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CORRECTIVE ACTION REPORT

Property:

Todd Water Injection Station
N 33.670698°, W 103.292191°
NE¼ NE ¼, S31 T7S R36E
Roosevelt County, New Mexico
AP090

June 2015
Apex Project No. 7250715017

Prepared for:

Occidental Permian, LTD.
6 Desta Drive, Suite 6000
Midland, Texas 79705
Attention: Dusty Wilson

Prepared by:

Lyle L. Alsobrook
Senior Project Manager

Liz Scaggs, P.G.
Division Manager

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Todd Water Injection Station
N 33.670698°, W 103.292191°
NE¼ NE ¼, S31 T7S R36E
Roosevelt County, New Mexico
AP090

Apex Project No. 7250715017

1.0 INTRODUCTION

1.1 Site Description & Background

The Todd Water Injection Station, referred to hereinafter as the "Site", is located within the Todd Field, an oil field previously operated by various oil and pipeline companies. The facility was acquired by Occidental Permian, LTD. (OXY) in March 2008. Prior to OXY acquiring the property, the facility was operated by Plains Exploration and Production (PXP), Pogo Producing Company (Pogo), and Latigo Petroleum (Latigo). The site location coordinates are N 33.670698, W 103.292191.

The Todd Field is the location of a historic spill of produced water, which contained elevated concentrations of chloride in the soil due to a leak from a produced water line. OXY is proceeding with the restoration of the site in order to revert management of the property and the surrounding areas to the New Mexico State Land Office (SLO). The SLO intends to restore the sections surrounding Section 31 to native grass lands and allow the Nature Conservancy to manage the Todd Field as a Prairie Chicken Habitat.

A topographic map depicting the location of the Site is included as Figure 1, and a Site Vicinity Map is included as Figure 2 in Appendix A.

1.2 Project Objective

The primary objective of the corrective actions was to reduce the concentration of constituents of concern (COCs) in the on-Site soils to below the New Mexico Energy, Minerals, and Natural Resources Department (EMNRD), Oil Conservation Division (OCD) *Remediation Action Levels* using the New Mexico EMNRD OCD's *Guidelines for Remediation of Leaks, Spills and Releases* as guidance.

2.0 SITE RANKING

In accordance with the New Mexico ENMRD OCD's *Guidelines for Remediation of Leaks, Spills and Releases*, Apex TITAN, Inc. (Apex) utilized the general site characteristics obtained during the completion of corrective action activities and information available from the Office of the New Mexico Office of the State Engineer to determine the appropriate "ranking" for the Site. The ranking criteria and associated scoring are provided in the following table:

Ranking Criteria			Ranking Score
Depth to Groundwater	<50 feet	20	0
	50 to 99 feet	10	
	>100 feet	0	
Wellhead Protection Area <1,000 feet from a water source, or; <200 feet from private domestic water source.	Yes	20	0
	No	0	
Distance to Surface Water Body	<200 feet	20	0
	200 to 1,000 feet	10	
	>1,000 feet	0	
Total Ranking Score			0

Based on Apex's evaluation of the scoring criteria, the Site would have a Total Ranking Score of "0". This ranking is based on the following:

- The approximate depth to the initial groundwater-bearing zone is greater than 100 feet at the Site.
- Distance from the impacted area to the closest private domestic water source is greater than 200 feet.
- Distance to the nearest surface water body is greater than 1,000 feet.

3.0 RESPONSE ACTIVITIES CONDUCTED UNDER THE NMOCD APPROVED WORKPLAN

3.1 Plugging of MW-1

On March 12, 2015, one (1) monitoring well (MW-1) was plugged and abandoned by Talon LPE (Talon). The existing surface completion and monitoring well was removed. The polyvinyl chloride (PVC) well casing and the PVC well screen used to complete the monitoring well was removed to extent practical.

The well bore with the entire screen and casing removed was filled with bentonite holeplug (grout) from the bottom of the borehole to the surface in accordance with 19.27.4.30 WELL DRILLING – NON-ARTESIAN WELL REQUIREMENTS C. Well plugging (1) Methods and materials. Plugging and abandonment actions were conducted in general accordance with 19.27.4 New Mexico Administrative Code (NMAC) Rules and Regulations Governing Well Driller Licensing; Construction, Repair and Plugging of Wells. The Well Plugging Plan of Operations as approved by the New Mexico State Engineers office is included in Appendix E.

3.2 Soil Excavation Activities

Remediation activities began on April 15, 2015. The Site was excavated utilizing heavy equipment, provided by Lone Wolf Resources (LWR), to remove chloride impacted soils from the spill, or dead area. The excavated area measures 50 feet long by 50 feet wide with a depth of ten (10) feet below ground surface (bgs). Excavated soils were direct loaded on site and transported to Gandy Marley Landfill for disposal by LWR in accordance with local, state and federal regulations. Photographic documentation of excavation activities are included in Appendix B.

On April 25, 2015, the excavation was backfilled with clean fill material up to four (4) feet bgs. On May 1, 2015, a 40 millimeter plastic liner was installed in the excavation at a depth of four (4) feet bgs and the excavation was subsequently backfilled with clean fill material on May 1, 2015. The surface soils at the site were reseeded and returned to approximate original grade.

4.0 GROUNDWATER EVALUATION

4.1 Constant-rate Aquifer Test and Recovery Test

The New Mexico Office of the State Engineer does not necessarily consider the trapped water associated with this site as “public water” of the Causey-Lingo Water Basin. The trapped water at this site is separated from the “public water” of the Causey-Lingo Water Basin by a clay aquitard observed in the area to be approximately 40 feet in thickness. The aquitard has been observed to prevent downward migration of the chloride impacted trapped water.

Apex evaluated the availability of a water supply within a 0.5 mile radius of the extent of known contamination for Todd Unit Hobbs R#10 ATB by utilizing the New Mexico Office of the State Engineer (NMOSE) New Mexico Water Rights Reporting System (NMWRRS). Apex confirmed the database results by conducting a walking survey within a 500-foot radius of the extent of known contamination. No water wells were identified on the NMWRRS or during the walking survey.

Apex utilized the Texas Commission on Environmental Quality (TCEQ) RG-366, TRRP-8 Guidance Document entitled “Groundwater Classification” to evaluate the well yield across the property. The direct yield test was conducted utilizing Method 2C as detailed in TRRP-8. Method 2C is a constant discharge test conducted on low recharge wells by pumping at a discharge rate of 0.1 gallons per minute to determine if the well can sustain a rate which would produce 150 gallons per day.

Apex utilized the Method 2C *Well Yield by Constant Discharge (0.1 gpm) Test* on monitoring wells MW-4 and MW-6, to further evaluate the trapped water classification at the site. During the last gauging event (March 10/11, 2015) monitoring wells MW-4, MW-6 and MW-9 had a water column in the wells that would yield recovery data (>15 feet of water). Monitoring well MW-7 was dry. Monitoring wells MW-1, MW-2, MW-3, MW-5, MW-8, MW-10 and MW-11 measured less than 16 feet of water.

The tests were conducted by pumping continuously at a discharge rate equivalent to 0.1 gallons per minute, or 150 gallons per day. The aquifer tests were performed on April 8 and 9, 2015. Measurements were made as close to the established schedule as possible. Apex checked the discharge rate using a water level meter on a regular basis. Apex began measuring and recording water levels immediately on the specified schedule.

Recovery measurements were taken at the end of the constant-rate aquifer pumping test to provide supplemental information on aquifer hydraulics and to confirm the results of the drawdown test. A recovery test allows the impact of fluctuating pumping rate and corresponding drawdown measurements to be eliminated from the analysis of data.

4.2 Findings

A Method 2C Well Yield by Constant Discharge (0.1 gpm) Test was performed on monitoring wells MW-4 and MW-6 in order to classify the initial trapped water at the site.

Apex evaluated the constant rate test data collected utilizing the Aqtesolv™ program to determine the transmissivity for the monitoring wells. Based on the results of the Aqtesolv™ analysis, Apex utilized Darcy's Law equation to calculate the hydraulic conductivity for the monitoring wells. Based on the calculations, the hydraulic conductivity of monitoring well MW-4 is 8.31×10^{-6} cm/sec and monitoring well MW-6 was 4.27×10^{-6} cm/sec. Apex then utilized the Cooper-Jacob Equation for an unconfined unit with a 4" diameter well and the well diameter correction value for a 2" well to calculate the well yields. Based on the calculations, monitoring well MW-4 has a well yield of 46.23 gallons per day (gpd) and monitoring well MW-6 has a well yield of 24.356 gpd.

Based on the results of the Method 2C Test, the trapped water located at the Todd UT ATB #1 site is not capable of entering a well in a sufficient amount to be utilized as a source of water, based on the calculated yields of 46.23 gpd and 24.356 gpd. In addition, there is no present or reasonably foreseeable beneficial use of the shallow trapped water.

Copies of the aquifer pumping test data and well test analyses are included in Appendix C.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The Todd Water Injection Station is located within the Todd Field, an oil field previously operated by various oil and pipeline companies. The facility was acquired by OXY in March 2008. Prior to OXY acquiring the property, the facility was operated by PXP, Pogo, and Latigo. The site location coordinates are N 33.670698, W 103.292191.

On April 15, 2015, LWR began excavating impacted soils from the source area to a depth of approximately ten (10) feet bgs. On April 25, 2015, the excavation was backfilled with clean fill material up to four (4) feet bgs. On May 1, 2015, a 40 mil plastic liner was installed in the excavation at a depth of four (4) feet bgs and the excavation was subsequently backfilled and brought to grade with clean fill material.

- The primary objective of the corrective action was to reduce the concentration of COC's in the on-Site soils to below the New Mexico EMNRD OCD RRALs using the New Mexico EMNRD OCD'S *Guidelines for Remediation of Leaks, Spills and Releases* as guidance.

- The site was excavated utilizing heavy equipment to remove chloride impacted soils from the spill. The excavated area measured 50 feet long by 50 feet wide with a depth of ten (10) feet bgs.

- Excavated soils were direct loaded on Site and transported to Gandy Marley Landfill for disposal by LWR in accordance with local, state and federal regulations. The surface soils at the Site were returned to approximate original grade.

- Based on the results of the aquifer testing, the trapped water would not be considered capable of entering a well in sufficient volume to be utilized.

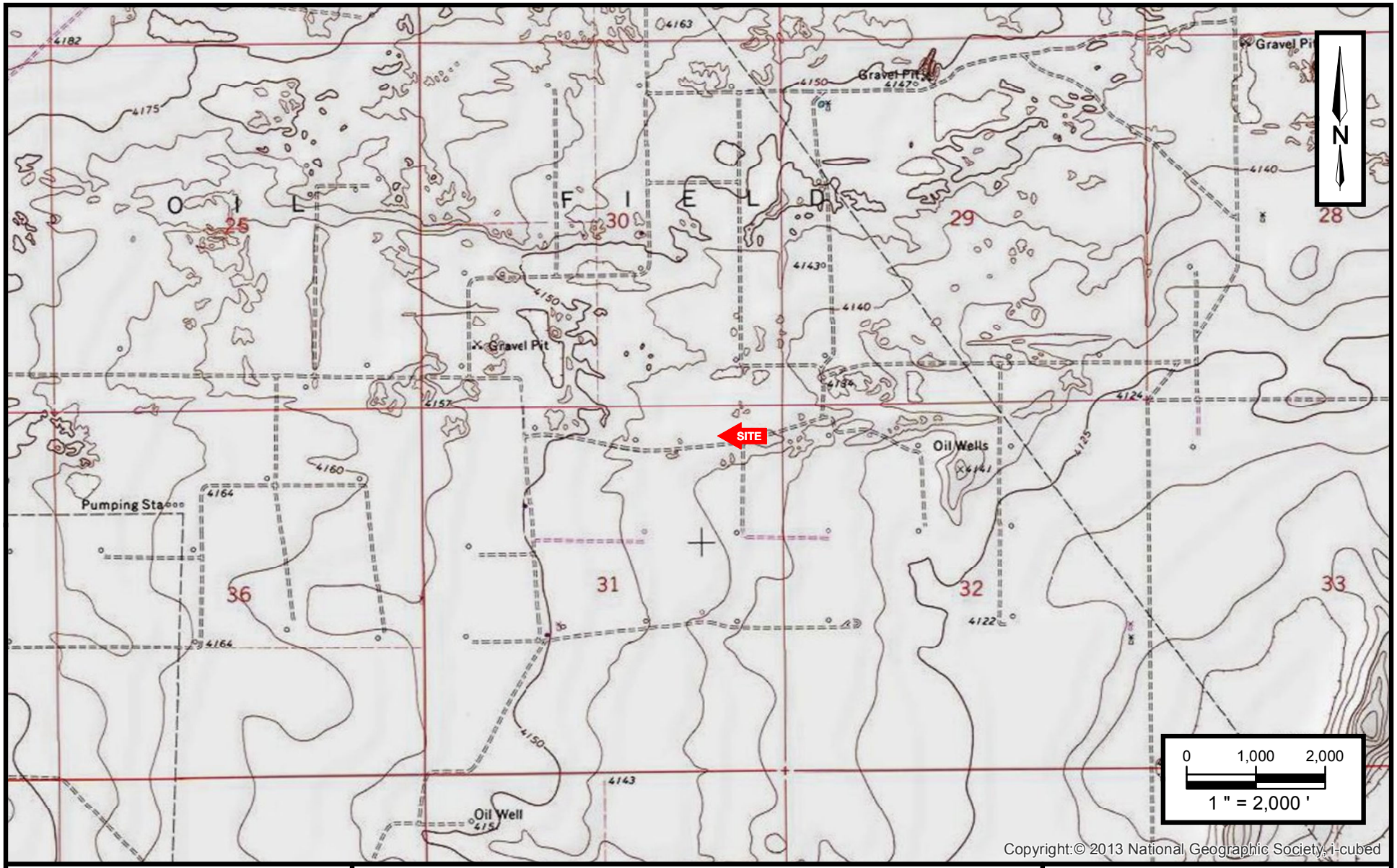
- There is no present beneficial use of groundwater within a 1.0 mile radius of the site, and no reasonable beneficial use of the shallow trapped water.

Based on completed on-site response actions and aquifer testing results, no additional investigation and/or remediation appears warranted at this time. OXY respectfully requests closure of this site. The final C-141 is provided in Appendix D.

All monitoring wells remaining on-site will be properly plugged and abandoned upon receipt of NMOCD approval of closure.

APPENDIX A

Figures



OXY Permian
Todd Water Injection Area
Roosevelt County, New Mexico
33.670968 N, 103.292191 W

Project No. 7250715017

Apex TITAN, Inc.
505 N Big Spring St., Suite 301A
Midland, Texas 79701
Phone: (432) 695-6016
www.apexcos.com
A Subsidiary of Apex Companies, LLC

FIGURE 1

Topographic Map

Milnesand New Mexico Quadrangle
1985

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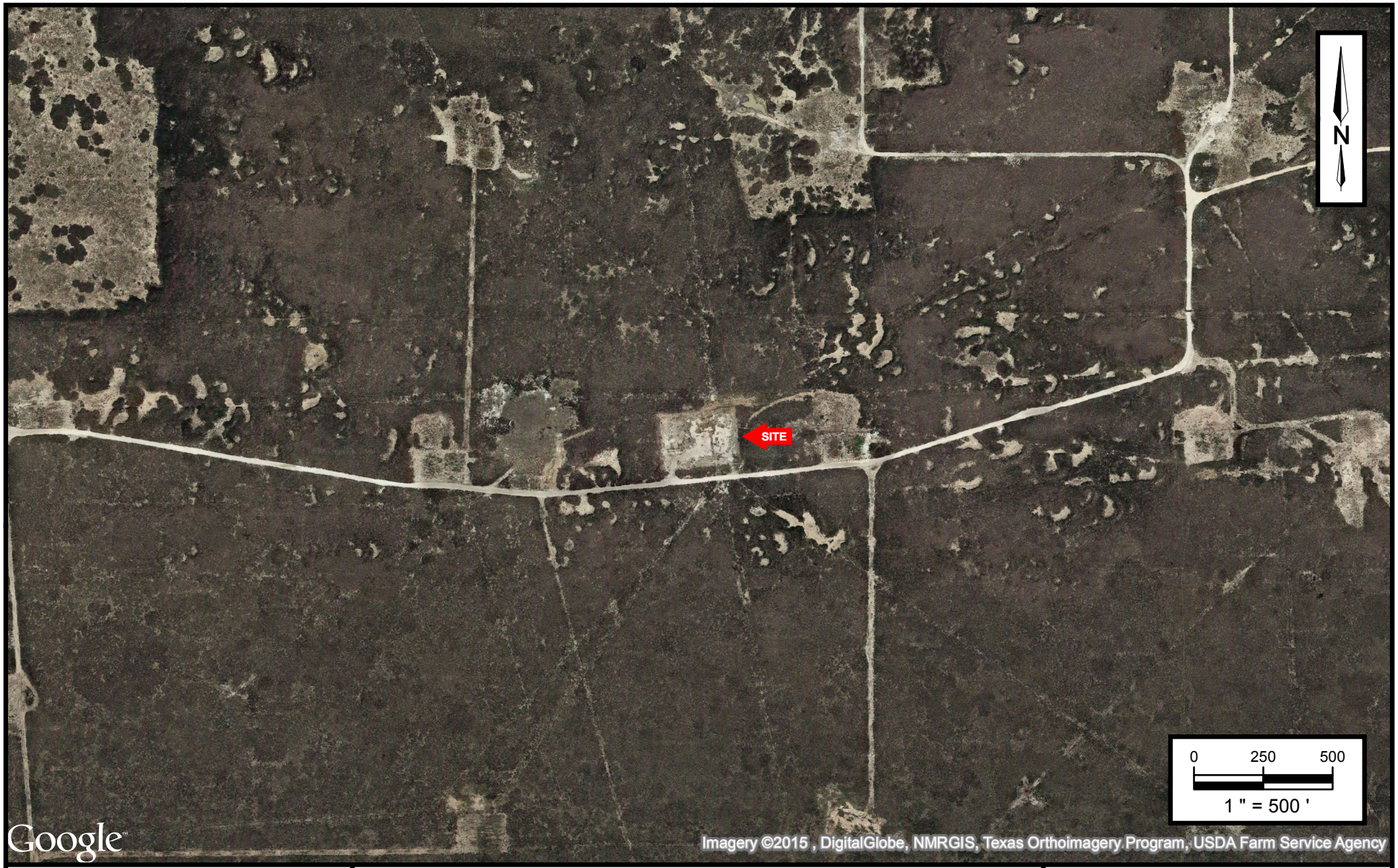

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33.670968 N, 103.292191 W

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FIGURE 2

Site Vicinity Map

Aerial Photograph September 2014

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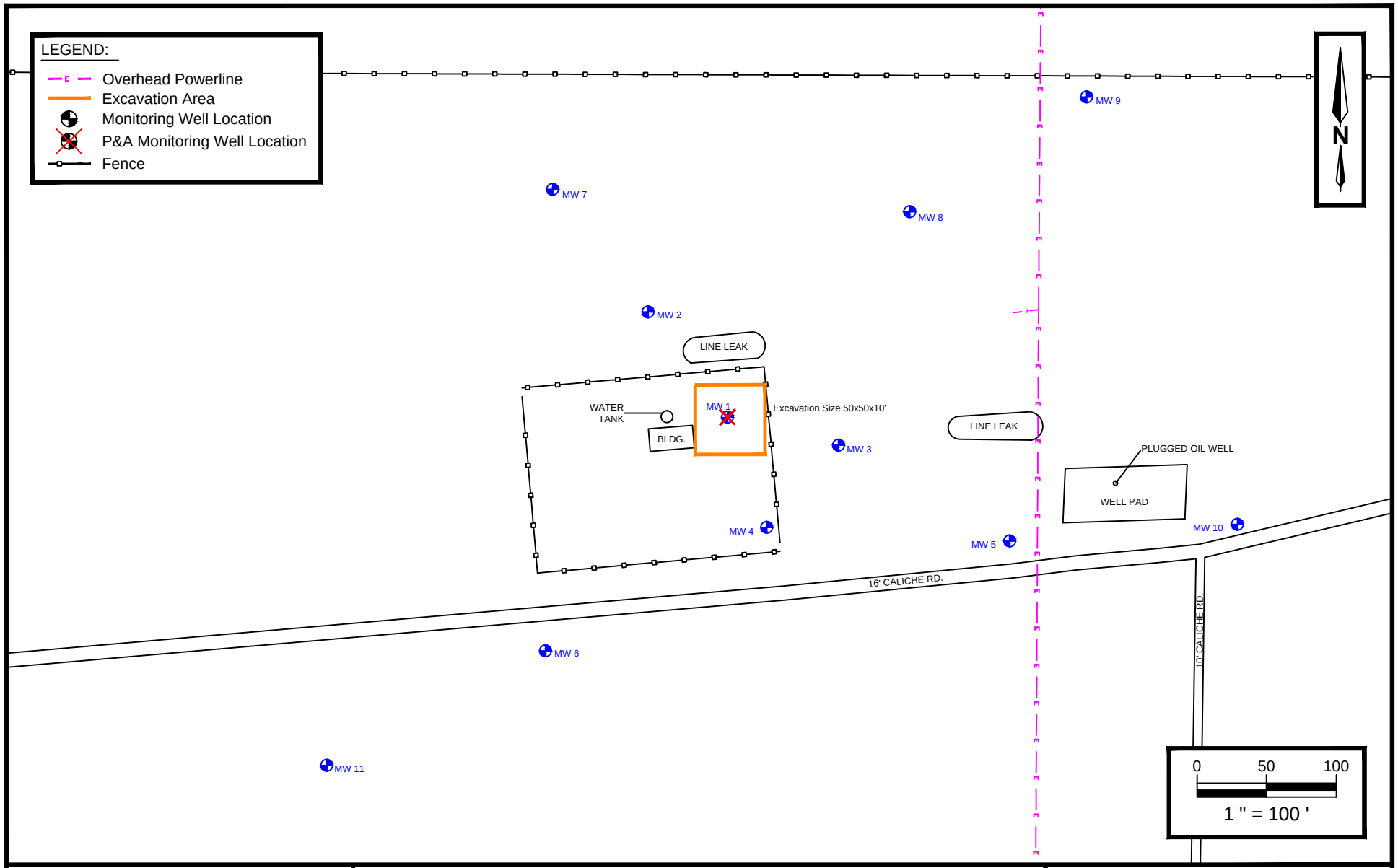

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FIGURE 3

Site Map

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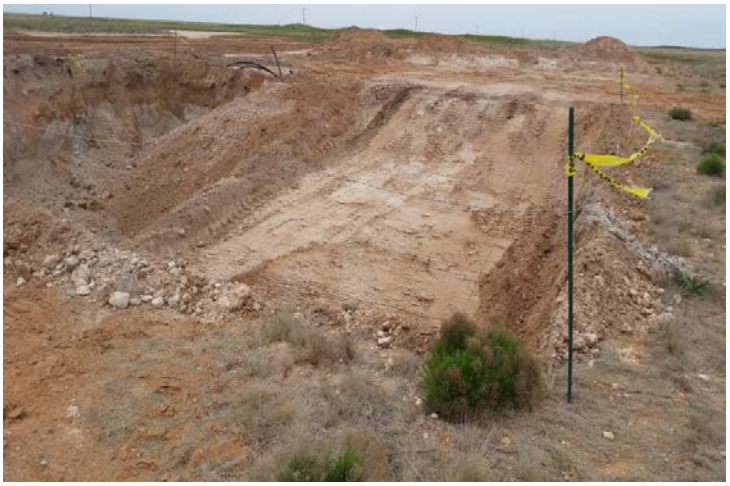
APPENDIX B

Photographic Documentation

View of excavation, facing north.



View of excavation, facing northwest.

View of excavation and stockpiled soils, facing south.

View of loading soil for disposal, facing east.

View of liner placement in excavation, facing north.

View of backfilled excavation, facing south.

APEX

APPENDIX C

Aquifer Test Results

APEX
2351 W. NORTHWEST HIGHWAY, SUITE 3321
DALLAS, TX 75220

Project Name TODD INJECTION STATION
Project No. 7250715017 By Liz Checked HH
Date 5/6/15 Sheet 2 of 2

MW-6 Pump Test

$T = 0.002149 \text{ cm}^2/\text{sec}$

$b = 16.52 \text{ ft} = 503.5296 \text{ cm}$

$K = T/b = \frac{0.002149 \text{ cm}^2/\text{sec}}{503.5296 \text{ cm}} = 4.27 \times 10^{-6}$

$$Q = \frac{57{,}923 \cdot K \cdot b^2}{7.2 + \log(K \cdot b)}$$

Cooper Jacob Eq for unconfined unit (4" well)

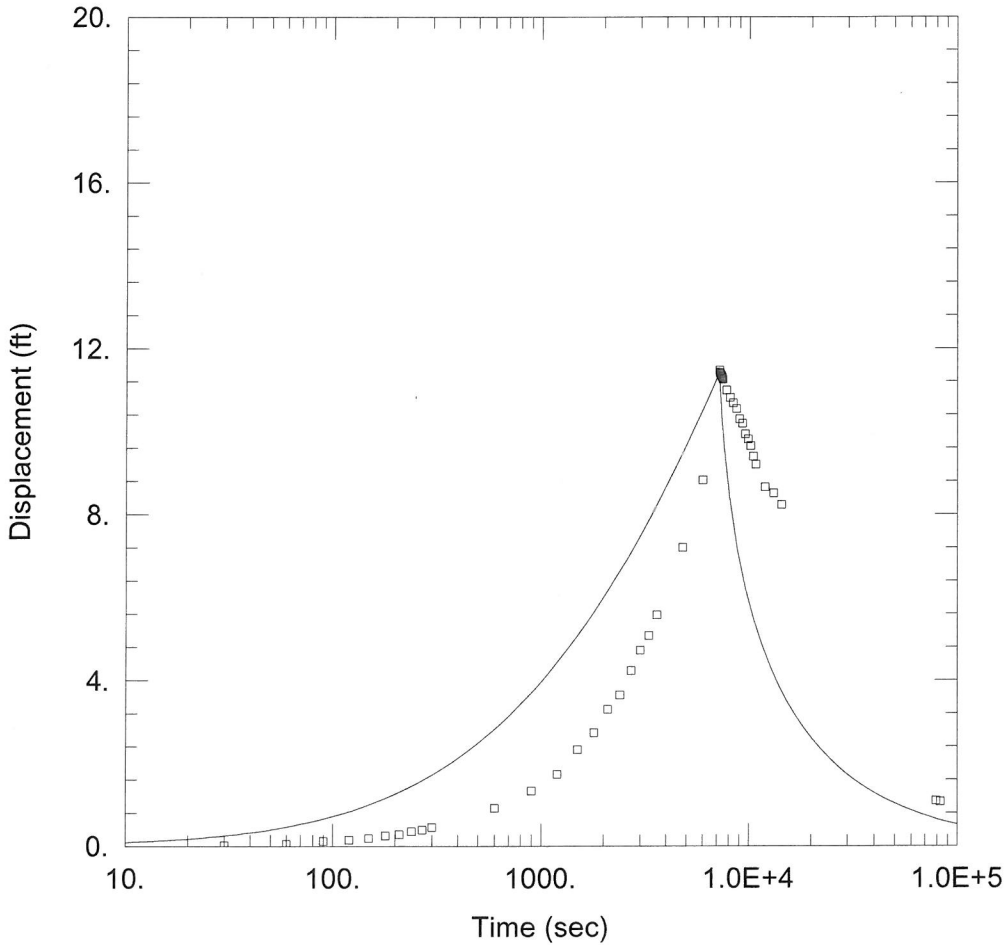
Q = gpd
K = cm/sec
b = ft

$$Q = \frac{57{,}923\,(4.27 \times 10^{-6})(16.52)^2}{7.2 + \log(4.27 \times 10^{-6} \cdot 16.52)}$$

$Q = 22.14$ gpd

well correction

$Q = 22.14 \cdot 1.1 = 24.356$



WELL TEST ANALYSIS

Data Set: P:\Projects\Midland\Todd Sites\7250715017 MW-6.aqt
Date: 05/04/15 Time: 13:11:42

PROJECT INFORMATION

Company: Apex
Client: Todd Injection Station
Project: 7250715017
Test Well: MW-6
Test Date: 4/9/15

AQUIFER DATA

Saturated Thickness: 50. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
MW-6	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
▫ MW-6	0	0

SOLUTION

Aquifer Model: Unconfined Solution Method: Moench

T = 0.002149 cm^2/sec
Sy = 0.1
Sw = 0.
r(c) = 0.0833 ft

S = 0.1049
ß = 5.625E-5
r(w) = 0.375 ft
alpha = 1.0E+30 sec^{-1}

Well Yield Data Form

TRRP Method 2c - Discharge Rate of 0.1 Gallons/Minute

APEX

Project Description: Water Injection Sheet _____ of _____

Date: 4/9/15 By: Ryan Darney Project No.: 72507150017

Well ID.: MW-6 Well Diameter (inches): 2" Static Fluid Level (feet below TOC): 72.29

Total Depth of Well (feet): 88.81 Screened Interval (feet): _____

Discharge						Recovery					
Elapsed Time (sec)	GW Depth (feet)	Discharge Rate (mL/min)	Volume Purged (Gallons)	Drawdown (feet)	(%)	Elapsed Time (sec)	GW Depth (feet)	Recharge Rate (sec)	Recharge (Feet)	Drawdown (feet)	(%)
0	72.29			0							
30	72.31			0.02							
60	72.34			0.05							
90	72.41			0.12							
120	72.44	500		0.15							
150	72.48			0.19							
180	72.54	500		0.25							
210	72.57			0.28							
240	72.64	400		0.35							
270	72.68			0.39							
300	72.74	350		0.45							
600	73.20			0.91							
900	73.62	400		1.33							
1200	74.02	350		1.73							
1500	74.61	380		2.32							
1800	75.02	400		2.73							
2100	75.59	450		3.30							
2400	75.93	400		3.64							
2700	76.52	350		4.28							
3000	77.01	390		4.72							
3300	77.27	350		5.08							
3600	77.86	380		5.57							
4800	79.49	400		7.20							
6000	81.11	350		8.82							
7200	83.76	390		11.47							
						7230	83.71		11.42		
						7260	83.69		11.40		
						7290	83.67		11.38		
						7320	83.65		11.36		
						7350	83.63		11.34		
						7380	83.62		11.33		
Avg 375 mL/min						7410	83.60		11.31		
						7440	83.58		11.29		
Purged ≈ 12.0 gallons						7470	83.56		11.27		
						7500	83.54		11.25		
						7800	83.28		10.99		
						8100	83.10		10.81		
						8400	82.97		10.68		
						8700	82.83		10.54		
						9000	82.59		10.30		
						9300	82.48		10.19		
						9600	82.22		9.93		
						9900	82.10		9.81		
						10200	81.94		9.65		
						10500	81.68		9.39		
						10800	81.49		9.20		
						12000	80.94		8.65		
						13200	80.80		8.51		
						14400	80.52		8.23		
						79200	72.38		0.09		
						82800	72.36		0.07		

1) Pumping should be monitored continuously and the discharge rate corrected for deviations due to changes in hydrostatic pressure when test well water level falls.

2) Test is complete when a total water volume of 150 gallons has been produced, when test well water level falls to bottom of well (no re-equilibrium), or when test duration reaches 8 hours, whichever comes first.

0.1 GPM = 378.54 mL/min = 0.37854 L/min = 12.8 oz/min **1 Gal = 3.7854 L** **1 L = 0.264172 Gal**

APEX
2351 W. NORTHWEST HIGHWAY, SUITE 3321
DALLAS, TX 75220

Project Name TODD INJECTION STATION

Project No. 7250715017 By Liz Checked HH

Date 5/6/15 Sheet 1 of 2

MW-4 Pump Test (C-J)

$T = 0.004332 \text{ cm}^2/\text{sec}$

$b = 17.11 \text{ ft} = 521.5128 \text{ cm}$

$K = T/b = \dfrac{0.004332 \text{ cm}^2/\text{sec}}{521.5128 \text{ cm}} = 8.31 \times 10^{-6}$

$$Q = \frac{57{,}923 \cdot K \cdot b^2}{7.2 + \log(K \cdot b)}$$

Cooper - Jacob Eq for Unconfined Unit (4" well)

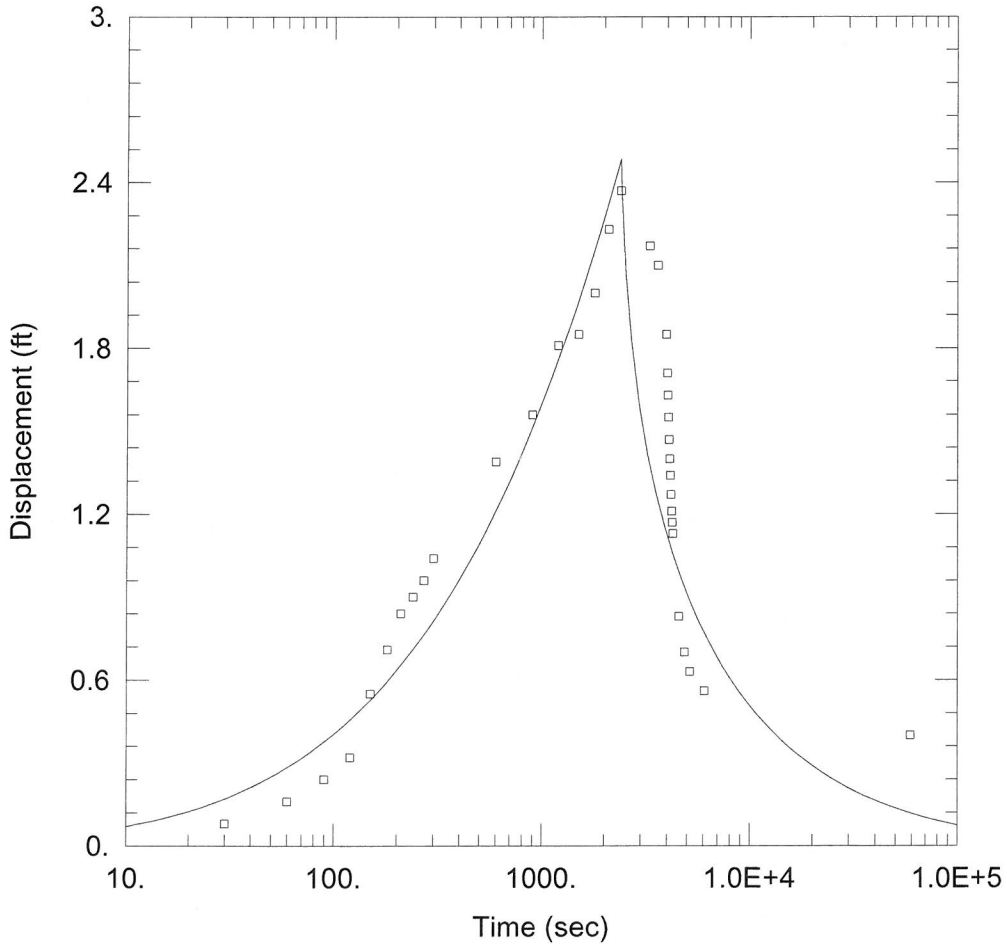
Q = gpd
K = cm/sec
b = ft

$$Q = \frac{57{,}923\,(8.31 \times 10^{-6})(17.11)^2}{7.2 + \log(8.31 \times 10^{-6} \cdot 17.11)}$$

$Q = 42.03$ gpd

well id correction

$Q = 42.03 \times 1.1 = 46.23$ gpd



WELL TEST ANALYSIS

Data Set: P:\Projects\Midland\Todd Sites\7250715017 MW-4.aqt
Date: 05/04/15 Time: 13:10:29

PROJECT INFORMATION

Company: Apex
Client: Todd Injection Station
Project: 7250715017
Test Well: MW-4
Test Date: 4/8/15

AQUIFER DATA

Saturated Thickness: 50. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
MW-4	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
MW-4	0	0

SOLUTION

Aquifer Model: Unconfined
Solution Method: Moench

T = 0.004332 cm^2/sec
Sy = 0.1
Sw = 0.
r(c) = 0.0833 ft

S = 0.6042
ß = 5.625E-5
r(w) = 0.375 ft
alpha = 1.0E+30 sec^{-1}

Well Yield Data Form

TRRP Method 2c - Discharge Rate of 0.1 Gallons/Minute

APEX

Project Description: Todd Injection Station Yield Test Sheet _____ of _____

Date: 4/8/15 By: Ryan Darney Project No.: 72507150017

Well ID.: MW-4 Well Diameter (inches): 2" Static Fluid Level (feet below TOC): 71.42

Total Depth of Well (feet): 88.53 Screened Interval (feet): _____

Discharge						Recovery					
Elapsed Time (sec)	GW Depth (feet)	Discharge Rate (mL/min)	Volume Purged (Gallons)	Drawdown (feet)	(%)	Elapsed Time (sec)	GW Depth (feet)	Recharge Rate (sec)	Recharge (Feet)	Drawdown (feet)	(%)
0	71.42			0.00							
30	71.50			0.08							
60	71.58			0.16							
90	71.66			0.24							
120	71.74			0.32							
150	71.97			0.55							
180	72.13			0.71							
210	72.26			0.84							
240	72.32			0.90							
270	72.38			0.96							
300	72.46			1.04							
600	72.81			1.39							
900	72.98			1.56							
1200	73.23			1.81							
1500	73.27			1.85							
1800	73.42			2.00							
2100	73.65			2.23							
2400	73.79			2.37							
						3300	73.59		2.17		
						3600	73.52		2.10		
						3960	73.27		1.85		
						3990	73.13		1.71		
						4020	73.05		1.63		
						4050	7_.97		1.55		
						4080	72.89		1.47		
						4110	72.82		1.40		
						4140	72.76		1.34		
						4170	72.69		1.27		
						4200	72.63		1.21		
						4230	72.59		1.17		
						4260	72.55		0.13		
						4560	72.25		0.83		
						4860	72.17		0.70		
						5160	72.05		0.63		
						6060	71.98		0.56		

1) Pumping should be monitored continuously and the discharge rate corrected for deviations due to changes in hydrostatic pressure when test well water level falls.

2) Test is complete when a total water volume of 150 gallons has been produced, when test well water level falls to bottom of well (no re-equilibrium), or when test duration reaches 8 hours, whichever comes first.

0.1 GPM = 378.54 mL/min = 0.37854 L/min = 12.8 oz/min 1 Gal = 3.7854 L 1 L = 0.264172 Gal

APPENDIX D

NMOCD C-141

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company OXY USA, Inc.	Contact Rick Passmore
Address P.O. Box 4294, Houston, Texas 77210-4294	Telephone No. 972-687-7504
Facility Name Todd Water Injection Station	Facility Type Water Injection Facility

Surface Owner	Mineral Owner	Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	31	7 South	36 East					Roosevelt

Latitude 33.67111 **Longitude** 103.29191

NATURE OF RELEASE

Type of Release Oil and /or produced water	Volume of Release Unknown	Volume Recovered None
Source of Release Historic oil and produced water spills	Date and Hour of Occurrence Unknown	Date and Hour of Discovery
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? N/A	
By Whom?	Date and Hour N/A	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

N/A

Describe Cause of Problem and Remedial Action Taken.*

Historic spills.

Latigo Petroleum, Inc. made initial notification to the NMOCD on June 25, 2007, based on due diligence. Latigo was bought by Pogo Producing in 2006. Plains Exploration and Production (PXP) bought Pogo Producing in 2007, and finally OXY, USA Inc. purchased a majority interest in the PXP New Mexico assets on February 29, 2008 and became the operator on March 1, 2008.

Describe Area Affected and Cleanup Action Taken.*

Site Investigation and Characterization is in progress.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:	OIL CONSERVATION DIVISION
Printed Name: Dennis Newman	Approved by District Supervisor:
Title: Senior Environmental Consultant	Approval Date: / Expiration Date:
E-mail Address: dennis_newman@oxy.com	Conditions of Approval: / Attached ☐
Date: March 7, 2008 Phone: 713-366-5485	

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company: Occidental Permian, LTD.	Contact: Dusty Wilson
Address: 6 Desta Drive Suite 6000, Midland, TX, 79705	Telephone No.: (817) 302-9407
Facility Name: Todd Water Injection Station	Facility Type: Water Injection Facility

Surface Owner: BLM	Mineral Owner: BLM	API No.:

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	31	7S	36E					Roosevelt

Latitude N 33.67111 **Longitude** W 103.29191

NATURE OF RELEASE

Type of Release: Oil and/or produced water	Volume of Release: Unknown	Volume Recovered: None
Source of Release: Historic oil and produced water spills	Date and Hour of Occurrence: Unknown	Date and Hour of Discovery:
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom? N/A	
By Whom?	Date and Hour: Unknown	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

N/A

Describe Cause of Problem and Remedial Action Taken.*

Historic spill. Latigo Petroleum, Inc. made initial notification to the NMOCD on June 25, 2007, based on due diligence. Latigo was bought by Pogo Producing in 2006. Plains Exploration and Production (PXP) bough Pogo Producing in 2007, and finally OXY, USA Inc. purchased a majority interest in the PXP New Mexico assets on February 29, 2008 and became the operator on March 1, 2008.

Describe Area Affected and Cleanup Action Taken.*

In April, 2015, approximately 1,040 cubic yards (yd^3) of impacted soil was excavated from the release site by Lone Wolf Resources and transported to Gandy Marley Landfill for disposal in accordance with local, state and federal regulations. The excavated area measured 50 feet long by 50 feet wide with a depth of ten (10) feet below ground surface (bgs). A 40 mil liner was installed in the excavation at a depth of four (4) feet bgs. The surface soils at the Site were returned to approximate original grade.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Dusty L. Wilson	Approved by Environmental Specialist:	
Title: PM / Advisor	Approval Date:	Expiration Date:
E-mail Address: dusty_wilson@oxy.com	Conditions of Approval:	Attached ☐
Date: 7/13/15 Phone: (432) 254-2336		

* Attach Additional Sheets If Necessary

APPENDIX E

Well Plugging Plan of Operations

WELL PLUGGING PLAN OF OPERATIONS

NOTE: A Well Plugging Plan of Operations shall be filed with and accepted by the Office of the State Engineer prior to plugging.

I. FILING FEE: There is no filing fee for this form.

II. GENERAL / WELL OWNERSHIP:

Existing Office of the State Engineer POD Number (Well Number) for well to be plugged: Todd Injection Station

Name of well owner: Glenn Springs Holdings, Inc

Mailing address: 1000 Tidal Rd

City: Deer Park State: Texas Zip code: 77536

Phone number: 281-985-8837 E-mail:

III. WELL DRILLER INFORMATION:

Well Driller contracted to provide plugging services: Talon Drilling Inc

New Mexico Well Driller License No.: 1575 Expiration Date: 07/14/16

STATE ENGINEER OFFICE
2015 FEB 17 AM 11:34

IV. WELL INFORMATION:

Note: A copy of the existing Well Record for the well to be plugged should be attached to this plan.

1) GPS Well Location: Latitude: 33 deg, 40 min, 15.98 sec
Longitude: 103 deg, 17 min, 30.88 sec, NAD 83

2) Reason(s) for plugging well: Dry Wells

3) Was well used for any type of monitoring program? Yes If yes, please use section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used to monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may be required prior to plugging.

4) Does the well tap brackish, saline, or otherwise poor quality water? NO If yes, provide additional detail, including analytical results and/or laboratory report(s):

5) Static water level: 71.75 feet below land surface / feet above land surface (circle one)

6) Depth of the well: 82.15 feet

7) Inside diameter of innermost casing: 2 inches.

8) Casing material: Schedule 40 PVC

9) The well was constructed with:

_____ an open-hole production interval, state the open interval: _____

X a well screen or perforated pipe, state the screened interval(s): N/A

10) What annular interval surrounding the artesian casing of this well is cement-grouted? Cement Grout

11) Was the well built with surface casing? No If yes, is the annulus surrounding the surface casing grouted or otherwise sealed? _____ If yes, please describe: _____

12) Has all pumping equipment and associated piping been removed from the well? Yes If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.

V. DESCRIPTION OF PLANNED WELL PLUGGING:

Note: If this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremie pipe, a detailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional technical information, such as geophysical logs, that are necessary to adequately describe the proposal.

1) Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well: The wells will be filled with cement grout via tremie pipe from total depth to land surface. The cement grout will be allowed to settle and any remaining void will be filled with cement grout.

2) Will well head be cut-off below land surface after plugging? Yes

STATE ENGINEER OFFICE
2005 FEB 1 AM 11:24

VI. PLUGGING AND SEALING MATERIALS:

Note: The plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant

1) For plugging intervals that employ cement grout, complete and attach Table A.

2) For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.

3) Theoretical volume of grout required to plug the well to land surface: ~13.47

4) Type of Cement proposed: Type I/II Portland Cement

5) Proposed cement grout mix: 5.2 gallons of water per 94 pound sack of Portland cement.

6) Will the grout be: _____ batch-mixed and delivered to the site

X mixed on site

7) Grout additives requested, and percent by dry weight relative to cement: _____

8) Additional notes and calculations: _____

VII. ADDITIONAL INFORMATION: List additional information below, or on separate sheet(s):

VIII. SIGNATURE:

I, Shane Currie, say that I have carefully read the foregoing Well Plugging Plan of Operations and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State Engineer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Well Plugging Plan of Operations and attachments are true to the best of my knowledge and belief.

Shane Currie — 2-13-15

Signature of Applicant — Date

IX. ACTION OF THE STATE ENGINEER:

This Well Plugging Plan of Operations is:

X Approved subject to the attached conditions.
_____ Not approved for the reasons provided on the attached letter.

Witness my hand and official seal this 2 day of MARCH, 2015

Tom Blaine
~~Scott A. Verhines~~, State Engineer

By: C. Goetze

FOR ANDY MORLEY
DISTRICT II MANAGER

STATE ENGINEER OFFICE
ROSWELL, NEW MEXICO
2015 FEB 17 AM 11:34

TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of grout placement (ft bgl)			0
Bottom of proposed interval of grout placement (ft bgl)			82.15
Theoretical volume of grout required per interval (gallons)			13.47
Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement			5.2
Mixed on-site or batch-mixed and delivered?			On site
Grout additive 1 requested			N/A
Additive 1 percent by dry weight relative to cement			N/A
Grout additive 2 requested			N/A
Additive 2 percent by dry weight relative to cement			N/A

TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)			
Bottom of proposed sealant of grout placement (ft bgl)			
Theoretical volume of sealant required per interval (gallons)			
Proposed abandonment sealant (manufacturer and trade name)			