Information required per Wisconsin Administrative Code NR 112.26(1)d. Volume I

Exxon Minerals Company
[s.l.]: Exxon Minerals Company, [s.d.]

Sections
1.0 - 4.0

VOLUME I

REVISED
HIGH CAPACITY WELL APPROVAL APPLICATION
FOR THE POTABLE, CONSTRUCTION, AND
CONTINGENCY SUPPLEMENT WATER WELLS AND TRANSMISSION SYSTEMS
(VOLUMES I & II)

EXXON MINERALS COMPANY
CRANDON PROJECT

DECEMBER 1985

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WISCONSIN ADMINISTRATIVE CODE NR 112.26(1)d

1. OWNERSHIP

The property where six of the seven proposed water supply wells are located is owned or controlled by:

Exxon Corporation; c/o Exxon Minerals Company,
a division of Exxon Corporation having an
address at: P.O. Box 813
Rhinelander, Wisconsin 54501, with
corporate responsibility for the property and the proposed wells.

The seventh well is proposed to be located on land owned by the State of Wisconsin. If this well becomes necessary for mitigative measures, permission will be requested from the State of Wisconsin to install the well on their land.

2. OFFICIAL

Mr. Donald B. Achttien
General Manager, Crandon Project
Exxon Minerals Company, a division of
Exxon Corporation
P.O. Box 813
Rhinelander, Wisconsin 54501
Phone: 715/369-2800

3. PROPERTY LOCATION

Land ownership by Exxon Corporation in the Project area where the seven water supply wells will be located is shown on Figure 1. Figure 2 illustrates additional land currently under purchase option and/or mining lease.

4. PROPOSED AND EXISTING WELL LOCATIONS

There are seven proposed wells and 53 existing wells in the Project vicinity. Of the 53 existing wells, 5 are test or water supply wells installed by Exxon, 21 are former residential wells bought by Exxon, and the remaining 27 are private residential wells.

Of the seven proposed wells, two are water supply wells required for construction and Project operations and the other five are contingency

supplement wells to provide mitigative water supplements to Project area streams and springs, if necessary. Installation and use of the five contingency supplement wells will only be made if the conditions described in the Crandon Project Hydrologic Impact Contingency Plan occur.

A. Proposed Wells:

1. Water supply well No. 1 (WS-1) will be located in the SW 1/4 of the NE 1/4 of Section 36, T35N, R12E, Town of Nashville, Forest County (Figure 1). The primary purpose of WS-1 will be to supply approximately 50 gpm of potable water for personnel consumption/use for the Project. WS-1 will be sized at 600 gpm and will pump water directly to a 50,000 gallon fresh water tank at the mine/mill area.

   The sizing of WS-1 provides capacity to provide mitigative supplements to Little Sand and Duck lakes, if necessary. The supplements would be made through the Project fresh water system during unusual periods of extreme drought, if required by the Wisconsin Department of Natural Resources (WDNR).

2. Water supply well No. 2 (WS-2) will be located in the NW 1/4 of the NE 1/4 of Section 32, T35N, R13E, Town of Lincoln, Forest County (Figure 1).

   WS-2 will be a non-potable well and its primary purpose will be to supply construction process water for preparation of the underdrain and liner materials for the seepage control systems at the Mine Waste Disposal Facilty (MWDF), water reclaim pond and the Mine Refuse Disposal Facility (MRDF). The WS-2 MWDF construction requirement is estimated at approximately 500 gpm during the operation of the material processing plant. WS-2 will be sized at 600 gpm and pump water directly to the water retention pond in the MWDF construction support area.

3. Contingency Supplement Well No. C-1 will be located in the SE 1/4 of the SE 1/4 of Section 26, T35N, R12E, Town of Nashville, Forest County (Figure 1). C-1 will be a non-potable well and its purpose will be to supply approximately 50 gpm of supplemental water to Hoffman Spring on an as needed basis. Although C-1 is less than a 70 gpm capacity well, it is included in this approval since it is a part of the Project.

4. Contingency Supplement Well No. C-2 will be located in the NW 1/4 of the NW 1/4 of Section 6, T34N, R13E, Town of Nashville, Forest

County (Figure 1). C-2 will be a non-potable well and its purpose will be to supply approximately 200 gpm of supplemental water to Creek 12-9 on an as needed basis.

5. Contintency Supplement Well No. C-3 will be located in the SE 1/4 of the SW 1/4 of Section 24, T35N, R12E, Town of Nashville, Forest County (Figure 1). C-3 will be a non-potable well and its purpose will be to supply approximately 375 gpm of supplemental water to Swamp Creek on an as needed basis.

6. Contingency Supplement Well No. C-4 will be located in the SE 1/4 of the NW 1/4 of Section 20, T35N, R13E, Town of Lincoln, Forest County (Figure 1). C-4 will be a non-potable well and its purpose will be to supply approximately 375 gpm of supplemental water to Swamp Creek on an as needed basis.

7. Contingency Supplement Well No. C-5 is proposed to be located in the NW 1/4 of the NW 1/4 of Section 12, T34N, R12E, Town of Ainsworth, Langlade County (Figure 1). C-5 will be a non-potable well and its purpose will be to supply approximately 25 gpm of supplemental water to Martin Spring on an as-needed basis. Although C-5 is less than a 70 gpm capacity well, it is included in this approval since it is a part of the Project.

In addition to the seven proposed water supply wells there will be ground water withdrawal associated with the normal operation of the mine. A separate High Capacity Well Approval Application has been prepared for the mine ground water inflow control and drainage systems.

The Contingency Supplement Wells (No. C-1, C-2, C-3, C-4 and C-5) are proposed as mitigative water supply sources to offset potential stream or spring flow impacts from Project operations. Additional detail and information for the contingency wells are presented in the Hydrologic Impact Contingency Plan included as Volume II of the High Capacity Well Approval Application for the Mine Ground Water Inflow Control and Drainage Systems.

B. Existing wells are:

1. Five test and water supply wells installed by Exxon:

   a. WW-1 located in the SE 1/4 of the SW 1/4 of Section 30, T35N, R13E, Town of Lincoln, Forest County.

b. WW-2 located in the SE 1/4 of the SE 1/4 of Section 25, T35N, R12E, Town of Nashville, Forest County.

c. WW-4 located in the SE 1/4 of the SW 1/4 of Section 30, T35N, R13E, Town of Lincoln, Forest County.

d. TW-1 located in the SW 1/4 of the SE 1/4 of Section 30, T35N, R13E, Town of Lincoln, Forest County.

e. TW-41 located in the SE 1/4 of the NW 1/4 of Section 32, T35N, R13E, Town of Lincoln, Forest County.

Figure 3 shows the location of wells WW-1, WW-2, WW-4, and TW-1; Figure 1 shows the location of TW-41.

2. Twenty-one residential wells are owned by Exxon. These wells were acquired with the purchase of smaller tracts or lots in the Project vicinity. Figure 3 illustrates the locations of these wells.

3. There are 27 private residential wells in the general vicinity of the Project area. These wells are within the area that Exxon expects may experience a reduction of the ground water table during Project activities. Figure 3 illustrates the ownership and locations of these wells.

The location and identification of all proposed and existing wells, as described above, are also presented in Figure 4. In addition to the wells noted above, a survey of private water wells in an approximate 36 square mile area around the Project site has also been completed. The Private Water Well Survey is included as Volume II of this High Capacity Well Approval Application.

5. EXISTING WATER SUPPLY

Of the Exxon owned wells (those installed by Exxon and those residential wells purchased by Exxon) only Wells No. 101, WW-1 and WW-2 are presently used, and then only on an intermittent basis to support field study activities. Detailed descriptions of the construction and disposition of WW-1, WW-2 and TW-41 are presented in Table 2.

It is currently planned that WW-1 and TW-41 will be abandoned during the development of Project facilities and that WW-2, WW-4 and TW-1 will be either abandoned or converted to monitoring wells for use during Project construction, operations, and/or reclamation periods. Based on anticipated ground water level declines from Project activities, it is expected that only

WW-2 and TW-1 could function as monitoring wells during the operating period.

The future status of the Exxon owned residential wells is uncertain, although they may be used. If they are used during the period of mine operations, apparently, many of them would have to be modified or replaced to be operable due to the anticipated change in area ground water table elevations. Available details for the Exxon owned residential wells are presented in Table 3.

It is assumed that the remaining privately owned residential wells in the vicinity of the Project area will continue to be used similarly to present use. Exxon has committed to the well owners to mitigate the impacts to these private systems if they are adversely affected by Project activities (see Exhibit 1). For completeness of documentation in this application, available details for the privately owned residential wells in the vicinity of the Project area are presented in Table 4. Table 5 lists a suggested mitigation plan for each privately owned residential well that may be adversely affected by Project activities. Based on DNR approval of this application, Exxon will make formal commitments to the individual well owners as to specific mitigation plans for each potentially affected private well.

6. PRESENT WELL WATER CONSUMPTION

The only Exxon owned wells currently used are 101, WW-1 and WW-2. The residential well identified as 101 is owned by Exxon and used occasionally by Exxon or Exxon contractors, but there is no one permanently residing at the house. Water use is estimated at less than 100 gallons per day for well 101. WW-1 and WW-2 have previously been used to supply non-potable water to support drilling activities on the site on an intermittent basis. During drilling activities water usage from WW-1 and WW-2 averages between 1000 gallons per day and a maximum of approximately 20,000 gallons per day. These patterns of use for wells 101, WW-1 and WW-2 will continue until proposed wells WS-1 and WS-2 are operational. Also, TW-41 previously approved as a potable well (but not in use now) may be used for water supply for construction until WS-2 is installed.

For estimating present usage it has been assumed that on-site activities requiring water supply would be on-going for 4 months of the year. Present water usage for the privately owned residential wells in the vicinity of the Project area has not been estimated although the current residence occupancy pattern is indicated on Table 3.

The estimates of ground water consumption for the two new proposed water supply wells WS-1 and WS-2 are:

	Water Supply Well	
	WS-1 (Potable)	WS-2 (Non-Potable)
Normal water consumption (gpd)	72,000	576,000
Maximum water consumption (gpd)	864,000	864,000
Average water consumption (gpd) (Yearly Average)	111,100	157,800
Pumping rate (gpm)	600	600
Hours of pumping per day (yearly average)	3	4
Number of days of normal consumption per year	347	70
Number of days at maximum consumption per year	18	20
Percentage of average daily consumption used for cooling water, wash water, process water, etc.	35	100
Estimated increase in consumption (average gpd) (Yearly Average)	111,100	157,800

The normal ground water consumption estimate for WS-1 is based on an average water requirement of 50 gpm for sanitary purposes for 347 days per year and a maximum ground water consumption of 600 gpm for 18 days per year for sanitary purposes, lake supplements, and other uses. The 18 days (5 percent of the time) of continuous 600 gpm pumping provides a conservative allowance if it becomes necessary to provide mitigative supplements to Little Sand and Duck Lake during periods of extreme drought.

The normal ground water consumption estimate for WS-2 is based on an average water requirement of 400 gpm for wash plant requirements for preparing underdrain materials for MWDF construction for 70 days per year and a maximum ground water consumption of 600 gpm for 20 days per year for wash plant requirements and other uses.

The estimates of ground water consumption for the five new contingency supplement wells C-1, C-2, C-3, C-4 and C-5 are shown on Table 1.

The estimates of ground water consumption for the contingency supplement wells assume wells C-1 and C-5 will be pumped continuously, that C-2 will be required approximately 15 percent of the time and that C-3 and C-4 will be required approximately 10 percent of the time. All of these time estimates are believed conservative. Additional detail of the expected use of these contingency supplement wells can be found in the Hydrologic Impact Contingency Plan.

The above estimated present and future water usages for all seven proposed wells are summarized and presented on DNR form 3300-57 (see Exhibit 2).

The hydrologic effects from Project activities have been determined by computer modeling (EIR Appendix 4.1A). In Appendix 4.1A, Project facilities (potable well WS-1 , mine water drainage system, MWDF and other facilities) were included to determine the overall hydrologic effects. The construction water well WS-2 and the contingency wells C-1, C-2 C-3, C-4 and C-5 were not included in the modeling analysis since their operation is not assured and they will be used only on an intermittent basis. The mine water drainage system has the largest single hydrologic influence, but the effects determined by the modeling work represent the composite or net effect of all planned Project activities. Included on Figure 4 are the results of studies to determine the steady-state effects to the ground water potentiometric surface from the proposed potable water supply well WS-1 and the mine water drainage system.

For Figure 4 the mine water drainage rate is 1,270 gpm and the water withdrawal at WS-1 is at an average rate of 50 gpm. These represent the normal conditions expected for approximately 347 days per year. For this normal condition the pumping system for WS-1 would operate at 600 gpm for approximately 2 hours per day. For the other 18 days per year it has been assumed WS-1 would be pumped continuously at 600 gpm.

The hydrological effects of the non-potable construction water well WS-2 have been determined independently from the other Project activities and have been inferred from analysis of existing well TW-41. WS-2 will be used periodically, normally during the summer months during the years when a phase of the MWDF expansion or reclamation is underway. Figure 5 shows the location of proposed well WS-2 and existing well TW-41 and depicts both computer modeled (D'Appolonia's GEOFLOW) and estimated drawdown (from Golder Associates' field data) based on a pumping rate for TW-41 of 1,420 gpm. TW-41 was field tested at 1,420 gpm withdrawal, so the verification modeling was also completed at that rate.

Based on the proximity of WS-2 to TW-41 and the reduced pumping rate for WS-2 (600 gpm versus 1,420 gpm), the overall drawdown effects at WS-2 should be reduced from those shown for TW-41.

The potential hydrological effects of the non-potable contingency supplement wells have also been considered separately from the other project activities. Based on their planned use, rate of pumping, and their location, only C-2 (Figure 4) has the potential to affect any nearby wells (privately owned residential wells No. 166 and 167). However, mitigation of impacts to both of these private wells is anticipated and proposed as shown in Table 4.

Figures 4 and 5 depict the primary impacts from WS-1 and WS-2 and the other Project facilities as reflected in drawdown of the regional ground water table. Additional description of these primary and secondary effects to surface streams, springs, and lakes is presented in Chapter 4.0 and Appendix 4.1A of the EIR. Additional description of the contingency supplement wells (C-1, C-2, C-3, C-4 and C-5) and the effects of their operation is contained in the Hydrologic Impact Contingency Plan, Volume II of the High Capacity Well Approval Application for the Mine Inflow Control and Drainage Systems.

Hydrological effects will be monitored throughout Project construction and operation both to comply with regulations and to evaluate modeling predictions and facility performance. Complete monitoring plans are described in the Monitoring and Quality Assurance Plan submitted to the DNR as part of the Mining Permit Application. The Hydrologic Impact Contingency Plan contains that portion of the Monitoring Plan associated with implementation and initiation of the contingency actions.

7. PROPOSED CONSTRUCTION

All wells will be constructed in accordance with NR 112.08. Information presented below for each well follows NR 112.26 (1)(d) 8 - 12:

A. Water Supply Well WS-1 (see Figures 6A, 6B, and 6C)

1. Well depth - 194.3 feet
2. Bore Hole - 1.5 feet Ø; Casing - 1.0 feet Ø
3. Depth of Casing - 169.3 feet
4. Thickness of Casing - 0.375 inches
5. Well Casing Material - ASTM A-53 Steel
6. Well Geologic Formation - glacial sands and gravels (see Figure 6B)
7. Grouting Materials - cement grout
8. Static and Dynamic Water Levels - see Figures 4 and 6B
9. Date Well Completed - proposed well
10. Pump Installation Sketch - see Figure 6C
11. Capacity of Well Pump - 600 gpm
12. Well Driller and Owner - driller not selected; Exxon will be the owner
13. Height Well Terminated Above Floor - 1.5 feet
14. Sample Faucet Location - see Figure 6C
15. Pollution Source Distances - see Figure 6A
16. Nearest Private Wells - see Figure 6A
17. Drilling Method - not yet determined

B. Water Supply Well WS-2 (see Figure 7A and 7B)

1. Well Depth - 233 feet
2. Borehole - 1.5 feet Ø; Casing - 1.0 feet Ø
3. Depth of Casing - 208 feet
4. Thickness of Casing - 0.375 inches
5. Well Casing Material - ASTM A-53 steel
6. Well Geologic Formation - glacial sands and gravels (see Figure 7B)
7. Grouting Materials - cement grout
8. Static and Dynamic Water Levels - See Figure 7B
9. Date Well Completed - proposed well
10. Pump Installation Sketch - See Figure 7A
11. Capacity of Well Pump - 600 gpm
12. Well Driller and Owner - driller not selected; Exxon will be the owner.
13. Height Well Terminated Above Floor - 2.5 feet above grade.
14. Sample Faucet Location - sample at discharge point
15. Pollution Source Distances - see Figure 7A
16. Nearest Private Wells - see Figure 4 and 7A
17. Drilling Method - not yet determined

C. Contingency Supplement Well C-1 (see Figures 8A, 8B, and 8C)

1. Well depth - 100 feet
2. Bore Hole - 1.0 feet Ø; Casing 0.5 feet Ø
3. Depth of Casing - 87.5 feet
4. Thickness of Casing - 0.375 inches
5. Well Casing Material - ASTM A-53 Steel
6. Well Geologic Formation - glacial sands and gravels (see Figure 8B)
7. Grouting Materials - cement grout
8. Static and Dynamic Water Levels - see Figure 8B
9. Date Well Completed - proposed well
10. Pump Installation Sketch - see Figure 8C
11. Capacity of Well Pump - 50 gpm
12. Well Driller and Owner - driller not selected; Exxon will be the owner
13. Height Well Terminated Above Floor - 2.5 feet
14. Sample Faucet Location - sample at discharge point
15. Pollution Source Distances - see Figure 8A
16. Nearest Private Wells - see Figure 8A
17. Drilling Method - not yet determined

D. Contingency Supplement Well C-2 (see Figures 8A, 8B, and 8C

1. Well Depth - 80 feet
2. Borehole - 1.2 feet Ø; Casing 0.67 feet Ø
3. Depth of Casing - 67.5 feet
4. Thickness of Casing - 0.375 inches
5. Well Casing Material - ASTM A-53 steel
6. Well Geologic Formation - glacial sands and gravels (see Figure 8B)
7. Grouting Materials - cement grout
8. Static and Dynamic Water Levels - see Figure 8B
9. Date Well Completed - proposed well
10. Pump Installation Sketch - see Figure 8C
11. Capacity of Well Pump - 200 gpm
12. Well Driller and Owner - driller not selected; Exxon will be the owner.
13. Height Well Terminated Above Floor - 2.5 feet above grade.
14. Sample Faucet Location - sample at discharge point
15. Pollution Source Distances - see Figure 8A
16. Nearest Private Wells - see Figure 8A
17. Drilling Method - not yet determined

E. Contingency Supplement Well C-3 (see Figures 8A, 8B, and 8C)

1. Well Depth - 55 feet
2. Bore Hole - 1.33 feet Ø; Casing - 0.83 feet Ø
3. Depth of Casing - 42.5 feet
4. Thickness of Casing - 0.375 inches
5. Well Casing Material - ASTM A-53 Steel
6. Well Geologic Formation - glacial sands and gravels (see Figure 8B)
7. Grouting Materials - cement grout
8. Static and Dynamic Water Levels - see Figure 8B
9. Date Well Completed - proposed well
10. Pump Installation Sketch - see Figure 8C
11. Capacity of Well Pump - 375 gpm
12. Well Driller and Owner - driller not selected; Exxon will be the owner
13. Height Well Terminated Above Floor - 2.5 feet
14. Sample Faucet Location - sample at discharge point
15. Pollution Source Distances - see Figure 8A
16. Nearest Private Wells - see Figure 8A
17. Drilling Method - not yet determined

F. Contingency Supplement Well C-4 (see Figures 8A, 8B, and 8C)

1. Well Depth - 60 feet
2. Borehole - 1.33 feet Ø; Casing 0.83 feet Ø
3. Depth of Casing - 47.5 feet
4. Thickness of Casing - 0.375 inches
5. Well Casing Material - ASTM A-53 steel
6. Well Geologic Formation - glacial sands and gravels (see Figure 8B)
7. Grouting Materials - cement grout
8. Static and Dynamic Water Levels - See Figure 8B
9. Date Well Completed - proposed well
10. Pump Installation Sketch - see Figure 8C
11. Capacity of Well Pump - 375 gpm
12. Well Driller and Owner - driller not selected; Exxon will be the owner.
13. Height Well Terminated Above Floor - 2.5 feet above grade.
14. Sample Faucet Location - sample at discharge point
15. Pollution Source Distances - See Figure 8A
16. Nearest Private Wells - See Figure 8A
17. Drilling Method - not yet determined

G. Contingency Supplement Well C-5 (See Figures 8A, 8B, and 8C)

1. Well Depth - 40 feet
2. Bore Hole - 1.0 feet Ø; casing 0.5 feet Ø
3. Depth of Casing - 17.5 feet
4. Thickness of Casing - 0.375 inches
5. Well Casing Material - ASTM A-53 steel
6. Well Geologic Formation - glacial sands and gravels (see Figure 8B)
7. Grouting Materials - cement grout
8. Static and Dynamic Water Levels - see Figure 8B
9. Date Well Completed - proposed well
10. Pump Installation Sketch - see Figure 8C
11. Capacity of Well Pump - 25 gpm
12. Well Driller and Owner - driller not selected; Exxon will be the owner
13. Height Well Terminated Above Floor - 2.5 feet above grade
14. Sample Faucet Location - sample at discharge point
15. Pollution Source Distances - see Figure 8A
16. Nearest Private Wells - see Figure 8A
17. Drilling Method - not yet determined

8. ALTERNATIVE SOURCES

The water management system for the Project has been designed to eliminate the need for process make-up water. WS-1 is planned primarily for supply of potable water for Project personnel consumption. None of the existing

Project wells are located satisfactorily or have capacity for this purpose. The location chosen for WS-1 represents a satisfactory location with respect to the mine/mill area with an adequate ground water supply. Other more distant locations would be possible but would require additional water transmission line.

WS-2 is planned for supply of make-up water for material processing requirements during the construction and reclamation phases of the MWDF. Other alternative wells could be developed (or WS-1 could be enlarged) for this requirement but additional transmission line and well construction would be required. After operations have begun, for the later stages of MWDF development, it might be possible to use process water (depending upon its quality) for a portion of the normal demand on WS-2. However, this use would be intermittent and can not be used in determining normal mine/plant water system operating balances.

The contingency supplement wells (C-1, C-2, C-3, C-4 and C-5) provide a supplement water quality similar to the receiving water body quality. The wells have been planned in locations that will not cause a secondary effect to the receiving water body and still be within reasonable pumping and piping distance. Fresh water or excess discharge water pumped and piped from the mine/mill area are possible alternatives but would be more costly and use of excess discharge water for a supplement might not be possible from a quality compatibility standpoint.

9. PUBLIC UTILITY WELLS

The public utility well nearest to the Project wells is located in the City of Crandon approximately 8 miles north of the site (Figure 9).

TABLES

TABLE 1

ESTIMATES OF GROUND WATER CONSUMPTION FOR
PROPOSED CONTINGENCY SUPPLEMENT WELLS C-1, C-2, C-3, C-4 AND C5

	Water Supply Well				
	C-1 (Non-Potable)	C-2 (Non-Potable)	C-3 (Non-Potable)	C-4 (Non-Potable)	C-5 (Non-Potable)
Normal water consumption (gpd)	72,000	288,000	540,000	540,000	36,000
Maximum water consumption (gpd)	72,000	288,000	540,000	540,000	36,000
Average water consumption (gpd) (Yearly Average)	72,000	43,400	54,700	54,700	36,000
Pumping rate (gpm)	50	200	375	375	25
Hours of pumping per day (Yearly Average)	24	4	2	2	24
Number of days of normal consumption per year	365	55	37	37	365
Number of days at maximum consumption per year	--	--	--	--	--
Percentage of average daily consumption used for cooling water, wash water, process water, etc.	100	100	100	100	100
	(All for stream or spring flow supplements)				
Estimated increase in consumption (average gpd) (Yearly Average)	72,000	43,400	54,700	54,700	36,000

Figures

TABLE 2

DESCRIPTION OF DESIGNS OF EXISTING WELLS WW-1, WW-2 AND TW-41

WW-1 located SE 1/4 of SW 1/4, Section 30, T35N, R13E

Ground Surface Elevation	- 1,670 feet M.S.L.
Well Depth	- 130 feet
Casing Size	- 8 inch Ø steel; record of steel type not available.
Depth of Casing	- 120 feet plus 5 feet of two slot Johnson stainless steel screen plus 5 feet of tail pipe with K packer.
Casing Thickness	- Schedule 40 pipe (threads and couplings); record of actual wall thickness not available.
Geologic Formation	- Well totally in glacial sand and gravel; primarily coarse gravel with minor clay content.
Grouting	- None
Water Levels	- Static - Approximately 1,588 feet M.S.L.
Date Constructed	- July, 1976
Pump Installation	- Submersible pump with approximately 15 gallons per minute capacity connected to a buried 10,000 gallon storage tank. Pump with approximate 40 gallon per minute capacity installed on tank.
Driller and Owner	- Drilled by Anderson Well Drilling, Inc., owned by Exxon.
Current Use	- During field drilling activities (approximately 4 months per year during the last years) combined water usage of WW-1 and WW-2 has averaged approximately 1,000 gpd. On an annual basis this equates to approximately 330 gpd.
Future Status	- After installation of WS-1 the pumping system and storage tank will be removed and WW-1 will be abandoned according to State regulations.

TABLE 2 (continued)

WW-2 located SE 1/4 of SE 1/4, Sec 25, T35N, R12E

Ground Surface Elevation	- 1,644 feet M.S.L.
Well Depth	- 155 feet
Casing Size	- 8 inch Ø steel; record of steel type not available.
Depth of Casing	- 145 feet casing plus 5 feet of two slot Johnson stainless steel screen plus 5 feet of tail pipe with K packer.
Casing Thickess	- Schedule 40 pipe (threads and couplings); record of actual wall thickness not available.
Geologic Formation	- Well totally in glacial overburden sand and gravel.
Grouting	- None
Water Levels	- Static - Approximately 1,578 feet M.S.L.
Date Constructed	- September, 1976
Pump Installation	- Submersible pump with approximate 60 gallons per minute capacity.
Driller and Owner	- Drilled by Anderson Well Drilling, Inc., owned by Exxon.
Current Use	- See comments for WW-1.
Future Status	- After installation of WS-1 the pumping system will be removed and WW-2 will be utilized for monitoring purposes.

TABLE 2 (continued)

TW-41 located SE 1/4 of NW 1/4, Sec 32, T35N, R13E

Ground Surface Elevation	- 1,707.3 feet M.S.L.
Well Depth	- 334.3 feet
Casing Size	- Outer Casing 1.5 feet Ø; Inner Casing 1.0 feet Ø; Both Casings ASTM A-53 Steel.
Depth of Casing	- Outer Casing - 113 feet Inner Casing - 150.8 feet
Casing Thickness	- Both Casings - 0.375 inches
Geologic Formation	- Glacial sands and gravels
Grouting	- Cement Grout
Water Levels	- Static - 1,594.5 feet M.S.L.
Date Constructed	- June, 1980
Pump Installation	- Test Well; test pumped at 1,420 gpm
Driller and Owner	- Drilled by Alan Lang Well and Pump, Inc., owned by Exxon.
Future Status	- To be abandoned according to regulation when construction begins on Tailings Pond T1 of the MWDF.

TABLE 3

EXXON OWNED RESIDENTIAL WATER WELLS

WELL I.D. NUMBER	LOCATION	TOP OF CASING ELEVATION	DEPTH OF WELL	WATER LEVEL	GROUND(1) WATER LEVEL	SIZE OF CASING OR PIPE	NOTES
103	NE 1/4, SE 1/4, SEC. 36 T35N, R12E	1596'	32.5'	18.0'	1578'	1 1/4"	Driven Point. Outside building no Pump. Pipe capped. Not in use.
104	NE 1/4, SE 1/4, SEC. 36 T35N, R12E	1595'	25.0'	20.0'	1577'	1 3/4"	Outside well, Burk Pump 1/3hp motor. 1" pipe to building. Well in pit 5' below ground level.
110	SE 1/4, NE 1/4, SEC. 36 T35N, R12E	1597'(2)	22.0'	15.5'	1585.1'	1 3/4"	Driven Point. Well in basement. 13 gal. storage tank. 700 pump. 1/4hp. motor.
122	SW 1/4, NW 1/4, SEC. 31 T35N, R13E	1594'(2)	20.0'	12.0'	1582'	1 1/2"	Driven Point. Outside Well - 13 gal. storage tank. - Burk Pump 1/4hp. motor.
123	SW 1/4, NW 1/4, SEC. 31 T35N, R13E	1594'(2)	21.0'	12.0'	1582'	1 1/2"	Driven Point. Outside Well - Franklin Pump - 1/3hp. motor - 1" pipe to house.
124	SW 1/4, NW 1/4, SEC. 31 T35N, R13E	1595'(2)	17.0'	10.5'	1584.5'	1 1/2"	Driven Point. Outside Well - No pump. 1" pipe to house.
125	SW 1/4, NW 1/4, SEC. 31 T35N, R13E	1592'(2)	20.0'	10.5'	1581.5'	1 1/4"	Driven Point. Well under house - Burk Pump - 1/2hp. motor - 16. gal. storage tank.
126	SW 1/4, NW 1/4, SEC. 31 T35N, R13E	1592'(2)	18.0'	9.5'	1582.5	1 1/2"	Driven Point. Outside well - Red Jacket Pump - 1/2hp. motor - 16. gal. storage tank. 1" pipe to house.
127	SW 1/4, NW 1/4, SEC. 31 T35N, R13E	1592'(2)	20.0'	9.5'	1582.5'	1 1/4"	Driven Point, Outside well - Fairbanks Morris Pump. 1/3hp. motor - 13 gal. storage tank. 1" pipe to house.
128	SW 1/4, NW 1/4, SEC. 31 T35N, R13E	1592'(2)	20.0'	10.0'	1582'	1 1/4"	Driven Point. Outside well - Teel Pump 3/4hp. motor - 16 gal. storage tank. 1" pipe to house.
129	NE 1/4, NW 1/4, SEC. 31 T35N, R13E	1592'(2)	25.0'	10.0'	1582'	1 1/4"	Driven Point. Deming Pump - 1/2 hp. motor - 20 gal. storage tank. 1" pipe to house.
131	NE 1/4, NW 1/4, SEC. 31 T35N, R13E	1593'	75.0'	8.0'	1584'	4"	Drilled. Outside well - submerged pump. 1/2 hp. motor. 1" pipe to house.
134	SW 1/4, NE 1/4, SEC. 31 T35N, R13E	1597'	115.0'	16.0'	1580'	5"	Drilled. Outside Well - Franklin Pump. 1/3hp. motor (submerged). 1" pipe to house.
135	SW 1/4, NE 1/4, SEC. 31 T35N, R13E	1597'	43.0'	18.0'	1579'	5"	Drilled. Outside well - Red Jacket Pump. 1/3hp. motor (submerged).
137	SW 1/4, NE 1/4, SEC. 31 T35N, R13E	1602'	124.0'	26.0'	1571'	5"	Drilled - outside well. Red Jacket Pump. 1/2hp. motor- (submerged) 1 1/4 " pipe to house.
138	SW 1/4, NE 1/4, SEC. 31 T35N, R13E	1600'	133.0'	30.0'	1569'	5"	Drilled - outside well. Teel Pump. 1/2hp. motor-(submerged) 1" pipe to house.
139	SW 1/4, NE 1/4, SEC. 31 T35N, R13E	1598'	59.0'	18.0'	1580'	5"	Drilled - outside well. Burk pump. 1/3hp. motor (submerged) - 1" pipe to house.
146	NE 1/4, SW 1/4, SEC. 31 T35N, R13E	1600'	46.0'	20.0'	1579'	5"	Drilled - outside well. STA Rite Pump. 1/3hp. motor (submerged).
101	NE 1/4, NE 1/4, SEC. 36 T35N, R12E	1663'	146.0'	90.0'	1572'	5"	Drilled - outside well. Pump - 3/4hp. motor (submerged). 1" pipe to house.
169	NE 1/4, NE 1/4, SEC.36 T35N, R12E	1652'	84.0'	76.0'	1575'	5"	Drilled - outside well. Burk Pump - 1/2hp. motor (submerged).
136	SW 1/4, NE 1/4, SEC 31 T35N, R13E	1605'	148.0'	25.0'	1579'	5"	Drilled - outside well (submerged)

Notes:

1) Ground water levels determined September, 1983.

2) Ground surface elevation.

TABLE 4

PRIVATELY OWNED WATER WELLS

OWNER-WELL NUMBERS	LOCATION	TOP OF CASING ELEVATION	DEPTH OF WELL	WATER LEVEL	GROUND(1) WATER LEVEL	SIZE OF CASING OR PIPE	NOTES
Griffith - 168	SE 1/4, SE 1/4, SEC. 36 T35N, R12E	1599'(2)	37.5'	23.0'	1576'	4"	Drilled - no pump. Pipe outside bldg.
Webb - 102	NE 1/4, SE 1/4, SEC. 36 T35N, R12E	1600'	58.0'	23.0'	1574'	4"	Drilled-Outside Well. 1/2 hp. Pump Inside.
Kelchner - 105	NE 1/4, SE 1/4, SEC. 36 T35N, R12E	1601'	54.0'	21.0'	1578.0'	6"	Drilled-Outside Well. Submerged Pump. StaRite Pump - 3/4 hp. motor.
Kelchner - 105A	NE 1/4, SE 1/4, SEC. 36 T35N, R12E	-	22.0'	-	-	2"	Driven Point - Red Jacket Pump. 1/2 hp. Motor. Well locaed in Sauna.
Haferman - 106	NE 1/4, SE 1/4, SEC. 36 T35N, R12E	1597'	17.0'	5.0'	1592.0'	1 1/4"	Driven Point-Outside Well. 1/2 hp. pump.
Fristsche - 107	NE 1/4, SE 1/4, SEC. 36 T35N, R12E	1597'(2)	20.0'	14.0'	1583.0'	1 1/4"	Driven Point. 1/2 hp. Sears Pump.
Becker - 108	NE 1/4, SE 1/4, SEC. 36 T35N, R12E	1597'(2)	25.0'	-	-	1 1/4"	Driven Point - Well buried outside. Gould Pump - 1/3 hp. motor.
Matulis - 111	SE 1/4, NE 1/4, SEC. 36 T35N, R12E	1593'	24.0'	-	-	1 1/2"	3 Cabins - 1 well outside. Driven point. 3/4" pipe going to cabins. Burk Pump 1/2 hp. motor.
* Walentowski - 119	SE 1/4, NE 1/4, SEC. 36 T35N, R12E	1595'	20-30.0'	11.0	1583'	3"	Drilled - outside well. Red Jacket Pump 1/2 hp. motor.
Betters - 118	SE 1/4, NE 1/4, SEC. 36 T35N, R12E	1600'	23.0'	6.0'	1586'	1 1/4"	Driven Point - outside well. 13 gal. storage tank - Sears Pump. 1 1/2 hp. motor.
Karol - 117	SE 1/4, NE 1/4, SEC. 36 T35N, R12E	1598'	23.0'	6.0'	1591'	1 1/4"	Driven Point - outside well. StaRite Pump - 1/2 hp. motor.
Pallen - 116	SE 1/4, NE 1/4, SEC. 36 T35N, R12E	1600'	23.0'	6.0'	1591'	1 1/4"	Driven Point. Fairbank Morris Pump. 1/3 hp. motor.
Dietzler - 115	SE 1/4, NE 1/4, SEC. 36 T35N, R12E	1597'(2)	20-30.0'	-	-	1 1/2"	Driven Point. 1/2 hp. Pump inside.
Yeager - 120	SE 1/4, NE 1/4, SEC. 36 T35N, R12E	1594'	30.0'	25.0'	1574'	1 1/4"	Driven Point - inside well. Deming Pump. 1/3 hp. motor.
Mantey, Bohmann, Weber - 121	SW 1/4, NW 1/4, SEC. 31 T35N, R13E	1596'(2)	24.0'	-	-	1 1/4"	Driven Point - StaRite Pump. 1/3 hp. Motor.
Tomczyk - 140	NE 1/4, SW 1/4, SEC. 31 T35N, R13E	1595'	-	-	-	1 1/4"	Driven, hand pump.
Parker - 143	NE 1/4, SW 1/4, SEC. 31 T35N, R13E	1606'	64.0'	23.0'	1583.0'	5"	Drilled - outside well (submerged). 1 1/2hp. Pump.
Lijewski - 144	NE 1/4, SW 1/4, SEC. 31 T35N, R13E	1606'	58.0'	23.0'	1583.0'	5"	Drilled - outside well. (submerged).
Laux - 167	NE 1/4, NW 1/4, SEC. 6 T34N, R13E	1606'	57.0'	26.0'	1579.0'	5"	Drilled - outside well (submerged).
Dhuey - 166	NW 1/4, NW 1/4, SEC. 6 T34N, R13E	1596'	32.0'	25.0'	1571.0'	2"	Inside well. Well in basement. Driven Point - Country Pump. 1/3 hp. motor.
* Chappy - 98	SE 1/4, SW 1/4, SEC. 25 T35N, R12E	1636'	93.0'	75.0'	1560'	4"	Drilled - 3/4hp. motor - deep well jet.
* R. Hoffman - 90	NW 1/4, SE 1/4, SEC. 26 T35N, R12E	1555'	27.0'	21.0'	1540.0'	1 1/4"	Driven Point - inside well. Burk Pump - 1/4hp. motor. Well in basement.
R. Hoffman - 91	NW 1/4, SE 1/4, SEC. 26 T35N, R12E	1563'	28.0'	22.0'	1540.0'	1 1/4"	Driven Point - outside well. 1/2 hp. motor. StaRite Pump.
Cychogz - 87	SW 1/4, SW 1/4, SEC. 26 T35N, R12E	1562'(2)	15.0'		1547.0'	1 1/4"	Driven Point.
Mushell - 88	SW 1/4, SW 1/4, SEC. 26 T35N, R12E	1562'(2)	15.0'		1547.0'	-	No information available.
L. Hoffman - 89	NE 1/4, SW 1/4, SEC 26 T35N, R12E	1559'(2)	12.0'		1547.0'	1 1/4"	Driven Point. StaRite Pump - 1/3 hp. motor.
L. Hoffman - 89A	NE 1/4, SW 1/4, SEC 26 T35N. R12E	1559'(2)	12.0'		1547.0'	1 1/4"	No pump. Bad well - but has not been abandoned.

* Indicates full time residence, other owners normally only reside in the summer months.

Notes:

1) Ground water levels determined September, 1983.

2) Ground surface elevation.

TABLE 5

SUGGESTED MITIGATION PLANS FOR PRIVATELY OWNED WATER WELLS

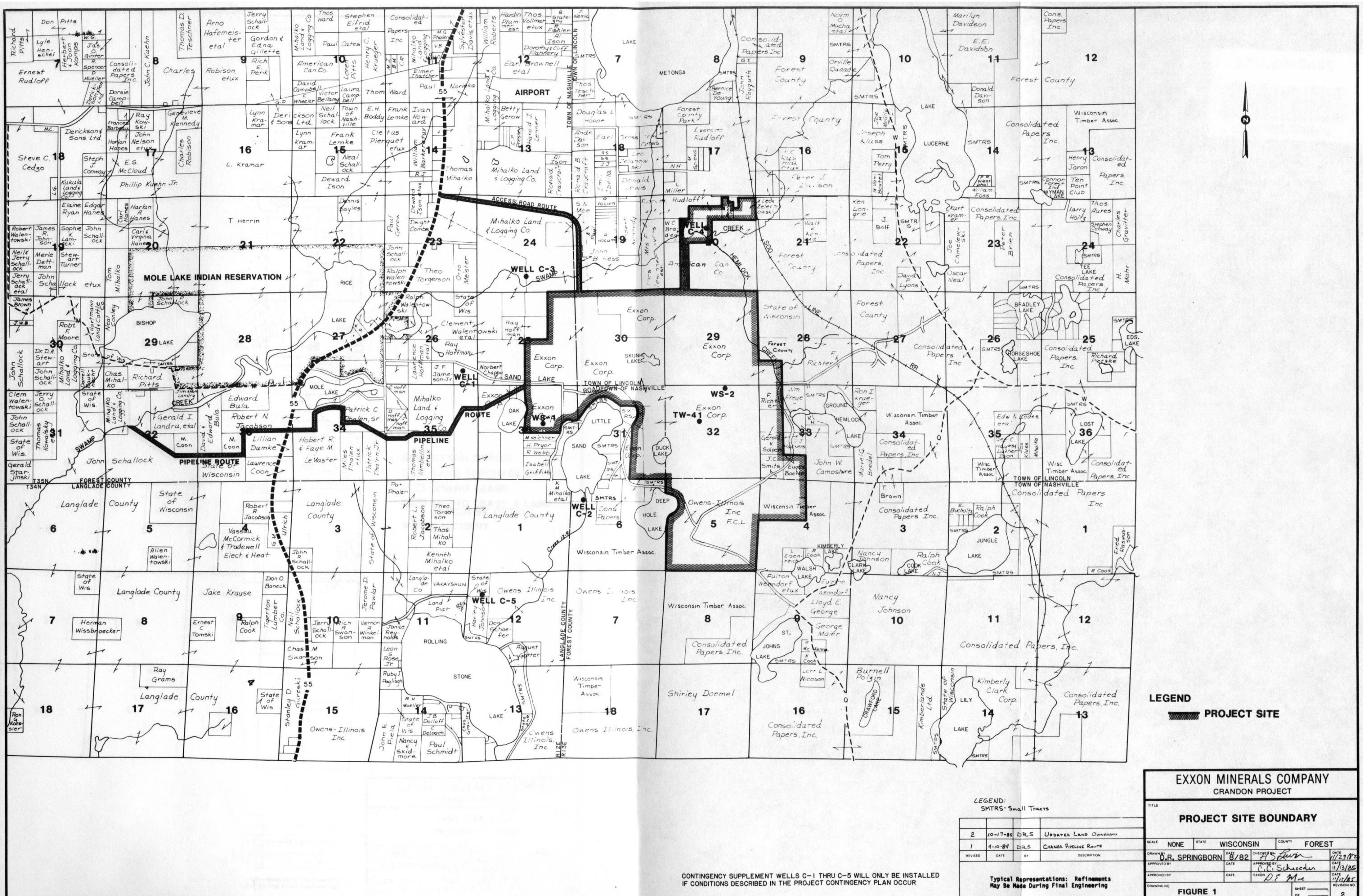
(Plans will be implemented if water wells are adversely affected by Project activities)

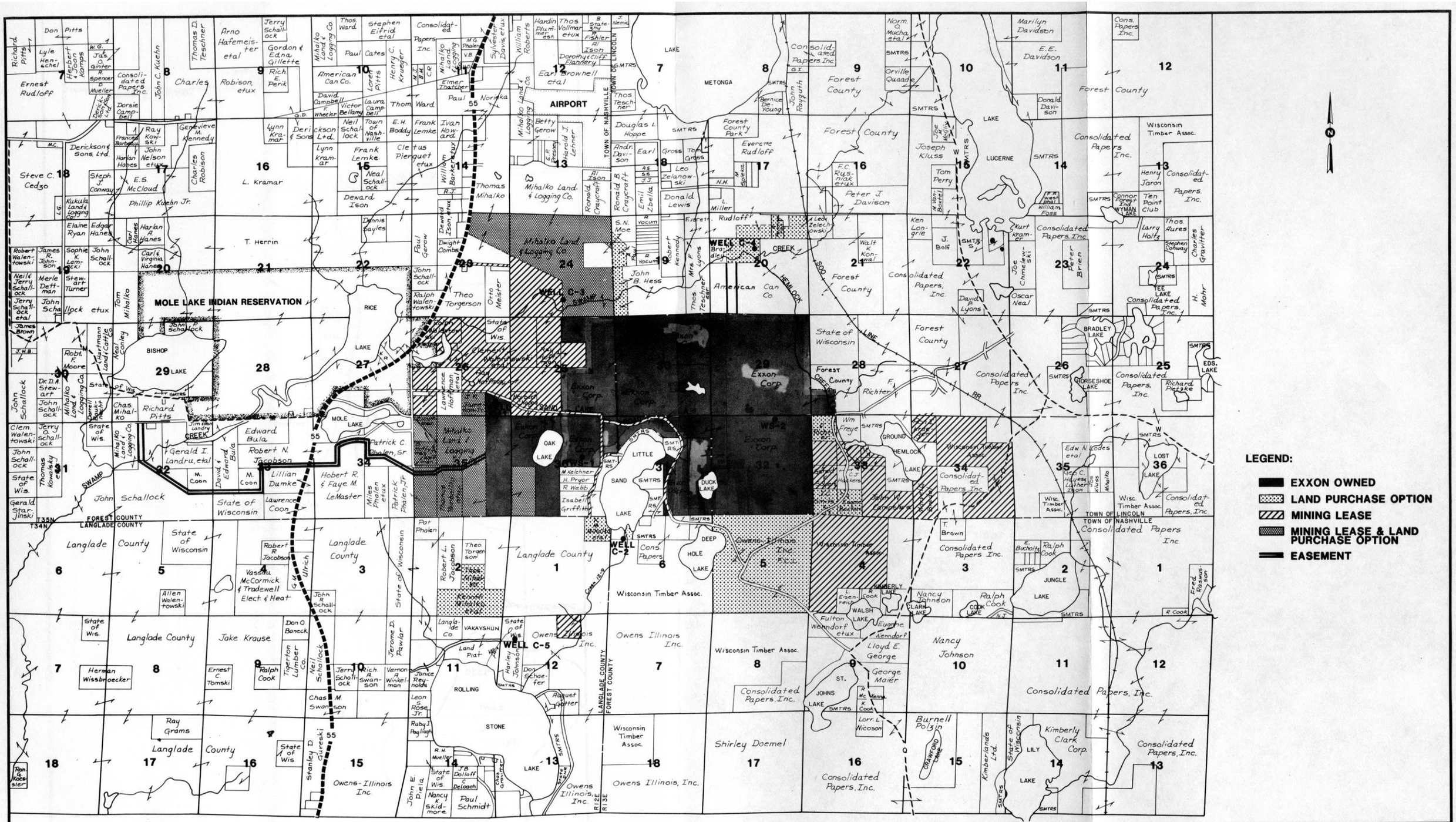
WELL NUMBER	WELL OWNER	WELL TYPE	STATIC WATER LEVEL	ESTIMATED DRAWDOWN FROM MINE INFLOW	WATER LEVEL DURING MINING OPERATIONS	WELL DEPTH	COMMENTS/PLANS
87	Chchogz	Driven	15' (est.)	1'	16' (est.)	-	Decision to replace awaiting field survey data.
88	Mushell	—	15' (est.)	1'	16' (est.)	-	Decision to replace awaiting field survey data.
89	L. Hoffman	Driven	20'	1'	21'	20'	Decision to replace will be based on field measurements.
89A	L. Hoffman	Driven	20'	1'	21'	20'	Should be abandoned.
90	R. Hoffman	Driven	21'	4'	25'	27'	To be replaced.
91	R. Hoffman	Driven	22'	4'	26'	28'	To be replaced.
98	Chappy	4" Drilled	75'	19'	94'	93'	To be deepened.[1]
102	Webb	4" Drilled	25'	19'	44'	58'	To be deepened.
105	Kelchner	6" Drilled	21'	23'	44'	54'	To be deepened.
105A	Kelchner	Driven	—	22'	—	22'	To be replaced.
106*	Haferman	Driven	5'	24'	29'	17'	To be replaced.
107	Fritstche	Driven	14'	25'	39'	20'	To be replaced.
108*	Becker	Driven	15'	26'	41'	35'	To be replaced.
111*	Matulis	Driven	8'	28'	36'	24'	To be replaced.
115	Dietzler	Driven	8'	32'	40'	30'	To be replaced.
116	Pallen	Driven	6'	31'	37'	23'	To be replaced.
117	Karol	Driven	6'	31'	37'	23'	To be replaced.
118	Betters	Driven	6'	30'	36'	25'	To be replaced.
119	Walentowski	3" Drilled	11'	30'	41'	30'	To be deepened.
120	R. Yeagher	Driven	25'	32'	57'	30'	To be replaced.
121	Mantey, etal.	Driven	12'	33'	45'	24'	To be replaced.
140*	Tomczyk	Driven	—	26'			To be replaced.
143	Parker	5" Drilled	23'	23	46	64'	To be deepened.
144	Lijewski	5" Drilled	23'	22'	45'	58'	To be deepened.
166	Dhuey	Driven	25'	12'	37'	32'	To be replaced.
167	Laux	5" Drilled	26'	12'	38'	57'	To be deepened.
168	Griffith	4" Drilled	23'	18'	41'	38'	To be deepened.

*Property under option to purchase by Exxon Corp.

[1]Deepened wells may require new pump, tank, etc.

FIGURES


MOLE LAKE INDIAN RESERVATION
BISHOP LAKE
MOLE LAKE
RICE LAKE
OAK LAKE
LITTLE SAND LAKE
DUCK LAKE
DEEP HOLE LAKE
SKUNK LAKE
ROLLING STONE LAKE
METONGA
LUCERNE
AIRPORT
ACCESS ROAD ROUTE
PIPELINE ROUTE
PIPELINE
ROUTE
WELL C-1
WELL C-2
WELL C-3
WELL C-4
WELL C-5
WS-1
WS-2
TW-41
HEMLOCK CREEK
SWAMP CREEK
SOO LINE RR
TOWN OF NASHVILLE
TOWN OF LINCOLN
TOWN OF LINCOLN
TOWN OF NASHVILLE
FOREST COUNTY
LANGLADE COUNTY
LANGLADE COUNTY
FOREST COUNTY
T35N
T34N
R12E
R13E
Exxon Corp.
Langlade County
Forest County
Consolidated Papers, Inc.
Wisconsin Timber Assoc.
Owens-Illinois Inc.
State of Wisconsin
55
N
LEGEND
PROJECT SITE
LEGEND:
SMTRS- Small Tracts
CONTINGENCY SUPPLEMENT WELLS C-1 THRU C-5 WILL ONLY BE INSTALLED
IF CONDITIONS DESCRIBED IN THE PROJECT CONTINGENCY PLAN OCCUR
Typical Representations: Refinements
May Be Made During Final Engineering
2 | 10-17-85 | D.R.S | UPDATED LAND OWNERSHIP
1 | 4-10-84 | D.R.S | CHANGE PIPELINE ROUTE
REVISED | DATE | BY | DESCRIPTION
EXXON MINERALS COMPANY
CRANDON PROJECT
TITLE
PROJECT SITE BOUNDARY
SCALE NONE
STATE WISCONSIN
COUNTY FOREST
DRAWN BY D.R. SPRINGBORN
DATE 8/82
CHECKED BY
DATE 11/29/82
APPROVED BY C.C. Schroeder
DATE 11/13/85
APPROVED BY
EXXON D E Moe
DATE 11/13/85
DRAWING NO.
FIGURE 1
SHEET OF
REVISION NO. 2
G&B 5/1981



LEGEND:
SMTRS- Small Tracts

CONTINGENCY SUPPLEMENT WELLS C-1 THRU C-5 WILL ONLY BE INSTALLED IF CONDITIONS DESCRIBED IN THE PROJECT CONTINGENCY PLAN OCCUR

REVISED	DATE	BY	DESCRIPTION
2	10-17-85	D.R.S	Updated Land Ownership
1	4-10-84	D.R.S	Change Pipeline Route

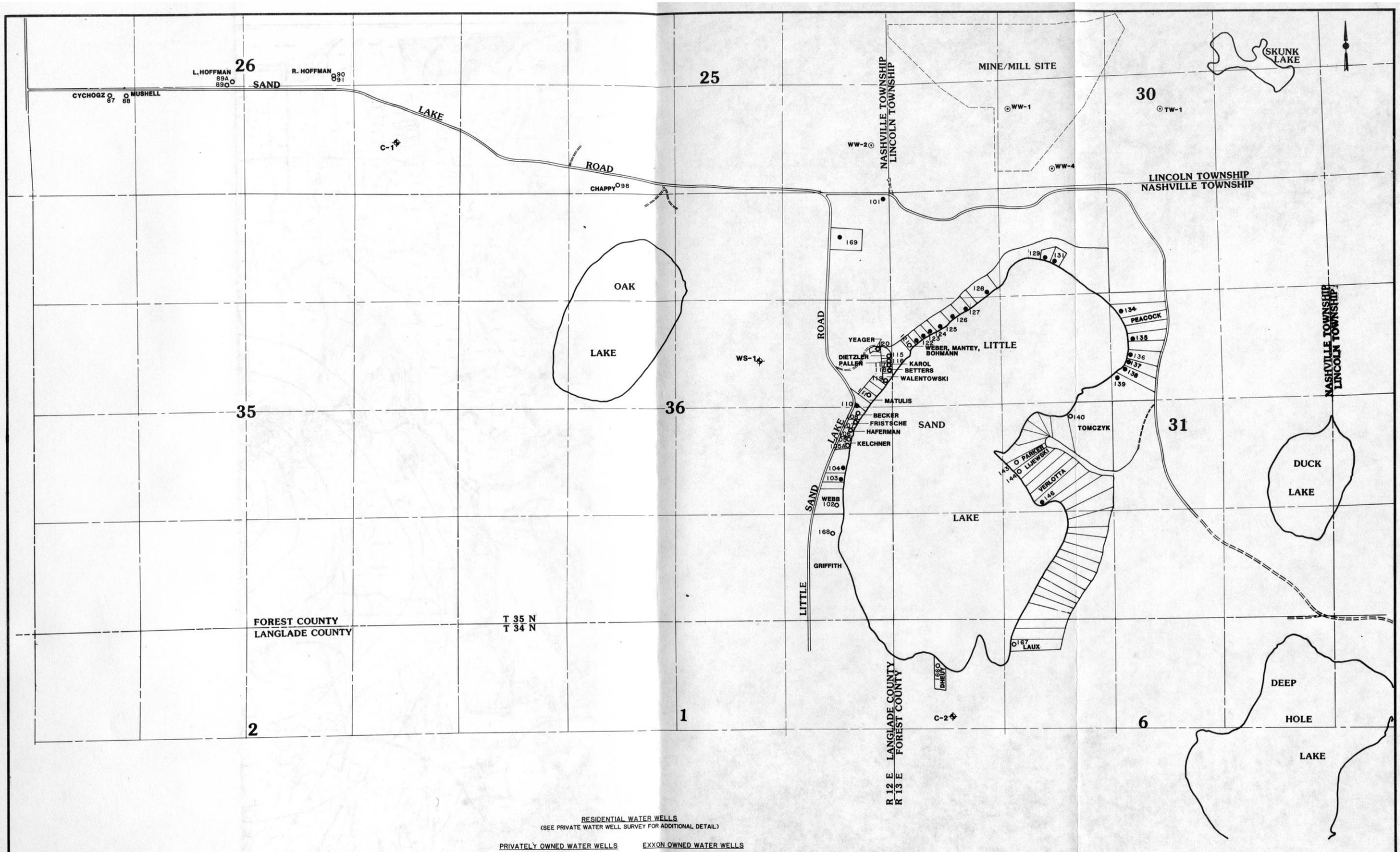
Typical Representations: Refinements May Be Made During Final Engineering

EXXON MINERALS COMPANY
CRANDON PROJECT

TITLE: LAND OWNERSHIP IN PROJECT AREA

SCALE: NONE	STATE: WISCONSIN	COUNTY: FOREST	
DRAWN BY: D.R. SPRINGBORN	DATE: 8/82	CHECKED BY: R.S. Springborn	DATE: 11/23/82
APPROVED BY:	DATE:	APPROVED BY: G.C. Schroeder	DATE: 11/13/85
APPROVED BY:	DATE:	EXXON: D.F. Moe	DATE: 11/12/85
DRAWING NO: FIGURE 2		SHEET: OF	REVISION NO: 2

GBB 5/1981



RESIDENTIAL WATER WELLS
(SEE PRIVATE WATER WELL SURVEY FOR ADDITIONAL DETAIL)

PRIVATELY OWNED WATER WELLS

27 WELLS – 87, 88, 89, 89A, 90, 91, 98, 102, 105, 105A, 106, 107, 108, 111, 115, 116, 117, 118, 119, 120, 121, 140, 143, 144, 166, 167, 168

EXXON OWNED WATER WELLS

21 WELLS – 101, 103, 104, 110, 122, 123, 124, 125, 126, 127, 128, 129, 131, 134, 135, 136, 137, 138, 139, 146, 169

LEGEND:

- o168–PRIVATELY OWNED WATER WELLS (27)
- ●110–RESIDENTIAL WATER WELLS OWNED BY EXXON (21)
- ⊙ EXXON TEST & WATER SUPPLY WELLS
- ⊕ PROPOSED WELL LOCATIONS

0 100 200 300 400 500
SCALE IN METERS

CONTINGENCY SUPPLEMENT WELLS C-1 THRU C-5 WILL ONLY BE INSTALLED IF CONDITIONS DESCRIBED IN THE PROJECT CONTINGENCY PLAN OCCUR

REVISED	DATE	BY	DESCRIPTION
2	2-15-85	DRS	Combined Figs 3&4
1	1-10-85	DRS	General Revisions

Typical Representations: Refinements May Be Made During Final Engineering

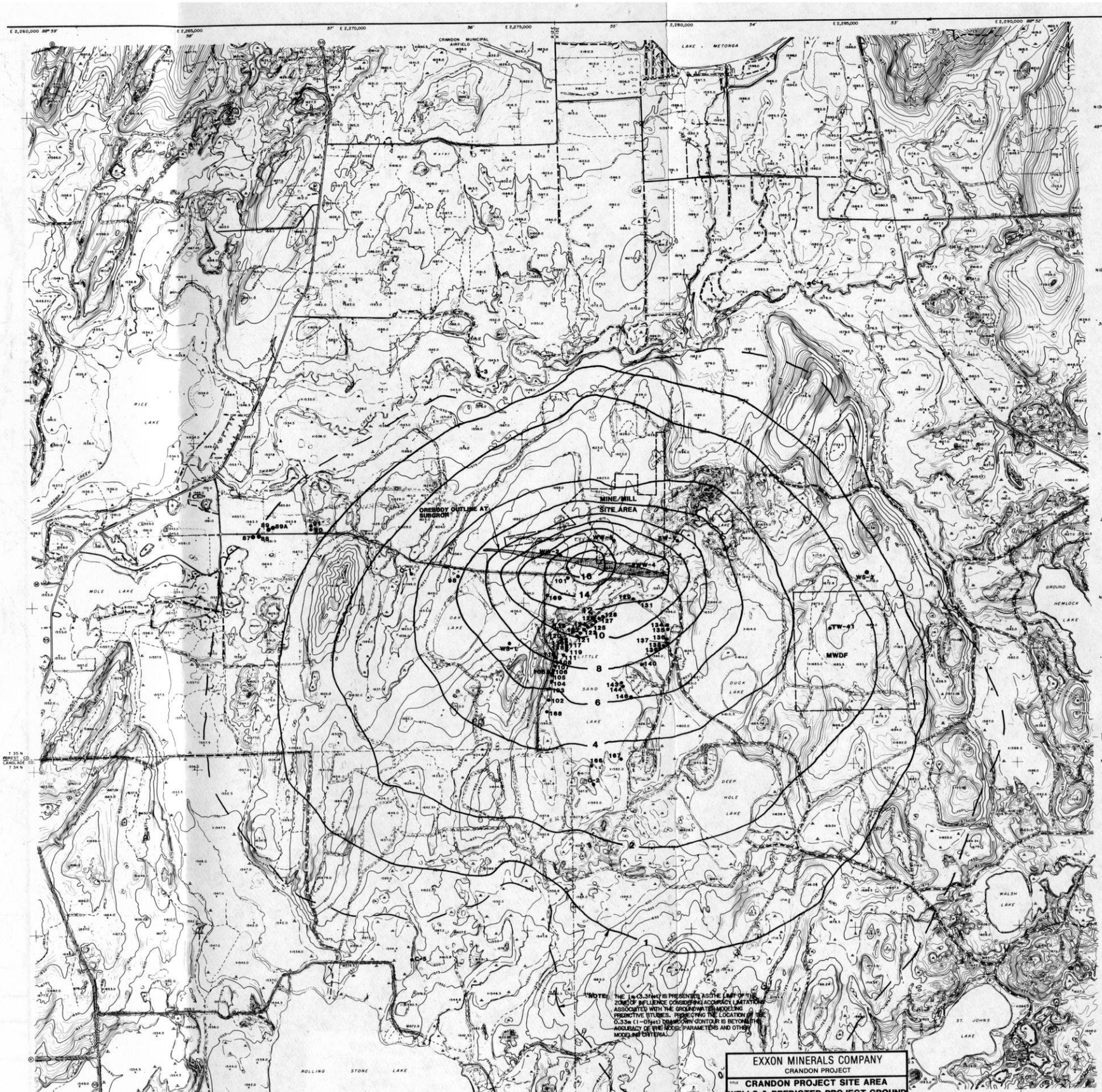
EXXON MINERALS COMPANY
CRANDON PROJECT

TITLE: **PRIVATELY OWNED & EXXON OWNED WATER WELLS**

SCALE: SHOWN | STATE: WISCONSIN | COUNTY: FOREST

DRAWN BY: DR SPRINGBORN | DATE: 9/83 | CHECKED BY: R.S. Lewis | DATE: 2/14/85
APPROVED BY: | DATE: | APPROVED BY: C.C. Schneider | DATE: 2/14/85
APPROVED BY: | DATE: | EXXON: D.T. Moe | DATE: 2/7/85
DRAWING NO: | SHEET: OF | REVISION NO: 2

FIGURE 3



LEGEND:

- ● EXISTING WATER WELLS WITHIN WATER TABLE ZONE OF INFLUENCE (REFER TO FIGURE 3 – EXXON OWNED WATER WELLS & PRIVATELY OWNED WATER WELLS)
- —2— POTENTIOMETRIC DRAWDOWN IN METERS (BASED ON 1270gpm MINE INFLOW)

Typical Representations: Refinements May Be Made During Final Engineering

CONTINGENCY SUPPLEMENT WELLS C-1 THRU C-5 WILL ONLY BE INSTALLED IF CONDITIONS DESCRIBED IN THE PROJECT CONTINGENCY PLAN OCCUR

NOTE: THE 1m (3.3feet) IS PRESENTED AS THE LIMIT OF THE ZONE OF INFLUENCE CONSIDERING ACCURACY LIMITATIONS ASSOCIATED WITH THE GROUNDWATER MODELING PREDICTIVE STUDIES. PROJECTING THE LOCATION OF THE 0.33m (1-Oyear) DRAWDOWN CONTOUR IS BEYOND THE ACCURACY OF THE MODEL PARAMETERS AND OTHER MODELING CRITERIA.

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS FOR FIVE FOOT CONTOUR INTERVAL MAPPING.

CONTOUR INTERVAL FIVE FOOT BASED ON MEAN SEA LEVEL DATUM.

HORIZONTAL DATUM BASED ON WISCONSIN STATE PLANE COORDINATE SYSTEM.

DATE OF PHOTOGRAPHY: APRIL 28, 1976

AERO-METRIC ENGINEERING PROJECT NO. 047613

EXXON MINERALS COMPANY

CRANDON PROJECT

TITLE: CRANDON PROJECT SITE AREA WELLS & PREDICTED PROJECT GROUND WATER POTENTIOMETRIC DRAWDOWN

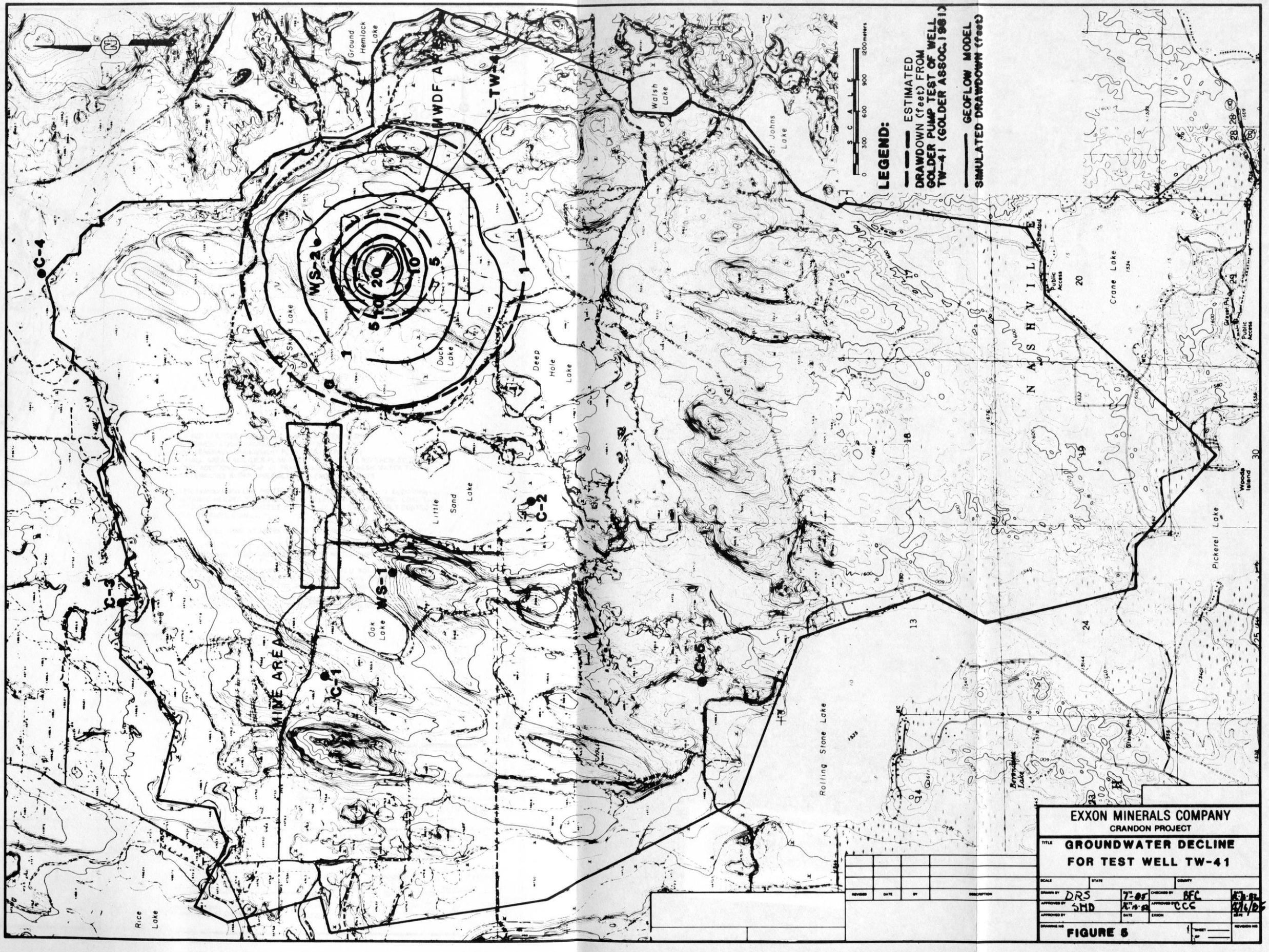
SCALE: SHOWN	STATE: WISCONSIN		COUNTY: FOREST		
DRAWN: DR SPRINGBORN	DATE: 11/84	CHECKED: [illegible]	DATE: 11/6/85	APPROVED: [illegible]	DATE: 11/6/85
APPROVED BY:	DATE:	EXXON: [illegible]	DATE: 11/85		
DRAWING NO.	FIGURE 4	SHEET NO. OF	2	REVISION NO.	

C-TM-0113

TOPOGRAPHIC MAPPING

SECTIONS 1,2,3,10,11,12	T34N, R12E
SECTIONS 13,14,15,22,23,24,25,26,27,34,35,36	T35N, R12E
SECTIONS 4,5,6,7,8,9	T34N, R13E
SECTIONS 16,17,18,19,20,21,28,29,30,31,32,33	T35N, R13E

FOREST & LANGLADE COUNTIES, WISCONSIN


LEGEND:
ESTIMATED DRAWDOWN (feet) FROM GOLDER PUMP TEST OF WELL TW-41 (GOLDER ASSOC. 1981)
GEOFLOW MODEL SIMULATED DRAWDOWN (feet)
SCALE 0 300 600 900 1200 meters
TW-41
MWDF A
WS-2
WS-1
C-1
C-2
C-3
C-4
C-5
MINE AREA
Ground Hemlock Lake
Walsh Lake
St Johns Lake
Skye Lake
Duck Lake
Deep Hole Lake
Little Sand Lake
Oak Lake
Rice Lake
Rolling Stone Lake
Crane Lake
Pickerel Lake
Woods Island
Public Access
NASHVILLE
EXXON MINERALS COMPANY
CRANDON PROJECT
TITLE GROUNDWATER DECLINE FOR TEST WELL TW-41
DRAWN BY DRS 7-85
APPROVED BY SMD 7-15-85
CHECKED BY BFC 7-15-85
APPROVED BY CCC 7/16/85
FIGURE 5

T35 N, R 12 E
T36 N, R 13 E

MINE/MILL AREA FACILITIES LIMITS

FRESH WATER TANK

FRESH WATER TANK (SEE DETAIL THIS SHEET)

SANITARY WASTE TREATMENT PLANT

WW-1 (TO BE ABANDONED)

TW-1

WW-2

WW-4

LOCATE PIPE APPROX. 3m (10') NORTH OF ROAD RIGHT-OF-WAY

OPEN TRENCH ACROSS ROAD AND REPLACE PAVEMENT

EXXON OWNED RESIDENTIAL WELL 101

EXXON OWNED RESIDENTIAL WELL 169

150mm (6")Ø POTABLE WATER TRANSMISSION LINE (TOTAL LENGTH APPROX. 2000m (6560'))

LOCATE PIPE APPROX. 3m (10') WEST OF ROAD RIGHT-OF-WAY LIMIT

SEE TYPICAL PIPE TRENCH AND PIPE INSTALLATION DETAIL THIS SHEET

SEE PUMP HOUSE & PUMP INSTALLATION DRAWING

GRAVEL SURFACE ACCESS DRIVE N 60° E

WATER SUPPLY WELL WS-1 & PUMP HOUSE

WELL LOCATION
N 34,694m (N 113,825')
E 693,352m (E 2,274,772')

WELL C-1

SAND LAKE

OAK LAKE

LITTLE SAND LAKE

SKUNK LAKE

ROAD

25 26 30 29 35 36 31 32

N

NOTES:

1) SEE YARD UTILITIES PLAN, PLANT WATER SYSTEM PIPING & INSTRUMENTATION DIAGRAM, & WATER TANKS & PUMP HOUSE GENERAL ARRANGEMENT PLAN & SECTION FROM MINE/MILL AREA FACILITIES PLAN SHEET SET . ABOVE REFERENCED DWGS., PROVIDE ADDITIONAL DETAIL OF TRANSMISSION LINE, FRESH WATER TANK & APPURTENANCES WITHIN MINE/MILL AREA FACILITIES LIMITS.

2) WATER TANSMISSION LINE PIPE MATERIAL TO BE SCHEDULE 40 ELECTRIC RESISTANCE WELDED STEEL, BLACK, BEVELED END FOR WELDING, COAL TAR COATED & WRAPPED OR DUCTILE IRON PIPE, CLASS 250, ASPHALT COATED OR OTHER APPROVED EQUAL.

3) ABOVE GROUND PIPING AT FRESH WATER TANK INSULATED & HEAT TRACED.

4) FRESH WATER TANK TO INCLUDE WATER LEVEL INDICATOR, & HIGH & LOW LEVEL SWITCHES TO CONTROL OPERATION OF WATER SUPPLY WELL WS-1.

5) WATER FROM SUPPLY WELL WS-1 IS TRANSMITTED SOLELY TO THE FRESH WATER TANK AT THE MINE/MILL AREA. NO BUILDING SERVICE OR OTHER DISTRIBUTION IS MADE FROM THE TRANSMISSION LINE.

6) FOR POLLUTION SOURCE LOCATIONS IT SHOULD BE ASSUMED A RESIDENTIAL SANITARY SEWAGE SEPTIC SYSTEM IS LOCATED NEARBY EACH RESIDENTIAL WELL

LEGEND:

x496 #120 – RESIDENTIAL WATER WELL (SEE PRIVATE WATER WELL SURVEY FOR OWNERSHIP STATUS)

SIDE SLOPE CUTBACKS & UNSUPPORTED DEPTHS OR SHORING REQUIREMENTS FOLLOWING RECOMMENDATIONS OF FINAL SOILS REPORT

BACKFILL (FROM TRENCH EXCAVATION) PLACED IN MAX. 0.3m (12") THICK LAYERS & THOROUGHLY COMPACTED

1.8m (6.0') min.

UNSUPPORTED DEPTH OR SHORING

AVE. DEPTH (Y.O')

0.3m (1.0')

SELECT MATERIAL (FROM TRENCH EXCAVATION OR OTHER SOURCE) PLACED IN MAX. 0.15m (6") THICK LAYERS & THOROUGHLY COMPACTED

0.1m (4")

150mm (6")Ø

0.35m (1.17')–0.46m (1.50') DEPENDING UPON FINAL CHOICE OF PIPE MATERIAL, TYPE OF PIPE JOINT, AND INSTALLATION METHOD

TYPICAL PIPE TRENCH & PIPE INSTALLATION

SCALE IN METERS 0 0.5 1.0

SCALE IN FEET 0 1 2 3

TANK LOCATION
N 35,875.0m (N 117,699.9')
E 694,302.5m (E 2,277,890.8')

150mm (6")Ø TRANSMISSION LINE DISCHARGE TO TANK

FRESH WATER TANK EQ. NO. 706-5401-00 5.8m (19') Øx7.5m (24.6') (50,000 gal.)

LADDER & CAGE

TANK DISCHARGE (TO FRESH WATER PUMP IN PUMP HOUSE)

PLAN VIEW

VENT

TOP OF TANK ELEV. 510.8m (1675.8')

OVERFLOW (TO TAILINGS THICKENER OVERFLOW SUMP)

BOT. OF TANK ELEV. 503.3m (1651.2')

GRADE ELEV. 503.0m (1650.2')

CONCRETE FOUNDATION

ELEVATION LOOKING NORTH

FRESH WATER TANK AT MINE/MILL SITE

SCALE IN METERS 0 5 10

SCALE IN FEET 0 10 20 30

CONTINGENCY SUPPLEMENT WELLS C-1 THRU C-5 WILL ONLY BE INSTALLED IF CONDITIONS DESCRIBED IN THE PROJECT CONTINGENCY PLAN OCCUR

SCALE IN FEET 0 500 1000 1500

SCALE IN METERS 0 100 200 300 400 500

2	11-7-85	DRS	REDUCED TRANSMISSION LINE SIZE & REVISED MINE/MILL AREA PLOT PLAN
1	2-21-85	DRS	GENERAL REVISION

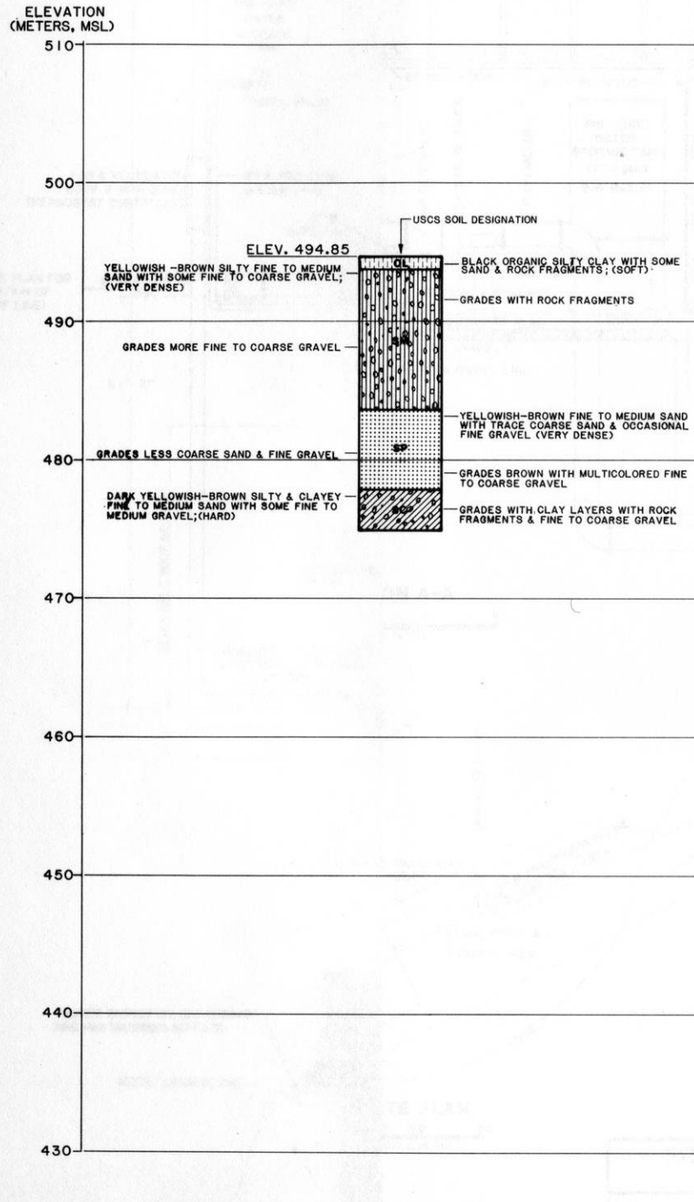
Typical Representations: Refinements May Be Made During Final Engineering

EXXON MINERALS COMPANY
CRANDON PROJECT

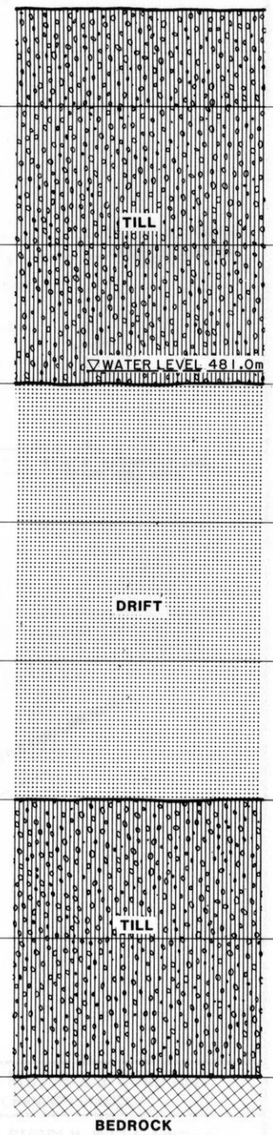
TITLE: **WATER SUPPLY WELL WS-1 & TRANSMISSION LINE SITE PLAN**

SCALE SHOWN	STATE WISCONSIN		COUNTY FOREST		
DRAWN BY DR SPRINGBORN	DATE 1/84	CHECKED BY D.R.S.	DATE 4/16/85		
APPROVED BY	DATE	APPROVED BY C.C. Schneider	DATE 2/14/85		
APPROVED BY	DATE	EXXON D.F. Mine	DATE 11/13/85		
DRAWING NO FIGURE 6A			SHEET — OF —	REVISION NO 2	

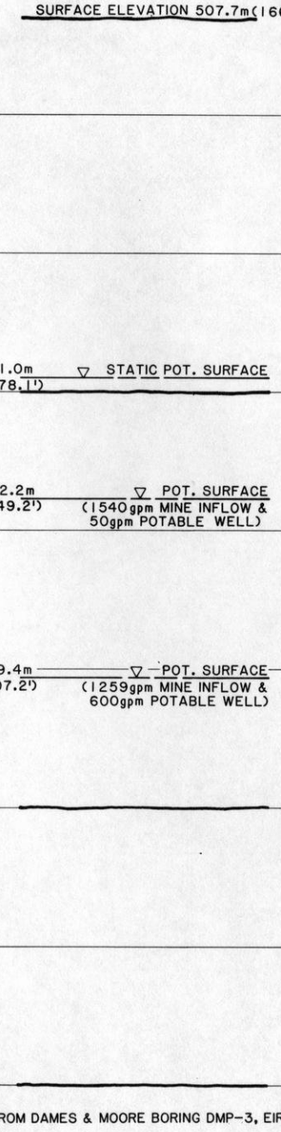
SOIL BORING DMP-3 STRATIGRAPHY (1) (270m SE OF WS-1)



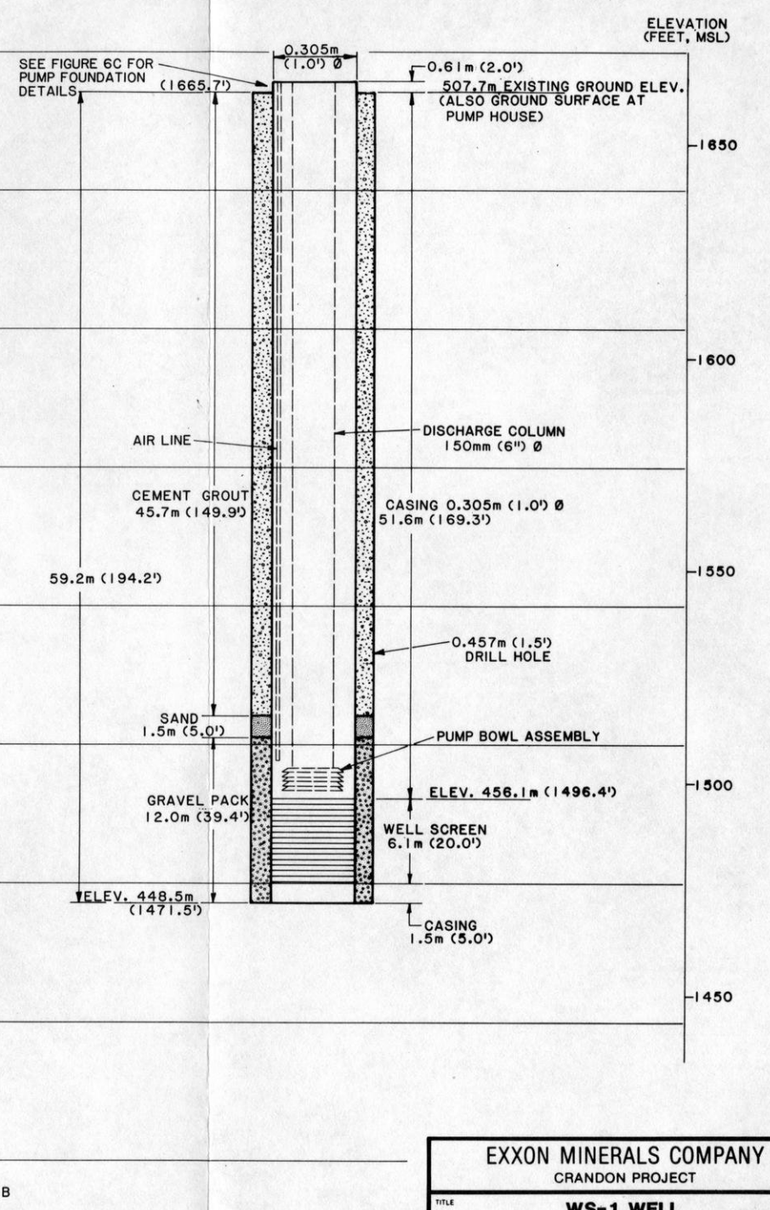
EXPECTED WELL SITE STRATIGRAPHY (2),(3)



EXPECTED HYDROLOGICAL & PUMPING CONDITIONS (2),(4)



PROPOSED WELL CONSTRUCTION (2)



NOTE:

1) FROM DAMES & MOORE BORING DMP-3, EIR APPENDIX 2.1B
2) PROPOSED WS-1 LOCATION; N 34,694m (N 113,825 feet) E 693,352m (E 2,274,772 feet)
3) EXPECTED WELL SITE STRATIGRAPHY FROM STS GEOHYDROLOGIC STUDY UPDATE-JUNE 1984
4) EXPECTED HYDROLOGICAL & PUMPING CONDITIONS FROM D'APPOLONIA EIR APPENDIX 4.1A-HYDROLOGIC IMPACT ASSESSMENT - NOVEMBER, 1985

REVISED	DATE	BY	DESCRIPTION
2	11-7-85	DRS	CHANGED NOTE 4 REPORT DATE & REDUCED WELL SIZE
1	2-20-85	DRS	GENERAL REVISION

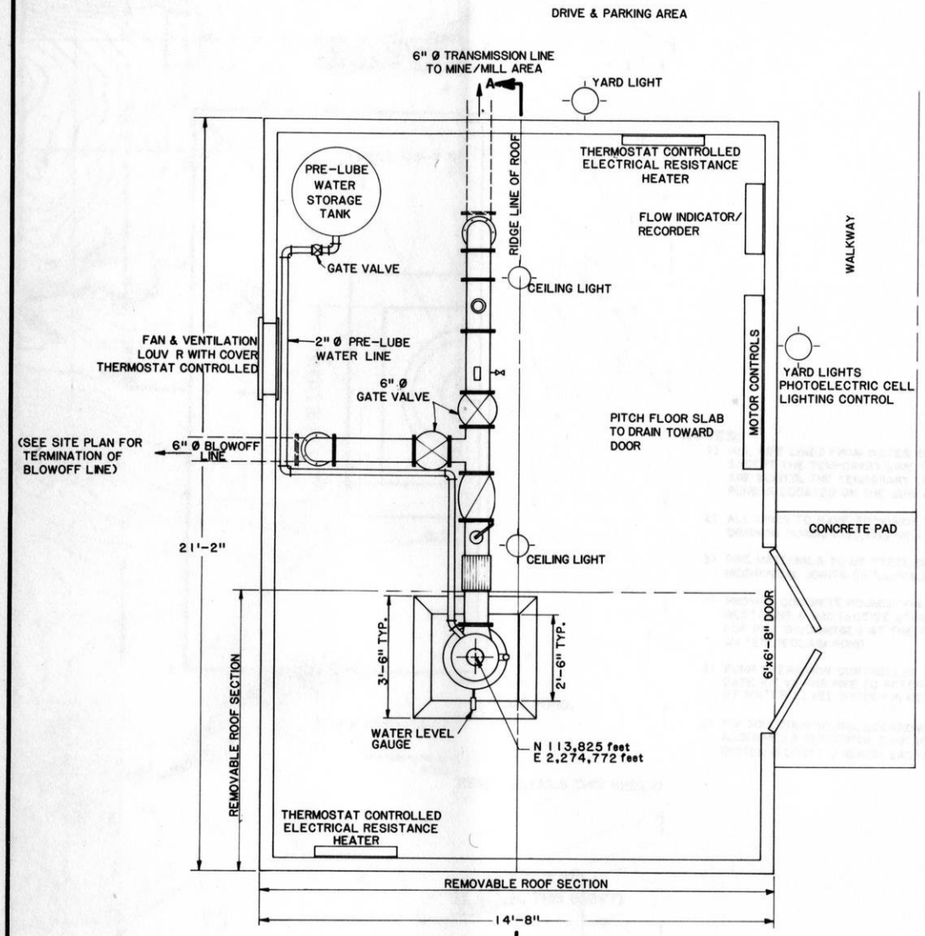
Typical Representations: Refinements May Be Made During Final Engineering

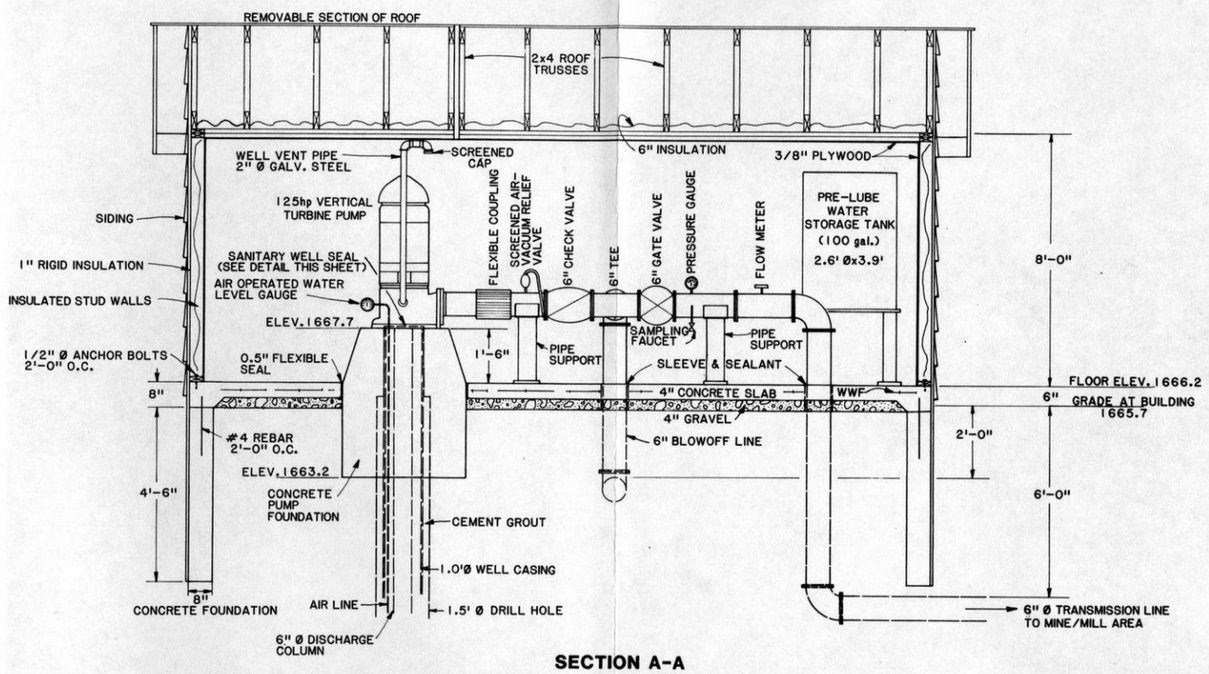
EXXON MINERALS COMPANY
CRANDON PROJECT

TITLE
WS-1 WELL
STRATIGRAPHY & CONSTRUCTION

SCALE SHOWN	STATE WISCONSIN	COUNTY FOREST	
DRAWN BY DR SPRINGBORN	DATE 1/85	CHECKED BY H.S. Lewis	DATE 4/16/85
APPROVED BY	DATE	APPROVED BY C.C. Schneider	DATE 2/14/85
APPROVED BY	DATE	EXXON D.C. Hine	DATE 11/13/85
DRAWING NO **FIGURE 6B**		SHEET — OF —	REVISION NO 2.

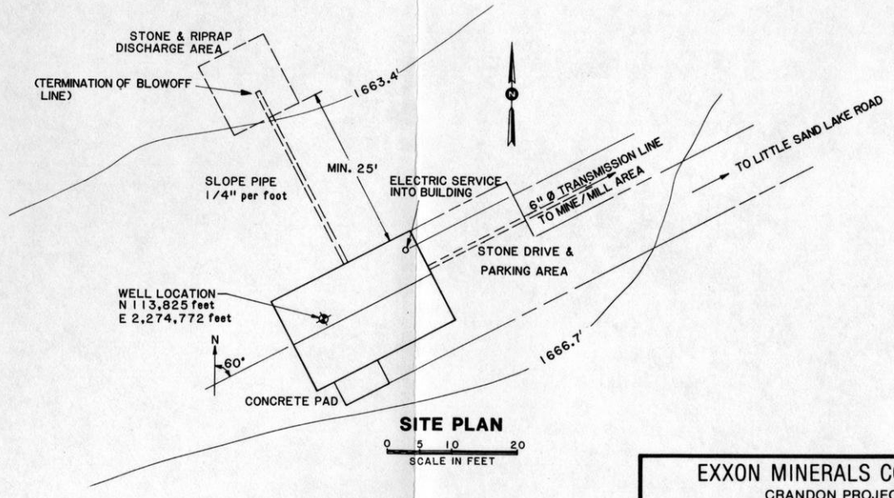
GBB 5/1981





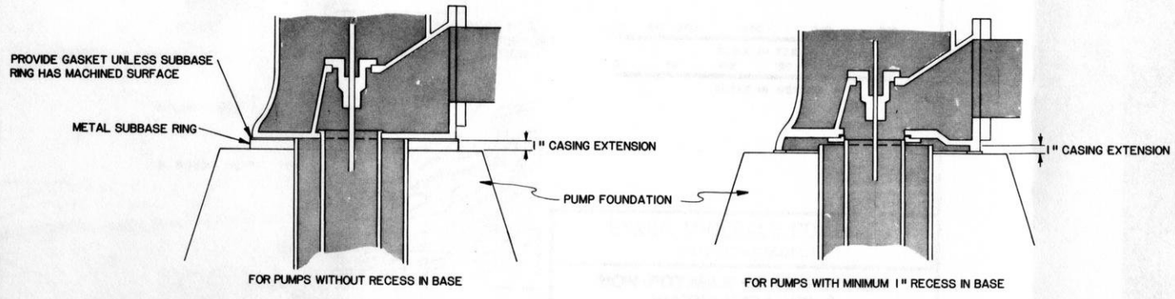
SECTION A-A

0 2 4 6
SCALE IN FEET



SITE PLAN

0 5 10 20
SCALE IN FEET



TYPICAL SANITARY WELL SEAL DETAIL

REVISED	DATE	BY	DESCRIPTION
2	11-7-85	DRS	Reduced Well & Pump Size
1	2-20-85	DRS	General Revision

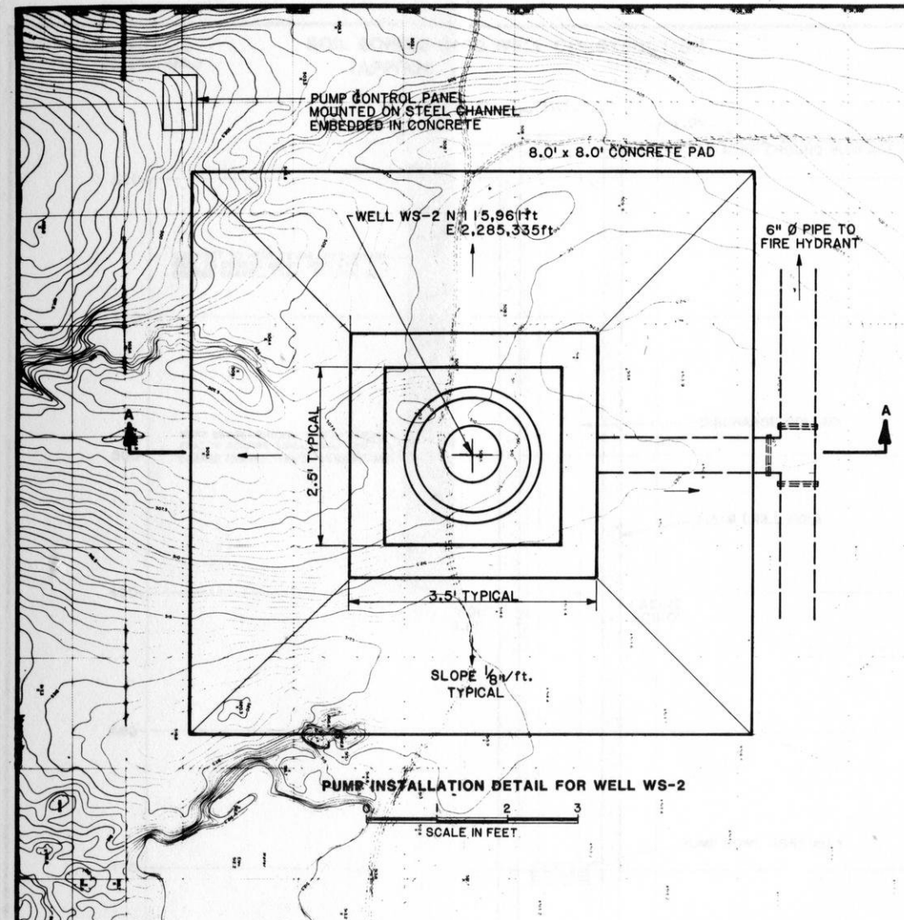
Typical Representations: Refinements May Be Made During Final Engineering

EXXON MINERALS COMPANY
CRANDON PROJECT

TITLE
WATER SUPPLY WELL (WS-1)
PUMP HOUSE & PUMP INSTALLATION

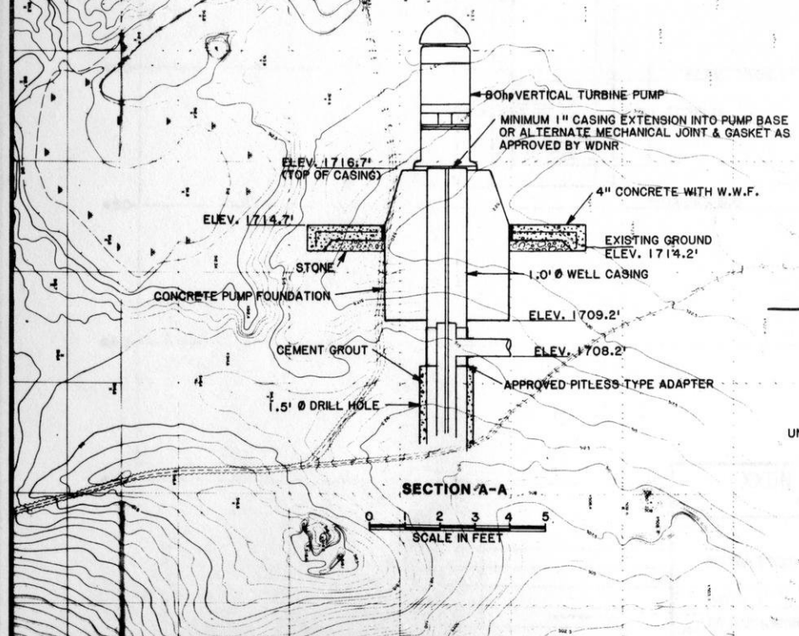
SCALE SHOWN	STATE WISCONSIN		COUNTY FOREST		
DRAWN BY DR SPRINGBORN	DATE 1/85	CHECKED BY D.S. Lewis	DATE 11/6/85		
APPROVED BY	DATE	APPROVED BY C.C. Schneider	DATE 6/16/85		
APPROVED BY	DATE	EXXON D.F. Mac	DATE 11/12/85		
DRAWING NO. FIGURE 6C			SHEET — OF —	REVISION NO. 2	

DESIGN PRODUCTS CO.—



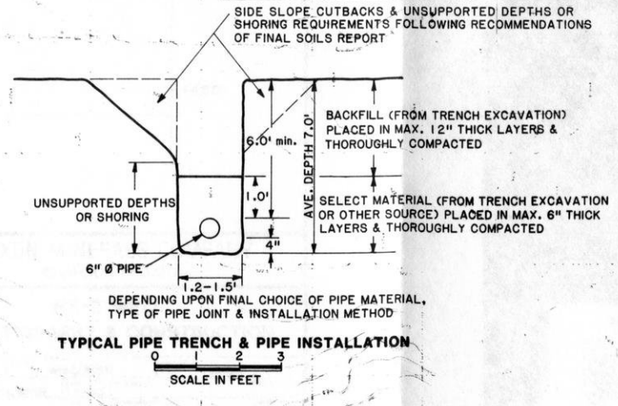
PUMP INSTALLATION DETAIL FOR WELL WS-2

0 1 2 3
SCALE IN FEET



SECTION A-A

0 1 2 3 4 5
SCALE IN FEET



TYPICAL PIPE TRENCH & PIPE INSTALLATION

0 1 2 3
SCALE IN FEET

NOTES:

1) ALL PIPE LINES FROM WATER SUPPLY WELL WS-2 EXCEPT THE TEMPORARY LINE TO THE RECLAIM POND ARE BURIED. THE TEMPORARY LINE TO THE RECLAIM POND IS LOCATED ON THE SURFACE
2) ALL LINES TO HAVE PROVISION TO ALLOW COMPLETE DRAINING DURING FREEZING WEATHER
3) PIPE MATERIALS TO BE STEEL OR DUCTILE IRON WITH MECHANICAL JOINTS OR EQUIVALENT
4) PROVIDE CONCRETE FOUNDATION BLOCK/PIPE RESTRAINT & PROTECTIVE STONE DISCHARGE AREA FOR PIPE DISCHARGES AT THE RETENTION POND & WATER RECLAIM POND
5) PUMP OPERATION CONTROLLED BY PRESSURE SWITCH. GATE VALVE FOR PIPE TO RETENTION POND ACUATED BY WATER LEVEL SWITCH IN RETENTION POND
6) FOR POLLUTION SOURCE LOCATIONS IT SHOULD BE ASSUMMED A RESIDENTIAL SANITARY SEWAGE SEPTIC SYSTEM IS LOCATED NEARBY EACH RESIDENTIAL WELL

GENERAL NOTES:

1. ELEVATIONS IN METERS ABOVE MSL BASED ON 1929 ADJUSTMENT.
2. BASE MAP AND AERIAL PHOTOGRAPHY (1976) BY AERO-METRIC ENGINEERING, INC.
3. GRID COORDINATES IN METERS BASED ON WISCONSIN STATE PLANE COORDINATE SYSTEM.

0 100 200 400 600 800
SCALE IN FEET
0 50 100 150 200 250
SCALE IN METERS

Typical Representations: Refinements May Be Made During Final Engineering

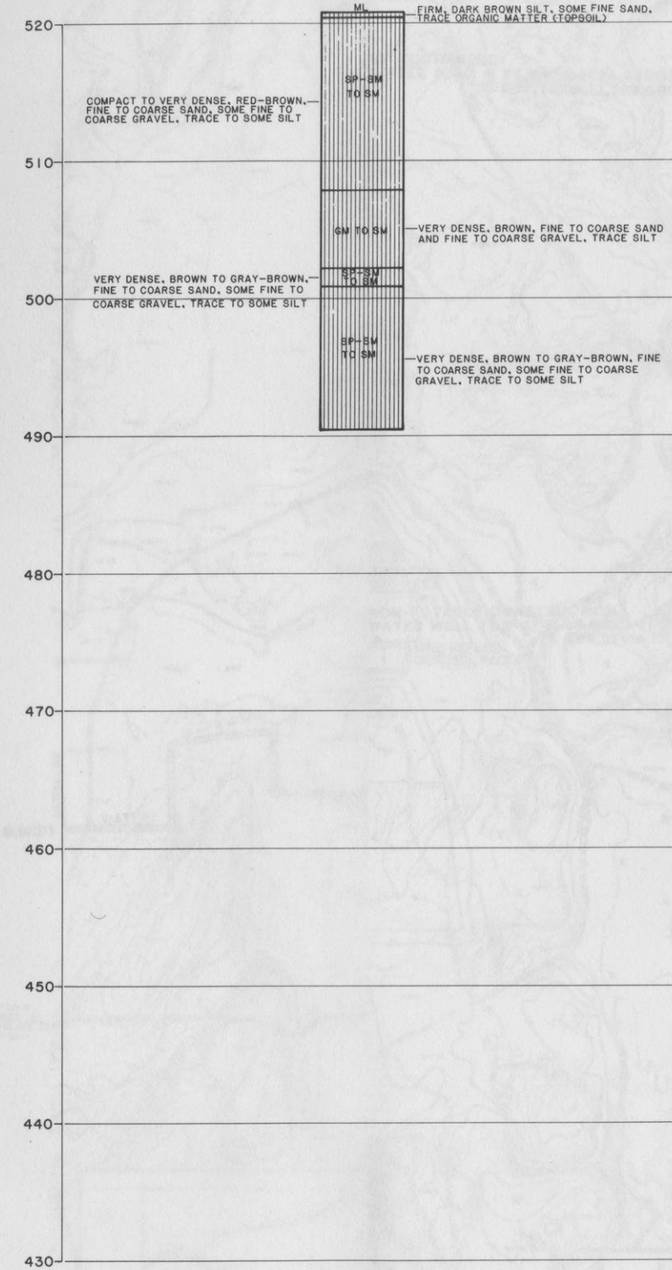
EXXON MINERALS COMPANY
CRANDON PROJECT

NON-POTABLE CONSTRUCTION WATER WELL WS-2 SITE PLAN

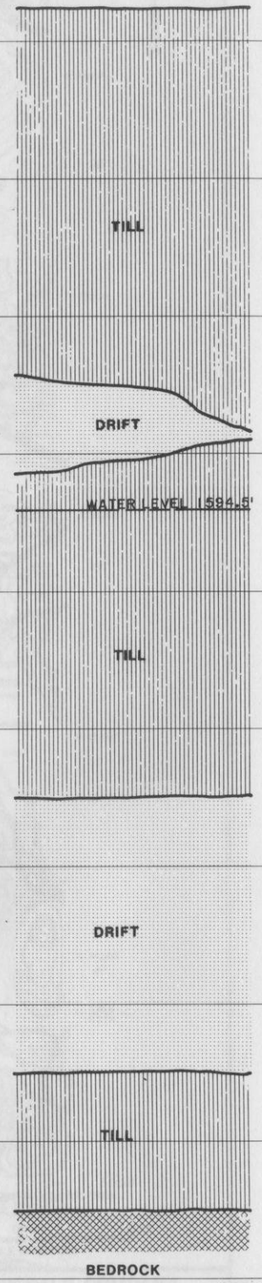
SCALE SHOWN	STATE WISCONSIN	COUNTY FOREST	
DRAWN BY DR SPRINGBORN	DATE 11/85	CHECKED BY	DATE
APPROVED BY	DATE	APPROVED BY C. C. Schroeder	DATE 11/13/85
APPROVED BY	DATE	EXXON D. E. Mac	DATE 11/13/85
DRAWING NO.		SHEET OF	REVISION NO.

FIGURE 7A

SOIL BORING G41-J11 STRATIGRAPHY (APPROX. 262' NE OF WS-2)[1]



EXPECTED WELL SITE STRATIGRAPHY[2][3]



EXPECTED HYDROLOGICAL & PUMPING CONDITIONS[4]

SURFACE ELEVATION 1714.2'

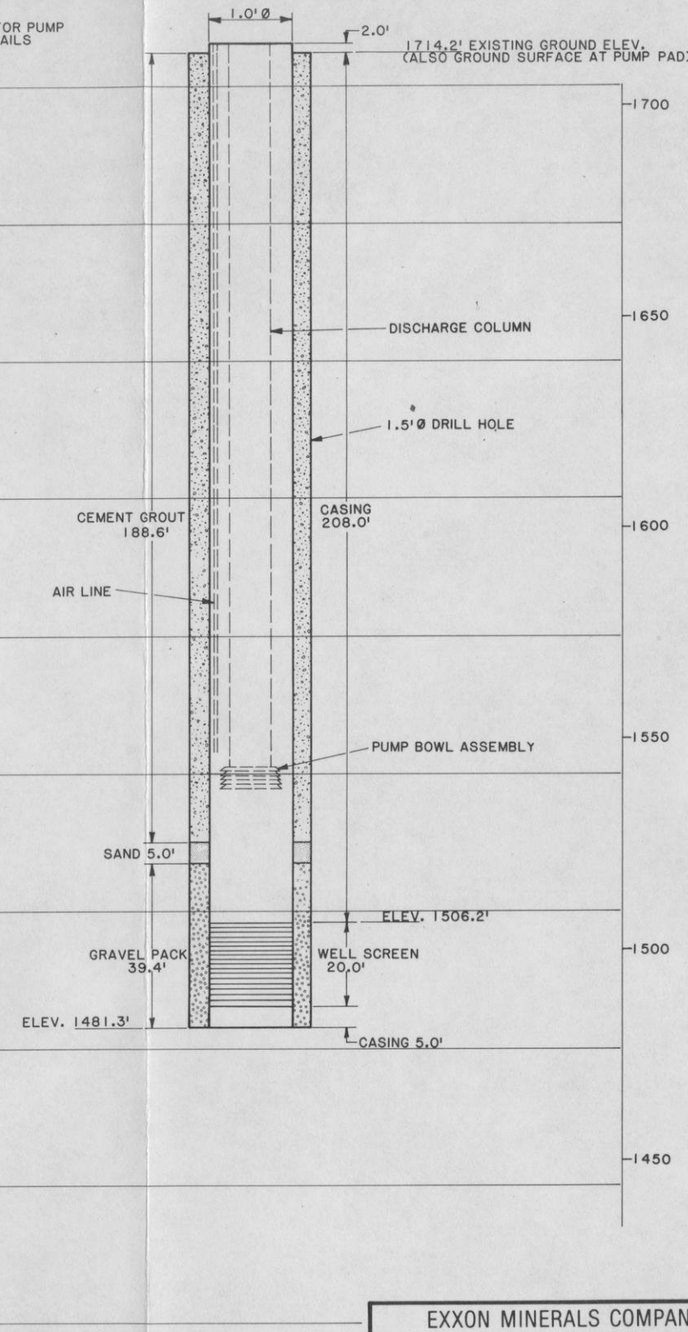
SEE FIGURE 7A FOR PUMP FOUNDATION DETAILS

1594.5' — STATIC POT. SURFACE

1587.9' — POT. SURFACE (1540gpm MINE INFLOW)

1557.9' — POT. SURFACE (1540gpm MINE INFLOW) 600gpm FROM WS-2[5]

PROPOSED WELL CONSTRUCTION



NOTE:

1) FROM GOLDER ASSOCIATES BORING G41-J11, EIR APPENDIX 2.1B
2) PROPOSED WS-2 LOCATION: N 35,345m (115,961ft)
   E 69,657m (2,285,335ft)
3) EXPECTED WELL SITE STRATIGRAPHY FROM STS GEOHYDROLOGIC STUDY UPDATE-JUNE 1984, DWGS 12959-6,7,8&9
4) ESTIMATED HYDROLOGICAL & PUMPING CONDITIONS FROM EIR APPENDIX 4.1A-HYDROLOGIC IMPACT ASSESSMENT - NOVEMBER 1985 AND GOLDER ASSOCIATES "PUMP TEST AND ANALYSIS", 1981
5) ASSUMES 20gpm/ft SPECIFIC CAPACITY (SIMILAR TO TW-41) FOR 30ft DRAWDOWN AT 600gpm

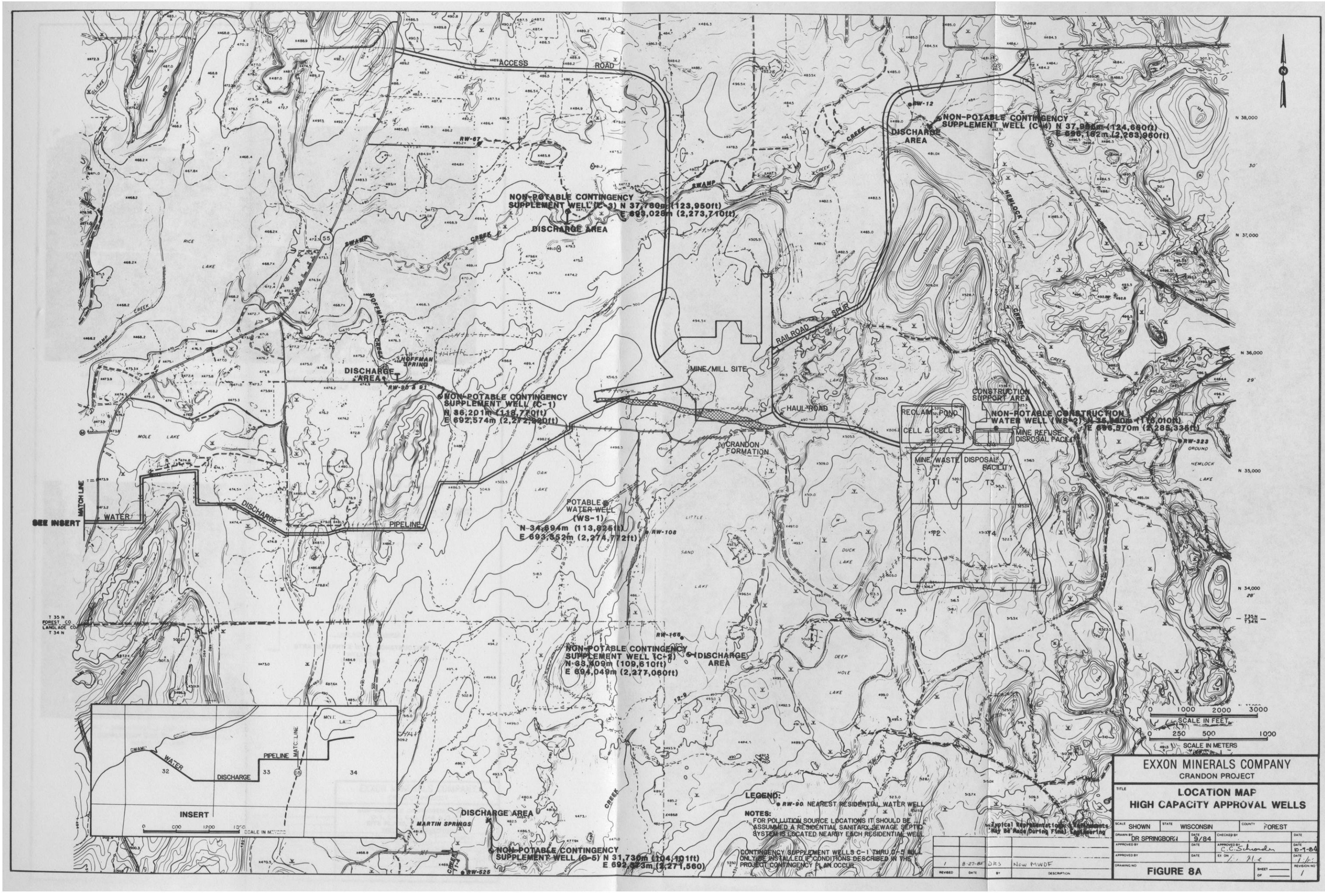
REVISED	DATE	BY	DESCRIPTION

Typical Representations: Refinements May Be Made During Final Engineering

EXXON MINERALS COMPANY
CRANDON PROJECT

TITLE
WS-2 WELL
STRATIGRAPHY & CONSTRUCTION

SCALE SHOWN	STATE WISCONSIN		COUNTY FOREST
DRAWN BY DR SPRINGBORN	DATE 11/85	CHECKED BY	DATE
APPROVED BY	DATE	APPROVED BY C.C. Schroeder	DATE 11/13/85
APPROVED BY	DATE	EXXON D.F. Mac	DATE 11/13/85
DRAWING NO **FIGURE 7B**		SHEET — OF —	REVISION NO



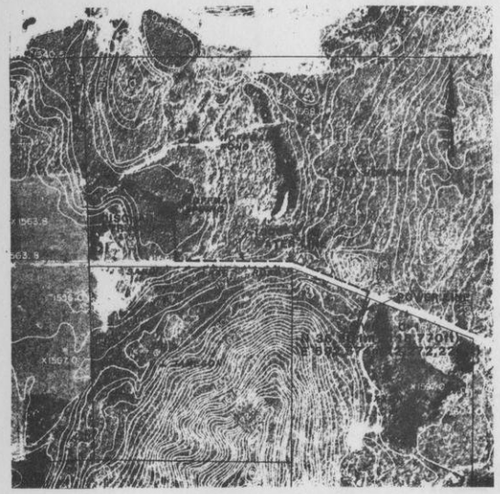
EXXON MINERALS COMPANY
CRANDON PROJECT

TITLE
LOCATION MAP
HIGH CAPACITY APPROVAL WELLS

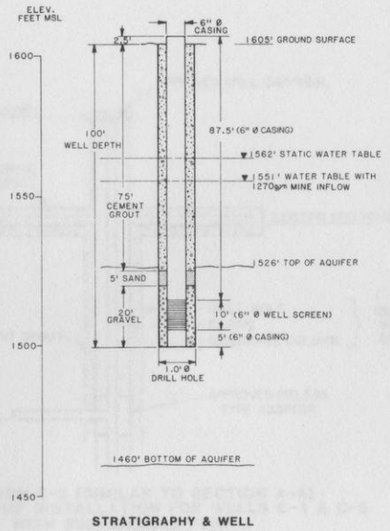
SCALE	STATE	COUNTY
SHOWN	WISCONSIN	FOREST

DRAWN BY	DATE	CHECKED BY	DATE
DR SPRINGBORN	9/84		
APPROVED BY	DATE	APPROVED BY	DATE
		C.C. Schrader	10-9-84
APPROVED BY	DATE	EX ON	DATE
DRAWING NO		SHEET OF	REVISION NO
FIGURE 8A			1

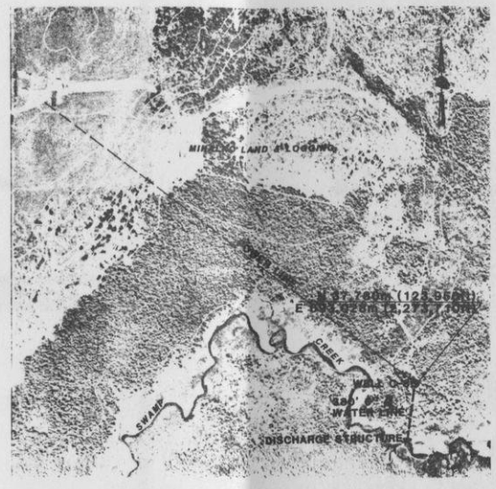
REVISED	DATE	BY	DESCRIPTION
1	8-27-84	DRS	New MWDF



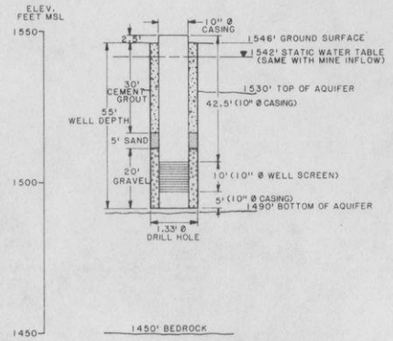
LAYOUT - NON-POTABLE CONTINGENCY WELL C-1
SUPPLEMENT SYSTEM AT HOFFMAN SPRING
SCALE 1"= 400'



STRATIGRAPHY & WELL
CONSTRUCTION WELL C-1
(NOT TO SCALE)



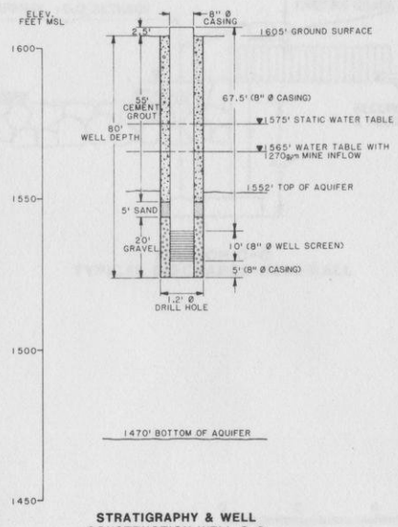
LAYOUT - NON-POTABLE CONTINGENCY WELL C-3
SUPPLEMENT SYSTEM AT SWAMP CREEK
SCALE 1"= 400'



STRATIGRAPHY & WELL
CONSTRUCTION WELL C-3
(NOT TO SCALE)

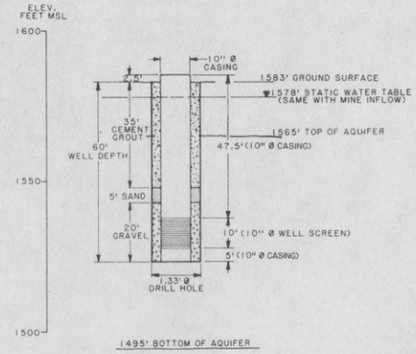
LAYOUT - NON-POTABLE CONTINGENCY WELL C-5
SUPPLEMENT SYSTEM AT MARTIN SPRINGS
SCALE 1"= 400'

LAYOUT - NON-POTABLE CONTINGENCY WELL C-2
SUPPLEMENT SYSTEM AT CREEK 12-9
SCALE 1"= 400'

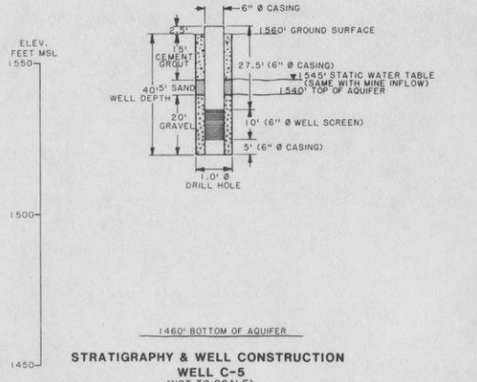


STRATIGRAPHY & WELL
CONSTRUCTION WELL C-2
(NOT TO SCALE)

LAYOUT - NON-POTABLE CONTINGENCY WELL C-4
SUPPLEMENT SYSTEM AT SWAMP CREEK
SCALE 1"= 400'



STRATIGRAPHY & WELL
CONSTRUCTION WELL C-4
(NOT TO SCALE)



STRATIGRAPHY & WELL CONSTRUCTION
WELL C-5
(NOT TO SCALE)

NOTES:
1) HYDROGEOLOGICAL CONDITIONS AND STRATIGRAPHY FROM STS LTD., "HYDROGEOLOGIC STUDY UPDATE" JUNE 1984

2) GROUND WATER DRAWDOWNS AT WELLS C-1 & C-2 FROM FIGURE 4

REVISED	DATE	BY	DESCRIPTION

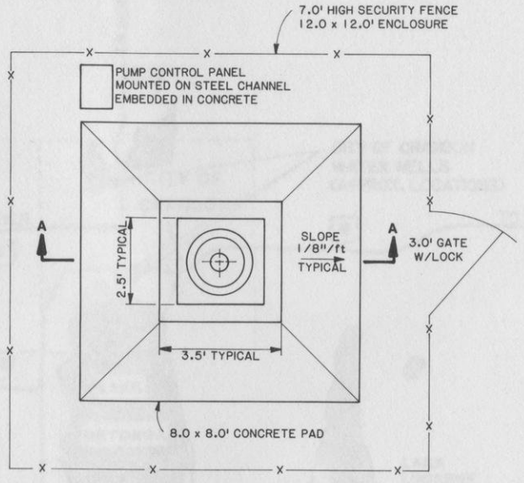
Typical Representations: Refinements May Be Made During Final Engineering

EXXON MINERALS COMPANY
CRANDON PROJECT

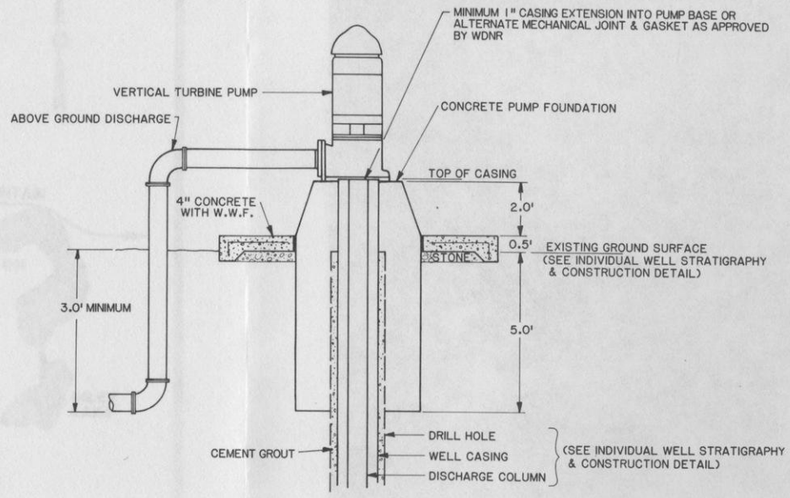
TITLE: NON-POTABLE CONTINGENCY WELLS C-1, C-2, C-3, C-4 & C-5 SITE PLANS, STRATIGRAPHY & WELL CONSTRUCTION

SCALE: SHOWN	STATE: WISCONSIN	COUNTY: FOREST	
DRAWN BY: DR SPRINGBORN	DATE: 11/85	CHECKED BY: C.C. Schwartz	DATE: 1-15-86
APPROVED BY	DATE	APPROVED BY: G.H. Whitaker (MGN)	DATE: 1-15-86
APPROVED BY	DATE		DATE
DRAWING NO		SHEET OF	REVISION NO

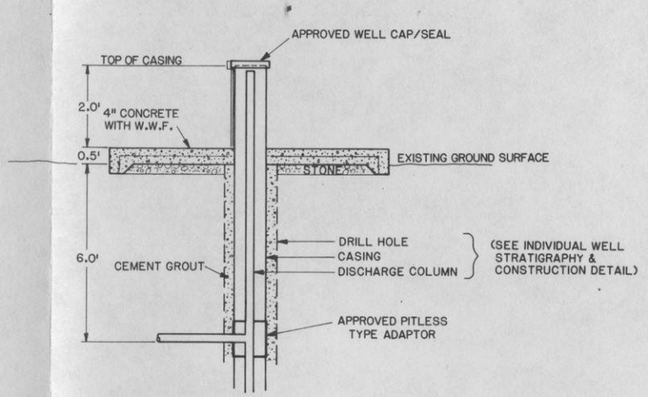
FIGURE 8B



TYPICAL PUMP INSTALLATION DETAIL FOR WELLS C-2, C-3 & C-4
(SEE WELL SITE PLANS FOR ORIENTATION OF POWER LINE & DISCHARGE LINE)



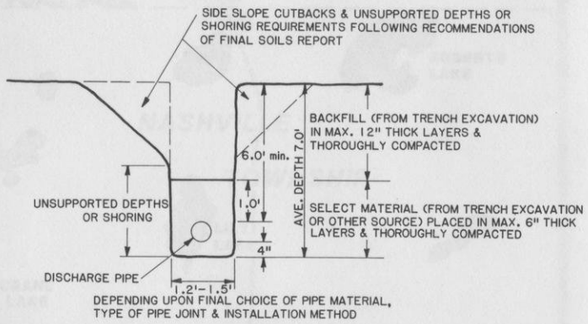
SECTION A-A
TYPICAL PUMP INSTALLATION DETAIL FOR WELLS C-2, C-3 & C-4 WITH VERTICAL TURBINE PUMP
(SEE WELL SITE PLANS FOR ORIENTATION OF DISCHARGE LINE & PUMP SCHEDULE FOR PUMP SIZE)



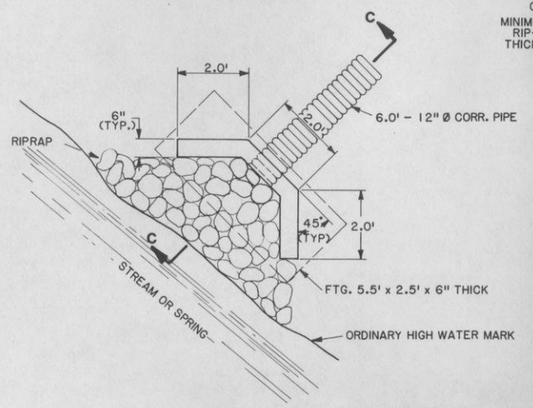
SECTION B-B (SIMILAR TO SECTION A-A)
TYPICAL PUMP INSTALLATION FOR WELLS C-1 & C-5 WITH SUBMERSIBLE PUMP

CONTINGENCY WELL	PUMP BOWL SETTING OR SUBMERSIBLE PUMP DEPTH	PUMP HEAD AND GPM	PUMP HP	PUMP DISCHARGE PIPE Ø
C-1	1340'	130' @ 30 gpm	3	3"
C-2	1345'	105' @ 200 gpm	10	4"
C-3	1305'	75' @ 375 gpm	12	6"
C-4	1345'	75' @ 375 gpm	12	6"
C-5	1330'	75' @ 25 gpm	1	2"

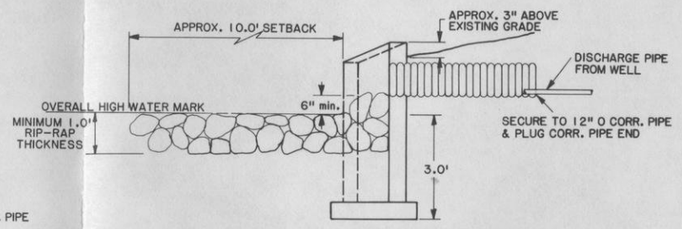
PUMP SCHEDULE & DATA



TYPICAL PIPE TRENCH & PIPE INSTALLATION



TYPICAL DISCHARGE HEADWALL
(CONTINGENCY WELL C-4 SHOWN, OTHERS SIMILAR)



SECTION C-C
TYPICAL DISCHARGE HEADWALL

0 2 4 6
SCALE IN FEET

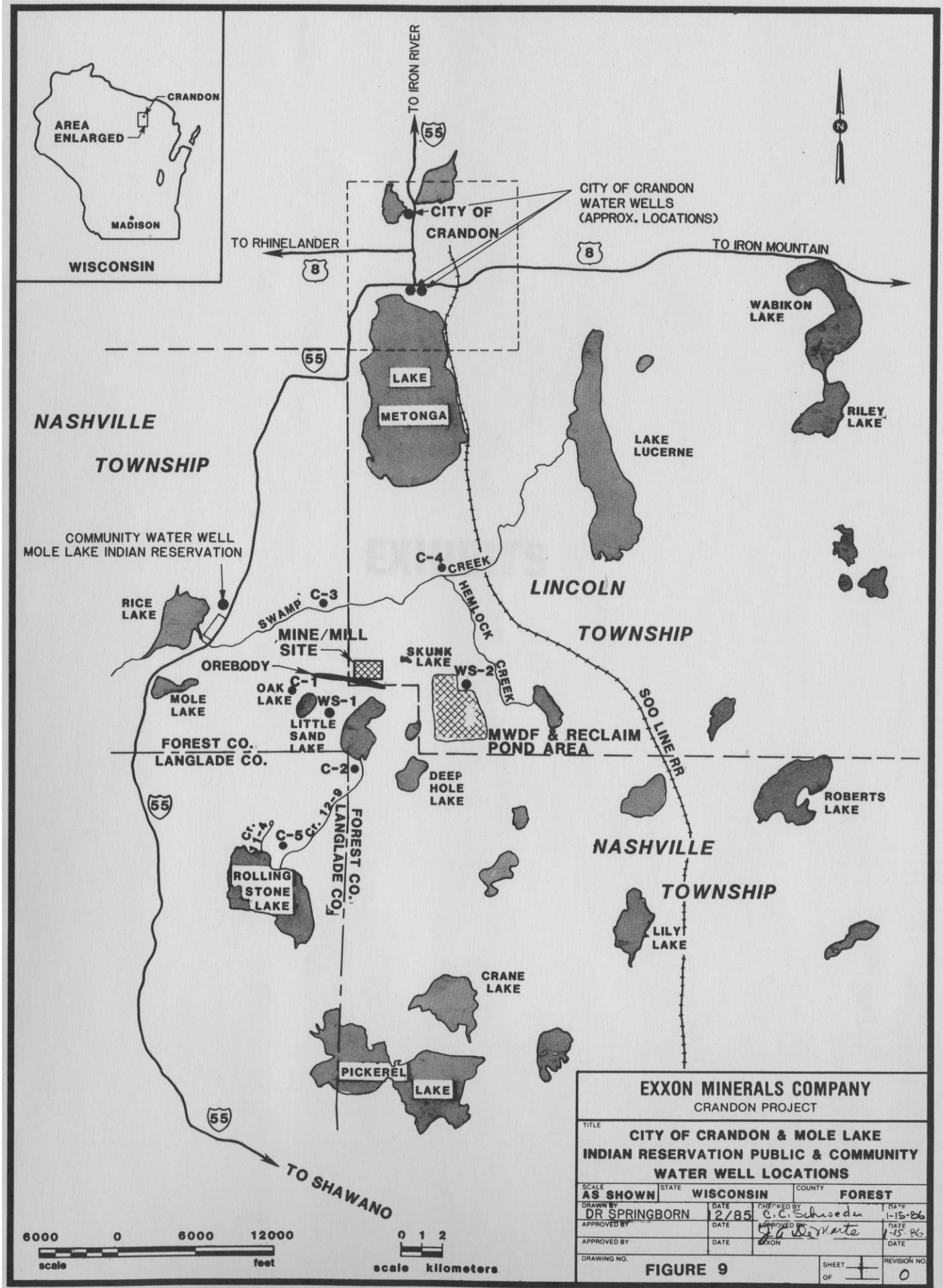
REVISED	DATE	BY	DESCRIPTION

Typical Representations: Refinements May Be Made During Final Engineering

EXXON MINERALS COMPANY
CRANDON PROJECT

TITLE
NON-POTABLE CONTINGENCY WELLS C-1, C-2, C-3, C-4 & C-5 PUMP INSTALLATION & DISCHARGE DETAILS

SCALE SHOWN	STATE WISCONSIN		COUNTY FOREST		
DRAWN BY DR SPRINGBORN	DATE 11/85	CHECKED BY		DATE	
APPROVED BY	DATE	APPROVED BY C.C. Schroeder		DATE 11/3/85	
APPROVED BY	DATE	EXXON D.S. Moe		DATE 11/12/85	
DRAWING NO. FIGURE 8C		SHEET — OF —		REVISION NO	



EXXON MINERALS COMPANY
CRANDON PROJECT

TITLE
CITY OF CRANDON & MOLE LAKE INDIAN RESERVATION PUBLIC & COMMUNITY WATER WELL LOCATIONS

SCALE: AS SHOWN	STATE: WISCONSIN	COUNTY: FOREST	
DRAWN BY: DR SPRINGBORN	DATE: 12/85	CHECKED BY: C.C. Schroeder	DATE: 1-15-86
APPROVED BY:	DATE:	APPROVED BY: L.G. DeMarte EXXON	DATE: 1-15-86
APPROVED BY:	DATE:		DATE:
DRAWING NO.	FIGURE 9	SHEET 1 OF	REVISION NO. 0

Exhibits

EXHIBITS

EXXON MINERALS COMPANY

POST OFFICE BOX 813 • RHINELANDER, WISCONSIN 54501-0813, (715) 369-2800

Crandon Project
D.B. ACHTTIEN - General Manager

June 6, 1985

Mr. John Schallock, Chairman
Town of Nashville
R.R. #1 Box 663
Crandon, Wisconsin 54520

Dear John:

This letter is to reaffirm Exxon Minerals Company's intent to assume responsibility for any unreasonable adverse change in ground water available to local private water wells in that area affected by water drawdown of the proposed mine or otherwise attributable to mining. With respect to anticipating ground water availability, additional well monitoring activity will take place prior to the beginning of construction activities. This monitoring activity to establish baseline conditions, coupled with the then-updated ground water drawdown impact analysis, will provide information on water wells that will likely be impacted by mine construction and early operation. With this information in hand, Exxon will take appropriate action to mitigate such impacts (for example, with the owner's permission, deepen the wells likely to be impacted and install new pumps). This, of course, would be entirely at Exxon's expense.

Letters affirming our intent were sent to the attorneys for the Towns of Lincoln and Nashville by Exxon Minerals Company Counsel Thomas P. Battle in October, 1979. A second letter reaffirming our intent was issued in September and October, 1983 by then Project Manager, Robert L. Russell. This second letter was sent to each non-optioned property owner on Little Sand Lake and elsewhere within the area in which mine dewatering is anticipated.

The earlier commitment made by Exxon Minerals Company with regard to water well protection has not changed. If you have any questions or concerns in this regard please feel free to contact me.

Very truly yours,

EXXON MINERALS COMPANY

D B Achttien

D. B. Achttien
General Manager, Crandon Project

DBA:sjq

xc: Dave Campbell
Tom Vollmar
Gerald Voras
Attorney Lyons

Waltrud Arts - Public Intervenor

Robert Ramharter - DNR

Attorney Derouin

EXXON MINERALS COMPANY

POST OFFICE BOX 813 • RHINELANDER, WISCONSIN 54501-0813, (715) 369-2800

Crandon Project
D.B. ACHTTIEN - General Manager

June 6, 1985

Mr. Mike Hobbs, Chairman
Town of Lincoln
R.R. #2 Box 8
Crandon, Wisconsin 54520

Dear Mike:

This letter is to reaffirm Exxon Minerals Company's intent to assume responsibility for any unreasonable adverse change in ground water available to local private water wells in that area affected by water drawdown of the proposed mine or otherwise attributable to mining. With respect to anticipating ground water availability, additional well monitoring activity will take place prior to the beginning of construction activities. This monitoring activity to establish baseline conditions, coupled with the then-updated gound water drawdown impact analysis, will provide information on water wells that will likely be impacted by mine construction and early operation. With this information in hand, Exxon will take appropriate action to mitigate such impacts (for example, with the owner's permission, deepen the wells likely to be impacted and install new pumps). This, of course, would be entirely at Exxon's expense.

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Very truly yours,

EXXON MINERALS COMPANY

D B Achttien

D. B. Achttien
General Manager, Crandon Project

DBA:sjq

xc: Don McKeague Attorney Zuidmulder
Henry Jaron

Waltrud Arts - Public Intervenor

Robert Ramharter - DNR

J. G. Derouin

EXAMPLE OF EXXON INDEMNIFICATION LETTER TO WELL OWNERS

Note: Provided to all owners of private wells in the area where the ground water table will be influenced by Project activities.

August 23, 1983

Dear

As you may be aware, Exxon Minerals Company (Exxon) submitted the Environmental Impact Report for our proposed Crandon zinc-copper mine to the Wisconsin Department of Natural Resources last December.

During the preparation of our Environmental Impact Report, it was determined that geologic conditions in the vicinity of our deposit may allow an inflow of ground water to the mine of up to 2000 gallons per minute. Based on this maximum inflow rate, our hydrologic consultants have determined that, while the inflow will not affect the quality of the ground water in the area or the water level of Little Sand Lake, there may be a drawdown in the ground water level in a limited area around Little Sand Lake.

We understand that there is currently a well on your property which could be affected by a significant drawdown of the ground water table. Accordingly, Exxon Minerals Company wants to reconfirm that, as provided by law, Exxon will assume responsibility for any unreasonable adverse change in quantity of the water you have due to our operations.

You can be assured that the water supply to your residence is a primary concern to Exxon, and you can be confident that your water supply will not be adversely diminished in quantity by Exxon's operations. Our planning efforts will include those actions necessary to see that there is no interruption in your water supply as a result of our mining activities.

If you have any questions or specific concerns about the Project or its affect on your water well, please contact Frank Sonderman, our Coordinator of Community Planning (715/369-2800), who I have asked to respond on my behalf.

Sincerely,

EXXON MINERALS COMPANY

Robert L. Russell
Manager, Crandon Project

RLR:sjq

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
BOX 7921
MADISON, WISCONSIN 53707

EXHIBIT 2

ESTIMATED WATER USE
FORM 3300-57 5-79

Exxon Minerals Co., Crandon Project; Summary Water Use for Wells WS-1, WS-2, C-1, C-2, C-3, C-4 and C-5

HOURS PER DAY 24 , G.P.M. (average) HOURS PER DAY _____ , G.P.M. _____

Normal Year - All uses averaged over the year.

FROM January (MONTH) THROUGH December (MONTH) FROM _____ (MONTH) THROUGH _____ (MONTH)

SPECIFIC WATER USE	AVG. GALS. PER DAY	PERCENT OF TOTAL	MAX. GALS. PER DAY	PERCENT OF TOTAL	AVG. GALS. PER DAY	PERCENT OF TOTAL	MAX. GALS. PER DAY	PERCENT OF TOTAL
Present - from all existing wells								
DOMESTIC	0	0	0	0				
IRRIGATION	0	0	0	0				
Water for Drilling and Other Site Investigation	330	100	20000	100				
•								
TOTAL	330	100	20000	100				
Future - following completion of proposed construction								
DOMESTIC (WS-1; Personnel Potable Water Consumption)	72000	14	72000	2				
(WS-2; Material Processing During MWDF Construction	157800	30	864000	27				
(WS-1; Intermittent Use for Mine/Mill Process)	39100	7	792000	25				
C-1, C-2, C-3, C-4 and C-5, for Contingency Supplements	260800	49	1476000	46				
TOTAL	529700	100	3204000	100				

Notes: 1) Exxon owned residential wells not included (no present use; future use is possible, but not definitely planned).
2) Contingency supplement wells C-1 through C-5 will only be installed and used if conditions described in the Project Contingency Plan occur.

• OTHER USE - SPECIFY.

NO. OF ACRES TO BE IRRIGATED _____

NO. OF DAYS IRRIGATION MAY BE NECESSARY DURING SEASON: _____ TO _____

NO. OF MAX. DAYS IRRIGATION MAY BE NECESSARY DURING SEASON: _____ TO _____

USE OF WATER FROM OTHER SOURCES

RIVER _____ GPD

PITS OR PONDS _____ GPD