot 146	90	136912	3.2	12.6565	0.9	2.1565	1.3	0.1980	0.9	0.70	1164.8	9.5	1167.1	8.8	1171.6	18.1	1171.6	18.1	99.4
-#6 Syn7 Spot 244	150	19107	3.4	12.6543	0.8	2.1578	1.4	0.1981	1.1	0.81	1165.3	12.2	1167.6	9.8	1171.9	16.5	1171.9	16.5	99.4
-#6 Syn7 Spot 81	459	132655	3.1	12.6396	0.9	2.1089	1.7	0.1934	1.4	0.85	1139.8	14.7	1151.7	11.4	1174.2	17.3	1174.2	17.3	97.1
-#6 Syn7 Spot 174	99	47394	2.6	12.6379	0.8	2.1582	1.5	0.1979	1.3	0.86	1164.1	14.0	1167.7	10.6	1174.5	15.7	1174.5	15.7	99.1
-#6 Syn7 Spot 111	255	64544	9.2	12.6325	1.1	2.1572	2.0	0.1977	1.7	0.84	1163.1	17.7	1167.4	13.7	1175.3	21.1	1175.3	21.1	99.0
-#6 Syn7 Spot 260	235	60698	3.1	12.6244	0.8	2.1557	1.3	0.1975	1.1	0.78	1161.7	11.2	1166.9	9.4	1176.6	16.6	1176.6	16.6	98.7
-#6 Syn7 Spot 125	318	111104	3.2	12.6179	0.7	2.1575	1.2	0.1975	1.0	0.84	1162.0	11.0	1167.5	8.6	1177.6	13.3	1177.6	13.3	98.7
-#6 Syn7 Spot 153	93	49194	3.2	12.6174	0.9	2.1533	1.4	0.1971	1.1	0.79	1159.9	11.6	1166.1	9.7	1177.7	17.0	1177.7	17.0	98.5
-#6 Syn7 Spot 136	80	32671	2.2	12.6033	1.0	2.2240	1.8	0.2034	1.5	0.83	1193.4	16.7	1188.6	12.9	1179.9	20.0	1179.9	20.0	101.1
-#6 Syn7 Spot 38	291	57232	2.2	12.5974	0.8	2.1307	1.3	0.1948	1.1	0.81	1147.1	11.1	1158.8	9.0	1180.8	15.3	1180.8	15.3	97.1
-#6 Syn7 Spot 18	93	70239	2.5	12.5961	0.7	2.1118	1.2	0.1930	0.9	0.80	1137.7	9.7	1152.7	8.0	1181.0	13.7	1181.0	13.7	96.3
-#6 Syn7 Spot 295	883	7322946	4.2	12.5846	0.7	2.1839	1.3	0.1994	1.1	0.85	1172.2	12.2	1175.9	9.3	1182.8	13.8	1182.8	13.8	99.1
-#6 Syn7 Spot 91	225	67065	1.8	12.5631	0.7	2.1994	1.2	0.2005	1.0	0.81	1177.9	10.9	1180.8	8.7	1186.2	14.4	1186.2	14.4	99.3
-#6 Syn7 Spot 262	74	18046	1.9	12.5550	1.0	2.1397	1.6	0.1949	1.3	0.78	1147.9	13.4	1161.7	11.2	1187.5	20.0	1187.5	20.0	96.7
-#6 Syn7 Spot 245	147	270668	1.7	12.5497	0.8	2.1375	1.3	0.1946	1.0	0.79	1146.5	10.9	1161.0	9.0	1188.3	15.8	1188.3	15.8	96.5
-#6 Syn7 Spot 274	165	144593	2.6	12.5313	0.9	2.1775	1.5	0.1980	1.1	0.78	1164.5	12.1	1173.9	10.2	1191.2	18.1	1191.2	18.1	97.8
-#6 Syn7 Spot 90	193	50658	1.6	12.5015	0.9	2.1711	1.5	0.1969	1.2	0.79	1158.8	12.4	1171.8	10.3	1195.9	17.8	1195.9	17.8	96.9
-#6 Syn7 Spot 211	149	30087	2.7	12.4934	0.9	2.2211	1.5	0.2013	1.2	0.80	1182.5	12.7	1187.7	10.2	1197.2	17.1	1197.2	17.1	98.8
-#6 Syn7 Spot 134	144	84579	1.4	12.4843	1.2	2.2202	1.7	0.2011	1.2	0.72	1181.3	12.9	1187.4	11.7	1198.6	23.0	1198.6	23.0	98.6
-#6 Syn7 Spot 39	251	507594	3.9	12.4720	0.9	2.1432	1.4	0.1939	1.0	0.75	1142.7	11.0	1162.9	9.7	1200.5	18.3	1200.5	18.3	95.2
-#6 Syn7 Spot 291	78	35126	4.2	12.3757	1.0	2.2671	1.8	0.2036	1.5	0.83	1194.5	16.2	1202.1	12.5	1215.8	19.4	1215.8	19.4	98.2
-#6 Syn7 Spot 135	372	144076	2.1	12.3714	0.7	2.0895	1.3	0.1876	1.2	0.87	1108.2	11.9	1145.4	9.2	1216.5	13.2	1216.5	13.2	91.1
-#6 Syn7 Spot 51	86	78058	2.4	12.2915	0.8	2.2457	1.5	0.2003	1.2	0.82	1176.8	12.8	1195.4	10.2	1229.3	16.6	1229.3	16.6	95.7
-#6 Syn7 Spot 70	201	43709	2.3	12.1493	1.0	2.2616	1.5	0.1994	1.2	0.77	1171.9	12.6	1200.4	10.7	1252.0	19.0	1252.0	19.0	93.6
-#6 Syn7 Spot 297	338	34682	2.0	12.1251	1.0	2.2020	1.8	0.1937	1.5	0.84	1141.5	15.6	1181.7	12.5	1256.0	19.2	1256.0	19.2	90.9
-#6 Syn7 Spot 220	389	141603	4.4	12.0782	0.6	2.4579	1.2	0.2154	1.0	0.86	1257.5	11.6	1259.7	8.5	1263.5	11.6	1263.5	11.6	99.5
-#6 Syn7 Spot 85	449	769189	3.9	12.0620	0.9	2.4388	1.5	0.2134	1.1	0.77	1247.1	12.9	1254.1	10.6	1266.1	18.2	1266.1	18.2	98.5
-#6 Syn7 Spot 279	225	71430	2.5	12.0225	1.0	2.3765	1.6	0.2073	1.2	0.79	1214.5	13.7	1235.6	11.2	1272.5	18.8	1272.5	18.8	95.4
-#6 Syn7 Spot 236	411	186623	3.9	11.9564	0.7	2.6531	1.4	0.2302	1.2	0.84	1335.4	13.9	1315.5	10.1	1283.3	14.6	1283.3	14.6	104.1
-#6 Syn7 Spot 298	320	43960	3.5	11.9425	0.9	2.2778	1.3	0.1974	1.0	0.76	1161.2	10.5	1205.4	9.3	1285.5	16.7	1285.5	16.7	90.3
-#6 Syn7 Spot 276	12	8805	1.6	11.9187	1.4	2.6261	1.9	0.2271	1.3	0.67	1319.3	15.5	1308.0	14.2	1289.4	27.8	1289.4	27.8	102.3
-#6 Syn7 Spot 156	147	86969	2.4	11.8924	0.6	2.6275	1.1	0.2267	1.0	0.85	1317.3	11.6	1308.4	8.4	1293.7	11.8	1293.7	11.8	101.8
-#6 Syn7 Spot 160	64	31184	1.4	11.8102	0.9	2.6409	1.8	0.2263	1.5	0.88	1315.1	18.4	1312.1	13.0	1307.2	16.6	1307.2	16.6	100.6
-#6 Syn7 Spot 142	249	20929176	3.2	11.7784	0.8	2.6483	1.6	0.2263	1.4	0.87	1315.2	16.4	1314.2	11.7	1312.4	15.4	1312.4	15.4	100.2
-#6 Syn7 Spot 8	171	69417	2.1	11.7589	0.8	2.5937	1.4	0.2213	1.1	0.80	1288.7	13.2	1298.9	10.3	1315.6	16.3	1315.6	16.3	98.0
-#6 Syn7 Spot 1	374	69140	3.1	11.7533	0.8	2.6674	1.5	0.2275	1.3	0.85	1321.3	15.3	1319.5	11.2	1316.6	15.6	1316.6	15.6	100.4
-#6 Syn7 Spot 178	317	311484	2.5	11.7456	0.7	2.6588	1.2	0.2266	1.0	0.84	1316.6	12.4	1317.1	9.2	1317.8	13.2	1317.8	13.2	99.9
-#6 Syn7 Spot 263	129	21543	2.2	11.7325	0.8	2.5993	1.6	0.2213	1.4	0.86	1288.6	16.0	1300.4	11.6	1320.0	15.5	1320.0	15.5	97.6
-#6 Syn7 Spot 154	38	6963	1.2	11.7264	1.5	2.7468	1.8	0.2337	1.1	0.59	1353.9	13.1	1341.2	13.5	1321.0	28.3	1321.0	28.3	102.5
-#6 Syn7 Spot 225	251	113346	15.7	11.7043	0.8	2.6773	1.2	0.2274	0.9	0.74	1320.7	10.8	1322.2	9.0	1324.7	15.9	1324.7	15.9	99.7
-#6 Syn7 Spot 299	248	110269	3.1	11.6995	0.9	2.6490	1.4	0.2249	1.1	0.75	1307.6	12.5	1314.4	10.3	1325.4	17.8	1325.4	17.8	98.7
-#6 Syn7 Spot 29	162	33546	2.0	11.6811	0.8	2.6890	1.4	0.2279	1.1	0.82	1323.5	13.7	1325.4	10.3	1328.5	15.3	1328.5	15.3	99.6

-#6 Syn7 Spot 209	230	68419	2.4	11.6747	0.8	2.6907	1.4	0.2279	1.1	0.81	1323.6	13.4	1325.9	10.3	1329.6	15.8	1329.6	15.8	99.6
-#6 Syn7 Spot 4	254	66503	2.0	11.6683	0.9	2.7612	1.4	0.2338	1.0	0.76	1354.2	12.6	1345.1	10.2	1330.6	17.2	1330.6	17.2	101.8
-#6 Syn7 Spot 278	459	2209918	2.2	11.6556	0.8	2.6856	1.5	0.2271	1.3	0.86	1319.4	15.4	1324.5	11.2	1332.7	15.1	1332.7	15.1	99.0
-#6 Syn7 Spot 214	378	9918	3.0	11.6210	1.0	2.1542	1.3	0.1816	0.9	0.67	1075.9	8.9	1166.4	9.3	1338.5	19.1	1338.5	19.1	80.4
-#6 Syn7 Spot 166	218	83817	3.6	11.6075	0.9	2.5413	1.6	0.2140	1.3	0.84	1250.3	14.8	1283.9	11.3	1340.7	16.4	1340.7	16.4	93.3
-#6 Syn7 Spot 213	241	152873	2.3	11.5988	0.9	2.7162	1.4	0.2286	1.1	0.79	1327.1	13.2	1332.9	10.4	1342.2	16.5	1342.2	16.5	98.9
-#6 Syn7 Spot 293	10	21598	1.2	11.5982	1.7	2.7276	2.2	0.2295	1.3	0.61	1332.1	15.8	1336.0	16.1	1342.3	33.2	1342.3	33.2	99.2
-#6 Syn7 Spot 118	262	27778	1.7	11.5907	0.7	2.2869	1.7	0.1923	1.5	0.90	1134.0	15.7	1208.2	11.8	1343.5	14.0	1343.5	14.0	84.4
-#6 Syn7 Spot 60	141	298959	1.6	11.5762	0.8	2.7211	1.5	0.2286	1.3	0.85	1327.0	15.5	1334.2	11.4	1345.9	15.8	1345.9	15.8	98.6
-#6 Syn7 Spot 97	256	132870	2.2	11.5707	0.7	2.7651	1.4	0.2321	1.2	0.86	1345.7	14.6	1346.2	10.4	1346.9	13.6	1346.9	13.6	99.9
-#6 Syn7 Spot 303	77	52686	2.3	11.5462	1.1	2.7090	1.6	0.2270	1.2	0.73	1318.5	14.2	1330.9	12.1	1350.9	21.4	1350.9	21.4	97.6
-#6 Syn7 Spot 53	176	59129	3.7	11.5077	0.7	2.7565	1.4	0.2302	1.3	0.89	1335.4	15.5	1343.9	10.8	1357.4	12.9	1357.4	12.9	98.4
-#6 Syn7 Spot 313	88	57354	2.0	11.4653	0.9	2.8224	1.7	0.2348	1.4	0.85	1359.6	17.3	1361.5	12.5	1364.5	17.1	1364.5	17.1	99.6
-#6 Syn7 Spot 48	511	248617	4.0	11.4551	1.0	2.5598	1.9	0.2128	1.5	0.83	1243.5	17.5	1289.2	13.5	1366.2	19.6	1366.2	19.6	91.0
-#6 Syn7 Spot 175	50	255778	2.3	11.4508	1.2	2.9349	1.7	0.2438	1.2	0.73	1406.7	15.5	1391.0	12.8	1366.9	22.3	1366.9	22.3	102.9
-#6 Syn7 Spot 123	126	279508	3.3	11.4246	1.0	2.7820	1.6	0.2306	1.2	0.78	1337.7	15.0	1350.7	11.9	1371.3	19.1	1371.3	19.1	97.5
-#6 Syn7 Spot 139	119	35447	1.9	11.3935	0.8	2.8485	1.5	0.2355	1.3	0.87	1363.2	16.5	1368.4	11.6	1376.6	14.9	1376.6	14.9	99.0
-#6 Syn7 Spot 98	124	3728436	2.6	11.3746	1.0	2.7231	1.6	0.2247	1.3	0.79	1306.9	15.0	1334.8	11.8	1379.8	18.6	1379.8	18.6	94.7
-#6 Syn7 Spot 121	226	97394	3.7	11.3668	0.8	2.9566	1.2	0.2438	0.9	0.76	1406.6	11.2	1396.5	8.8	1381.1	14.4	1381.1	14.4	101.9
-#6 Syn7 Spot 301	150	51281	0.9	11.3649	0.9	2.9030	1.5	0.2394	1.2	0.82	1383.5	15.0	1382.7	11.1	1381.4	16.4	1381.4	16.4	100.2
-#6 Syn7 Spot 158	970	8986	7.5	11.3438	0.7	0.8639	2.5	0.0711	2.4	0.95	442.8	10.1	632.3	11.6	1385.0	14.4	1385.0	14.4	32.0
-#6 Syn7 Spot 285	220	83251	2.2	11.3301	0.8	2.9094	1.5	0.2392	1.2	0.84	1382.5	15.4	1384.4	11.1	1387.3	15.1	1387.3	15.1	99.7
-#6 Syn7 Spot 77	170	64181	3.0	11.3150	0.6	2.9281	1.2	0.2404	1.1	0.87	1388.8	13.2	1389.2	9.2	1389.9	11.5	1389.9	11.5	99.9
-#6 Syn7 Spot 242	397	81598	2.7	11.3126	0.8	2.6943	1.5	0.2212	1.3	0.84	1288.0	14.7	1326.9	11.1	1390.3	15.6	1390.3	15.6	92.6
-#6 Syn7 Spot 92	200	280359	2.4	11.2570	0.8	2.8587	1.4	0.2335	1.2	0.82	1352.8	14.3	1371.1	10.7	1399.7	15.4	1399.7	15.4	96.6
-#6 Syn7 Spot 275	59	76140	1.9	11.2044	1.2	2.9711	1.6	0.2415	1.2	0.71	1394.7	14.6	1400.3	12.5	1408.7	22.2	1408.7	22.2	99.0
-#6 Syn7 Spot 30	281	487730	2.7	11.1983	0.7	2.8322	1.3	0.2301	1.0	0.81	1335.1	12.5	1364.1	9.6	1409.7	14.3	1409.7	14.3	94.7
-#6 Syn7 Spot 27	154	56656	3.2	11.1720	1.0	2.9949	1.5	0.2428	1.1	0.75	1401.1	14.1	1406.3	11.3	1414.2	18.6	1414.2	18.6	99.1
-#6 Syn7 Spot 56	221	133299	4.4	11.1319	0.7	3.0011	1.6	0.2424	1.4	0.89	1399.2	17.6	1407.9	12.0	1421.1	14.0	1421.1	14.0	98.5
-#6 Syn7 Spot 155	206	101593	2.5	11.1008	0.8	3.0811	1.3	0.2482	1.1	0.82	1429.0	13.9	1428.0	10.2	1426.5	14.5	1426.5	14.5	100.2
-#6 Syn7 Spot 148	229	72416	3.1	11.0881	1.0	3.1334	1.5	0.2521	1.1	0.72	1449.3	13.9	1440.9	11.5	1428.6	19.7	1428.6	19.7	101.4
-#6 Syn7 Spot 41	269	88069	3.2	11.0523	0.8	3.0411	1.2	0.2439	0.9	0.77	1406.8	12.0	1418.0	9.4	1434.8	14.8	1434.8	14.8	98.1
-#6 Syn7 Spot 195	66	27102	3.2	11.0161	0.9	3.1325	1.4	0.2504	1.1	0.78	1440.4	14.3	1440.7	10.9	1441.1	16.9	1441.1	16.9	100.0
-#6 Syn7 Spot 119	308	263179	2.9	10.9855	0.6	3.1208	1.5	0.2488	1.4	0.92	1432.0	17.6	1437.8	11.5	1446.4	11.5	1446.4	11.5	99.0
-#6 Syn7 Spot 300	201	77122	3.4	10.9825	0.9	2.8743	1.5	0.2290	1.2	0.80	1329.5	14.2	1375.2	11.2	1446.9	17.0	1446.9	17.0	91.9
-#6 Syn7 Spot 256	106	184323	1.9	10.9699	0.9	3.1684	1.5	0.2522	1.2	0.81	1449.8	15.8	1449.5	11.6	1449.1	16.6	1449.1	16.6	100.1
-#6 Syn7 Spot 88	244	82746	1.0	10.9486	0.7	3.1755	1.4	0.2523	1.2	0.84	1450.1	15.1	1451.2	10.7	1452.8	14.2	1452.8	14.2	99.8
-#6 Syn7 Spot 87	88	28208	2.4	10.8947	0.7	3.2309	1.6	0.2554	1.4	0.90	1466.3	18.5	1464.6	12.1	1462.2	13.0	1462.2	13.0	100.3
-#6 Syn7 Spot 272	140	46680	1.5	10.8914	0.8	3.1838	1.3	0.2516	1.1	0.79	1446.8	13.8	1453.2	10.4	1462.7	15.7	1462.7	15.7	98.9
-#6 Syn7 Spot 147	130	477859	2.3	10.8616	1.0	3.0781	1.5	0.2426	1.2	0.76	1400.1	14.7	1427.3	11.8	1467.9	18.8	1467.9	18.8	95.4
-#6 Syn7 Spot 282	93	19298	3.3	10.8597	1.2	3.2359	1.8	0.2550	1.3	0.75	1464.1	17.2	1465.8	13.6	1468.3	22.2	1468.3	22.2	99.7
-#6 Syn7 Spot 66	69	19764	2.1	10.8184	1.0	3.2138	1.6	0.2523	1.2	0.76	1450.2	15.4	1460.5	12.0	1475.5	19.0	1475.5	19.0	98.3
-#6 Syn7 Spot 140	305	183579	1.9	10.8159	0.6	3.2411	1.1	0.2544	0.9	0.83	1460.9	11.8	1467.1	8.5	1475.9	11.6	1475.9	11.6	99.0
-#6 Syn7 Spot 189	135	24222	2.5	10.8140	1.0	3.0455	1.5	0.2390	1.1	0.75	1381.3	14.0	1419.1	11.5	1476.3	18.8	1476.3	18.8	93.6
-#6 Syn7 Spot 183	107	113690	1.2	10.8002	1.0	3.1331	1.7	0.2455	1.4	0.83	1415.3	18.3	1440.9	13.4	1478.7	18.5	1478.7	18.5	95.7
-#6 Syn7 Spot 268	205	13497	4.1	10.7288	0.7	2.7516	1.5	0.2142	1.3	0.87	1251.2	14.5	1342.5	10.9	1491.3	13.6	1491.3	13.6	83.9
-#6 Syn7 Spot 200	148	43891	2.5	10.6678	0.8	3.3304	1.3	0.2578	1.0	0.78	1478.5	13.6	1488.2	10.3	1502.0	15.5	1502.0	15.5	98.4
-#6 Syn7 Spot 179	765	8642	2.3	10.6289	1.0	1.2577	1.9	0.0970	1.6	0.84	596.8	9.2	826.9	10.8	1508.9	19.3	1508.9	19.3	39.5
-#6 Syn7 Spot 9	216	159047	2.3	10.5828	0.8	3.4205	1.1	0.2626	0.7	0.67	1503.4	9.9	1509.1	8.6	1517.2	15.4	1517.2	15.4	99.1
-#6 Syn7 Spot 167	226	67382	2.7	10.4686	0.8	3.4586	1.4	0.2627	1.1	0.82	1503.7	15.1	1517.8	10.9	1537.6	15.0	1537.6	15.0	97.8
-#6 Syn7 Spot 248	240	136812	0.9	10.4153	0.9	3.4836	1.5	0.2633	1.2	0.79	1506.5	15.9	1523.5	11.9	1547.2	17.4	1547.2	17.4	97.4
-#6 Syn7 Spot 14	688	4152	4.2	10.3298	1.1	1.1023	2.1	0.0826	1.8	0.85	511.7	8.6	754.5	11.1	1562.7	20.8	1562.7	20.8	32.7
-#6 Syn7 Spot 115	230	18292	2.4	10.2326	1.5	3.3037	2.0	0.2453	1.2	0.63	1414.1	15.8	1481.9	15.5	1580.4	28.9	1580.4	28.9	89.5
-#6 Syn7 Spot 229	121	322307	1.0	9.9761	0.8	4.0449	1.2	0.2928	0.9	0.76	1655.4	13.6	1643.3	10.0	1627.7	14.8	1627.7	14.8	101.7
-#6 Syn7 Spot 2	265	75282	1.0	9.9234	0.5	3.7505	1.2	0.2700	1.1	0.90	1541.1	14.9	1582.2	9.7	1637.5	10.0	1637.5	10.0	94.1
-#6 Syn7 Spot 302	280	73952	1.3	9.9046	0.9	3.9572	1.4	0.2844	1.1	0.78	1613.4	15.9	1625.5	11.6	1641.1	16.8	1641.1	16.8	98.3
-#6 Syn7 Spot 84	131	206511	2.2	9.7001	0.8	4.4215	1.4	0.3112	1.2	0.83	1746.6	18.2	1716.4	11.9	1679.7	14.7	1679.7	14.7	104.0
-#6 Syn7 Spot 43	131	70637	0.7	9.6750	0.8	3.8848	1.5	0.2727	1.3	0.83	1554.6	17.5	1610.5	12.3	1684.5	15.6	1684.5	15.6	92.3
-#6 Syn7 Spot 107	117	1128464	1.8	9.5310	0.8	4.4905	1.5	0.3105	1.2	0.84	1743.4	19.0	1729.2	12.3	1712.1	14.7	1712.1	14.7	101.8
-#6 Syn7 Spot 286	202	76292	1.4	9.4808	0.8	4.3155	1.4	0.2969	1.1	0.79	1675.7	15.7	1696.3	11.1	1721.8	15.3	1721.8	15.3	97.3
-#6 Syn7 Spot 247	76	46415	2.8	9.3909	1.0	4.5970	1.8	0.3132	1.5	0.83	1756.6	23.2	1748.7	15.1	1739.3	18.6	1739.3	18.6	101.0
-#6 Syn7 Spot 50	308	22290	3.2	9.3786	1.4	3.7252	1.9	0.2535	1.3	0.68	1456.5	16.8	1576.8	15.2	1741.7	25.6	1741.7	25.6	83.6
-#6 Syn7 Spot 67	113	34717	2.8	9.2561	0.9	4.6388	1.5	0.3115	1.2	0.80	1748.3	17.8	1756.3	12.2	1765.8	16.2	1765.8	16.2	99.0
-#6 Syn7 Spot 163	90	88876	3.0	9.2197	0.7	4.5909	1.3	0.3071	1.1	0.84	1726.5	16.1	1747.6	10.5	1773.0	12.5	1773.0	12.5	97.4
-#6 Syn7 Spot 82	182	219597	1.9	9.1817	0.7	4.7212	1.3	0.3145	1.1	0.83	1763.0	16.9	1771.0	11.1	1780.5	13.3	1780.5	13.3	99.0
-#6 Syn7 Spot 240	155	128047	1.9	9.1437	0.7	4.7472	1.1	0.3150	0.9	0.79	1765.0	13.3	1775.6	9.1	1788.0	12.0	1788.0	12.0	98.7
-#6 Syn7 Spot 128	374	43729	1.2	8.9843	0.8	3.9344	1.5	0.2565	1.3	0.83	1471.8	16.9	1620.8	12.4	1820.0	15.4	1820.0	15.4	80.9
-#6 Syn7 Spot 217	191	97604	4.4	8.9545	0.9	5.2605	1.4	0.3418	1.0	0.77	1895.3	17.2	1862.5	11.6	1826.1	15.7	1826.1	15.7	103.8
-#6 Syn7 Spot 130	127	48832	1.3	8.9157	0.8	5.0762	1.3	0.3284	1.0	0.79	1830.5	16.1	1832.1	10.8	1833.9	14.1	1833.9	14.1	99.8
-#6 Syn7 Spot 277	158	42500	1.2	8.8743	0.7	5.0221	1.5	0.3234	1.3	0.88	1806.2	20.8	1823.1	12.8	1842.4	13.2	1842.4	13.2	98.0
-#6 Syn7 Spot 151	161	241893	3.2	8.8602	0.7	5.1756	1.3	0.3327	1.1	0.83	1851.6	17.9	1848.6	11.3	1845.2	13.3	1845.2	13.3	100.3
-#6 Syn7 Spot 143	207	83964	4.4	8.8447	0.8	5.1961	1.5	0.3335	1.3	0.85	1855.2	20.8	1852.0	12.9	1848.4	14.2	1848.4	14.2	100.4
-#6 Syn7 Spot 180	249	32792	2.1	8.7732	0.7	4.5041	2.5	0.2867	2.4	0.96	1625.1	34.6	1731.7	20.9	1863.1	13.1	1863.1	13.1	87.2
-#6 Syn7 Spot 54	48	194132	0.4	8.6859	0.9	5.4372	1.3	0.3427	0.9	0.70	1899.5	14.8	1890.7	11.1	1881.1	16.8	1881.1	16.8	101.0
-#6 Syn7 Spot 24	48	64461	1.8	8.6799	1.0	5.2851	1.5	0.3329	1.2	0.77	1852.2	18.7	1866.5	12.9	1882.3	17.5	1882.3	17.5	98.4
-#6 Syn7 Spot 47	112	263984	2.0	8.6545	0.8	5.4015	1.5	0.3392	1.2	0.83	1882.8	19.7	1885.1	12.5	1887.6	14.7	1887.6	14.7	99.7
-#6 Syn7 Spot 265	288	7655181	1.3	8.5364	0.8	5.1437	1.5	0.3186	1.2	0.84	1782.9	19.2	1843.4	12.4	1912.3	14.2	1912.3	14.2	93.2
-#6 Syn7 Spot 237	257	105904	1.4	8.3476	0.9	5.5455	1.4	0.3359	1.1	0.79	1866.8	18.0	1907.7	12.1	1952.4	15.5	1952.4	15.5	95.6
-#6 Syn7 Spot 73	298	241082	2.1	8.2691	0.8	6.1214	1.3	0.3673	1.0	0.78	2016.6	17.6	1993.3	11.3	1969.2	14.4	1969.2	14.4	102.4
-#6 Syn7 Spot 109	586	4702	2.2	7.9362	1.0	1.7921	2.1	0.1032	1.8	0.88	633.1	11.1	1042.6	13.6	2042.2	17.6	2042.2	17.6	31.0
-#6 Syn7 Spot 19	138	103122	2.9	7.7595	1.2	6.7326	1.9	0.3791	1.5	0.80	2071.9	27.1	2076.9	17.0	2081.9	20.4	2081.9	20.4	99.5
-#6 Syn7 Spot 165	120	42870	2.4	7.7102	1.1	6.9052	1.6	0.3863	1.1	0.73	2105.7	20.4	2099.3	13.8	2093.1	18.6	2093.1	18.6	100.6
-#6 Syn7 Spot 287	155	3627	1.8	7.5413	3.3	5.6943	3.6	0.3116	1.3	0.37	1748.5	20.5	1930.5	30.9	2131.9	58.1	2131.9	58.1	82.0
-#6 Syn7 Spot 161	192	87625	2.0	6.7817	0.8	7.1872	1.5	0.3537	1.3	0.85	1952.0	21.3	2134.9	13.3	2315.9	13.4	2315.9	13.4	84.3
-#6 Syn7 Spot 61	168	594756	1.3	6.0825	0.6	10.7913	1.1	0.4763	1.0	0.84	2511.0	19.9	2505.3	10.6	2500.7	10.5	2500.7	10.5	100.4
-#6 Syn7 Spot 17	59	280964	0.7	5.8372	0.8	11.4115	1.4	0.4833	1.2	0.82	2541.7	24.7	2557.4	13.3	2569.8	13.5	2569.8	13.5	98.9
-#6 Syn7 Spot 6	27	17585	1.3	5.7866	0.8	11.7694	1.5	0.4942	1.3	0.86	2588.6	28.3	2586.2	14.4	2584.3	13.1	2584.3	13.1	100.2
-#6 Syn7 Spot 233	73	227209	0.2	5.7727	0.8	11.5588	1.7	0.4842	1.6	0.90	2545.3	33.1	2569.3	16.3	2588.3	12.6	2588.3	12.6	98.3
-#6 Syn7 Spot 292	93	191121	32.6	5.6412	0.8	12.3325	1.4	0.5048	1.2	0.83	2634.4	25.7	2630.0	13.4	2626.7	13.2	2626.7	13.2	100.3
-#6 Syn7 Spot 149	169	250183	5.2	5.6309	0.8	13.0076	1.5	0.5314	1.3	0.85	2747.5	28.7	2680.2	14.2	2629.8	13.2	2629.8	13.2	104.5
-#6 Syn7 Spot 241	171	3180550	1.2	5.6023	0.7	12.4845	1.3	0.5075	1.0	0.83	2645.9	22.5	2641.6	11.8	2638.2	11.8	2638.2	11.8	100.3
-#6 Syn7 Spot 157	178	1969539	1.2	5.5760	0.8	12.4602	1.3	0.5041	1.1	0.82	2631.5	23.7	2639.7	12.6	2646.0	12.8	2646.0	12.8	99.4
-#6 Syn7 Spot 270	46	52220	1.8	5.5378	0.9	12.5352	1.5	0.5037	1.2	0.81	2629.6	26.7	2645.4	14.4	2657.4	14.9	2657.4	14.9	99.0
-#6 Syn7 Spot 235	200	281691	1.9	5.5291	0.7	13.0038	1.5	0.5217	1.3	0.87	2706.4	29.0	2679.9	14.2	2660.0	12.3	2660.0	12.3	101.7
-#6 Syn7 Spot 223	158	75175	3.1	5.5273	0.9	12.8639	1.5	0.5159	1.3	0.82	2681.8	27.4	2669.7	14.4	2660.6	14.6	2660.6	14.6	100.8
-#6 Syn7 Spot 141	90	56871	1.0	5.5068	0.8	12.9700	1.3	0.5182	1.0	0.76	2691.7	22.1	2677.5	12.4	2666.8	14.0	2666.8	14.0	100.9
-#6 Syn7 Spot 93	54	82878	2.1	5.4548	0.9	13.3078	1.6	0.5267	1.4	0.85	2727.6	30.5	2701.7	15.3	2682.5	14.3	2682.5	14.3	101.7
-#6 Syn7 Spot 304	59	56198	1.9	5.4350	0.7	12.9143	1.3	0.5093	1.1	0.83	2653.5	22.9	2673.4	12.0	2688.5	11.8	2688.5	11.8	98.7
-#6 Syn7 Spot 145	101	321224	1.7	5.3697	0.9	13.2101	1.4	0.5147	1.0	0.77	2676.6	23.0	2694.8	12.9	2708.4	14.4	2708.4	14.4	98.8
-#6 Syn7 Spot 252	31	112853	2.5	5.3126	1.0	12.5924	1.6	0.4854	1.3	0.81	2550.8	27.6	2649.7	15.2	2726.0	15.7	2726.0	15.7	93.6
-#6 Syn7 Spot 230	62	104613	2.8	5.3025	0.7	13.7446	1.3	0.5288	1.1	0.85	2736.5	24.8	2732.3	12.5	2729.2	11.5	2729.2	11.5	100.3
-#6 Syn7 Spot 311	174	76129	2.4	5.2378	0.8	13.8443	1.5	0.5261	1.3	0.85	2725.2	29.2	2739.1	14.6	2749.4	13.4	2749.4	13.4	99.1
-#6 Syn7 Spot 117	64	68340	2.9	5.2209	0.9	14.4600	1.3	0.5478	1.0	0.74	2815.9	21.8	2780.4	12.3	2754.7	14.5	2754.7	14.5	102.2
-#6 Syn7 Spot 226	131	88255	0.7	5.1751	0.7	12.3977	1.3	0.4655	1.1	0.85	2463.9	22.9	2635.0	12.3	2769.2	11.1	2769.2	11.1	89.0
-#6 Syn7 Spot 197	101	75300	0.6	4.6460	0.9	17.2880	1.5	0.5828	1.3	0.83	2960.1	30.3	2951.0	14.8	2944.7	14.0	2944.7	14.0	100.5

1. Analyses with >10% uncertainty (1-sigma) in 206Pb/238U age are not included.
2. Analyses with >10% uncertainty (1-sigma) in 206Pb/207Pb age are not included, unless 206Pb/238U age is <400 Ma.
3. Best age is determined from 206Pb/238U age for analyses with 206Pb/238U age <900 Ma and from 206Pb/207Pb age for analyses with 206Pb/238Uage >900 Ma.
4. Concordance is based on 206Pb/238U age / 206Pb/207Pb age. Value is not reported for 206Pb/238U ages <400 Ma because of large uncertainty in 206Pb/207Pb age.
5. Analyses with 206Pb/238U age >400 Ma and with >20% discordance (<80% concordance) are not included.
6. Analyses with 206Pb/238U age >400 Ma and with >5% reverse discordance (<105% concordance) are not included.
7. All uncertainties are reported at the 2-sigma level, and include only measurement errors.
8. Systematic errors are as follows (at 2-sigma level): [sample 1: xxx% (206Pb/238U) & xxx% (206Pb/207Pb)]
9. Analyses conducted by LA-ICPMS, as described by Gehrels et al. (2008) and Gehrels and Pecha (2014).
10. U concentration and U/Th are calibrated relative to FC-1 zircon standard and are accurate to ~20%.
11. Common Pb correction is from measured 204Pb with common Pb composition interpreted from Stacey and Kramers (1975).
12. Common Pb composition assigned uncertainties of 1.5 for 206Pb/204Pb, 0.3 for 207Pb/204Pb, and 2.0 for 208Pb/204Pb.
13. U/Pb and 206Pb/207Pb fractionation is calibrated relative to fragments of large Sri Lanka zircons and individual crystals of FC-1, and R33.
14. U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U/235U = 137.82.
15. Weighted mean and concordia plots determined with Isoplot (Ludwig, 2008).

Aliquot Name	SC1_18
Stratigraphic Formation Name	
Stratigraphic Age	
Rock Type	
Mineral	Zircon
Method	U-Pb
Latitude	
Longitude	
Internal Uncertainty Level	one sigma
External Uncertainty 206/238 (% two sigma)	0.83934537
External Uncertainty 206/207 (% two sigma)	0.65952678
Analysis Purpose	
Laboratory Name	Arizona LaserChron Center
Analyst Name	
Aliquot Reference	
Aliquot Instrumental Method	LA-ICPMS
Aliquot Instrumental Reference	Gehrels, G.E., Valencia, V., Ruiz, J., 2008, Enhanced precision, accuracy, efficiency, and spatial resolution of U-Pb ages by laser ablation-multicollector-inductively coupled plasma-mass spectrometry: Geochemistry, Geophysics, Geosystems, v. 9, Q03017, doi:10.1029/2007GC001805. Gehrels, G. and Pecha, M., 2014, Detrital zircon U-Pb geochronology and Hf isotope geochemistry of Paleozoic and Triassic passive margin strata of western North America: Geosphere, v. 10 (1), p. 49-65.

				Isotope ratios							Apparent ages (Ma)										
Analysis	U (ppm)	206Pb 204Pb	U/Th	206Pb* 207Pb*	± (%)	207Pb* 235U*	± (%)	206Pb* 238U	± (%)	error corr.	206Pb* 238U*	± (Ma)	207Pb* 235U	± (Ma)	206Pb* 207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)	
-#8 SC1 Spot 90	536	3055	1.5	22.3899	2.9	0.0481	3.3	0.0078	1.6	0.48	50.2	0.8	47.7	1.6	NA	NA	50.2	0.8	105.2	
-#8 SC1 Spot 289	591	4927	1.1	22.3480	2.6	0.0532	3.0	0.0086	1.4	0.46	55.3	0.7	52.6	1.5	NA	NA	55.3	0.7	105.2	
-#8 SC1 Spot 162	1410	6925	3.6	21.6548	1.6	0.0559	2.3	0.0088	1.6	0.70	56.4	0.9	55.3	1.2	5.9	39.5	56.4	0.9	102.1	
-#8 SC1 Spot 157	866	6108	3.3	21.6245	2.9	0.0570	3.5	0.0089	1.9	0.54	57.4	1.1	56.3	1.9	9.3	70.5	57.4	1.1	102.0	
-#8 SC1 Spot 8	1496	16382	5.0	21.1653	1.3	0.0585	2.1	0.0090	1.6	0.78	57.6	0.9	57.7	1.2	60.7	31.1	57.6	0.9	99.9	
-#8 SC1 Spot 103	1929	18148	1.2	20.9467	1.4	0.0600	1.8	0.0091	1.2	0.64	58.5	0.7	59.2	1.1	85.4	33.4	58.5	0.7	98.9	*USED FOR AVG
-#8 SC1 Spot 147	736	4340	6.8	22.9640	3.6	0.0550	3.9	0.0092	1.4	0.37	58.8	0.8	54.4	2.0	NA	NA	58.8	0.8	108.2	*USED FOR AVG
-#8 SC1 Spot 10	1101	7064	4.3	22.1371	1.4	0.0576	2.3	0.0093	1.8	0.79	59.4	1.1	56.9	1.3	NA	NA	59.4	1.1	104.4	*USED FOR AVG
-#8 SC1 Spot 264	399	3647	2.9	22.7722	2.8	0.0566	3.4	0.0094	1.9	0.57	60.0	1.2	55.9	1.9	NA	NA	60.0	1.2	107.3	*USED FOR AVG
-#8 SC1 Spot 0	813	4299	1.5	22.6805	2.1	0.0571	2.7	0.0094	1.7	0.64	60.3	1.0	56.4	1.5	NA	NA	60.3	1.0	106.9	*USED FOR AVG
-#8 SC1 Spot 129	695	19095	3.6	21.5458	1.5	0.0601	1.9	0.0094	1.1	0.60	60.3	0.7	59.3	1.1	18.0	36.7	60.3	0.7	101.7	*USED FOR AVG
-#8 SC1 Spot 105	451	4372	3.0	22.3527	2.5	0.0584	2.9	0.0095	1.5	0.52	60.7	0.9	57.6	1.6	NA	NA	60.7	0.9	105.4	*USED FOR AVG
-#8 SC1 Spot 234	534	3443	2.3	22.4560	5.3	0.0584	5.5	0.0095	1.5	0.27	61.0	0.9	57.6	3.1	NA	NA	61.0	0.9	105.9	
-#8 SC1 Spot 196	791	3065	6.1	23.1396	3.4	0.0568	3.6	0.0095	1.2	0.33	61.2	0.7	56.1	2.0	NA	NA	61.2	0.7	109.1	
-#8 SC1 Spot 225	395	2241	5.6	23.3321	2.9	0.0612	3.3	0.0104	1.6	0.48	66.5	1.1	60.3	2.0	NA	NA	66.5	1.1	110.2	
-#8 SC1 Spot 205	512	12417	5.4	21.3319	2.0	0.0672	2.5	0.0104	1.4	0.55	66.7	0.9	66.0	1.6	42.0	48.9	66.7	0.9	101.0	
-#8 SC1 Spot 136	115	2256	1.6	20.9134	4.7	0.0690	4.9	0.0105	1.4	0.28	67.2	0.9	67.8	3.2	89.2	112.5	67.2	0.9	99.1	
-#8 SC1 Spot 175	186	42070	0.9	15.3765	3.9	0.0982	4.1	0.0110	1.3	0.32	70.2	0.9	95.1	3.7	774.5	81.8	70.2	0.9	73.9	
-#8 SC1 Spot 145	324	4933	2.3	21.7689	2.9	0.0725	3.2	0.0115	1.5	0.47	73.4	1.1	71.1	2.2	NA	NA	73.4	1.1	103.3	
-#8 SC1 Spot 114	85	13403	1.0	22.5998	3.7	0.0716	4.1	0.0117	1.7	0.42	75.3	1.3	70.3	2.8	NA	NA	75.3	1.3	107.2	
-#8 SC1 Spot 176	321	6156	3.9	20.5986	2.3	0.0788	2.8	0.0118	1.6	0.57	75.5	1.2	77.1	2.0	125.0	53.5	75.5	1.2	98.0	
-#8 SC1 Spot 112	220	5051	1.6	20.6572	2.6	0.0791	2.9	0.0118	1.2	0.41	75.9	0.9	77.3	2.1	118.3	61.5	75.9	0.9	98.3	
-#8 SC1 Spot 32	896	14590	0.9	21.1287	1.7	0.0800	2.4	0.0123	1.7	0.71	78.6	1.4	78.2	1.8	64.8	41.1	78.6	1.4	100.6	
-#8 SC1 Spot 62	149	5392	2.1	22.0370	2.8	0.0904	3.3	0.0145	1.8	0.55	92.6	1.7	87.9	2.8	NA	NA	92.6	1.7	105.3	
-#8 SC1 Spot 87	288	4641	3.7	22.0390	2.1	0.0923	2.4	0.0148	1.2	0.48	94.4	1.1	89.6	2.1	NA	NA	94.4	1.1	105.4	
-#8 SC1 Spot 290	479	10569	2.1	21.2246	2.0	0.0971	2.3	0.0150	1.1	0.49	95.7	1.1	94.1	2.0	54.0	47.2	95.7	1.1	101.7	
-#8 SC1 Spot 178	958	1015481	1.5	20.5987	1.2	0.1005	1.8	0.0150	1.3	0.74	96.2	1.3	97.3	1.7	125.0	28.4	96.2	1.3	98.8	
-#8 SC1 Spot 243	1395	593020	1.7	20.6925	1.0	0.1049	1.5	0.0157	1.2	0.76	100.7	1.2	101.3	1.5	114.2	23.3	100.7	1.2	99.5	
-#8 SC1 Spot 159	487	3345	2.5	22.4394	3.4	0.1058	3.8	0.0172	1.5	0.41	110.1	1.7	102.1	3.7	NA	NA	110.1	1.7	107.8	
-#8 SC1 Spot 56	954	35270	0.8	20.4116	1.0	0.1191	1.5	0.0176	1.1	0.75	112.7	1.3	114.3	1.6	146.4	23.5	112.7	1.3	98.7	
-#8 SC1 Spot 97	776	33729	3.2	19.7070	1.4	0.1733	2.2	0.0248	1.8	0.78	157.8	2.7	162.3	3.4	228.2	32.3	157.8	2.7	97.2	
-#8 SC1 Spot 251	259	2461	1.2	22.0389	6.9	0.1614	7.0	0.0258	1.4	0.19	164.3	2.2	151.9	9.9	NA	NA	164.3	2.2	108.1	
-#8 SC1 Spot 94	854	17388	2.6	19.9171	1.1	0.1935	1.7	0.0280	1.3	0.78	177.8	2.3	179.6	2.8	203.6	25.2	177.8	2.3	99.0	
-#8 SC1 Spot 160	480	40346	1.9	19.5603	1.3	0.2655	1.8	0.0377	1.3	0.68	238.4	2.9	239.1	3.9	245.4	30.9	238.4	2.9	99.7	
-#8 SC1 Spot 156	507	40005	2.9	16.6205	4.3	0.3126	4.5	0.0377	1.3	0.29	238.6	3.0	276.2	10.9	608.6	93.3	238.6	3.0	86.4	
-#8 SC1 Spot 154	112	110497	1.9	19.8531	2.3	0.2878	2.6	0.0415	1.3	0.48	261.9	3.2	256.8	5.9	211.1	53.1	261.9	3.2	102.0	
-#8 SC1 Spot 12	777	85406	0.5	17.9708	1.6	0.3188	2.0	0.0416	1.2	0.59	262.6	3.1	281.0	5.0	437.3	36.4	262.6	3.1	93.4	
-#8 SC1 Spot 66	391	11052	3.4	19.9021	1.5	0.3305	1.9	0.0477	1.2	0.64	300.5	3.6	289.9	4.8	205.4	34.1	300.5	3.6	103.7	
-#8 SC1 Spot 111	271	15991	2.0	19.0105	1.4	0.3529	1.9	0.0487	1.4	0.72	306.4	4.2	306.9	5.1	310.7	30.8	306.4	4.2	99.8	
-#8 SC1 Spot 245	197	73057	1.6	18.6223	1.6	0.3663	2.2	0.0495	1.4	0.65	311.5	4.3	316.9	5.9	357.5	37.1	311.5	4.3	98.3	
-#8 SC1 Spot 77	258	16981	1.5	19.1857	1.2	0.3704	2.1	0.0516	1.7	0.81	324.1	5.4	320.0	5.8	289.8	28.4	324.1	5.4	101.3	
-#8 SC1 Spot 170	437	150250	5.2	18.1681	1.4	0.3981	2.3	0.0525	1.8	0.79	329.7	5.7	340.3	6.5	412.9	30.7	329.7	5.7	96.9	
-#8 SC1 Spot 3	247	154289	2.4	18.0262	1.4	0.4113	2.0	0.0538	1.4	0.70	337.8	4.5	349.8	5.8	430.4	31.5	337.8	4.5	96.6	
-#8 SC1 Spot 282	648	64863	0.8	18.4498	1.1	0.4056	1.6	0.0543	1.1	0.73	340.8	3.8	345.7	4.6	378.4	24.4	340.8	3.8	98.6	
-#8 SC1 Spot 16	394	3366	3.0	20.0260	1.2	0.3737	1.5	0.0543	0.9	0.61	340.9	3.1	322.4	4.3	191.0	28.5	340.9	3.1	105.7	
-#8 SC1 Spot 74	416	74011	2.5	18.7372	1.3	0.4005	2.1	0.0544	1.6	0.78	341.7	5.4	342.0	6.1	343.5	29.8	341.7	5.4	99.9	
-#8 SC1 Spot 63	333	11796	4.3	19.1574	1.4	0.4056	2.0	0.0564	1.5	0.74	353.6	5.2	345.7	6.0	293.1	31.5	353.6	5.2	102.3	
-#8 SC1 Spot 4	460	105393	1.6	17.4075	1.4	0.4619	2.2	0.0583	1.7	0.76	365.5	6.0	385.6	7.1	507.8	31.6	365.5	6.0	94.8	
-#8 SC1 Spot 104	662	2656	3.2	10.1205	1.4	0.8514	1.9	0.0625	1.3	0.68	390.9	4.8	625.4	8.7	1600.9	25.2	390.9	4.8	62.5	
-#8 SC1 Spot 144	438	8640	2.7	15.1037	1.1	0.5800	1.7	0.0636	1.3	0.76	397.3	5.0	464.5	6.4	812.1	23.7	397.3	5.0	85.5	
-#8 SC1 Spot 177	159	15160	1.2	18.6494	1.4	0.4794	1.9	0.0649	1.3	0.67	405.2	5.1	397.6	6.4	354.2	32.3	405.2	5.1	114.4	
-#8 SC1 Spot 28	279	22900	4.2	18.1709	1.3	0.5042	2.0	0.0665	1.5	0.73	414.9	5.8	414.5	6.7	412.6	30.1	414.9	5.8	100.6	
-#8 SC1 Spot 295	235	15294	4.5	16.2068	2.1	0.5676	2.8	0.0667	1.9	0.67	416.5	7.5	456.4	10.3	662.9	44.4	416.5	7.5	62.8	
-#8 SC1 Spot 212	183	37987	3.7	17.3983	1.2	0.5289	2.1	0.0668	1.7	0.82	416.6	6.9	431.0	7.3	508.9	26.2	416.6	6.9	81.9	
-#8 SC1 Spot 38	62	11486	2.5	17.2816	1.7	0.5364	2.2	0.0673	1.4	0.64	419.7	5.8	436.1	8.0	523.7	37.9	419.7	5.8	80.1	
-#8 SC1 Spot 149	306	64581	2.3	18.3600	1.3	0.5098	1.9	0.0679	1.4	0.74	423.6	5.8	418.3	6.5	389.4	29.0	423.6	5.8	108.8	
-#8 SC1 Spot 89	254	12509	2.1	18.0151	1.4	0.5197	2.0	0.0679	1.4	0.73	423.7	5.8	424.9	6.8	431.8	30.2	423.7	5.8	98.1	
-#8 SC1 Spot 123	394	36178	2.0	18.0602	1.1	0.5197	1.9	0.0681	1.5	0.80	424.7	6.3	424.9	6.6	426.2	25.6	424.7	6.3	99.6	
-#8 SC1 Spot 13	666	288359	1.7	18.0634	1.0	0.5228	1.5	0.0685	1.1	0.75	427.3	4.6	427.1	5.2	425.8	22.0	427.3	4.6	100.3	
-#8 SC1 Spot 137	330	29809	14.6	17.8566	1.1	0.5312	2.0	0.0688	1.7	0.83	429.1	6.9	432.6	7.1	451.5	25.1	429.1	6.9	95.0	
-#8 SC1 Spot 249	106	23780	1.2	17.1469	1.5	0.5692	2.1	0.0708	1.4	0.67	441.0	5.9	457.5	7.6	540.8	33.3	441.0	5.9	81.6	
-#8 SC1 Spot 161	174	6892	4.7	18.3989	1.7	0.5524	2.3	0.0737	1.5	0.68	458.7	6.8	446.6	8.2	384.6	37.2	458.7	6.8	119.2	
-#8 SC1 Spot 71	243	16149	1.3	17.7193	1.1	0.5761	1.6	0.0741	1.1	0.71	460.7	5.1	462.0	6.0	468.6	25.0	460.7	5.1	98.3	
-#8 SC1 Spot 185	166	8714	2.5	17.9929	1.5	0.5720	2.4	0.0747	1.8	0.76	464.3	8.0	459.3	8.7	434.5	34.2	464.3	8.0	106.8	
-#8 SC1 Spot 59	91	47978	2.9	17.8598	1.5	0.6079	2.2	0.0788	1.7	0.75	488.8	7.9	482.2	8.6	451.1	33.3	488.8	7.9	108.4	
-#8 SC1 Spot 142	1094	45104	1.8	16.5677	1.1	0.6831	1.8	0.0821	1.4	0.78	508.8	6.8	528.6	7.4	615.5	24.3	508.8	6.8	82.7	
-#8 SC1 Spot 247	68	2447	1.4	18.8238	1.5	0.6469	1.9	0.0883	1.2	0.64	545.8	6.4	506.5	7.7	333.1	33.7	545.8	6.4	163.8	
-#8 SC1 Spot 271	328	84246	2.6	17.0073	1.0	0.7202	1.5	0.0889	1.2	0.77	548.8	6.2	550.8	6.5	558.7	21.5	548.8	6.2	98.2	
-#8 SC1 Spot 274	243	35413	2.2	17.0881	1.4	0.7175	2.0	0.0890	1.4	0.70	549.4	7.3	549.2	8.4	548.4	30.7	549.4	7.3	100.2	
-#8 SC1 Spot 199	152	60256	1.8	16.8199	1.4	0.7300	2.0	0.0891	1.4	0.71	550.1	7.3	556.5	8.4	582.8	29.9	550.1	7.3	94.4	
-#8 SC1 Spot 209	314	250740	1.7	16.7041	1.0	0.7505	1.5	0.0910	1.1	0.74	561.2	5.8	568.5	6.4	597.8	21.2	561.2	5.8	93.9	
-#8 SC1 Spot 88	46	5872	1.6	16.6519	2.2	0.7550	2.6	0.0912	1.4	0.54	562.8	7.7	571.1	11.6	604.5	48.2	562.8	7.7	93.1	
-#8 SC1 Spot 223	104	8701	2.9	16.9784	1.3	0.7454	1.9	0.0918	1.5	0.75	566.4	8.0	565.6	8.4	562.4	27.9	566.4	8.0	100.7	
-#8 SC1 Spot 69	49	7946	2.3	15.2155	2.2	0.8544	2.9	0.0943	1.8	0.64	581.1	10.3	627.1	13.6	796.6	46.8	581.1	10.3	72.9	

-#8 SC1 Spot 184	176	174055	1.2	16.0856	0.9	0.8242	1.4	0.0962	1.1	0.75	592.1	6.0	610.4	6.4	678.9	19.7	592.1	6.0	87.2
-#8 SC1 Spot 55	189	123833	4.4	16.3678	1.1	0.8151	1.5	0.0968	1.1	0.69	595.7	6.0	605.3	7.0	641.7	24.0	595.7	6.0	92.8
-#8 SC1 Spot 311	198	16971	1.5	16.3110	1.3	0.8447	2.0	0.1000	1.6	0.77	614.2	9.2	621.7	9.4	649.2	27.4	614.2	9.2	94.6
-#8 SC1 Spot 126	143	16645	1.8	16.2000	1.4	0.8575	2.2	0.1008	1.7	0.77	619.1	10.2	628.8	10.4	663.8	30.2	619.1	10.2	93.3
-#8 SC1 Spot 233	163	9818	1.6	16.4793	1.5	0.8507	2.1	0.1017	1.5	0.70	624.5	9.0	625.1	10.0	627.0	33.0	624.5	9.0	99.6
-#8 SC1 Spot 277	34	6597	2.1	16.2739	2.2	0.8635	2.8	0.1020	1.8	0.64	625.9	10.9	632.0	13.4	654.0	46.9	625.9	10.9	95.7
-#8 SC1 Spot 195	552	9453	2.4	14.7247	1.0	0.9669	1.4	0.1033	1.0	0.74	633.8	6.3	686.9	7.1	865.0	19.9	633.8	6.3	73.3
-#8 SC1 Spot 273	176	136893	0.7	16.4513	1.2	0.8769	1.8	0.1047	1.3	0.72	641.7	7.9	639.3	8.4	630.7	26.4	641.7	7.9	101.7
-#8 SC1 Spot 231	251	36257	0.5	16.2461	1.2	0.8947	1.6	0.1055	1.1	0.69	646.4	7.0	648.9	7.9	657.7	25.3	646.4	7.0	98.3
-#8 SC1 Spot 193	97	8365	1.4	16.8655	1.3	0.8623	1.9	0.1055	1.4	0.73	646.7	8.8	631.4	9.2	576.9	28.7	646.7	8.8	112.1
-#8 SC1 Spot 102	129	4779	2.1	16.8345	1.0	0.8648	1.6	0.1056	1.3	0.77	647.4	7.8	632.7	7.7	580.9	22.6	647.4	7.8	111.4
-#8 SC1 Spot 33	210	27505	1.4	16.0738	1.2	0.9410	2.1	0.1098	1.6	0.80	671.3	10.5	673.4	10.1	680.5	26.3	671.3	10.5	98.7
-#8 SC1 Spot 115	236	44063	62.8	14.9083	1.0	1.2979	1.6	0.1404	1.2	0.79	846.9	9.9	844.8	9.1	839.2	20.4	846.9	9.9	100.9
-#8 SC1 Spot 216	531	160951	2.2	14.3890	0.8	1.4162	1.5	0.1479	1.2	0.83	889.0	10.3	895.8	8.8	912.7	17.0	912.7	17.0	97.4
-#8 SC1 Spot 118	102	13188	3.2	14.2800	1.5	1.5174	1.8	0.1572	1.1	0.60	941.3	9.7	937.4	11.3	928.3	30.2	928.3	30.2	101.4
-#8 SC1 Spot 133	74	12264	2.2	13.9602	1.4	1.6761	1.9	0.1698	1.3	0.68	1010.9	11.9	999.5	11.9	974.6	27.9	974.6	27.9	103.7
-#8 SC1 Spot 124	145	37341	3.3	13.8756	1.3	1.6076	2.0	0.1618	1.4	0.73	967.0	12.9	973.2	12.3	987.0	27.3	987.0	27.3	98.0
-#8 SC1 Spot 37	104	13741	1.9	13.8417	1.3	1.7423	2.0	0.1750	1.5	0.74	1039.5	14.2	1024.3	12.9	992.0	27.1	992.0	27.1	104.8
-#8 SC1 Spot 53	305	30667	3.9	13.7772	0.8	1.7219	1.4	0.1721	1.1	0.80	1023.8	10.8	1016.7	9.1	1001.4	17.1	1001.4	17.1	102.2
-#8 SC1 Spot 101	49	21662	1.2	13.7731	1.4	1.7612	1.9	0.1760	1.2	0.64	1045.1	11.4	1031.3	12.0	1002.1	28.9	1002.1	28.9	104.3
-#8 SC1 Spot 203	79	6086	3.1	13.6677	1.1	1.7986	1.5	0.1784	1.0	0.65	1058.0	9.5	1044.9	9.7	1017.6	22.8	1017.6	22.8	104.0
-#8 SC1 Spot 220	234	28865	393.9	13.6440	0.9	1.7378	1.6	0.1720	1.3	0.83	1023.3	12.4	1022.6	10.2	1021.1	17.6	1021.1	17.6	100.2
-#8 SC1 Spot 83	59	17682	3.4	13.6356	1.3	1.7281	1.9	0.1710	1.3	0.69	1017.5	12.1	1019.1	12.0	1022.4	27.3	1022.4	27.3	99.5
-#8 SC1 Spot 119	40	9263	2.9	13.5848	1.6	1.7636	2.0	0.1738	1.2	0.62	1033.2	11.9	1032.2	13.0	1029.9	31.9	1029.9	31.9	100.3
-#8 SC1 Spot 45	225	20328	5.2	13.5593	1.1	1.7945	1.6	0.1766	1.2	0.72	1048.1	11.3	1043.5	10.6	1033.7	22.8	1033.7	22.8	101.4
-#8 SC1 Spot 179	207	116475	1.1	13.4930	1.1	1.7382	1.9	0.1702	1.6	0.81	1013.1	14.7	1022.8	12.5	1043.7	22.8	1043.7	22.8	97.1
-#8 SC1 Spot 206	120	9286	1.8	13.4777	1.2	1.8115	1.9	0.1772	1.4	0.78	1051.4	14.0	1049.6	12.1	1046.0	23.5	1046.0	23.5	100.5
-#8 SC1 Spot 46	217	40870	3.0	13.4122	0.9	1.9066	1.4	0.1855	1.0	0.75	1097.2	10.2	1083.4	9.0	1055.8	18.3	1055.8	18.3	103.9
-#8 SC1 Spot 122	97	12993	4.9	13.3867	1.1	1.9006	1.8	0.1846	1.5	0.80	1092.1	14.8	1081.3	12.2	1059.6	22.0	1059.6	22.0	103.1
-#8 SC1 Spot 285	360	31574	2.1	13.3769	0.9	1.7151	1.7	0.1665	1.4	0.85	992.6	13.0	1014.2	10.7	1061.1	17.8	1061.1	17.8	93.5
-#8 SC1 Spot 312	229	71952	2.0	13.2587	1.1	1.8274	1.7	0.1758	1.2	0.73	1044.0	11.7	1055.3	10.9	1078.9	22.6	1078.9	22.6	96.8
-#8 SC1 Spot 40	332	62343	6.3	13.2015	0.9	1.8513	1.4	0.1773	1.1	0.78	1052.4	10.8	1063.9	9.4	1087.6	18.0	1087.6	18.0	96.8
-#8 SC1 Spot 221	437	654943	4.3	13.1853	1.0	1.8330	1.6	0.1754	1.3	0.80	1041.6	12.1	1057.4	10.4	1090.0	19.1	1090.0	19.1	95.6
-#8 SC1 Spot 25	130	57646	5.2	13.1448	1.1	1.9648	1.9	0.1874	1.5	0.80	1107.3	15.2	1103.5	12.6	1096.2	22.7	1096.2	22.7	101.0
-#8 SC1 Spot 22	374	54028	22.3	13.0925	0.7	2.0013	1.2	0.1901	1.0	0.80	1122.0	9.8	1115.9	8.1	1104.2	14.6	1104.2	14.6	101.6
-#8 SC1 Spot 281	329	51218	4.3	12.9951	1.0	1.9911	2.0	0.1877	1.7	0.86	1109.1	17.6	1112.5	13.5	1119.1	20.4	1119.1	20.4	99.1
-#8 SC1 Spot 86	218	70194	1.9	12.9848	1.0	1.9172	1.9	0.1806	1.6	0.87	1070.4	16.3	1087.1	12.7	1120.6	19.1	1120.6	19.1	95.5
-#8 SC1 Spot 17	359	62569	3.3	12.9416	1.0	2.0035	1.7	0.1881	1.4	0.79	1111.3	13.8	1116.7	11.6	1127.3	20.9	1127.3	20.9	98.6
-#8 SC1 Spot 169	354	214053	3.2	12.9362	1.0	2.0583	1.5	0.1932	1.2	0.78	1138.7	12.3	1135.1	10.4	1128.2	19.1	1128.2	19.1	100.9
-#8 SC1 Spot 139	259	188615	2.3	12.7936	0.8	2.0440	1.5	0.1897	1.2	0.83	1120.0	12.8	1130.3	10.3	1150.2	16.8	1150.2	16.8	97.4
-#8 SC1 Spot 180	112	16658	2.5	12.7925	1.1	2.0805	1.7	0.1931	1.3	0.77	1138.2	13.4	1142.4	11.5	1150.3	21.5	1150.3	21.5	98.9
-#8 SC1 Spot 197	673	52042	1.7	12.7849	1.0	2.1235	1.7	0.1970	1.4	0.82	1159.1	14.8	1156.5	11.8	1151.5	19.5	1151.5	19.5	100.7
-#8 SC1 Spot 253	199	27015	3.2	12.7780	1.2	2.1203	2.0	0.1966	1.6	0.78	1156.9	16.5	1155.4	13.7	1152.6	24.5	1152.6	24.5	100.4
-#8 SC1 Spot 284	226	136761	3.5	12.6931	1.0	2.2074	1.6	0.2033	1.2	0.76	1193.0	13.3	1183.4	11.2	1165.8	20.7	1165.8	20.7	102.3
-#8 SC1 Spot 256	119	25735	2.7	12.6859	1.2	2.1526	1.6	0.1981	1.1	0.70	1165.3	12.1	1165.9	11.3	1166.9	22.9	1166.9	22.9	99.9
-#8 SC1 Spot 287	887	89322	4.6	12.6547	1.0	2.1021	1.8	0.1930	1.5	0.83	1137.7	15.9	1149.5	12.7	1171.8	20.5	1171.8	20.5	97.1
-#8 SC1 Spot 92	88	14859	4.0	12.6219	1.3	2.1952	1.9	0.2010	1.4	0.73	1180.9	14.6	1179.5	13.0	1177.0	25.2	1177.0	25.2	100.3
-#8 SC1 Spot 270	460	144725	3.5	12.6049	0.9	2.1280	1.4	0.1946	1.2	0.80	1146.4	12.2	1157.9	10.0	1179.6	17.1	1179.6	17.1	97.2
-#8 SC1 Spot 201	32	4347	1.3	12.5037	2.6	1.9843	2.9	0.1800	1.3	0.44	1067.1	12.7	1110.2	19.7	1195.6	51.6	1195.6	51.6	89.3
-#8 SC1 Spot 116	210	70750	2.7	12.4251	0.9	2.3278	1.7	0.2099	1.4	0.84	1228.1	16.1	1220.8	12.1	1208.0	18.0	1208.0	18.0	101.7
-#8 SC1 Spot 227	65	8406	5.1	12.3936	1.6	2.3415	2.0	0.2106	1.2	0.60	1231.8	13.3	1225.0	14.2	1213.0	31.5	1213.0	31.5	101.6
-#8 SC1 Spot 291	359	89191	2.4	12.2759	0.9	2.3674	1.6	0.2109	1.3	0.82	1233.4	14.9	1232.8	11.6	1231.7	18.3	1231.7	18.3	100.1
-#8 SC1 Spot 215	216	14301	2.7	11.6404	1.5	2.3159	1.9	0.1956	1.2	0.62	1151.7	12.6	1217.2	13.7	1335.2	29.4	1335.2	29.4	86.3
-#8 SC1 Spot 54	90	21559	2.9	11.5603	1.0	2.8325	1.5	0.2376	1.0	0.71	1374.1	13.0	1364.2	11.1	1348.6	20.1	1348.6	20.1	101.9
-#8 SC1 Spot 121	202	41184	1.0	11.5549	0.9	2.8073	1.5	0.2354	1.3	0.81	1362.6	15.4	1357.5	11.6	1349.5	17.6	1349.5	17.6	101.0
-#8 SC1 Spot 217	264	167879	4.0	11.3833	0.9	2.9689	1.7	0.2452	1.4	0.83	1413.8	17.7	1399.7	12.8	1378.3	18.1	1378.3	18.1	102.6
-#8 SC1 Spot 190	357	40337	3.4	11.3750	0.9	2.8657	1.5	0.2365	1.1	0.77	1368.6	14.0	1372.9	11.0	1379.7	17.8	1379.7	17.8	99.2
-#8 SC1 Spot 141	123	147198	4.0	11.3645	0.9	2.8160	1.6	0.2322	1.3	0.81	1346.1	15.8	1359.8	12.0	1381.5	17.8	1381.5	17.8	97.4
-#8 SC1 Spot 158	61	10927	3.2	11.3064	1.1	2.7877	1.9	0.2287	1.5	0.80	1327.7	18.2	1352.2	14.1	1391.3	21.5	1391.3	21.5	95.4
-#8 SC1 Spot 307	164	34707	2.7	11.2979	0.8	2.9440	1.6	0.2413	1.3	0.86	1393.6	16.9	1393.3	11.9	1392.8	15.5	1392.8	15.5	100.1
-#8 SC1 Spot 20	274	83822	3.5	11.2837	1.0	2.9508	1.8	0.2416	1.4	0.81	1395.0	18.2	1395.1	13.5	1395.2	19.9	1395.2	19.9	100.0
-#8 SC1 Spot 174	140	58392	2.5	11.2551	1.1	3.0182	1.8	0.2465	1.5	0.81	1420.3	19.1	1412.2	14.0	1400.0	20.4	1400.0	20.4	101.4
-#8 SC1 Spot 236	330	933402	2.8	11.2420	0.7	3.1051	1.5	0.2533	1.4	0.90	1455.4	18.1	1434.0	11.8	1402.3	12.7	1402.3	12.7	103.8
-#8 SC1 Spot 26	119	35726	1.1	11.2234	1.1	3.1173	1.7	0.2539	1.3	0.79	1458.3	17.5	1437.0	13.1	1405.5	20.2	1405.5	20.2	103.8
-#8 SC1 Spot 228	446	132765	4.2	11.1948	0.7	3.0449	1.4	0.2473	1.2	0.84	1424.7	14.8	1419.0	10.5	1410.3	14.2	1410.3	14.2	101.0
-#8 SC1 Spot 213	609	89055	4.5	11.1620	0.7	2.9565	1.4	0.2394	1.2	0.84	1383.8	14.6	1396.5	10.6	1416.0	14.3	1416.0	14.3	97.7
-#8 SC1 Spot 262	221	27589	3.0	11.1416	1.0	3.0954	1.6	0.2502	1.3	0.80	1439.7	16.9	1431.5	12.6	1419.4	18.9	1419.4	18.9	101.4
-#8 SC1 Spot 49	128	20947	3.1	11.0898	1.0	3.1911	1.7	0.2568	1.4	0.80	1473.3	17.8	1455.0	13.1	1428.4	19.5	1428.4	19.5	103.1
-#8 SC1 Spot 48	108	65401	1.0	11.0846	0.9	3.1274	1.4	0.2515	1.1	0.79	1446.4	14.0	1439.5	10.6	1429.2	16.2	1429.2	16.2	101.2
-#8 SC1 Spot 15	416	690356	1.4	11.0821	0.9	3.1684	1.5	0.2548	1.2	0.80	1463.1	15.5	1449.5	11.5	1429.7	17.2	1429.7	17.2	102.3
-#8 SC1 Spot 257	94	39736	0.7	11.0728	0.9	3.1450	1.6	0.2527	1.3	0.81	1452.3	16.7	1443.8	12.2	1431.3	17.8	1431.3	17.8	101.5
-#8 SC1 Spot 80	217	61404	2.4	11.0613	0.7	3.1656	1.3	0.2541	1.1	0.84	1459.4	14.6	1448.8	10.2	1433.3	13.6	1433.3	13.6	101.8
-#8 SC1 Spot 138	274	32024	0.6	11.0543	0.9	3.0342	1.3	0.2434	1.0	0.74	1404.2	12.3	1416.3	10.1	1434.5	17.1	1434.5	17.1	97.9
-#8 SC1 Spot 268	172	78711	1.1	11.0540	1.0	3.0995	1.6	0.2486	1.3	0.78	1431.3	16.3	1432.6	12.5	1434.5	19.4	1434.5	19.4	99.8
-#8 SC1 Spot 113	137	66625	0.7	11.0428	1.1	3.1554	1.5	0.2528	1.1	0.71	1453.0	14.2	1446.3	11.8	1436.5	20.4	1436.5	20.4	101.2
-#8 SC1 Spot 181	203	23639	1.2	11.0387	1.1	3.0209	1.8	0.2420	1.5	0.80	1396.9	18.3	1412.9	13.8	1437.2	20.7	1437.2	20.7	97.2
-#8 SC1 Spot 172	70	21843	0.8	11.0229	1.0	3.1819	1.7	0.2545	1.4	0.83	1461.6	18.4	1452.8	13.2	1439.9	18.3	1439.9	18.3	101.5
-#8 SC1 Spot 148	176	26405	2.0	10.9942	0.8	3.1226	1.6	0.2491	1.4	0.87	1433.8	17.9	1438.3	12.3	1444.9	15.2	1444.9	15.2	99.2
-#8 SC1 Spot 310	148	237128	4.4	10.9903	0.9	3.0547	1.5	0.2436	1.2	0.80	1405.4	15.3	1421.4	11.5	1445.5	17.1	1445.5	17.1	97.2
-#8 SC1 Spot 280	163	34950	2.6	10.9703	0.7	3.1324	1.4	0.2493	1.2	0.86	1435.0	15.9	1440.7	11.0	1449.0	13.6	1449.0	13.6	99.0
-#8 SC1 Spot 100	137	42286	2.1	10.9623	0.9	3.1520	1.5	0.2507	1.2	0.81	1442.1	15.6	1445.5	11.5	1450.4	16.7	1450.4	16.7	99.4
-#8 SC1 Spot 248	88	50945	3.0	10.9491	1.5	2.8949	2.0	0.2300	1.4	0.67	1334.4	16.5	1380.6	15.4	1452.7	28.7	1452.7	28.7	91.9
-#8 SC1 Spot 5	178	26616	1.9	10.9470	1.3	3.0658	2.0	0.2435	1.5	0.75	1405.0	18.6	1424.2	15.0	1453.0	24.5	1453.0	24.5	96.7
-#8 SC1 Spot 313	197	50119	2.2	10.9255	1.0	3.1444	1.9	0.2493	1.7	0.86	1434.7	21.3	1443.6	14.9	1456.8	18.8	1456.8	18.8	98.5
-#8 SC1 Spot 120	94	22914	1.0	10.8963	1.0	3.1432	1.7	0.2485	1.4	0.81	1430.8	17.3	1443.3	12.8	1461.9	18.6	1461.9	18.6	97.9
-#8 SC1 Spot 43	323	32813	0.8	10.8783	1.2	2.9140	2.2	0.2300	1.9	0.85	1334.5	22.4	1385.6	16.5	1465.0	22.0	1465.0	22.0	91.1
-#8 SC1 Spot 259	345	631371	2.3	10.8776	1.0	3.1689	1.5	0.2501	1.1	0.72	1439.1	13.7	1449.6	11.3	1465.1	19.4	1465.1	19.4	98.2
-#8 SC1 Spot 200	59	16473	4.5	10.8699	1.4	3.1343	2.1	0.2472	1.6	0.74	1424.0	20.3	1441.1	16.4	1466.5	27.0	1466.5	27.0	97.1
-#8 SC1 Spot 305	105	45269	1.2	10.8567	1.3	3.2364	1.7	0.2549	1.2	0.66	1463.9	15.2	1465.9	13.5	1468.8	24.8	1468.8	24.8	99.7
-#8 SC1 Spot 98	377	782661	5.1	10.8397	1.1	3.2782	1.8	0.2578	1.4	0.80	1478.8	18.7	1475.9	13.8	1471.8	20.2	1471.8	20.2	100.5
-#8 SC1 Spot 260	1096	64857	8.6	10.7982	0.8	3.0411	1.7	0.2383	1.5	0.88	1377.7	18.3	1418.0	12.9	1479.0	15.3	1479.0	15.3	93.1
-#8 SC1 Spot 93	201	26366	3.9	10.7944	0.9	3.2693	1.5	0.2561	1.3	0.83	1469.6	16.9	1473.8	12.0	1479.7	16.2	1479.7	16.2	99.3
-#8 SC1 Spot 314	183	74055	1.6	10.6962	0.9	3.0933	1.8	0.2401	1.5	0.87	1387.0	19.1	1431.0	13.6	1497.0	16.7	1497.0	16.7	92.7
-#8 SC1 Spot 127	278	64731	2.4	10.6793	0.9	3.4851	1.6	0.2701	1.3	0.80	1541.1	17.2	1523.9	12.4	1500.0	17.9	1500.0	17.9	102.7
-#8 SC1 Spot 252	237	49495	2.4	10.6446	1.0	3.3985	1.8	0.2625	1.5	0.83	1502.6	20.4	1504.1	14.3	1506.2	19.0	1506.2	19.0	99.8
-#8 SC1 Spot 132	387	78797	3.2	10.6253	1.1	3.4290	1.6	0.2644	1.2	0.75	1512.1	16.5	1511.1	12.9	1509.6	20.5	1509.6	20.5	100.2
-#8 SC1 Spot 299	162	44020	1.1	10.5887	1.3	3.1815	1.8	0.2444	1.3	0.72	1409.7	16.8	1452.7	14.2	1516.1	24.2	1516.1	24.2	93.0
-#8 SC1 Spot 143	336	72472	2.5	10.5313	0.9	3.4123	1.4	0.2607	1.0	0.72	1493.7	13.0	1507.2	10.6	1526.3	17.7	1526.3	17.7	97.9
-#8 SC1 Spot 65	315	16093	1.4	10.4602	0.7	3.1484	1.2	0.2390	0.9	0.79	1381.3	11.6	1444.6	9.2	1539.1	13.9	1539.1	13.9	89.7
-#8 SC1 Spot 165	204	46270	4.0	10.3413	0.9	3.6527	1.4	0.2741	1.0	0.72	1561.5	13.4	1561.1	10.8	1560.6	17.7	1560.6	17.7	100.1
-#8 SC1 Spot 60	204	74521	3.1	10.3413	0.9	3.6955	1.6	0.2773	1.3	0.81	1577.7	17.5	1570.4	12.4	1560.6	17.3	1560.6	17.3	101.1
-#8 SC1 Spot 29	69	43791	141.0	10.2515	1.2	3.8890	2.0	0.2893	1.6	0.81	1637.9	23.2	1611.4	15.9	1576.9	21.5	1576.9	21.5	103.9
-#8 SC1 Spot 85	278	360363	1.6	10.0588	0.8	3.9190	1.6	0.2860	1.4	0.86	1621.7	19.9	1617.6	13.1	1612.3	15.3	1612.3	15.3	100.6
-#8 SC1 Spot 198	84	21886	1.7	10.0454	1.2	3.9268	2.0	0.2862	1.7	0.82	1622.6	24.0	1619.2	16.5	1614.8	21.5	1614.8	21.5	100.5
-#8 SC1 Spot 128	152	24214	3.0	9.9013	0.9	3.9090	1.6	0.2808	1.3	0.84	1595.5	18.7	1615.5	12.8	1641.7	15.9	1641.7	15.9	97.2

-#8 SC1 Spot 61	78	39637	2.4	9.8895	0.8	4.0787	1.6	0.2927	1.4	0.85	1654.9	19.7	1650.1	13.0	1643.9	15.6	1643.9	15.6	100.7
-#8 SC1 Spot 57	203	1073527	1.9	9.8867	1.0	3.9475	1.6	0.2832	1.3	0.78	1607.3	18.2	1623.5	13.2	1644.4	18.8	1644.4	18.8	97.7
-#8 SC1 Spot 265	147	30856	1.6	9.8305	1.1	3.9897	1.8	0.2846	1.4	0.77	1614.4	19.5	1632.1	14.5	1655.0	21.2	1655.0	21.2	97.5
-#8 SC1 Spot 255	271	75573	2.4	9.7846	0.8	4.0267	1.6	0.2859	1.4	0.86	1620.9	19.6	1639.6	12.9	1663.7	14.9	1663.7	14.9	97.4
-#8 SC1 Spot 64	91	34714	1.8	9.7844	0.9	4.2083	1.6	0.2988	1.3	0.84	1685.2	19.6	1675.6	12.9	1663.7	16.0	1663.7	16.0	101.3
-#8 SC1 Spot 173	180	52292	2.0	9.7710	1.0	4.3172	1.5	0.3061	1.2	0.78	1721.4	18.2	1696.7	12.7	1666.2	17.6	1666.2	17.6	103.3
-#8 SC1 Spot 246	263	91572	2.0	9.7611	0.9	4.2199	1.5	0.2989	1.3	0.83	1685.7	18.6	1677.9	12.4	1668.1	15.8	1668.1	15.8	101.1
-#8 SC1 Spot 81	180	28267	1.6	9.7540	1.0	4.2669	1.6	0.3020	1.3	0.79	1701.1	18.7	1687.0	13.0	1669.5	17.9	1669.5	17.9	101.9
-#8 SC1 Spot 192	367	59698	3.4	9.7504	0.8	4.3358	1.5	0.3067	1.3	0.85	1724.7	19.6	1700.2	12.5	1670.1	14.6	1670.1	14.6	103.3
-#8 SC1 Spot 99	361	34815	4.2	9.7448	1.0	4.3495	1.7	0.3075	1.3	0.80	1728.6	20.3	1702.8	13.9	1671.2	18.8	1671.2	18.8	103.4
-#8 SC1 Spot 300	139	42694	1.7	9.7448	0.9	4.1080	1.7	0.2905	1.5	0.86	1643.8	21.3	1655.9	13.9	1671.2	16.1	1671.2	16.1	98.4
-#8 SC1 Spot 219	399	63597	2.1	9.7316	0.9	3.9231	1.6	0.2770	1.3	0.82	1576.3	18.1	1618.5	12.8	1673.7	16.7	1673.7	16.7	94.2
-#8 SC1 Spot 135	206	79192	4.3	9.7301	0.8	4.2735	1.6	0.3017	1.4	0.87	1699.8	21.2	1688.3	13.5	1674.0	14.9	1674.0	14.9	101.5
-#8 SC1 Spot 272	215	37078	0.5	9.7158	1.1	4.0728	1.7	0.2871	1.3	0.75	1627.1	18.5	1648.9	14.0	1676.7	20.9	1676.7	20.9	97.0
-#8 SC1 Spot 109	345	39408	4.2	9.6991	1.2	3.9687	1.9	0.2793	1.5	0.78	1587.8	20.9	1627.8	15.5	1679.9	22.3	1679.9	22.3	94.5
-#8 SC1 Spot 44	164	40461	2.5	9.6945	0.8	4.2622	1.5	0.2998	1.3	0.85	1690.4	19.6	1686.1	12.7	1680.8	14.8	1680.8	14.8	100.6
-#8 SC1 Spot 214	148	58080	1.9	9.6802	1.0	4.3833	1.8	0.3079	1.5	0.85	1730.2	23.4	1709.2	15.0	1683.5	17.5	1683.5	17.5	102.8
-#8 SC1 Spot 42	775	84760	2.2	9.6760	1.0	4.2351	1.8	0.2973	1.5	0.85	1678.1	22.9	1680.8	14.9	1684.3	17.6	1684.3	17.6	99.6
-#8 SC1 Spot 153	157	73750	1.7	9.6720	0.9	4.1700	1.6	0.2926	1.4	0.83	1654.7	19.8	1668.1	13.3	1685.1	16.7	1685.1	16.7	98.2
-#8 SC1 Spot 82	90	14816	1.3	9.6589	0.9	4.3417	1.3	0.3043	1.0	0.76	1712.5	15.3	1701.3	11.1	1687.6	16.2	1687.6	16.2	101.5
-#8 SC1 Spot 150	169	21137	2.7	9.6574	1.1	4.2434	1.9	0.2973	1.6	0.83	1678.1	23.6	1682.5	15.9	1687.8	20.2	1687.8	20.2	99.4
-#8 SC1 Spot 21	210	88690	3.0	9.6556	0.8	4.3595	1.6	0.3054	1.3	0.84	1718.2	19.9	1704.7	13.0	1688.2	15.6	1688.2	15.6	101.8
-#8 SC1 Spot 117	395	69347	2.1	9.6545	1.0	4.1754	1.8	0.2925	1.5	0.81	1654.0	21.2	1669.2	14.6	1688.4	19.2	1688.4	19.2	98.0
-#8 SC1 Spot 218	830	130167	6.1	9.6469	0.6	4.3554	1.7	0.3049	1.6	0.93	1715.4	24.0	1703.9	14.1	1689.9	11.3	1689.9	11.3	101.5
-#8 SC1 Spot 79	1088	388903	31.3	9.6390	0.9	4.1042	1.6	0.2870	1.3	0.83	1626.7	18.8	1655.1	12.8	1691.4	16.1	1691.4	16.1	96.2
-#8 SC1 Spot 194	101	25622	2.3	9.6347	0.9	4.1832	1.7	0.2924	1.5	0.87	1653.7	22.2	1670.7	14.3	1692.2	15.7	1692.2	15.7	97.7
-#8 SC1 Spot 269	39	5281	1.1	9.6341	1.2	4.1730	1.8	0.2917	1.3	0.76	1650.1	19.5	1668.7	14.5	1692.3	21.2	1692.3	21.2	97.5
-#8 SC1 Spot 1	211	22072	2.3	9.6179	1.0	4.4244	1.6	0.3088	1.2	0.78	1734.6	18.5	1716.9	13.0	1695.4	18.2	1695.4	18.2	102.3
-#8 SC1 Spot 96	1018	112247	89.0	9.6139	0.9	4.3507	1.7	0.3035	1.5	0.86	1708.6	22.0	1703.0	14.1	1696.2	16.3	1696.2	16.3	100.7
-#8 SC1 Spot 301	94	18625	2.6	9.5873	1.0	4.3979	1.5	0.3059	1.2	0.75	1720.7	17.4	1711.9	12.7	1701.3	18.5	1701.3	18.5	101.1
-#8 SC1 Spot 68	124	31543	2.6	9.5743	0.8	4.3877	1.6	0.3048	1.4	0.87	1715.1	20.9	1710.0	13.2	1703.8	14.2	1703.8	14.2	100.7
-#8 SC1 Spot 30	309	64489	2.2	9.5667	1.0	4.3771	1.8	0.3038	1.6	0.85	1710.3	23.4	1708.0	15.1	1705.2	17.6	1705.2	17.6	100.3
-#8 SC1 Spot 67	320	66718	1.4	9.5550	1.1	4.4860	1.6	0.3110	1.3	0.76	1745.7	19.2	1728.4	13.7	1707.5	19.6	1707.5	19.6	102.2
-#8 SC1 Spot 182	180	52606	0.8	9.5358	1.0	4.3409	1.5	0.3003	1.1	0.73	1693.0	16.4	1701.2	12.5	1711.2	19.2	1711.2	19.2	98.9
-#8 SC1 Spot 27	130	32288	3.0	9.5331	1.0	4.3802	1.5	0.3030	1.2	0.78	1706.1	18.2	1708.6	12.8	1711.7	17.6	1711.7	17.6	99.7
-#8 SC1 Spot 286	293	477376	1.5	9.5175	1.0	4.3131	1.8	0.2979	1.6	0.85	1680.6	23.2	1695.9	15.2	1714.7	17.8	1714.7	17.8	98.0
-#8 SC1 Spot 235	269	70423	4.9	9.5059	0.8	4.5608	1.4	0.3146	1.1	0.81	1763.2	17.2	1742.1	11.5	1717.0	15.0	1717.0	15.0	102.7
-#8 SC1 Spot 208	172	783391	2.8	9.5042	1.0	4.2360	1.6	0.2921	1.2	0.78	1652.1	18.1	1681.0	13.2	1717.3	18.6	1717.3	18.6	96.2
-#8 SC1 Spot 224	206	61585	2.7	9.5025	0.9	4.5290	1.5	0.3123	1.2	0.82	1751.9	19.0	1736.3	12.6	1717.6	16.0	1717.6	16.0	102.0
-#8 SC1 Spot 298	320	250556	4.3	9.4981	1.0	4.5843	1.6	0.3159	1.3	0.81	1769.8	20.3	1746.4	13.6	1718.5	17.7	1718.5	17.7	103.0
-#8 SC1 Spot 244	65	50698	1.0	9.4959	1.3	4.3259	1.7	0.2981	1.1	0.65	1681.7	16.0	1698.3	13.8	1718.9	23.4	1718.9	23.4	97.8
-#8 SC1 Spot 18	155	60004	3.5	9.4847	1.0	4.3579	1.7	0.2999	1.4	0.81	1690.8	20.1	1704.4	13.8	1721.1	17.9	1721.1	17.9	98.2
-#8 SC1 Spot 202	131	67703	2.1	9.4837	1.1	4.3449	1.9	0.2990	1.5	0.82	1686.3	22.9	1701.9	15.6	1721.3	20.0	1721.3	20.0	98.0
-#8 SC1 Spot 7	2157	143597	17.0	9.4634	0.8	4.1813	1.7	0.2871	1.5	0.88	1627.1	22.0	1670.4	14.2	1725.2	14.8	1725.2	14.8	94.3
-#8 SC1 Spot 242	241	37564	2.4	9.4576	1.0	4.5650	2.0	0.3133	1.7	0.87	1756.8	26.6	1742.9	16.6	1726.3	18.4	1726.3	18.4	101.8
-#8 SC1 Spot 140	220	204776	2.0	9.4410	1.0	4.5807	1.9	0.3138	1.6	0.84	1759.3	24.1	1745.8	15.4	1729.5	18.3	1729.5	18.3	101.7
-#8 SC1 Spot 267	192	26189	2.3	9.4407	0.8	4.5182	1.6	0.3095	1.4	0.86	1738.3	21.3	1734.3	13.5	1729.6	15.2	1729.6	15.2	100.5
-#8 SC1 Spot 2	140	38748	4.4	9.4357	1.0	4.4995	1.6	0.3081	1.2	0.78	1731.1	18.6	1730.9	13.0	1730.6	17.9	1730.6	17.9	100.0
-#8 SC1 Spot 278	52	22212	7.1	9.4352	0.9	4.6097	1.6	0.3156	1.3	0.80	1768.1	19.8	1751.0	13.3	1730.7	17.4	1730.7	17.4	102.2
-#8 SC1 Spot 186	296	346716	2.6	9.3930	1.0	4.6513	1.8	0.3170	1.4	0.82	1775.1	22.4	1758.5	14.8	1738.9	18.6	1738.9	18.6	102.1
-#8 SC1 Spot 309	303	179107	2.5	9.3872	0.8	4.5191	1.5	0.3078	1.3	0.86	1729.9	20.2	1734.5	12.8	1740.0	14.3	1740.0	14.3	99.4
-#8 SC1 Spot 125	353	121106	1.3	9.3788	0.9	4.4923	1.7	0.3057	1.4	0.84	1719.5	20.8	1729.5	13.7	1741.7	16.6	1741.7	16.6	98.7
-#8 SC1 Spot 171	243	35864	1.8	9.3782	0.7	4.5752	1.4	0.3113	1.2	0.87	1747.2	18.9	1744.8	11.8	1741.8	12.8	1741.8	12.8	100.3
-#8 SC1 Spot 293	321	51274	3.5	9.3757	0.7	4.4763	1.5	0.3045	1.3	0.88	1713.7	20.2	1726.6	12.7	1742.3	13.5	1742.3	13.5	98.4
-#8 SC1 Spot 226	183	183685	1.5	9.3666	0.8	4.3785	1.6	0.2976	1.4	0.85	1679.3	20.0	1708.3	13.2	1744.0	15.5	1744.0	15.5	96.3
-#8 SC1 Spot 50	307	71857	1.9	9.3661	0.8	4.7312	1.4	0.3215	1.2	0.84	1797.2	19.0	1772.8	12.0	1744.1	14.1	1744.1	14.1	103.0
-#8 SC1 Spot 241	181	96094	2.3	9.3437	0.8	4.6112	1.6	0.3126	1.4	0.87	1753.6	21.2	1751.3	13.2	1748.5	14.2	1748.5	14.2	100.3
-#8 SC1 Spot 14	77	30271	3.6	9.3036	1.0	4.7168	1.6	0.3184	1.2	0.77	1782.0	19.3	1770.2	13.5	1756.4	18.7	1756.4	18.7	101.5
-#8 SC1 Spot 263	63	57888	2.8	9.2941	1.2	4.4319	2.1	0.2989	1.7	0.81	1685.7	24.7	1718.3	17.1	1758.3	22.4	1758.3	22.4	95.9
-#8 SC1 Spot 76	188	164671	3.6	9.2925	0.9	4.7660	1.5	0.3213	1.2	0.82	1796.3	19.4	1778.9	12.7	1758.6	16.1	1758.6	16.1	102.1
-#8 SC1 Spot 155	232	133702	2.5	9.2820	0.8	4.5929	1.5	0.3093	1.3	0.83	1737.4	19.2	1748.0	12.7	1760.7	15.4	1760.7	15.4	98.7
-#8 SC1 Spot 230	659	22438	13.7	9.2816	1.0	4.4358	1.7	0.2987	1.3	0.78	1685.0	19.5	1719.1	13.9	1760.7	19.1	1760.7	19.1	95.7
-#8 SC1 Spot 308	1503	55697	2.5	9.2810	0.8	4.3273	1.6	0.2914	1.4	0.88	1648.6	20.6	1698.6	13.4	1760.9	14.3	1760.9	14.3	93.6
-#8 SC1 Spot 11	206	507224	6.2	9.2789	0.6	4.7122	1.3	0.3173	1.1	0.86	1776.3	16.9	1769.4	10.5	1761.3	11.6	1761.3	11.6	100.9
-#8 SC1 Spot 207	270	44190	5.6	9.2721	0.8	4.6067	1.6	0.3099	1.4	0.87	1740.3	21.6	1750.5	13.6	1762.6	14.9	1762.6	14.9	98.7
-#8 SC1 Spot 222	245	34588	2.6	9.2691	0.8	4.7395	1.6	0.3188	1.3	0.85	1783.7	21.0	1774.2	13.3	1763.2	15.4	1763.2	15.4	101.2
-#8 SC1 Spot 302	553	81171601	16.4	9.2657	0.7	4.7370	1.2	0.3185	1.1	0.85	1782.3	16.5	1773.8	10.4	1763.9	11.9	1763.9	11.9	101.0
-#8 SC1 Spot 152	348	75672	5.7	9.2611	1.0	4.7129	1.9	0.3167	1.6	0.85	1773.5	25.1	1769.5	15.9	1764.8	18.2	1764.8	18.2	100.5
-#8 SC1 Spot 210	144	64244	4.9	9.2586	0.6	4.6916	1.4	0.3152	1.3	0.89	1766.1	19.5	1765.7	11.8	1765.3	11.7	1765.3	11.7	100.0
-#8 SC1 Spot 41	198	204065	3.1	9.2262	0.8	4.6744	1.4	0.3129	1.1	0.83	1755.1	17.5	1762.7	11.5	1771.7	14.2	1771.7	14.2	99.1
-#8 SC1 Spot 84	92	74733	5.9	9.1988	1.1	4.9196	1.7	0.3284	1.3	0.77	1830.4	21.3	1805.6	14.7	1777.1	20.2	1777.1	20.2	103.0
-#8 SC1 Spot 146	172	187842	2.6	9.1825	1.0	4.7570	1.6	0.3169	1.3	0.81	1774.8	20.5	1777.3	13.8	1780.3	17.7	1780.3	17.7	99.7
-#8 SC1 Spot 283	71	22201	3.7	9.1819	1.0	4.8136	1.7	0.3207	1.3	0.81	1793.1	21.1	1787.3	14.0	1780.4	17.7	1780.4	17.7	100.7
-#8 SC1 Spot 211	276	18676	2.2	9.1462	1.0	4.3237	1.7	0.2869	1.4	0.79	1626.2	19.6	1697.9	14.1	1787.5	19.0	1787.5	19.0	91.0
-#8 SC1 Spot 24	249	234432	2.2	9.1369	0.8	4.9359	1.5	0.3272	1.2	0.84	1824.9	19.9	1808.4	12.5	1789.4	14.5	1789.4	14.5	102.0
-#8 SC1 Spot 58	629	599535	1.9	9.1326	0.9	5.0184	1.4	0.3325	1.1	0.76	1850.7	17.2	1822.4	11.9	1790.3	16.5	1790.3	16.5	103.4
-#8 SC1 Spot 78	181	83878	2.3	9.1300	1.0	4.6961	1.7	0.3111	1.4	0.82	1746.1	21.5	1766.5	14.4	1790.8	18.0	1790.8	18.0	97.5
-#8 SC1 Spot 52	98	45077	7.7	9.1247	0.9	4.7291	1.7	0.3131	1.4	0.84	1756.0	21.8	1772.4	14.1	1791.8	16.5	1791.8	16.5	98.0
-#8 SC1 Spot 72	782	287527	2.8	9.0746	1.0	4.5812	1.6	0.3016	1.3	0.79	1699.5	19.5	1745.9	13.7	1801.9	18.2	1801.9	18.2	94.3
-#8 SC1 Spot 292	220	42644	2.6	9.0440	1.0	4.8825	1.6	0.3204	1.2	0.76	1791.7	18.9	1799.2	13.4	1808.0	18.7	1808.0	18.7	99.1
-#8 SC1 Spot 275	69	16508	7.3	9.0379	0.8	4.9057	1.5	0.3217	1.2	0.83	1798.1	19.4	1803.2	12.6	1809.2	15.3	1809.2	15.3	99.4
-#8 SC1 Spot 303	261	7780	7.6	9.0332	1.0	4.2937	1.6	0.2814	1.3	0.80	1598.5	18.3	1692.2	13.4	1810.2	17.9	1810.2	17.9	88.3
-#8 SC1 Spot 75	328	90583	4.5	9.0154	0.8	4.8567	1.7	0.3177	1.4	0.87	1778.5	22.5	1794.8	13.9	1813.8	14.6	1813.8	14.6	98.1
-#8 SC1 Spot 191	233	65222	1.3	9.0143	0.9	4.9211	1.5	0.3219	1.2	0.81	1798.9	18.7	1805.9	12.4	1814.0	15.8	1814.0	15.8	99.2
-#8 SC1 Spot 134	89	24702	3.9	9.0039	1.1	4.7892	2.0	0.3129	1.6	0.83	1754.9	25.1	1783.0	16.6	1816.1	20.3	1816.1	20.3	96.6
-#8 SC1 Spot 107	269	75295	3.1	9.0039	0.8	5.0841	1.7	0.3321	1.5	0.87	1848.8	24.1	1833.5	14.6	1816.1	15.3	1816.1	15.3	101.8
-#8 SC1 Spot 306	327	96313	2.9	8.9721	1.0	5.0021	1.5	0.3256	1.1	0.75	1817.2	17.7	1819.7	12.7	1822.5	18.2	1822.5	18.2	99.7
-#8 SC1 Spot 168	211	67372	1.3	8.9628	1.1	5.0646	1.6	0.3294	1.3	0.76	1835.3	20.1	1830.2	14.0	1824.4	19.3	1824.4	19.3	100.6
-#8 SC1 Spot 276	60	105709	5.7	8.9423	1.1	4.9885	1.7	0.3237	1.3	0.78	1807.7	21.0	1817.4	14.5	1828.5	19.6	1828.5	19.6	98.9
-#8 SC1 Spot 237	145	68636	0.8	8.9178	0.9	4.8817	1.9	0.3159	1.7	0.88	1769.5	26.1	1799.1	16.2	1833.5	16.6	1833.5	16.6	96.5
-#8 SC1 Spot 19	291	46533	3.1	8.9027	0.8	4.9389	1.7	0.3190	1.5	0.89	1785.0	23.4	1808.9	14.2	1836.6	13.7	1836.6	13.7	97.2
-#8 SC1 Spot 288	293	302356	2.2	8.8859	0.7	5.1202	1.7	0.3301	1.5	0.90	1839.0	24.7	1839.5	14.5	1840.0	13.2	1840.0	13.2	99.9
-#8 SC1 Spot 238	770	136870	0.7	8.8358	0.8	5.2398	1.8	0.3359	1.6	0.89	1867.0	25.5	1859.1	15.1	1850.2	14.7	1850.2	14.7	100.9
-#8 SC1 Spot 204	163	48145	2.0	8.7834	1.0	5.2464	1.9	0.3344	1.6	0.84	1859.5	25.9	1860.2	16.2	1861.0	18.4	1861.0	18.4	99.9
-#8 SC1 Spot 151	220	20360	1.8	8.6910	0.9	4.9892	1.6	0.3146	1.4	0.85	1763.4	21.6	1817.5	13.9	1880.1	15.3	1880.1	15.3	93.8
-#8 SC1 Spot 166	203	24238	4.0	8.6884	0.8	5.6714	2.0	0.3575	1.8	0.91	1970.5	31.3	1927.0	17.4	1880.6	14.8	1880.6	14.8	104.8
-#8 SC1 Spot 110	225	72171	2.5	8.6458	1.2	5.4344	1.7	0.3409	1.2	0.72	1891.1	19.6	1890.3	14.3	1889.4	20.8	1889.4	20.8	100.1
-#8 SC1 Spot 188	417	76874	2.0	8.6265	0.8	5.4027	1.5	0.3382	1.3	0.84	1877.8	20.8	1885.3	13.0	1893.5	14.9	1893.5	14.9	99.2
-#8 SC1 Spot 304	726	14334	8.1	8.5886	0.8	4.7310	1.9	0.2948	1.8	0.91	1665.6	25.8	1772.7	16.2	1901.4	14.4	1901.4	14.4	87.6
-#8 SC1 Spot 131	792	7790	2.9	8.4877	1.2	4.6485	2.0	0.2863	1.6	0.82	1622.9	23.6	1758.0	16.8	1922.6	20.6	1922.6	20.6	84.4
-#8 SC1 Spot 164	1117	139521	2.7	8.3354	0.7	5.3147	1.3	0.3214	1.0	0.81	1796.7	16.1	1871.2	10.8	1955.0	13.1	1955.0	13.1	91.9
-#8 SC1 Spot 70	78	27320	2.8	7.8959	1.0	6.6383	1.7	0.3803	1.3	0.80	2077.8	23.7	2064.5	14.7	2051.2	17.4	2051.2	17.4	101.3
-#8 SC1 Spot 250	100	62291	0.9	7.8712	1.1	6.4021	2.4	0.3656	2.1	0.88	2008.8	36.2	2032.6	20.9	2056.7	19.9	2056.7	19.9	97.7
-#8 SC1 Spot 261	229	60219	2.4	7.8595	0.9	6.4939	1.5	0.3703	1.2	0.78	2030.9	20.1	2045.1	13.0	2059.3	16.2	2059.3	16.2	98.6
-#8 SC1 Spot 254	261	65515	4.0	7.5811	1.1	6.8721	1.9	0.3780	1.6	0.81	2067.0	27.6	2095.1	17.1	2122.7	20.0	2122.7	20.0	97.4

-#8 SC1 Spot 130	214	417154	2.3	7.5559	0.9	6.7649	1.6	0.3709	1.3	0.83	2033.6	23.3	2081.1	14.2	2128.6	15.7	2128.6	15.7	95.5	
-#8 SC1 Spot 91	261	86728	1.9	7.4826	0.9	7.2509	1.7	0.3937	1.5	0.85	2139.8	26.8	2142.8	15.5	2145.6	16.0	2145.6	16.0	99.7	
-#8 SC1 Spot 297	226	55010	11.1	6.9977	0.9	7.6646	1.6	0.3892	1.3	0.81	2119.0	23.8	2192.5	14.5	2261.9	16.2	2261.9	16.2	93.7	
-#8 SC1 Spot 258	162	29775	1.2	6.7249	0.9	8.8812	1.5	0.4334	1.3	0.83	2320.8	25.0	2325.9	14.1	2330.3	14.8	2330.3	14.8	99.6	
-#8 SC1 Spot 183	498	152048	14.5	6.4154	1.0	8.9422	2.9	0.4163	2.7	0.94	2243.4	51.2	2332.1	26.4	2410.6	17.2	2410.6	17.2	93.1	
-#8 SC1 Spot 95	260	88885	3.3	6.2806	0.8	10.2447	1.3	0.4669	1.0	0.77	2469.8	20.6	2457.1	12.0	2446.6	13.9	2446.6	13.9	100.9	
-#8 SC1 Spot 294	341	32606	2.8	6.2664	1.0	10.1471	1.4	0.4614	1.0	0.70	2445.6	19.7	2448.3	12.8	2450.5	16.7	2450.5	16.7	99.8	
-#8 SC1 Spot 266	145	34232	3.1	6.1799	0.8	10.1402	1.3	0.4547	1.1	0.81	2416.1	22.0	2447.6	12.4	2474.0	13.2	2474.0	13.2	97.7	
-#8 SC1 Spot 9	283	80232	2.5	5.9094	1.0	11.3744	1.6	0.4877	1.3	0.80	2560.7	26.9	2554.3	14.9	2549.2	16.2	2549.2	16.2	100.5	
-#8 SC1 Spot 296	75	67277	2.2	5.6043	0.9	12.2895	1.6	0.4997	1.3	0.83	2612.7	28.2	2626.8	14.8	2637.6	14.6	2637.6	14.6	99.1	
-#8 SC1 Spot 163	134	50529	1.8	5.5510	0.9	12.8838	1.7	0.5189	1.4	0.83	2694.6	30.9	2671.2	15.9	2653.5	15.5	2653.5	15.5	101.6	
-#8 SC1 Spot 167	70	26775	1.5	5.2549	0.9	13.9894	1.7	0.5334	1.4	0.85	2755.8	32.2	2749.0	16.0	2744.0	14.7	2744.0	14.7	100.4	
-#8 SC1 Spot 51	719	1864061	6.8	3.5514	1.0	24.2070	1.8	0.6238	1.5	0.84	3124.9	38.0	3276.8	17.8	3371.0	15.5	3371.0	15.5	92.7	
-#8 SC1 Spot 23	3348	1637	2.3	8.3954	1.6	0.1593	2.3	0.0097	1.6	0.72	62.2	1.0	150.1	3.2	1942.2	28.2	62.2	1.0	41.5	* discord
-#8 SC1 Spot 106	175	1128	1.3	31.2074	21.2	0.0440	21.2	0.0100	1.2	0.06	63.9	0.8	43.7	9.1	NA	NA	63.9	0.8	146.2	*rev discord
-#8 SC1 Spot 232	136	812	1.1	33.8726	16.2	0.0417	16.3	0.0102	1.4	0.09	65.7	0.9	41.5	6.6	NA	NA	65.7	0.9	158.5	*rev discord
-#8 SC1 Spot 35	88	980	1.0	32.1584	11.6	0.0493	11.7	0.0115	1.7	0.14	73.7	1.2	48.9	5.6	NA	NA	73.7	1.2	150.9	*rev discord

1. Analyses with >10% uncertainty (1-sigma) in 206Pb/238U age are not included.
2. Analyses with >10% uncertainty (1-sigma) in 206Pb/207Pb age are not included, unless 206Pb/238U age is <400 Ma.
3. Best age is determined from 206Pb/238U age for analyses with 206Pb/238U age <900 Ma and from 206Pb/207Pb age for analyses with 206Pb/238Uage >900 Ma.
4. Concordance is based on 206Pb/238U age / 206Pb/207Pb age. Value is not reported for 206Pb/238U ages <400 Ma because of large uncertainty in 206Pb/207Pb age.
5. Analyses with 206Pb/238U age >400 Ma and with >20% discordance (<80% concordance) are not included.
6. Analyses with 206Pb/238U age >400 Ma and with >5% reverse discordance (<105% concordance) are not included.
7. All uncertainties are reported at the 2-sigma level, and include only measurement errors.
8. Systematic errors are as follows (at 2-sigma level): [sample 1: xxx% (206Pb/238U) & xxx% (206Pb/207Pb)]
9. Analyses conducted by LA-ICPMS, as described by Gehrels et al. (2008) and Gehrels and Pecha (2014).
10. U concentration and U/Th are calibrated relative to FC-1 zircon standard and are accurate to ~20%.
11. Common Pb correction is from measured 204Pb with common Pb composition interpreted from Stacey and Kramers (1975).
12. Common Pb composition assigned uncertainties of 1.5 for 206Pb/204Pb, 0.3 for 207Pb/204Pb, and 2.0 for 208Pb/204Pb.
13. U/Pb and 206Pb/207Pb fractionation is calibrated relative to fragments of large Sri Lanka zircons and individual crystals of FC-1, and R33.
14. U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U/235U = 137.82.
15. Weighted mean and concordia plots determined with Isoplot (Ludwig, 2008).

Aliquot Name	TR-19-372
Stratigraphic Formation Name	
Stratigraphic Age	
Rock Type	
Mineral	Zircon
Method	U-Pb
Latitude	
Longitude	
Internal Uncertainty Level	one sigma
External Uncertainty 206/238 (% two sigma)	0.98068788
External Uncertainty 206/207 (% two sigma)	0.9181773
Analysis Purpose	
Laboratory Name	Arizona LaserChron Center
Analyst Name	
Aliquot Reference	
Aliquot Instrumental Method	LA-ICPMS
Aliquot Instrumental Reference	Gehrels, G.E., Valencia, V., Ruiz, J., 2008, Enhanced precision, accuracy, efficiency, and spatial resolution of U-Pb ages by laser ablation-multicollector-inductively coupled plasma-mass spectrometry: Geochemistry, Geophysics, Geosystems, v. 9, Q03017, doi:10.1029/2007GC001805. Gehrels, G. and Pecha, M., 2014, Detrital zircon U-Pb geochronology and Hf isotope geochemistry of Paleozoic and Triassic passive margin strata of western North America: Geosphere, v. 10 (1), p. 49-65.

							Isotope ratios						Apparent ages (Ma)						
Analysis	U (ppm)	206Pb 204Pb	U/Th	206Pb* 207Pb*	± (%)	207Pb* 235U	± (%)	206Pb* 238U	± (%)	error corr.	206Pb* 238U	± (Ma)	207Pb* 235U	± (Ma)	206Pb* 207Pb*	± (Ma)	Best age (Ma)	± (Ma)	Conc (%)
Spot 1	707.923201	17977.32734	2.69441372	10.18065311	0.667305737	3.056043901	1.386232294	0.226813765	1.214974639	0.876458184	1317.778395	14.48027856	1421.747566	10.60568338	1581.067071	12.48411835	1581.067071	12.48411835	15.39025634
Spot 2	445.177444	2484.990143	1.206568072	18.68687539	2.993114089	0.052312604	3.544496261	0.007962641	1.169034602	0.329816853	51.12719571	0.595330674	51.77460751	1.789148748	81.82217185	79.45769022	51.12719571	0.595330674	195.5906218
Spot 4	149.484877	187583.9552	1.868539399	13.26851776	0.742740062	1.967754385	1.287229002	0.189332524	1.051318663	0.816730093	1117.758233	10.78884404	1104.539339	8.666409497	1078.600841	14.88790898	1078.600841	14.88790898	370.1997259
Spot 6	337.75265	88078.18356	0.982840242	9.479019405	0.659080081	4.501179735	1.300907892	0.308629881	1.121563135	0.862138774	1733.960981	17.05155863	1731.190096	10.80844912	1727.826745	12.10095847	1727.826745	12.10095847	239.7599743
Spot 7	390.056547	125672.9258	1.453427529	11.54757833	0.790791265	2.778292348	1.58108631	0.232026793	1.369051534	0.865892978	1345.112731	16.62099232	1349.720412	11.80558308	1357.011081	15.24805511	1357.011081	15.24805511	319.0456249
Spot 8	267.905304	236775.5959	1.671153887	9.713436696	0.740700513	4.255634008	1.202053	0.298738795	0.946721936	0.787587516	1685.051639	14.03819086	1684.825756	9.883400613	1684.527979	13.6730945	1684.527979	13.6730945	379.9332208
Spot 9	674.063962	40675.63569	2.072705833	16.40303286	0.812684763	0.823613663	1.44979833	0.09804437	1.193632905	0.823309615	602.9379665	6.870556619	610.0625084	6.648664489	636.6274236	17.7080016	602.9379665	6.870556619	127.2270326
Spot 10	167.877856	71152.45078	2.384204959	5.720019649	0.802989024	12.46641847	1.251488187	0.515153596	0.959818238	0.766941509	2678.593504	21.03724283	2640.198066	11.76428921	2610.885487	13.37482944	2610.885487	13.37482944	44.95933722
Spot 11	297.780716	67987.16235	4.606801092	9.181865382	0.680947275	5.069717194	1.272720024	0.336575288	1.074745689	0.844447851	1870.173006	17.44671942	1831.052458	10.79429853	1786.838883	12.42232251	1786.838883	12.42232251	25.35405447
Spot 12	322.351627	76192.37352	1.847499594	10.10085091	0.819423816	3.838113579	1.195710582	0.280311647	0.870144307	0.727721508	1592.931651	12.28104891	1600.776655	9.631873548	1611.101715	15.28023542	1611.101715	15.28023542	86.59016814
Spot 13	191.608506	65865.449	4.619987367	9.074085422	0.725864991	4.85275435	1.479372567	0.318073328	1.289036167	0.87133978	1780.313106	20.05267847	1794.092887	12.45538813	1810.135303	13.18965339	1810.135303	13.18965339	38.90020122
Spot 14	254.784731	42784.80497	1.139961442	16.27001294	1.131918118	0.86065392	1.438477254	0.101552783	0.88016412	0.611872115	623.5023739	5.230804401	630.4797642	6.756196428	655.5631644	24.38723168	623.5023739	5.230804401	211.0878644
Spot 15	234.983224	258177.3879	3.201898595	11.52601299	0.874395167	2.81066292	1.304934176	0.233797784	0.968651416	0.742299063	1354.372551	11.83266628	1358.382666	9.773275869	1364.682554	16.83995213	1364.682554	16.83995213	282.7952575
Spot 16	434.19969	49619.19155	166.6541222	12.98426483	0.726982771	1.799650878	1.238445774	0.169161081	0.998033315	0.805875668	1007.487297	9.308713151	1045.331495	8.083519054	1125.284208	14.62689498	1125.284208	14.62689498	9.925683461
Spot 17	332.050098	38699.57889	2.63459564	13.4729864	0.728268808	1.778112254	1.023241061	0.173643944	0.708650482	0.692554775	1032.157232	6.758864348	1037.489619	6.650027849	1048.761547	14.89904425	1048.761547	14.89904425	51.51739334
Spot 18	1569.56315	12199.95599	1.533979193	20.62288847	1.470352423	0.098089116	2.022482253	0.014963966	1.23496607	0.61061899	95.74930108	1.173733023	95.01091768	1.834418147	76.48974424	38.05540104	95.74930108	1.173733023	331.7835395
Spot 20	245.886305	109697.8063	0.572433362	11.01506008	0.703613613	3.24214769	1.107349148	0.258033344	0.854978357	0.772094654	1479.772204	11.30465856	1467.299255	8.593535308	1449.277228	13.39693711	1449.277228	13.39693711	553.3870064
Spot 21	132.664772	13905.30683	0.634143142	15.20099463	1.377463574	0.813667852	1.876519752	0.090668632	1.180030242	0.628839766	559.4902949	6.323765001	604.5095524	8.548358232	777.1027341	30.68482293	559.4902949	6.323765001	153.6505581
Spot 22	218.117395	145529.8572	14.01213261	13.39749224	0.958244531	1.949387239	1.64261917	0.188685783	1.334145952	0.812206491	1114.251815	13.651938	1098.235704	11.0242787	1066.652983	19.25565879	1066.652983	19.25565879	47.605607
Spot 23	701.229327	70633.39978	1.034321781	9.20100354	0.700112032	4.234761459	1.176676381	0.281769298	0.945725367	0.803725971	1600.266802	13.40194016	1680.785172	9.665673486	1782.783215	12.76412945	1782.783215	12.76412945	143.8952162
Spot 24	1698.97826	76779.24679	1.097137816	16.87736423	0.677082387	0.606876609	1.629390428	0.074232613	1.481525548	0.909251413	461.6055335	6.599695795	481.5883641	6.248538118	577.8965387	14.76017526	461.6055335	6.599695795	516.3891084
Spot 25	210.378219	50990.83086	1.997516652	18.12950864	1.340018662	0.46671141	1.733185152	0.061446253	1.099019119	0.634103701	384.4149401	4.101294037	388.9148182	5.599935462	415.7486145	29.94679782	384.4149401	4.101294037	239.1041336
Spot 26	216.896891	45816.97173	8.978692692	12.65552219	0.824205348	2.133967457	1.698706359	0.195854189	1.482142466	0.872512461	1153.010362	15.64817321	1159.871818	11.74521314	1172.730135	16.43819323	1172.730135	16.43819323	19.09161308
Spot 27	271.254633	43799.94279	3.298369794	12.70018678	0.839974954	2.199508633	1.286833543	0.202710527	0.972203359	0.75550048	1189.864832	10.56308809	1180.887694	8.982681423	1164.459423	16.7247019	1164.459423	16.7247019	40.41447957
Spot 28	505.473838	72305.99746	4.55130053	9.314974615	0.747312029	4.625235001	1.423810034	0.311784297	1.211768285	0.85107441	1749.481186	18.56653232	1753.8333	11.88762057	1759.006729	13.67123192	1759.006729	13.67123192	35.606406
Spot 29	367.618641	89910.279	2.701306399	5.409608454	0.617969946	13.14849088	1.368489083	0.514181661	1.220947257	0.892186333	2674.456956	26.72736832	2690.367027	12.91399025	2702.328519	10.20493072	2702.328519	10.20493072	59.79105151
Spot 30	139.198233	39039.84912	1.515970076	11.18664502	0.815947181	3.119466544	1.276256819	0.252890243	0.978911813	0.767017891	1453.36391	12.73741756	1437.501828	9.813430702	1414.088326	15.66356386	1414.088326	15.66356386	58.00432841
Spot 31	490.659898	88406.96027	4.453423021	9.189124061	0.760214598	4.80558283	1.15362215	0.319188415	0.867371282	0.751867743	1785.764452	13.52895256	1785.876033	9.696319996	1785.988818	13.86141807	1785.988818	13.86141807	50.77299855
Spot 32	516.277291	92552.31502	3.461181973	5.191725234	0.667572344	12.97083299	1.315120628	0.486552957	1.133042333	0.861550119	2555.745288	23.90650359	2677.536476	12.39831454	2770.828639	10.95307254	2770.828639	10.95307254	46.85328654
Spot 33	56.7238596	205189.8698	1.569365047	10.15705627	1.236269579	3.735802393	1.627599365	0.273982531	1.058635226	0.650427402	1560.985303	14.67657429	1579.074146	13.03741864	1603.307572	23.05893823	1603.307572	23.05893823	402.8244768
Spot 34	667.636394	9252.920806	2.481774046	19.30720294	1.251969369	0.250321523	1.982183355	0.03597589	0.969624914	0.489170142	227.8412348	2.17062044	226.8373221	4.02951244	216.4455934	40.04097341	227.8412348	2.17062044	66.5044697
Spot 35	188.652084	49812.94855	0.843067571	10.86337896	1.057730083	3.094262954	1.58457898	0.243436013	1.17850486	0.743733746	1404.535216	14.87345071	1431.270462	12.16034929	1471.22935	20.10590782	1471.22935	20.10590782	153.2364008
Spot 36	631.520999	132804.4341	1.947163076	9.625188359	0.686101065	4.427217207	1.346519514	0.308125717	1.158594552	0.860436511	1731.476953	17.59256763	1717.445822	11.15356381	1700.367002	12.6384577	1700.367002	12.6384577	174.0673142
Spot 37	576.839013	105085.3528	3.215969322	16.4621637	0.792176662	0.774204145	1.263163238	0.092275357	0.983849423	0.778877498	568.9798822	5.357973244	582.1718572	5.596876061	633.9958771	17.06529115	568.9798822	5.357973244	298.661426
Spot 39	486.442053	20396.96008	1.467175486	9.074823936	1.059499891	4.001781806	1.692078352	0.264078486	1.319208218	0.779637785	1510.674533	17.76608086	1634.55776	13.74692542	1797.821226	19.28393303	1797.821226	19.28393303	37.81989861
Spot 40	174.690454	176733.8232	1.514924855	11.72580857	0.745617375	2.580395958	1.261883987	0.218763032	1.01801126	0.806739186	1275.335608	11.77947492	1295.094072	9.23456853	1327.977762	14.43512434	1327.977762	14.43512434	415.058692
Spot 41	215.27473	511557.7906	2.224447441	9.142984186	0.788677458	4.836717139	1.129231412	0.319522691	0.808177801	0.715688381	1787.397736	12.61567579	1791.306803	9.501837106	1795.845494	14.35760116	1795.845494	14.35760116	571.4743056
Spot 42	576.310928	11722.61672	0.93048643	10.19360314	1.305879897	3.122835249	1.691222122	0.232747184	1.071811405	0.633749636	1348.880979	13.04510528	1438.331821	13.00790664	1573.202955	24.49711764	1573.202955	24.49711764	33.65650255
Spot 43	372.338338	24519.31462	2.990118706	10.86723322	0.867790392	2.893206292	1.623040959	0.228701826	1.371536815	0.845041406	1327.69177	16.45696503	1380.142212	12.24764068	1462.209266	16.4925135	1462.209266	16.4925135	21.58074879
Spot 44	114.712688	35542.71744	4.283484866	8.67490996	0.978203776	5.564874297	1.86218474	0.350313766	1.582296211	0.849698839	1936.096596	26.46250428	1910.680165	16.02941576	1883.183882	17.6842404	1883.183882	17.6842404	16.4554214
Spot 45	339.572537	10581.74727	1.287705809	15.99458824	0.93602558	0.782625225	1.919013543	0.092509801	1.247535233	0.650091938	570.3633808	6.809788028	586.9798682	8.554842537	651.7969649	31.32098244	570.3633808	6.809788028	50.14797271
Spot 46	515.713679	4375.878527	3.630178025	14.73569207	3.931461418	0.426734257	4.07785056	0.047757277	0.987032719	0.2420473	300.7378109	2.900204702	360.8550503	12.38503314	768.0314605	83.35638025	300.7378109	2.900204702	33.25155547
Spot 47	312.275374	82749.90743	2.334279242	7.666631859	0.580275886	6.928663222	1.002086035	0.384310029	0.816940601	0.815239982	2096.385763	14.62035047	2102.334822	8.891919114	2108.14894	10.18155526	2108.14894	10.18155526	72.93941391
Spot 48	405.052138	52220.63341	10.39493267	9.395723984	0.740554593	4.419957006	1.138053984	0.300824239	0.863900707	0.759103452	1695.394639	12.8788421	1716.086595	9.423830087	1741.413478	13.57616584	1741.413478	13.57616584	12.17062053
Spot 50	95.886782	55507.22194	3.898934919	9.055474465	1.079306175	4.377820453	1.611353686	0.287354545	1.195805428	0.742112324	1628.295711	17.20678203	1708.161823	13.31978901	1807.535668	19.63215459	1807.535668	19.63215459	39.46869358
Spot 51	945.378771	227665.0557	2.669636938	9.881559402	0.817654939	4.106720898	1.447821892	0.293614625	1.1948262	0.825257725	1659.567028	17.48222781	1655.640448	11.82272917	1650.645905	15.15735939	1650.645905	15.15735939	240.2491344
Spot 52	70.9552956	2638.388732	1.145497543	16.58173766	1.503450799	0.792059711	1.753889903	0.104541159	0.857872048	0.48912537	640.9670123	5.234150722	592.3395796	7.87129855	410.176736	34.21738516	640.9670123	5.234150722	15.60142692
Spot 53	152.026683	2458.535853	1.202833685	18.21625903	4.454882935	0.064825821	5.001841223	0.009585941	1.79925431	0.359718398	61.50064511	1.101291347	63.77746591	3.091936781	150.0889975	109.4145732	61.50064511	1.101291347	162.5999204
Spot 54	388.481423	13886.88301	1.676525058	15.70698732	0.834249939	0.904531586	1.246520486	0.104341132	0.924249118	0.741463239	639.7994924	5.6293682	654.14641	6.011321593	703.9543437	17.78020416	639.7994924	5.6293682	52.36149057
Spot 55	391.942608	26263.29996	1.039447508	16.53585673	0.861303099	0.871636891	1.242244594	0.105053291	0.892086478	0.718124661	643.9552669	5.467033121	636.4556944	5.874296691	609.8949659	18.67761745	643.9552669	5.467033121	134.0650067
Spot 56	163.969638	17699.21881	1.229928843	12.66398203	0.858994794	2.096370719	1.369956324	0.19393901	1.063989215	0.776659223	1142.678053	11.14137764	1147.617089	9.418120007	1156.944435	17.13405136	1156.944435	17.13405136	45.31447275
Spot 57	1002.71143	50684.02323	3.244718322	17.19877097	1.341925653	0.301690896	1.782655687	0.037706712	1.173359495	0.658208707	238.6023769	2.748484939	267.7200678	4.195214671	530.864137	29.39976683	238.6023769	2.748484939	281.5478219
Spot 58	253.080138	35778.53242	2.524066698	8.79556026	0.661527864	5.318148081	1.259328523	0.339370741	1.071518334	0.850864817	1883.641628	17.50219299	1871.783662	10.76355769	1858.627216	11.95102338	1858.627216	11.95102338	26.84446252
Spot 59	117.960045	78741.45879	2.248638139	11.09131904	0.904811057	3.107509918	1.324910177	0.249722852	0.967756507	0.730431786	1437.046309	12.46606602	1434.550425	10.17805503	1430.832054	17.26967609	1430.832054	17.26967609	80.29612745
Spot 60	125.290588	70730.58956	1.423966963	6.328906425	0.586158477	10.49721207	1.087370303	0.480752995	0.915708465	0.842131206	2530.544648	19.16532076	2479.671602	10.08098751	2438.230444	9.933686012	2438.230444	9.933686012	61.13772014
Spot 61	170.455587	74628.45991	1.153866335	9.476672387	0.715431838	4.484610988	1.257888606	0.307937096	1.034342483	0.822284642	1730.547363	15.69851521	1728.127297	10.44398782	1725.181674	13.14632328	1725.181674	13.14632328	160.9973577
Spot 62	255.910307	197233.584	1.174227104	5.391475366	0.679887255	13.97977296	1.028270761	0.545353607	0.771421929	0.750212841	2805.819538	17.54937194	2748.338144	9.744187146	2706.367279	11.22075992	2706.367279	11.22075992	234.3822244
Spot 63	1775.82838	18204.37876	3.684307087	21.02703128	1.10955777	0.072454546	1.606853176	0.011211149	1.156961912	0.720017192	71.8695897	0.826885839	71.0260341	1.102282779	42.73779714	26.66145124	71.8695897	0.826885839	280.9768295
Spot 64	51.6709296	31064.0849	0.905096811	9.713906239	1.18094434	4.232607241	1.63926528	0.298928779	1.136733879	0.693441076	1685.994575	16.86399205	1680.367234	13.46463048	1673.331246	21.83253938	1673.331246	21.83253938	72.56256269
Spot 65	117.92953	39245.37164	0.917405728	9.461152072	0.74631852	4.58547342	1.239196186	0.315468011	0.986516987	0.796094274	1767.558446	15.25101048	1746.63065	10.33021007	1721.654561	13.77857609	1721.654561	13.77857609	78.40764348
Spot 66	277.809789	103791.7726	2.125972087	9.594266031	0.633137832	4.517805343	1.234621717	0.314544293	1.059870955	0.858458053	1763.030206	16.3485302	1734.254149	10.26454624	1699.700245	11.66464761	1699.700245	11.66464761	130.3014134
Spot 67	326.689739	37875.82536	1.4509561	16.07252431	1.092618674	0.940232056	1.565942483	0.11020042	1.120551817	0.715576612	673.9117353	7.170215236	673.0035868	7.70540432	669.9503546	23.39890538	673.9117353	7.170215236	151.5456677

Spot 68	256.412163	169600.336	2.471118423	11.05414247	0.773817301	3.129763021	1.12902044	0.250971884	0.822090992	0.728145358	1443.485939	10.63202553	1440.03658	8.688176557	1434.92709	14.76058209	1434.92709	14.76058209	228.662809
Spot 69	103.769028	63195.84786	1.749445871	8.732554676	0.867322523	5.453027641	1.401537325	0.345731789	1.100334058	0.785090799	1914.184986	18.22320328	1893.231885	12.02621765	1870.317746	15.66071108	1870.317746	15.66071108	94.31580637
Spot 70	393.022866	1300725.056	6.466553306	9.446788303	0.563137726	4.500581155	1.309217647	0.308526827	1.181916553	0.902765523	1733.45331	17.96455428	1731.079607	10.87723206	1728.195694	10.33806617	1728.195694	10.33806617	567.6437417
Spot 71	1194.43431	81622.6863	6.214703211	9.575177743	0.796010471	4.112709531	1.701052081	0.28620207	1.503068853	0.883611307	1622.522123	21.56067072	1656.830486	13.8947759	1700.589203	14.67083311	1700.589203	14.67083311	43.43058324
Spot 72	1365.3875	187645.1281	2.563712112	9.541341033	0.641740653	4.292291821	1.374470408	0.297372768	1.215443973	0.884299848	1678.267665	17.95935316	1691.883422	11.31953933	1708.779895	11.80865522	1708.779895	11.80865522	204.2780084
Spot 73	99.1040779	40159.23392	3.295142475	16.16977798	1.491073906	0.768471488	2.016286127	0.090657933	1.356772813	0.672906883	559.4270591	7.270139984	578.885726	8.896575781	656.0109828	32.00815516	559.4270591	7.270139984	85.35189191
Spot 75	810.844501	4900.978337	2.851333418	20.25891261	1.392260909	0.091120765	3.280406629	0.014243513	1.240512125	0.378158035	91.1718131	1.123037115	88.54687806	2.78165468	18.37282155	NA	91.1718131	1.123037115	109.6830222
Spot 77	849.089778	52584.02588	0.91854529	10.81767532	0.677133027	2.582051821	1.374114661	0.202928625	1.195271178	0.86984821	1191.033709	12.99836398	1295.563558	10.05773473	1473.192526	12.86333949	1473.192526	12.86333949	174.7634309
Spot 78	509.932968	22116.64796	1.339318852	16.44846198	0.904802343	0.838789415	1.803115887	0.101054901	1.55581112	0.862845883	620.5880473	9.204999665	618.4773605	8.351880871	610.7395361	19.70752972	620.5880473	9.204999665	101.9863575
Spot 79	206.4187	26268.49269	1.933447406	13.82019012	0.808819296	1.60681723	1.47158049	0.162066734	1.224433209	0.832053168	968.2519698	11.00820575	972.8689902	9.210468905	983.3099042	16.61990191	983.3099042	16.61990191	57.55661015
Spot 80	116.485049	22661.83207	0.825921927	9.791939063	0.833096755	4.222551287	1.236672573	0.301474627	0.900350514	0.72804276	1698.61692	13.44452652	1678.414007	10.15292863	1653.23519	15.71043319	1653.23519	15.71043319	55.30700827
Spot 82	353.498355	168830.3828	3.131051667	8.778706504	0.697700128	5.317998722	1.345964887	0.338619479	1.150993819	0.855144016	1880.024778	18.76926307	1871.759659	11.50405417	1862.579161	12.59727883	1862.579161	12.59727883	138.5190952
Spot 83	557.913195	13746.91564	3.246830992	19.17468363	2.205773745	0.05660695	2.480600233	0.008032997	1.132296787	0.456460808	51.57714526	0.581676289	55.90981701	1.349407868	245.7078344	50.81271072	51.57714526	0.581676289	365.3179675
Spot 84	950.860544	53269.63954	3.309757128	11.53656676	0.799326499	2.262749746	1.586643782	0.18992036	1.370585186	0.863826652	1120.943629	14.10193021	1200.761862	11.17325303	1347.351376	15.43217625	1347.351376	15.43217625	58.96432227
Spot 85	91.0810617	22948.82543	2.368963611	8.94932054	1.056845076	5.143510702	1.715962324	0.3360144	1.349548827	0.786467633	1867.467225	21.88039841	1843.322693	14.58849763	1816.161458	19.2442513	1816.161458	19.2442513	19.91444428
xx	491.863193	14625.71614	6.550675078	16.49181116	1.588610241	0.796093424	4.343531128	0.096916655	4.042361705	0.930662538	596.3139609	23.02395934	594.6225177	19.5506692	588.1647064	34.47207929	596.3139609	23.02395934	16.76968955
Spot 86	165.670541	6158.552131	0.773618667	16.41809433	1.100750652	0.883609648	1.341039669	0.109576658	0.757723412	0.565026844	670.2888202	4.823804858	642.9303565	6.38773378	547.9831014	24.16768607	670.2888202	4.823804858	39.93366559
Spot 87	545.703282	2293.887914	1.733069573	20.16362225	1.948656776	0.083759902	2.91711407	0.014117305	1.740959169	0.596808739	90.36959508	1.56232143	81.67374353	2.289217952	NA	NA	90.36959508	1.56232143	110.656687
Spot 88	927.927927	8827.773014	3.159569315	15.68373764	1.461368668	0.402509801	1.800821501	0.047126469	1.023501951	0.568352805	296.8555421	2.969427119	343.4668694	5.247772499	672.2161453	31.68074361	296.8555421	2.969427119	42.8318406
Spot 89	128.981147	35766.3657	10.28542639	10.05966472	0.812296998	3.970777444	1.19992881	0.291730499	0.875186268	0.729365159	1650.171097	12.74175313	1628.244554	9.733071642	1600.011331	15.31873826	1600.011331	15.31873826	7.908048632
Spot 90	132.10443	13976.51459	2.659806489	9.831756279	0.80239493	4.067175927	1.235736018	0.293719392	0.939634994	0.760384888	1660.089084	13.75214932	1647.747013	10.07156208	1632.023841	14.91329971	1632.023841	14.91329971	10.4005003
Spot 91	749.636991	7978.351676	1.386895428	15.56062699	2.498560831	0.412038383	2.792765349	0.047993456	1.205245069	0.431559733	302.1907599	3.558091129	350.3420035	8.274945548	683.2951883	53.78372219	302.1907599	3.558091129	83.74865743
Spot 92	335.510696	39955.23707	1.362332763	10.59639471	0.823324317	2.885308832	1.451452498	0.223256874	1.188512144	0.818843294	1299.061212	13.98330031	1378.080392	10.9450139	1502.696183	15.74776697	1502.696183	15.74776697	82.49472536
Spot 93	458.422565	57612.51103	4.023404928	13.9601047	0.795932987	1.471832154	1.591045525	0.150004743	1.377579103	0.865832612	900.9899535	11.58352067	918.8806807	9.619772902	962.108993	16.26084464	962.108993	16.26084464	57.80444169
Spot 94	497.002717	10597.23897	1.006218124	20.39767207	1.845086415	0.152558386	2.240358591	0.023280021	1.223600976	0.546163003	148.3524585	1.794514243	144.1683049	3.01107707	75.82646689	44.58759559	148.3524585	1.794514243	292.4558641
Spot 96	381.697439	176597.285	3.435092531	11.06211706	0.693662484	3.145332391	1.365314598	0.253097673	1.175954058	0.861306295	1454.431099	15.31131905	1443.857416	10.51926435	1428.30118	13.24346097	1428.30118	13.24346097	171.5858301
Spot 97	1636.81139	9916.675231	2.20864245	21.07538656	1.219317128	0.056242022	2.074744303	0.008894415	1.654603956	0.79749777	57.08359386	0.940337875	55.55906594	1.121739851	NA	NA	57.08359386	0.940337875	291.8914538
Spot 99	167.607749	53868.5318	2.442211749	12.06621361	0.942769532	2.395339549	1.516159885	0.210723429	1.185160054	0.781685405	1232.670787	13.29730726	1241.208073	10.86113842	1256.075998	18.48034309	1256.075998	18.48034309	65.81553405
Spot 100	530.898835	33076.99137	2.034545254	16.93439362	1.917639347	0.47086623	2.247223575	0.058332088	1.171301276	0.521221515	365.474084	4.161716025	391.7870733	7.304795339	550.2255916	41.88759663	365.474084	4.161716025	175.477468
Spot 101	231.625759	353792.0888	2.191274959	9.202950721	0.777797043	4.915055756	1.36836617	0.329209175	1.125812624	0.822742223	1834.547364	17.97479909	1804.844315	11.54570781	1770.691517	14.20172034	1770.691517	14.20172034	426.7661018
Spot 102	222.487378	46078.60801	1.336252496	9.634117471	0.782105298	4.365478657	1.198321004	0.30686635	0.907340137	0.757176194	1725.267833	13.73431734	1705.828898	9.900115056	1682.019653	14.45391024	1682.019653	14.45391024	73.29601755
Spot 103	555.463187	22756.46859	1.304430407	18.78035324	1.398333311	0.185499171	1.697491201	0.025656247	0.872384039	0.513925515	163.3047434	1.406750946	172.781568	2.696989044	304.5580968	33.18466324	163.3047434	1.406750946	381.1632485
Spot 104	752.152242	904449.2541	5.389215277	13.05009057	0.635637483	1.900474787	1.051322279	0.180479413	0.837402833	0.796523434	1069.593154	8.253195266	1081.255463	6.994644814	1104.84358	12.70707375	1104.84358	12.70707375	686.662493
Spot 105	315.50077	33030.65843	0.852942053	10.49407517	0.838969118	3.240743236	1.340501719	0.248767755	1.044708042	0.779341068	1432.117768	13.41609672	1466.963035	10.40195866	1517.752736	15.84300584	1517.752736	15.84300584	93.79536227
Spot 106	274.102247	6573.832554	1.153169742	19.03053745	1.819078998	0.200598528	2.266324996	0.02909834	1.272328823	0.561406164	184.9026315	2.319150458	185.6325386	3.84489169	194.9525266	43.57815613	184.9026315	2.319150458	107.1277596
Spot 109	286.444106	298394.1334	1.188436326	10.29215458	0.710318334	3.812830689	1.002412552	0.286531883	0.707297782	0.705595495	1624.174922	10.1548441	1595.456579	8.063664938	1557.707645	13.32864151	1557.707645	13.32864151	774.8894404
Spot 110	164.276899	595686.5811	3.370977974	9.525008722	0.864236442	4.303153022	1.309848506	0.299198617	0.984275558	0.751442288	1687.33361	14.6123371	1693.965125	10.79244801	1702.166721	15.91613534	1702.166721	15.91613534	506.0416166
Spot 111	208.860113	46735.19165	1.452145176	8.867248679	0.712862818	5.22721408	1.263572711	0.339379312	1.042859515	0.825326082	1883.682881	17.03439851	1857.063568	10.77017913	1827.369172	12.93682846	1827.369172	12.93682846	56.03634048
Spot 112	343.083375	161208.7168	2.320421974	9.332437732	0.577635857	4.702130752	1.027278851	0.320734309	0.849473994	0.826916658	1793.314272	13.29838396	1767.619354	8.601737331	1737.378374	10.59079094	1737.378374	10.59079094	161.2684043
Spot 113	99.379517	13398.98667	2.180652451	10.61144203	1.002214413	3.324682704	1.530583597	0.26051531	1.155732327	0.755092587	1492.477768	15.39789731	1486.864776	11.94821323	1478.849997	19.02772604	1478.849997	19.02772604	15.56478669
Spot 114	141.349509	66685.88477	2.100821179	8.176154525	0.752912979	6.035196228	1.185257843	0.360963491	0.914909643	0.771907689	1986.73907	15.64278463	1980.936775	10.32459193	1974.868903	13.42417893	1974.868903	13.42417893	69.19338909
Spot 116	145.662138	678885.7552	1.511381636	9.820193155	0.882686316	4.129610914	1.305064512	0.296184805	0.961279395	0.736576151	1672.362185	14.16003691	1660.181562	10.66848085	1644.790597	16.37683218	1644.790597	16.37683218	1415.727543
Spot 117	453.816206	32870.68419	0.219368244	16.33988758	0.793112017	0.722986749	1.204583368	0.086888359	0.902787489	0.749460363	537.1081216	4.652436678	552.4285594	5.132380804	616.077957	17.23038821	537.1081216	4.652436678	970.9001802
Spot 118	132.734454	24002.87565	0.563302122	10.8794838	0.769754421	3.247004352	1.174484657	0.259586757	0.885448569	0.753903905	1487.727296	11.76349779	1468.461061	9.117779725	1440.695591	14.70642237	1440.695591	14.70642237	91.40646769
Spot 119	123.438648	8169.91652	2.997464762	16.09347718	1.411116633	0.84346512	1.834662484	0.102028888	1.025606039	0.559016194	626.2879912	6.121094439	621.0560168	8.523706665	602.0162046	32.92647827	626.2879912	6.121094439	16.47329032
Spot 120	329.177994	182554.6399	2.624303219	8.513947121	1.096639986	4.580982723	2.531531359	0.28497704	2.281671635	0.901300956	1616.379372	32.62042077	1745.813958	21.10200474	1904.514912	19.70139681	1904.514912	19.70139681	241.1771181
Spot 123	352.417231	84419.75698	1.401718268	8.952956749	0.862937949	4.95875662	1.281789684	0.324292296	0.947703699	0.739359749	1810.657217	14.96043909	1812.318463	10.83129292	1814.214453	15.67420466	1814.214453	15.67420466	147.0045523
Spot 124	208.284982	51851.2195	2.272490192	5.480891698	0.73615741	13.32473911	1.174367756	0.533378669	0.914939512	0.779091139	2755.671757	20.51626411	2702.937554	11.0923432	2663.732343	12.19923247	2663.732343	12.19923247	27.08038907
Spot 125	3343.93596	469642.8398	0.397709651	21.42290771	1.32097296	0.05483366	1.574512769	0.008574188	0.856807702	0.544173232	55.03715219	0.469555261	54.20428064	0.831073523	17.51874958	NA	55.03715219	0.469555261	114066.5449
Spot 126	471.459937	1079708.279	0.531098126	16.6538294	1.085012657	0.642596092	1.526967323	0.078211935	1.074419228	0.703629483	485.4411192	5.024131092	503.912244	6.065576925	588.6500236	23.51621177	485.4411192	5.024131092	18811.56642
Spot 127	131.578112	12731.18636	2.757987288	16.6533373	1.352654628	0.791726085	1.841231145	0.098200702	1.211533324	0.658001755	603.8556961	6.983716709	592.1505292	8.26135232	547.5704127	30.30179347	603.8556961	6.983716709	33.50962078
Spot 128	109.569737	18580.30533	2.334565664	12.37588917	0.974390637	2.300535559	1.370279494	0.210004533	0.960333236	0.700830189	1228.841938	10.74440175	1212.453415	9.698326711	1183.411484	19.316842	1183.411484	19.316842	22.37981103
Spot 129	1053.42577	3169832.775	14.01992646	16.59554233	0.833951435	0.830753262	1.29114977	0.100744238	0.985694035	0.763423468	618.7689359	5.815596249	614.030056	5.949133857	596.5947299	18.05909383	618.7689359	5.815596249	1903.904121
Spot 130	73.4314869	10125.38445	2.792489204	10.76500801	0.963450795	3.135347538	1.492923619	0.250316015	0.972144288	0.651168135	1440.10528	12.54637676	1441.408715	11.49369641	1443.313791	21.58735463	1443.313791	21.58735463	8.891230387
Spot 131	452.242228	7389.494015	3.138840507	14.88911726	1.955978564	0.609004239	2.607679879	0.068259589	1.720949482	0.659954274	425.6617062	7.088810611	482.9319209	10.02216197	764.8240103	41.28645147	425.6617062	7.088810611	23.80400939
Spot 132	164.058835	114368.8176	1.119262147	11.02775769	0.873771474	3.053834304	1.30452301	0.246257819	0.968574516	0.742474075	1419.14789	12.3376915	1421.194268	9.978726319	1424.2429	16.69239534	1424.2429	16.69239534	352.6128862
Spot 133	222.215105	37750.0674	4.700616363	9.366755396	0.636686506	4.582604023	1.220130905	0.314517308	1.040228613	0.852554926	1762.897872	16.04449822	1746.108888	10.17012682	1726.048559	11.7098165	1726.048559	11.7098165	16.11576926
Spot 134	376.694985	113186.1379	1.762699724	8.587090209	0.622035396	4.881578701	0.993409727	0.306425047	0.774474673	0.779612532	1723.090636	11.7102365	1799.081294	8.372102627	1888.316342	11.19734356	1888.316342	11.19734356	182.7843759
Spot 135	256.034072	41540.78764	1.202677152	12.76539019	1.006505683	1.936302758	1.572718947	0.181289987	1.203876357	0.765474568	1074.018056	11.91016782	1093.721099	10.53098592	1133.133987	20.14590656	1133.133987	20.14590656	119.8018006
Spot 136	379.653336	39951.69988	1.755622895	16.37620001	0.861576182	0.87264518	1.4728109	0.104973885	1.189004526	0.80730291	643.4920321	7.28167272	637.0025548	6.968927021	614.0262359	18.78622385	643.4920321	7.28167272	142.3561075
Spot 137	147.934523	31967.86483	1.596776364	9.664726866	0.636384267	4.131409235	1.256077791	0.292677496	1.077996782	0.858224538	1654.895379	15.73387425	1660.537469	10.26887383	1667.662319	11.92489153	1667.662319	11.92489153	45.41103825
Spot 138	762.578066	1629.079355	2.4802764	20.37915443	1.874272687	0.043104289	2.260844755	0.007882501	1.176093765	0.520201028	50.61464377	0.592944843	42.85034337	0.948622749	NA	NA	50.61464377	0.592944843	197.5712809
Spot 141	427.963886	42392.22166	2.385213051	5.88175756	0.65939265	10.06286499	1.19696802	0.432610377	0.998964041	0.834578722	2317.474416	19.44635538	2440.568618	11.05563402	2544.806968	11.04903466	2544.806968	11.04903466	24.57627582
Spot 142	567.359212	66656.57607	2.239681278	12.05289439	0.720219433	2.480696616	1.066808219	0.218655283	0.786712623	0.737445221	1274.765667	9.099420028	1266.418694	7.720263362	1252.252937	14.07873711	1252.252937	14.07873711	114.3466422
Spot 143	188.334856	41365.50447	1.180124556	9.847899552	0.814734656	3.878716346	1.368196866	0.27936129	1.098685493	0.80301711	1588.144796	15.4655529	1609.262468	11.04531443	1636.99214	15.14331418	1636.99214	15.14331418	84.42152875
Spot 144	565.848533	202310.3305	2.052793794	9.574026854	0.643321074	4.364697285	1.176688058	0.304819596	0.985233104	0.837293365	1715.163838	14.83714635	1705.681018	9.72105572	1694.037157	11.85996568	1694.037157	11.85996568	270.0660204
Spot 145	588.323821	155804.7831	2.646535126	9.657152618	0.874970672	4.296987533	1.997045971	0.302757359	1.795157855	0.898906625	1704.967374	26.89394685	1692.783946	16.45095497	1677.710529	16.16419958	1677.710529	16.16419958	151.5867954
Spot 147	287.108503	50315.539	2.219865616	12.40001816	0.639944525	2.077826962	1.233427964	0.188455562	1.052483598	0.853299607	1113.003173	10.75870396	1141.517811	8.455103275	1196.116572	12.66693818	1196.116572	12.66693818	75.03645692
Spot 148	140.052515	70823.83921	0.721484337	11.10082639	0.709013039	3.082610979	1.148237147	0.249969935	0.903109027	0.786517863	1438.320702	11.64252209	1428.376636	8.803454159	1413.571614	13.56486621	1413.571614	13.56486621	244.5832918
Spot 149	512.142119	1294428.823	1.455682067	12.9764094	0.885420406	2.090074835	1.370405404	0.197716486	1.045964468	0.763251856	1163.04152	11.1307499	1145.550398	9.412050547	1112.563552	17.67294884	1112.563552	17.67294884	3726.692981
Spot 150	625.612758	21855.56115	1.450704571	21.2441876	2.069110389	0.076231704	2.340503798	0.011976422	1.09152351	0.466362631	76.74631263	0.832737233	74.59590493	1.683330939	6.191170003	NA	76.74631263	0.832737233	793.1928965
Spot 151	33.1190645	10336.11959	2.424418539	5.418136571	0.881969984	11.94184654	1.340168298	0.474373829	1.005427079	0.750224491	2502.713148	20.85371367	2599.853763	12.55702129	2676.420863	14.66169214	2676.420863	14.66169214	5.778242424
Spot 152	246.31044	30116.27201	1.024069258	11.03352619	0.779530981	3.081634405	1.241903796	0.248591882	0.960200414	0.773168113	1431.209813	12.32386861	1428.133724	9.520891261	1423.533563	15.04625778	1423.533563	15.04625778	67.31702301
Spot 153	272.410067	14011.66119	3.256073082	20.30915045	2.843239474	0.123912716	3.099550188	0.018705087	1.232537426	0.397650417	119.4668681	1.45891362	118.6130814	3.469872877	101.5446269	67.24997147	119.4668681	1.45891362	156.86142
Spot 154	99.8453921	68301.38538	2.515601652	11.95954396	1.098266118	2.592040069	1.400494447	0.226045803	0.868316091	0.620006808	1313.741796	10.320154	1298.390928	10.26187277	1273.087819	21.43595957	1273.087819	21.43595957	97.87263684
Spot 155	233.944762	49738.71269	0.89704172	5.303568339	0.6457723	13.59379945	1.367349614	0.52508983	1.204931533	0.881216859	2720.730464	26.74368503	2721.832505	12.93318391	2722.639373	10.65104149	2722.639373	10.65104149	67.58157476
Spot 156	131.488957	71447.14863	1.503086678	8.658266095	0.857050254	5.367952436	1.312722544	0.338332228	0.994311538	0.757442266	1878.641307	16.20395511	1879.756287	11.23645793	1880.973555	15.44038677	1880.973555	15.44038677	89.39841043
Spot 157	251.962027	21496.75727	0.883741881	16.18042986	1.038671573	0.867869438	1.373166414	0.103172567	0.896388641	0.652789518	632.9745695	5.404250022	634.4097512	6.47838651	639.5478121	22.37441447	632.9745695	5.404250022	151.3157441
Spot 158	171.461591	21370.82376	1.679632609	10.99184561	0.644956165	3.150589693	1.255608458	0.253483885	1.065611954	0.848681727	1456.417613	13.89151336	1445.144356	9.677860076	1428.578547	12.6778532	1428.578547	12.6778532	29.89279215
Spot 160	190.260658	114616.3296	5.861016693	9.289019182	0.756653223	4.787990559	1.428005552	0.323571135	1.211042913	0.84806597	1807.145777	19.0854099	1782.794515	11.99514439	1754.390102	13.84424363	1754.390102	13.84424363	44.84511258
Spot 161	393.267937	318525.873	1.374984106	9.658036021	0.747082414	4.297432694	1.264057081	0.301056532	1.019658143	0.806655141	1696.5457	15.2098696	1692.869275	10.41251058	1688.303045	13.78420555	1688.303045	13.78420555	624.4091267
Spot 162	452.889879	77237.66024	1.819800534	19.5953102	2.338350221	0.077406018	2.494330362	0.011037101	0.868211749	0.348074081	70.75994792	0.610986759	75.70322084	1.819615715	234.7354014	53.97577038	70.75994792	0.610986759	3280.725844
Spot 163	495.282497	73451.27433	1.255545884	9.498798732	0.697381797	4.436324831	1.391590575	0.30602984	1.204109483	0.865275681	1721.140235	18.18846339	1719.148347	11.53129278	1716.706303	12.82510988	1716.706303	12.82510988	88.93926317
Spot 164	203.576412	77092.11753	4.578696732	9.094545219	0.774787779	4.886877399	1.215402918	0.322709789	0.935951822	0.770075345	1802.94925	14.72041404	1799.995638	10.24498614	1796.559398	14.11408839	1796.559398	14.11408839	44.10850089
Spot 165	514.971924	188977.4196	2.481087137	9.520934501	0.666030998	4.566163317	1.108214385	0.315380254	0.885713702	0.799225956	1767.128383	13.68974637	1743.114184	9.231263654	1714.408965	12.24725813	1714.408965	12.24725813	203.8117869
Spot 166	230.836086	23889.37849	1.364705981	13.65272416	0.713648073	1.646291792	1.152493274	0.164242295	0.890377024	0.772565918	980.3093284	8.097184034	988.129498	7.280225565	1005.518774	14.84754639	1005.518774	14.84754639	60.99921962
Spot 167	254.639802	190024.6751	1.415512242	11.03578481	0.803399222	3.059533623	1.322325791	0.244798153	1.050275132	0.794263516	1411.593172	13.31469147	1422.620801	10.11956503	1439.145224	15.31557085	1439.145224	15.31557085	493.4531571
Spot 169	380.859456	10426.3657	4.085891069	19.06317535	1.282050911	0.310692984	1.781006993	0.044083015	1.187614784	0.666822078	278.0918787	3.232437209	274.7179697	4.286754246	246.0921703	30.57835378	278.0918787	3.232437209	40.65665314
Spot 170	913.832377	57052.31203	5.598511758	9.361493802	0.569682221	4.512970057	1.306806719	0.306703378	1.176028656	0.899925474	1724.463884	17.7942119	1733.363972	10.86262171	1744.104726	10.43829161	1744.104726	10.43829161	21.89366667
Spot 171	310.7038	73367.50998	1.507995322	11.48756292	0.892604979	2.808405638	1.494386631	0.234161574	1.197864199	0.801575827	1356.273021	14.65109713	1357.781016	11.18992311	1360.13704	17.2182165	1360.13704	17.2182165	126.0755665

Spot 172	178.176171	101531.5471	1.464477272	9.704766088	0.795542637	4.25373652	1.543507462	0.299203674	1.322596304	0.856877169	1687.358698	19.63525451	1684.459097	12.6900564	1680.833595	14.69533538	1680.833595	14.69533538	206.6671451
Spot 173	413.617093	125508.5531	2.162292569	8.39202444	0.654217395	5.363181372	1.081377964	0.326078026	0.860938277	0.796149271	1819.343967	13.64719275	1878.995246	9.254812707	1945.581995	11.69925426	1945.581995	11.69925426	156.4942544
Spot 174	174.944331	66064.72424	1.231254896	11.013712	0.833077865	3.236506742	1.261221451	0.258459464	0.946613293	0.750552801	1481.955362	12.53269758	1465.948163	9.783704198	1442.818163	15.8799533	1442.818163	15.8799533	128.990011
Spot 175	239.715935	269054.9772	2.840488668	12.16057035	0.953953166	2.553789095	1.560735665	0.224920178	1.235260262	0.791460264	1307.820668	14.62170611	1287.520318	11.3886135	1253.835029	18.64264087	1253.835029	18.64264087	389.5187585
Spot 176	160.831076	30445.57965	2.169592582	11.06779804	0.894752565	3.185511663	1.33121292	0.256820571	0.983372692	0.738704288	1473.554716	12.95368883	1453.651782	10.28781008	1424.656116	17.13862258	1424.656116	17.13862258	35.79657976
Spot 177	178.463905	210316.2085	1.248744934	9.100820614	0.693311091	4.664178931	1.23741422	0.307819983	1.0249417	0.828293131	1729.970127	15.55131261	1760.838652	10.34661485	1797.64525	12.61874606	1797.64525	12.61874606	501.8225339
Spot 178	726.227469	101726.6071	53.36927512	11.4392072	0.758820285	2.794260621	1.311025846	0.232023547	1.06890371	0.815318564	1345.095747	12.97688423	1354.002703	9.803799294	1368.080405	14.61284701	1368.080405	14.61284701	13.56139476
Spot 179	236.991933	11053.68489	8.082285282	17.32788944	1.063499808	0.661874363	1.535600421	0.085059977	1.104832333	0.719479051	526.2547227	5.583238835	515.7598614	6.20999026	469.5049118	23.62340899	526.2547227	5.583238835	19.00220477
Spot 180	319.225338	428455.5091	1.882571114	6.194073172	0.917166035	10.36420536	1.28638773	0.465347081	0.901997433	0.701186285	2463.124126	18.46550484	2467.856562	11.91293199	2471.740501	15.48198965	2471.740501	15.48198965	459.9906089
Spot 182	198.759258	30861.01452	1.735241023	9.608464819	0.880830663	4.314158432	1.38954452	0.301613301	1.074572795	0.77332736	1699.303762	16.05178952	1696.070123	11.45466497	1692.060121	16.24528062	1692.060121	16.24528062	40.90262149
Spot 183	139.980665	1411629.994	1.896148577	5.477113902	0.649468996	12.55147703	1.260975427	0.498099184	1.080855703	0.857158419	2605.621876	23.16664033	2646.591407	11.85944825	2678.052633	10.74364176	2678.052633	10.74364176	1437.513878
Spot 184	197.665301	80079.72411	1.485581629	9.150895146	0.926665903	4.863718109	1.193102576	0.322963944	0.75130207	0.629704508	1804.187793	11.82331635	1795.993189	10.048869	1786.473158	16.89061016	1786.473158	16.89061016	139.5170855
Spot 185	672.418666	24210.97828	1.997253637	16.86950286	0.713674618	0.690355921	1.269908001	0.085238516	1.04387926	0.82201172	527.3153499	5.285416976	533.014277	5.266243776	557.4842306	15.76361894	527.3153499	5.285416976	92.0346559
Spot 186	608.251327	50420.24973	0.996788909	21.15418146	1.762023744	0.057457675	2.205750347	0.008859599	1.326761476	0.601501198	56.86113133	0.751094175	56.72702179	1.216946621	51.07784619	42.05783131	56.86113133	0.751094175	3800.056435
Spot 187	109.132336	29118.13813	1.048171671	11.01662173	1.100947261	2.995694652	1.811848624	0.240330303	1.433673704	0.791276758	1388.413973	17.90774172	1406.526318	13.79379565	1434.060191	21.13437458	1434.060191	21.13437458	79.19788553
Spot 188	264.099436	81700.80151	0.984756743	10.13337842	0.826710622	3.828384288	1.443955252	0.28150142	1.18365084	0.819728201	1598.919419	16.76116854	1598.732696	11.62562525	1598.469602	15.43620143	1598.469602	15.43620143	285.640626
Spot 189	266.80953	28797.38435	1.411036056	15.80024278	1.253661663	0.922802787	1.573146921	0.106461483	0.906964999	0.576529113	652.1648377	5.62555086	663.8410993	7.666225714	703.7167111	27.35686106	652.1648377	5.62555086	131.6662609
Spot 190	482.967482	192640.4921	2.235299064	10.5642674	0.747768769	3.272734441	1.125394608	0.250639123	0.841015415	0.74730713	1441.770953	10.86524253	1474.594107	8.752867687	1522.141109	14.09633507	1522.141109	14.09633507	317.368499
Spot 191	180.248301	62487.15758	2.300099834	7.833074288	0.820792699	6.463222465	1.345831181	0.367299188	1.066255992	0.792265781	2016.67944	18.46448886	2040.907028	11.83485333	2065.468581	14.47809245	2065.468581	14.47809245	67.31116405
Spot 192	647.35965	79131.13742	3.02214594	9.332683542	0.839865149	4.285749556	1.52076585	0.290168526	1.26774008	0.833619508	1642.371312	18.38033674	1690.627442	12.52086927	1750.989158	15.37487569	1750.989158	15.37487569	52.11970001
Spot 193	769.539877	40172.2432	2.912645018	20.70343875	1.658790151	0.096231213	2.108156297	0.014540914	1.29826099	0.615827675	93.06177996	1.19950581	93.29149348	1.87908753	99.160392	39.28699087	93.06177996	1.19950581	650.3918601
Spot 194	536.347905	314448.6683	1.283780403	9.815427357	0.736997943	3.94842913	1.173829707	0.28082655	0.913622089	0.778325922	1595.523687	12.91318048	1623.66876	9.510529556	1660.324387	13.64494403	1660.324387	13.64494403	796.4911628
Spot 195	455.68614	41383.86247	1.419242101	10.34959458	1.135052605	2.839855964	1.705743072	0.213620769	1.272056587	0.745749232	1248.07905	14.43397128	1366.131753	12.8099651	1555.885326	21.32773945	1555.885326	21.32773945	99.93229435
Spot 196	275.412143	2506376.686	1.011603686	15.19352797	0.850226077	1.134616297	1.295101004	0.124718898	0.97693512	0.75433122	757.6672767	6.983487678	769.9516783	6.98987819	805.7360916	17.8064188	757.6672767	6.983487678	17782.86249
Spot 197	1548.61224	31423.72969	5.334334961	19.91498653	1.016821398	0.176541373	1.655290195	0.025673208	1.270717977	0.767670817	163.4113482	2.050399673	165.080058	2.52199513	189.0534104	24.7069537	163.4113482	2.050399673	150.137848
Spot 199	434.85366	37998.89342	0.868085114	11.03743268	0.768218909	2.939867601	1.554628211	0.235690983	1.350311925	0.868575467	1364.256659	16.60299203	1392.239548	11.77937049	1435.359325	14.69392455	1435.359325	14.69392455	128.0275499
Spot 200	117.746412	27996.97942	1.706289987	9.835633618	0.80812908	4.167429208	1.30880643	0.29795705	1.018364653	0.77808653	1681.170205	15.07008344	1667.64006	10.71803462	1650.633366	15.24024936	1650.633366	15.24024936	36.86866637

1. Analyses with >10% uncertainty (1-sigma) in 206Pb/238U age are not included.
2. Analyses with >10% uncertainty (1-sigma) in 206Pb/207Pb age are not included, unless 206Pb/238U age is <400 Ma.
3. Best age is determined from 206Pb/238U age for analyses with 206Pb/238U age <900 Ma and from 206Pb/207Pb age for analyses with 206Pb/238Uage >900 Ma.
4. Concordance is based on 206Pb/238U age / 206Pb/207Pb age. Value is not reported for 206Pb/238U ages <400 Ma because of large uncertainty in 206Pb/207Pb age.
5. Analyses with 206Pb/238U age >400 Ma and with >20% discordance (<80% concordance) are not included.
6. Analyses with 206Pb/238U age >400 Ma and with >5% reverse discordance (<105% concordance) are not included.
7. All uncertainties are reported at the 2-sigma level, and include only measurement errors.
8. Systematic errors are as follows (at 2-sigma level): [sample 1: xxx% (206Pb/238U) & xxx% (206Pb/207Pb)]
9. Analyses conducted by LA-ICPMS, as described by Gehrels et al. (2008) and Gehrels and Pecha (2014).
10. U concentration and U/Th are calibrated relative to FC-1 zircon standard and are accurate to ~20%.
11. Common Pb correction is from measured 204Pb with common Pb composition interpreted from Stacey and Kramers (1975).
12. Common Pb composition assigned uncertainties of 1.5 for 206Pb/204Pb, 0.3 for 207Pb/204Pb, and 2.0 for 208Pb/204Pb.
13. U/Pb and 206Pb/207Pb fractionation is calibrated relative to fragments of large Sri Lanka zircons and individual crystals of FC-1, and R33.
14. U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U/235U = 137.82.
15. Weighted mean and concordia plots determined with Isoplot (Ludwig, 2008).

Analytical Settings for U-Pb Geochronology at the Arizona LaserChron Center (Element 2 Single Collector)

Laboratory and Sample Preparation	
Laboratory name	Arizona LaserChron Center
Sample type/mineral	Zircon
Sample preparation	Conventional mineral separation, 1 inch epoxy mount, polished to 1-micron finish
Imaging	Hitachi 3400N SEM with BSE and/or Cathodoluminesence
Laser ablation system	
Make, Model, and type	Photon Machines Analyte G2 Excimer laser
Ablation cell and volume	HelEx ablation cell
Laser wavelength	193 nm
Pulse width	~8 ns
Energy density	~7 J/cm2
Repetition rate	7 Hz
Alation duration	10 s
Ablation pit depth/ablation rate	~12 microns & 0.8 microns/sec
Spot diameter nominal/actual	20 microns
Sampling mode/pattern	Spot
Carrier gas	Helium
Cell carrier gas flow	0.11 L/min He in inner cup, 0.29 L/min He in cell
ICP-MS instrument	
Make, Model, and type	Thermo Element2 HR ICPMS
Sample introduction	Ablation aerosol
RF power	1200 W
Make-up gas flow	0.8 L/min Ar
Detection system	Dual mode Secondary Electron Multiplier
Masses measured	202Hg, 204(Hg+Pb), 206Pb, 207Pb, 208Pb, 232Th, 235U, 238U
Dwell times (ms)	202=5.2, 204=7.8, 206=20.2, 207=28.4, 208=2.6, 232=2.6, 235=15.4, 238=10.4
Total integration time per output data point (sec)	202=1.5, 204=2.3, 206=5.9, 207=8.3, 208=0.7, 232=0.7, 235=4.5, 238=3.0
Sensitivity as useful yield	~5000 cps/ppm
IC dead time	22 ns
Data processing	
Gas blank	8 sec on-peak zero subtracted
Calibration strategy	SLM zircon used as primary standard
Reference material information	Gehrels et al. (2008)
Data processing package used/Correction for LIEF	E2agecalc
Mass discrimination	Normalized to primary standard
Common Pb correction, composition and uncertainty	Common Pb correction based on measured 206Pb/204 Pb and the assumed composition of common Pb based on Stacey and Kramers (1975)
Uncertainty level and propagation	Uncertainties for individual analyses propagated at 2-sigma. Uncertainty of pooled analyses propagated at 2-sigma.
Quality control/validation	FC-1 and R33 analyzed as secondary standards.
Other information	Primary and secondary standards mounted together with unknowns.
	Analytical methods described by Gehrels et al. (2008), Gehrels and Pecha (2014), and Pullen et al. (2018)

Citations:
Gehrels, G.E., Valencia, V., Ruiz, J., 2008, Enhanced precision, accuracy, efficiency, and spatial resolution of U-Pb ages by laser ablation–multicollector–inductively coupled plasma–mass spectrometry: Geochemistry, Geophysics, Geosystems, v. 9, Q03017, doi:10.1029/2007GC001805.
Gehrels, G. and Pecha, M., 2014, Detrital zircon U-Pb geochronology and Hf isotope geochemistry of Paleozoic and Triassic passive margin strata of western North America: Geosphere, v. 10 (1), p. 49-65.
Pullen, A., Ibanez-Mejia, M., Gehrels, G., Giesler, D., and Pecha, M., 2018, Optimization of a Laser Ablation-Single Collector-Inductively Coupled Plasma-Mass Spectrometer (Thermo Element 2) for Accurate, Precise, and Efficient Zircon U-Th-Pb Geochronology: Geochemistry, Geophysics, Geosystems, v. 19. https://doi. org/10.1029/2018GC007889
Stacey, J., and Kramers, J., 1975, Approximation of terrestrial lead isotope evolution by a two-stage model: Earth and Planetary Science Letters, v. 26, p. 207 221.

Appendix A3

This study

localityName	latitude	longitude	sedStructure	dip_plunge	dip_planeAzimuth	strike	declination
Badger Creek	41.1165618	-108.56132	Axial trough cross-bedding	12.5930681	110.213234		10.4493561
Badger Creek	41.1164801	-108.56134	Axial trough cross-bedding	17.9379196	81.02098083		10.4493561
Badger Creek	41.1165083	-108.5613	Axial trough cross-bedding	24.119112	57.40287399		10.4493561
Badger Creek	41.1165191	-108.56131	Axial trough cross-bedding	26.2361813	99.70909119		10.4493561
Badger Creek	41.1165335	-108.5613	Axial trough cross-bedding	35.9516678	80.90000916		10.4493561
Badger Creek	41.1173488	-108.56091	Axial trough cross-bedding	17.3208313	153.7442322		10.4493561
Badger Creek	41.1157899	-108.55795	Axial trough cross-bedding	20.4940491	112.0632248		10.4493561
Badger Creek	41.1157781	-108.55794	Axial trough cross-bedding	27.5839596	38.48783875		10.4493561
Badger Creek	41.1164999	-108.5613	Non-axial trough cross-bedding	51.1679306	82.37569427	352.375702	10.4493561
Badger Creek	41.1164999	-108.5613	Non-axial trough cross-bedding	49.606884	26.14912033	296.149109	10.4493561
Badger Creek	41.1164999	-108.5613	Non-axial trough cross-bedding	42.3918343	86.55478668	356.554779	10.4493561
Badger Creek	41.1165347	-108.56129	Non-axial trough cross-bedding	44.2028275	29.9827137	299.982727	10.4493561
Badger Creek	41.1165347	-108.56129	Non-axial trough cross-bedding	27.0981712	68.22768402	338.227692	10.4493561
Badger Creek	41.1165418	-108.5613	Non-axial trough cross-bedding	35.5710678	93.53717041	3.53717041	10.4493561
Badger Creek	41.1165418	-108.5613	Non-axial trough cross-bedding	39.5799751	102.6056595	12.6056595	10.4493561
Badger Creek	41.1165418	-108.5613	Non-axial trough cross-bedding	38.9438782	99.81793976	9.81793976	10.4493561
Badger Creek	41.1173488	-108.56091	Non-axial trough cross-bedding	22.4830399	200.6195374	110.619537	10.4493561
Badger Creek	41.1173154	-108.56092	Non-axial trough cross-bedding	17.5737057	184.7875366	94.7875366	10.4493561
Badger Creek	41.1173073	-108.56093	Non-axial trough cross-bedding	12.3882828	149.5708008	59.5708008	10.4493561
Badger Creek	41.1159397	-108.558	Non-axial trough cross-bedding	29.7004776	30.38845444	300.388458	10.4493561
Badger Creek	41.1159382	-108.55801	Non-axial trough cross-bedding	22.7246246	77.74940491	347.74939	10.4493561
Badger Creek	41.1159382	-108.55801	Non-axial trough cross-bedding	26.9721413	67.65350342	337.653503	10.4493561
Badger Creek	41.1157929	-108.55794	Non-axial trough cross-bedding	24.5615597	129.3514252	39.3514252	10.4493561
Badger Creek	41.1157929	-108.55794	Non-axial trough cross-bedding	32.0425606	110.3955841	20.3955841	10.4493561
Badger Creek	41.115777	-108.55794	Non-axial trough cross-bedding	31.3293095	139.6552277	49.6552277	10.4493561
Badger Creek	41.115777	-108.55794	Non-axial trough cross-bedding	32.3068924	123.9281158	33.9281158	10.4493561
Badger Creek	41.115777	-108.55794	Non-axial trough cross-bedding	33.2408447	127.0221252	37.0221252	10.4493561
Badger Creek	41.1157796	-108.55795	Non-axial trough cross-bedding	30.3047161	68.92433929	338.924347	10.4493561
Badger Creek	41.1164939	-108.5613	Non-axial trough cross-bedding	32.0136261	59.89397049	329.893982	10.4493561
Badger Creek	41.1164939	-108.5613	Non-axial trough cross-bedding	37.9315071	47.08481598	317.084808	10.4493561
Badger Creek	41.1164999	-108.5613	Non-axial trough cross-bedding	33.3619614	332.380188	242.380188	10.4493561
Badger Creek	41.1164999	-108.5613	Non-axial trough cross-bedding	34.7005806	44.48915482	314.489166	10.4493561
Badger Creek	41.1165347	-108.56129	Non-axial trough cross-bedding	46.5139771	36.98452377	306.984528	10.4493561
Badger Creek	41.1165347	-108.56129	Non-axial trough cross-bedding	41.73909	51.18487549	321.184875	10.4493561
Badger Creek	41.1165645	-108.56131	Non-axial trough cross-bedding	32.0640259	68.78193665	338.781921	10.4493561
Badger Creek	41.1165645	-108.56131	Non-axial trough cross-bedding	24.3961239	34.63885117	304.638855	10.4493561
Badger Creek	41.1165645	-108.56131	Non-axial trough cross-bedding	31.076292	42.62589645	312.625885	10.4493561
Badger Creek	41.1165645	-108.56131	Non-axial trough cross-bedding	32.9526215	55.79665375	325.796661	10.4493561
Badger Creek	41.1173488	-108.56091	Non-axial trough cross-bedding	34.889122	121.6935349	31.6935349	10.4493561
Badger Creek	41.1173474	-108.56092	Non-axial trough cross-bedding	15.3007975	332.9126892	242.912689	10.4493561
Badger Creek	41.1173259	-108.56096	Non-axial trough cross-bedding	21.5591412	341.2400513	251.240051	10.4493561
Badger Creek	41.1173365	-108.56096	Non-axial trough cross-bedding	15.8746996	329.8676453	239.867645	10.4493561
Badger Creek	41.1173154	-108.56092	Non-axial trough cross-bedding	7.50959969	65.48127747	335.481262	10.4493561
Badger Creek	41.1173154	-108.56092	Non-axial trough cross-bedding	15.2359572	58.48184586	328.481842	10.4493561
Badger Creek	41.1173058	-108.56093	Non-axial trough cross-bedding	18.9534321	35.62118149	305.621185	10.4493561
Badger Creek	41.117309	-108.56092	Non-axial trough cross-bedding	21.2561684	0.05585096	270.055847	10.4493561
Badger Creek	41.1173121	-108.56092	Non-axial trough cross-bedding	26.0809307	48.09956741	318.099579	10.4493561
Badger Creek	41.1159394	-108.55799	Non-axial trough cross-bedding	12.7985163	104.4722672	14.4722672	10.4493561
Badger Creek	41.1159394	-108.55799	Non-axial trough cross-bedding	20.7338429	133.65065	43.65065	10.4493561
Badger Creek	41.1157929	-108.55794	Non-axial trough cross-bedding	37.1186867	53.2124939	323.212494	10.4493561
Badger Creek	41.1157899	-108.55795	Non-axial trough cross-bedding	34.0557365	12.42259979	282.422607	10.4493561
Badger Creek	41.1157899	-108.55795	Non-axial trough cross-bedding	26.7405605	61.94136429	331.941376	10.4493561
Badger Creek	41.1157899	-108.55795	Non-axial trough cross-bedding	37.1417923	48.34720993	318.347198	10.4493561
Badger Creek	41.1157623	-108.55795	Non-axial trough cross-bedding	27.0243454	56.60873795	326.608734	10.4493561
Badger Creek	41.1157624	-108.55796	Non-axial trough cross-bedding	26.3809357	50.13727951	320.137268	10.4493561
Badger Creek	41.1157624	-108.55796	Non-axial trough cross-bedding	27.4233742	44.86706161	314.867065	10.4493561
Badger Creek	41.1157624	-108.55796	Non-axial trough cross-bedding	26.3150616	52.63001251	322.630005	10.4493561
Lil Mtn Roadcut	41.0678431	-109.28539	Axial trough cross-bedding	8.12110424	21.46976852		10.4493561
Lil Mtn Roadcut	41.067996	-109.2855	Axial trough cross-bedding	20.1910667	51.84741211		10.4493561
Lil Mtn Roadcut	41.0678503	-109.28543	Axial trough cross-bedding	12.6714258	31.66859055		10.4493561
Lil Mtn Roadcut	41.0678504	-109.28542	Non-axial trough cross-bedding	11.3461208	30.19482231	300.194824	10.4493561
Lil Mtn Roadcut	41.0678504	-109.28542	Non-axial trough cross-bedding	11.5859423	48.9468689	318.946869	10.4493561
Lil Mtn Roadcut	41.0679697	-109.28557	Non-axial trough cross-bedding	11.5606051	21.08867264	291.088684	10.4493561
Lil Mtn Roadcut	41.0679916	-109.28554	Non-axial trough cross-bedding	12.53477	42.28699875	312.286987	10.4493561
Lil Mtn Roadcut	41.0679916	-109.28554	Non-axial trough cross-bedding	16.4773808	118.3286514	28.3286514	10.4493561
Lil Mtn Roadcut	41.0679916	-109.28554	Non-axial trough cross-bedding	27.1116409	97.22270203	7.22270203	10.4493561
Lil Mtn Roadcut	41.0679432	-109.28553	Non-axial trough cross-bedding	24.4304009	73.84136963	343.84137	10.4493561
Lil Mtn Roadcut	41.0679432	-109.28553	Non-axial trough cross-bedding	19.9405708	111.9099808	21.9099808	10.4493561
Lil Mtn Roadcut	41.067943	-109.28553	Non-axial trough cross-bedding	17.4867325	93.06796265	3.06796265	10.4493561
Lil Mtn Roadcut	41.0679663	-109.28548	Non-axial trough cross-bedding	28.0244904	58.19355011	328.193542	10.4493561
Lil Mtn Roadcut	41.0679663	-109.28548	Non-axial trough cross-bedding	27.9120884	66.24699402	336.247009	10.4493561
Lil Mtn Roadcut	41.0678415	-109.28543	Non-axial trough cross-bedding	22.8545342	76.4052124	346.405212	10.4493561
Lil Mtn Roadcut	41.0678415	-109.28543	Non-axial trough cross-bedding	24.4332504	78.35495758	348.35495	10.4493561

Lil Mtn Roadcut	41.0678415	-109.28543	Non-axial trough cross-bedding	16.6122685	98.20715332	8.20715332	10.4493561
Lil Mtn Roadcut	41.0678415	-109.28543	Non-axial trough cross-bedding	18.9371491	105.3583756	15.3583756	10.4493561
Lil Mtn Roadcut	41.0678515	-109.2854	Non-axial trough cross-bedding	13.3206844	58.26920319	328.269196	10.4493561
Lil Mtn Roadcut	41.0678515	-109.2854	Non-axial trough cross-bedding	15.8841343	67.85510254	337.855103	10.4493561
Lil Mtn Roadcut	41.0678515	-109.2854	Non-axial trough cross-bedding	15.7947826	60.97402573	330.97403	10.4493561
Lil Mtn Roadcut	41.0679881	-109.28554	Non-axial trough cross-bedding	38.1693573	35.6335144	305.633514	10.4493561
Lil Mtn Roadcut	41.067994	-109.28554	Non-axial trough cross-bedding	25.6817951	339.9023743	249.902374	10.4493561
Lil Mtn Roadcut	41.067994	-109.28554	Non-axial trough cross-bedding	29.8307838	33.64400101	303.644012	10.4493561
Lil Mtn Roadcut	41.067994	-109.28554	Non-axial trough cross-bedding	31.3521633	36.92513657	306.92514	10.4493561
Lil Mtn Roadcut	41.067943	-109.28553	Non-axial trough cross-bedding	19.844801	38.34055328	308.340546	10.4493561
Lil Mtn Roadcut	41.0679346	-109.28553	Non-axial trough cross-bedding	27.0997028	22.04883575	292.048828	10.4493561
Lil Mtn Roadcut	41.0679346	-109.28553	Non-axial trough cross-bedding	18.9781036	5.099051	275.09906	10.4493561
Lil Mtn Roadcut	41.0679692	-109.28548	Non-axial trough cross-bedding	28.7132835	6.89918709	276.89917	10.4493561
Lil Mtn Roadcut	41.0678419	-109.28544	Non-axial trough cross-bedding	16.1785889	23.54277992	293.542786	10.4493561
Lil Mtn Roadcut	41.0678359	-109.28543	Non-axial trough cross-bedding	32.240696	296.5461426	206.546143	10.4493561
Lil Mtn Roadcut	41.0678411	-109.28544	Non-axial trough cross-bedding	38.1157837	1.19447076	271.194458	10.4493561
Lil Mtn Roadcut	41.0678411	-109.28544	Non-axial trough cross-bedding	41.9642105	9.44935608	279.449341	10.4493561
North Flat Top Mtn	41.2246136	-107.80929	Axial trough cross-bedding	11.0562935	163.1292114		9.71746826
North Flat Top Mtn	41.2246043	-107.80934	Axial trough cross-bedding	28.0498047	199.2019196		9.71746826
North Flat Top Mtn	41.2246152	-107.80934	Axial trough cross-bedding	26.1201725	187.4530945		9.71746826
North Flat Top Mtn	41.2246228	-107.80934	Axial trough cross-bedding	10.8658886	187.2146606		9.71746826
North Flat Top Mtn	41.2245948	-107.80931	Non-axial trough cross-bedding	42.3547897	354.5977478	264.597748	9.71746826
North Flat Top Mtn	41.2245948	-107.80931	Non-axial trough cross-bedding	19.3894177	248.6024933	158.602493	9.71746826
North Flat Top Mtn	41.2246081	-107.80935	Non-axial trough cross-bedding	12.2101507	221.0683136	131.068314	9.71746826
North Flat Top Mtn	41.2246081	-107.80935	Non-axial trough cross-bedding	28.1956158	219.1256714	129.125671	9.71746826
North Flat Top Mtn	41.2246192	-107.80929	Non-axial trough cross-bedding	35.7513619	222.7031403	132.70314	9.71746826
North Flat Top Mtn	41.2246192	-107.80929	Non-axial trough cross-bedding	40.7230377	234.0418396	144.04184	9.71746826
North Flat Top Mtn	41.2246128	-107.80932	Non-axial trough cross-bedding	26.644392	263.2928162	173.292816	9.71746826
North Flat Top Mtn	41.2246128	-107.80932	Non-axial trough cross-bedding	22.4922581	269.6820679	179.682068	9.71746826
North Flat Top Mtn	41.2246059	-107.80934	Non-axial trough cross-bedding	19.436409	195.8965454	105.896545	9.71746826
North Flat Top Mtn	41.2246059	-107.80934	Non-axial trough cross-bedding	11.3854332	234.3251343	144.325134	9.71746826
North Flat Top Mtn	41.2246059	-107.80934	Non-axial trough cross-bedding	21.1174297	250.9470367	160.947037	9.71746826
North Flat Top Mtn	41.2246059	-107.80934	Non-axial trough cross-bedding	17.5453739	225.7626495	135.76265	9.71746826
North Flat Top Mtn	41.2246072	-107.80934	Non-axial trough cross-bedding	27.1834869	216.3986816	126.398682	9.71746826
North Flat Top Mtn	41.2246072	-107.80934	Non-axial trough cross-bedding	22.749157	207.8490295	117.84903	9.71746826
North Flat Top Mtn	41.2246072	-107.80934	Non-axial trough cross-bedding	30.0945644	195.2354736	105.235474	9.71746826
North Flat Top Mtn	41.2246072	-107.80934	Non-axial trough cross-bedding	26.7816982	187.9349365	97.9349365	9.71746826
North Flat Top Mtn	41.2246022	-107.80931	Non-axial trough cross-bedding	16.8050118	104.5962143	14.5962143	9.71746826
North Flat Top Mtn	41.2246022	-107.80931	Non-axial trough cross-bedding	41.7848892	99.44978333	9.44978333	9.71746826
North Flat Top Mtn	41.2246081	-107.80935	Non-axial trough cross-bedding	28.0472889	131.9329681	41.9329681	9.71746826
North Flat Top Mtn	41.2246098	-107.80931	Non-axial trough cross-bedding	22.7547798	122.8482971	32.8482971	9.71746826
North Flat Top Mtn	41.2246098	-107.80931	Non-axial trough cross-bedding	29.5906391	108.8087921	18.8087921	9.71746826
North Flat Top Mtn	41.2246098	-107.80931	Non-axial trough cross-bedding	27.2795487	111.4562531	21.4562531	9.71746826
North Flat Top Mtn	41.2246136	-107.80929	Non-axial trough cross-bedding	33.596241	181.3157044	91.3157044	9.71746826
North Flat Top Mtn	41.2246192	-107.80929	Non-axial trough cross-bedding	32.1114311	201.1688843	111.168884	9.71746826
North Flat Top Mtn	41.2246192	-107.80929	Non-axial trough cross-bedding	23.5355206	191.8452301	101.84523	9.71746826
North Flat Top Mtn	41.2246192	-107.80929	Non-axial trough cross-bedding	43.5355682	198.6657715	108.665771	9.71746826
North Flat Top Mtn	41.2246057	-107.80934	Non-axial trough cross-bedding	33.5537148	111.0548477	21.0548477	9.71746826
North Flat Top Mtn	41.2246057	-107.80934	Non-axial trough cross-bedding	30.5058689	138.173172	48.173172	9.71746826
North Flat Top Mtn	41.224612	-107.80934	Non-axial trough cross-bedding	29.4739838	97.50958252	7.50958252	9.71746826
North Flat Top Mtn	41.224612	-107.80934	Non-axial trough cross-bedding	26.679884	13.15437317	283.154358	9.71746826
North Flat Top Mtn	41.224612	-107.80934	Non-axial trough cross-bedding	23.8840065	90.28521729	0.28521729	9.71746826
North Flat Top Mtn	41.224612	-107.80934	Non-axial trough cross-bedding	23.0022144	104.0725632	14.0725632	9.71746826
North Flat Top Mtn	41.2246142	-107.80934	Non-axial trough cross-bedding	21.6937332	158.7375031	68.7375031	9.71746826
North Flat Top Mtn	41.2246152	-107.80934	Non-axial trough cross-bedding	31.0112896	61.5899353	331.589935	9.71746826
North Flat Top Mtn	41.2246152	-107.80934	Non-axial trough cross-bedding	24.7482624	158.1611786	68.1611786	9.71746826
North Flat Top Mtn	41.2246152	-107.80934	Non-axial trough cross-bedding	6.18252087	129.8683319	39.8683319	9.71746826
Pipeline	41.0336993	-109.52312	Axial trough cross-bedding	20.6464691	24.66308022		10.4493561
Pipeline	41.0336993	-109.52312	Axial trough cross-bedding	25.4758949	20.26525497		10.4493561
Pipeline	41.0336993	-109.52312	Axial trough cross-bedding	23.2021675	0.08406222		10.4493561
Pipeline	41.034079	-109.5226	Axial trough cross-bedding	14.4051209	358.4521179		10.4493561
Pipeline	41.0339622	-109.52264	Axial trough cross-bedding	8.88301182	13.3286972		10.4493561
Pipeline	41.0339582	-109.52264	Axial trough cross-bedding	11.6733418	348.6143799		10.4493561
Pipeline	41.0339582	-109.52264	Axial trough cross-bedding	15.6559448	350.9431458		10.4493561
Pipeline	41.0339577	-109.52263	Axial trough cross-bedding	6.8309226	7.78776932		10.4493561
Pipeline	41.0339526	-109.52272	Axial trough cross-bedding	10.0596428	357.3473816		10.4493561
Pipeline	41.0339531	-109.52272	Axial trough cross-bedding	5.47474194	5.96741343		10.4493561
Pipeline	41.0339487	-109.52273	Axial trough cross-bedding	17.4080505	11.95995712		10.4493561
Pipeline	41.0337005	-109.52312	Non-axial trough cross-bedding	15.7200813	353.3469544	263.346954	10.4493561
Pipeline	41.0337048	-109.5231	Non-axial trough cross-bedding	18.2812691	351.4425659	261.442566	10.4493561
Pipeline	41.0337048	-109.5231	Non-axial trough cross-bedding	14.7541685	355.1275024	265.127502	10.4493561
Pipeline	41.0337084	-109.52312	Non-axial trough cross-bedding	34.7822876	3.11695957	273.116943	10.4493561
Pipeline	41.0337006	-109.5231	Non-axial trough cross-bedding	22.2988472	341.9229736	251.922974	10.4493561
Pipeline	41.0337006	-109.5231	Non-axial trough cross-bedding	38.1601105	7.97607899	277.976074	10.4493561
Pipeline	41.0336967	-109.52309	Non-axial trough cross-bedding	22.7904625	350.7521668	260.752167	10.4493561

Pipeline	41.0336967	-109.52309	Non-axial trough cross-bedding	25.0489636	3.00398135	273.003967	10.4493561
Pipeline	41.0336967	-109.52309	Non-axial trough cross-bedding	25.0792503	18.61831284	288.618317	10.4493561
Pipeline	41.0340798	-109.5226	Non-axial trough cross-bedding	18.2356834	34.49153519	304.491547	10.4493561
Pipeline	41.0340789	-109.5226	Non-axial trough cross-bedding	16.5032311	45.39326096	315.39325	10.4493561
Pipeline	41.0340789	-109.5226	Non-axial trough cross-bedding	24.7042637	35.99019623	305.990204	10.4493561
Pipeline	41.0340789	-109.5226	Non-axial trough cross-bedding	17.5096302	27.6946106	297.694611	10.4493561
Pipeline	41.0340789	-109.5226	Non-axial trough cross-bedding	20.4004288	38.06494522	308.064941	10.4493561
Pipeline	41.0340789	-109.5226	Non-axial trough cross-bedding	19.4458408	56.06200409	326.062012	10.4493561
Pipeline	41.0340789	-109.5226	Non-axial trough cross-bedding	28.4374313	22.23200607	292.231995	10.4493561
Pipeline	41.0340789	-109.5226	Non-axial trough cross-bedding	21.7979946	7.48695707	277.486938	10.4493561
Pipeline	41.0340789	-109.5226	Non-axial trough cross-bedding	20.5086498	4.64478111	274.644775	10.4493561
Pipeline	41.0339598	-109.52263	Non-axial trough cross-bedding	8.8954649	38.5806694	308.580658	10.4493561
Pipeline	41.0339598	-109.52263	Non-axial trough cross-bedding	6.98208094	35.54751968	305.547516	10.4493561
Pipeline	41.0339716	-109.52262	Non-axial trough cross-bedding	19.0386429	25.64020157	295.640198	10.4493561
Pipeline	41.0339716	-109.52262	Non-axial trough cross-bedding	10.3738699	74.27210236	344.272095	10.4493561
Pipeline	41.0339737	-109.52261	Non-axial trough cross-bedding	22.7047653	36.62360001	306.623596	10.4493561
Pipeline	41.0339789	-109.52262	Non-axial trough cross-bedding	16.4930096	358.3774109	268.377411	10.4493561
Pipeline	41.0339789	-109.52262	Non-axial trough cross-bedding	15.2713108	352.4538574	262.453857	10.4493561
Pipeline	41.0339789	-109.52262	Non-axial trough cross-bedding	19.444891	331.2197571	241.219757	10.4493561
Pipeline	41.0339789	-109.52262	Non-axial trough cross-bedding	23.4650707	309.0567017	219.056702	10.4493561
Pipeline	41.0339816	-109.52261	Non-axial trough cross-bedding	23.5949783	338.8365173	248.836517	10.4493561
Pipeline	41.0339816	-109.52261	Non-axial trough cross-bedding	20.463625	342.7944031	252.794403	10.4493561
Pipeline	41.0339551	-109.52272	Non-axial trough cross-bedding	5.03139114	44.95210266	314.952087	10.4493561
Pipeline	41.0339551	-109.52272	Non-axial trough cross-bedding	5.70937061	19.69159126	289.691589	10.4493561
Pipeline	41.0339253	-109.52272	Non-axial trough cross-bedding	3.72198272	357.5306091	267.530609	10.4493561
Pipeline	41.0339516	-109.52276	Non-axial trough cross-bedding	13.7872391	17.99647141	287.99646	10.4493561
Pipeline	41.0339785	-109.52274	Non-axial trough cross-bedding	16.5413284	23.67838478	293.678375	10.4493561
Pipeline	41.0339785	-109.52274	Non-axial trough cross-bedding	9.06671715	356.2312012	266.231201	10.4493561
Pipeline	41.0337024	-109.52312	Non-axial trough cross-bedding	20.005352	332.7301636	242.730164	10.4493561
Pipeline	41.0337048	-109.5231	Non-axial trough cross-bedding	26.8970375	337.1230164	247.123016	10.4493561
Pipeline	41.0337087	-109.52311	Non-axial trough cross-bedding	22.0028019	325.8920593	235.892059	10.4493561
Pipeline	41.0337087	-109.52311	Non-axial trough cross-bedding	20.4691467	331.5912781	241.591278	10.4493561
Pipeline	41.0337087	-109.52311	Non-axial trough cross-bedding	25.9478016	348.0445862	258.044586	10.4493561
Pipeline	41.0337087	-109.52311	Non-axial trough cross-bedding	36.6367188	350.8044739	260.804474	10.4493561
Pipeline	41.0337108	-109.52311	Non-axial trough cross-bedding	26.9353352	341.9920654	251.992065	10.4493561
Pipeline	41.0337084	-109.52312	Non-axial trough cross-bedding	25.6578198	336.8029175	246.802917	10.4493561
Pipeline	41.0337084	-109.52312	Non-axial trough cross-bedding	19.3926277	332.6828919	242.682892	10.4493561
Pipeline	41.034079	-109.5226	Non-axial trough cross-bedding	9.52240562	273.7189026	183.718903	10.4493561
Pipeline	41.034079	-109.5226	Non-axial trough cross-bedding	14.5665216	271.7320862	181.732086	10.4493561
Pipeline	41.0340798	-109.5226	Non-axial trough cross-bedding	7.08871269	140.8497009	50.8497009	10.4493561
Pipeline	41.0339588	-109.52263	Non-axial trough cross-bedding	25.0359306	295.1692505	205.16925	10.4493561
Pipeline	41.0339588	-109.52263	Non-axial trough cross-bedding	15.07199	281.6907349	191.690735	10.4493561
Pipeline	41.0339588	-109.52263	Non-axial trough cross-bedding	22.2486801	331.9723511	241.972351	10.4493561
Pipeline	41.0339641	-109.52262	Non-axial trough cross-bedding	13.3762484	257.4876099	167.48761	10.4493561
Pipeline	41.0339641	-109.52262	Non-axial trough cross-bedding	10.8520804	280.4851379	190.485138	10.4493561
Pipeline	41.033966	-109.52261	Non-axial trough cross-bedding	13.3892679	334.4754639	244.475464	10.4493561
Pipeline	41.033966	-109.52261	Non-axial trough cross-bedding	22.6602459	310.9382629	220.938263	10.4493561
Pipeline	41.033966	-109.52261	Non-axial trough cross-bedding	19.3996143	311.1832886	221.183289	10.4493561
Pipeline	41.033966	-109.52261	Non-axial trough cross-bedding	17.2607822	332.2200928	242.220093	10.4493561
Pipeline	41.033966	-109.52261	Non-axial trough cross-bedding	12.538043	324.6271057	234.627106	10.4493561
Pipeline	41.033966	-109.52261	Non-axial trough cross-bedding	22.4420033	289.4849243	199.484924	10.4493561
Pipeline	41.033966	-109.52261	Non-axial trough cross-bedding	26.158102	264.1114807	174.111481	10.4493561
Pipeline	41.0339716	-109.52262	Non-axial trough cross-bedding	22.1183929	257.6772461	167.677246	10.4493561
Pipeline	41.0339572	-109.52272	Non-axial trough cross-bedding	20.2956238	285.6126404	195.61264	10.4493561
Pipeline	41.0339572	-109.52272	Non-axial trough cross-bedding	23.02281	273.9361572	183.936157	10.4493561
Pipeline	41.0339572	-109.52272	Non-axial trough cross-bedding	12.5769377	175.7242279	85.7242279	10.4493561
Pipeline	41.0339349	-109.52273	Non-axial trough cross-bedding	16.8489742	302.7937012	212.793701	10.4493561
Pipeline	41.0339349	-109.52273	Non-axial trough cross-bedding	18.9178276	311.1430359	221.143036	10.4493561
SB_C	41.0605295	-108.9126	Non-axial trough cross-bedding	23.2910709	49.86271286	319.862701	10.4493561
SB_C	41.0605201	-108.9126	Non-axial trough cross-bedding	26.3294945	55.93182755	325.931824	10.4493561
SB_C	41.0605201	-108.9126	Non-axial trough cross-bedding	35.6165466	48.51913834	318.519135	10.4493561
SB_C	41.0605271	-108.91261	Non-axial trough cross-bedding	39.9961166	53.60217667	323.602173	10.4493561
SB_C	41.0605271	-108.91261	Non-axial trough cross-bedding	42.1920815	49.07961273	319.07962	10.4493561
SB_C	41.0605271	-108.91261	Non-axial trough cross-bedding	34.9021111	58.19419861	328.194214	10.4493561
SB_C	41.0604851	-108.91285	Non-axial trough cross-bedding	18.2181873	71.469841	341.469849	10.4493561
SB_C	41.0604851	-108.91285	Non-axial trough cross-bedding	18.1216316	54.68494034	324.684937	10.4493561
SB_C	41.0604851	-108.91285	Non-axial trough cross-bedding	19.8883915	48.34486008	318.344849	10.4493561
SB_C	41.0604852	-108.91283	Non-axial trough cross-bedding	30.1562119	70.29665375	340.296661	10.4493561
SB_C	41.0604852	-108.91283	Non-axial trough cross-bedding	25.0793819	33.79831314	303.798309	10.4493561
SB_C	41.0604852	-108.91283	Non-axial trough cross-bedding	22.4749069	52.80601501	322.80603	10.4493561
SB_C	41.060483	-108.91297	Non-axial trough cross-bedding	10.7269163	19.67572784	289.67572	10.4493561
SB_C	41.060462	-108.91279	Non-axial trough cross-bedding	17.1080647	76.17726898	346.177277	10.4493561
SB_C	41.060462	-108.91279	Non-axial trough cross-bedding	23.0932274	129.9859009	39.9859009	10.4493561
SB_C	41.060462	-108.91279	Non-axial trough cross-bedding	22.2882366	66.52972412	336.529724	10.4493561
SB_C	41.060462	-108.91279	Non-axial trough cross-bedding	21.4267006	100.8531876	10.8531876	10.4493561

SB_C	41.0605275	-108.91259	Non-axial trough cross-bedding	35.8825607	346.4993286	256.499329	10.4493561
SB_C	41.0605275	-108.91259	Non-axial trough cross-bedding	15.044487	24.54099655	294.541016	10.4493561
SB_C	41.0605275	-108.91259	Non-axial trough cross-bedding	26.482975	27.28352165	297.283508	10.4493561
SB_C	41.0605275	-108.91259	Non-axial trough cross-bedding	36.0552673	14.35027599	284.350281	10.4493561
SB_C	41.0605264	-108.91259	Non-axial trough cross-bedding	19.4598675	345.5177307	255.517731	10.4493561
SB_C	41.0605295	-108.9126	Non-axial trough cross-bedding	25.2484398	341.8790283	251.879028	10.4493561
SB_C	41.0605295	-108.9126	Non-axial trough cross-bedding	24.771822	347.5819702	257.58197	10.4493561
SB_C	41.0604942	-108.91299	Non-axial trough cross-bedding	17.9451599	341.635376	251.635376	10.4493561
SB_C	41.0604914	-108.91299	Non-axial trough cross-bedding	25.16786	349.113678	259.113678	10.4493561
SB_C	41.060483	-108.91297	Non-axial trough cross-bedding	13.7722588	326.5606079	236.560608	10.4493561
SB_C	41.060462	-108.91279	Non-axial trough cross-bedding	28.4016132	16.91066742	286.910675	10.4493561
SB_C	41.060462	-108.91279	Non-axial trough cross-bedding	34.9120445	53.06060791	323.060608	10.4493561
SB_C	41.060462	-108.91279	Non-axial trough cross-bedding	28.2966766	34.96554565	304.965546	10.4493561
SB_C	41.0604879	-108.91258	Non-axial trough cross-bedding	31.121872	331.0848084	241.084808	10.4493561
SB_C	41.0604879	-108.91258	Non-axial trough cross-bedding	31.1083508	332.3612671	242.361267	10.4493561
SB_C	41.0604879	-108.91258	Non-axial trough cross-bedding	16.3173847	335.0471191	245.047119	10.4493561
SB_C	41.0604879	-108.91258	Non-axial trough cross-bedding	16.7066174	316.0498047	226.049805	10.4493561
SB_A	41.077291	-108.86374	Axial trough cross-bedding	3.73991084	72.61410522		10.4493561
SB_A	41.077291	-108.86374	Axial trough cross-bedding	8.57499886	72.77626801		10.4493561
SB_A	41.0773025	-108.86373	Axial trough cross-bedding	5.63315105	101.4251328		10.4493561
SB_A	41.0773025	-108.86373	Axial trough cross-bedding	7.72565508	53.45877075		10.4493561
SB_A	41.0774693	-108.862	Axial trough cross-bedding	1.87203312	325.1015625		10.4493561
SB_A	41.0774447	-108.86203	Axial trough cross-bedding	4.21030283	113.1135712		10.4493561
SB_A	41.077293	-108.86373	Non-axial trough cross-bedding	25.8841076	117.0806732	27.0806732	10.4493561
SB_A	41.077293	-108.86373	Non-axial trough cross-bedding	27.5047836	130.5977783	40.5977783	10.4493561
SB_A	41.0772995	-108.86373	Non-axial trough cross-bedding	13.5961571	130.1080017	40.1080017	10.4493561
SB_A	41.0772995	-108.86373	Non-axial trough cross-bedding	24.2953949	161.8906403	71.8906403	10.4493561
SB_A	41.0772995	-108.86373	Non-axial trough cross-bedding	21.6532612	142.8804169	52.8804169	10.4493561
SB_A	41.0772995	-108.86373	Non-axial trough cross-bedding	23.1663761	162.3631592	72.3631592	10.4493561
SB_A	41.0773344	-108.86376	Non-axial trough cross-bedding	23.9711075	157.2454834	67.2454834	10.4493561
SB_A	41.0773344	-108.86376	Non-axial trough cross-bedding	18.4364605	137.3282318	47.3282318	10.4493561
SB_A	41.0773255	-108.86377	Non-axial trough cross-bedding	17.385149	125.9754181	35.9754181	10.4493561
SB_A	41.0773145	-108.86379	Non-axial trough cross-bedding	21.4538403	171.2737274	81.2737274	10.4493561
SB_A	41.0773269	-108.8638	Non-axial trough cross-bedding	25.695343	135.8043366	45.8043366	10.4493561
SB_A	41.0773241	-108.86381	Non-axial trough cross-bedding	26.8394013	133.6398468	43.6398468	10.4493561
SB_A	41.0774804	-108.86201	Non-axial trough cross-bedding	22.9874687	244.2288055	154.228806	10.4493561
SB_A	41.0774804	-108.86201	Non-axial trough cross-bedding	13.805685	216.8222504	126.82225	10.4493561
SB_A	41.0774286	-108.86205	Non-axial trough cross-bedding	8.41938114	251.0652466	161.065247	10.4493561
SB_A	41.0774286	-108.86205	Non-axial trough cross-bedding	5.61259985	261.982544	171.982544	10.4493561
SB_A	41.0774286	-108.86205	Non-axial trough cross-bedding	3.33743358	150.4587555	60.4587555	10.4493561
SB_A	41.077442	-108.86202	Non-axial trough cross-bedding	9.44135571	194.9514618	104.951462	10.4493561
SB_A	41.077442	-108.86202	Non-axial trough cross-bedding	5.93416214	155.5463562	65.5463562	10.4493561
SB_A	41.077442	-108.86202	Non-axial trough cross-bedding	9.14880562	184.4817352	94.4817352	10.4493561
SB_A	41.0774636	-108.86204	Non-axial trough cross-bedding	8.58492184	125.1200562	35.1200562	10.4493561
SB_A	41.0774636	-108.86204	Non-axial trough cross-bedding	9.38615513	146.0776672	56.0776672	10.4493561
SB_A	41.0771079	-108.86365	Non-axial trough cross-bedding	12.4675732	143.1964569	53.1964569	10.4493561
SB_A	41.0771151	-108.86366	Non-axial trough cross-bedding	14.3978891	154.1802521	64.1802521	10.4493561
SB_A	41.0771151	-108.86366	Non-axial trough cross-bedding	6.92085457	155.4613037	65.4613037	10.4493561
SB_A	41.077293	-108.86373	Non-axial trough cross-bedding	17.8682327	349.6922302	259.69223	10.4493561
SB_A	41.0772872	-108.86373	Non-axial trough cross-bedding	10.3289661	7.79081869	277.790833	10.4493561
SB_A	41.0772945	-108.86373	Non-axial trough cross-bedding	20.6886063	321.9894409	231.989441	10.4493561
SB_A	41.0772945	-108.86373	Non-axial trough cross-bedding	9.72859192	348.7448425	258.744843	10.4493561
SB_A	41.0772995	-108.86373	Non-axial trough cross-bedding	32.889183	293.8173523	203.817352	10.4493561
SB_A	41.0773103	-108.86373	Non-axial trough cross-bedding	14.7370901	48.28548431	318.285492	10.4493561
SB_A	41.0773325	-108.86376	Non-axial trough cross-bedding	16.2293625	67.91896057	337.918945	10.4493561
SB_A	41.0773325	-108.86376	Non-axial trough cross-bedding	31.4192162	20.51108742	290.511078	10.4493561
SB_A	41.0773344	-108.86376	Non-axial trough cross-bedding	11.984004	13.11062813	283.110626	10.4493561
SB_A	41.0773344	-108.86376	Non-axial trough cross-bedding	28.9995995	353.0036316	263.003632	10.4493561
SB_A	41.0773344	-108.86376	Non-axial trough cross-bedding	23.821476	8.20956612	278.209564	10.4493561
SB_A	41.0774798	-108.86201	Non-axial trough cross-bedding	17.3228684	356.1179199	266.11792	10.4493561
SB_A	41.0774798	-108.86201	Non-axial trough cross-bedding	16.1135502	16.25690269	286.256897	10.4493561
SB_A	41.0774548	-108.86206	Non-axial trough cross-bedding	11.491395	63.27964401	333.279633	10.4493561
SB_A	41.0774345	-108.86202	Non-axial trough cross-bedding	1.68646026	327.6871643	237.687164	10.4493561
SB_A	41.0774345	-108.86202	Non-axial trough cross-bedding	1.97200835	15.03354549	285.033539	10.4493561
SB_A	41.0774296	-108.86202	Non-axial trough cross-bedding	10.2364903	305.3942566	215.394257	10.4493561
SB_A	41.0774593	-108.86204	Non-axial trough cross-bedding	14.4414339	14.23545933	284.235474	10.4493561
SB_A	41.0774593	-108.86204	Non-axial trough cross-bedding	18.1193943	24.355299	294.355286	10.4493561
SB_A	41.0771151	-108.86366	Non-axial trough cross-bedding	31.6002235	358.7261353	268.726135	10.4493561
SB_A	41.0771484	-108.86367	Non-axial trough cross-bedding	17.9684162	36.17079544	306.170807	10.4493561
SB_A	41.0771484	-108.86367	Non-axial trough cross-bedding	19.0601883	356.3903809	266.390381	10.4493561
SB_A	41.0768261	-108.86058	LA face	24.0079479	236.4946137	146.494614	10.4493561
SB_A	41.0768261	-108.86058	LA face	22.8674698	253.45401	163.45401	10.4493561
SB_A	41.0768261	-108.86058	LA face	18.4373856	279.5144348	189.514435	10.4493561
SB_A	41.0768321	-108.86057	LA face	14.3440294	292.5484924	202.548492	10.4493561
SB_A	41.0768321	-108.86057	LA face	23.5248375	269.290741	179.290741	10.4493561

SB_A	41.0768323	-108.86058	LA face	28.0442848	307.5411682	217.541168	10.4493561
SB_A	41.0768323	-108.86059	LA face	24.892767	311.0029297	221.00293	10.4493561
SB_A	41.076831	-108.86057	LA face	14.8549767	247.14357	157.14357	10.4493561
SB_A	41.0768307	-108.86058	LA face	21.2148666	270.7695618	180.769562	10.4493561
SB_A	41.0768307	-108.86058	LA face	17.0922489	259.7470093	169.747009	10.4493561

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dip_planeAzi	dip_plunge	sedStructure
305	15	Axial trough cross-bedding
230	5	Axial trough cross-bedding
350	9	Axial trough cross-bedding
230	14	Axial trough cross-bedding
300	10	Axial trough cross-bedding
290	11	Axial trough cross-bedding
20	10	Axial trough cross-bedding
270	18	Axial trough cross-bedding
280	15	Axial trough cross-bedding
290	4	Axial trough cross-bedding
260	25	Axial trough cross-bedding
280	20	Axial trough cross-bedding
290	14	Axial trough cross-bedding
345	15	Axial trough cross-bedding
355	31	Axial trough cross-bedding
325	15	Axial trough cross-bedding
305	32	Axial trough cross-bedding
240	24	Axial trough cross-bedding
260	22	Axial trough cross-bedding
280	20	Axial trough cross-bedding
315	15	Axial trough cross-bedding
220	15	Axial trough cross-bedding
0	25	Axial trough cross-bedding
280	24	Axial trough cross-bedding
270	11	Axial trough cross-bedding
300	22	Axial trough cross-bedding
280	22	Axial trough cross-bedding
290	11	Axial trough cross-bedding
180	21	Axial trough cross-bedding
290	10	Axial trough cross-bedding
320	16	Axial trough cross-bedding
300	17	Axial trough cross-bedding
270	22	Axial trough cross-bedding
0	26	Axial trough cross-bedding
350	34	Axial trough cross-bedding
0	27	Axial trough cross-bedding
340	30	Axial trough cross-bedding
355	30	Axial trough cross-bedding
5	20	Axial trough cross-bedding
285	22	Axial trough cross-bedding
320	6	Axial trough cross-bedding

270	20	Axial trough cross-bedding
315	26	Axial trough cross-bedding
300	10	Axial trough cross-bedding
320	25	Axial trough cross-bedding
5	29	Axial trough cross-bedding
330	27	Axial trough cross-bedding
270	29	Axial trough cross-bedding
300	30	Axial trough cross-bedding
0	20	Axial trough cross-bedding
290	17	Axial trough cross-bedding
210	16	Axial trough cross-bedding
265	20	Axial trough cross-bedding
340	22	Axial trough cross-bedding
30	33	Axial trough cross-bedding
30	25	Axial trough cross-bedding
330	21	Axial trough cross-bedding
345	20	Axial trough cross-bedding
220	22	Axial trough cross-bedding
292	30	Axial trough cross-bedding
304	30	Axial trough cross-bedding
355	26	Axial trough cross-bedding
5	18	Axial trough cross-bedding
310	18	Axial trough cross-bedding
318	24	Axial trough cross-bedding
8	18	Axial trough cross-bedding
260	23	Axial trough cross-bedding
251	17	Axial trough cross-bedding
338	33	Axial trough cross-bedding
298	22	Axial trough cross-bedding
311	26	Axial trough cross-bedding
195	28	Axial trough cross-bedding
50	18	Axial trough cross-bedding
346	20	Axial trough cross-bedding
30	28	Axial trough cross-bedding
335	13	Axial trough cross-bedding
280	24	Axial trough cross-bedding
275	222	Axial trough cross-bedding
326	6	Axial trough cross-bedding
250	31	Axial trough cross-bedding
322	16	Axial trough cross-bedding
281	13	Axial trough cross-bedding
349	17	Axial trough cross-bedding
346	19	Axial trough cross-bedding

340	15	Axial trough cross-bedding
320	18	Axial trough cross-bedding
218	22	Axial trough cross-bedding
26	22	Axial trough cross-bedding
330	20	Axial trough cross-bedding
310	11	Axial trough cross-bedding
40	17	Axial trough cross-bedding
10	26	Axial trough cross-bedding
228	14	Axial trough cross-bedding
312	15	Axial trough cross-bedding
280	24	Axial trough cross-bedding
351	23	Axial trough cross-bedding
240	15	Axial trough cross-bedding
72	18	Axial trough cross-bedding
320	20	Axial trough cross-bedding
340	20	Axial trough cross-bedding
340	14	Axial trough cross-bedding
350	24	Axial trough cross-bedding
320	23	Axial trough cross-bedding
315	25	Axial trough cross-bedding
40	14	Axial trough cross-bedding
30	6	Axial trough cross-bedding
300	14	Axial trough cross-bedding
290	20	Axial trough cross-bedding
250	15	Axial trough cross-bedding
330	18	Axial trough cross-bedding
310	24	Axial trough cross-bedding
310	10	Axial trough cross-bedding
290	18	Axial trough cross-bedding
350	15	Axial trough cross-bedding
325	14	Axial trough cross-bedding
310	27	Axial trough cross-bedding
290	27	Axial trough cross-bedding
10	10	Axial trough cross-bedding
0	15	Axial trough cross-bedding
330	20	Axial trough cross-bedding
345	18	Axial trough cross-bedding
335	18	Axial trough cross-bedding
20	18	Axial trough cross-bedding
330	10	Axial trough cross-bedding
0	20	Axial trough cross-bedding
0	20	Axial trough cross-bedding
20	9	Axial trough cross-bedding

10	25	Axial trough cross-bedding
0	15	Axial trough cross-bedding
330	23	Axial trough cross-bedding
0	14	Axial trough cross-bedding
0	33	Axial trough cross-bedding
320	21	Axial trough cross-bedding
35	16	Axial trough cross-bedding
336	25	Axial trough cross-bedding
356	22	Axial trough cross-bedding
335	20	Axial trough cross-bedding
320	15	Axial trough cross-bedding
310	18	Axial trough cross-bedding
26	20	Axial trough cross-bedding
320	12	Axial trough cross-bedding
5	18	Axial trough cross-bedding
255	15	Axial trough cross-bedding
314	23	Axial trough cross-bedding
285	24	Axial trough cross-bedding
317	12	Axial trough cross-bedding
10	18	Axial trough cross-bedding
325	26	Axial trough cross-bedding
321	23	Axial trough cross-bedding
25	16	Axial trough cross-bedding
0	14	Axial trough cross-bedding
306	30	Axial trough cross-bedding
275	17	Axial trough cross-bedding
10	14	Axial trough cross-bedding
315	35	Axial trough cross-bedding
300	24	Axial trough cross-bedding
304	15	Axial trough cross-bedding
235	20	Axial trough cross-bedding
315	23	Axial trough cross-bedding
295	18	Axial trough cross-bedding
42	16	Axial trough cross-bedding
10	11	Axial trough cross-bedding
345	25	Axial trough cross-bedding
10	20	Axial trough cross-bedding
20	19	Axial trough cross-bedding
0	16	Axial trough cross-bedding
355	24	Axial trough cross-bedding
35	15	Axial trough cross-bedding
295	13	Axial trough cross-bedding
10	14	Axial trough cross-bedding

0	14	Axial trough cross-bedding
180	14	Axial trough cross-bedding
345	25	Axial trough cross-bedding
0	15	Axial trough cross-bedding
350	8	Axial trough cross-bedding
330	16	Axial trough cross-bedding
320	25	Axial trough cross-bedding
355	10	Axial trough cross-bedding
330	23	Axial trough cross-bedding
0	20	Axial trough cross-bedding
340	14	Axial trough cross-bedding
350	15	Axial trough cross-bedding
0	9	Axial trough cross-bedding
345	20	Axial trough cross-bedding
355	32	Axial trough cross-bedding
340	26	Axial trough cross-bedding
10	20	Axial trough cross-bedding
30	22	Axial trough cross-bedding
210	4	Axial trough cross-bedding
300	25	Axial trough cross-bedding
270	20	Axial trough cross-bedding
20	20	Axial trough cross-bedding
30	16	Axial trough cross-bedding
350	20	Axial trough cross-bedding
0	17	Axial trough cross-bedding
90	32	Axial trough cross-bedding
95	15	Axial trough cross-bedding
0	10	Axial trough cross-bedding
90	11	Axial trough cross-bedding
0	11	Axial trough cross-bedding
270	4	Axial trough cross-bedding
305	16	Axial trough cross-bedding
290	14	Axial trough cross-bedding
280	21	Axial trough cross-bedding
315	19	Axial trough cross-bedding
270	32	Axial trough cross-bedding
280	24	Axial trough cross-bedding
290	22	Axial trough cross-bedding
300	14	Axial trough cross-bedding
270	30	Axial trough cross-bedding
325	15	Axial trough cross-bedding
310	16	Axial trough cross-bedding
300	15	Axial trough cross-bedding

310	20	Axial trough cross-bedding
330	10	Axial trough cross-bedding
310	19	Axial trough cross-bedding
300	18	Axial trough cross-bedding
310	24	Axial trough cross-bedding
290	31	Axial trough cross-bedding
285	18	Axial trough cross-bedding
270	20	Axial trough cross-bedding
320	10	Axial trough cross-bedding
310	25	Axial trough cross-bedding
170	21	Axial trough cross-bedding
310	11	Axial trough cross-bedding
295	20	Axial trough cross-bedding
290	30	Axial trough cross-bedding
290	15	Axial trough cross-bedding
315	14	Axial trough cross-bedding
310	20	Axial trough cross-bedding
300	32	Axial trough cross-bedding
357	11	Axial trough cross-bedding
342	25	Axial trough cross-bedding
320	34	Axial trough cross-bedding
350	19	Axial trough cross-bedding
32	15	Axial trough cross-bedding
345	15	Axial trough cross-bedding
10	27	Axial trough cross-bedding
255	21	Axial trough cross-bedding
350	23	Axial trough cross-bedding
335	19	Axial trough cross-bedding
320	26	Axial trough cross-bedding
50	25	Axial trough cross-bedding
205	26	Axial trough cross-bedding
335	14	Axial trough cross-bedding
319	23	Axial trough cross-bedding
301	14	Axial trough cross-bedding
300	16	Axial trough cross-bedding
340	25	Axial trough cross-bedding
355	19	Axial trough cross-bedding
322	18	Axial trough cross-bedding
20	16	Axial trough cross-bedding
338	23	Axial trough cross-bedding
325	28	Axial trough cross-bedding
295	21	Axial trough cross-bedding
277	22	Axial trough cross-bedding

340	14	Axial trough cross-bedding
330	22	Axial trough cross-bedding
350	32	Axial trough cross-bedding
345	21	Axial trough cross-bedding
350	31	Axial trough cross-bedding
350	26	Axial trough cross-bedding
350	26	Axial trough cross-bedding
0	35	Axial trough cross-bedding
305	15	Axial trough cross-bedding
300	15	Axial trough cross-bedding
0	10	Axial trough cross-bedding
340	12	Axial trough cross-bedding
340	14	Axial trough cross-bedding
30	5	Axial trough cross-bedding
5	15	Axial trough cross-bedding
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290	10	Axial trough cross-bedding
355	5	Axial trough cross-bedding
280	32	Axial trough cross-bedding
305	17	Axial trough cross-bedding
295	33	Axial trough cross-bedding
290	35	Axial trough cross-bedding
295	14	Axial trough cross-bedding
290	4	Axial trough cross-bedding
0	26	Axial trough cross-bedding
325	20	Axial trough cross-bedding
270	22	Axial trough cross-bedding
295	17	Axial trough cross-bedding
350	30	Axial trough cross-bedding
270	40	Axial trough cross-bedding
300	33	Axial trough cross-bedding
310	33	Axial trough cross-bedding
310	15	Axial trough cross-bedding
340	26	Axial trough cross-bedding
350	28	Axial trough cross-bedding
340	16	Axial trough cross-bedding
285	26	Axial trough cross-bedding
345	15	Axial trough cross-bedding
345	43	Axial trough cross-bedding
340	25	Axial trough cross-bedding
350	18	Axial trough cross-bedding
350	25	Axial trough cross-bedding
250	15	Axial trough cross-bedding

310	30	Axial trough cross-bedding
310	22	Axial trough cross-bedding
290	15	Axial trough cross-bedding
355	15	Axial trough cross-bedding
0	20	Axial trough cross-bedding
345	12	Axial trough cross-bedding
335	10	Axial trough cross-bedding
340	17	Axial trough cross-bedding
335	17	Axial trough cross-bedding
310	22	Axial trough cross-bedding
310	20	Axial trough cross-bedding
300	34	Axial trough cross-bedding
350	20	Axial trough cross-bedding
270	24	Axial trough cross-bedding
60	10	Axial trough cross-bedding
310	10	Axial trough cross-bedding
350	32	Axial trough cross-bedding
220	20	Axial trough cross-bedding
265	18	Axial trough cross-bedding
245	24	Axial trough cross-bedding
271	26	Axial trough cross-bedding
276	14	Axial trough cross-bedding
304	14	Axial trough cross-bedding
271	20	Axial trough cross-bedding
303	21	Axial trough cross-bedding
301	8	Axial trough cross-bedding
255	16	Axial trough cross-bedding
299	28	Axial trough cross-bedding
276	27	Axial trough cross-bedding
306	23	Axial trough cross-bedding
15	18	Axial trough cross-bedding
19	28	Axial trough cross-bedding
242	9	Axial trough cross-bedding
343	24	Axial trough cross-bedding
259	8	Axial trough cross-bedding
301	25	Axial trough cross-bedding
312	10	Axial trough cross-bedding
280	18	Axial trough cross-bedding
284	17	Axial trough cross-bedding
294	19	Axial trough cross-bedding
302	24	Axial trough cross-bedding
308	20	Axial trough cross-bedding
337	14	Axial trough cross-bedding

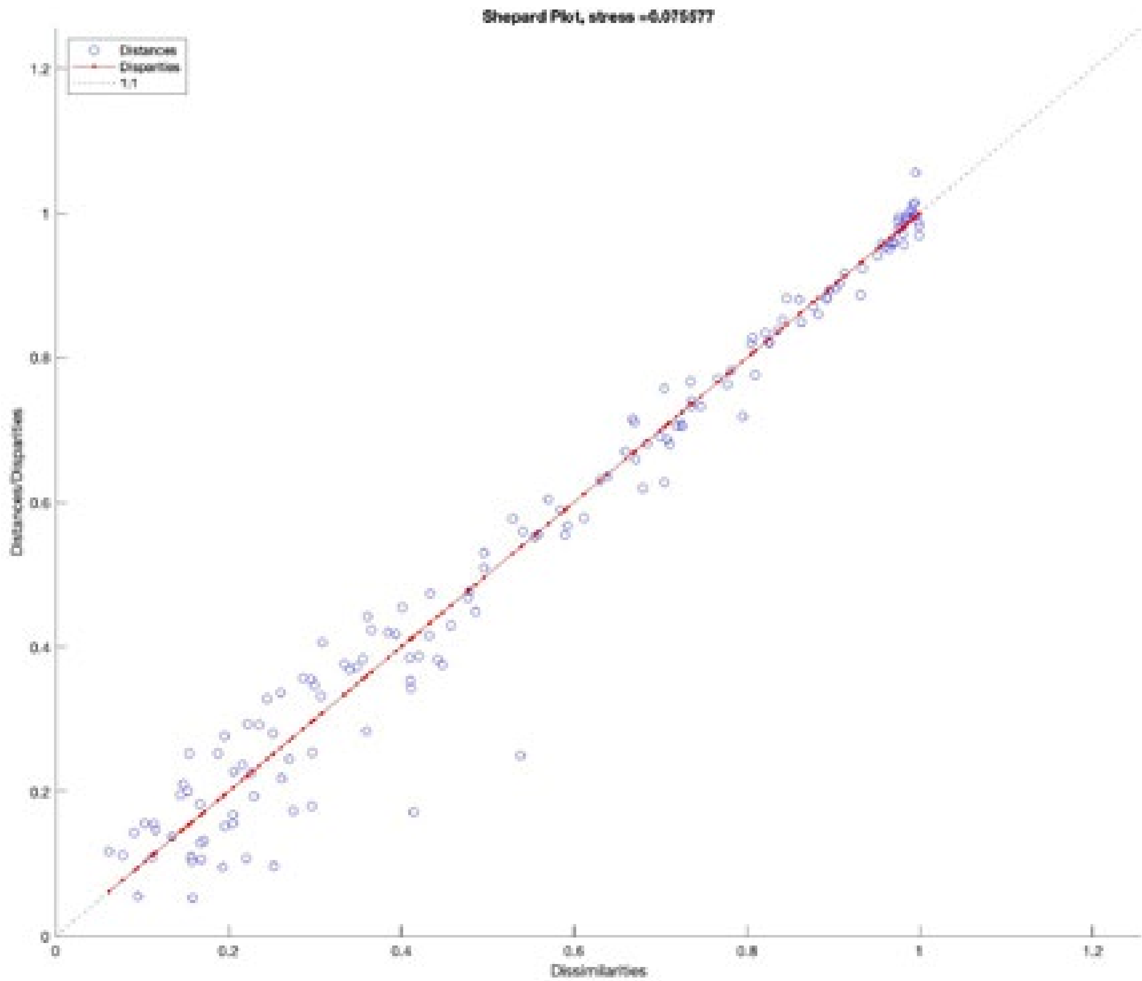
320	21	Axial trough cross-bedding
333	15	Axial trough cross-bedding
310	16	Axial trough cross-bedding
262	24	Axial trough cross-bedding
281	23	Axial trough cross-bedding
308	16	Axial trough cross-bedding
3349	11	Axial trough cross-bedding
300	11	Axial trough cross-bedding
321	21	Axial trough cross-bedding
285	17	Axial trough cross-bedding
325	16	Axial trough cross-bedding
293	15	Axial trough cross-bedding

Forss, 1983

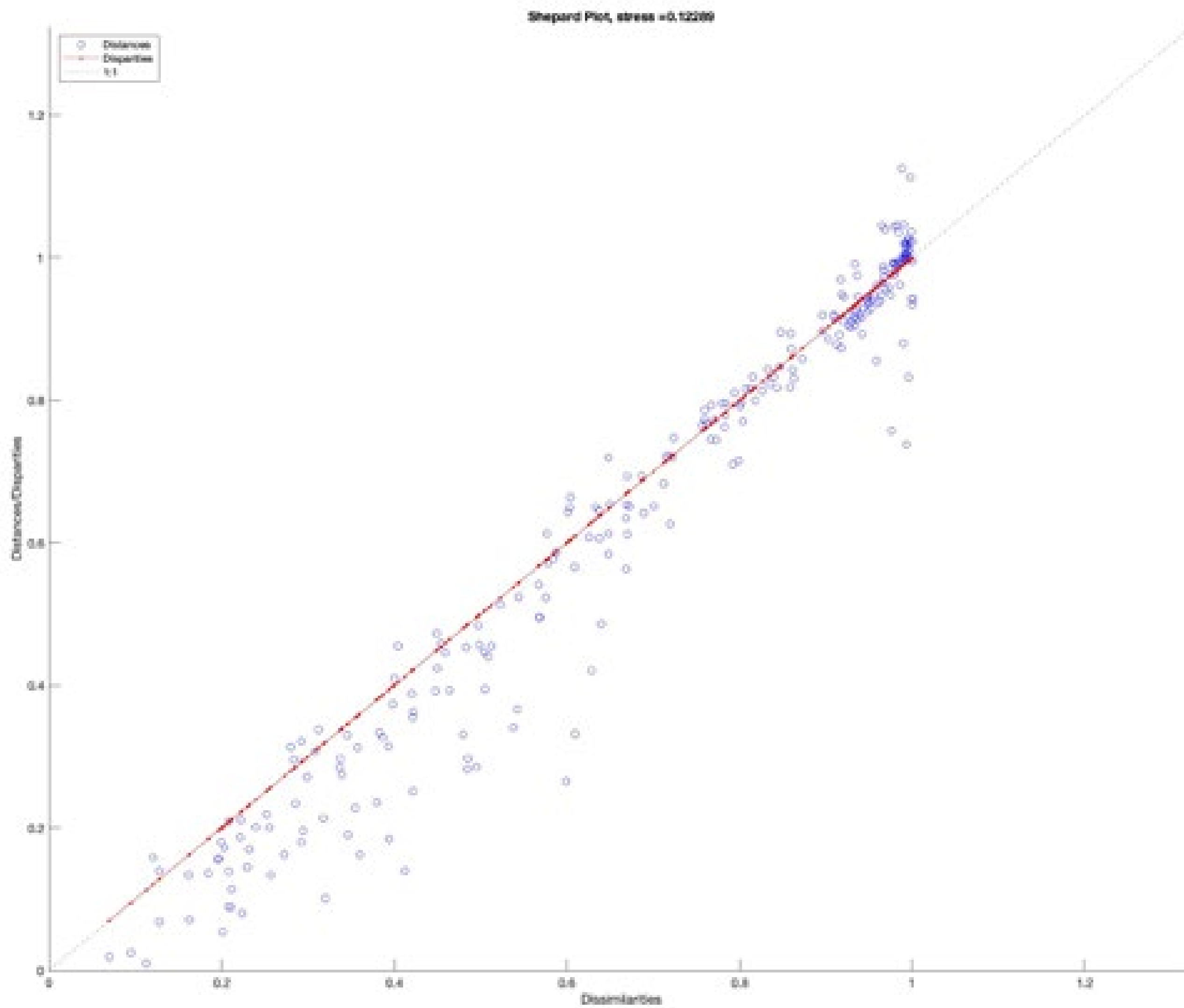
Location	Latittude	Longitude	Scale	Type	Number	Mean_Direction
1.1	-108.03763	41.5141	Large	Axial trough	17	123
1.1	-108.03763	41.5141	Large	Axial trough	9	292
1.1	-108.03763	41.5141	Small	Axial trough	10	72
1.1	-108.03763	41.5141	Large	Non-Axial tro	1	38
1.1	-108.03763	41.5141	Small	Non-Axial tro	3	206
1.2	-108.03763	41.5141	Large	Axial trough	18	259
1.2	-108.03763	41.5141	Large	Axial trough	2	144
1.2	-108.03763	41.5141	Large	Current Rippl	1	176
2	-107.99664	41.43502	Large	Axial trough	50	107
2	-107.99664	41.43502	Large	Non-Axial tro	7	85
3	-107.88849	41.30116	Large	Axial trough	55	217
3	-107.88849	41.30116	Large	Current Rippl	4	211
3	-107.88849	41.30116	Large	Non-Axial tro	14	249
3	-107.88849	41.30116	Large	Non-Axial tro	5	122
4.1	-107.7552	41.09768	Large	Axial trough	25	235
4.2	-107.85068	41.08337	Large	Axial trough	105	331
5	-108.22038	40.86995	Large	Axial trough	51	248
5	-108.22038	40.86995	Small	Axial trough	2	196
5	-108.22038	40.86995	Small	Current Rippl	4	125
5	-108.22038	40.86995	Large	Non-Axial tro	11	317
6	-108.20161	40.94244	Large	Axial trough	21	310
6	-108.20161	40.94244	Large	Axial trough	5	287
6	-108.20161	40.94244	Small	Non-Axial tro	6	335
7	-108.42947	40.97131	Large	Axial trough	96	311
7	-108.42947	40.97131	Large	Non-Axial tro	14	310
8	-108.48662	40.95685	Large	Axial trough	10	311
8	-108.48662	40.95685	Small	Axial trough	2	326
8	-108.48662	40.95685	Small	Current Rippl	3	96
8	-108.48662	40.95685	Large	Non-Axial tro	9	80
9	-108.67002	41.2887	Large	Axial trough	8	181
9	-108.67002	41.2887	Small	Axial trough	10	353
9	-108.67002	41.2887	Large	Non-Axial tro	14	151
10	-108.59544	41.17232	Small	Axial trough	16	231
10	-108.59544	41.17232	Small	Current Rippl	1	223
10	-108.59544	41.17232	Large	Planar cross-	12	338
10	-108.59544	41.17232	Small	Planar cross-	1	354
11	-108.51348	41.40652	Small	Axial trough	18	341
11	-108.51348	41.40652	Small	Current Rippl	1	30
11	-108.51348	41.40652	Large	Planar cross-	31	297
13	-108.34025	41.53671	Large	Axial trough	1	42
13	-108.34025	41.53671	Small	Axial trough	2	83
13	-108.34025	41.53671	Large	Non-Axial tro	10	200
13	-108.34025	41.53671	Small	Non-Axial tro	7	13
14	-108.24774	41.56494	Large	Axial trough	3	322
14	-108.24774	41.56494	Large	Axial trough	8	140
14	-108.24774	41.56494	Large	Non-Axial tro	20	130
14	-108.24774	41.56494	Large	Planar cross-	3	213
					726	

Appendix A4

Shepards plot - 0-300 Ma



Shepards plot - 0-3500 Ma



Appendix A5

DZmix outputs_ 0-3500 Ma

TR-19-372

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	
Cross-correlation	0.502 +/- 0.002	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.068153266	0.04548594
Sierra Madre	0.088762934	0.033360494
CMB	0.230412814	0.032757864
Rawlins Uplift	0.612670985	0.048275502
Kuiper V value	0.112 +/- 0.005	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.053318642	0.045066884
Sierra Madre	0.019180384	0.014396622
CMB	0.213844667	0.07585715
Rawlins Uplift	0.713656307	0.076808474
KS D value	0.065 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.078298269	0.045253319
Sierra Madre	0.030937972	0.023335296
CMB	0.148654612	0.061889371
Rawlins Uplift	0.742109147	0.102151177

5-SC_18

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.575 +/- 0.004	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.077101166	0.06353994
Sierra Madre	0.024044135	0.018289708
CMB	0.352398388	0.046108311
Rawlins Uplift	0.546456312	0.060269074

Kuiper V value	0.16 +/- 0.002	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.018586966	0.016840087
Sierra Madre	0.01125812	0.010090058
CMB	0.245713969	0.123471444
Rawlins Uplift	0.724440945	0.124597724

KS D value	0.09 +/- 0.004	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.0645425	0.062486911
Sierra Madre	0.04146114	0.039169601
CMB	0.324959658	0.086736801
Rawlins Uplift	0.569036702	0.145819007

SCD-16

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.569 +/- 0.001	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.038220581	0.032217037
Sierra Madre	0.030066765	0.021586197
CMB	0.777425855	0.046630278
Rawlins Uplift	0.154286799	0.04359359

Kuiper V value	0.219 +/- 0.001	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.018297297	0.019315651

Sierra Madre	0.01434424	0.013835893
CMB	0.159783734	0.112234344
Rawlins Uplift	0.807574729	0.129643012

KS D value	0.12 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.055157246	0.04448996
Sierra Madre	0.05730154	0.045957451
CMB	0.488342814	0.089990272
Rawlins Uplift	0.3991984	0.136254716

SC1_18

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.639 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.043781629	0.03512319
Sierra Madre	0.05065594	0.03095306
CMB	0.265414715	0.034217211
Rawlins Uplift	0.640147717	0.051919697

Kuiper V value	0.111 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.033938134	0.031177453
Sierra Madre	0.009155564	0.007942951
CMB	0.154031236	0.080169551
Rawlins Uplift	0.802875066	0.078724222

KS D value	0.062 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.03179448	0.029946631
Sierra Madre	0.019034402	0.017367016
CMB	0.171579362	0.079312834
Rawlins Uplift	0.777591756	0.10597438

SB7_18

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	
Cross-correlation	0.409 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.923498123	0.056458649
Sierra Madre	0.004374873	0.003172255
CMB	0.03380398	0.036085009
Rawlins Uplift	0.038323024	0.042341729
Kuiper V value	0.364 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.922395144	0.080795187
Sierra Madre	0.006143326	0.005135841
CMB	0.060440024	0.07769725
Rawlins Uplift	0.011021505	0.009978577
KS D value	0.22 +/- 0.006	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.416971056	0.074544494
Sierra Madre	0.023870761	0.021131004
CMB	0.46519965	0.065893211
Rawlins Uplift	0.093958533	0.097374822

SB3_18

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.462 +/- 0.01	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.625950496	0.073466122
Sierra Madre	0.012231255	0.010489595
CMB	0.099918306	0.065282739
Rawlins Uplift	0.261899944	0.08356411

Kuiper V value	0.236 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.549891592	0.060191894
Sierra Madre	0.014677926	0.011752557
CMB	0.290812958	0.090342007
Rawlins Uplift	0.144617523	0.095917313

KS D value	0.138 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.344799493	0.079576168
Sierra Madre	0.022997932	0.01599847
CMB	0.413193857	0.090338338
Rawlins Uplift	0.219008718	0.142024938

RR2_20

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.48 +/- 0.002	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.097076642	0.06499605
Sierra Madre	0.182951277	0.037831482
CMB	0.084109847	0.029645091
Rawlins Uplift	0.635862233	0.049498581

Kuiper V value	0.238 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.046195267	0.033823632
Sierra Madre	0.158290362	0.041672195

CMB	0.391330702	0.082568537
Rawlins Uplift	0.404183669	0.109115096

KS D value	0.145 +/- 0.002	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.494760811	0.040995313
Sierra Madre	0.069538399	0.050223704
CMB	0.108606702	0.077984698
Rawlins Uplift	0.327094089	0.108345016

RR1_20

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.517 +/- 0.002	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.164728272	0.058663412
Sierra Madre	0.145927589	0.034491922
CMB	0.1089323	0.030992705
Rawlins Uplift	0.58041184	0.045357127

Kuiper V value	0.122 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.145028125	0.051490899
Sierra Madre	0.027420662	0.020315463
CMB	0.24284821	0.075186776
Rawlins Uplift	0.584703003	0.099272767

KS D value	0.075 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.308177605	0.054514513
Sierra Madre	0.03098575	0.023894254
CMB	0.138516763	0.089147308
Rawlins Uplift	0.522319882	0.137908537

PL3_18

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	
Cross-correlation	0.336 +/- 0.01	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.732036828	0.101391215
Sierra Madre	0.011160614	0.009870626
CMB	0.029720511	0.029484772
Rawlins Uplift	0.227082048	0.098954465
Kuiper V value	0.271 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.647741635	0.055892969
Sierra Madre	0.016526806	0.013199163
CMB	0.167717062	0.069783173
Rawlins Uplift	0.168014497	0.093116552
KS D value	0.16 +/- 0.002	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.2802812	0.081172635
Sierra Madre	0.013996758	0.0112756
CMB	0.349571925	0.149995363
Rawlins Uplift	0.356150117	0.218659266

NFT2_18

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	
Cross-correlation	0.638 +/- 0.003	

Sample Names	Relative Contribution	Standard Deviation
Uintas	0.060665974	0.040922365
Sierra Madre	0.130270386	0.030300294
CMB	0.143367157	0.032702183
Rawlins Uplift	0.665696483	0.047378908

Kuiper V value	0.178 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.038700228	0.027750654
Sierra Madre	0.10053441	0.034519663
CMB	0.326018567	0.067092172
Rawlins Uplift	0.534746795	0.095981549

KS D value	0.102 +/- 0.001	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.248995576	0.032641739
Sierra Madre	0.062421232	0.041640092
CMB	0.161146865	0.107492903
Rawlins Uplift	0.527436327	0.153281432

MD1_20

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.036 +/- 0	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.011757637	0.011176953
Sierra Madre	0.017524311	0.018114089
CMB	0.951612232	0.027277915
Rawlins Uplift	0.01910582	0.021971067

Kuiper V value	0.487 +/- 0.001	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.25795341	0.052916037
Sierra Madre	0.0254537	0.021775687
CMB	0.681604251	0.062381018

Rawlins Uplift	0.034988639	0.032925692

KS D value	0.478 +/- 0.001	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.016659955	0.017831517
Sierra Madre	0.01563321	0.016228818
CMB	0.953861227	0.023764531
Rawlins Uplift	0.013845609	0.01544049

MCP-16

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.347 +/- 0	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.046570124	0.034680578
Sierra Madre	0.035802702	0.021528333
CMB	0.797741371	0.041441656
Rawlins Uplift	0.119885803	0.036936831

Kuiper V value	0.404 +/- 0.002	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.029868202	0.027510316
Sierra Madre	0.02633149	0.025519722
CMB	0.366204127	0.121734119
Rawlins Uplift	0.577596181	0.152588583

KS D value	0.21 +/- 0.002	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.064678637	0.064293413
Sierra Madre	0.047462271	0.046810293
CMB	0.175115311	0.091551756
Rawlins Uplift	0.712743782	0.160150571

LMRC2_18

Results_export_1	Results_export_2	Results_export_3

Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	
Cross-correlation	0.405 +/- 0.005	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.922155362	0.053520899
Sierra Madre	0.005215244	0.004177596
CMB	0.029671994	0.03371637
Rawlins Uplift	0.0429574	0.044695343
Kuiper V value	0.372 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.906883284	0.075340412
Sierra Madre	0.006342201	0.00541797
CMB	0.072548307	0.072442191
Rawlins Uplift	0.014226208	0.012937876
KS D value	0.236 +/- 0.004	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.306511031	0.06728722
Sierra Madre	0.020138934	0.014037119
CMB	0.517899514	0.078080618
Rawlins Uplift	0.15545052	0.120237126

HOR-16

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	
Cross-correlation	0.339 +/- 0.001	
Sample Names	Relative Contribution	Standard Deviation

Uintas	0.077731403	0.056382447
Sierra Madre	0.037156841	0.026948716
CMB	0.48838593	0.043405705
Rawlins Uplift	0.396725827	0.047194846

Kuiper V value	0.362 +/- 0.002	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.011440732	0.011601441
Sierra Madre	0.008049435	0.007904802
CMB	0.154851656	0.130570267
Rawlins Uplift	0.825658177	0.138586766

KS D value	0.196 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.064336072	0.059267223
Sierra Madre	0.092360533	0.035836366
CMB	0.063747524	0.06491305
Rawlins Uplift	0.779555871	0.109259924

FH3_18

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.654 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.051450842	0.037242631
Sierra Madre	0.026267499	0.020523769
CMB	0.492673426	0.053288292
Rawlins Uplift	0.429608234	0.054821694

Kuiper V value	0.116 +/- 0.005	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.031448311	0.025216375
Sierra Madre	0.027182407	0.02392116
CMB	0.336428867	0.087525904
Rawlins Uplift	0.604940415	0.107243695

KS D value	0.078 +/- 0.005	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.045176921	0.034739982
Sierra Madre	0.022542574	0.016308333
CMB	0.492175314	0.075492532
Rawlins Uplift	0.440105191	0.094024758

CR-148-16

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.606 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.082250583	0.063320984
Sierra Madre	0.024792348	0.019283159
CMB	0.251476408	0.039663254
Rawlins Uplift	0.641480661	0.061040759

Kuiper V value	0.176 +/- 0.004	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.019449383	0.01819156
Sierra Madre	0.018127912	0.017140783
CMB	0.256321499	0.096957529
Rawlins Uplift	0.706101206	0.103793279

KS D value	0.097 +/- 0.004	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.040103298	0.035727519
Sierra Madre	0.038000007	0.03121563
CMB	0.267060199	0.07888129
Rawlins Uplift	0.654836495	0.113142736

CC-16

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		

wghtings applied to PDPs and CDFs

number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.381 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.054334659	0.036539347
Sierra Madre	0.142238957	0.037456639
CMB	0.300116201	0.046097177
Rawlins Uplift	0.503310183	0.057167755

Kuiper V value	0.368 +/- 0.002	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.011964067	0.011782577
Sierra Madre	0.027594016	0.028202423
CMB	0.012697802	0.013310752
Rawlins Uplift	0.947744115	0.031711788

KS D value	0.213 +/- 0.006	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.063677102	0.054477755
Sierra Madre	0.265658831	0.035781235
CMB	0.062793491	0.059642457
Rawlins Uplift	0.607870576	0.088295839

BC2_18

Results_export_1 Results_export_2 Results_export_3

Results of Monte Carlo unmixing model

wghtings applied to PDPs and CDFs

number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.614 +/- 0.004	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.039494868	0.036202055

Sierra Madre	0.034562622	0.027050252
CMB	0.40745436	0.05367304
Rawlins Uplift	0.51848815	0.059625602

Kuiper V value	0.191 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.010003181	0.010078045
Sierra Madre	0.015727242	0.015455213
CMB	0.017028995	0.018846024
Rawlins Uplift	0.957240583	0.026553048

KS D value	0.113 +/- 0.005	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.016774203	0.018221458
Sierra Madre	0.018465899	0.021666076
CMB	0.13031024	0.091148647
Rawlins Uplift	0.834449658	0.118595522

19-VC-395

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.505 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.059137308	0.051302819
Sierra Madre	0.025166202	0.02061407
CMB	0.290743445	0.046246739
Rawlins Uplift	0.624953045	0.062888614

Kuiper V value	0.17 +/- 0.002	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.0143917	0.014836194
Sierra Madre	0.006066039	0.0066918
CMB	0.045223692	0.043195772
Rawlins Uplift	0.934318569	0.045312931

KS D value	0.09 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.021233348	0.023567493
Sierra Madre	0.010728862	0.012752288
CMB	0.044173604	0.03875665
Rawlins Uplift	0.923864187	0.061980539

19-LM-405

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.357 +/- 0.004	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.941694073	0.043543289
Sierra Madre	0.004386419	0.003501227
CMB	0.025282462	0.025684797
Rawlins Uplift	0.028637045	0.035305312

Kuiper V value	0.38 +/- 0.004	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.959791937	0.023853275
Sierra Madre	0.0077054	0.00757162
CMB	0.018994719	0.018825385
Rawlins Uplift	0.013507944	0.015899326

KS D value	0.261 +/- 0.005	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.320922236	0.071621993
Sierra Madre	0.023175267	0.017997174
CMB	0.542537499	0.070659138
Rawlins Uplift	0.113364998	0.105660214

19-HR-392

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		

number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.45 +/- 0.002	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.05997652	0.042357548
Sierra Madre	0.116098711	0.035459302
CMB	0.282087319	0.039719619
Rawlins Uplift	0.541837449	0.053206609

Kuiper V value	0.208 +/- 0.004	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.020314609	0.016411455
Sierra Madre	0.091829817	0.050947221
CMB	0.019533031	0.017929113
Rawlins Uplift	0.868322543	0.047541115

KS D value	0.118 +/- 0.006	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.046846149	0.043401615
Sierra Madre	0.113753968	0.03033867
CMB	0.040809206	0.036241775
Rawlins Uplift	0.798590676	0.061394865

19-DM-403

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.369 +/- 0.008	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.798927331	0.08872616
Sierra Madre	0.008054215	0.006455916

CMB	0.044604667	0.041893537
Rawlins Uplift	0.148413787	0.086022804

Kuiper V value	0.297 +/- 0.004	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.648152471	0.074942121
Sierra Madre	0.013237538	0.011312861
CMB	0.232220425	0.059738862
Rawlins Uplift	0.106389566	0.080539601

KS D value	0.176 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.226025775	0.073961132
Sierra Madre	0.015656936	0.011470809
CMB	0.425045275	0.128080162
Rawlins Uplift	0.333272013	0.187461358

17-BF-001

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.665 +/- 0.004	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.040496624	0.029407396
Sierra Madre	0.1488812	0.037902917
CMB	0.168139114	0.036731571
Rawlins Uplift	0.642483062	0.05414788

Kuiper V value	0.184 +/- 0.006	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.030789111	0.026790588
Sierra Madre	0.253013936	0.049674343
CMB	0.032661296	0.027096136
Rawlins Uplift	0.683535657	0.051039784

KS D value	0.108 +/- 0.006

Sample Names	Relative Contribution	Standard Deviation
Uintas	0.056220073	0.049426262
Sierra Madre	0.321440451	0.032223991
CMB	0.076706832	0.069970587
Rawlins Uplift	0.545632644	0.092929295

DZmix outputs_ 0-300 Ma

TR-19-372

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	
Cross-correlation	0.168 +/- 0	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.249263842	0.207072194
Sierra Madre	0.249488577	0.202025302
CMB	0.221604342	0.108752305
Rawlins Uplift	0.279643239	0.136742439
Kuiper V value	0.111 +/- 0.004	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.052851362	0.044403593
Sierra Madre	0.016922019	0.014467987
CMB	0.212753257	0.06645292
Rawlins Uplift	0.717473362	0.066988807
KS D value	0.065 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.081530603	0.048158499
Sierra Madre	0.024905472	0.02039592
CMB	0.143744573	0.067121711
Rawlins Uplift	0.749819352	0.111229227

SCD-16

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.426 +/- 0	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.182001213	0.236866189
Sierra Madre	0.110197036	0.196614248
CMB	0.706855004	0.283020664
Rawlins Uplift	0.000946748	0.000815747

Kuiper V value	0.219 +/- 0.001	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.020909131	0.018361196
Sierra Madre	0.014195892	0.014329981
CMB	0.170763265	0.110454621
Rawlins Uplift	0.794131712	0.128056173

KS D value	0.12 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.060757637	0.048876471
Sierra Madre	0.052978261	0.042701226
CMB	0.479352803	0.082274653
Rawlins Uplift	0.4069113	0.126516583

SC1_18

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.488 +/- 0	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.253689968	0.193361959
Sierra Madre	0.271730202	0.218947617
CMB	0.312742287	0.161446675
Rawlins Uplift	0.161837543	0.083232059

Kuiper V value	0.112 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.031193612	0.028668877

Sierra Madre	0.011149227	0.010841555
CMB	0.151410979	0.083206531
Rawlins Uplift	0.806246183	0.081741581

KS D value	0.061 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.033749662	0.030227141
Sierra Madre	0.019094737	0.017213716
CMB	0.160262182	0.07967131
Rawlins Uplift	0.78689342	0.104674329

SB3_18

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.287 +/- 0	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.24899888	0.216141153
Sierra Madre	0.258669144	0.229018242
CMB	0.392800135	0.212552523
Rawlins Uplift	0.099531841	0.05367795

Kuiper V value	0.235 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.534598056	0.063113437
Sierra Madre	0.015799187	0.013226224
CMB	0.300660681	0.082995123
Rawlins Uplift	0.148942077	0.096342749

KS D value	0.137 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.353728164	0.068433106
Sierra Madre	0.019030144	0.014230639
CMB	0.428317639	0.092575976
Rawlins Uplift	0.198924053	0.131389755

RR2_20

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.688 +/- 0	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.233708585	0.22553546
Sierra Madre	0.24281913	0.241586572
CMB	0.027386765	0.014557494
Rawlins Uplift	0.49608552	0.2606122

Kuiper V value	0.237 +/- 0.002	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.048317979	0.035401522
Sierra Madre	0.154539909	0.036791073
CMB	0.375026051	0.064508476
Rawlins Uplift	0.422116061	0.083695341

KS D value	0.144 +/- 0.001	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.499239267	0.035449091
Sierra Madre	0.067121442	0.045668148
CMB	0.107859075	0.069823274
Rawlins Uplift	0.325780216	0.096817157

RR1_20

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.202 +/- 0	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.150771472	0.222411531
Sierra Madre	0.159331934	0.237917008
CMB	0.000894176	0.000809733
Rawlins Uplift	0.689002417	0.301924665

Kuiper V value	0.121 +/- 0.002	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.156272157	0.047143216
Sierra Madre	0.0230227	0.017899605
CMB	0.248063642	0.079360318
Rawlins Uplift	0.572641501	0.108224895

KS D value	0.075 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.301868776	0.060251908
Sierra Madre	0.032661217	0.024740808
CMB	0.134928682	0.085450255
Rawlins Uplift	0.530541324	0.14291936

NFT2_18

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.631 +/- 0	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.235971345	0.237351726
Sierra Madre	0.24367733	0.250395949
CMB	0.038810316	0.021382531
Rawlins Uplift	0.481541009	0.265029526

Kuiper V value	0.178 +/- 0.002	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.04094896	0.031840421
Sierra Madre	0.098741983	0.036870041

CMB	0.31960775	0.068067442
Rawlins Uplift	0.540701308	0.097858921

KS D value	0.102 +/- 0.001	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.245639404	0.033927636
Sierra Madre	0.0629206	0.041924415
CMB	0.156809491	0.106094873
Rawlins Uplift	0.534630505	0.151635313

MD1_20

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.017 +/- 0	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.14467451	0.199799928
Sierra Madre	0.146895122	0.199060999
CMB	0.707564583	0.247599119
Rawlins Uplift	0.000865786	0.000701465

Kuiper V value	0.487 +/- 0.001	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.253455339	0.049278895
Sierra Madre	0.0267171	0.024041688
CMB	0.681762449	0.063997025
Rawlins Uplift	0.038065112	0.03356176

KS D value	0.478 +/- 0.001	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.014621254	0.015871068
Sierra Madre	0.018645279	0.018632148
CMB	0.953049545	0.024450687
Rawlins Uplift	0.013683922	0.015764201

MCP-16

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	
Cross-correlation	0.337 +/- 0	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.201355887	0.269436278
Sierra Madre	0.147578151	0.224242399
CMB	0.650134915	0.310039095
Rawlins Uplift	0.000931047	0.000818456
Kuiper V value	0.404 +/- 0.002	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.026329663	0.02559257
Sierra Madre	0.029907896	0.026290671
CMB	0.372044511	0.13122204
Rawlins Uplift	0.57171793	0.161406137
KS D value	0.21 +/- 0.002	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.071752809	0.067476597
Sierra Madre	0.052330435	0.047869989
CMB	0.185093655	0.093781944
Rawlins Uplift	0.690823101	0.163143114

HOR-16

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	
Cross-correlation	0.595 +/- 0	

Sample Names	Relative Contribution	Standard Deviation
Uintas	0.157714869	0.237060949
Sierra Madre	0.186003841	0.23984418
CMB	0.655205502	0.300020026
Rawlins Uplift	0.001075789	0.000884118

Kuiper V value	0.362 +/- 0.002	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.010145953	0.011125149
Sierra Madre	0.008182874	0.007925834
CMB	0.160899852	0.124639662
Rawlins Uplift	0.820771322	0.132405765

KS D value	0.196 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.075317686	0.060874727
Sierra Madre	0.089072865	0.030559651
CMB	0.060010046	0.055674955
Rawlins Uplift	0.775599404	0.093005903

FH3_18

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.574 +/- 0	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.262032762	0.214413187
Sierra Madre	0.252916146	0.21256984
CMB	0.325893072	0.164204013
Rawlins Uplift	0.15915802	0.080384565

Kuiper V value	0.115 +/- 0.005	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.032800262	0.02854851
Sierra Madre	0.023676869	0.019932841
CMB	0.326254114	0.075058981

Rawlins Uplift	0.617268756	0.091125482

KS D value	0.079 +/- 0.005	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.039027699	0.033657905
Sierra Madre	0.024257942	0.017221256
CMB	0.487947171	0.079084034
Rawlins Uplift	0.448767188	0.100420444

CR-148-16

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.298 +/- 0	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.277749942	0.229516951
Sierra Madre	0.277103392	0.211833709
CMB	0.157280848	0.085130565
Rawlins Uplift	0.287865818	0.155526197

Kuiper V value	0.176 +/- 0.004	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.019083283	0.016999336
Sierra Madre	0.021564854	0.020937582
CMB	0.24897729	0.092467058
Rawlins Uplift	0.710374572	0.104351177

KS D value	0.097 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.042990741	0.040636495
Sierra Madre	0.038329744	0.034153909
CMB	0.267937822	0.08315451
Rawlins Uplift	0.650741693	0.119730152

CC-16

Results_export_1	Results_export_2	Results_export_3

Results of Monte Carlo unmixing model
wghtings applied to PDPs and CDFs

number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.312 +/- 0	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.164142263	0.231606538
Sierra Madre	0.147584988	0.218684811
CMB	0.687333641	0.278040602
Rawlins Uplift	0.000939108	0.000716869

Kuiper V value	0.368 +/- 0.002	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.012708844	0.011991967
Sierra Madre	0.022567226	0.02444767
CMB	0.014900739	0.015691867
Rawlins Uplift	0.949823191	0.030033241

KS D value	0.213 +/- 0.006	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.052516238	0.050349054
Sierra Madre	0.269171328	0.036144624
CMB	0.065751339	0.059351545
Rawlins Uplift	0.612561095	0.089325542

BC2_18

Results_export_1 Results_export_2 Results_export_3

Results of Monte Carlo unmixing model
wghtings applied to PDPs and CDFs

number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.703 +/- 0	
Sample Names	Relative Contribution	Standard Deviation

Uintas	0.289063484	0.241129399
Sierra Madre	0.236105084	0.192842891
CMB	0.311081685	0.163138237
Rawlins Uplift	0.163749747	0.085856096

Kuiper V value	0.19 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.008316124	0.008417817
Sierra Madre	0.014608513	0.015633726
CMB	0.019143442	0.020151859
Rawlins Uplift	0.957931921	0.028627769

KS D value	0.113 +/- 0.004	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.017047816	0.020624627
Sierra Madre	0.018744778	0.021984679
CMB	0.12492867	0.090516816
Rawlins Uplift	0.839278736	0.118439469

19-VC-395

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.328 +/- 0	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.262203171	0.251179868
Sierra Madre	0.272061114	0.230412132
CMB	0.312307632	0.177096103
Rawlins Uplift	0.153428084	0.08701529

Kuiper V value	0.171 +/- 0.002	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.014071501	0.014451999
Sierra Madre	0.008690442	0.007986962
CMB	0.05708931	0.058766599
Rawlins Uplift	0.920148747	0.060670249

KS D value	0.091 +/- 0.003	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.023887909	0.027265893
Sierra Madre	0.013436946	0.014244683
CMB	0.047993233	0.040299675
Rawlins Uplift	0.914681912	0.065741251

19-HR-392

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.43 +/- 0	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.267044526	0.238365841
Sierra Madre	0.26988263	0.232090423
CMB	0.35109033	0.189109138
Rawlins Uplift	0.111982515	0.060166276

Kuiper V value	0.208 +/- 0.004	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.0194388	0.016644719
Sierra Madre	0.086490688	0.052984591
CMB	0.018507206	0.018247953
Rawlins Uplift	0.875563306	0.052162233

KS D value	0.119 +/- 0.006	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.048075803	0.043866627
Sierra Madre	0.113361832	0.030868521
CMB	0.043351995	0.042443094
Rawlins Uplift	0.795210369	0.067956223

17-BF-001

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		

wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.412 +/- 0	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.221036224	0.223910272
Sierra Madre	0.236431981	0.234345307
CMB	0.030476813	0.015625806
Rawlins Uplift	0.512054982	0.264361152

Kuiper V value	0.185 +/- 0.005	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.02923469	0.024525917
Sierra Madre	0.258869511	0.055298429
CMB	0.035249934	0.030149381
Rawlins Uplift	0.676645865	0.055895822

KS D value	0.107 +/- 0.007	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.056560686	0.049342315
Sierra Madre	0.32345625	0.02915071
CMB	0.072400151	0.062277062
Rawlins Uplift	0.547582913	0.086925178

5-SC_18

Results_export_1	Results_export_2	Results_export_3
Results of Monte Carlo unmixing model		
wghtings applied to PDPs and CDFs		
number of grains in each trial=	N/A	
trials=	15000	
percent accepted trials=	1	
Cross-correlation cutoff=	0	
Kuiper V value cutoff=	1	
KS D value cutoff=	1	

Cross-correlation	0.554 +/- 0	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.263210677	0.22345653

Sierra Madre	0.263969293	0.209618232
CMB	0.332169195	0.169662707
Rawlins Uplift	0.140650834	0.071896351

Kuiper V value	0.16 +/- 0.002	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.019431388	0.016552213
Sierra Madre	0.010503087	0.009085087
CMB	0.233892668	0.123076714
Rawlins Uplift	0.736172858	0.121793742

KS D value	0.09 +/- 0.005	
Sample Names	Relative Contribution	Standard Deviation
Uintas	0.064938868	0.061239129
Sierra Madre	0.042599668	0.039065087
CMB	0.328474371	0.085589233
Rawlins Uplift	0.563987093	0.141947087

Archean (3.5-2.5 Ga)

Representative of the Archean Wyoming province (Fig. 8), these sediments came from north of the Cheyenne belt, predominantly from basement-cored, Laramide structures, especially the Sierra Madre, or as grains recycling from earlier detritus like the Uinta Mountains. In the late Mesoproterozoic and into the Neoproterozoic, a failed rift created accommodation that provided regional catchment for sediments from both the north and east. This aulacogen, which has since inverted into the Uinta Mountains, makes up both the Uinta Mountain Group and Big Cottonwood Formations (Mueller et al., 2007; Dehler et al., 2010). From the north, sediments were likely sourced directly out of the Wyoming province, whereas from the east, they came from a major transcontinental fluvial system issuing out of the recently uplifted Grenville-Llano province (Rainbird et al., 2012, and sources therein). This westward flowing system cut across the accreted Yavapai and Mazatzal provinces, as well as the intruded anorogenic (A-type) granitic pluton provinces, before running through the southern reaches of the Superior, Trans-Hudson and Wyoming provinces, parallel with the trend of the Cheyenne Belt and the western fabric of the Paleoproterozoic accreted terranes (Hoffman, 1991; Ball and Farmer, 1998; Condie et al., 2001; Mueller et al., 2007; Whitmeyer and Karlstrom, 2007; Dehler et al., 2010; Rainbird et al., 2012). Accordingly, any Archean grains recycling out of the Uinta Mountains may have been sourced both proximally from the Wyoming province, or more distally from the Superior province by way of the Mesoproterozoic transcontinental fluvial system.

Late Paleoproterozoic (1.8-1.6 Ga)

This age range reflects ages in line with sediments originating south of the Cheyenne belt from the Yavapai (1.8–1.7 Ga) and Mazatzal (1.7–1.65 Ga) provinces (Hoffman, 1989; Whitmeyer and Karlstrom, 2007; Gehrels et al., 2011; Laskowski et al., 2013; Lynds and Xie, 2019). For grains not weathering out of the Sierra Madre adjacent to the basin (Lynds and Xie, 2019), the Aspen paleoriver, originally proposed by Smith et al. (2014), is the likely mechanism by which these grains were transported north leading up to and during the early Eocene (Hammond et al., 2019). It should also be noted that, though a less likely source, grains of this age are also in the Belt Supergroup of Montana, Idaho, and Canada as recycled Laurentian sediments (Ross and Villeneuve, 2003; Link et al., 2007; Lewis et al., 2010). Sourcing these ages from the Belt Supergroup is less likely, however, as the Belt Supergroup is both further away and separated by topographic highs that would have prevented fluvial transport south during the Eocene. Additionally, paleocurrent indicators associated with Yavapai-Mazatzal age populations are predominantly to the north and northwest (Figs. 3 & 6).

Mesoproterozoic (1.48-1.34 Ga)

These zircons were most likely sourced directly from A-type igneous rocks emplaced south of the Cheyenne belt in central Colorado (and across Laurentia) between 1330 and 1480 Ma (Van Schmus et al., 1996). As with Yavapi-Mazatzal-aged grains, the most likely mechanism of transport to the GGRB was the Aspen paleoriver prior to and during the early Eocene (Hammond et al., 2019). There are also two potential sources for second-order recycling of 1340 and 1480 Ma ages. The first is out of the Uinta Mountains which originally received these grains from the Mesoproterozoic trans-continental fluvial system previously discussed (Mueller et al., 2007; Dehler et al., 2010; Rainbird et al., 2012; Yonkee et al., 2014). The second is the recycling of grains out of the “Nugget Erg” that potentially covered the area in the early Jurassic having since eroded (Dickinson and Gehrels, 2003, 2009a). In addition, it should be noted that, like Yavapai-Mazatzal ages, these ages are also found in the Belt-Purcell Supergroup of Montana, Idaho, and Canada (Ross and Villeneuve, 2003). Due to proximity and paleogeographic reconstructions, however, we consider this source less likely than those previously mentioned.

Middle-Late Mesoproterozoic (1200—975 Ma)

These ages are associated with the Grenville-Llano province and are most likely recycled out of the Uinta Mountains reaffirming the aforementioned Mesoproterozoic trans-continental fluvial system (Mueller et al., 2007; Dehler et al., 2010; Rainbird et al., 2012; Yonkee et al., 2014). Other potential sources include recycling out Proterozoic through Mesozoic siliciclastic strata of the Sevier orogenic belt (DeCelles, 2004; Dickinson and Gehrels, 2008; Lawton et al., 2010; Lawton and Bradford, 2011; Leier and Gehrels, 2011) and recycling of the aforementioned early Jurassic “Nugget Erg” (Dickinson and Gehrels, 2003, 2009a).

Permian-mid Cretaceous (290—75 Ma)

Ages in this range are associated with the Cordilleran Magmatic Arc (Davis et al., 2010; Laskowski et al., 2013; Sharman et al., 2015) and are likely recycled from late Jurassic-Cretaceous sediments shed from the Cordilleran Magmatic Arc. By approximately 155 Ma, a west-facing magmatic arc was well established along the Cordilleran margin, and paleoenvironmental conditions were conducive to sediment dispersal to the east into western Wyoming (DeCelles, 2004; May et al., 2013). Zircon ages indicative of a Cretaceous dispersal system from a west facing Cretaceous magmatic arc are well documented in the Bighorn basin in sediment packages like the Cloverly, Muddy, Mowry, Frontier, Cody Shale and Mesa Verde Formations (May et al., 2013). The presence of these strata in the GGRB suggest similar DZ signatures there as well (May et al., 2013). In a study done by Laskowski et al. (2013), 12% of the grains from sample EM6 taken from the Rock Springs Formation plot between 75 and 290 Ma. The Uinta Uplift exposes a much larger Paleozoic-Cretaceous package including the Mesa Verde, Mancos (Cody Shale equivalent), Frontier and Mowry formations (Bruhn et al., 1989; Roehler, 1990; Mederos et al., 2005). The Mesozoic and some unknown fraction of the Paleozoic ages in our samples are therefore interpreted to be recycled from these, and previously existing, uplifted strata.

Late Cretaceous to Eocene (75-50 Ma)

The primary source for these ages is the CMB of central Colorado (Hammond et al., 2019). The CMB is a northeast/southwest-trending belt of plutons extending ~500 km, emplaced from ca. 75 to 0 Ma (Fig. 1; Bookstrom, 1990; Chapin et al., 2004; Klein et al., 2010; Chapin, 2012; Gonzales, 2015; Pecha et al., 2018). Other, less likely sources include the Challis and Absaroka volcanic fields to the north and the Laramide plutonic and volcanic strata of northern Mexico, all of which were associated with Laramide tectonism and active at that time. The Challis volcanics are a complex assortment of both intrusive and extrusive igneous deposits throughout eastern Idaho that were emplaced between ~50 and ~47 Ma (Chetel et al., 2011 and sources therein). The Absaroka volcanics of northwestern Wyoming and southwestern Montana erupted between ~55 and ~44 Ma (Smedes and Prostka, 1972; Hiza, 1999; Chetel et al., 2011). The coastal Sonora batholith of northern Mexico comprises a series of Cretaceous-Paleogene granitoids emplaced ca. ~90-40 Ma (Ramos-Velázquez et al., 2008). The related Tarahumara Formation of northern Mexico is composed of volcanic, volcaniclastic, pyroclastic and plutonic strata ranging in age from ~79 to 50 Ma (González-León et al., 2011; Lawton and Bradford, 2011). Ages related to these Sonoran sources have been interpreted in Rocky Mountain Laramide basins including the Piceance and San Juan (Foreman and Rasmussen, 2016; Pecha et al., 2018).

In their assessment of the Paleocene-Eocene Wasatch formation of the Piceance Basin in Northeastern CO, Foreman and Rasmussen (2016) interpret Cretaceous and Paleogene DZ grains as being reworked out of Cretaceous sediments including the Williams Fork Formation and Mancos Shale overlying the Sawatch and Uncompaghre uplifts, and hypothesize that these grains originated in the Tarahumara formation of Northern Mexico. Despite K-S test statistical similarities recognized between the Wasatch, the overlying GRF and the CMB, Foreman and Rasmussen argue against the standing hypothesis that these ages would have come from the more proximal CMB, noting a lack of igneous clasts in the conglomeratic facies of both the Wasatch and underlying Paleocene Ohio Creek formations as the principal reason. They posit that, relative to the underlying Williams Fork Formation, increased similarity of the Wasatch formation to the CMB can be accounted for by recycling of additional Tarahumara-derived grains out the Mancos shale without erosion of the crystalline basement and the actively intruding CMB—though they offer little discussion of these grain's potential journey north in the first place. Assuming, however, this to be true, a similar explanation cannot be extended north of the Uinta Uplift for the late Cretaceous and Paleocene ages found in the Green River Formation (this study). There, late Cretaceous strata including the Rock Springs Formation and the Ericson Formation lack Maastrichtian ages to begin (Laskowski et al., 2013; Leary et al., 2015).

Moreover, when we consider that the Mancos shale was deposited from the Cenomanian through the Campanian (Stroker et al., 2013), which only overlaps the noted 50-75 Ma DZ peaks by a few million years and would thus only capture the oldest (>72.1 Ma) ages. Increased recycling out of the Mancos could therefore feasibly only account for peaks >72.1 Ma but fails to account for the notable ~66 Ma peak reported. By this metric, only recycling of the Williams Fork can account for grains between 66 Ma and 72.1 Ma, and neither grains originally deposited in the Williams Fork nor the Mancos Shale can account for DZ ages <66 Ma. Recycling could therefore conceivably account for some early Laramide grains, but is impermissible for the prominent Paleocene peaks recognized in this study (Fig. 6). The presence of these younger peaks, therefore, complicates the scenario proposed by Foreman et al., because it demonstrates an alternative source of Laramide-age DZ, sourced from the CMB.

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Appendix A7

UW Museum #	Field Sample	Abbreviated Sample Name	Sample Type	Description	Location		Figured in
					Latitude°	Longitude°	
UW2053 / 1.2	2016-5-SC	5SC	Billet		41.28994795	-109.3996372	
UW2053 / 1.3	2016-5-SC	5SC	DZ Puck		41.28994795	-109.3996372	Figures 6 & 7
UW2053 / 1.1	2016-5-SC	5SC	Thin Section	Arkosic Arenite	41.28994795	-109.3996372	Figure 4
UW2053 / 2	2018-CM-1	CM1	Thin Section	Arkosic Arenite	40.562565	-106.445652	Figure 4
UW2053 / 3.2	2018-CM-2	CM2	Billet		40.694115	-106.40873	
UW2053 / 3.3	2018-CM-2	CM2	DZ Puck		40.694115	-106.40873	Figures 6 & 7
UW2053 / 3.1	2018-CM-2	CM2	Thin Section	Arkosic Arenite	40.694115	-106.40873	Figure 4
UW2053 / 4	2018-MP-1	MP1	Thin Section	Arkosic Arenite	40.192536	-106.027159	Figure 4
UW2053 / 5	2018-MP-2	MP2	Thin Section	Arkosic Arenite	40.286849	-106.081906	Figure 4
UW2053 / 6	2018-MP-3	MP3	Thin Section	Arkosic Arenite	40.322398	-106.068997	Figure 4
UW2053 / 7	BC1_18	BC1	Thin Section	Subarkose	41.11569485	-108.5579078	Figure 4
UW2053 / 8.2	BC2_18	BC2	Billet		41.11635813	-108.5597383	
UW2053 / 8.3	BC2_18	BC2	DZ Puck		41.11635813	-108.5597383	Figures 6 & 7
UW2053 / 8.1	BC2_18	BC2	Thin Section	Arkosic Arenite	41.11635813	-108.5597383	Figure 4
UW2053 / 9	BC3_18	BC3	Thin Section	Arkosic Arenite	41.1173119	-108.5609652	Figure 4
UW2053 / 10	BC4_18	BC4	Thin Section	Arkosic Arenite	41.11656922	-108.5613264	Figure 4
UW2053 / 11	FH1_18	FH1	Thin Section	Arkosic Arenite	41.35140552	-109.4131602	Figure 4
UW2053 / 12	FH2_18	FH2	Thin Section	Arkosic Arenite	41.35148223	-109.4131604	Figure 4
UW2053 / 13.2	FH3_18	FH3	Billet		41.35173443	-109.4132338	
UW2053 / 13.3	FH3_18	FH3	DZ Puck		41.35173443	-109.4132338	Figures 6 & 7
UW2053 / 13.1	FH3_18	FH3	Thin Section	Arkosic Arenite	41.35173443	-109.4132338	Figure 4
UW2053 / 13	FH4_18	FH4	Thin Section	Arkosic Arenite	41.35179193	-109.4132227	Figure 4
UW2053 / 14	LMRC1_18	LMRC1	Thin Section	Sublithic Arenite	41.06796522	-109.28535	Figure 4
UW2053 / 15.2	LMRC2_18	LMRC2	Billet		41.06795933	-109.2854359	
UW2053 / 15.3	LMRC2_18	LMRC2	DZ Puck		41.06795933	-109.2854359	Figures 6 & 7
UW2053 / 15.1	LMRC2_18	LMRC2	Thin Section	Sublithic Arenite	41.06795933	-109.2854359	Figures 4 & 5
UW2053 / 16	LMRC3_18	LMRC3	Thin Section	Quartz Arenite	41.06794368	-109.2855451	Figure 4
UW2053 / 17	MD1_20	MD1	Thin Section		41.4095897	-108.0560462	
UW2053 / 18	NFT1_18	NFT1	Thin Section	Arkosic Arenite	41.22462093	-107.8093396	Figure 4
UW2053 / 19.2	NFT2_18	NFT2	Billet		41.22446167	-107.8092895	
UW2053 / 19.3	NFT2_18	NFT2	DZ Puck		41.22446167	-107.8092895	Figures 6 & 7
UW2053 / 19.1	NFT2_18	NFT2	Thin Section	Arkosic Arenite	41.22446167	-107.8092895	Figure 4
UW2053 / 20	NFT3_18	NFT3	Thin Section	Arkosic Arenite	41.22447605	-107.8078936	Figure 4
UW2053 / 21	PL1_18	PL1	Thin Section	Subarkose	41.03407253	-109.522656	Figure 4
UW2053 / 22	PL2_18	PL2	Thin Section	Arkosic Arenite	41.03408485	-109.5226609	Figure 4
UW2053 / 23.2	PL3_18	PL3	Billet		41.03392515	-109.5227177	
UW2053 / 23.3	PL3_18	PL3	DZ Puck		41.03392515	-109.5227177	Figures 6 & 7
UW2053 / 23.1	PL3_18	PL3	Thin Section	Subarkose	41.03392515	-109.5227177	Figure 4
UW2053 / 24	PL4_18	PL4	Thin Section	Subarkose	41.03375358	-109.5225774	Figure 4
UW2053 / 25	PL5_18	PL5	Thin Section	Subarkose	41.03358099	-109.5229395	Figure 4
UW2053 / 26	RR1_20	RR1	Thin Section		41.4334077	-107.9934752	
UW2053 / 27	RR2_20	RR2	Thin Section		41.43338106	-107.9945224	
UW2053 / 28	SB1_18	SB1	Thin Section	Arkosic Arenite	41.07672568	-108.8607805	Figure 4
UW2053 / 29	SB2_18	SB2	Thin Section	Arkosic Arenite	41.07741117	-108.8620586	Figure 4
UW2053 / 30.2	SB3_18	SB3	Billet		41.07730805	-108.8637856	
UW2053 / 30.3	SB3_18	SB3	DZ Puck		41.07730805	-108.8637856	Figures 6 & 7
UW2053 / 30.1	SB3_18	SB3	Thin Section	Arkosic Arenite	41.07730805	-108.8637856	Figure 4
UW2053 / 31	SB4_18	SB4	Thin Section	Arkosic Arenite	41.09007227	-108.8710199	Figure 4
UW2053 / 32	SB5_18	SB5	Thin Section	Subarkose	41.08978548	-108.8714605	Figure 4
UW2053 / 33	SB6_18	SB6	Thin Section	Subarkose	41.06053145	-108.9126001	Figure 4
UW2053 / 34.2	SB7_18	SB7	Billet		41.06047438	-108.9126273	
UW2053 / 34.3	SB7_18	SB7	DZ Puck		41.06047438	-108.9126273	Figures 6 & 7
UW2053 / 34.1	SB7_18	SB7	Thin Section	Subarkose	41.06047438	-108.9126273	Figure 4
UW2053 / 35.2	SC1_18	SC1	Billet		41.28994795	-109.3996372	

UW2053 / 35.3	SC1_18	SC1	DZ Puck		41.28994795	-109.3996372	Figures 6 & 7
UW2053 / 35.1	SC1_18	SC1	Thin Section	Arkosic Arenite	41.28994795	-109.3996372	Figure 4
UW2053 / 36	SC2_18	SC2	Thin Section	Arkosic Arenite	41.28950832	-109.4002018	Figure 4
UW2053 / 37	SC3_18	SC3	Thin Section	Arkosic Arenite	41.2895587	-109.4000938	Figure 4
UW2053 / 38	SC4_18	SC4	Thin Section	Arkosic Arenite	41.28969928	-109.4000367	Figures 4 & 5
UW2053 / 39	SC5_18	SC5	Thin Section	Arkosic Arenite	41.28956443	-109.4001371	Figure 4
UW2053 / 40	SpCr1_18	SpCr1	Thin Section	Sublithic Arenite	41.04101407	-109.4112796	Figure 4
UW2053 / 41	SpCr2_18	SpCr2	Thin Section	Sublithic Arenite	41.04088417	-109.4111688	Figure 4
UW2053 / 42	SpCr3_18	SpCr3	Thin Section	Subarkose	41.0408309	-109.4113826	Figure 4
UW2053 / 43	SpCr4_18	SpCr4	Thin Section	Subarkose	41.04063773	-109.4114497	Figure 4

Appendix B

(Chapter 2)

CAPTIONS

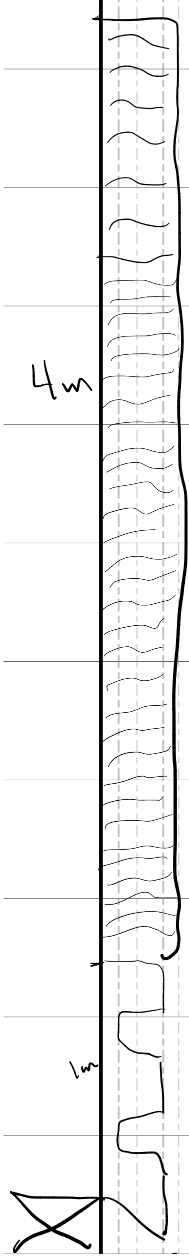
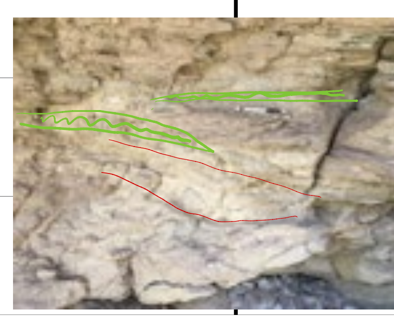
Appendix B1

Measured stratigraphic sections

Location: FHD 41.35172, -109.41271 = Locality 1 incline

Stratigraphers = Ethan & Daven

Date: 7-24-20

Scale	Carbonates: Mud, Wacke, Pack, Grain, Bound, Xtalline Mud, Sand, Gravel Clay, Silt, vF, F, M, C, vC, Gran, Peb, Cob, Bould	Lithology	Sed Structures/Notes	Photo/GPS reference
4m 1m		SS SS w/ ms lens	- surface? - thicker (cm-dm-scale) laminations - symmetrical laminations - wavy-planar (cm-scale) laminations - 1-10s m ms lenses (dm-scale) - erosional surface	  

Location: FHD 41.35172, -109.41271 = Locality 1 incline

Stratigraphers = Ethan + Dawn

Date: 7-24-20

Scale	Grain size (Carbonates: Mud, Wacke, Pack, Grain, Bound, Xtalline; Mud: Clay, Silt; Sand: vF, F, M, C, vC; Gravel: Gran, Peb, Cob, Bould)	Lithology	Sed Structures/Notes	Photo/GPS reference
1m		SS	- climbing rippled SS	
	x photo (rip up?)			
.7		Sltstn	- cm-scale bedding - oxidized mud-drapes	
.2		ms	- paleosol?	
.2		ms		
.2		SS	- massive → cm scale wavy lamination	
.2		ms	- nodular	
.2		SS	- mm-scale wavy lamination	
.8		Slt stn	- nodular siltstone	
.1				
.7		SS	- cm-scale wavy laminations - mm scale wavy laminations	
.8		ms	- nodular mudstone	

Location: FHD 41.35172, -109.41271 = Locality 1 in clives

Stratigraphers = Ethan + Daven

Date: 7-24-20

Scale	Mud / Sand / Gravel (Carbonates)	Lithology	Sed Structures/Notes	Photo/GPS reference

- dm-scale massive bodies interbedded with
- Cm-scale Wavy laminations
- mud-drapes

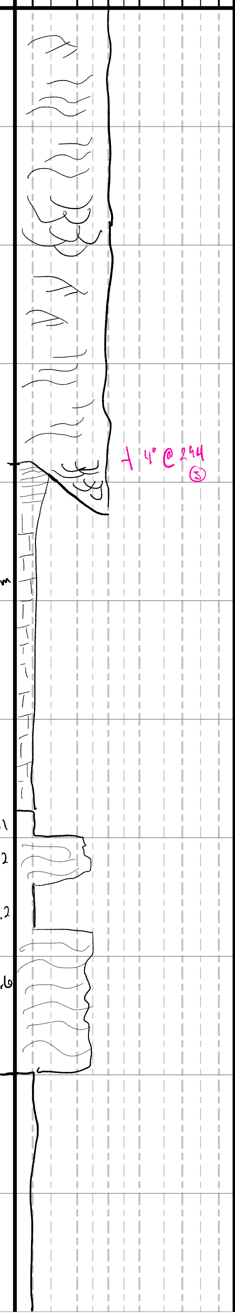
Ms
= recessed mudstone
= possible fSS lenses

SS

Location: FHD 41.35172, -109.41271 = Locality 1 in clive

Stratigraphers = Ellen + Dawn

Date: 7-24-20

Scale	Mud / Sand / Gravel (Carbonates)	Lithology	Sed Structures/Notes	Photo/GPS reference
		SS unit 2	- variable SS channels - Trough cross - ripples - climbing ripples all present - Low-angle laminations?	
		SS	m	
	↑ 4° @ 244 (5)		- dm-scale erosional base, channel cutting down below measured contact	
1.5m		silt stn	- very minor coarsening up - laminated ~ top 30cm - nodular/massive for	
		ms		
.1		ms		
.2		SS		
.2		ms		
.6		SS	- wavy vf-F SS	
		mudstone	- nodular weathering - evap textures	

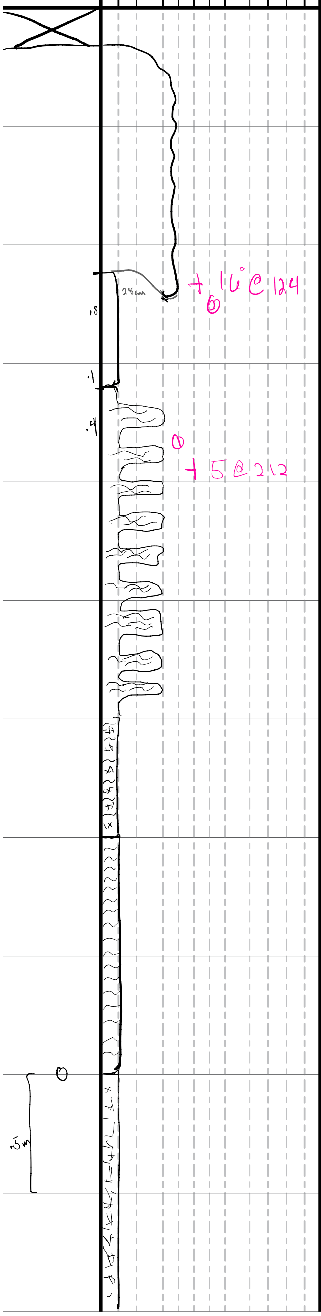
Column headings: Carbonates: Mud, Wacke, Pack, Grain, Bound, Xtalline; Mud: Clay, Silt; Sand: vF, F, M, C, vC; Gravel: Gran, Peb, Cob, Bould

Location: FHD 41.35172, -109.41271 = Locality 1 incline

Stratigraphers = Ethan & Devon

Date: 7-24-20

Scale	Carbonates: Mud, Wacke, Pack, Grain, Bound, Xtalline / Mud: Clay, Silt / Sand: vF, F, M, C, vC / Gravel: Gran, Peb, Cob, Bould	Lithology	Sed Structures/Notes	Photo/GPS reference



- vF-F ss
- Climbing ripples
- mm laminations; cm crossbed sets
- erosional base

ms

- highly weathered mudstone
- cm-Dm scale bedding w/ fine laminations occasionally visible
- lots of replacive evaporite textures

] gradational ms bed

VF SS/mudstone

- med-coarsely interlaminated mudstone & VF sand
- Laminations mm-cm scale
- VF ss: wavy
- mudstone: nodular weathering pattern

mudstone/evaporite

- interbedded (cm scale) mud & evap

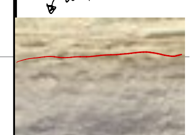
mudstone

- planar-wavy mudstone

Gypsum? evaporitic

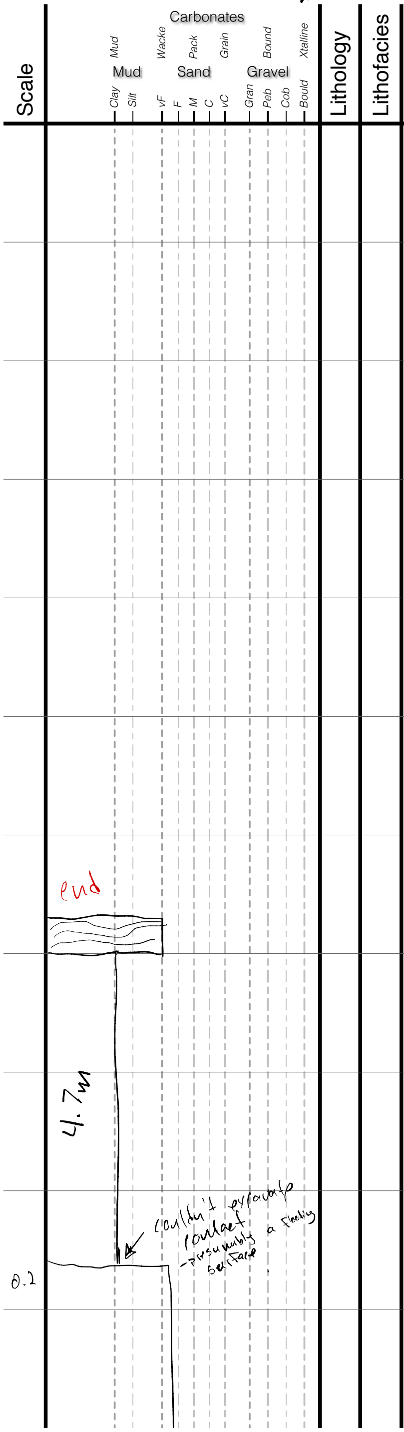
↖ starting section @ contact btwn evaporitic texture & muddy layer

- occasional mud partings



Location: Scrivener Butte, west panel A, section #1 Stratigrapher(s): Ethan

Scale: 1 vertical box = 0.5m Date: 6-6-21



Sed Structures/Notes/Photos

Fm -both uni + bi-directional ripples (cm)
-local convolute bedding (cm)
-highly indurated, calcareous

-shoreface / shallow lake?

•73

-recessed, looks muddy, mostly float from above.

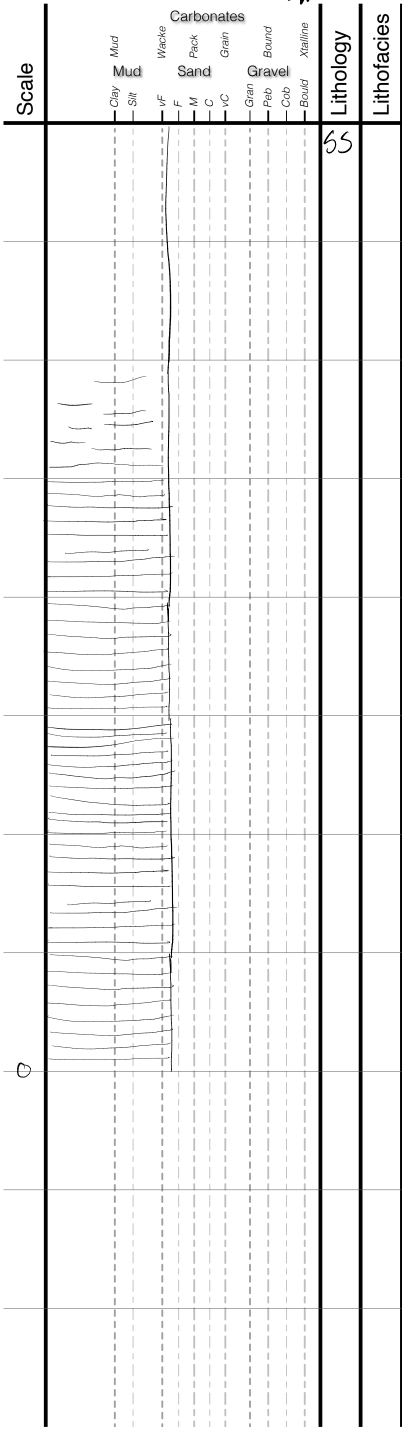
-lake

Location: Scrivener Butte, west panel A, section #1

Scale: 1 vertical box = 0.5 m

Stratigrapher(s): Ethan

Date: 6-6-21



Sed Structures/Notes/Photos

- Same sand throughout section w/ less and finer-grained mica @ base. Otherwise quality of sand pretty much the same throughout
  - VFU–FL, well sorted, sub-rounded, qtz dominant, minor Lithics + mica
  - Planar/LAL, massive where extensively bioturbated (esp. @ top sand)

- grades into more massive texture (likely bioturbation)
  - hints of same planar structures as below

•72

- M-grained mica within VFU-FL SS

increasing size + amount of mica

- Planar–LAL, mm-scale (occasional cm-scale lamina)
- VFU–FL, well sorted, subrounded
- Buff color (likely from weathering)
- minorly bioturbated...? pic
- Qz rich, minor lithics, increasing mica upsection
- locally calcareous in nodulled areas → diagenetic

- more nature than expected...

•71

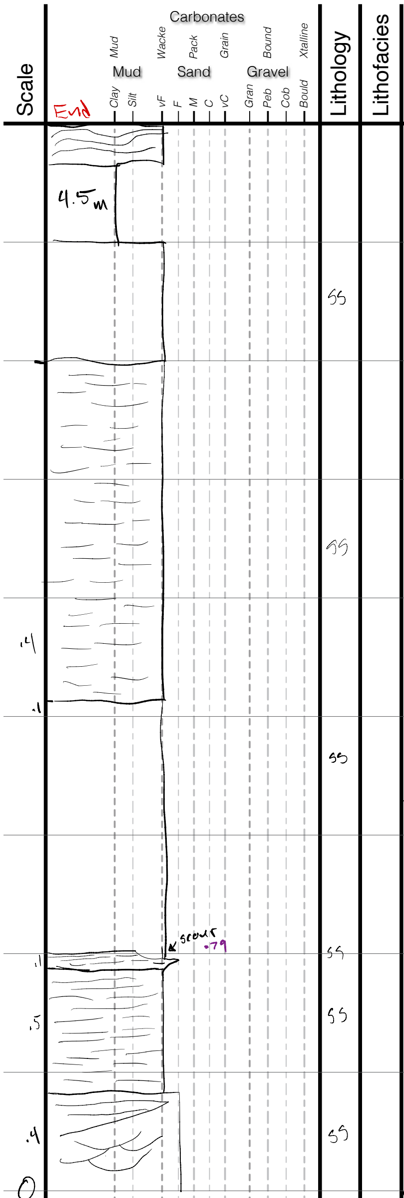
can't see contact w/underlying unit here.

Location: Scrivner Butte, W.P., #2

Stratigrapher(s): Ethan

Scale: 1 vertical box = 0.5m

Date: 6-6-21



Sed Structures/Notes/Photos

- both uni + bi-directional ripples (cm)
- local convolute bedding (cm)
- highly indurated, calcareous

- ms, covered in float

- VF, well sorted, subrounded, Qtz dominated
- M-grained mica flecks throughout, but concentrated on bedding planes
- planar and massive (local bioturbation)
- modelled, calcareous locally @ modelled texture.

- VF, well sorted, subrounded, Qtz dominated
- M-grained mica flecks throughout, but concentrated on bedding planes
- massive, root or burrows throughout •80
- modelled, calcareous locally @ modelled texture.

- planar, mm-scale, pinches out laterally both directions, micaceous

- VFL-VFU
- planar
- little-no mica, Qtz dominated

•75
- Wavy to lg wave-length TXS grading up into LAL
  ↳ cm-scale bedding
- gray color
- very micaceous, arkosic
- FU

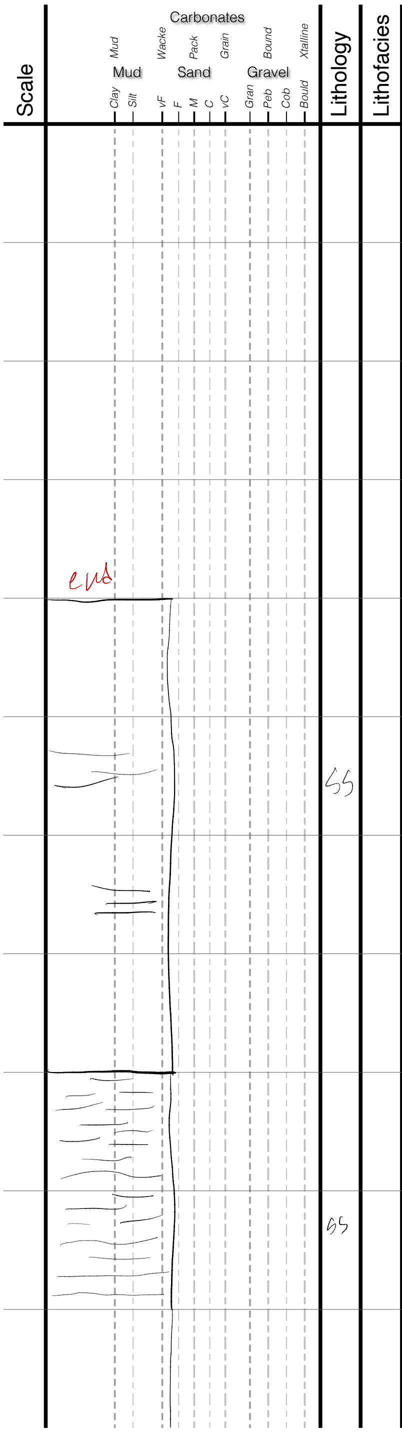
↳ unable to see/excavate underlying contact.

Location: Scrivner Butte, W.P. B Section #3

Stratigrapher(s): Ethan

Scale: 1 vertical box = 0.5m

Date: 6-6-21



Sed Structures/Notes/Photos

- massive, locally planar
= same sand character (SB Facies #1)

- planar + locally wavy
- Same sand as typical sand (SB Facies #1)

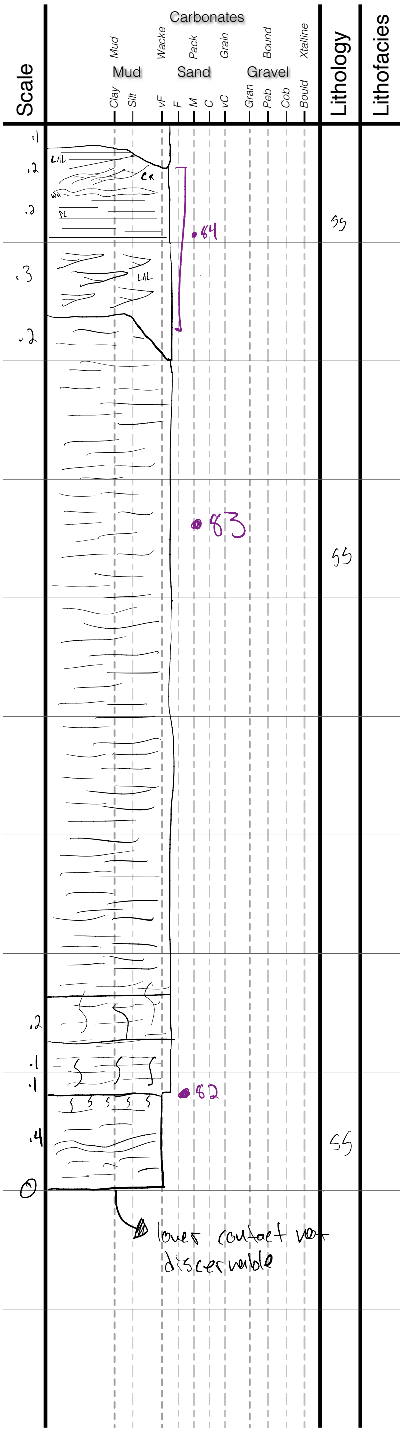
- massive fill

Location: Scrivner Butte, W.P. B Section #3

Scale: 1 vertical box = 0.5m

Stratigrapher(s): Ethan

Date: 6-6-21



Sed Structures/Notes/Photos

- massive Fill
- massive texture in the scours overlain by ~.2m LAL
- planar
- cm-mm-scale bedding
- VFU, well-sorted, Qtz-rich (primary Facies for this outcrop) SB Facies #1
- grey, unoxidized (?) layer, same sand as above & below it
- Qtz rich, planar, modelled from bioturbation
- top 5cm were indurated, nodelled (bioturbated)
- wavy - planar
- vFL-vFU, Feldspar rich, micaceous, slightly calcareous, well sorted, subangular

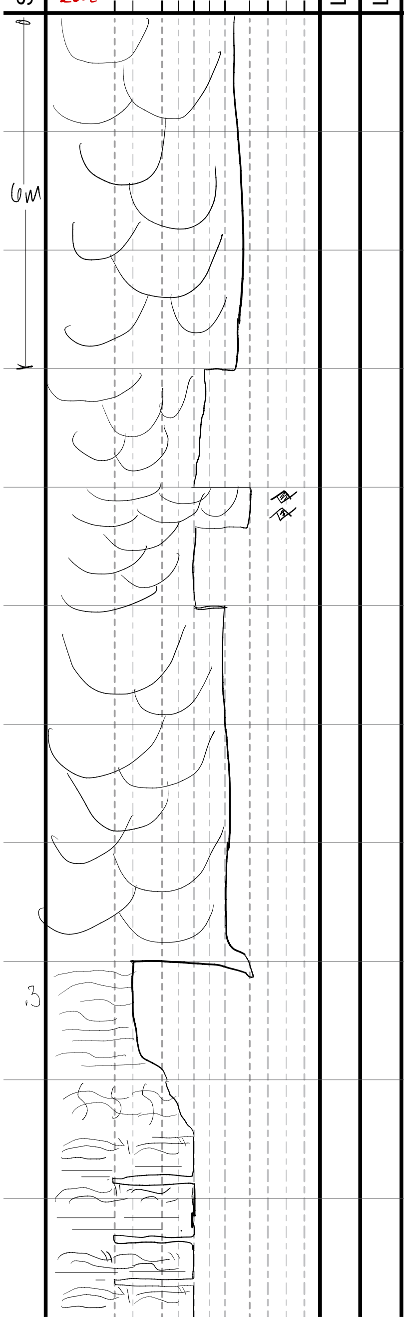
Location: SCD, section #1

Scale: 1 vertical box = 0.5m

Stratigrapher(s): Ethan

Date: 6-14-21

Scale	end	Mud: Clay, Silt / Carbonates: Mud	Sand: vF, F, M, C, vC / Carbonates: Wacke, Pack, Grain	Gravel: Gran, Peb, Cob, Bould / Carbonates: Bound, Xtalline	Lithology	Lithofacies	Sed Structures/Notes/Photos

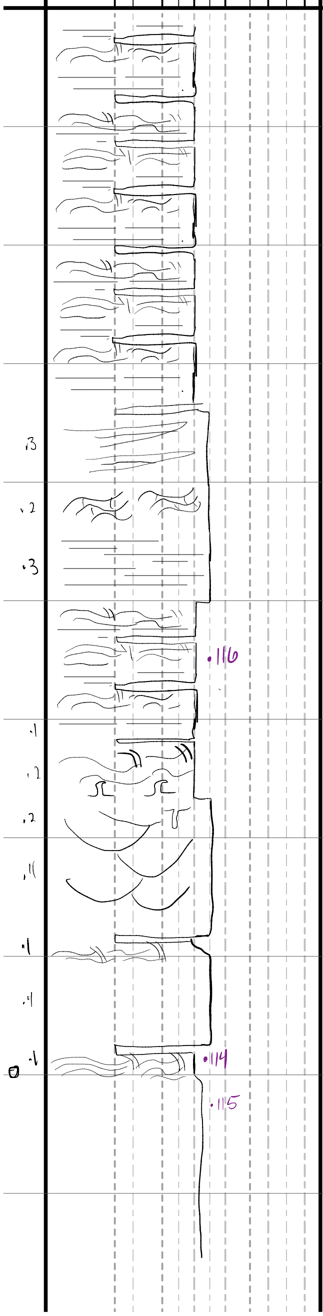


- m-gravel, TXB, channel sands
- mud intraclasts
- gravel layers
- gravel lag
- wavy-planar silt/ms
- mottled texture
- Fining SS, mottled

Location: SCD, Section #1
Scale: 1 vertical box = 0.5 m

Stratigrapher(s): Ethan
Date: 6-14-21

Scale	Carbonates: Mud, Wacke, Pack, Grain, Bound, Xtalline / Mud (Clay, Silt), Sand (vF, F, M, C, vC), Gravel (Gran, Peb, Cob, Bould)	Lithology	Lithofacies	Sed Structures/Notes/Photos



- dm-scale cycles of planar → wavy w/ mud drapes
- recessed, harder to observe

- LAL, maybe TXB

- dm-scale cycles of planar → wavy w/ mud drapes
- mud drapes look bi-directionally wavy

- planar bedding
- mud drapes, & wavy - convolute in places
- root traces in top 2 dm

- wavy, w/ mud drapes
- massive w/ vert sed dikes (cm scale)

- desert gypsum in vertical cracks

- mm-scale wavy laminations
- coarse-grained mica flecks
- black banding?
- mm-scale mud drapes

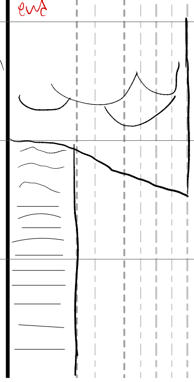
- highly mottled m-cL ss
- evidence of planar bedding

Location: SCD-A section # 2

Scale: 1 vertical box = .5m

Stratigrapher(s): EHM

Date: 6-15-21

Scale	Carbonates: Mud, Wackе, Pack, Grain, Bound, Xtalline / Mud: Clay, Silt / Sand: vF, F, M, C, vC / Gravel: Gran, Peb, Cob, Bould	Lithology	Lithofacies	Sed Structures/Notes/Photos
~6m				– 6m m-Vc TXB sands

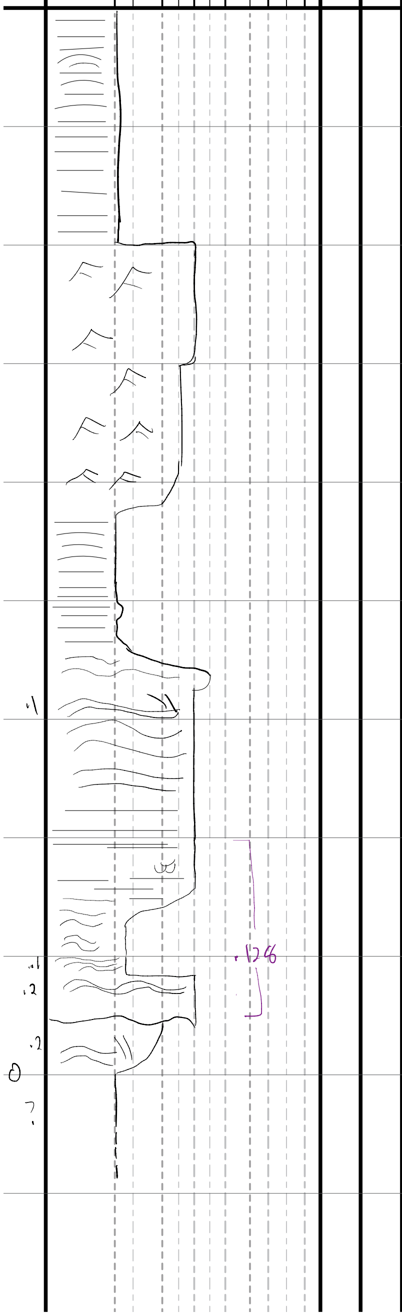
Location: SCD-A section #2

Scale: 1 vertical box = .5m

Stratigrapher(s): Ethan

Date: 6-15-21

Scale	Carbonates: Mud, Wacke, Pack, Grain, Bound, Xtalline / Mud: Clay, Silt / Sand: vF, F, M, C, vC / Gravel: Gran, Peb, Cob, Bould	Lithology	Lithofacies	Sed Structures/Notes/Photos



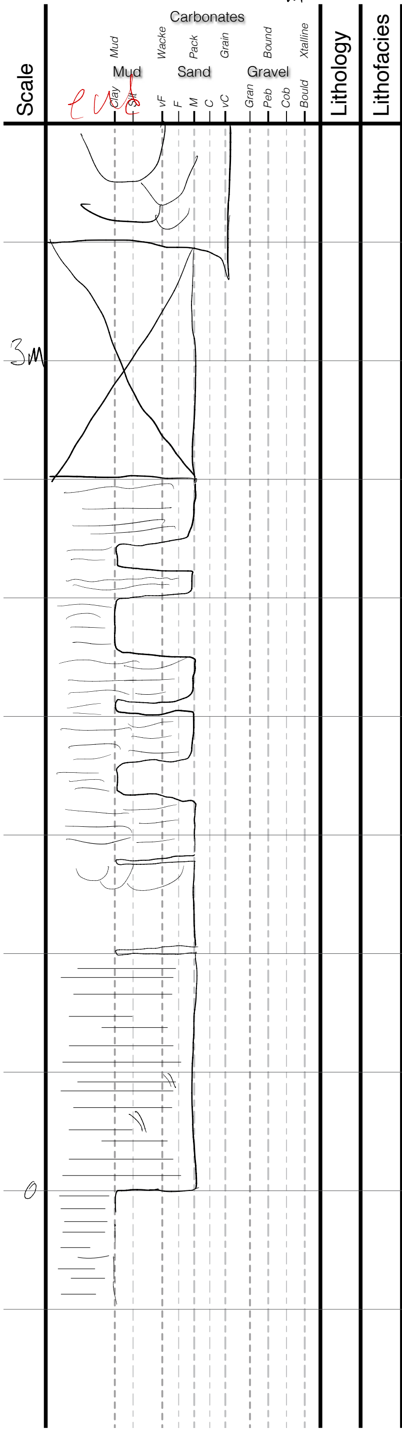
- scorpion

Location: SCD-B , section #3

Scale: 1 vertical box = .5m

Stratigrapher(s): Ethan

Date: 6-15



Sed Structures/Notes/Photos

- 3m float w/ a little bit of Med-grained massive SS poking out.

Interbedded (Dm-scale) planar-wavy sand w/ laminated fines

- very micaceous, lg flecks

- massive, faint Tyb?

unknown trace fossil in mud

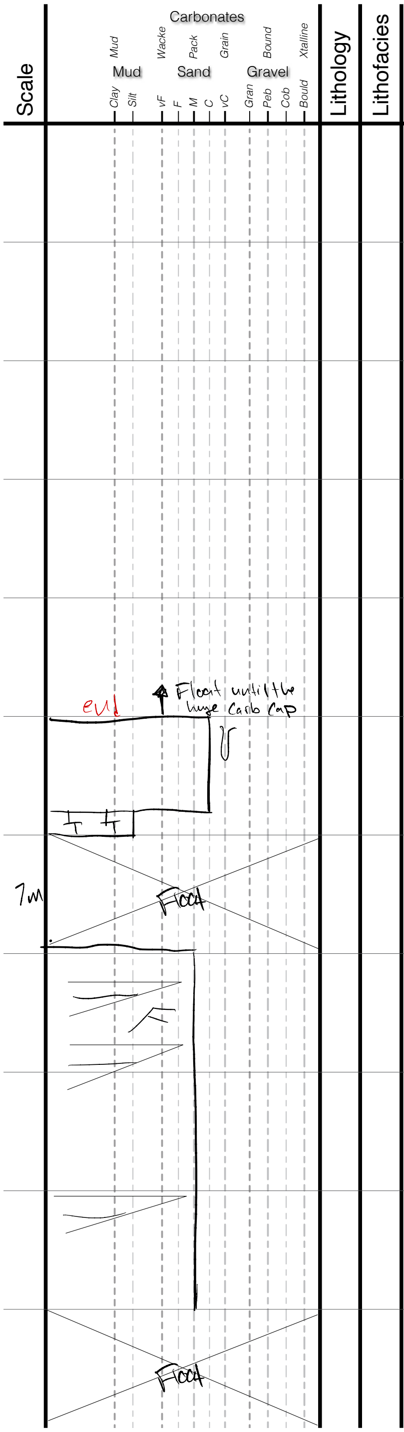
Location: Dry Piney Road; section #1

Scale: 1 vertical box = 0.5m

Note: "Dry Piney Road" = Little Mesa

Stratigrapher(s): Ethan

Date: 6-26-21



Sed Structures/Notes/Photos

-I think most of it is Fl seds

Location: Dry Piny Road; section #1
Scale: 1 vertical box = 0.5m

Stratigrapher(s): Ethan
Date: 6-26-21

Sed Structures/Notes/Photos

- presumably the same Stx/Sla (above + below)

↑ lose C-grained fraction

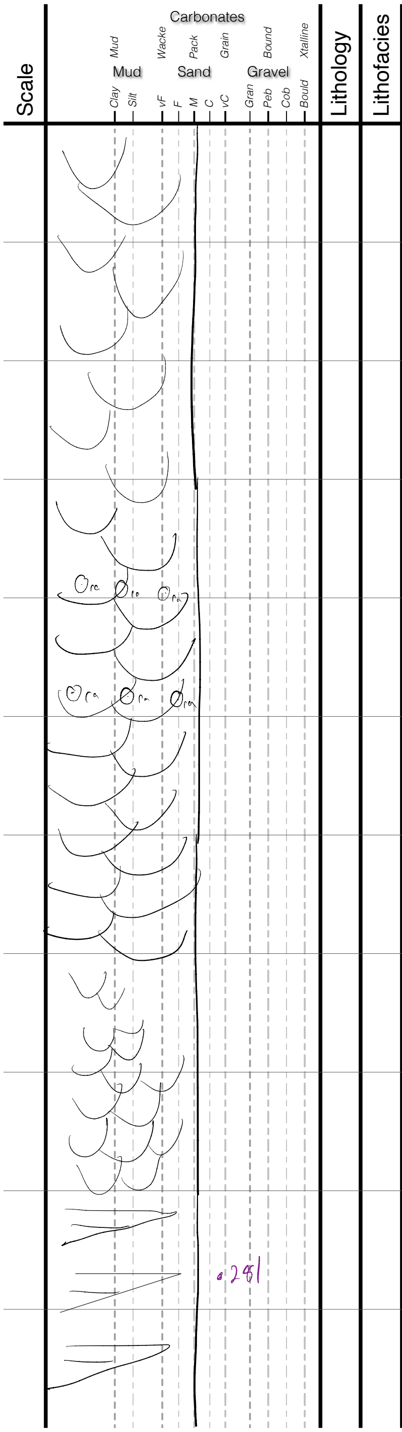
- troughs = ~6 dm (Stx lg = 50+cm)
- some sm-scale cycling of m + C-grained sand

Location: Dry Piny Road; section #1

Scale: 1 vertical box = 0.5m

Stratigrapher(s): Ethan

Date: 6-20-21



Sed Structures/Notes/Photos

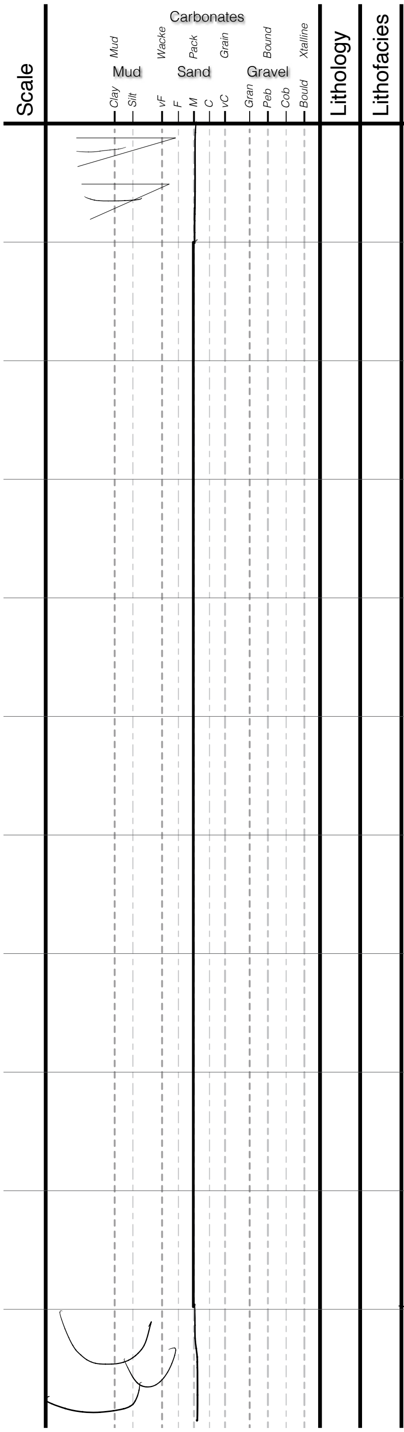
- troughs = ~ 3 dm (stx med = 10-50cm)
- some sm-scale cycling of m + C-grained sands
- poorly cemented calcite? nodules along bedding planes

- cm-scale cycles btwn m + C-grained sand
- troughs/ = ~ 1dm sets
- Stx small (5-10cm)

- sublayers grade individually from mU-mL on a dm-scale

Location: Dry Piny Road; section #1
Scale: 1 vertical box = 0.5m

Stratigrapher(s): Ethan
Date: 6-26-21



Sed Structures/Notes/Photos

- technically covered in float but likely more m. grained Stx

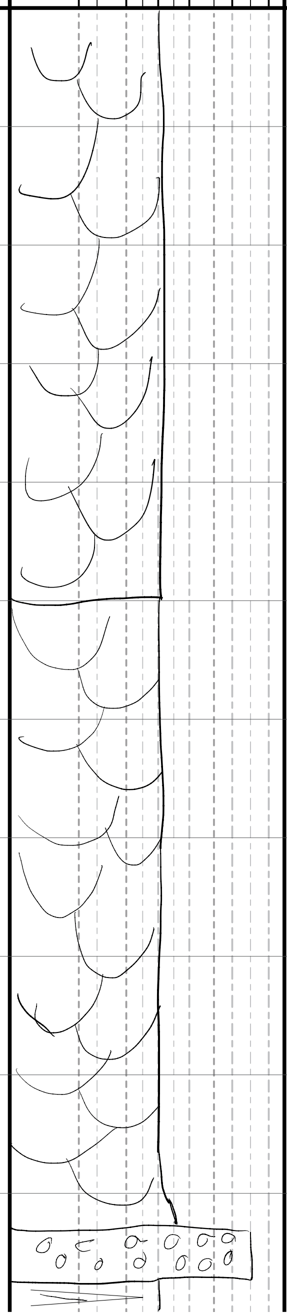
Location: Dry Piney Road; section #1

Scale: 1 vertical box = 0.5m

Stratigrapher(s): Ethan

Date: 6-26-21

Scale	Carbonates: Mud, Wacke, Pack, Grain, Bound, Xtalline / Mud (Clay, Silt), Sand (vF, F, M, C, vC), Gravel (Gran, Peb, Cob, Bould)	Lithology	Lithofacies	Sed Structures/Notes/Photos



- either m-scale tx or Sla, I think tx
- tx ~ 1m

* lateral jump

* pebble lags

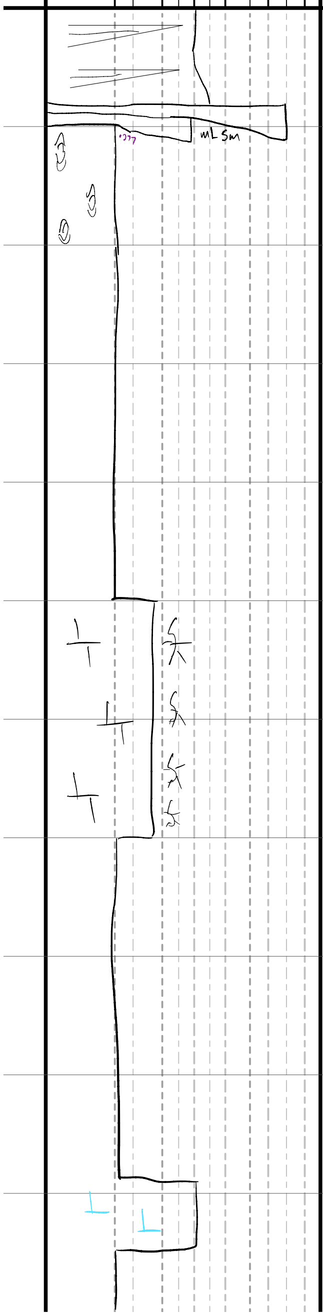
Location: Dry Piny Road; section #1

Stratigrapher(s): Ethan

Scale: 1 vertical box = 0.5m

Date: 6-20-21

Scale	Carbonates: Mud, Wacke, Pack, Grain, Bound, Xtalline / Mud: Clay, Silt / Sand: vF, F, M, C, vC / Gravel: Gran, Peb, Cob, Bould	Lithology	Lithofacies	Sed Structures/Notes/Photos



m-c Str

Significant lateral jump in section (see annotated pic)

- Intraclast roug: mudclasts

- rare roots or burrows d.f. to tell which

↑ (Study area) ↑

Float / Fl

- grey/green

- grey/green color

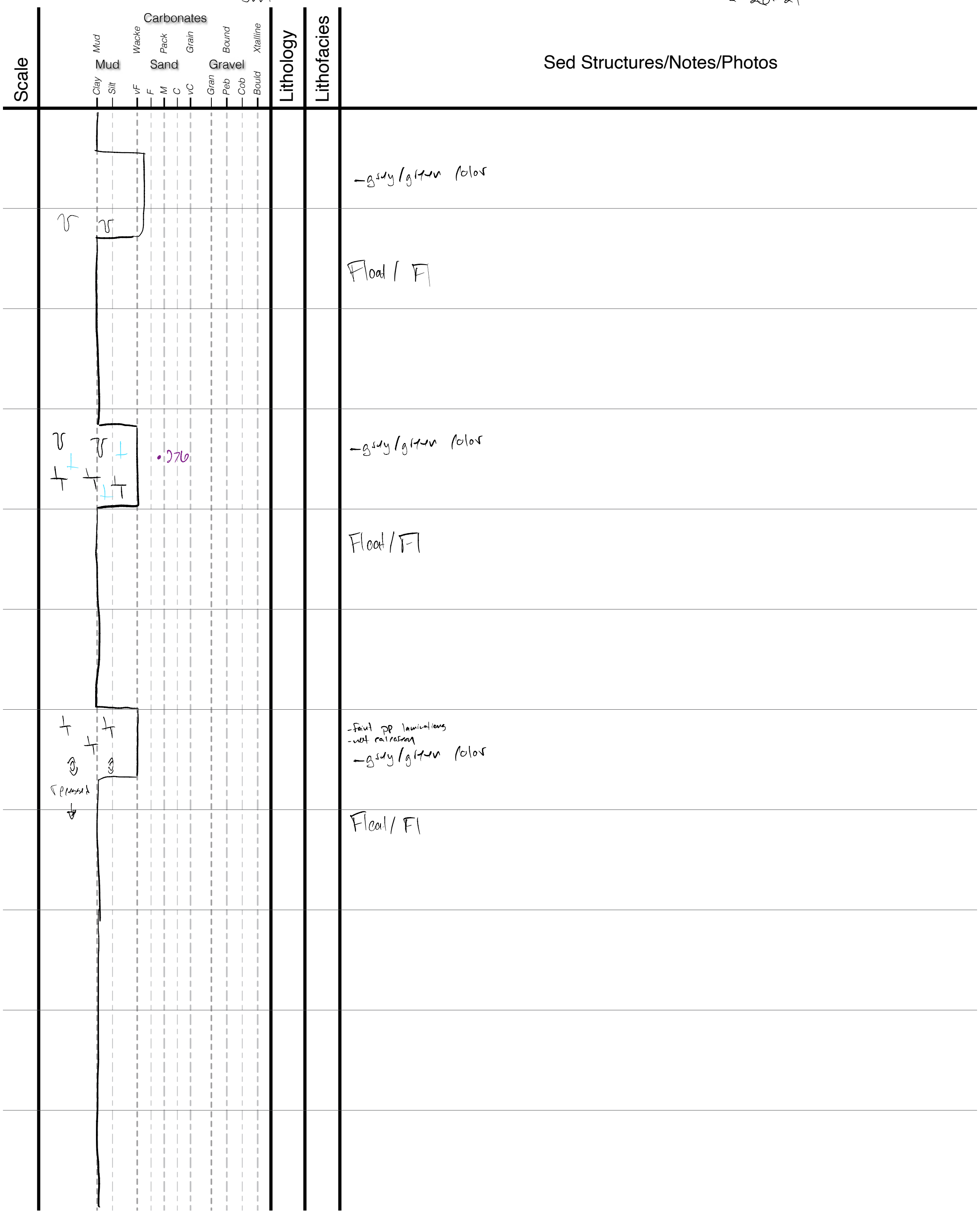
Float / Fl

Location: Dry Piny Road; section #1

Scale: 1 vertical box = 0.5m

Stratigrapher(s): Ethan

Date: 6-26-21

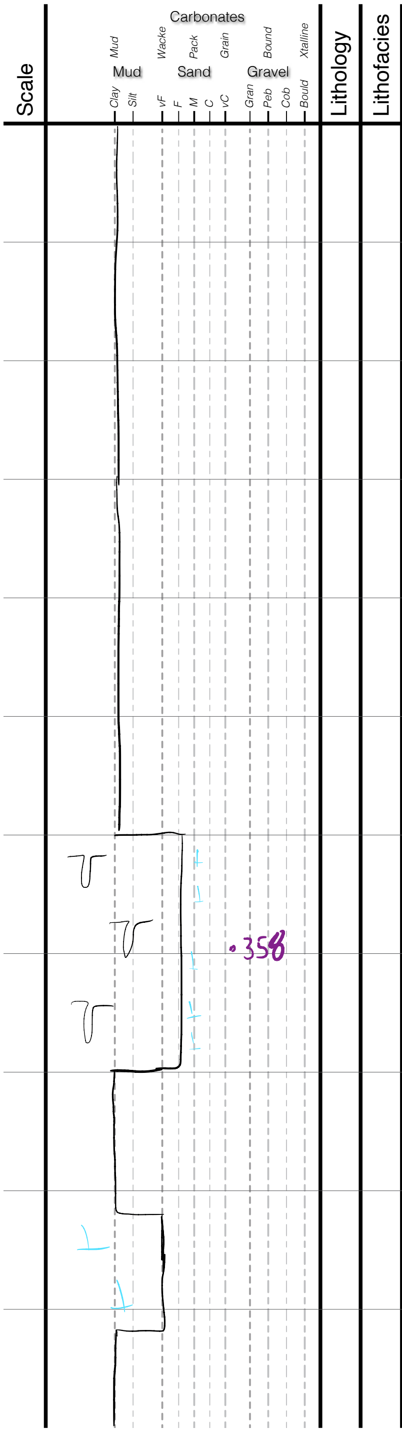


Location: Dry Piny Road; section #1

Scale: 1 vertical box = 0.5m

Stratigrapher(s): Ethan

Date: 6-26-21



Sed Structures/Notes/Photos

- recessed, likely ms/slts/vF ss

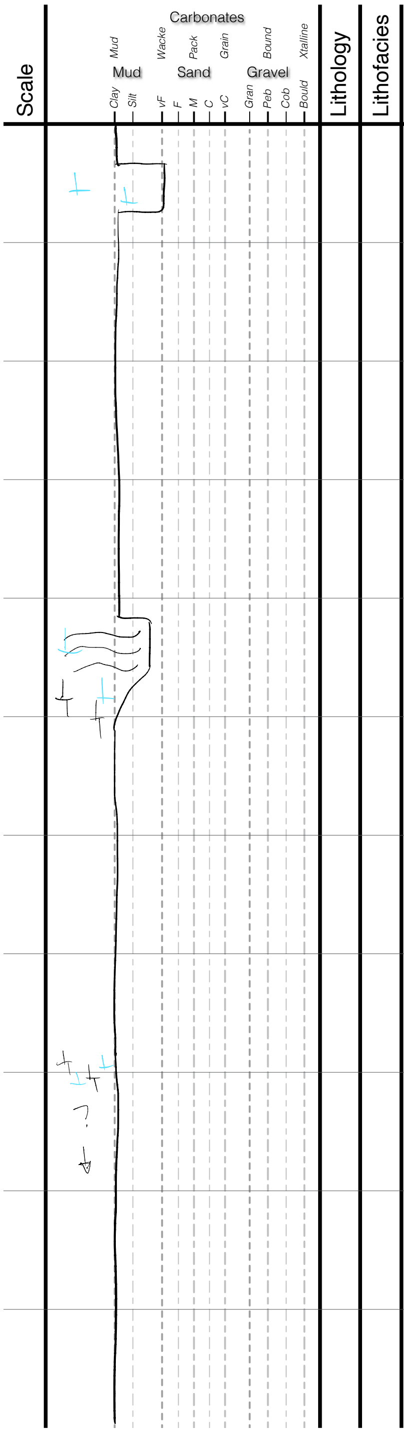
- Sm, mildly calcareous, burrowed
- Buff - white color

← Fl recessed, hard to see well
  - presumably (from float) combination of ms/sltstn & vFss

- Sm, calcareous

Location: Dry Piney Road; section #1
Scale: 1 vertical box = 0.5m

Stratigrapher(s): Ethan
Date: 6-26-21



Sed Structures/Notes/Photos

- gray/green color

- gray/green color

- small outcropped bit, calcretes + blocky

- gray/green color

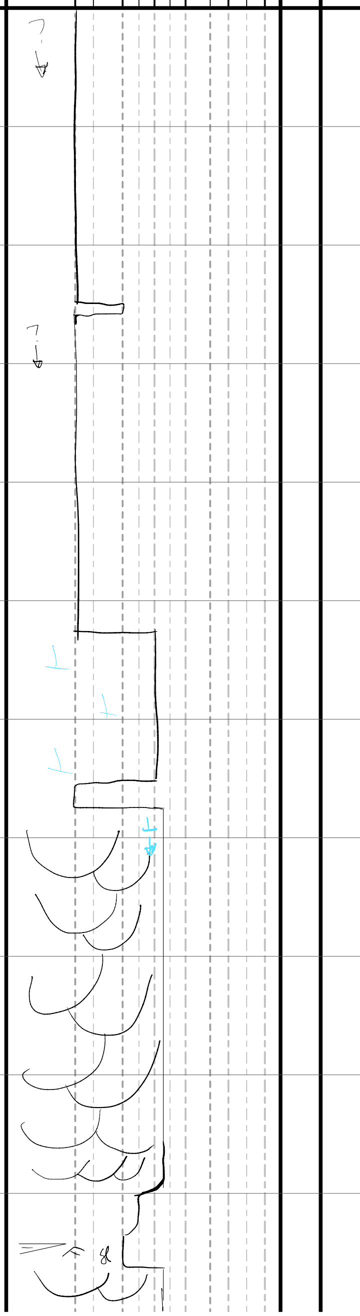
Location: Dry Piney Road; section #1

Scale: 1 vertical box = 0.5m

Stratigrapher(s): Ethan

Date: 6-26-21

Scale	Carbonates: Mud, Wacke, Pack, Grain, Bound, Xtalline / Mud: Clay, Silt / Sand: vF, F, M, C, vC / Gravel: Gran, Peb, Cob, Bould	Lithology	Lithofacies	Sed Structures/Notes/Photos



-massive vf-F

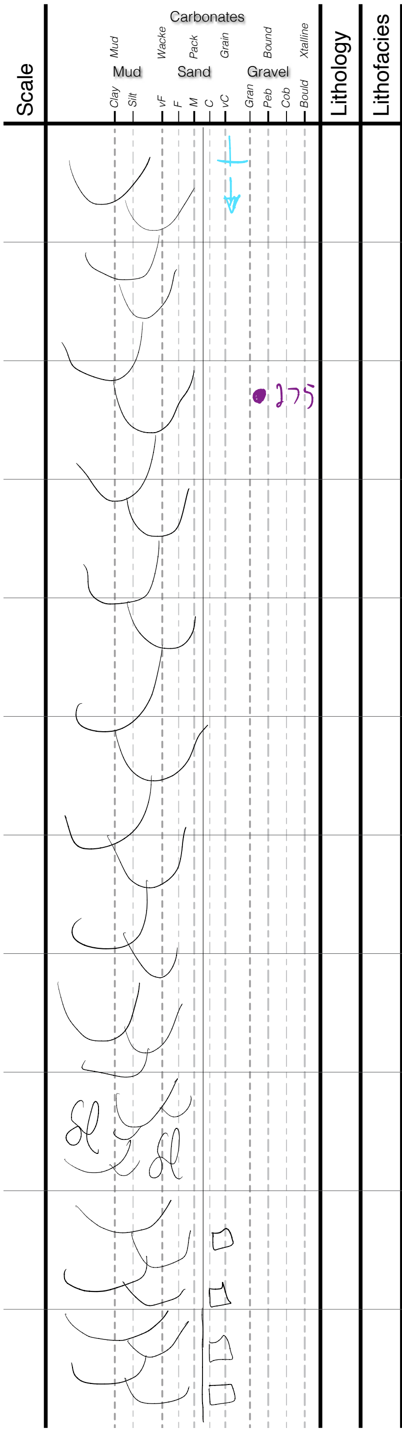
-recessed ms, hard to get a good look at

-massive, maybe faint tx

— m-scale txb

Location: Dry Piney Road; section #1
Scale: 1 vertical box = 0.5m

Stratigrapher(s): Ethan
Date: 6-20-21



Sed Structures/Notes/Photos

~6.1 m of m-C arkosic Stx

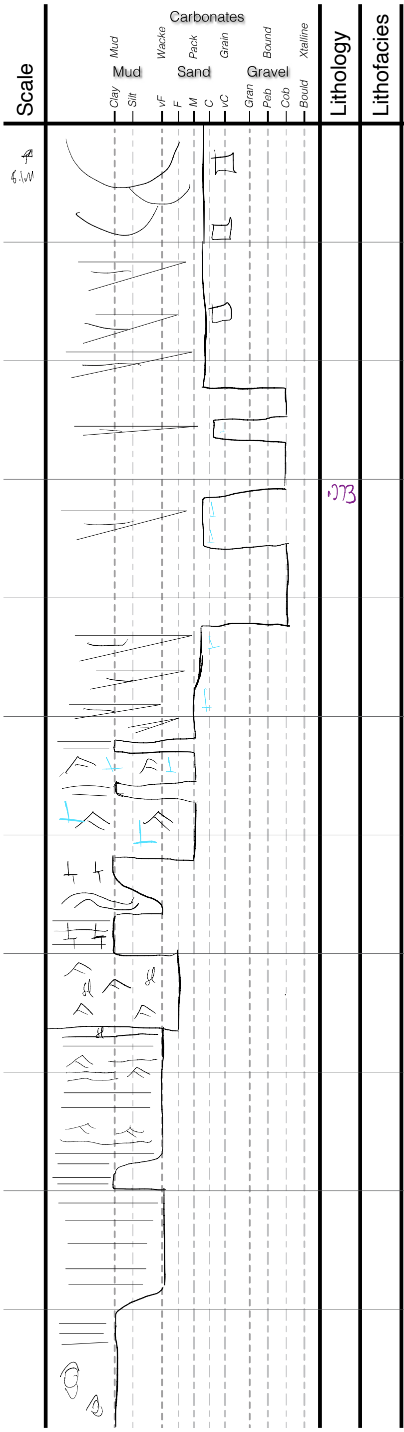
- calcareous
- Intraclasts common (gravel-cobble)
- mostly Stx, but instances of Sla & Sc

Location: Dry Piny Road; section #1

Scale: 1 vertical box = 0.5m

Stratigrapher(s): Ethan

Date: 6-26-21



Sed Structures/Notes/Photos

□ = intraclasts: range from gravel-cobble, greenish gray ms (same as underlying cong)

- less as pebble lags than as matrix supported clasts
- sometimes as pebble lags.

- Sla are likely Stx as above. - hard to tell w/ limited thickness + weathering

- interbedded m-c SS (mildly calcareous) w/ intraclast conglomerate (↙ Sla)
  - intraclast cong: clast = green/gray mud pebble-cobble, massive
    - largest ~ 2dm
    - smallest ~ gravel sized
    - clast-supported

← no sign of scouring

- conv = Footprints

- Footprints = Se

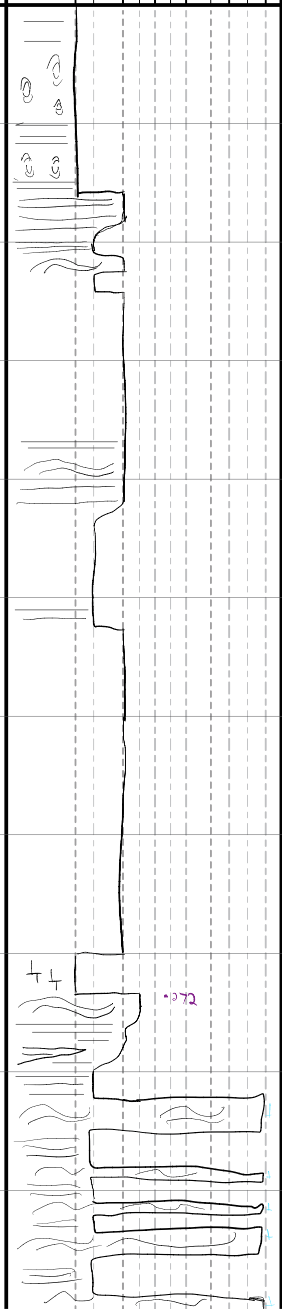
- pp/mass vf SS

Location: Dry Piney Road; section #1

Stratigrapher(s): Ethan

Scale: 1 vertical box = 0.5m

Date: 6-26-21

Scale	Carbonates: Mud, Wacke, Pack, Grain, Bound, Xtalline / Mud: Clay, Silt / Sand: vF, F, M, C, vC / Gravel: Gran, Peb, Cob, Bould	Lithology	Lithofacies	Sed Structures/Notes/Photos
				-variably pp + nodular ms/sltstn

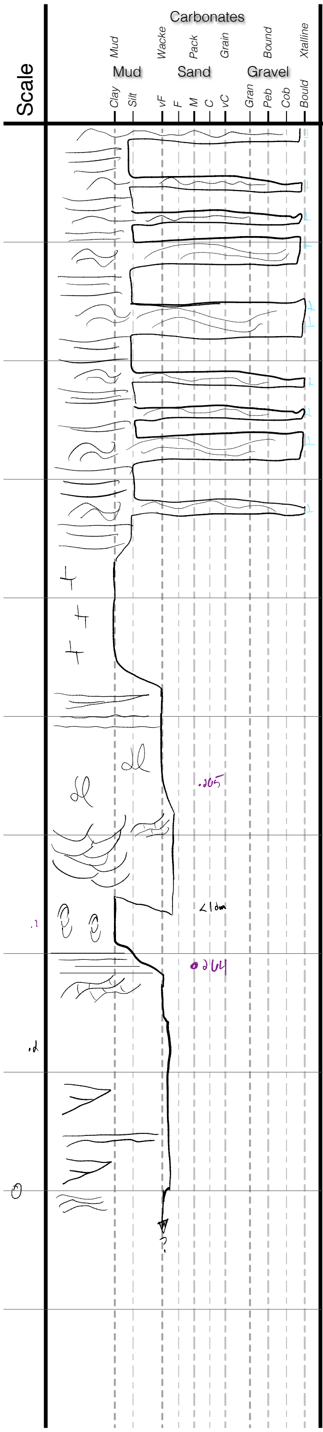
Location: Dry Piney Road; section #1

Scale: 1 vertical box = 0.5m

Stratigrapher(s): Ethan

Date: 6-26-21

Scale	Grain size	Lithology	Lithofacies	Sed Structures/Notes/Photos



- interbedded (cm/dm-scale) massive sltstn & xtalline carbonate?
  - xtalline carb = mildly calcareous (dolomitic?), WR, buff color
  - sltstn = mostly PP, massive in places.

- tx & Cr intermixed, mostly 3D rippling close to UFR


Strat Column Legend
trough Cross Beds
Climbing ripples
Ripples (unidirectional)
Ripples (bi-directional)
Low-angle Cross beds
mottling
blocky
Wavy Laminations (bidirectional)
planar Laminations
mud drapes
chert
Flame structure
Rip-ups
UFR ripples
Convolute bedding
Root traces
Vertic structures
Intra clasts
Evaporites
mud cracks
Burrows / Roots
iron concretion
Calcareous " "
Siliceous " "
Nodular
Algal laminations
Tuff
missing section / colluvium
Massive / No sed structure
Sample collected
Dolostone
micritic Limestone
conglomerate
silty sand / marl
Evaporite
Sandstone
Calcareous sandstone
mudstone / siltstone
calcareous mudstone

Appendix C

(Chapter 3)

CAPTIONS

Appendix C1

Surveys

Appendix C2

Study 1 quantitative results

Appendix C3

Study 2 quantitative results

Appendix C4

Raw survey results for both studies

Appendix C5

Efficacy of experience instrument

Appendix C1

Geoscience 100 Early Semester Survey

Start of Block: Intro

Consent **Research Participant Information and Consent** **Study Title:** Curriculum-specific Introductory Geoscience Videos Principal Investigator: Stephen R. Meyers (smeyers@geology.wisc.edu) Graduate Researcher: Ethan C. Parrish (eparrish3@wisc.edu) **Description of the research** You are invited to participate in a research study about the use of curriculum-specific educational video in the introductory geoscience curriculum. You have been asked to participate because you are a student enrolled in Geoscience 100 at the University of Wisconsin-Madison. The purpose of the research is to assess and improve educational strategies employed in this course. **What will my participation involve?** If you decide to participate in this research, you will be asked to take a brief survey (<10 minutes). You can skip any survey questions that you do not want to answer. Even if you start the survey, you are not required to complete it and can stop at any time. All your answers will be confidential. Your participation is completely voluntary. If you decide not to participate or to withdraw from the study, it will have no negative effect on your grade. Participating in this survey earns you 1 extra credit point towards your final discussion section grade. Students ineligible for the survey (i.e. <18 yrs. old) can reach out to Ethan Parrish for means of earning the same amount of extra credit. **Are there any risks or benefits to me?** Participants may inadvertently reveal personal, sensitive, or identifiable information when responding to open-ended questions (see below for the measures we will take to remove confidential information). Beyond extra credit, there are no direct benefits to you. Participation in this survey, however, will improve this course for future Geoscience 100 students. **How will my confidentiality be protected?** This study is confidential. Neither your name nor any other identifiable information will be published. All information that could identify you will only be used to link your responses together across multiple surveys you complete. Once all surveys have been completed that information will be removed. Only approved personnel will have access to the data, which will be securely stored on UW servers and/or UW hard drives. **Whom should I contact if I have questions?** You may ask any questions about the research at any time. If you have questions, concerns, or complaints, please contact the lead researcher: Ethan Parrish at eparrish3@wisc.edu. If you have any questions about your rights as a research participant or have complaints about the research study or study team, call the confidential research compliance line at 1-833-652-2506. By taking this survey, you confirm that you are 18 years or older and that your responses on this survey can be used for research.

End of Block: Intro

Start of Block: Anon_ID

Anon The researchers on this project would like to connect your responses to this survey to responses you may provide in the future. The following four questions are designed to facilitate that.

Mid_name
In the box below, please write your MIDDLE NAME. If you do not have a middle name, use your first name.

____

Phone In the box below, please write the LAST FOUR DIGITS OF YOUR PHONE NUMBER.

____

DiscSection What discussion section are you in?

▼ 301 (1) ... 326 (26)

TA Who is your TA?

- ◯ Andrew Jones (1)
- ◯ Cameron Desilva (2)
- ◯ Kaitlyn Crouch (3)
- ◯ Sally Stevens (4)
- ◯ Eneas Andrade (5)

End of Block: Anon_ID

Start of Block: Questions

text **Please respond to the following questions to the best of your ability.**
There are no right or wrong answers to any of these questions; we are interested in your honest reactions and opinions.

EarthScience Please answer the following questions about your experiences with Earth Science courses and in the Earth Science academic community. When we mention the *Earth Science academic community*, we are referring to the broad group of people, including the students in a course, associated with Earth Science.

Earth Science includes any courses that discuss rocks, mountains, rivers, earthquakes, or other processes that happen on or within our planet.

SenseofBelonging We would like you to consider your experience with the Earth Science community. Please respond to the following statements based on how you feel about the Earth Science community and your membership in it.   Please read each statement carefully and indicate how strongly you agree or disagree with the statement.
When I am in an Earth Science setting…

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
I feel valued. (1)	○	○	○	○	○
I feel like an outsider. (2)	○	○	○	○	○
I feel excluded. (3)	○	○	○	○	○
I feel like I fit in. (4)	○	○	○	○	○
I feel insignificant. (5)	○	○	○	○	○
I feel comfortable. (6)	○	○	○	○	○

Page Break

CareerGoals Please read each statement carefully and indicate how strongly you **agree or disagree** with the statement.

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
The Earth Sciences are something that I would be good at. (1)	○	○	○	○	○
I can learn the skills and knowledge needed to obtain a degree in the Earth Sciences. (2)	○	○	○	○	○
I would like a career in the Earth Sciences. (3)	○	○	○	○	○
Becoming an Earth Scientist would be exciting. (4)	○	○	○	○	○
I can understand the world around me through knowing about the Earth Sciences. (5)	○	○	○	○	○
The Earth Sciences are useful to society. (6)	○	○	○	○	○
The Earth Sciences are relevant to my life. (7)	○	○	○	○	○

Page Break

SenseofPlace Please read each statement carefully and indicate how strongly you **agree or disagree** with the statement.

Studying Earth Science...

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)
provides a sense of exploration. (1)	○	○	○	○	○
makes me feel connected to the natural world. (2)	○	○	○	○	○
deepens my appreciation for the place I live. (3)	○	○	○	○	○
deepens my appreciation for places I visit. (4)	○	○	○	○	○
makes me more aware of the world around me. (5)	○	○	○	○	○

Page Break

EarthSci_OutcomeExp Rate your agreement with each of the following statements.

Earth Science skills will help me...

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (6)	Agree (3)	Strongly Agree (4)
do work that makes a difference in people's lives or society. (1)	○	○	○	○	○
do work that I find satisfying. (4)	○	○	○	○	○
go into a field with good employment opportunity. (5)	○	○	○	○	○
get respect from other people. (6)	○	○	○	○	○
earn an attractive salary. (7)	○	○	○	○	○

Page Break

InterestsinEduc Please read each statement carefully and indicate how strongly you **agree or disagree** with the statement.

After this course...

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
I intend to take more Earth Science courses in college. (1)	○	○	○	○	○
I intend to go into the Earth Sciences as a career. (2)	○	○	○	○	○
I intend to learn more about the Earth Sciences. (3)	○	○	○	○	○
I intend to go to graduate school for Earth Sciences. (4)	○	○	○	○	○

End of Block: Questions

Start of Block: Academic Demographics

WhyGeo100 Pick one reason that was *most* important in your decision to take this course.

- ◯ To fulfill a non-major credit requirement (1)
- ◯ I plan to major in an Earth Science related field (2)
- ◯ Curiosity in learning more about the Earth (3)
- ◯ It was recommended to me (4)
- ◯ Another reason (5) ____

prev_STEM Not including this course, how many STEM courses have you taken in college?
(STEM = Science, Technology, Engineering, Mathematics)

- ◯ 0 (1)
- ◯ 1-2 (2)
- ◯ 3-4 (3)
- ◯ 4-5 (4)
- ◯ More than 5 (5)

prev_ES Not including this course, how many Earth Science courses have you taken college?

- ◯ 0 (1)
- ◯ 1 (2)
- ◯ 2 (3)
- ◯ 3 (4)
- ◯ More than 3 (5)

DeclaredMajor Have you declared a major(s)?

- ◯ No (1)
- ◯ Yes (2)

Display This Question:

If Have you declared a major(s)? = Yes

major_broad Under what umbrella do/does your major(s) most accurately fall?

- ▢ Humanities, Social Sciences and the Arts (Anthropology, Philosphy, Sociology, Linguistics, Religion, Music, Visual/Performing Arts, Economics, Political Science, etc.) (1)
- ▢ Natural Sciences (Physics, Biology, Chemistry, Geology, etc.) (2)
- ▢ Professions and Applied Sciences (Business, Agriculture, Architecture, Education, etc.) (3)
- ▢ Formal Sciences (Computer Sciences, Mathematics etc.) (4)

Display This Question:

If Have you declared a major(s)? = Yes

major_specific What is/are your major(s)?

____

Display This Question:

If Have you declared a major(s)? = No

ES_major How *likely* are you to major in Earth Science?

- Very unlikely (1)
- Unlikely (2)
- Neither likely nor unlikely (3)
- Likely (4)
- Very likely (5)

student_year In what year of college are you?

- First year (1)
- Second year (2)
- Third year (3)
- Fourth year (4)
- Fifth year or higher (5)

educ_goal What is the highest degree you hope to obtain?

- Two-year College Degree (1)
- Four-Year College Degree (2)
- Master's Degree (3)
- Law, Medical, Doctorate, or Similar Degree (4)

End of Block: Academic Demographics

Start of Block: Demographics

DemoIntro We are interested in collecting information about the diversity of people who completed this survey. Please respond to all items that apply as of the current date.

*

Age What is your year of birth (yyyy)?

____

Origins Did you grow up in the United States?

- Choose not to respond (1)
- No (2)
- Yes (3)

Origins Is the United States your current permanent residence?

- ○ Choose not to respond (1)
- ○ No (2)
- ○ Yes (3)

ESL Is English your primary language?

- ☐ Choose not to respond (1)
- ☐ No (2)
- ☐ Yes (3)

Gender Identity Which of these terms best describes your current gender identity? Choose all that apply.

- ☐ Choose not to respond (4)
- ☐ Woman (1)
- ☐ Man (2)
- ☐ Transgender man to woman (5)
- ☐ Transgender woman to man (6)
- ☐ Agender (7)
- ☐ Genderqueer (8)
- ☐ Non-binary (9)
- ☐ Other. Please specify: (3) ____

Ethnicity What is your ethnicity? Choose all that apply.

- ▢ Choose not to respond (1)
- ▢ American Indian/Native American (2)
- ▢ Asian/Asian American (3)
- ▢ Black/African/African American (10)
- ▢ Latinx/Hispanic (5)
- ▢ Native Hawaiian/Pacific Islander (4)
- ▢ White/Caucasian (9)
- ▢ Other. Please specify: (11) ____

Disability Do you self-identify as having any disability or disabilities?

- ▢ Choose not to respond (1)
- ▢ No, I do not identify as having a disability (2)
- ▢ Yes, I identify as having a disability (3)

Disability Please provide as much or as little information about your disability as you feel comfortable sharing.

____

____

____

____

____

Parents Education What is the highest level of education achieved by your parent(s) or guardian(s)?

- ▢ I do not know. (1)
- ▢ Elementary, middle, or high school (4)
- ▢ Some college (5)
- ▢ Associate's Degree (6)
- ▢ Bachelor's Degree (7)
- ▢ Some graduate school (8)
- ▢ Master's Degree (9)
- ▢ PhD, MD, or similar (10)
- ▢ Other. Please specify: (11) ____

Veteran Are you now or have you ever been a member of any military or other uniformed services?

- ▢ Choose not to respond (1)
- ▢ No (2)
- ▢ Yes, I am currently an active member (3)
- ▢ Yes, I am a veteran (4)
- ▢ Other. Please specify: (5) ____

Additional Info Is there anything else you would like to tell us about yourself?

____

____

____

____

____

End of Block: Demographics

Geoscience 100 Late Semester Survey

Start of Block: Intro

Consent **Research Participant Information and Consent Study Title:** Curriculum-specific Introductory Geoscience Videos Principal Investigator: Stephen R. Meyers (smeyers@geology.wisc.edu) Graduate Researcher: Ethan C. Parrish (eparrish3@wisc.edu) **Description of the research** You are invited to participate in a research study about the use of curriculum-specific educational video in the introductory geoscience curriculum. You have been asked to participate because you are a student enrolled in Geoscience 100 at the University of Wisconsin-Madison. The purpose of the research is to assess and improve educational strategies employed in this course. **What will my participation involve?** If you decide to participate in this research, you will be asked to take a brief survey (<10 minutes). You can skip any survey questions that you do not want to answer. Even if you start the survey, you are not required to complete it and can stop at any time. All your answers will be confidential. Your participation is completely voluntary. If you decide not to participate or to withdraw from the study, it will have no negative effect on your grade. Participating in this survey earns you 1 extra credit point towards your final discussion section grade. Students ineligible for the survey (i.e. <18 yrs. old) can reach out to Ethan Parrish for means of earning the same amount of extra credit. **Are there any risks or benefits to me?** Participants may inadvertently reveal personal, sensitive, or identifiable information when responding to open-ended questions (see below for the measures we will take to remove confidential information). Beyond extra credit, there are no direct benefits to you. Participation in this survey, however, will improve this course for future Geoscience 100 students. **How will my confidentiality be protected?** This study is confidential. Neither your name nor any other identifiable information will be published. All information that could identify you will only be used to link your responses together across multiple surveys you complete. Once all surveys have been completed that information will be removed. Only approved personnel will have access to the data, which will be securely stored on UW servers and/or UW hard drives. **Whom should I contact if I have questions?** You may ask any questions about the research at any time. If you have questions, concerns, or complaints, please contact the lead researcher: Ethan Parrish at eparrish3@wisc.edu. If you have any questions about your rights as a research participant or have complaints about the research study or study team, call the confidential research compliance line at 1-833-652-2506. By taking this survey, you confirm that you are 18 years or older and that your responses on this survey can be used for research.

End of Block: Intro

Start of Block: Anon_ID

Anon The researchers on this project would like to connect your responses to this survey to responses you may provide in the future. The following four questions are designed to facilitate that.

Mid_name
In the box below, please write your MIDDLE NAME. If you do not have a middle name, use your first name.

____

Phone In the box below, please write the LAST FOUR DIGITS OF YOUR PHONE NUMBER.

____

DiscSection What discussion section are you in?

▼ 301 (1) ... 326 (26)

TA Who is your TA?

- ◯ Andrew Jones (1)
- ◯ Cameron Desilva (2)
- ◯ Kaitlyn Crouch (3)
- ◯ Sally Stevens (4)
- ◯ Eneas Andrade (5)

End of Block: Anon_ID

Start of Block: Questions

text **Please respond to the following questions to the best of your ability.**
There are no right or wrong answers to any of these questions; we are interested in your honest reactions and opinions.

EarthScience Please answer the following questions about your experiences with Earth Science courses and in the Earth Science academic community. When we mention the *Earth Science academic community*, we are referring to the broad group of people, including the students in a course, associated with Earth Science.

Earth Science includes any courses that discuss rocks, mountains, rivers, earthquakes, or other processes that happen on or within our planet.

SenseofBelonging We would like you to consider your experience with the Earth Science community. Please respond to the following statements based on how you feel about the Earth Science community and your membership in it.   Please read each statement carefully and indicate how strongly you agree or disagree with the statement.

When I am in an Earth Science setting…

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
I feel valued. (1)	○	○	○	○	○
I feel like an outsider. (2)	○	○	○	○	○
I feel excluded. (3)	○	○	○	○	○
I feel like I fit in. (4)	○	○	○	○	○
I feel insignificant. (5)	○	○	○	○	○
I feel comfortable. (6)	○	○	○	○	○

Page Break

CareerGoals Please read each statement carefully and indicate how strongly you **agree or disagree** with the statement.

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
The Earth Sciences are something that I would be good at. (1)	○	○	○	○	○
I can learn the skills and knowledge needed to obtain a degree in the Earth Sciences. (2)	○	○	○	○	○
I would like a career in the Earth Sciences. (3)	○	○	○	○	○
Becoming an Earth Scientist would be exciting. (4)	○	○	○	○	○
I can understand the world around me through knowing about the Earth Sciences. (5)	○	○	○	○	○
The Earth Sciences are useful to society. (6)	○	○	○	○	○
The Earth Sciences are relevant to my life. (7)	○	○	○	○	○

Page Break

SenseofPlace Please read each statement carefully and indicate how strongly you **agree or disagree** with the statement.

Studying Earth Science...

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)
provides a sense of exploration. (1)	○	○	○	○	○
makes me feel connected to the natural world. (2)	○	○	○	○	○
deepens my appreciation for the place I live. (3)	○	○	○	○	○
deepens my appreciation for places I visit. (4)	○	○	○	○	○
makes me more aware of the world around me. (5)	○	○	○	○	○

Page Break

EarthSci_OutcomeExp Rate your agreement with each of the following statements.

Earth Science skills will help me...

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (6)	Agree (3)	Strongly Agree (4)
do work that makes a difference in people's lives or society. (1)	○	○	○	○	○
do work that I find satisfying. (4)	○	○	○	○	○
go into a field with good employment opportunity. (5)	○	○	○	○	○
get respect from other people. (6)	○	○	○	○	○
earn an attractive salary. (7)	○	○	○	○	○

Page Break

InterestsinEduc Please read each statement carefully and indicate how strongly you **agree or disagree** with the statement.

After this course...

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
I intend to take more Earth Science courses in college. (1)	○	○	○	○	○
I intend to go into the Earth Sciences as a career. (2)	○	○	○	○	○
I intend to learn more about the Earth Sciences. (3)	○	○	○	○	○
I intend to go to graduate school for Earth Sciences. (4)	○	○	○	○	○

End of Block: Questions

Start of Block: Academic Demographics

WhyGeo100 Pick one reason that was *most* important in your decision to take this course.

- ◯ To fulfill a non-major credit requirement (1)
- ◯ I plan to major in an Earth Science related field (2)
- ◯ Curiosity in learning more about the Earth (3)
- ◯ It was recommended to me (4)
- ◯ Another reason (5) ____

---

prev_STEM Not including this course, how many STEM courses have you taken in college?
(STEM = Science, Technology, Engineering, Mathematics)

- ◯ 0 (1)
- ◯ 1-2 (2)
- ◯ 3-4 (3)
- ◯ 4-5 (4)
- ◯ More than 5 (5)

---

prev_ES Not including this course, how many Earth Science courses have you taken college?

- 0 (1)
- 1 (2)
- 2 (3)
- 3 (4)
- More than 3 (5)

DeclaredMajor Have you declared a major(s)?

- No (1)
- Yes (2)

Display This Question:

If Have you declared a major(s)? = Yes

major_broad Under what umbrella do/does your major(s) most accurately fall?

- Humanities, Social Sciences and the Arts (Anthropology, Philosphy, Sociology, Linguistics, Religion, Music, Visual/Performing Arts, Economics, Political Science, etc.) (1)
- Natural Sciences (Physics, Biology, Chemistry, Geology, etc.) (2)
- Professions and Applied Sciences (Business, Agriculture, Architecture, Education, etc.) (3)
- Formal Sciences (Computer Sciences, Mathematics etc.) (4)

Display This Question:

If Have you declared a major(s)? = Yes

major_specific What is/are your major(s)?

____

Display This Question:

If Have you declared a major(s)? = No

ES_major How *likely* are you to major in Earth Science?

- Very unlikely (1)
- Unlikely (2)
- Neither likely nor unlikely (3)
- Likely (4)
- Very likely (5)

student_year In what year of college are you?

- First year (1)
- Second year (2)
- Third year (3)
- Fourth year (4)
- Fifth year or higher (5)

educ_goal What is the highest degree you hope to obtain?

- Two-year College Degree (1)
- Four-Year College Degree (2)
- Master's Degree (3)
- Law, Medical, Doctorate, or Similar Degree (4)

End of Block: Academic Demographics

Start of Block: Demographics

DemoIntro We are interested in collecting information about the diversity of people who completed this survey. Please respond to all items that apply as of the current date.

---

*

Age What is your year of birth (yyyy)?

____

Origins Did you grow up in the United States?

- Choose not to respond (1)
- No (2)
- Yes (3)

Origins Is the United States your current permanent residence?

- ○ Choose not to respond (1)
- ○ No (2)
- ○ Yes (3)

ESL Is English your primary language?

- ☐ Choose not to respond (1)
- ☐ No (2)
- ☐ Yes (3)

Gender Identity Which of these terms best describes your current gender identity? Choose all that apply.

- ☐ Choose not to respond (4)
- ☐ Woman (1)
- ☐ Man (2)
- ☐ Transgender man to woman (5)
- ☐ Transgender woman to man (6)
- ☐ Agender (7)
- ☐ Genderqueer (8)
- ☐ Non-binary (9)
- ☐ Other. Please specify: (3) ____

Ethnicity What is your ethnicity? Choose all that apply.

- ☐ Choose not to respond (1)
- ☐ American Indian/Native American (2)
- ☐ Asian/Asian American (3)
- ☐ Black/African/African American (10)
- ☐ Latinx/Hispanic (5)
- ☐ Native Hawaiian/Pacific Islander (4)
- ☐ White/Caucasian (9)
- ☐ Other. Please specify: (11)
____

Disability Do you self-identify as having any disability or disabilities?

- ☐ Choose not to respond (1)
- ☐ No, I do not identify as having a disability (2)
- ☐ Yes, I identify as having a disability (3)

Disability Please provide as much or as little information about your disability as you feel comfortable sharing.

____

____

Parents Education What is the highest level of education achieved by your parent(s) or guardian(s)?

- ☐ I do not know. (1)
- ☐ Elementary, middle, or high school (4)
- ☐ Some college (5)
- ☐ Associate's Degree (6)
- ☐ Bachelor's Degree (7)
- ☐ Some graduate school (8)
- ☐ Master's Degree (9)
- ☐ PhD, MD, or similar (10)
- ☐ Other. Please specify: (11) ________________

Veteran Are you now or have you ever been a member of any military or other uniformed services?

- Choose not to respond (1)
- No (2)
- Yes, I am currently an active member (3)
- Yes, I am a veteran (4)
- Other. Please specify: (5) ____

Additional Info Is there anything else you would like to tell us about yourself?

____

____

____

____

____

End of Block: Demographics

Pre-lab Content Survey - Minerals

Start of Block: Consent

Consent **Research Participant Information and Consent Study Title:** Curriculum-specific Introductory Geoscience Videos
Principal Investigator: Stephen R. Meyers (smeyers@geology.wisc.edu)
Graduate Researcher: Ethan C. Parrish (eparrish3@wisc.edu) **Description of the research**
You are invited to participate in a research study about the pre-lab content provided for your discussion section this week. You have been asked to participate because you are a student enrolled in Geoscience 100 at the University of Wisconsin-Madison. The purpose of the research is to assess and improve educational strategies employed in this course. **What will my participation involve?**
If you decide to participate in this research, you will be asked to take a brief survey (<5 minutes). You can skip any survey questions that you do not want to answer. Even if you start the survey, you are not required to complete it and can stop at any time. All your answers will be confidential. Your participation is completely voluntary. If you decide not to participate or to withdraw from the study, it will have no negative effect on your grade. Participating in this survey earns you 1 extra credit point towards your final discussion section grade. Students ineligible for the survey (i.e. <18 yrs. old) can reach out to Ethan Parrish for means of earning the same amount of extra credit. **Are there any risks or benefits to me?**
Participants may inadvertently reveal personal, sensitive, or identifiable information when responding to open-ended questions (see below for the measures we will take to remove confidential information). Beyond extra credit, there are no direct benefits to you. Participation in this survey, however, will improve this course for future Geoscience 100 students. **How will my confidentiality be protected?**
This study is confidential. Neither your name nor any other identifiable information will be published. All information that could identify you will only be used to link your responses together across multiple surveys you complete. Once all surveys have been completed that information will be removed. Only approved personnel will have access to the data, which will be securely stored on UW servers and/or UW hard drives. **Whom should I contact if I have questions?**
You may ask any questions about the research at any time. If you have questions, concerns, or complaints, please contact the lead researcher: Ethan Parrish at eparrish3@wisc.edu. If you have any questions about your rights as a research participant or have complaints about the research study or study team, call the confidential research compliance line at 1-833-652-2506. By taking this survey, you confirm that you are 18 years or older and that your responses on this survey can be used for research.

End of Block: Consent

Start of Block: Anon_ID

Anon The researchers on this project would like to connect your responses to this survey to responses you may provide in the future. The following four questions are designed to facilitate that.

Mid_name
In the box below, please write your MIDDLE NAME. If you do not have a middle name, use your first name.

____

Phone In the box below, please write the LAST FOUR DIGITS OF YOUR PHONE NUMBER.

____

DiscSection What discussion section are you in?

▼ 301 (1) ... 326 (26)

TA Who is your TA?

○ Andrew Jones (1)

○ Cameron Desilva (2)

○ Kaitlyn Crouch (3)

○ Sally Stevens (4)

○ Eneas Andrade (5)

End of Block: Anon_ID

Start of Block: Questions

text **Please respond to the following questions to the best of your ability.**
The following questions pertain to your pre-lab content for this week. There are no right or wrong answers to any of these questions; we are interested in your honest reactions and opinions.

SenseofPlace Please read each statement carefully and indicate how strongly you **agree or disagree** with the statement.

Learning about this week's lab topic...

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)
provides a sense of exploration (1)	o	o	o	o	o
makes me feel connected to the natural world (2)	o	o	o	o	o
deepens my appreciation for the place I live (3)	o	o	o	o	o
deepens my appreciation for places I visit (4)	o	o	o	o	o
makes me more aware of the world around me (5)	o	o	o	o	o

Content

Please read the following statements and tell how strongly you agree or disagree with each statement.

This week's pre-lab content...

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
helped me feel prepared for the lab. (Q4_1)	○	○	○	○	○
clarified material covered in the lecture portion of class. (Q4_2)	○	○	○	○	○
interested me in seeing more geology in the field. (Q4_3)	○	○	○	○	○
helped me understand the natural context of the geology discussed in class. (Q4_5)	○	○	○	○	○
interested me in learning more about the lab topic. (Q4_6)	○	○	○	○	○
was engaging. (Q4_7)	○	○	○	○	○
brought to mind experiences	○	○	○	○	○

I’ve had, or places that I’ve been/seen. (Q9_8)	

Inspiration Please read each statement carefully and indicate how strongly you **agree or disagree** with the statement.

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
Becoming an Earth Scientist would be exciting. (5)	○	○	○	○	○
I can understand the world around me through knowing more about this week's lab topic. (6)	○	○	○	○	○
This week's lab topic is useful to society. (7)	○	○	○	○	○
This week's lab topic is relevant to my life. (8)	○	○	○	○	○

Q6 How likely are you to use the pre-lab content as a study resource?

○ Very unlikely (1)

○ unlikely (2)

○ Neither likely nor unlikely (3)

○ Likely (4)

○ Very likely (5)

Q7 We would love to hear your additional thoughts on this week's pre-lab content (e.g. how it could be improved, what specifically it may have helped you with, etc.).

____

End of Block: Questions

Pre-lab Content Survey - Igneous Rocks

Start of Block: Consent

Consent **Research Participant Information and Consent Study Title:** Curriculum-specific Introductory Geoscience Videos
Principal Investigator: Stephen R. Meyers (smeyers@geology.wisc.edu)
Graduate Researcher: Ethan C. Parrish (eparrish3@wisc.edu) **Description of the research**
You are invited to participate in a research study about the pre-lab content provided for your discussion section this week. You have been asked to participate because you are a student enrolled in Geoscience 100 at the University of Wisconsin-Madison. The purpose of the research is to assess and improve educational strategies employed in this course. **What will my participation involve?**
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confirm that you are 18 years or older and that your responses on this survey can be used for research.

End of Block: Consent

Start of Block: Anon_ID

Anon The researchers on this project would like to connect your responses to this survey to responses you may provide in the future. The following four questions are designed to facilitate that.

Mid_name
In the box below, please write your MIDDLE NAME. If you do not have a middle name, use your first name.

____

Phone In the box below, please write the LAST FOUR DIGITS OF YOUR PHONE NUMBER.

____

DiscSection What discussion section are you in?

▼ 301 (1) ... 326 (26)

TA Who is your TA?

- ◯ Andrew Jones (1)
- ◯ Cameron Desilva (2)
- ◯ Kaitlyn Crouch (3)
- ◯ Sally Stevens (4)
- ◯ Eneas Andrade (5)

End of Block: Anon_ID

Start of Block: Questions

text **Please respond to the following questions to the best of your ability.**
The following questions pertain to your pre-lab content for this week. There are no right or wrong answers to any of these questions; we are interested in your honest reactions and opinions.

SenseofPlace Please read each statement carefully and indicate how strongly you **agree or disagree** with the statement. 370

Learning about this week's lab topic..

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)
provides a sense of exploration (1)					
makes me feel connected to the natural world (2)					
deepens my appreciation for the place I live (3)					
deepens my appreciation for places I visit (4)					
makes me more aware of the world around me (5)					

Content

Please read the following statements and tell how strongly you agree or disagree with each statement.

This week's pre-lab content...

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
helped me feel prepared for the lab. (Q4_1)	○	○	○	○	○
clarified material covered in the lecture portion of class. (Q4_2)	○	○	○	○	○
interested me in seeing more geology in the field. (Q4_3)	○	○	○	○	○
helped me understand the natural context of the geology discussed in class. (Q4_5)	○	○	○	○	○
interested me in learning more about the lab topic. (Q4_6)	○	○	○	○	○
was engaging. (Q4_7)	○	○	○	○	○
brought to mind experiences I've had, or	○	○	○	○	○

places that I've been/seen. (Q9_8)	

Inspiration Please read each statement carefully and indicate how strongly you **agree or disagree** with the statement.

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
Becoming an Earth Scientist would be exciting. (5)	○	○	○	○	○
I can understand the world around me through knowing more about this week's lab topic. (6)	○	○	○	○	○
This week's lab topic is useful to society. (7)	○	○	○	○	○
This week's lab topic is relevant to my life. (8)	○	○	○	○	○

Q6 How likely are you to use the pre-lab content as a study resource?

- ○ Very unlikely (1)
- ○ unlikely (2)
- ○ Neither likely nor unlikely (3)
- ○ Likely (4)
- ○ Very likely (5)

Q7 We would love to hear your additional thoughts on this week's pre-lab content (e.g. how it could be improved, what specifically it may have helped you with, etc.).

____

End of Block: Questions

Pre-lab Content Survey - Sedimentary Rocks

Start of Block: Consent

Consent **Research Participant Information and Consent Study Title:** Curriculum-specific Introductory Geoscience Videos
Principal Investigator: Stephen R. Meyers (smeyers@geology.wisc.edu)
Graduate Researcher: Ethan C. Parrish (eparrish3@wisc.edu)   **Description of the research**
You are invited to participate in a research study about the pre-lab content provided for your discussion section this week. You have been asked to participate because you are a student enrolled in Geoscience 100 at the University of Wisconsin-Madison. The purpose of the research is to assess and improve educational strategies employed in this course.   **What will my participation involve?**
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confirm that you are 18 years or older and that your responses on this survey can be used for research.

End of Block: Consent

Start of Block: Anon_ID

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DiscSection What discussion section are you in?

▼ 301 (1) ... 326 (26)

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- Andrew Jones (1)
- Cameron Desilva (2)
- Kaitlyn Crouch (3)
- Sally Stevens (4)
- Eneas Andrade (5)

End of Block: Anon_ID

Start of Block: Questions

text **Please respond to the following questions to the best of your ability.**
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SenseofPlace Please read each statement carefully and indicate how strongly you **agree or disagree** with the statement.

Learning about this week's lab topic..

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)
provides a sense of exploration (1)	○	○	○	○	○
makes me feel connected to the natural world (2)	○	○	○	○	○
deepens my appreciation for the place I live (3)	○	○	○	○	○
deepens my appreciation for places I visit (4)	○	○	○	○	○
makes me more aware of the world around me (5)	○	○	○	○	○

Content

Please read the following statements and tell how strongly you agree or disagree with each statement.

This week's pre-lab content...

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
helped me feel prepared for the lab. (Q4_1)	○	○	○	○	○
clarified material covered in the lecture portion of class. (Q4_2)	○	○	○	○	○
interested me in seeing more geology in the field. (Q4_3)	○	○	○	○	○
helped me understand the natural context of the geology discussed in class. (Q4_5)	○	○	○	○	○
interested me in learning more about the lab topic. (Q4_6)	○	○	○	○	○
was engaging. (Q4_7)	○	○	○	○	○
brought to mind experiences I've had, or	○	○	○	○	○

places that I’ve been/seen. (Q9_8)	

Inspiration Please read each statement carefully and indicate how strongly you **agree or disagree** with the statement.

	Strongly Disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (5)
Becoming an Earth Scientist would be exciting. (5)	○	○	○	○	○
I can understand the world around me through knowing more about this week's lab topic. (6)	○	○	○	○	○
This week's lab topic is useful to society. (7)	○	○	○	○	○
This week's lab topic is relevant to my life. (8)	○	○	○	○	○

Q6 How likely are you to use the pre-lab content as a study resource?

- ◯ Very unlikely (1)
- ◯ unlikely (2)
- ◯ Neither likely nor unlikely (3)
- ◯ Likely (4)
- ◯ Very likely (5)

Q7 We would love to hear your additional thoughts on this week's pre-lab content (e.g. how it could be improved, what specifically it may have helped you with, etc.).

____

End of Block: Questions

Appendix C2

T-test_PairedSampleCorr

		N	Correlation	Significance	
				One-Sided p	Two-Sided p
Pair 1	SOBpre & SoBpost	251	0.548	<.001	<.001
Pair 2	CarGoalspre & CarGoalspost	251	0.579	<.001	<.001
Pair 3	SoPpre & SoPpost	250	0.486	<.001	<.001
Pair 4	ESOutExpecpre & ESOutExppost	251	0.378	<.001	<.001
Pair 5	IntEdpre & IntEdpost	251	0.612	<.001	<.001

T-test_PairedSamplesTest

		Paired Differences					t	df	Significance	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				One-Sided p	Two-Sided p
					Lower	Upper				
Pair 1	SOBpre - SoBpost	-0.1672	0.63549	0.04011	-0.2462	-0.0882	-4.168	250	<.001	<.001
Pair 2	CarGoalspre - CarGoalspost	-0.13517	0.49849	0.03146	-0.19714	-0.0732	-4.296	250	<.001	<.001
Pair 3	SoPpre - SoPpost	-0.0968	0.58666	0.0371	-0.16988	-0.02372	-2.609	249	0.005	0.01
Pair 4	ESOutExpecpre - ESOutExppost	0.01547	0.88589	0.05592	-0.09466	0.1256	0.277	250	0.391	0.782
Pair 5	IntEdpre - IntEdpost	-0.15405	0.65354	0.04125	-0.23529	-0.07281	-3.734	250	<.001	<.001

T-test_PairedSampleEffSz

			Standardizer	Point Estimate	95% Confidence Interval	
					Lower	Upper
Pair 1	SOBpre - SoBpost	Cohen's d	0.63549	-0.263	-0.389	-0.137
		Hedges' correction	0.63741	-0.262	-0.388	-0.137
Pair 2	CarGoalspre - CarGoalspost	Cohen's d	0.49849	-0.271	-0.397	-0.145
		Hedges' correction	0.49999	-0.27	-0.396	-0.144
Pair 3	SoPpre - SoPpost	Cohen's d	0.58666	-0.165	-0.29	-0.04
		Hedges' correction	0.58843	-0.165	-0.289	-0.04
Pair 4	ESOutExpecpre - ESOutExppost	Cohen's d	0.88589	0.017	-0.106	0.141
		Hedges' correction	0.88856	0.017	-0.106	0.141
Pair 5	IntEdpre - IntEdpost	Cohen's d	0.65354	-0.236	-0.361	-0.11
		Hedges' correction	0.65551	-0.235	-0.36	-0.11

Appendix C3

T-test_IndSamples											
		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
SoPMin	Equal variances assumed	1.154	0.284	-0.301	179	0.382	0.764	-0.02624	0.08712	-0.19816	0.14568
InstrEfficMin	Equal variances assumed	0.782	0.378	0.079	179	0.469	0.937	0.00776	0.09808	-0.18578	0.20131
InspMin	Equal variances assumed	0.607	0.437	-0.608	179	0.272	0.544	-0.05526	0.09091	-0.23466	0.12414
SoPIgn	Equal variances assumed	0	0.997	1.25	147	0.107	0.213	0.13861	0.11085	-0.08046	0.35767
InstrEfficIgn	Equal variances assumed	0.007	0.932	1.163	148	0.123	0.247	0.13685	0.11763	-0.0956	0.36931
InspIgn	Equal variances assumed	0.249	0.619	0.453	148	0.325	0.651	0.05562	0.1227	-0.18685	0.2981
SoPSed	Equal variances assumed	0.107	0.744	1.426	157	0.078	0.156	0.15412	0.10806	-0.05932	0.36755
InstrEfficSed	Equal variances assumed	0.92	0.339	1.805	157	0.036	0.073	0.18329	0.10154	-0.01727	0.38385
InspSed	Equal variances assumed	0.03	0.863	0.187	156	0.426	0.852	0.02198	0.11727	-0.20966	0.25361

T-test_IndSampEffSz					
		Standardizera	Point Estimate	95% Confidence Interval	
				Lower	Upper
SoPMin	Cohen's d	0.58497	-0.045	-0.337	0.247
	Hedges' correction	0.58743	-0.045	-0.335	0.246
	Glass's delta	0.54442	-0.048	-0.34	0.244
InstrEfficMin	Cohen's d	0.65856	0.012	-0.28	0.304
	Hedges' correction	0.66133	0.012	-0.279	0.302
	Glass's delta	0.62996	0.012	-0.28	0.304
InspMin	Cohen's d	0.61041	-0.091	-0.382	0.202
	Hedges' correction	0.61299	-0.09	-0.381	0.201
	Glass's delta	0.56715	-0.097	-0.389	0.195
SoPIgn	Cohen's d	0.67579	0.205	-0.118	0.527
	Hedges' correction	0.67926	0.204	-0.117	0.524
	Glass's delta	0.67843	0.204	-0.12	0.527
InstrEfficIgn	Cohen's d	0.71931	0.19	-0.131	0.511
	Hedges' correction	0.72298	0.189	-0.131	0.509
	Glass's delta	0.71539	0.191	-0.131	0.513
InspIgn	Cohen's d	0.75033	0.074	-0.247	0.395
	Hedges' correction	0.75416	0.074	-0.245	0.393
	Glass's delta	0.75666	0.074	-0.247	0.394
SoPSed	Cohen's d	0.67824	0.227	-0.086	0.54
	Hedges' correction	0.6815	0.226	-0.086	0.538
	Glass's delta	0.70063	0.22	-0.095	0.534
InstrEfficSed	Cohen's d	0.63733	0.288	-0.027	0.601
	Hedges' correction	0.64039	0.286	-0.027	0.598
	Glass's delta	0.67196	0.273	-0.044	0.587
InspSed	Cohen's d	0.73323	0.03	-0.284	0.343
	Hedges' correction	0.73678	0.03	-0.282	0.342
	Glass's delta	0.72672	0.03	-0.283	0.344

Appendix C4

ID	Treatment_Control	SoB1_FeelValued_ES	SoB2_FeelOutsider_ES	SoB3_FeelExcluded_ES	SoB4_FeelFitIn_ES	SoB5_FeelInsignificant_ES	SoB6_FeelConfortable_ES	CG1_WouldBeGoodAtEarthSci_ES	CG2_CanLearnSkills_ES	CG3_LikeEarthSciCareer_ES
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SoP4_DeepensApprecPlacesVisit_ES	SoP5_MoreAwareOfWorldAroundMe_ES	ESOEx1_SkillsMakeDifInPeoplesLives_ES	ESOEx2_WorkThatIsSatisfying_ES	ESOEx3_GoodEmploymentOpportunity_ES	ESOEx4_EarnRespectFromOthers_ES	ESOEx5_AttractiveSalary_ES
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major_specific_ES	ES_major_ES	student_year_ES	educ_goal_ES	Age_ES	Origins...60_ES	Origins...61_ES	ESL_ES	Gender Identity_ES	Gender Identity_3_TEXT_ES	Ethnicity_ES	Ethnicity_11_TEXT_ES
Finance		1	2	2002	3	3	3	1		9	
		3	3	1999	2	3	2	2		3	
	2	1	4	2002	3	3	3	1		3	
civil engineering		1	2	2002	3	3	3	2		9	
Elementary Education		1	2	2002	3	3	3	1		9	
	2	1	3	2003	3	3	3	1		9	
Computer Science		2	3	2001	3	3	3	1		3	
	1	1	2	2002	2	3	3	2		3	
Civil Engineering		1	2	2002	3	3	3	2		9	
Actuarial Science		1	2	2003	3	3	3	2			
	2	1	4	2003	3	3	3	1		9	
Biochemistry		2	4	2002	3	3	3	1		3	
	1	1	2	2002	2	3	2	2		5	
	1	2	2	2002	3	3	3	2			
Marketing & International Business		1	2	2003	2	3	3	2		3	
Electrical Engineering		2	2	2001	3	3	3	2		9	
communications		2	2	2002	3	3	3	1			
	1	2	2	2001	3	3	3	1		10	
	3	1	4	2003	3	3	3	1		9	
	3	1	3	2003	3	3	3	1		9	
	1	1	2	2003	3	3	3	2		9	
	3	2	2	2002	3	3	3	1		5	
	3	1	2	2003	3	3	3	1		9	
Computer Science		2	2	2002	3	3	3	1		3	
	1	1	4	2003	2	2	2	2		3	
	4	1	3	2003	3	3	3	1		9	
	1	1	4	2002	3	3	3	2		9	
	3	1	2	2002	3	3	3	1		9	
	1	1	2	2003	3	3	3	2		9	
Marketing and International Business		1	2	2003	3	3	3	1		9	
Biology		4	4	2000	3	3	3	1		9	
		1	2	2002	3	3	3	2		9	
	3	1	3	2003	3	3	2	1		9	
	2	1	2	2002	3	3	3	2		9	
	2	1	2	2002	3	3	2	2		9	
	2	1	2	2002	3	3	3	1		9	
	1	1	3	2002	3	3	3	1		9	
Accounting BBA		1	2	2003	3	3	3	2		3	
Data Science		2	3		3	3	3	1		9	
Journalism		1	2		3	3	3	1		9	
Investment, Banking, and Finance		1	2	2002	3	3	3	2		9	
History and Economics		1	4	2002	3	3	3	2		1	
Computer science		1	3	2003	3	3	3	2		3	
	1	1	2	2002	3	3	3	1		9	
	2	1	4	2002	3	3	3	1		9	
	1	2	2	2002	3	3	3	1		9	
Economics and Business Certificate		2	3	2002	3	3	3	1			
Elementary Education		1	3	2003	3	3	3	1		9	
Finance		1	3	2003	1	3	3	2		1	
English		1	2	2002	3	3	3	1		9	
	3	1	4	2003	3	3	3	1		9	
Finance, Investment, & Banking; Pre-law		1	4	2003	3	3	3	2		3	
	1	1	2	2003	3	3	3	2		9	
	1	1	2	2003	3	3	3	2		9	
International Business & Marketing		1	3	2001	3	3	3	1		9	
Civil engineering		1	2	2003	3	3	3	1		9	
History and Political Science		2	3	2001	2	3	3	1		3	
History		3	4	2001	3	3	3	1		9	
journalism and political science		2	3	2001	3	3	3	1		9	
Economics		3	3	1999	3	3	3	2		9	
Elementary education		1	3	2003	3	3	3	1		9	

Environmental engineering		1	2	2003	3	3	2	1	5	
	2	1	2	2003	3	3	3	1	9	
Finance, Investment, & Banking		4	2	1999	3	3	3	1	9	
	2	2	2	2001	3	3	3	2	9	
Kinesiology		1	2	2002	3	3	3	2	9	
	2	1	4	2002	3	3	3	1	9	
Biology		3	4	2001	3	3	3	2	9	
psychology		2	4	1999	3	3	3	2	9	
Political Science and French		2	4	2001	3	3	3	1	5	
Nutritional Sciences and Dietetics		3	3	2001	3	3	3	1	9	
	2	1	2	2002	3	3	3	2	9	
	1	1	2	2003	3	3	3	1	9	
	2	1	3	2003	3	3	3	1	9	
	2	1	2	2002	3	3	3	1	9	
	2	1	2	2003	3	3	3	1	9	
Economics		2	4	2001	3	3	3	2	5	
Finance and Risk Management		3	3	2001	3	3	3	2	9	
Management and Human Resources		1	2	2003	3	3	3	1	9	
Marketing		1	2	2003	3	3	3	2	9	
Entrepreneurship		3	3	1998	1	1	2	2	1	
Management and Human Resources		2	2	2002	3	3	3	1	9	
marketing		1	3	2003	3	3	3	1	9	
	4	1	3	2003	3	3	3	1	9	
	1	2	3	2001	3	3	3	1	9	
	1	1	4	2003	3	3	3	1	9	
	3	1	3	2003	3	3	3	1		
Finance and Computer Science		1	2	2003	3	3	3	2	9	
Computer science		3	2	2000	3	3	3	1	3	
Biology		2	2	2001	3	3	3	1	9	
	1	1	4	2003	3	3	3	1	9	
	2	1	2	2003	3	3	3	2		middle eastern
Human Resources and international business		2	2	2002	3	3	3	1	9	
Finance		1	3	2002	3	3	3	1	9	
Marketing		1	3	2003	3	3	3	1	9	
Legal Studies		2	4		3	3	3	1	9	
	3	2	2	2001	3	3	3	1	5	
Marketing and International Business		1	2	2003	3	3	3	1	9	
	1	2	3	2002	3	3	3	1	9	
Finance		2	2	2002	3	3	3	2	9	
Textiles & Fashion Design		2	2	2002	3	3	3	1	9	
Pre-Business		1	3		3	3	3	1	9	
Marketing		1	3	2003	3	3	3	1	9	
Consumer behavior and market place studies		1	3		2	3	3	1	9	
Marketing		1	2	2002	3	3	3	1	3	
Business- Marketing		1	2	2003	3	3	3	2	9	
	1	1	2	2002	3	3	3		3	
Com Arts		2	2		3	3	3	2	1	
	1	1	3	2002	3	3	3	1	9	
	2	1	3	2003	3	3	3	1	9	
	1	1	3	2022	3	3	3	2	10	
	2	1	2	2003	3	3	2	1	5	
	2	1	3	2003	3	3	3	1	9	
Finance/Real Estate		1	2	2002	3	3	3	2		
	2	1	2	2002	3	3	3	2	9	
	1	1	3	2002	3	3	3	2	9	
Operations and Technology Management		1	3	2003	3	3	3	1	9	
	1	1	3	2003	3	3	3	2	9	
	3	1	2	2002	2	3	2	2	10	
	2	1	2	2002	3	3	3	1	9	
	2	1	2	2003	3	3	3	2	9	
Civil Engineering		1	2	2001	3	3	3	2		
Marketing		1	2	2002	3	3	3	1	9	

Psychology and Spanish		2	3	2002	3	3	3	1	9
Business		1	4	2002	3	3	3	2	9
	1	2	3	2002	3	3	3	1	3
Economics		1	2		3	3	3	2	9
	1	1	2		3	3	3	1	9
Computer Science, Mathematics		2	4	2001	3	3	3	2	9
	2	1	3	2002	2	2	3	2	3
Civil Engineering + Environmental Studies		2	3	2002	3	3	3	2	9
Computer Science		2	3	2001	3	3	3	1	
Civil Engineering		2	3	2002	3	3	3	2	9
	1	1	2	2003	3	3	3	2	9
	2	1	3	2003	3	3	3	1	9
	2	1	3	2003	3	3	3	1	9
Marketing		1	3	2003	3	3	3	1	9
	1	1	4	2003	3	3	3	1	3
Elementary Education		1	2	2003	3	3	3	1	9
	2	1	3	2003	3	3	3	1	9
History, Japanese		1	3	2002	3	3	3	1	
Retail and consumer behavior		1	2		3	3	3	1	9
Retail behavior		1	2	2002	3	3	3	1	9
Computer Science		1	2	2002	3	3	3	2	9
	2	2	4	2002	3	3	3	1	9
Finance		1	3		3	3	3	1	9
Mhr and otm		1	2	2003	3	3	3	1	5
	2	1	4	2003	3	3	3	2	9
	1	1	3	2003	3	3	3	1	9
	1	1	4	2002	3	3	3	2	9
Real Estate		1	2	2003	3	3	3	1	9
Consumer Behavior and Marketplace Studies		1	2	2003	3	3	3	1	9
Mathematics, Data Science		4	2	2000	3	3	3	2	9
Finance and Accounting		1	4	2003	3	3	3	1	9
	1	2	3	2002	3	3	3	1	9
Finance		1	3	2003	3	3	3	2	
Civil Engineering		1	3		2	3	2	1	5
Civil Engineering		2	2	2001	3	3	3	2	9
	2	1	4	2004	2	2	2	2	3
Environmental Engineering		1	4	2003	3	3	3	1	9
Finance, Marketing		1	3	2002	3	3	3	1	9
Finance		2	3	2002	3	3	3	2	9
	3	1	2	2002	3	3	3	1	9
Economics		1	2	2003	3	3	3	2	9
Genetics right now but it will be anthropology		1	3	2003	3	3	3	1	9
Real estate and finance		2	2	2001	3	3	3	2	9
Civil engineering		2	2	2002	3	3	3	2	9
econ		1	3	2003	3	3	3	1	9
	1	1	2	2002	3	3	3	1	
Supply Chain Management and Marketing		1	3	2002	3	3	3	1	
	2	1	3	2003	3	3	3	2	9
	1	1	3	2002	2	3	2	1	3
Finance/Real Estate		1	3	2002	3	3	3	2	
Marketing		1	2	2003	3	3	3	1	9
Human Development and Family studies		1	3	2003	3	3	3	1	9
Economics		3	3	2001	2	2	2	9	3
Data science		3	3	2000	2	1	2	1	3
	3	1	2	2003	3	3	3	2	9
Conservation Biology		2	2	2002	3	3	3	2	9
	2	1	3	2003	2	2	2	2	3
	1	1	3	2001	2	2	2	2	3
	1	1	3	2003	3	3	3	1	9
Psych		1	4		3	3	3	1	
	2	1	2	2003	3	3	3	1	9

psychology and social welfare		2	3	2002	3	3	3	1	9
Civil Engineering		1	2	2003	3	3	3	1	9
Computer Science		2	3		3	2	2	2	3
	1	1	3	2003	3	3	3	1	9
Real Estate Development		1	3	2002	3	3	3	2	9
	1	1	2	2002	2	2	2	2	3
	1	2	3		3	2	3	1	9
Consumer Behavior and Marketplace Studies		2	3	2002	3	3	2	2	5
	2	1	4	2002	3	3	3	1	9
	1	1	2	2003	3	3	3	1	9
Finance and Marketing		2	3	2001	3	3	3	2	9
	1	1	3	2003	3	3	3	1	9
Psychology, Criminal Justice		2	2	2001	3	3	3	1	9
	2	1	3	2003	3	3	3	2	9
	2	1	3	2002	3	3	3	1	9
Human Development and Family Studies		1	3	2003	3	3	3	1	9
	3	1	2	2003	3	3	3	2	3
psychology		2	4	2002	3	3	3	1	9
Finance, Information Systems		2	2	2001	3	3	3	2	9
Legal Studies and History		1	2	2003	3	3	3	1	
Marketing and international business		2	2	20002	3	3	3	1	9
Personal Finance		2	2	2002	3	3	3	2	9
	1	1	2	2002	3	3	3	1	9
	2	1	3	2003	3	3	3	2	9
	3	1	4	2003	3	3	3	1	9
	2	1	2	2003	3	3	3	2	9
Legal Studies		1	4	2003	3	3	3	2	9
	2	1	2	2003	3	3	3	1	5
	2	2	3	2002	3	3	3	2	9
	4	1	2	2003	3	3	3	1	9
	1	2	2	2002	3	3	3	1	10
Finance and Real Estate		2	3		3	3	3	2	9
Finance		1	4	2003	3	3	3	2	9
	1	2	3	2002	3	3	3	2	9
international studies		2	3	2002	3	3	3	1	9
English		1	2	2003	3	3	3	1	9
Economics and International Studies		2	2	2001	2	2	2	1	3
Psychology and Chicano/a & Latino/a Studies		2	4	2001	3	3	3	1	Biracial
Civil Engineering		1	2		3	3	3	2	9
Consumer Behavior and Marketplace studies		2	3	2001	3	3	3	1	9
	1	1	2	2003	3	3	3	1	9
	2	2	2	2001	3	3	3	2	9
Japanese, Global Security		2	2	1998	3	3	3	1	9
Finance and Comp SCi		2	2	2001	3	3	3	2	9
Consumer Behavior and Marketplace Studies		3	2		3	3	3	1	9
	1	1	2	2002	3	3	3	2	9
	1	2	2	2001	3	3	3	1	9
Computer Science		1	2	2003	2	2	2	2	1
civil engineering		1	4	2003	3	3	3	2	9
	1	2	3	2001	3	3	3	1	5
	3	1	2		3	3	3	2	3
Conservation Biology		1	2	2003	3	3	3	1	
	1	1	2	2002	3	3	2	4	1
Finance		2	3	2002	3	3	3	1	5
Journalism and Gender and Women's studies		3	3	2000	3	3	3	1	
pursuing business finance and accounting		2	2	2002	3	3	3	2	9
Finance		1	2		3	3	3	2	
Computer science and data science		2	2	2001	3	3	3	1	9
	3	1	4	2003	3	3	3	1	9
	3	1	3	2002	2	3	2	2	3
PoliSci		2	4	2002	3	3	3	2	9
	1	2	4	2002	3	3	3	1	

	1	1	3	2003	3	3	3	1	
	1	1	2	2003	3	3	3	2	9
	1	2	3	2002	3	3	3	2	9
Civil Engineering		1	2		3	3	3	2	9
	3	1	2		3	3	3	2	9
Business-Real Estate		1	2	2003	3	3	3	2	9
Civil Engineering		1	2	2002	3	3	3	2	9
	3	1	2	2003	3	3	3	1	9
psychology		1	2		3	3	3	1	9
	1	1	2	2003	3	3	3	2	9
Political Science Pre-law		2	4	2001	3	3	3	2	9
	3	1	2	2003	3	3	3	2	1
	4	1	3	2002	2	2	2	1	3
	2	1	2	2003	3	3	3	2	
	3	2	2	2001	3	3	3	2	9
Political Science		2	4	2002	3	3	2	1	5
Civil Engineering		2	2	2002	3	3	3	1	9
Japanese and Computer Science		1		2002	3	3	3	2	3
Education		3	3	2000	2	3	3	1	9
	2	1	2	2003	3	3	3	1	9
Communications		1	2	2003	3	3	3	1	9
Genetics and Genomics		2	4	2002	3	3	3	1	9
Journalism		2	3	2002	3	3	3	1	9
Civil Engineering		2	2	2002	3	3	3	2	9
	2	1	3	2002	3	3	3	1	9
Pre-Business		1	3	2002	3	3	3	2	9
real estate		1	3	2002	3	3	3	1	9
Marketing & Real Estate		4	2	2000	3	3	3	2	
	1	1	3	2003	3	3	3	1	9
Finance		1	2	2003	3	3	3	2	9
Environmental Engineering		2	3	2002	3	3	3	1	9
	1	1	2	2003	3	3	3	1	9
Finance		1	3	2003	3	3	3	1	9
Marketing		1	2	2002	3	3	3	1	
Jounralism and Mass Communications		2	2	2002	3	3	3	1	9
Communication Arts		2	2	2002	3	3	3	9	9
Consumer Behavior and Marketplace Studies		2	3	2002	3	3	3	1	9
	1	1	3		3	3	2	1	9
Finance, Investment, and Banking		1	3	2003	3	3	2	1	3
	3	2	2	2002	3	3	3	2	9
	1	1	3	2003	3	3	3	1	9
Information Systems (BBA)		1	2	2003	3	3	3	2	9
	1	1	3	2003	3	3	3	2	9
finance		1	2	2003	3	3	3	2	3
	2	1	2	2002	3	3	3	1	9
Risk Management & Insurance and Management Human Resources: Entrepreneurship		4	2	1999	3	3	3	2	9
	1	1	3	2002	3	3	3	1	
	2	2	2	2002	3	3	3	2	9
Gender and Women's Studies and Psychology		1	2	2003	3	3	3	1	9
Finance		1	3	2003	3	3	3	2	3
Finance		1	3	2002	3	3	3	2	
	1	2	2		3	3	3	2	9
	1	2	2	2001	3	3	3	1	9
Civil and Environmental Engineering		1	3	2003	3	3	3	2	9
	1	2	3	2002	3	3	3	1	9
Actuarial Science		1	2	2003	3	3	3	2	9
Legal Studies and Sociology		1	4	2002	3	3	3	1	9
	2	3	2	2001	3	3	3	2	
	1	2	3	2002	3	3	3	1	3
	2	1	2	2003	3	3	3	2	1
Psychology		1	2	2003	3	3	3	1	9
	1	1	3	2002	3	3	3	1	1

Data and computer science		2	4	2001	3	3	3	2	9
	1	1	3	2003	3	3	3	1	9
sociology		2	2	2002	3	3	3	1	3
	2	2	4	2002	3	3	3	1	9
Psychology		2	2	2002	3	3	3	2	10
Business marketing and either real-estate or international business		1	3	2002	3	3	3	1	
Economics with Math Emphasis option		3	3	2001	2	2	2	2	9
	1	1	3	2003	3	3	3	1	9
	2	1	2	2002	3	3	3	1	9
Political science, sociology, gender and women's studies		4	4	2000	3	3	3	1	9
Consumer Behavior and Marketplace Studies		1	3	2002	3	3	3	1	9
Computer Science		1	4	2002	2	3	2	2	3
finance		1	2	2003	3	3	3	1	9
	1	1	3	2003	3	3	3	2	1
	1	1	3	2002	3	3	3	1	9
Education Studies		1	3	2002	3	3	2	1	5
	2	1	2	2002	2	2	2	1	3
Finance		1	2	2003	3	3	3	2	9
Marketing		1	3	2003	3	3	3	1	
	2	1	3	2002	3	3	1	1	5
Elementary Education		2		2001	3	3	3	2	9
Civil Engineering		3	3	2001	3	3	3	2	9
Computer Science		1	2	2003	2	3	2	2	3
	2	1	3	2003	3	3	3	1	9
	1	1	3	2003	3	3	3	1	9
Finance		1	2	2003	3	3	3	2	9
	3	1	3	2003	3	3	3	2	9
	3	1	2	2003	3	3	3	2	
Psychology, BA		2	3	2002	3	3	3	1	9
Personal Finance		1	2	2002	3	3	3	1	9
	2	2	3		3	3	3	2	9
geological engineering		1	3	2003	3	3	2	1	9
Business		1	3	2003	3	3	3	2	9
Psychology		2	4	2003	2	2	2	1	3
finance		2	2	2002	3	3	3	1	9
		2	3						
Finance		1	3	2003	3	3	3	2	9
Computer science		2	2	2002	3	3	3	2	10
	1	1	2	2003	3	3	3	2	9
Computer Science		1	2	2003	3	3	3	2	9
	3	2	3	2002	3	3	3	2	9
Computer Science		1	4	2003	3	3	3	2	
Journalism and Mass Communications and French		2	2		3	3	3	1	9
History/Political Science		3	4		3	3	3	1	9
Computer Science		1	2	2003	3	3	3	2	9
Real Estate		1	2		3	3	3	4	1
Business		1	2	2002	2	2	2	2	3
Journalism		2	2	2002	3	3	3	1	9
Psychology and HDFS		1	4	2002	3	3	3	1	10
	1	1	3	2003	3	3	3	2	9
	2	1	2	2003	3	3	3	2	1
Political Science		2	2	2002	3	3	3	2	9
Pre Business		1	3	2002	3	3	3	25	9
	2	1	2	2002	3	3	3	2	9
Accounting		1	3	2002	3	3	3	2	9
	2	1	2	2003	2	1	2	2	3
Political Science		4	2	1999	3	3	3	1	9
civil engineering		1	2	2002	3	3	3	1	9
Personal finance		1	2	2003	3	3	3	2	10
Accounting and computer science		1	2	2003	3	3	3	1	3
Political Science		2	4	2002	3	3		42	9
	3	1	3	2002	3	3	3	2	9

Consumer Behavior		1	2	2002	3	3	3	1	9
	1	1	3	2003	3	3	3	2	9
		2	3	2001	3	3	3	2	
	2	2	3	2001	3	3	3	2	9
computer science		2	2	2002	3	3	3	1	
	2	1	2	2002	3	3	3	2	9
	1	1	3	2003	3	3	3	2	9
	2	2	2	2002	3	3	3	1	
Finance		1	3	2002	3	3	3	2	9
		1	2	2003	3	3	3	2	9
Marketing		3	2	2001	3	3	3	2	9
	1	1	2	2002	3	3	3	2	9
	2	1	3	2002	3	3	3	2	
Consumer Behavior and Marketplace studies		2	2	2002	3	3	3	1	3
Interior Architecture		2	2		3	3	3	1	9

Disability...67_ES	Disability...68_ES	Parents Education_ES	Parents Education_11_TEXT_ES	Veteran_ES	Veteran_5_TEXT_ES	Additional Info_ES	SoP1_SenseOfExploration_Min
2		7		2			4
2		4		2			
2		7		2			
2		7		2			5
2		79		2			5
2		9		2			4
2		9		2			4
2		9		2			
2		7		2			
2		7		2			5
2		10		2			4
2		6		2			4
2	.	9		2		no	
2		9		2			
2		7		2		n/a	
2		7		2			4
2		9		2			4
2		4		3			
2		45		2			4
2		9		2			
2		7		2			
2		7		2			4
2		9		2			4
2		9		2			
2		7		2			4
2		10		2			5
1		8		2			
2		7		2			4
2		7		2		no	4
2		7		2			4
2		56		2			5
2		7		2			
2		4		2			5
2		10		1		no	
2		7		2			
2		7		2			4
2		9		2			4
2		9		2			
2		7		2			
2		9		2			
2		7		1		No	4
1		9		2		Overall as a student and person I love	4
2		9		2			
2		7		2			5
2		10		2			4
2		5		2			
1		7		2			4
2		9		2			
		1		1			3
2		4		2			4
2		5		2			5
2		910		2			
2		7		2			
2		9		2			4
2		6		2			
2		67		2			4
2		9		2			4
2		10		2			3
2		9		2			5
2	ADD but do not consider it a disability (Personally of course)	7		2			
2		6		2			4

2		9	2		5
2		7	2		4
2		6	2		
2		5	2		3
2		79	2		
2	N/A	10	2	I am excited to learn more about the	4
2		7	2		4
2		7	2	nope	4
2		4	2		4
1		79	2		5
		7	2		
2		7	2		4
2		10	2		4
2		7	2		
2	n/a	9	2		4
3	Attention deficit disorder	9	2	N/A. I am excited for the remainder of the course.	
		9	2		
2		7	2		4
2		7	2		4
2		8	2		4
2		7	2	n/a	5
2		10	2		4
2		10	2		
2		10	2		3
2		79	2		3
2		7	2		
3	ADD and Anxiety	710	2		
2		67	2	N/a	5
2		9	2		4
2		7	2		
2		7	2		
2		7	2		
2		7	2		5
2	none	89	2	none	4
2		4	2		5
2		4	2		
2		9	2		
2		7	2		4
2		8	2	no	3
2		7	2		
2	N/A	78	2	N/A	
2		10	2		4
2		9	2	not at this time	
2		7	2		4
2		7	2	no.	4
2		7	2		4
1		7	2		
2		7	2		5
2		7	2	n/a	
2		9	2		4
2		4	2		3
2		78	2		4
2		9	2		
2		7	2	No	4
2		9	2		4
2		7	2		4
2		9	2		
2		4	2	Nope	
2		79	2		4
2		7	2	nope	4
2		10	2		4
2		7	2		4

2		7	2		4
2		78910	2	No :)	
2		7	2		
2		8	2	I love earth.	
2		79	2		
2		910	2		3
2		910	2		4
2		9	2		
2		910	2	No	4
2	I do not have a disability	7	2	no	
2		9	2		4
2		9	2		
2		10	2		5
2	N/A	9	2		4
2		9	2		
2		9	2		4
2		7	2		4
2		1	2		5
2		7	2		4
3	Dyslexia	7	2		
2		9	2		4
2		7	2		
2		10	2		3
2		4	2		
2		10	2		1
2		7	2		
2	reading comprehension disorder	9	2	no	
2		10	2		
2		7	2		
2		9	2	No	4
2		9	2		4
2		10	2		
2		9	2		4
2		10	2		
2		9	2		4
2		9	2		
2		910	2		
2		79	2		
2		5	2		
2		7	2		
2		10	2		4
2		710	2		4
2		9	2		
2		78	2		
2		10	2		4
2		9	2		
2		9	2		
2	N/A	710	2	None	4
1		7	2		
2		7	2		4
2		7	2		
2		910	2	n/a	
2		7	2		
2		9	2		
1	Adhd, anxiety	5	2		
1		4	2		3
3		5	2		4
2		10	2		4
3	I have mental and learning disabilities.	7	2		4
2		7	2		4
2		9	2		

2		7	2			5
2		7	2			4
1		5	2			
2		5	2			
2		9	2			
2		10	2			
2		10	2			5
2		4	2			4
2		6	2			4
2		7	2			
2		4	2			4
3	ADHD	9	2			
2		79	2			2
2		59	2			
2		7	2			4
2		79	2			
2		7	2			4
2		7	2			
2		9	2			5
2		7	5	ROTC		
2		9	2			
2		7	2			
2		7	2			4
2		10	2			
3	OCD/misophonia	10	2			
2		9	2			
2		9	2			3
1		9	2		I didn't know what discussion group I am in so I chose a random one.	
2		10	2		Nope :)	
2		7	2			2
2		9	2			
2		10	2			5
2		9	2			
3	i have type 1 diabetes	9	2			5
2		9	2			5
2		7	2			
1		8	2			
2		10	2			4
		7	2			
2		10	2			4
2		4	2			4
2		7	2			4
2		6	4			
2		7	2		nope	
2		10	2			
2		1	2			3
2		9	2			4
2		9	2			
2		10	2			4
2		4	2			5
2		4	2			
2		710	2			
2		19	2			
2		9	2		None.	4
3	Asperger Syndrome	10	2		Nope	
2	I have raging ADHD like everyone else nowadays	9	2		Though I am majoring in business I have always been really good in the	
3	My mind thinks of too many things!	7	2			
2		7	2			3
2		9	2			3
2		7	2			5
2		9	2			
2		10	2			

2		78	2	N/A	
2		8	2		3
2		7	2		4
2		7	2		4
2		9	2		
2		7	2	no	
2		79	2		
2		79	2		
2		9	2		
2		7	2		
2		7	2		5
1		7	2		
2		7	2		
2		6	2	Nah	3
2		19	2		
2		5	2		
2		9	2		5
2	N/A	7	2	N/A	
2		7	2		
2		7	2		4
2		7	2		
2		7	2	N/A	5
2		9	2		4
2		79	2		4
2		9	2		4
2		7	2		
2		7	2		4
2		79	2		4
2		9	2		3
2		7	2		4
2		9	2		4
2		7	2		5
2		79	2		4
2		9	2		5
2	n/a	9	2	no	4
3	I have Crohn's disease	7	2		
2		78	2		
2		910	2	no	
2		5	2		
2		9	2		5
2		9	2		4
2		7	2		
2		7	2		
2		7	2		
2		10	2		
2		7	2		4
2		6	2		4
2		7	2		
1		5	2		
2		10	2	I like playing golf and basketball.	4
2		10	2		
2		7	2		
2		7	2		4
2		10	2	nope	
2		7	2		
2		7	2		
2		9	2		4
2		79	2		4
2		45	2	n/a	
1		8	2		
2		7	2		
2		9	2		

2		9	2		
2		10	2		
2		7	2		4
2		9	2		
2		1	2		
2		7	2		5
2		9	2		
2		79	2		
2		57	2		
2		6	2		4
1		9	2		
2		7	2		
2		7	2		5
2	none	7	2	great class so far	
2		9	2		3
2		4	2		
2		10	2		5
2		7	2		4
2		7	2		
1		1	2		
2		5	2		
2	N/A	9	2		4
2		9	2		
2		7	2		
2		5	2		
2		9	2		
2		78	2		
2		9	2		
2		9	2		
2		9	2		
2		4	2		
2		9	2		5
2		9	1		4
2		9	2		4
2		9	2		
					4
2		7	2		
2		7	2		
2		10	2	No	
2		9	2		
2		79	2	Nothing more to add	
2		10	2		
3		7	1		
2		710	2		
2		79	2		
2		9	2	no	
2		5	2		
2		7	2		4
2		7	2	no	5
2		9	2		
2		45	2	no	4
2		4	2	N/A	
2		7	2		
2		1910	2		4
2		7	2		5
2		5	2		
2		10	2		4
2		9	2		
2		7	2		
2		79	2		
		7	2		
2	None	9	2	Nope	4

2		9	2		
2	na	8	2		
3	Epilepsy	7	2	No	
2		7	2		
2		6	2		4
2	N/A	9	2	N/A	
2		9	2	I took a geo science class first semester	
2		5	2		5
2		9	2		
2		7	2		
2		7	2		
2		7	2		
2		10	2	no	
2		456	2		
2		10	2		

SoP2_ConnectsMeToNaturalWorld_Min	SoP3_DeepensApprecPlaceLive_Min	SoP4_DeepensApprecPlacesVisit_Min	SoP5_MoreAwareOfWorldAroundMe_Min	Cont1_FeelPreparedForLab_Min	Cont2_ClarifiedLectureMaterial_Min
4	2	2	4	4	4
5	5	5	5	4	3
5	5	5	5	5	4
4	3	4	4	5	4
4	4	4	4	4	4
5	5	5	5	5	5
4	4	4	4	4	4
4	4	4	4	4	3
3	2	2	4	4	5
3	4	4	3	4	4
4	4	4	4	3	4
3	3	2	4	3	4
3	2	2	4	4	4
4	4	4	4	4	4
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4	4	4	4	4	4
4	4	4	3	3	3
4	4	4	4	4	5
4	3	4	5	5	4
5	5	5	5	5	5
4	4	4	4	4	3
4	4	4	4	5	4
4	4	4	4	4	4
5	3	3	5	5	2
5	4	4	4	5	5
4	4	4	4	4	4
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4	3	4	5	5	5
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3	4	2	4	5	4
4	4	4	4	5	5
5	5	5	5	5	5
4	4	4	4	4	4

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4	3	3	4	5	5
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4	4	4	4	3	4
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4	4	4	4	4	4
4	4	4	4	5	5
2	2	4	3	5	2
4	3	3	4	4	4

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2	2	2	4	4	2
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3	2	2	4	4	4
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3	4	4	4	5	4
4	4	4	4	4	4
3	3	3	4	5	4
3	3	3	4	4	2
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4	4	4	4	4	4
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4	4	4	4	5	5
4	5	5	5	5	5
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4	4	4	4	5	5
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4	4	4	4	4	3
4	2	4	4	4	3
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5	5	5	5	5	5
4	5		4	5	4
4	4	4	4	5	5
4	4	4	4	4	4
4	3	3	4	4	5
4	3	3	4	4	4
4	4	4	5	4	5
4	4	4	4	4	4
4	4	4	4	3	3
5	5	5	5	5	5
4	4	4	4	4	5

e sciences and have an interest in it maybe because of my curiosity and how I love to imagine how things work. I am an outdoorsman so this class is very interesting as many of the maps applies to how I fish and navigate terrain.

3	3	3	4	4	3
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5	5	5	5	5	5

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4	4	4	4	5	5
3	3	3	3	3	3
5	3	4	4	5	4
4	4	4	4	4	5
4	4	3	4	5	4
4	4	4	4	5	5
4	4	5	5	4	4
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2	3	4	4	4	4
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3	4	4	4	3	4
3	3	2	4	4	4
4	4	4	4	4	4
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4	4	4	4	3	3
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4	4	4	4	4	3
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4	3	3	4	4	3
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4	4	4	4	5	5
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4	4	4	4	4	3
5	5	5	5	5	5
4	4	4	4	3	3
4	5	5	4	4	5
5	5	5	5	5	5
4	4	4	4	5	4
4	3	4	5	4	4

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4	3	3	4	4	3

Cont3_InterestSeeMoreFieldGeo_Min	Cont4_HelpUnderstandNaturalContext_Min	Cont6_InterestLearnMoreOnTopic_Min	Cont7_WasEngaging_Min	Cont8_RemindedOfPastExperiencesPlaces_Min	Insp1_ExcitingCareer_Min
2	4	2	4	2	2
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5	3	4	4	3	2
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2	3	3	2	2	2
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5	5	5	5	5	4
3	4	3	3	4	3
3	3	3	4	3	2
4	4	4	4	4	4
4	5	5	5	5	4
4	5	4	4	3	3
4	4	4	4	4	2
5	5	4	5	4	4
3	3	3	3	3	3
5	5	5	5	3	4
5	5	5	5	5	5
4	4	4	4	4	2
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4	4	4	4	4	3

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2	5	4	4	4	2
5	4	4	3	3	4
3	4	4	5	2	2
3	3	3	4	4	2
4	4	4	4	5	3
5	5	5	5	5	3
3	5	5	4	4	1
5	5	5	2	4	4
2	3	4	3	2	2
2	2	2	2	2	1
5	5	5	5	5	4
4	4	4	4	3	3
5	5	5	5	5	3
3	4	3	3	4	3
4	4	5	5	3	4
2	4	4	4	4	2
3	3	3	3	3	1
4	3	4	3	4	4
1	2	3	4	3	2
4	4	4	4	4	4
4	4	4	4	4	3
5	5	5	5	5	3
3	5	3	5	2	3
3	4	2	2	3	3
3	4	3	3	5	3
3	4	4	5	2	3
4	4	4	4	4	4
4	4	4	2	4	4
4	4	4	4	4	4
5	5	5	5	5	5
2	2	2	5	4	3
5	4	5	4	4	2

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4	4	3	4	4	4
5	5	5	5	5	4
4	4	4	4	4	3
4	4	4	3	2	3
5	5	5	5	5	4
4	4	4	4	4	4
4	4	4	4	4	4
2	4	4	2	2	3
3	4	4	5	3	4
4	4	5	5	4	4
3	4	3	3	3	3
2	4	3	2	4	2
	1	2	4	3	1
4	4	4	5	5	5
4	4	4	4	4	4
4	3	3	4	3	3
3	4	3	3	3	2
4	4	4	5	3	4
4	4	4	4	5	4
3	4	3	4	4	4
4	4	4	4	4	2
4	4	5	4	3	4
3	3	3	3	3	3
4	4	4	4	4	4
4	4	4	4	4	4
3	4	3	4	3	3
3	4	4	3	4	2

5	5	5	5	5	3
3	4	4	5	4	3
4	4	4	4	4	3
4	4	5	5	4	4
4	4	4	5	4	3
4	4	3	4	4	3
1	2	1	1	2	2
3	4	3	3	4	3
4	4	4	4	4	4
5	5	5	5	5	2
3	4	4	4	3	2
3	4	4	2	3	1
3	2	2	3	3	4
3	3	2	3	3	3
5	5	5	5	5	5
5	5	5	5	3	4
1	4	3	5	5	1
4	4	4	4	4	2
3	5	4	5	2	3
4	4	4	3	4	4
3	4	4	5	2	3
4	4	4	5	4	3
3	4	4	4	3	3
5	5	5	5	5	2
3	3	4	4	3	3
3	3	3	3	3	3
3	3	3	3	3	3
5	5	5	5	5	4

4	3	4	4	3	2
5	5	5	5	5	3
3	3	3	3	3	3
4	4	5	5	5	3
5	5	5	5	4	3
3	5	4	5	4	3
4	5	5	5	4	4
4	4	5	5	4	4
4	4	5	5	3	3
2	4	4	4	4	4
4	4	4	4	4	2
2	4	4	4	4	1
5	5	4	4	4	4
2	3	2	2	3	3
3	3	4	3	4	3
4	4	4	4	4	4
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3	4	2	4	2	2
3	4	3	3	4	2
4	5	4	4	3	4
3	4	3	4	4	3
4	5	5	5	5	4
3	4	3	4	4	4

3	3	4	4	3	3
4	5	4	5	3	4
2	2	2	4	2	1
5	5	5	5	5	4
1	2	2	3	1	1
5	5	5	5	5	3
3	5	4	5	5	3
4	4	3	4	4	4
5	5	5	5	5	5
4	3	4	4	3	2
4	4	4	4	4	4
4	5	5	4	4	4
2	3	2	2	3	1
3	3	3	4	5	2
4	3	3	3	4	4
4	5	5	5	4	3
5	5	5	5	5	5
4	4	4	4	4	4
5	5	4	4	4	4

4	4	4	5	4	3
3	3	4	4	3	4

Insp2_TopicHelpsUnderstandWorld_Min	Insp3_TopicUsefulSociety_Min	Insp4_TopicRelevantMyLife_Min	StudyResource_UseToStudy_Min	AdditionalThoughts_Min	SoP1_SenseOfExploration_Ig	SoP2_ConnectsMeToNaturalWorld_Ig
4	2	2	4	I enjoyed watching a video instea	4	4
					4	2
4	4	3	4	i liked it	5	5
5	5	5	5			
4	4	3	4	I really like how you included photos with the text, but maybe adding more pictures would help underst		
4	3	3	4		4	4
4	3	3	4	Mr. Parrish provided examples th	5	5
4	4	4	4			
3	3	4	3			
					2	2
					4	4
					4	3
2	2	3	3			
3	4	2	2			
					3	3
4	4	4	3			
					4	4
3	3	3	3	I have a rather short attention spa	4	4
4	4	4	5		4	4
4	4	4	4			
5	5	5	5	I thought this video was incredib	5	5
4	4	4	4	I found that including graphics/ir	4	4
4	3	4	4		1	1
4	3	3	4			
5	5	3	5	I thought the video was so helpfu	5	5
5	5	5	1		5	5
					4	4
					4	4
4	4	4	4			
3	3	3	5			
4	4	4	4			
4	4	2	5	The pre lab content was a nice ex	5	4
4	4	5	4	It really helped clarify specific de	5	4
4	4	4	3		4	4
					5	5
4	4	4	4			
					4	4
3	3	3	3	no		
4	3	2	4	the charts/pictures are very helpf	4	4
5	5	5	4		5	5
					4	4
3	3	3	3			
					2	3
4	4	3	4		4	4
4	3	3	5		4	4
4	2	2	4		4	3
4	4	4	5	N/A	5	5
4	3	2	5		4	4

4	4	3	4	I liked that the video had captions for the definitions so it was easier to take notes		
4	4	4	4		4	4
4	4	4	3	I felt it was a little too vague at tir	4	4
4	4	3	4			
4	4	2	4		4	3
4	4	4	4		4	4
4	4	3	5	maybe more of an interactive pre	4	3
4	2	4	5	Zoom in on the objects talked abo	5	5
3	2	2	4		4	3
4	4	4	4	The left column is very narrow so	3	4
4	3	3	5	I thought the energy he brought r	4	3
4	2	3	3		4	3
4	4	3	4		4	4
4	4	4	5		5	5
5	4	4	4	It would be helpful to provide qu	4	4
4	2	2	4		2	3
4	3	3	4		3	4
3	3	2	4		3	3
					3	3
4	3	3	4			
4	4	3	4		4	4
					5	5
4	4	4	4	N/A		
4	4	3	5	It was a short pre-lab, but if there	3	4
4	4	3	4	It was interesting and engaging	5	5
3	3	3	4			
2	3	1	4	Helps with the lab content	3	3
4	3	4	5		4	4
4	3	2	4		4	4
4	4	3	5	It helped me learn more about th	4	4
4	3	3	5		5	5
5	5	5	5		5	5
5	5	2	5	Demonstrations within the video was a huge help		
3	3	3	4	none	4	4
4	3	3	5		3	3
					4	4
2	2	2	4	I thought it was great for an gener	2	3
4	4	4	5	poop		
4	4	4	4		4	4
4	4	4	4			
5	5	5	4	I really enjoed the lab, they are fun and interesting.		
2	5	2	5		4	4
4	2	2	4	Thank you for making it easy to fo	2	2

4	4	4	4		4	4
					4	2
					5	5
4	4	3	4		4	4
4	4	4	5			
					4	4
4	4	2	4	No improvement needed.		
4	3	2	5			
4	4	3	5			
4	4	4	5	I liked how it was!	4	4
					4	4
4	4	3	4		4	3
4	4	4	4			
4	2	2	5			
4	4	3	4	I would like to see in lab crystals in real life and how they scratch against each other to show which one i		
4	4	3	4			
4	4	3	3		4	3
	1	4	3			
					3	4
4	4	4	3	The video was very engaging and	4	4
5	4	3	4			
4	4	3	4			
4	3	2	3			
					4	4
					5	5
4	4	3	4	I liked the comparisons		
5	4	4	4			
4	4	2	5	I enjoyed the video because it wa	4	4
					4	2
4	4	4	2	N/A	4	4
4	4	4	3			
					3	2
					5	5
3	3	3	4		3	3
4	4	4	4		4	4
4	4	4	3			
3	4	3	4			
4	2	2	5		2	4

5	5	5	4		5	5
4	3	4	4		4	4
4	4	4	4		4	5
4	3	3	4		4	4
4	4	4	4			
					4	4
4	3	1	5		4	4
2	4	4	2		3	3
4	3	3	4	It was helpful. I liked the offered v	4	4
4	4	4	3			
4	2	2	2		4	4
4	4	3	3			
					4	4
					5	5
4	2	1	2		4	5
3	2	2	2		3	3
					4	4
3	4	3	4	very informative		
5	5	5	4			
4	3	3	5	I liked this pre lab content better	4	5
5	4	2	4	I liked the table/picture structure	5	4
2	2	2	4		4	4
4	3	3	4			
4	4	2	4		4	4
4	4	3	4			
4	4	4	4			
4	3	4	1		4	4
5	4	4	4	n/a	4	4
					5	5
4	4	4	5	None.	4	4
4	4	3	3			
3	3	3	5			
4	5	5	4		5	5

3	2	2	3		3	4
4	4	3	4		4	4
3	3	3	3	Very good	2	3
4	4	2	4			
3	4	4	5	nah	2	3
4	5	4	4			
					4	4
4	4	3	5			
4	4		2	N/A	4	4
4	3	3	4		4	4
4	4	2	3			
4	5	5	4			
4	4	4	4	n/a		
4	3	2	4		4	4
3	3	3	3			
4	3	3	4		4	4
4	4	4	4	Was put together well. There should be more interactive things popping on screen.		
5	5	3	5		4	4
4	4	2	2		4	4
4	4	2	4			
4	4	3	3	I think it is good the way it is	4	4
					5	5
					4	5
5	5	4	5	Nothing comes to mind	5	5
4	4	4	4		5	5
4	4	2	3		3	3
4	4	3	4			
					4	4
					5	5
4	4	4	4	I think this week's pre-lab was good because of the picture examples to help understand the material. I d		
4	5	4	4		4	5
4	4	4	5		4	4
4	3	4	4			

4	4	3	4			
5	3	3	4	The video was entertaining yet ve	4	4
4	4	3	5	While I thought the video was kir	4	4
4	4	4	3			
3	3	2	4		3	4
5	4	4	4	It sounds really interesting!		
5	5	4	4		4	5
4	3	3	3			
					4	4
5	4	4	4			
4	4	3	4	It was very good	4	4
5	3	3	5			
					4	3
4	4	4	4			
					4	4
					5	5
					4	4
3	3	3	4			
5	5	3	4	n/a	5	5
					4	4
4	3	3	4			
5	4	3	5	I found the video to be helpful as	5	5
5	4	4	4		5	5
					3	4
4	4	4	5			
4	4	4	4	It was good to me.		

4	3	4	4	4	4
3		3	4		
				4	4

SoP3_DeepensApprecPlaceLive_lg	SoP4_DeepensApprecPlacesVisit_lg	SoP5_MoreAwareOfWorldAroundMe_lg	Cont1_FeelPreparedForLab_lg	Cont2_ClarifiedLectureMaterial_lg	Cont3_InterestSeeMoreFieldGeo_lg	Cont4_HelpUnderstandNaturalContext_lg
4	4	4	4	4	2	4
2	2	3	2	2	3	2
5	5	5	4	4	3	4
tanding.						
4	4	4	4	4	4	4
5	5	5	5	5	4	4
2	2	2	1	1	1	2
5	5	4	5	4	3	5
4	4	4	4	4	3	4
3	3	3	4	4	2	2
4	4	4	4	5	4	4
2	2	4	4	4	3	3
5	4	5	5	5	4	3
5	5	5	5	5	5	5
3	3	4	4	4	4	4
1	5	5	5	5	5	5
4	4	5	5	5	5	5
5	5	5	5	5	5	5
5	4	4	4	4	3	3
4	4	4	4	4	4	4
4	3	4	4	4	5	5
4	5	5	4	4	3	4
4	5	4	4	4	3	4
5	5	5	5	3	5	5
4	4	4	4	4	3	4
3	4	5	5	5	3	4
5	5	5	5	5	5	5
3	3	4	3	4	1	4
4	4	4	4	4	3	3
3	3	4	4	4	4	3
4	4	5	5	5	3	2
4	4	5	4	3	3	3
5	5	5	4	4	3	4
3	3	4	4	4	3	4

5	5	4	4	5	2	4
4	4	4	4	4	4	4
4	3	4	3	4	2	4
4	4	4	4	3	4	4
3	4	4	4	4	5	4
4	5	4	4	3	4	5
2	3	3	4	4	2	3
3	3	4	4	4	2	3
3	2	5	4	4	2	4
4	4	3	5	4	2	4
4	5	5	5	4	3	3
5	5	5	5	5	5	5
4	4	4	5	4	2	4
3	4	4	4	4	2	4
3	3	4	4	4	3	3
3	3	3	4	3	2	2
3	3	3	3	3	3	3
4	4	4	3	3	4	4
5	5	5	4	5	4	4
2	2	4	5	5	3	3
5	5	5	4	4	5	4
2	2	2	4	4	3	3
4	5	5	4	5	3	4
4	4	4	4	4	4	4
4	4	4	4	4	4	4
4	4	5	5	5	5	5
5	5	5	5	5	4	5
3	4	4	3	3	2	3
3	3	3	3	3	3	3
4	4	4	4	4	4	4
3	3	3	4	4	2	4
4	5	4	2	4	4	3
4	5	4	3	5	5	5
2	2	4	3	4	1	2

	4	4	4	4	4	4	4
	2	3	3	4	4	2	4
	5	5	5	5	5	5	5
	3	3	4	4	3	3	2
	5	4	3	4	3	4	4
	4	4	4	5	4	4	4
	3	3	4	3	3	4	3
	3	3	4	4	4	4	4
s harder.							
	4	3	4	4	4	3	4
	2	2	4	3	3	2	3
	5	4	4	4	5	4	4
	4	5	5	4	4	3	4
	5	5	5	5	5	5	5
	4	4	4	4	4	3	3
	2	4	5	3	4	4	4
	4	4	4	4	4	5	5
	2	5	5	5	4	3	4
	5	5	5	5	5	5	5
	3	2	3	2	4	3	2
	4	4	4	4	4	4	4
	4	4	4	4	3	4	4

5	5	5	5	5	3	5
4	4	4	5	4	4	4
5	5	5	5	5	5	5
4	4	4	4	4	4	4
4	4	4	4	4	4	4
4	5	4	4	5	4	4
2	2	4	2	2	1	2
4	3	3	5	5	2	4
4	4	4	4	4	4	4
4	4	5	5	3	3	4
5	5	5	4	4	5	5
2	5	3	3	4	3	4
4	4	4	2	2	3	4
4	4	4	4	4	4	4
5	5	5	4	4	3	4
4	4	4	5	2	1	4
4	4	4	2	3	2	4
3	5	3	4	5	3	3
4	4	4	3	3	3	4
4	4	4	4	4	4	4
5	5	5	5	5	5	5
4	3	3	4	3	3	4
5	5	5	5	5	5	5

3	4	4	3	4	3	4
4	4	4	4	4	4	4
3	3	3	3	5	4	4
3	3	4	5	5	3	4
4	5	4	5	5	5	4
4	5	5	5	5	5	5
4	4	4	4	4	3	3
4	4	4	5	5	4	4
3	4	4	4	3	3	4
3	3	4	4	4	3	4
4	4	4	4	4	4	4
4	4	3	3	4	4	3
5	5	5	4	4	3	4
4	4	5	5	5	3	4
5	5	5	5	5	5	5
5	5	5	4	5	5	5
3	3	4	4	3	3	4
3	3	4	4	4	3	4
5	5	5	5	5	5	5
idn't fully understand the description of a streak but when I looked at the picture it made sense.						
5	5	5	5	5	3	4
4	4	4	5	5	3	4

4	4	4	3	3	3	3
3	4	4	2	4	2	4
3	4	4	4	4	1	4
4	4	3	5	4	4	4
4	3	4	3	4	3	4
3	4	3	4	4	4	4
4	4	4	4	4	3	3
3	3	4	4	3	2	4
5	5	5	5	5	5	5
5	5	5	4	5	5	4
5	5	5	5	5	5	5
4	3	4	4	3	4	4
5	5	5	5	5	4	5
5	5	5	5	5	5	5
4	3	4	4	4	4	4
			5	4	3	4

4	5	4	4	4	4	4
4	4	4	5	5	3	4

Cont6_InterestLearnMoreOnTopic_Ig	Cont7_WasEngaging_Ig	Cont8_RemindedOfPastExperiencesPlaces_Ig	Insp1_ExcitingCareer_Ig	Insp2_TopicHelpsUnderstandWorld_Ig	Insp3_TopicUsefulSociety_Ig	Insp4_TopicRelevantMyLife_Ig	StudyResource_UseToStudy_Ig
2	2	2	2	4	4	2	2
2	1	3	2	3	2	3	4
3	3	5	3	4	4	4	4
4	4	4	4	4	4	4	4
4	5	4	3	4	3	3	4
3	1	2	1	2	2	3	3
4	5	3	2	4	4	3	4
4	4	4	2	4	4	4	4
2	2	2	1	2	3	3	4
4	4	4	4	4	4	4	3
4	4	2	4	3	3	3	3
4	4	3	3	4	4	4	5
5	5	5	5	5	5		5
4	4	4	3	4	3	3	4
5	5	5	4	5	5	4	5
5	5	5	4	5	4	4	5
5	5	5	4	5	5	5	5
4	4	4	3	4	4	3	4
4	4	4	4	4	4	4	3
3	4	2	4	5	5	5	4
3	5	4	3	4	4	3	4
4	5	4	2	4	4	4	4
5	5	5	4	4	5	5	4
4	4	4	4	4	4	4	4
3	4	3	2	4	3	3	5
5	5	5	4	4	4	4	1
1	4	4	1	4	3	1	4
3	2	3	3	3	3	3	3
3	3	3	4	3	3	3	4
2	4	3	2	2	2	2	5
3	4	4	3	4	3	3	4
4	4	4	3	4	4	4	4
4	4	3	3	4	3	2	5

4	5	4	3	4	4	4	4
4	4	4	4	4	3	4	4
4	3	4	3	4	4	4	4
4	4	4	4	4	4	4	5
4	2	4	4	4	3	3	4
3	5	3	3	4	3	4	4
3	2	2	1	2	2	1	4
3	2	3	4	4	2	2	4
1	4	3	1	3	1	3	4
4	4	3	2	3	3	2	3
4	4	3	2	4	3	3	3
5	5	5	3	4	4	4	5
2	2	4	1	4	4	4	4
2	4	2	4	3	4	2	4
2	3	3	2	4	3	3	4
2	2	2	2	4	3	3	4
3	3	3	2	3	2	2	4
4	4	4	3	4	4	3	4
4	5	5	5	5	5	5	4
2	4	3	2	4	3	3	4
5	5	5	4	5	5	4	4
3	4	4	1	3	3	1	4
3	4	4	4	4	4	4	5
4	4	4	4	3	2	1	5
4	4	4	4	4	4	4	5
4	5	3	3	5	4	3	5
5	5	5	3	5	5	5	5
2	4	3	3	4	3	3	4
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
4	4	4	2	4	2	2	4
3	2	4	4	4	4	2	4
5	5	5	3	4	4	3	2
1	2	4	1	4	2	2	3

4	4	4	4	4	5	3	5
4	4	3	2	4	3	2	2
5	5	5	3	5	5	4	5
3	3	2	3	4	3	2	4
3	4	4	4	4	4	3	4
4	4	4	4	5	5	5	5
4	4	3	4	3	4	3	2
4	3	4	4	4	4	3	4
3	2	3	3	4	4	4	3
2	3	1	2	4	3	3	3
4	4	5	4	4	3	4	4
3	3	4	3	4	3	2	3
5	5	5	5	5	3	3	4
3	4	4	2	4	4	4	4
2	2	4	2	4	2	2	2
4	5	4	2	5	5	5	3
4	4	5	1	3	4	2	5
5	5	5	5	5	5	5	5
3	3	3	4	3	3	4	5
4	4	4	4	4	4	4	4
4	4	4	2	4	5	4	5

5	5		2	5	5	5	4
4	3	4	4	4	4	4	1
5	4	4	4	4	4	4	4
4	4	4	3	3	3	3	3
3	3	2	2	3	4	2	4
4	3	4	4	4	3	2	5
1	1	2	2	4	4	4	2
4	3	4	4	4	3	3	4
4	4	4	3	3	3	3	2
3	5	5	3	4	3	3	4
5	4	4	5	5	4	5	4
3	2	5	1	3	4	3	4
3	1	4	2	4	3	2	4
4	4	4	2	4	4	2	5
4	4	4	3	4	3	4	3
3	4	2	1	4	4	2	5
1	1	1	1	1	1	1	1
4	4	3	3	5	4	4	4
4	4	3	3	4	4	4	4
4	4	4	4	4	4	4	5
5	5	5	4	5	4	3	4
4	4	2	3	4	4	4	5
5	5	5	4	4	5	5	4

3	4	4	2	3	3	3	4
4	4	4	3	4	4	3	4
3	3	3	3	3	3	3	3
4	5	3	4	4	3	3	5
3	3	4	3	4	3	3	4
5	5	5	4	4	4	4	3
2	4	4	2	3	3	2	4
4	5	4	4	4	3	3	4
4	3	4	3	4	3	2	5
4	3	3	4	4	4	3	4
4	2	2	4	4	4	4	2
3	3	3	4	4	3	3	2
4	4	3	2	4	4	2	4
3	4	4	4	5	3	5	4
5	5	5	5	5	5	5	5
5	5	5	3	4	4	4	4
2	4	3	1	4	4	2	2
3	4	5	2	4	4	4	4
5	5	5	1	5	5	5	5
4	4	4	2	4	4	3	4
4	4	4	3	4	4	3	5

4	4	3	4	4	3	3	4
2	4	2	1	4	2	1	4
1	3	2	1	4	3	2	4
5	5	4	3	4	5	4	4
3	3	4	3	4	4	4	4
4	4	3	2	3	4	3	4
3	4	4	4	3	3	2	5
4	4	3	2	4	3	3	4
5	5	5	5	5	5	5	5
4	4	3	4	5	5	4	4
5	5	5	5	5	5	5	3
4	4	4	3	3	3	3	3
5	5	5	3	5	4	4	5
5	5	5	5	5	4	4	3
4	4	4	4	4	4	5	3
4	4	4	4	4	4	4	3

4	4	4	3	5	4	4	4
3	5	4	1	5	4	4	5

AdditionalThoughts_lg	SoP1_SenseOfExploration_Sed	SoP2_ConnectsMeToNaturalWorld_Sed	SoP3_DeepensApprecPlaceLive_Sed	SoP4_DeepensApprecPlacesVisit_Sed	SoP5_MoreAwareOfWorldAroundMe_Sed	Cont1_FeelPreparedForLab_Sed
We haven't covered any of this ma	3	3	3	3	3	2
	5	5	5	5	5	5
	4	4	4	3	4	4
	4	3	3	4	4	4
	5	5	4	4	4	5
I did not like it						
	4	5	5	5	4	5
N/a						
	4	2	4	4	3	4
	3	3	3	3	3	4
	3	4	3	3	4	4
	4	4	4	4	4	5
	5	5	5	5	5	4
	4	4	4	4	4	4
	2	2	2	2	1	5
	5	4	4	4	5	5
I really like these videos! Nothing	4	4	4	5	5	4
Nothing						
I think it's great	4	4	4	5	4	4
Overall the material provided in t	5	5	4	4	4	3
I think that the pre-lab content w	5	5	4	5	5	4
	5	4	4	5	5	4
	5	5	5	5	5	4
	4	4	3	5	5	4
	3	3	3	4	5	5
	5	5	5	5	5	5
	4	4	3	4	4	4
	4	4	2	4	3	5
	4	4	4	4	4	5
	4	4	4	4	4	5
	4	4	4	4	4	5

	5	4	5	5	4	4
I enjoyed the content. It's hard to	5	5	4	4	5	4
	5	5	5	5	5	5
	4	4	4	3	4	4
The video was fun, all in all well d	4	4	4	4	4	5
I really think that a more interactive pre lab would help me stay engaged						
	4	3	4	4	3	4
	5	5	5	5	5	5
n/a	4	4	4	4	5	4
Again, I find all of his videos to be so engaging due to his evident enthusiasm for the topic. Helps me understand and stay engaged						
	3	3	3	3	3	3
	4	4	3	3	4	4
N/A	5	5	5	5	5	5
	4	4	2	5	4	5
	4	4	4	4	4	4
	3	2	2	2	2	4
	3	2	2	2	2	4
	3	3	3	3	3	4
	3	4	4	4	4	4
	5	5	5	5	5	5
very clear and concise	2	3	2	4	4	5
I really enjoyed this weeks video.	5	5	5	5	5	5
I enjoyed it	3	3	3	4	3	4
	4	4	4	5	4	4
I have no thoughts on improveme	5	5	5	5	5	5
	4	4	4	4	4	4
	5	5	5	5	5	5
	3	4	3	4	4	5
none	3	4	4	4	4	3
	3	3	3	3	3	3
Nothing Specific	4	4	3	4	3	4
	3	4	4	4	4	2
Sick video production... make the videos public!!	3	2	2	3	4	4

	5	5	5	5	5	4
More instructions before working	4	4	5	5	3	4
	5	4	5	4	4	5
None	4	3	4	3	4	2
	4	4	4	4	4	4
	4	4	4	4	4	4
	5	5	5	5	5	5
I really liked it!	4	4	4	5	4	4
	4	4	3	3	4	4
	4	4	4	4	4	4
	4	4	4	4	4	4
	4	4	4	3	4	4
I really enjoyed the field examples	4	4	4	4	4	5
	4	4	3	4	4	4
	4	4	4	4	4	5
	4	4	3	4	4	4
	4	4	3	4	4	4
	5	5	5	5	5	5
I liked the video!	4	4	4	4	3	5
NONE						
n/a						
	4	5	5	4	5	5
	3	3	3	3	3	3
	4	4	3	5	3	5
	4	2	4	3	5	4

	5	5	5	5	5	5
	4	4	4	4	4	4
	5	5	5	5	5	5
	4	4	4	4	4	4
	3	3	3	3	3	3
	2	2	2	2	2	4
	4	3	4	4	3	2
it was interesting and engaging	4	4	3	4	4	5
	4	5	5	5	5	5
	4	4	4	3	4	4
	4	5	4	5	5	4
	4	4	4	5	5	5
N/A	4	2	2	4	4	4
	5	5	5	5	5	5
	4	4	4	4	4	2
	4	4	4	4	5	4
	4	4	3	3	4	5
	4	4	4	5	4	4
	3	3	3	3	3	3
	4	3	3	3	4	3
N/A	4	4	4	4	4	4
I liked the demonstration with the trail mix and the examples of rocks in nature. They were visually engaging and useful for explaining the topics						
None.	4	4	4	4	4	4
	3	3	4	4	3	3
	5	5	5	5	5	5

	5	5	4	5	5	4
	3	3	4	4	3	3
	5	4	4	4	4	4
No						
	4	4	4	4	4	4
	5	5	4	4	4	5
Nah						
	4	4	4	4	4	5
N/A	3	4	3	3	3	4
	4	4	4	5	4	5
	4	3	3	4	4	4
	4	4	4	4	4	4
	4	4	4	4	4	5
	4	4	4	4	4	4
	4	3	3	4	3	
I think maybe less emphasis on m	5	4	4	5	5	4
	4	4	4	4	5	4
	4	5	5	5	5	5
Nothing comes to mind.	5	5	5	5	5	5
	4	4	4	4	4	4
	3	3	4	3	5	4
I liked how in-depth and interesting the video was. The person who makes the pre-lab videos is always so engaging and helps me grasp the topics that we're going to cover better.						
	4	4	5	4	5	4
	4	4	4	4	4	5
	5	4	4	4	4	5
	4	4	4	4	4	5

	4	4	5	4	4	4
	4	4	4	5	5	4
The first video was nice where their were definitions on the screen versus the second which was hard to follow along. I like to take notes during the pre lab videos so him explain these scientific terms without it written on the screen can get confusing						
Again, I didn't like the humor in th	3	4	3	4	4	4
	4	4	4	4	4	5
	5	5	5	5	5	5
	4	4	4	5	5	5
	4	4	4	4	4	4
	4	4	3	4	3	4
	5	5	3	4	5	5
	5	4	4	5	4	4
	4	4	4	4	4	4
	4	4	4	5	5	4
little long						
	4	2	5	5	4	4
	1	1	2	2	1	4
I think it is great and useful	4	4	3	4	4	5
	4	4	5	4	5	5
	4	4	4	4	4	4
	4	4	4	4	4	4
I really liked the breakdown of th	4	5	4	4	5	4
n/a	5	5	5	5	5	5
	5	5	5	5	5	5
	5	5	5	5	5	5
no	3	3	3	3	3	3
	4	4	4	4	4	5
No additonal thoughts	4	4	4	4	4	4

	4	4	2	2	4	5
	5	4	4	5	4	5
	4	3	3	4	3	4
	4	4	4	4	4	5
Having a video and the short read	4	4	4	4	4	4

Cont2_ClarifiedLectureMaterial_Sed	Cont3_InterestSeeMoreFieldGeo_Sed	Cont4_HelpUnderstandNaturalContext_Sed	Cont6_InterestLearnMoreOnTopic_Sed	Cont7_WasEngaging_Sed	Cont8_RemindedOfPastExperiencesPlaces_Sed	Insp1_ExcitingCareer_Sed
2	3	3	3	3	3	3
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5	3	5	2	3	5	1
4	2	4	4	4	4	4
4	4	4	4	3	4	5
4	2	3	2	3	2	1
3	2	2	2	2	2	2
4	2	3	2	2	2	2
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4	4	4	4	4	3	2
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5	3	5	3	5	4	3
3	4	2	3	3	4	3
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3	2	2	2	2	3	3
4	3	4	2	2	4	2

4	2	4	4	4	4	4
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4	2	3	3	4	4	2
5	2	4	2	2	4	2

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4	4	4	4	4	4	4
3	3	3	3	3	3	3
4	4	4	4	2	3	1
3	2	2	2	2	3	2
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3	4	3	3	4	4	2
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3	3	4	4	4	4	4
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3	3	3	3	3	3	1
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4	4	4	4	4	4	3
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5	3	4	4	4	4	4

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5	4	5	4	4	4	4
4	4	4	4	4	4	5

4	3	4	4	4	4	2
5	4	4	4	4	4	3
4	3	3	2	2	3	2
4	5	3	3	5	4	2
4	3	4	3	4	4	1

Insp2_TopicHelpsUnderstandWorld_Sed	Insp3_TopicUsefulSociety_Sed	Insp4_TopicRelevantMyLife_Sed	StudyResource_UseToStudy_Sed	AdditionalThoughts_Sed	SoB1_FeelValued_LS	SoB2_FeelOutsider_LS	SoB3_FeelExcluded_LS	SoB4_FeelFitIn_LS
					4	4	4	4
3	3	3	1		4	5	5	4
5	5	5	5		5	4	5	5
					5	5	5	5
4	3	3	4	I liked the recap of grain shape, size, a	5	1	1	5
					4	4	3	4
					5	5	5	4
4	4	3	4					
4	4	3	4	I enjoy seeing different real world loca	5	4	5	4
					4	4	4	4
					5	5	5	4
					4	3	3	3
4	4	3	4		4	1	4	4
					4	4	2	3
3	3	3	3					
4	4	3	4		2	3	4	2
					5	4	4	4
					5	4	4	2
					3	3	3	3
					5	3	4	3
4	4	3	5		5			
3	4	3	4		5	4	4	4
					4	3	3	3
5	5	5	4	Maybe cut out like just 30 seconds of	5	4	4	5
4	3	3	4		4	4	4	3
4	5	5	4		4	4	4	4
5	4	3	5	I have no suggestions	4	4	4	4
4	3	3	4	I always like these videos and will con	4	4	4	4
					1	4	4	4
					5	5	5	5
3	3	3	2		4	4	4	4
					4	4	4	3
					3	5	4	4
					5	5	5	3
					3	3	3	3
					4	2	2	4
5	4	3	4	The prelabs provide students with a g	4	4	5	4
					4	5	5	4
4	4	4	4	It was very helpful in further explaini	5	5	5	3
4	5	4	4					
5	5	5	4		5	4	4	4
5	4	3	3					
					4	4	4	3
					4	2	2	4
4	3	3	4		5	5	5	4
4	4	4	5		5	5	5	5
					5	5	5	5
					5	4	5	4
			4					
4	3	2	5		3	2	4	2
3	3	3	3		5	2	5	2
4	4	4	4	n/a	5	5	5	5
3	3	3	5		4	4	4	4

					5	5	5	5
4	4	5	4		5	4	4	4
5	4	5	4	I thoroughly enjoyed this week's pre-l	5	4	4	3
4	4	4	5	n/a	5	5	5	5
4	4	3	4		4	3	4	3
4	4	4	4		4	5	5	4
					5	5	5	4
4	2	4	4		5	5	5	4
5	5	5	5	very descriptive	5	5	5	5
					4	4	4	4
4	3	3	4	n/a	4	4	4	3
					5	4	4	4
					2	1	1	1
					5	5	5	5
3	3	3	4					
3	2	2	3		4	4	4	4
					4	4	4	4
					5	1	1	5
5	4	4	4	N/A	5	5	5	5
4	4	2	4		4	3	4	4
4	4	4	4	More videos	5	4	4	5
2	3	3	4		2	2	3	3
3	3	3	4		3	3	3	2
					4	4	4	4
2	2	2	3		3	2	4	2
					5	5	5	5
4	4	3	4		5	4	5	4
4	3	2	3					
					4	4	4	4
					4	4	4	4
					5	5	5	5
4	4	3	4	None				
5	5	4	4	These videos are so sick. Keep it up	5	4	4	4
					5	4	4	4
					4	4	4	4
2	4	2	4	Helped prepare for lab	4	2	2	4
					4	4	4	3
					5	4	4	4
4	4	4	4		4	4	2	4
					4	4	3	2
4	4	4	4	I have none				
4	4	3	5					
4	5	5	5		5	5	5	5
					4	4	4	3
3	3	3	5		4	5	5	4
4	4	4	4	none	5	2	3	3
3	3	3	4		4	4	4	4
3	3	3	4	N/A				
					4	2	2	4
4	4	3	2		4	3	4	4
					4	3	3	3
					4	2	2	4
					5	1	4	4
					5	5	5	5
3	2	2	3					

5	4	3	5		5	5	5	5
1	2	2	2		4	4	4	4
4	4	3	3		5	5	5	5
4	5	3	4	None				
					5	4	4	4
					4	2	2	
4	3	2	5		3	3	3	3
4	4	4	4		5	5	5	4
4	5	3	5	It was good information and will help	5	4	4	5
4	4	4	5	N/A	4	5	5	4
4	4	4	1		4	4	4	4
4	4	3	4		4	4	4	4
2	2	2	4		4	4	4	4
					5	4	4	4
					4	4	4	4
					1	5	5	1
					4	4	4	3
					4	5	5	4
4	4	4	4					
					5	5	3	3
					3	3	3	3
					5	4	4	4
5	4	4	3	The field examples are always helpful	4	4	4	4
					4	4	5	3
4	3	3	3		4	4	4	4
4	4	3	5		5	5	5	4
3	4	2	2		4	4	4	4
					5	5	5	5
					5	4	4	4
4	3	3	4		4	4	4	4
					3	3	3	3
					5	5	5	5
5	5	5	4	I thought it was good	5	1	1	5
4	4	4	4		5	4	4	5
					5	5	5	5
					4	2	4	2
					5	1	1	5
					4	4	4	4
					4	4	4	2
4	3	3	5		4	4	4	4
3	3	3	5		3	3	3	3
					4	5	5	4
4	4	3	5		4	4	4	3
4	4	2	4		4	4	5	4

5	5	5	5		5	1	1	5
4	4	3	4		4	4	4	4
3	1	1	4	none	5	5	5	5
					3	3	3	3
4	4	4	5		4	4	5	4
					5	5	5	4
3	3	3	2		4	4	4	4
					5	3	4	3
					5	2	4	4
					4	2	2	4
2	3	2	4		5	3	5	3
2	4	4	2		4	2	4	2
					5	5	5	5
4	3	3	5	I find videos really engaging, so mayb	4	3	4	3
					5	3	4	2
					4	4	4	4
5	4	4	5					
4	4	3	4					
					4	4	4	4
					5	4	4	4
					3	4	4	4
					4	4	5	4
					5	5	5	5
4	3	5	4					
4	3	1	4		4	4	4	3
					5	4	5	4
1	5	4	4		4	5	5	4
5	5	5	4					
1	2	1	2		5	3	3	4
					5	5	5	5
4	4	4	3					
					5	5	5	5
					4	3	3	4
4	4	2	4		4	4	4	4
4	4	4	3		4	4	4	4
3	3	3	1					
4	3	4	4		4	3	4	3
4	4	4	4	n/a	5	4	4	5
					5	5	1	5
4	4	4	5	None.	4	4	4	4
5	4	3	3	n/a	3	2	4	3
					5	5	5	4
					4	4	4	4
5	5	5	4		5	4	4	5

4	4	4	4		4	4	4	4
3	4	4	3		3	3	3	3
4	4	3	4		4	3	4	3
					4	4	4	4
					5	5	5	5
					5	4	4	4
3	3	3	4		5	5	5	5
					4	4	4	4
4	3	2	5		5	4	5	3
					5	4	4	5
					5	5	5	4
5	5	5	5		5	5	5	4
					5	3	5	5
4	4	4	3	n/a	4	4	4	4
4	3	3	4		4	4	5	4
					4	3	4	4
					4	4	5	3
3	3	2	4		4	4	4	4
4	4	4	3	Very well-edited				
4	4	3	5		4	4	4	4
4	4	2	2	Just in general when it says take quiz to complete the survey, I think the wording should change to complete the survey since we				
3	3	4	3	nothing	5	5	5	5
4	3	2	4	n/a				
4	4	3	3					
					5	5	5	4
4	4	4	5					
5	5	5	5	N/A	5	5	5	5
4	4	4	4		4	5	5	4
					3	3	3	3
					5	5	5	5
4	3	4	4	I thought this week's prelab content was done well.				
4	3	4	4	I think adding a video would make it r	5	5	5	5
					4	4	4	4
					4	4	4	4
4	4	4	4		5	5	5	4
					4	5	5	3
					4	5	5	4
5	4	3	5		4	3	4	4
4	4	4	4					
					3	3	3	3
					1	1	1	2

					4	4	4	4
4	4	4	4		5	1	5	1
4	5	3	2	It was cool, doesn't need improving				
					5	1	1	5
2	3	1	4	I really don't like the weird segments I	4	1	5	2
					4	5	5	4
					5	5	5	4
					2	4	3	3
4	4	4	5					
5	4	5	5	I like it:)	5	5	5	5
4	5	5	4		4	4	4	4
					3	3	3	3
5	5	4	4					
					4	4	4	4
5	4	3	4		5	5	5	5
5	3	3	3		4	3	5	3
4	4	2	3					
					5	5	5	5
4	4	3	4					
					5	5	4	3
4	4	4	3		5	1	5	4
4	3	2	4		5	5	5	5
3	3	1	3	I think its great and very hands-on	4	3		3
4	3	3	4	Well organized	4	4	4	3
5	4	3	4	I dont think any imporevment	5	4	4	3
4	4	4	4	I enjoyed the video I thought it was h	5	4	4	5
4	4	4	4		5	4	5	5
5	5	3	4					
					4	4	4	4
					4	4	5	4
5	5	5	3	n/a	5	3	1	2
					5	5	5	5
					4	4	4	4
5	4	4	5		5	5	5	5
5	4	4	4					
3	3		5		3	2	2	2
4	4	4	4					
					5	5	5	5
					5	4	4	5
4	3	4	4	none as of now	4	4	4	4

4	4	4	4		4	4	5	5
					3	3	3	3
4	4	3	4					
					4	4	4	3
4	4	2	4	Not much	4	4	4	4
					5	5	5	5
					3	5	5	3
					5	5	5	4
3	4	3	4	I think the video was really cool! I did	4	4	4	2
4	4	4	5		4	4	4	4

SoB5_FeelInsignificant_LS	SoB6_FeelConfortable_LS	CG1_WouldBeGoodAtEarthSci_LS	CG2_CanLearnSkills_LS	CG3_LikeEarthSciCareer_LS	CG4_ExcitingCareer_LS	CG5_EarthSciAllowsUnderstandWorld_LS	CG6_EarthSciUsefulSociety_LS
4	4	2	4	1	2	4	4
5	4	3	4	1	3	4	4
5	5	4	4	3	5	5	4
5	5	4	5	3	4	4	5
4	5	3	4	3	3	5	5
3	3	2	2	2	2	2	4
5	4	5	5	1	3	4	4
5	4	4	3	3	4	4	5
2	4	4	4	2	4	4	4
5	3	3	3	2	3	3	4
4	3	2	2	2	2	2	4
5	5	3	2	2	4	5	5
4	4	3	3	2	2	3	4
4	3	3	4	2	2	4	4
4	5	3	4	2	2	4	4
4	4	5	4	3	5	5	5
4	4	4	4	2	2	3	4
5	5	2	3	2	4	4	5
		2	4	2	2	5	5
3	4	4	4	2	4	3	4
3	4	3	3	2	3	4	4
4	5	5	5	5	5	5	5
4	4	4	4	3	3	4	4
5	5	4	4	2	4	4	4
4	4	4	4	2	4	5	4
4	4	4	4	3	4	4	4
4	4	3	3	3	4	5	5
5	5	5	5	3	5	5	5
4	4	3	3	3	4	4	4
3	4	3	4	2	4	4	4
3	4	3	4	1	4	5	3
5	4	2	3	2	2	4	5
3	3	3	3	3	3	3	3
2	4	4	4	4	4	4	4
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5	4	2	4	1	3	4	5
4	4	2	3	2	4	5	4
4	4	4	4	3	4	4	4
4	4	2	3	2	4	4	5
2	4	4	4	4	4	4	4
4	4	4	4	1	3	5	5
5	5	4	4	3	4	4	4
5	5	3	3	3	3	3	3
5	5	4	4	2	3	5	5
2	3	2	2	1	1	4	4
5	3	2	4	1	3	5	5
5	5	4	5	2	4	5	5
4	4	3	4	2	3	4	4

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4	4	4	4	3	4	4	4
4	4	4	4	2	4	5	5
5	5	4	4	3	4	4	4
4	4	2	4	2	2	3	4
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4	4	4	4	3	4	5	5
5	5	3	4	3	3	5	3
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4	4	2	3	1	2	4	3
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4	4	3	2	2	2	4	4
4	4	3	3	2	3	4	4
2	5	3	5	3	4	4	4
5	5	2	5	1	2	5	5
4	4	4	4	2	4	4	5
4	4	5	5	5	5	5	5
2	3	2	2	1	3	4	4
3	3	2	4	1	1	4	4
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already have to take a pre lab quiz that is completed by clicking a different button.

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CG7_EarthSciRelevantMyLife_LS	SoP1_SenseOfExploration_LS	SoP2_ConnectsMeToNaturalWorld_LS	SoP3_DeepensApprecPlaceLive_LS	SoP4_DeepensApprecPlacesVisit_LS	SoP5_MoreAwareOfWorldAroundMe_LS	ESOEx1_SkillsMakeDifInPeoplesLives_LS
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ESOEx2_WorkThatIsSatisfying_LS	ESOEx3_GoodEmploymentOpportunity_LS	ESOEx4_EarnRespectFromOthers_LS	ESOEx5_AttractiveSalary_LS	IntEd1_IntendTakeMoreEarthSci_LS	IntEd2_IntendPursueCareer_LS	IntEd3_IntendLearnMore_LS
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IntEd4_IntendGradSchoolForEarthSci_LS	WhyGeo100_LS	WhyGeo100_5_TEXT_LS	prev_STEM_LS	prev_ES_LS	DeclaredMajor_LS	major_broad_LS	major_specific_LS	ES_major_LS	student_year_LS
1	1		3	1	2	3	Finance		1
1	1		3	1	1			1	1
2	3		4	1	2	4	Civil engineering		1
2	4		2	1	2	1	Elementary education		1
2	1		2	1	1			3	1
2	1		5	2	2	4	Computer Science		2
1	1		5	1	1			1	1
3	1		2	1	2	3	Actuarial Science		1
2	1		3	1	1			2	1
3	1		3	1	2	2	biochemistry		2
1	1		3	1	1			1	1
1	1		5	1	2	4	Statistics		2
2	3		1	1	2	3	Marketing and International Business		1
2	1		2	1	1			1	2
5	1		2	1	1			2	1
3	1		3	1	1			3	1
1	1		2	1	1			1	1
2	1		2	2	2	1	Creative Writing		2
2	1		1	1	1			2	1
2	1		5	2	2	4	Computer Science		2
2	1		2	1	2	1	Sociology		1
5	2		3	1	1			5	1
2	3		2	1	1			2	1
2	1		2	1	1			1	1
1	1		2	1	2	3	Marketing and International Business		1
2	3		5	3	2	2	Biology		4
1	2		5	1	2		Civil Engineering		1
3	3		3	2	1			3	1
3	1		2	1	1			3	1
2	1		2	1	1			1	1
1	1		2	2	2	3	Accounting BBA		1
1	1		5	1	2	4	Data Science		2
3	1		2	1	2	1			1
3	3		2	2	2	1	Finance		1
2	4		1	1	2	1	History and Economics		1
1	1		5	1	2	4	Computer Science		1
2	1		2	1	1			1	1
1	1		2	2	1			2	2
2	1		2	1	1			1	1
4	3		1	1	2	3	business		1
1	1		2	1	2	1	English		1
2	1		3	1	1			2	1
2	1		3	1	2	3	FINANCE, LAW		1
1	1		3	3	2	1	Chinese BA		1
1	1		2	1	2	1	History		2
1	1		3	1	2	1	History		3
1	1		2	1	2	1	Journalism and Political Science		2
2	1		2	1	2	3	Elementary Education		1

3	2	3	1	2	3	Environmental engineering		1
3	4	2	1	2	3	Finance/Accounting		1
1	1	4	1	1			1	2
2	1	4	1	2		Health equity and health promotion		1
1	1	5	1	2	2	Biology		3
2	1	3	1	2	1	Psych & Philos		2
2	1	3	1	2	1	political science and french		2
1	3	5	1	2	2	Nutritional Sciences and Dietetics		3
3	1	1	1	1			3	1
1	1	3	1	1			1	1
2	1	4	2	2	1	Psychology		1
2	4	2	1	2	3	consumer behavior and marketplace studies		1
1	1	2	1	1			1	1
2	4	2	2	2	1	Economics/English		2
1	1	3	1	2	3	Management and Human Resources		1
1	3	2	1	2	3	Marketing		1
3	1	2	1					3
1	4	2	4	2	3	Management and Human Resources		2
1	1	2	1	2	3	marketing		1
5	2	3	2	1			4	1
1	1	1	1	2	3	Real Estate with an Accounting certificate		2
2	1	1	1	1			1	1
2	1	2	1	1			3	1
1	1	3	1	2		Finance and Computer Science		1
2	1	5	1	2	4	Computer Science		3
2	3	5	1	2	2	Biology		2
3	1	2	1	1			2	1
1	1	4	2	2	3			2
2	1	2	1	2	3	Finance		1
2	1	3	2	2	1	Legal Studies and Socioloyg		2
3	3	2	1	1			3	2
1	1	2	2	2	3	International Business and Marketing		1
2	1	1	1	2	3	Finance		2
2	1	4	1	2	1	Textile & Fashion Design		2
1	3	2	3	1			2	1
1	1	1	1	2	3	Marketing		1
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2	1	3	1	1			2	1
4	1	2	1	1			1	
2	1	2	1	2	3	Operations and Technology Management		1
3	1	2	1	2	1	Health Promotion and Health Equity		1
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1	1	4	1	1			1	2
1	1	4	5	2	1	Economics		1
3	3	5	1	2	4	Computer Science		1
1	2	5	4	2	3	Civil Engineering		2
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1	1	1	1	2	1	Interior Architecure		1
1	1	2	1	2	3	Marketing		1
2	1	4	1	2	4			1
2	1	2	1	2	3	Elementary Education		1
2	1	3	1	1			2	1
1	1	2	1	2	1	History, Japanese		1
2	1	2	1	2	1	Retail and consumer behavior		1
1	1	1	1	2	3			1
2	1	4	1	2	4	Computer Science		1
3	3	5	1	2	2			2
1	1	2	2	2	3	MHR AND OTM		1
1	1	3	4	2	1	Personal Finance		1
1	1	2	1	2	3	Real Estate		1
2	3	5	3	2	4	Data Science, Mathematics		4
1	1	2	1	2	3	Accounting and Finance		1
1	1	2	1	2	3	Finance		1
1	1	4	1	2	4	Civil Engineering		1
1	1	5	1	2	3	Civil Engineering		2
3	4	4	1	1			2	1
1	1	3	1	2	2	Environmental Engineering		1
2	1	2	1	2	3	Finance/Marketing		1
3	1	2	1	2	3	Finance		2
1	1	3	1	1			3	1
1	1	3	1	2	3	Real Estate and Finance		2
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1	1	2	1	1			1	1
1	1	2	1	2	3	Supply Chain Management and Marketing		1
2	1	1	1	2	3	Finance and Real Estate		1
2	4	1	1	2	3	Marketing		1
1	1	3	1	2	1	Ecnomics		3
2	1	5	2	2		Data Science		3
3	1	5	3	2	2	Conservation Biology		2
2	1	2	1	2	1	Economics		1
2	1	3	1	1			1	1
1	1	3	1	1			1	1

2	1	2	1	2	1	psychology and social welfare		2
3	1	5	1	1			3	1
1	1	1	1	1			1	1
1	1	2	1	2	3	Real Estate		1
2	1	4	1	1			2	1
2	1	2	1	1			2	2
2	1	3	1	2	1	Consumer Behavior and Marketplace Studies		2
2	1	2	1	2	1	English		1
2	1	2	1	1			1	1
1	1	2	1	2	3	Finance and Marketing		2
1	1	2	1	1			1	1
2	1	3	1	2	1	Psychology, Criminal Justice, Education		2
5	3	2	3	1			3	1
2	1	3	1	1			2	1
1	1	4	1	2	3	Finance; Information Systems		2
2	1	2	1	2		Personal Finance		2
2	1	2	1	1			1	1
2	1	5	1	1			2	2
1	3	5	1	2	2	Atmospheric and Oceanic Sciences, Environmental Sciences		1
1	1	3	1	2	3	Finance and International Business		1
1	1	5	1	2	4	Computer Science and Data Science		2
2	4	2	1	2	1	English		1
2	1	2	1	2	1	Economics and International Studies		2
1	1	3	1	2	1	Psychology and Chicano/Latino Studies		2
2	1	5	1	2	3	Consumer Behavior and Marketplace Studies		2
2	4	2	1	1			2	1
2	1	4	2	2	1	Japanese and International Studies		2
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2	3	3	2	2	1	Journalism and Mass Communications and Gender and Women Studies		3
1	4	2	3	2	3	Intended to major in finance and accounting		2
2	1	2	1	1			2	1
3	1	3	2	2		math， economics		1

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2	1	2	1	2	4	Data Science		1
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2	3	2	1	1			3	1
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2	3	2	2	1			2	1
2	1	5	1	2	3	Civil Engineering		2
2	4	2	1	1			3	1
2	1	2	1	2	1	Journalism		1
2	3	5	1	2	2	Genetics		2
1	4	2	1	2	1	Strategic communication		2
1	3	2	2	1			2	1
1	1	2	1	1			1	1
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1	1	2	1	1			2	1
3	4	3	1	2	1	Journalism and Mass Communications		2
1	1	2	1	2	1	communication science and dissorder		1
2	3	3	1	2	1	Psychology		2
1	1	1	1	1			1	1
3	1	2	2	2	3	Finance		1
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1	1	3	2	1			1	2
1	4	5	1	2	4	Civil Engineering		1
1	1	3	1	2		Actuarial Science		1
1	1	2	1	2	1	Legal Studies and Sociology		1
1	1	2	1	2	1	Gender and Women Studies		2
1	1	2	1	1			2	1

2	1	5	1	2	4	Computer Science and Data Science		2
3	1	4	1	2	1	Sociology		2
4								
1	1	1	1	2	1	triple major in Political Science, Sociology, and Gender and Women's Studies		4
1	1	2	1	2	1	Consumer Behavior and Marketplace Studies		1
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1	1	2	2	2	3	consumer behavior and marketplace studies		1
1	3	3	2	1			2	1
2	1	2	2	2	3	Finance		1
2	1	2	1	2	1	Social Welfare		1
2	1	5	1	2	3	Civil Engineering		3
2	4	2	1	2	3	Business Management and Human Resources		1
1	1	2	1	1			1	1
2	3	4	3	1			2	1
1	4	2	2	2	3	Personal Finance		1
3	2	5	1	2	4	geological engineering		1
1	1	3	1	2	3	Finance, Investment, and Banking		2
2	3	3	3	2	4	Computer science		2
2	1	2	2	1			1	1
3	3	2	1	2	1	Economics		2
3	1	3	1	2	4	Data Science		1
1	1	2	1	2	1	Journalism and Mass Communications and French		2
2	1	4	2	2	4	Computer science		1
2	1	2	1	2	1	Business		1
2	4	2	1	2	1	HDFS and psychology		1
3	3	4	1	1			1	1
1	1	5	1	2	1	Political Science		2
1	1	2	1	1			2	1
4	3	3	1	1			1	1
1	1	2	1	2	3	Accounting and computer science		1
2	1	3	1	2	1	Political Science		2
3	3	2	2	1			3	1

1	1	2	1	2	3	Consumer Behavior and Marketplace Studies		1
3	1	1	1	2				
1	1	3	1	1			1	1
1	1	2	2	1			1	1
2	3	4	1	2		mechanical engineering		1
1	1	2	1	1			2	1
2	3	2	1	2	3	Real Estate		1
2	1	3	2	2	3	Consumer Behavior and Marketplace Studies		2
1	1	1	1	2	3	Interior Architecture		2

educ_goal_LS	Age_LS	Origins...60_LS	Origins...61_LS	ESL_LS	Gender Identity_LS	Gender Identity_3_TEXT_LS	Ethnicity_LS	Ethnicity_11_TEXT_LS	Disability...67_LS	Disability...68_LS
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3	2003	3	3	3	1		9		2	
3	2001	3	3	3	1		3		2	
2	2002	2	3	3	2		3		2	
2	2003	3	3	3	2				2	
4	2003	3	3	3	1		9		2	
3	2002	3	3	3	1		3		2	
2	2002	2	3	2	2		5		2	
2	2002	3	3	3	2				2	
2	2002	2	3	3	4		3		2	
2	2001	3	3	3	1		10		2	
4		2	3		1		9		2	
3	2003	3	3	3	1		9		2	
2	2003	3	3	3	2		9		2	
3	2002	3	3	3	2		5		2	
2	2003	3	3	3	1		9		2	
3	2002	3	3	3	1		3		2	
4	2003	2	2	2	2		3		1	
3	2009	3	3	3	1		9		2	
3	2002	3	3	3	1		9		2	
2	2003	3	3	3	2		9		2	
2	2003	3	3	3	1		9		2	
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2	2002	3	3	3	2		9		2	
2	2002	3	3	3	1		9		2	
2	2003	3	3	3	2		3		2	
3	2002	3	3	3	1		9		2	
2	2003	3	3	3	1		9		2	
3	2002	3	3	3	2		9		2	
4	2002	3	3	3	2		1		1	
3	2003	3	3	3	2		3		2	
2	2002	3	3	3	1		9		2	
2	2002	3	3	3	1		9		2	
3	2003	3	3	3	1		9		2	
3	2003	3	3	3	2		9		2	
2	2002	3	3	3	1		9		1	
4	2003	3	3	3	1		9		2	
4	2003	3	3	3	2		3		2	
2	2003	3	3	3	2		9		2	n/a
3	2001	2	3	3	1		3		2	
4	2001	3	3	3	1		9		2	
3	2001	3	3	3	1		9		1	
3	2003	3	3	3	1		9		2	

2	2003	3	3	3	1	5	2	
2	2003	3	3	3	1	9	2	
2	2001	3	3	3	2	9	2	N/A
4	2002	3	3	3	1	9	2	
4	2001	3	3	3	2	9	2	
4	1999	3	3	3	2	9	2	
4		3	3	3	1	5	2	
3	2001	3	3	3	1	9	2	
2	2002	3	3	3	2	9	2	
2	2003	3	3	3	1	9	2	
3	2003	3	3	3	1	9	2	
2	2002	3	3	3	1	9	2	
2	2003	3	3	3	1	9	1	
4	2001	3	3	3	2		3	ADHD/Executive Disfunction
2	2003	3	3	3	1	9	2	
2	2003	3	3	3	2	9	2	
		2	2	2	2	3	2	
2	2002	3	3	3	1	9	2	
3	2003	3	3	3	1		2	
3	2003	3	3	3	1	9	2	
3	2001	3	3	3	1	9	2	
4	2003	3	3	3	1	9	2	
2	2003	3	3	3	1	9	2	
3	2003	3	3	3	2	9	3	ADD and Anxiety
2	2000	2	3	3	1	3	2	
4	2001	3	3	3	1	9	2	
3	2003	3	3	3	2		2	
2	2002	3	3	3	1	9	2	
3	2002	3	3	3	1	9	2	
4		3		3	1	9	2	
2	2001	3	3	3	1	5	2	
2	2003	3	3	3	1	9	2	
2	2002	3	3	3	2	9	2	
2	2002	3	3	3	1	9	2	
3	2002	3	3	3	1	9	2	N/A
3		3	3	3	1	9	2	
2	2002	2	3	3	1	3	2	
2	2002	3	3	3	1	9	2	
2	2003	3	3	3	1	9	2	
3	2002	3	3	3	2	10	2	
3	2003	3	3	1	1	5	2	
3	2003	3	3	3	1	9	2	
3	2002			3	2	9	2	
3	2003	3	3	3	1	9	2	
3	2003	3	3	3	2	9	2	
2		2	3	2	2	10	2	
2		3	3	3	2	9	2	
2	2001	3	3	3	2		2	

4	2002	3	3	3	1	9	2	
3	2002	3	3	3	1	3	2	
2	2003	3	3	3	2	9	2	
3	2002	2	2	3	2	3	2	
3	2002	1	1	1	4	1	1	
2	2003	3	3	3	2	9	3	
3	2003	3	3	3	1	9	2	
3	2003	3	3	3	1	9	2	
3	2003	3	3	3	1	9	2	N/A
4	2003	3	3	2	1	3	2	
3	2003	3	3	3	1	9	2	
3	2003	3	3	3	1	9	2	
3	2002	3	3	3	1		2	
2	2003	3	3	3	1	9	2	
2	2002	3	3	3	1	9	2	
2	2002	3	3	3	2	9	2	
4	2002	3	3	3	1	9	2	
3	2003	3	3	3	1	5	2	
2	2002	3	3	3	2	9	2	none
2	2003	3	3	3	1	9	2	
2	2000	3	3	3	2	9	2	
3	2003	3	3	3	1	9	2	
3	2003	3	3	3	2		2	
3	2003	2	3	2	1	5	2	
2	2001	3	3	3	2	9	2	
3	2004	2	2	2	2	3	2	
4	2003	3	3	3	1	9	3	
3	2002	3	3	3	1	9	2	
2	2002	3	3	3	2	9	2	
2	2002	3	3	3	1	9	2	
2	2001	3	3	3	2	9	2	
3	2003	3	3	3	1	9	2	
2	2002	3	3	3	1		2	
3	2002	3	3	3	1		2	
3	2002	3	3	3	2		2	
2	2003	3	3	3	1	9	2	
3	2001	2	2	2	9	3	2	
3	2000	2	3	2	1	3	2	
2	2002	3	3	3	2	9	2	
3	2003	2	3	2	2	3	2	
2	2003	3	3	3	1	9	3	Mental health disability
4	2003	3	3	3	1		2	

3		3	3	3	1	9	2	
2	2003	3	3	3	1	9	2	
3	2003	3	3	3	1	9	2	
2	2002	3	3	3	2	9	1	
3	2002	2	3	2	2	3	2	
3	2002	3	3	3	1	9	2	
2	2002	3	3	2	2	5	2	
3	2002	3	3	3	1	9	2	
2	2003	3	3	3	1	9	2	
3	2001	3	3	3	2	9	2	
3	2003	3	3	3	1	9	2	
3	2001	3	3	3	1	9	3	
2	2003	3	3	3	2	9	2	
3		3	3	3	1	9	2	
3	2001	3	3	3	2	9	2	
2	2002	3	3	3	2	9	2	
2	2003	3	3	3	1		2	
3	2002	3	3	3	2	9	2	N/A
2	2003	3	3	3	1	9	2	
3	2003	3	3	3	2	9	2	
3		3	3	3	2	9	3	Diabetes
2	2003	3	3	3	1	9	2	
3	2001	2	2	2	1	3	1	
4	2001	3	3	3	1		2	
3	2001	3	3	3	1	9	2	
2	2003	3	3	3	1	9	2	
2	1998	3	3	3	1	9	2	
2	2001	3	3	3	2	9	2	
2	2002	3	3	3	2	9	2	
2	2001	3	3	3	1	9	2	
4	2003	3	3	3	2	9	2	
3	2001	3	1	3	1	5	2	
2	2002	3	3	2	1	3	2	
3		3	3	3	1		2	
3	2000	3	3	3	1		1	
2	2002	3	3	3	2	9	2	
2	2003	3	3	3	1	9	2	
3	2002	2	3	2	2	3	2	

2	2003	3	3	3	1		2	N/A
2	2003	3	3	3	2	9	2	
3	2002	3	3	3	2	9	2	
2	2002	3	3	3	2	9	2	
2	2003	3	3	3	2	9	2	
2	2003	3	3	3	1	9	2	
2	2002	3	3	3	1	9	2	
2	2003	3	3	3	2	9	2	
4	2001	3	3	3	2	9	2	
4	2002	2	2	2	1	3	1	
2	2002	3	3	3	1	9	2	
2	2003	3	3	3	1	9	2	
2		3	3	3	1	9	2	
4	2002	3	3	3	1	9	2	n/a
2	2002	3	3	3	1	9	2	
3		3	3	3	2	9	2	
2	2003	3	3	3	1	9	2	
2	2003	3	3	3	2	9	2	
2	2003	3	3	3	1	9	2	
2	2002	3	3	3	1	9	2	n/a
3	2002	3	3	3	1	9	2	
3	2002	3	3	3	2	9	2	
3	2003	3	3	3	1	9	2	
2		3	3	3	2	3	2	N/A
2	2002	3	3	3	1	9		
3	2003	3	3	3	2	3	2	None.
3	2002	3	3	3	2		2	
2	2001	2	3	3	2	9	2	
2	2001	3	3	3	1	9	2	
3	2003	3	3	3	2	9	2	
2	2003	3	3	3	2	9	2	N/A
4	2002	3	3	3	1	9	2	
3	2002	3	3	3	1	3	2	
3	2003	3	3	3	2	9	2	

4	2001	3	3	3	2	9	3	Color Blind
2	2002	3	3	3	1	3	2	
4	2000	3	3	3	1	9	2	
2	2002	3	3	3				
2	2003	3	3	3	1	9	3	
3	2002	3	3	3	1	9	2	
2	2002	2	2	2	1	3	2	
3	2003	3	3	3	2	9	2	
3		3	3	3	1	5	2	
2	2001	3	3	3	2	9	2	
3	2003	3	3	3	1	9	2	
3	2003	3	3	3	1	9	2	
2	2003	3	3	3	2		2	
2	2002	3	3	3	1	9	3	Anxiety, Mild Depression, Claustrophobia, PTSD/sexual abuse related (I'm okay! :))
3	2003	3	3	3	1	9	2	
2		3	3	3	1	9	3	I have a couple GI diseases which can often affect my daily life.
2	2002	1	3	3	1	10	2	
2	2003	3	3	3	2	9	2	
3	2002	3	3	3	2	9	2	
2	2003	3	3	3	2	9	2	
3	2002	3	3	3	1	9	2	
2	2003	3	3	3	2	9	2	
2	2002	2	2	2	2	3	2	
4	2002	3	3	3	1	10	2	
4	2003	3	3	3	2	9	2	
2	2002	3	3	3	2	9	2	
3	2002	3	3	3	2	9	2	
2	2003	2	2	2	2	3	2	
3	2003	3	3	3	1	3	2	
4	2002	3	3	3	2	9	2	
3	2002	3	3	3	2	9	2	

3	2002	3	3	3	1	9	2
4	2002	3	3	3	2	9	2
3	2003	3	3	3	2	9	2
2	2003	3	3	3	2	9	2
2	2002	3	3	3	2	9	2
3	2002	3	3	3	2		2
2	2002	3	3	3	1	3	2
2	2001	3	3	3	1	9	2

Parents Education_LS	Parents Education_11_TEXT_LS	Veteran_LS	Veteran_5_TEXT_LS	Additional Info_LS
7		2		
7		2		
7		2		
89		2		
79		2		
9		2		
9		2		
7		2		
10		2		
6		2		
89		2		
9		2		
7		2		n/a
4		3		
4		2		
9		2		
7		2		
67		2		
9		2		
9		2		
7		2		
10		2		
7		2		
7		2		
7		2		
6		2		
7		2		
4		2		
7		2		
7		2		
9		2		no, thanks for a great semester
7		2		
9		2		
7		2		
9		1		I love to learn and have a deep appreciation for knowledge.
10		2		
7		2		
5		2		
9		2		
9		2		
4		2		
5		2		
9		2		
7		2		
9		2		
10		2		
9		2		N/A
6		2		

9	2	
7	2	
5	2	N/A
10	2	
7	2	no
7	2	
4	2	
79	2	
7	2	
7	2	
5	2	
7	2	n/a
9	2	n/a
9	2	N/A
7	2	
7	2	
8	2	
7	2	n/a
10	2	
10	2	
10	2	
79	2	
7	2	
710	2	
7	2	
9	2	
7	2	
8	2	
7	2	
4	2	
1	2	
9	2	
9	2	no
7	2	
9	2	N/A
10	2	
7	2	
7	2	
7	2	
9	2	
4		
78	2	
79	2	
7	2	
9	2	
4	2	
9	2	Nope
10	2	

7	2	
7	2	no
8	2	
9	2	
1	1	No
79	2	
9	2	
9	2	
9	2	N/A
9	2	
8	2	
7	2	
14	2	
9	2	I had a wonderful semester
7	2	
9	2	
7	2	
4	2	
7	2	no
9	2	
9	2	
9	2	
9	2	
10	2	
79	2	
9	2	
910	2	
79	2	
5	2	
7	2	
9	2	
10	2	
79	2	
9	2	
7	2	
7	2	
6	2	
7	2	
4	2	
5	2	
7	2	
7	2	No.

7	2	
7	2	
7	2	
9	2	
10	2	
10	2	
4	2	
6	2	
7	2	
4	2	
9	2	
69	2	
57	2	
7	2	
9	2	
7	2	
49	2	
10	2	:)
7	2	
9	2	
9	2	
7	2	
8	2	
10	2	
10	2	
4	2	
5	4	
7	2	
7	2	
9	2	
10	2	
4	2	
4	2	
9	2	
10	2	Thanks for a great semester!
9	2	n/a
9	2	
7	2	

7	2	N/A
8	2	
7	2	
9	2	
7	2	
9	2	
9	2	
7	2	
7	2	
9	2	
9	2	
7	2	
7	2	
7	2	n/a
9	2	
7	2	
9	2	
7	2	
7	2	
9	2	n/a, loved the class!
10	2	
79	2	No
9	2	
7	2	
10	2	
910	2	None.
5	2	
7	2	
7	2	
10	2	
7	2	N/A
7	2	
5	2	
9	2	

9	2	
7	2	
6	2	
7	2	
9	2	
8	2	
7	2	
4	2	
9	2	
78	2	
5	2	
9	2	
79	2	
9	2	
9	2	
7	2	
10	2	
7	2	Nothing more to say!
10	2	No
7	2	
79	2	
7	2	
7	2	no
9	2	no
4	2	No
9	2	
5	2	Two people should be in a group rather than 4. "From my point of view"
9	2	
7	2	
79	2	

9	2	
9	2	
9	2	No
7	2	
7	2	
10	2	
6	2	
10	2	

Appendix C5

Cov Matrix

	Cont1_FeelPreparedForLab_lg	Cont2_ClarifiedLectureMaterial_lg	Cont3_InterestSeeMoreFieldGeo_lg	Cont4_HelpUnderstandNaturalContext_lg	Cont6_InterestLearnMoreOnTopic_lg	Cont7_WasEngaging_lg	Cont8_RemindedOfPastExperiencesPlaces_lg
Cont1_FeelPreparedForLab_lg	0.677	0.393	0.35	0.317	0.414	0.514	0.319
Cont2_ClarifiedLectureMaterial_lg	0.393	0.623	0.397	0.284	0.34	0.406	0.353
Cont3_InterestSeeMoreFieldGeo_lg	0.35	0.397	1.143	0.501	0.781	0.556	0.591
Cont4_HelpUnderstandNaturalContext_lg	0.317	0.284	0.501	0.594	0.493	0.483	0.407
Cont6_InterestLearnMoreOnTopic_lg	0.414	0.34	0.781	0.493	1.037	0.649	0.59
Cont7_WasEngaging_lg	0.514	0.406	0.556	0.483	0.649	1.046	0.52
Cont8_RemindedOfPastExperiencesPlaces_lg	0.319	0.353	0.591	0.407	0.59	0.52	0.909

FactorAnalysis_CorrMatrix

	Cont1_FeelPreparedForLab_lg	Cont2_ClarifiedLectureMaterial_lg	Cont3_InterestSeeMoreFieldGeo_lg	Cont4_HelpUnderstandNaturalContext_lg	Cont6_InterestLearnMoreOnTopic_lg	Cont7_WasEngaging_lg	Cont8_RemindedOfPastExperiencesPlaces_lg
Cont1_FeelPreparedForLab_lg	1	0.605	0.398	0.501	0.494	0.611	0.406
Cont2_ClarifiedLectureMaterial_lg	0.605	1	0.471	0.466	0.423	0.503	0.468
Cont3_InterestSeeMoreFieldGeo_lg	0.398	0.471	1	0.609	0.718	0.509	0.58
Cont4_HelpUnderstandNaturalContext_lg	0.501	0.466	0.609	1	0.628	0.614	0.554
Cont6_InterestLearnMoreOnTopic_lg	0.494	0.423	0.718	0.628	1	0.624	0.607
Cont7_WasEngaging_lg	0.611	0.503	0.509	0.614	0.624	1	0.533
Cont8_RemindedOfPastExperiencesPlaces_lg	0.406	0.468	0.58	0.554	0.607	0.533	1

KMO-Bart

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			0.874
Bartlett's Test of Sphericity	Approx. Chi-Square		535.099
	df		21
	Sig.	<.001	

Communalities

	Initial	Extraction
Cont1_FeelPreparedForLab_lg	0.51	0.425
Cont2_ClarifiedLectureMaterial_lg	0.459	0.391
Cont3_InterestSeeMoreFieldGeo_lg	0.59	0.592
Cont4_HelpUnderstandNaturalContext_lg	0.535	0.602
Cont6_InterestLearnMoreOnTopic_lg	0.643	0.68
Cont7_WasEngaging_lg	0.561	0.585

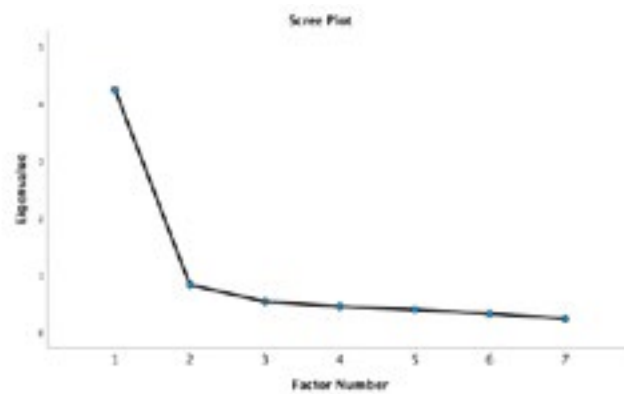
TotVarExp

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.245	60.641	60.641	3.791	54.163	54.163
2	0.825	11.789	72.43			
3	0.534	7.63	80.06			
4	0.446	6.372	86.432			

	5	0.392	5.6	92.032
	6	0.321	4.588	96.62
	7	0.237	3.38	100

FactMatrix

	Factor
	1
Cont1_FeelPreparedForLab_lg	0.652
Cont2_ClarifiedLectureMaterial_lg	0.626
Cont3_InterestSeeMoreFieldGeo_lg	0.77
Cont4_HelpUnderstandNaturalContext_lg	0.776
Cont6_InterestLearnMoreOnTopic_lg	0.824
Cont7_WasEngaging_lg	0.765
Cont8_RemindedOfPastExperiencesPlaces_lg	0.719



Good Fit Test

Chi-Square	df	Sig.
54.717	14	0

Cronbachs

Cronbach's Alpha	N of Items
0.889	7

Item Stats

	Mean	Std. Deviation	N
Cont1_FeelPreparedForLab_lg	4.07	0.823	149
Cont2_ClarifiedLectureMaterial_lg	4.07	0.789	149
Cont3_InterestSeeMoreFieldGeo_lg	3.48	1.069	149
Cont4_HelpUnderstandNaturalContext_lg	3.91	0.771	149
Cont6_InterestLearnMoreOnTopic_lg	3.61	1.018	149
Cont7_WasEngaging_lg	3.81	1.023	149
Cont8_RemindedOfPastExperiencesPlaces_lg	3.71	0.954	149

Item Tot stats

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Cont1_FeelPreparedForLab_lg	22.6	20.053	0.626	0.88
Cont2_ClarifiedLectureMaterial_lg	22.6	20.377	0.61	0.882
Cont3_InterestSeeMoreFieldGeo_lg	23.19	17.847	0.703	0.872
Cont4_HelpUnderstandNaturalContext_lg	22.76	19.779	0.725	0.87
Cont6_InterestLearnMoreOnTopic_lg	23.06	17.773	0.761	0.863
Cont7_WasEngaging_lg	22.86	18.041	0.72	0.869
Cont8_RemindedOfPastExperiencesPlaces_lg	22.96	18.877	0.671	0.875

Scale Stats

Mean	Variance	Std. Deviation	N of Items
26.67	25.344	5.034	7

The end