



FEB 26 1980

WELL NO 4, 0113 Revised SHEET 1 OF 1

GL04794

LOGGED BY LB + JFM PROJECT NO. 79-290-45

ROLOGY

DATE (S) FEB 13, 1980 PROJECT NAME MX

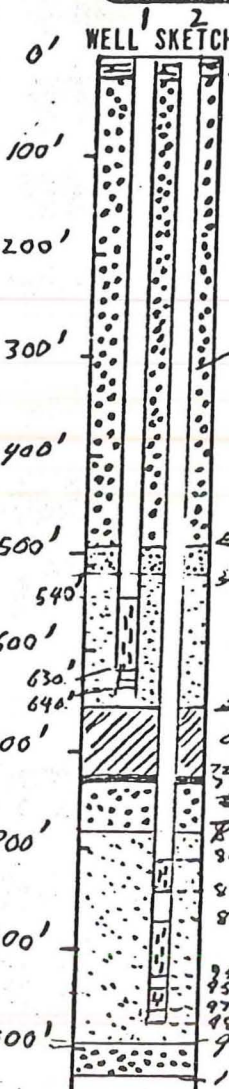
FEB 13-23, 1980

ELEVATION

GROUND LEVEL \_\_\_\_\_

TOP OF CASING \_\_\_\_\_

LOCATION OR COORDINATES T 65, R 03E, Sec 12a



**DRILLING SUMMARY**

TOTAL DEPTH DRILLED 1015'  
 ROTARY REVERSE CORE \_\_\_\_\_  
 DRILLING CONTRACTOR DEILIK  
 RIG (S) USED BUCKET AUGER 0'-40'  
REVERSE ROTARY 40'-  
 SIZE (S) AND TYPE (S) OF BITES 1 3/4" DRAG,  
TRI CONE & CLUSTER BITS.  
 DRILLING FLUID WATER + MUCK GEL +  
POLYMER (35 GAL)

PACKERS None  
 CENTRALIZERS None  
 SAND OR GRAVEL PACK 10' TO 413'  
730-794, 990-1015  
 CEMENT (MIX) 5.2 yds DEPTH (S) 650'-725'  
0'-10'

SAMPLING METHOD BANKER BUCKET + SCREEN  
FROM DISCHARGE PIPE

**DEVELOPMENT**

TREME \_\_\_\_\_  
 DEPTH airlift  
 TIME both zones 22 hrs

SURFACE CASING 0-40' 22" OIA  
 COMMENTS (PROBLEMS) SHUTDOWNS, ETC)  
AIRLIFTING WATER FROM STRINGS 1 and 2  
WATER LEVEL APPEARS TOO DEEP, <sup>be too</sup> ~~SHOULD BE AT 4'~~  
WILL ACQUITR WATER LEVELS TILL THEY  
ARE STATIC.

**TIME LOG**

	START	FINISH	ELAPSED TIME	% OF TOTAL
DRILLING	2/13/80	2/21/80	140 hrs	77%
LOGGING	2/21/80	2/21/80	4 hrs	2%
CASING	2/2/80	2/2/80	16.5	8%
GRAVEL PACKING	2/2/80	2/23/80	9.5	5%
CEMENTING	2/22/80	2/22/80	4	2%
BENTONITE PELLETS SLURRY				
DEVELOPMENT	2/23/80	2/23/80	22 hrs	11%

**DESIGN**

BASIS DRILLER'S LOG   
 GEOLOGIC LOG   
 GEOPHYSICAL LOG   
 COPIES ATTACHED YES  NO

STEEL CASING STRING 1, 2.  
 FROM 0' TO 540 BLANK  
 FROM 540 TO 630 PERF  
 FROM 630 TO 640 BLANK  
 FROM 0' TO 816 BLANK  
 FROM 816 TO 847 PERF

FROM 847 TO 877 BLANK  
 FROM 877 TO 940 PERF  
 FROM 940 TO 950 BLANK  
 FROM 950 TO 971 PERF  
 FROM 971 TO 981 BLANK

CASING DIMENSIONS 2" ID STEEL PVC  
 SCREEN DIMENSIONS 2" ID  
 SLOT SIZE 3/4" RACHWD SLOTS

**MISCELLANEOUS**

A 22" DIAMETER STEEL CONDUCTOR REASING WAS INSTALLED TO 40' BELOW THE GROUND SURFACE.

NOT TO SCALE

FIELD LOG OF WELL NUMBER OW-3

PROJECT NUMBER 79-290- 45  
 PROJECT NAME MX SITING INVESTIGATION  
 EQUIPMENT USED Reverse Rotary  
 COMPANY Beylik  
 OPERATOR J. Clyde

VALLEY NAME Delamar  
 LOCATION NUMBER T6S, R63E, Sect. 12d  
 LOGGED BY LB DATE 2/16/80  
 CHECKED BY JAG DATE 4/10/80  
 TOTAL WELL DEPTH 1010 feet

DEPTH (FEET)	DESCRIPTION OF CUTTINGS OR SAMPLE
0	<u>Silt</u> : Tan silt.
10	<u>Silt with Boulders</u> : Tan silt with medium colored, well sorted, subangular boulders to 6 inches.
20	<u>Silt with Gravel</u> : Tan silt with medium colored, well sorted, subangular, fine-grained gravel to 2 inches.
30	
40	<u>Gravel</u> : Medium to dark colored, fine-grained, well sorted, subangular to angular gravel to 1 inch with less than 5% silt. Organic matter (roots) present.
50	<u>Gravel with Boulders</u> : Gravel as above with medium colored, 6-inch, angular (broken by drilling operations) boulders.
60	<u>Silt and Sand</u> : Tan silt and medium colored, very fine-grained, well sorted, subrounded sand.
70	<u>Gravel and Silt</u> : Medium colored, fine- to coarse-grained, poorly sorted, subrounded to angular gravel to 1 inch and tan silt.
80	<u>Gravel</u> : Medium colored, fine- to coarse-grained, poorly sorted, angular gravel to 3 inches, with less than 10% silty sand, and boulders to 5 inches present.
90	
100	<u>Silt with Gravel</u> : Tan silt with medium colored, well sorted, subangular, fine-grained gravel to 3/4 inch.

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PROJECT NUMBER 79-290- 45  
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 EQUIPMENT USED Reverse Rotary  
 COMPANY Beylik  
 OPERATOR J. Clyde

VALLEY NAME Delamar  
 LOCATION NUMBER T6S, R63E, Sect. 12d  
 LOGGED BY LB DATE 2/17/80  
 CHECKED BY JAG DATE 4/10/80  
 TOTAL WELL DEPTH 1010 feet

DEPTH (FEET)	DESCRIPTION OF CUTTINGS OR SAMPLE
100	<p><u>Gravel</u>: Light to medium colored, moderately sorted, subangular to angular (some freshly broken by drilling) fine- to 3-inch gravel and less than 10% coarse sand; boulders to 4 inches.</p>
110	<p>- - - Grain size decreasing.</p>
120	
130	<p><u>Silt and Sand</u>: Tan silt and medium colored, poorly sorted, fine- to very coarse-grained sand; organic matter (roots) present.</p>
140	<p><u>Gravel</u>: Medium colored, poorly sorted, angular, fine-grained to 3-inch gravel. Less than 5% coarse sand. Boulders (freshly broken by drilling) to 5 inches.</p>
150	<p><u>Gravel and Silt</u>: Gravel as above (140 to 150 feet) with approximately 50% tan silt.</p>
160	<p><u>Gravel</u>: Medium to dark colored, well sorted, angular, fine-grained gravel to 3/4-inch, with less than 10% silty sand.</p>
170	<p>- - - Grain size increasing to 1 inch.</p>
180	<p><u>Silt and Sand</u>: Tan silt and medium colored, moderately sorted, subrounded to subangular, very fine- to medium-grained sand.</p>
190	<p><u>Silt and Sand</u>: Tan silt and medium colored, moderately sorted, subangular to angular sand. Organic matter (roots) present.</p>
200	

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VALLEY NAME Delamar  
 LOCATION NUMBER T6S, R63E, Sect. 12d  
 LOGGED BY LB DATE 2/17/80  
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DEPTH (FEET)	DESCRIPTION OF CUTTINGS OR SAMPLE
200	<u>Gravel and Silt</u> : Medium colored, fine-grained, well sorted, subangular to angular gravel to 1/2 inch and tan silt.
210	<u>Silt and Sand</u> : Tan silt and medium colored, very fine-grained, well sorted sand, and occasional gravel to 1/3 inch present.
220	
230	- - - Grain size increasing.
240	<u>Silt</u> : Tan silt with organic matter (Root hairs) present.
250	<u>Sand and Gravel</u> : Dark colored, coarse-grained, well sorted, subangular to angular sand and fine-grained gravel; organic matter (roots) present.
260	- - - Less than 5% tan sandy silt present.
270	- - - Sandy silt increasing to less than 10%.
280	<u>Sand and Gravel with Silt</u> : Sand and gravel as above (250 to 260 feet) with less than 25% tan silt.
290	
300	<u>Sand and Gravel</u> : Dark colored, coarse-grained, well sorted, subangular to angular sand and well sorted, fine-grained gravel.

**TUBERO NATIONAL, INC.**  
**DRILL CUTTINGS LOG**

FIELD LOG OF WELL NUMBER OW-3

PROJECT NUMBER 79-290-45

VALLEY NAME Delamar

PROJECT NAME MX SITING INVESTIGATION

LOCATION NUMBER T6S, R63E, Sect. 12d

EQUIPMENT USED Reverse Rotary

LOGGED BY LB DATE 2/17/80

COMPANY Beylik

CHECKED BY JAG DATE 4/10/80

OPERATOR J. Clyde

TOTAL WELL DEPTH 1010 feet

DEPTH (FEET)	DESCRIPTION OF CUTTINGS OR SAMPLE
300	<u>Gravel and Sand:</u> Medium colored, fine-grained, well sorted, subangular to angular gravel to 1/2 inch, and medium colored, coarse-grained, well sorted, subangular to angular sand with less than 5% tan silt.
310	<u>Gravel:</u> Medium colored, fine- to coarse-grained, poorly sorted, subrounded to angular gravel to 1-3/4 inches with less than 10% tan silt.
320	- - - Angularity increasing.
330	<u>Gravel and Sandy Silt:</u> Medium colored, fine-grained, well sorted, subangular gravel to 1/3 inch and tan sandy silt.
340	<u>Silt and Sand:</u> Tan silt and medium colored, very fine- to very coarse-grained (predominantly fine), poorly sorted, subrounded to angular sand with occasional gravel to 1 inch.
350	
360	<u>Silt with Gravel:</u> Tan silt with less than 40% medium colored, fine-grained, well sorted gravel to 3/4 inch.
370	- - - Gravel to 1 1/4 inches.
380	<u>Silt and Sand:</u> Tan silt and medium colored, very fine-grained, well sorted sand.
390	<u>Gravel with Silt:</u> Dark colored, fine-grained, moderately sorted, angular gravel to 1/2 inch with less than 30% tan silt; organic matter (roots) present.
400	

PROJECT NUMBER 79-290-45  
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 VALLEY NAME Delamar  
 LOCATION NUMBER T6S, R63E, Sect. 12d  
 LOGGED BY LB DATE 2/17/80  
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DEPTH (FEET)	DESCRIPTION OF CUTTINGS OR SAMPLE
400	<u>Gravel with Silt:</u> Dark colored, fine-grained, well sorted, angular gravel to 1/2 inch, with less than 30% tan silt; organic matter (roots) present.
410	<u>Silt with Gravel:</u> Tan silt with less than 30% dark colored, fine-grained, well sorted, angular gravel to 1/2 inch.
420	<u>Silt:</u> Tan silt.
430	<u>Silt:</u> Tan silt with less than 5% fine-grained gravel to 3/4 inch.
440	
450	<u>Silt:</u> Tan silt with less than 10% medium colored, very fine- to coarse-grained, poorly sorted, subangular sand.
460	- - - Organic matter (roots) present.
470	<u>Silt and Sand:</u> Tan silt and dark colored, very fine- to very coarse-grained, poorly sorted, subangular to angular sand.
480	<u>Silt:</u> Tan silt.
490	<u>Gravel with Silt:</u> Dark colored, fine-grained, well sorted, angular gravel to 1/2 inch with less than 30% tan silt; organic matter (roots) present.
500	

FIELD LOG OF WELL NUMBER OW-3

PROJECT NUMBER 79-290- 45

VALLEY NAME Delamar

PROJECT NAME MX SITING INVESTIGATION

LOCATION NUMBER T6S, R63E, Sect. 12d

EQUIPMENT USED Reverse Rotary

LOGGED BY LB DATE 2/18/80

COMPANY Beylik

CHECKED BY JAG DATE 4/10/80

OPERATOR J. Clyde

TOTAL WELL DEPTH 1010 feet

DEPTH (FEET)	DESCRIPTION OF CUTTINGS OR SAMPLE
500	<u>Silt</u> : Tan silt with less than 5% coarse-grained sand and fine gravel.
510	- - - Fine-grained gravel increasing.
520	
530	<u>Silt and Sand</u> : Tan silt and medium colored, very fine-grained, well sorted sand.
540	<u>Sand, Gravel and Silt</u> : Medium colored, very fine- to very coarse-grained, poorly sorted, subrounded to subangular sand, and well sorted fine-grained gravel, with less than 30% tan silt.
550	<u>Silt and Sand</u> : Tan silt and medium colored, very fine- to very coarse-grained, poorly sorted, subrounded to angular sand; organic matter (roots) present.
560	
570	- - - Increasing grain size.
580	<u>Sand and Gravel</u> : Dark colored, coarse- to very coarse-grained, well sorted sand; and dark colored, fine-grained, well sorted gravel to 3/4-inch, with less than 10% tan silt.
590	<u>Gravel</u> : Dark colored, fine- to coarse-grained, poorly sorted, subrounded to angular gravel to 2 inches.
600	

FIELD LOG OF WELL NUMBER OW-3

PROJECT NUMBER 79-290-45

VALLEY NAME Delamar

PROJECT NAME MX SITING INVESTIGATION

LOCATION NUMBER T6S, R63E, Sect. 12d

EQUIPMENT USED Reese Reverse Rotary

LOGGED BY LB, JFM DATE 2/18/80

COMPANY Beylik

CHECKED BY JAG DATE 4/10/80

OPERATOR J. Clyde

TOTAL WELL DEPTH 1010 feet

DEPTH (FEET)	DESCRIPTION OF CUTTINGS OR SAMPLE
600	<u>Silt</u> : Tan silt.
610	<u>Silt and Sand</u> : Tan silt and medium colored, very fine-grained, well sorted sand.
620	<u>Silt and Sand</u> : Tan silt and medium colored, very fine- to coarse-grained (predominantly very fine-grained), poorly sorted, subrounded to angular sand.
630	<u>Silt and Sand</u> : Tan silt and medium colored, very fine-grained, well sorted sand.
640	
650	<u>Silt and Sand</u> : Tan silt and medium colored, very fine- to very coarse-grained, poorly sorted, subrounded to angular sand.
660	- - - Increasing silt. - - -
670	<u>Silt</u> : Tan silt.
680	<u>Silt with Gravel</u> : Tan silt with less than 25% medium colored, fine- to coarse-grained, poorly sorted, subrounded to angular gravel to 2 inches.
690	
700	



DRILL CUTTINGS LOG

FIELD LOG OF WELL NUMBER OW-3

PROJECT NUMBER 79-290-45

VALLEY NAME Delamar

PROJECT NAME MX SITING INVESTIGATION

LOCATION NUMBER T6S, R63E, Sect. 12d

EQUIPMENT USED Reverse Rotary

LOGGED BY JFM, LB DATE 2/19/80

COMPANY Beylik

CHECKED BY JAG DATE 4/10/80

OPERATOR J. Clyde

TOTAL WELL DEPTH 1010 feet

DEPTH (FEET)	DESCRIPTION OF CUTTINGS OR SAMPLE
700	<u>Gravel</u> : Dark colored, fine-grained, well sorted, subrounded to angular, gravel, with less than 5% tan silt.
710	<u>Silt</u> : Tan silt with less than 5% fine- to medium-grained sand.
720	<u>Sand and Gravel and Silt</u> : Medium colored, very fine- to very coarse-grained, poorly sorted, subrounded to subangular, sand, and well sorted, fine-grained gravel, with less than 30% tan silt.
730	<u>Silt</u> : Tan silt with less than 5% fine- to medium-grained sand.
740	
750	
760	<u>Silt with Sand</u> : Tan silt with less than 25% medium colored, very fine- to very coarse-grained, poorly sorted, subrounded to angular, sand.
770	
780	
790	
800	- - - Decreasing sand.

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 COMPANY Beylik  
 OPERATOR J. Clyde

VALLEY NAME Delamar  
 LOCATION NUMBER T6S, R63E, Sect. 12d  
 LOGGED BY JFM, LB DATE 2/19/80  
 CHECKED BY JAG DATE 4/10/80  
 TOTAL WELL DEPTH 1010 feet

DEPTH (FEET)	DESCRIPTION OF CUTTINGS OR SAMPLE
800	<u>Silt with Sand:</u> Tan silt, with less than 25% medium colored, very fine- to medium-grained, moderately sorted, subangular sand.
810	
820	<u>Silt with Sand and Gravel:</u> Tan silt with less than 25% medium colored, very fine- to very coarse-grained, poorly sorted, subangular to angular sand, and very fine-grained, well sorted gravel.
830	
840	<u>Gravel with Silt:</u> Dark colored, fine-grained, well sorted, angular gravel, with tan silt; organic matter (roots) present.
850	<u>Silt with Sand:</u> Tan silt with less than 25% medium colored, very fine-grained, subrounded to angular sand.
860	<u>Silt with Sand:</u> Tan silt with less than 25% very fine-grained, well sorted sand.
870	<u>Silt with Sand:</u> Tan silt with less than 25% medium colored, very fine- to medium-grained, moderately sorted, subangular sand.
880	
890	<u>Silt with Sand:</u> Tan silt with less than 25% very fine-grained, well sorted sand.
900	

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 EQUIPMENT USED Reverse Rotary  
 COMPANY Beylik  
 OPERATOR J. Clyde

VALLEY NAME Delamar  
 LOCATION NUMBER T6S, R63E, Sect. 12d  
 LOGGED BY JFM, LB DATE 2/20/80  
 CHECKED BY JAG DATE 4/10/80  
 TOTAL WELL DEPTH 1010 feet

DEPTH (FEET)	DESCRIPTION OF CUTTINGS OR SAMPLE
900	<u>Silt</u> : Tan silt, with less than 5% sand.
910	<u>Silt</u> : Tan silt with less than 15% sand.
920	<u>Silt and Sand</u> : Tan silt and less than 40% medium colored, very fine- to very coarse-grained, poorly sorted, subrounded to angular sand.
930	
940	<u>Silt</u> : Tan silt with less than 5% sand.
950	<u>Sand and Silt</u> : Medium colored, very fine- to very coarse-grained, poorly sorted, subrounded to angular sand, and tan silt.
960	<u>Gravel</u> : Medium colored, fine-grained, well sorted, subangular to angular gravel with less than 5% silt.
970	<u>Silt</u> : Tan silt with less than 10% sand.
980	<u>Silt</u> : Tan silt, with less than 10% sand.
990	
1000	

FIELD LOG OF WELL NUMBER OW-3

PROJECT NUMBER 79-290-45

VALLEY NAME Delamar

PROJECT NAME MX SITING INVESTIGATION

LOCATION NUMBER T6S, R63E, Sect. 121

EQUIPMENT USED Reverse Rotary

LOGGED BY LB DATE 2/21/80

COMPANY Beylik

CHECKED BY JAG DATE 4/10/80

OPERATOR J. Clyde

TOTAL WELL DEPTH 1010 feet

DEPTH (FEET)	DESCRIPTION OF CUTTINGS OR SAMPLE
1000	<u>Silt: Tan silt, with less than 10% sand.</u>
1010	----- T. D. -----
20	
30	
40	
50	
60	
70	
80	
90	
00	