District 1 1625 N. French Dr., Hobbs, NM 88240 District III 1301 W. Grand Avenue, Artesia, NM 88210 District IIII 1000 Rio Brazos Road, Azteo, NM 87410 ED District IV 1220 S. St. Frages Dr., Santa Ee, NM 87505 HD 11 22	State of New Mexico Energy Minerals and Natural Resources Department Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505	Form C-144 July 21, 2003 For temporary pits, closed-loop systems, and below-grade tanks, submit to the appropriate NMOCD District Office. For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.
	osed-Loop System, Below-Grade The America Structure Stru	
Type of action: Permit o Closure Modifica Closure below-grade tank, or proposed Instructions: Please submit one application	f a pit, closed-loop system, below-grade tank, of of a pit, closed-loop system, below-grade tank, ation to an existing permit plan only submitted for an existing permitted of d alternative method on (Form C-144) per individual pit, closed-loop system	or proposed alternative method or proposed alternative method r non-permitted pit, closed-loop system, <i>tem, below-grade tank or alternative request</i>
nvironment. Nor does approval relieve the operator of	relieve the operator of liability should operations result its responsibility to comply with any other applicable g	
Address: 20 N. Broadway, Oklahoma City, O	y, L.P OGRID #: K 73102	
U/L or Qtr/Qtr <u>J/ NW SE</u> Section <u>14</u>	OCD Permit Number: Township <u>31N</u> Range <u>7W</u> <u>5</u> Longitude <u>-107.537</u> Tribal Trust or Indian Allotment	County: San Juan
String-Reinforced		
intent) Drying Pad Above Ground Steel Tanks	II D Workover or Drilling (Applies to activities when the second	,
Tank Construction material:       Steel         Secondary containment with leak detection       Image: Secondary containment with leak detection         Visible sidewalls and liner       Visible sidewalls	I NMAC         fluid:	verflow shut-off
<ul> <li><u>Alternative Method</u>:</li> <li>Submittal of an exception request is required. Exception</li> </ul>	eptions must be submitted to the Santa Fe Environme	ental Bureau office for consideration of approval.
Form C-144	Oil Conservation Division	

-

Fencing: Subsection D of 19.15.17.11 NMAC (Applies to permanent pits, temporary pits, and below-grade tanks)

Chain link, six feet in height, two strands of barbed wire at top (Required if located within 1000 feet of a permanent residence, school, hospital, institution or church)

 $\Box$  Four foot height, four strands of barbed wire evenly spaced between one and four feet

Alternate. Please specify: Four Foot high, steel mesh field fence (hog wire) with pipe top railing.

Netting: Subsection E of 19.15.17.11 NMAC (Applies to permanent pits and permanent open top tanks)

Screen Netting Other: Expanded metal or solid vaulted top

Monthly inspections (If netting or screening is not physically feasible)

Signs: Subsection C of 19.15.17.11 NMAC

6.

12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers

Signed in compliance with 19.15.3.103 NMAC

#### Administrative Approvals and Exceptions:

Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.

Please check a box if one or more of the following is requested, if not leave blank: Fencing

Administrative approval(s): Requests must be submitted to the appropriate division district or the Santa Fe Environmental Bureau office for consideration of approval.

Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

10. Siting Criteria (regarding permitting): 19.15.17.10 NMAC

Siting Criteria (regarding permitting): 19.15.17.10 NMAC Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of accept material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appro office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of a Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. Siting criteria does not apply to dry above-grade tanks associated with a closed-loop system.	ppriate district pproval.
<ul> <li>Ground water is less than 50 feet below the bottom of the temporary pit, permanent pit, or below-grade tank.</li> <li>NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells</li> </ul>	🗌 Yes 🛛 No
<ul> <li>Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).</li> <li>Topographic map; Visual inspection (certification) of the proposed site</li> </ul>	🗌 Yes 🛛 No
<ul> <li>Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.</li> <li>(Applies to temporary, emergency, or cavitation pits and below-grade tanks)</li> <li>Visual inspection (certification) of the proposed site; Aerial photo; Satellite image</li> </ul>	□ Yes ⊠ No □ NA
<ul> <li>Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. (<i>Applies to permanent pits</i>)</li> <li>Visual inspection (certification) of the proposed site; Aerial photo; Satellite image</li> </ul>	☐ Yes ☐ No ⊠ NA
<ul> <li>Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application.</li> <li>NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site</li> </ul>	🗌 Yes 🖾 No
<ul> <li>Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended.</li> <li>Written confirmation or verification from the municipality; Written approval obtained from the municipality</li> </ul>	🗌 Yes 🖾 No
<ul> <li>Within 500 feet of a wetland.</li> <li>US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site</li> </ul>	🗌 Yes 🛛 No
<ul> <li>Within the area overlying a subsurface mine.</li> <li>Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division</li> </ul>	🗌 Yes 🛛 No
<ul> <li>Within an unstable area.</li> <li>Engineering measures incorporated into the design; NM Bureau of Geology &amp; Mineral Resources; USGS; NM Geological Society; Topographic map</li> </ul>	🗌 Yes 🛛 No
Within a 100-year floodplain. - FEMA map	🗌 Yes 🛛 No

11.       Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist:       Subsection B of 19.15.17.9 NMAC         Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.                Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC       Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC       Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC       Design Plan - based upon the appropriate requirements of 19.15.17.10 NMAC       Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC       Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC       Previously Approved Design (attach copy of design) API Number: or Permit Number:       or Permit Number:
12.         Closed-loop Systems Permit Application Attachment Checklist:       Subsection B of 19.15.17.9 NMAC         Instructions:       Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.            Geologic and Hydrogeologic Data (only for on-site closure) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9            Siting Criteria Compliance Demonstrations (only for on-site closure) - based upon the appropriate requirements of 19.15.17.10 NMAC            Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC            Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC            Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC            Previously Approved Design (attach copy of design) API Number:
13.         Permanent Pits Permit Application Checklist:       Subsection B of 19.15.17.9 NMAC         Instructions:       Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.         Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC         Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC         Climatological Factors Assessment         Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC         Lake Detection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC         Lake Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC         Quality Control/Quality Assurance Construction and Installation Plan         Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.11 NMAC         Nuisance or Hazardous Odors, including H <sub>2</sub> S, Prevention Plan         Emergency Response Plan         Oil Field Waste Stream Characterization         Monitoring and Inspection Plan         Erosion Control Plan         Closure Plan - based upon the appropriate requirements of 19.15.17.9 NMAC and 19.15.17.13 NMAC
14.         Proposed Closure:       19.15.17.13 NMAC         Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.         Type:       Drilling         Workover       Emergency         Cavitation       P&A         Permanent Pit       Below-grade Tank         Closed-loop System         Alternative         Proposed Closure Method:       Waste Excavation and Removal (Below Grade Tank)         Waste Removal (Closed-loop systems only)         On-site Closure Method (Only for temporary pits and closed-loop systems)         In-place Burial       On-site Trench Burial         Alternative Closure Method (Exceptions must be submitted to the Santa Fe Environmental Bureau for consideration)
<ul> <li><sup>15.</sup> Waste Excavation and Removal Closure Plan Checklist: (19.15.17.13 NMAC) Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.</li> <li>△ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC</li> <li>△ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC</li> <li>△ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)</li> <li>△ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC</li> <li>△ Re-vegetation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC</li> </ul>

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16.			
Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only: (19.15.17.13.1 Instructions: Please indentify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if a facilities are required.			
Disposal Facility Name: Disposal Facility Permit Number:	Disposal Facility Permit Number:		
Disposal Facility Name: Disposal Facility Permit Number:	<u>.                                    </u>		
Will any of the proposed closed-loop system operations and associated activities occur on or in areas that <i>will not</i> be used for future ser	vice and operations?		
Required for impacted areas which will not be used for future service and operations:         Soil Backfill and Cover Design Specifications based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC         Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC         Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC	C .		
<sup>17.</sup> Siting Criteria (regarding on-site closure methods only): 19.15.17.10 NMAC Instructions: Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable sour provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate dist considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Just demonstrations of equivalency are required. Please refer to 19.15.17.10 NMAC for guidance.	rict office or may be		
Ground water is less than 50 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	□ Yes □ No □ NA		
Ground water is between 50 and 100 feet below the bottom of the buried waste - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	□ Yes □ No □ NA		
<ul> <li>Ground water is more than 100 feet below the bottom of the buried waste.</li> <li>NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells</li> </ul>	□ Yes □ No □ NA		
<ul> <li>Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).</li> <li>Topographic map; Visual inspection (certification) of the proposed site</li> </ul>	🗌 Yes 🗌 No		
<ul> <li>Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.</li> <li>Visual inspection (certification) of the proposed site; Aerial photo; Satellite image</li> </ul>	🗌 Yes 🗌 No		
Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site	🗌 Yes 🗌 No		
<ul> <li>Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended.</li> <li>Written confirmation or verification from the municipality; Written approval obtained from the municipality</li> </ul>	🗋 Yes 🗌 No		
<ul> <li>Within 500 feet of a wetland.</li> <li>US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site</li> </ul>	🔲 Yes 🗌 No		
<ul> <li>Within the area overlying a subsurface mine.</li> <li>Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division</li> </ul>	🗌 Yes 🗌 No		
<ul> <li>Within an unstable area.</li> <li>Engineering measures incorporated into the design; NM Bureau of Geology &amp; Mineral Resources; USGS; NM Geological Society; Topographic map</li> </ul>	🗌 Yes 🗌 No		
Within a 100-year floodplain. - FEMA map	🗌 Yes 🗌 No		
<ul> <li>18.</li> <li>On-Site Closure Plan Checklist: (19.15.17.13 NMAC) Instructions: Each of the following items must be attached to the closure play a check mark in the box, that the documents are attached.</li> <li>Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC</li> <li>Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC</li> <li>Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of 19.15.17.13 NMAC</li> <li>Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.13 NMAC</li> <li>Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC</li> <li>Confirmation Sampling Plan - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC</li> <li>Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cann</li> <li>Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC</li> </ul>	15.17.11 NMAC		

Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
 Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

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19. Operator Application Certification: I hereby certify that the information submitted with this application is true, accura	te and complete to the best of my knowledge and belief.
	Title: Field Technician
Signature: Matie Baind	
e-mail address: katie.baird@dvn.com	Telephone: (505) 324-5621
20. OCD Approval: Permit Application (including closure plan) Closure Pla	an (only) OCD Conditions (see attachment)
OCD Representative Signature:	Approval Date:
Title:	OCD Permit Number:
<sup>21.</sup> Closure Report (required within 60 days of closure completion): Subsection & Instructions: Operators are required to obtain an approved closure plan prior to The closure report is required to be submitted to the division within 60 days of th section of the form until an approved closure plan has been obtained and the clo	o implementing any closure activities and submitting the closure report. The completion of the closure activities. Please do not complete this
22. Closure Method: ☐ Waste Excavation and Removal ☐ On-Site Closure Method ☐ Alternat ☐ If different from approved plan, please explain.	tive Closure Method 🗌 Waste Removal (Closed-loop systems only)
<sup>23.</sup> Closure Report Regarding Waste Removal Closure For Closed-loop Systems Instructions: Please indentify the facility or facilities for where the liquids, drilli two facilities were utilized.	
Disposal Facility Name:	Disposal Facility Permit Number:
Disposal Facility Name:	Disposal Facility Permit Number:
Were the closed-loop system operations and associated activities performed on or i	in areas that <i>will not</i> be used for future service and operations?
Required for impacted areas which will not be used for future service and operation         Site Reclamation (Photo Documentation)         Soil Backfilling and Cover Installation         Re-vegetation Application Rates and Seeding Technique	ons:
24.         Closure Report Attachment Checklist: Instructions: Each of the following item         mark in the box, that the documents are attached.         Proof of Closure Notice (surface owner and division)         Proof of Deed Notice (required for on-site closure)         Plot Plan (for on-site closures and temporary pits)         Confirmation Sampling Analytical Results (if applicable)         Waste Material Sampling Analytical Results (required for on-site closure)         Disposal Facility Name and Permit Number         Soil Backfilling and Cover Installation         Re-vegetation Application Rates and Seeding Technique         Site Reclamation (Photo Documentation)         On-site Closure Location: Latitude Longitu	nde NAD: 1927 1983
25. Onorator Closure Cartification:	
<b>Operator Closure Certification:</b> I hereby certify that the information and attachments submitted with this closure rebelief. I also certify that the closure complies with all applicable closure requirements	
Name (Print):	Title:
Signature:	Date:
e-mail address:	Telephone:

#### NEBU #232 Below Ground Tank Hydrogeologic Report for Siting Criteria

#### **General Geology and Hydrology**

The San Juan Basin is a typical Rocky Mountain basin with a gently dipping southern flank and a steeply dipping northern flank. Asymmetrically layered Tertiary sandstones and shales, along with Quaternary alluvial deposits, dominate surficial geology (Dane and Bachman, 1965). The proposed pit location will be located in the north-central San Juan Basin near Navajo Lake. The predominant geologic formation is the San Jose Formation of Tertiary age, which underlies surface soils and is often exposed (Dane and Bachman, 1965). Deposits of Quaternary alluvial and aeolian sands occur near the surface of the area, especially near streams and washes.

Cretaceous and Tertiary sandstones, as well as Quaternary alluvial deposits, serve as the primary aquifers in the San Juan Basin (Stone et al., 1983). In most of the proposed area, the San Jose Formation lies at the surface and overlies the Nacimiento Formation. Thickness of the San Jose ranges from 200 to 2700 feet, thickening from west to east across the region of interest (Stone et al., 1983). Aquifers within the coarser and continuous sandstone bodies of the San Jose Formation are between 0 and 2700' deep in this section of the basin (Stone et al., 1983). Groundwater within these aquifers flows regionally to the southwest, toward the San Juan River. More locally, groundwater flow is controlled by Navajo Lake. Little specific hydrogeologic data is available for the San Jose Formation system, but "numerous wells and springs used for stock and domestic supplies" draw their water from the San Jose Formation (Stone et al., 1983).

The prominent soil types at the proposed site are entisols and aridisols, which are defined as soils exhibiting little to no profile development (www.emnrd.state.nm.us). Soils are basically unaltered from their parent rock. Miles of arroyos, washes and intermittent streams exist as part of the drainage network towards the San Juan River. These features often cut into soil and other unconsolidated materials, contributing to sedimentation downstream. The sudden influx of water from storm events easily erodes the soils that cover the area and prohibits effective recharge to the underlying aquifers.

Regional weather further prohibits active recharge. The climate is arid, averaging almost 13 inches of rainfall annually. As is typical of the southwestern United States monsoonal weather patterns, most precipitation falls from July through September. The heaviest rainfall occurs in the summer in isolated, intense cloudbursts. September through June is relatively dry. Snow generally falls from December to mid-February and averages less than one-half inch in depth. The most active recharge occurs during the winter snowmelt periods from the upper elevations (Western Regional Climate Center www.wrcc.dri.edu).

The predominant vegetation is sagebrush and grasses with a more restricted pinon-juniper association (Dick-Peddie, 1993).

#### Site Specific Hydrogeology

Depth to groundwater at the site is estimated to be greater than 100'. This estimation is based on data from Stone and others (1983), the USGS Groundwater Atlas of the United States and depth to groundwater data published on the New Mexico State Engineer's iWaters Database website. Local topography, proximity to adjacent channels and springs and observations made during a site visit are also taken into consideration.

The region is dominated by Navajo Lake and its associated canyons and gullies as evidenced on the attached topographic map and aerial photo. Relatively large, flat-topped mesas composed of thick sandstone sequences surround the perimeter of the lake and are often over 200 feet higher in elevation than the lake. Canyons and gullies erode into the sandstone and are filled with alluvium. This particular site is located on a mesa top 1.58 miles away from the main channel of Navajo Lake, and is over 400 feet higher in elevation than the surface of the lake water. To the west lies Negro Andy Canyon, a first order tributary to the lake.

The massive sandstone outcrops, upon which the site in question is situated, is part of the San Jose Formation. Beds of water-yielding sandstone are present in the San Jose Formation, which are fluvial in origin and are interbedded with mudstone, siltstone & shale. Porous sandstones form the principal aquifers in the area, while relatively impermeable shales and mudstones form confining units between the aquifers (Stone et al., 1983). "Extensive intertonguing" of different members of this formation is reported (Stone et al, 1983). Local aquifers exist within the San Jose Formation at depths greater than 100 feet and thicknesses of the aquifer can be up to several hundred feet (USGS, Groundwater Atlas of the US; Stone et al, 1983).

Depth to groundwater data is extremely limited in this region. Groundwater data available from the NM State Engineer's iWaters Database for wells near the below grade tank are attached and are plotted on the iWaters Groundwater Data Map. The nearest permitted well lies 2625 feet to the northwest (SJ 03426). The water is used for livestock watering, as are many others in the surrounding area. Depth to groundwater in the permitted water well is recorded as 420 feet. Other wells located near Navajo Lake at similar elevations to the site in question contain groundwater at depths in excess of 400 feet.

The elevation difference of over 400 feet between the site and Navajo Lake, the lack of other surface water features and groundwater depths greater than 400 feet deep in nearby permitted water wells is enough to suggest that groundwater at the site is greater than 100 feet.

#### References

Dane, C.H. and Bachman, G. O., 1965, Geologic Map of New Mexico: U.S. Geological Survey, 1 sheet, scale 1:500,000.

Dick-Peddie, W.A., 1993, New Mexico Vegeation – Past, Present and Future: Albuquerque, New Mexico, University of New Mexico Press, 244 p.

Stone, W.J., Lyford, F. P., Frenzel, P.F., Mizell, N.H. and Padgett, E.T., 1983, Hydrogeology and water resources of the San Juan Basin, New Mexico: HR-6 New Mexico Bureau of Geology and Mineral Resources Hydrology Report 6.

USGS, Groundwater Atlas of the United States: Arizona, Colorado, New Mexico, Utah, HA 730-C: (<u>http://www.pubs.usgs.gov</u>).

Western Region Climate Center, 2008, New Mexico climate summaries: Desert Research Institute at <u>http://www.wrcc.dri.edu/summary/climsmnm.html</u>.

New Mexico Energy, Minerals and Natural Resources Department, www.emnrd.state.nm.us

Lodestar Service	es, Inc.	Pit Permit Siting Criteria Information Shee	Client: Project: Revised: Prepared by:	Devon Energy Pit Permits 4/27/2009 Brooke Herb
API#:		30-045-32780	USPLSS:	T31N, R07W, S14J
Name:		NEBU #232	Lat/Long:	36.89745, -107.53795
Depth to groundwater:		>100'	Geologic formation:	San Jose Formation
Distance to closest continuously flowing watercourse:		iles N of main body of Iavajo Reservoir		
Distance to closest significant watercourse, lakebed, playa lake, or sinkhole:	1st Order Tri 1745' S of	legro Andy Canyon; 1103' N of ibutary to Negro Andy Canyon; 1st Order Tributary to Negro on; 3794' W of Spruce Canyon		
			Soil Type:	Entisols
Permanent residence, school, hospital, institution or church within 300'		NO		
			Annual Precipitation:	12.95 inches (weather station at Navajo Dam)
Domestic fresh water well or spring within 500'		NO	Precipitation Notes:	no significant precipitation events on record
Any other fresh water well or spring within 1000'		NO		
Within incorporated municipal boundaries		NO	Attached Documents:	Site Visit Survey Hydrogeologic Report Topographic Map
Within defined municipal fresh water well field		NO		Aerial Photo Mines, Mills and Quarries Map FEMA Flood Zone Map
Wetland within 500'		NO	Mining Activity:	None identified in the vicinity
Within unstable area		NO	]	
Within 100 year flood plain		ocated within Zone X 00-yr floodplain)		
Profil				
Additional Notes:	aerial pho recent aer	to and confirmed during	a site visit. The aeria 2007), but show lowe	geologic features were measured from the I photo is dated July 30, 2005. More r lake levels. The 2005 photo aids ons.

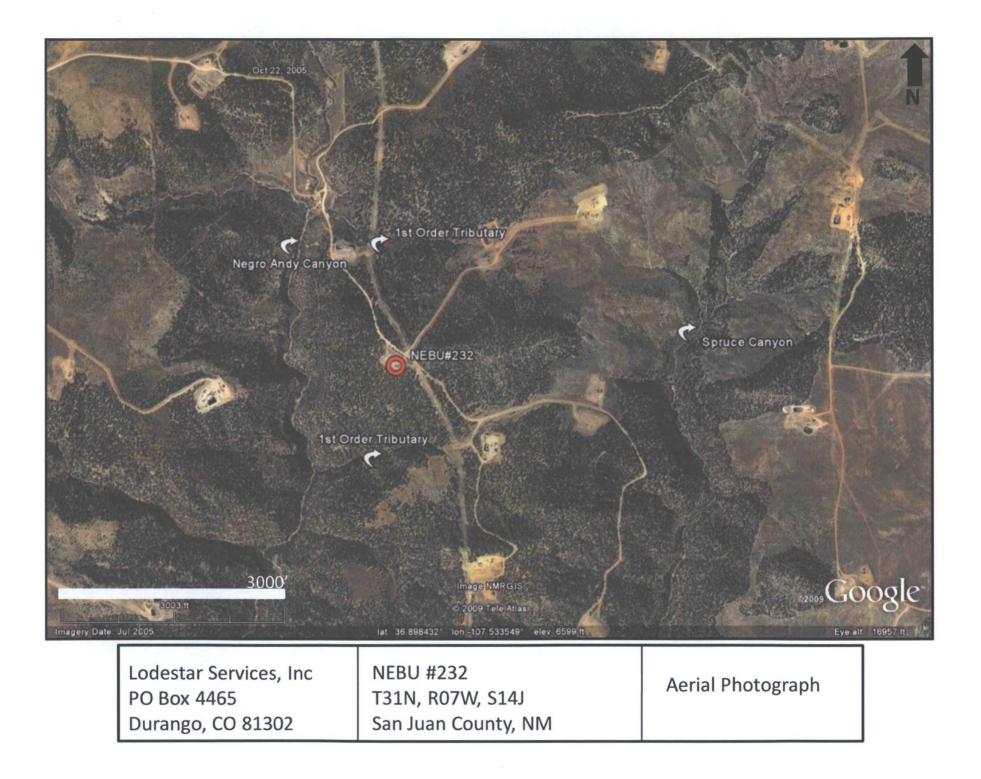
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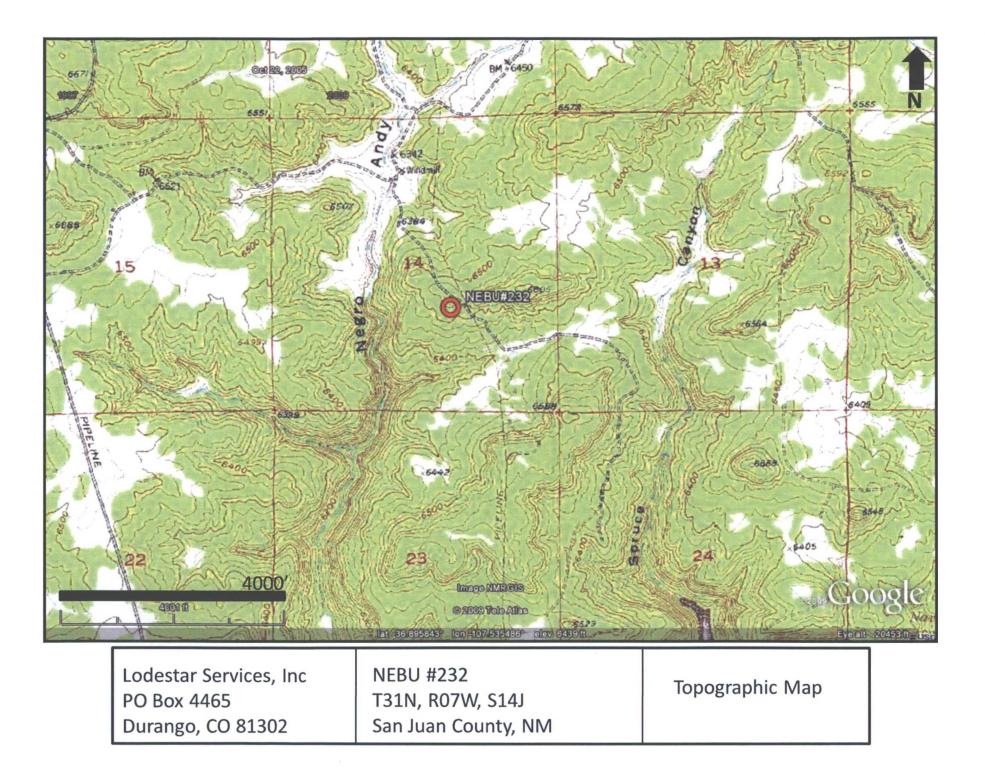
4

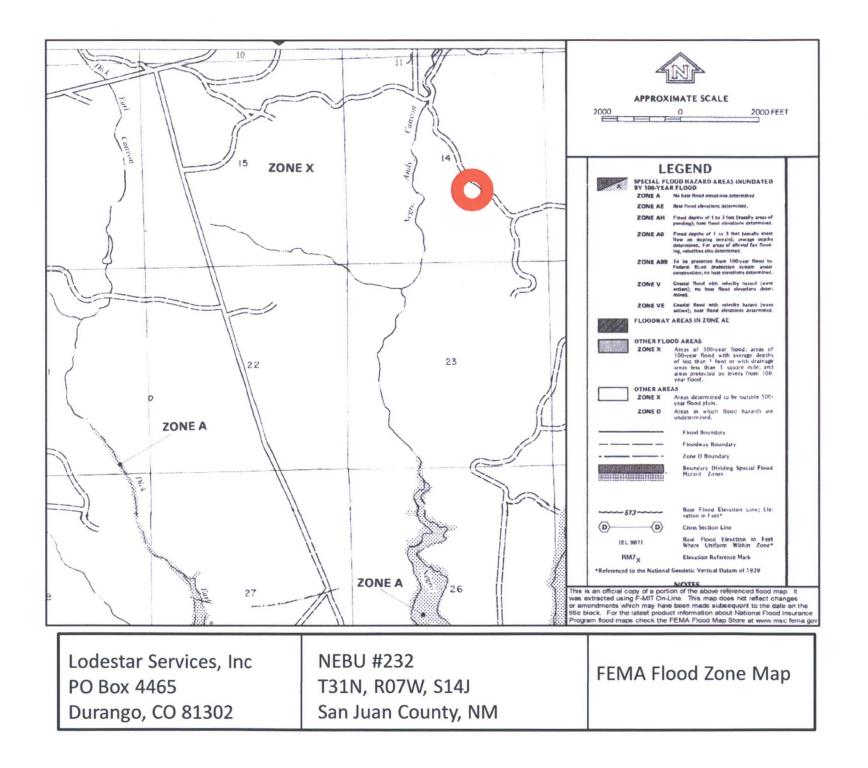
### New Mexico Office of the State Engineer POD Reports and Downloads

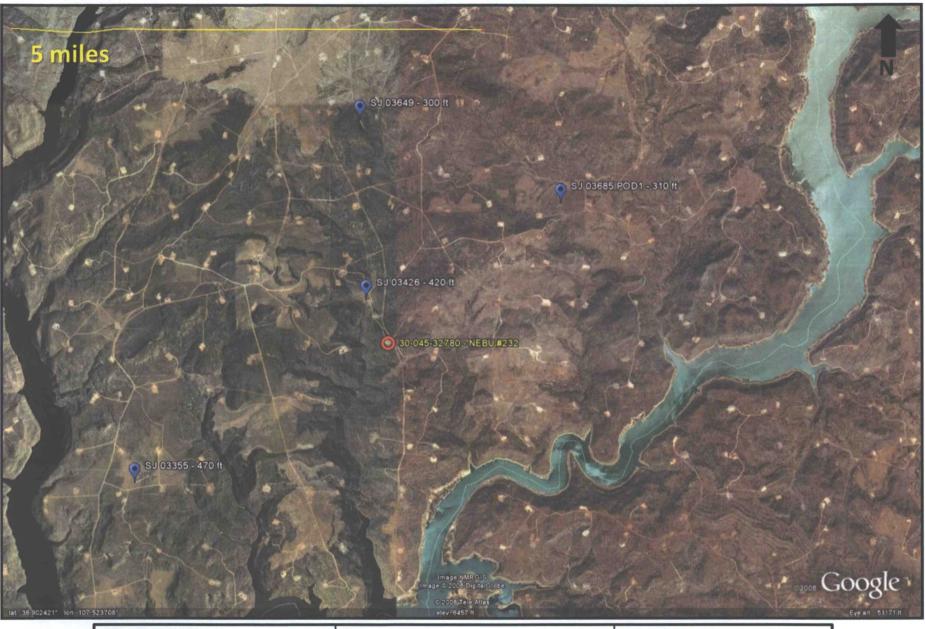
### WATER COLUMN REPORT 12/05/2008

	(quarter	s are 1=	=NW 2=NE	3=SW 4=SE)					
	(quarter	s are b	iggest to	smallest)		Depth	Depth	Water	(in feet)
POD Number	Tws	Rng Sec	c q q q	Zone	x y	Well	Water	Column	
SJ 03685 POD1	31N	06W 07	1 2 4			460	310	150	
SJ 00011	31N	06W 32				610			
SJ 03649	31N	07W 02	1 4			600	300	300	
SJ 03426	31N	07W 14	1 2 4			540	420	120	
<u>SJ 03355</u>	31N	07W 28	1 1 1			570	470	100	
SJ 03117	32N	07W 07	222			240			
SJ 01612	32N	07W 34	3			800			

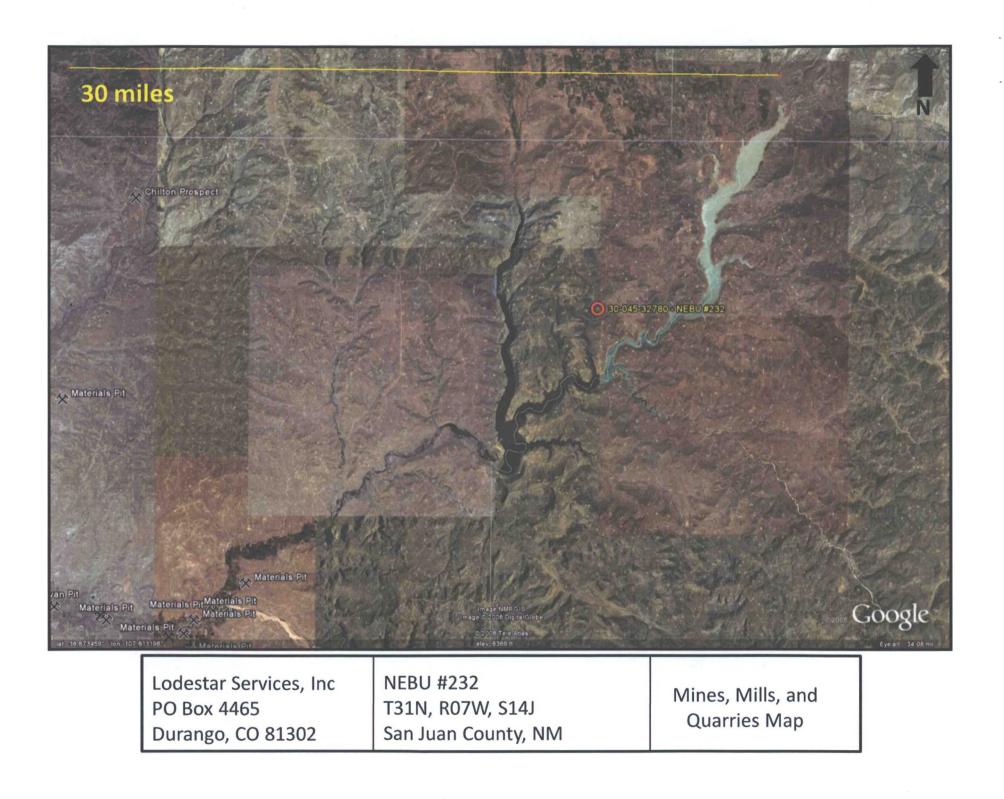


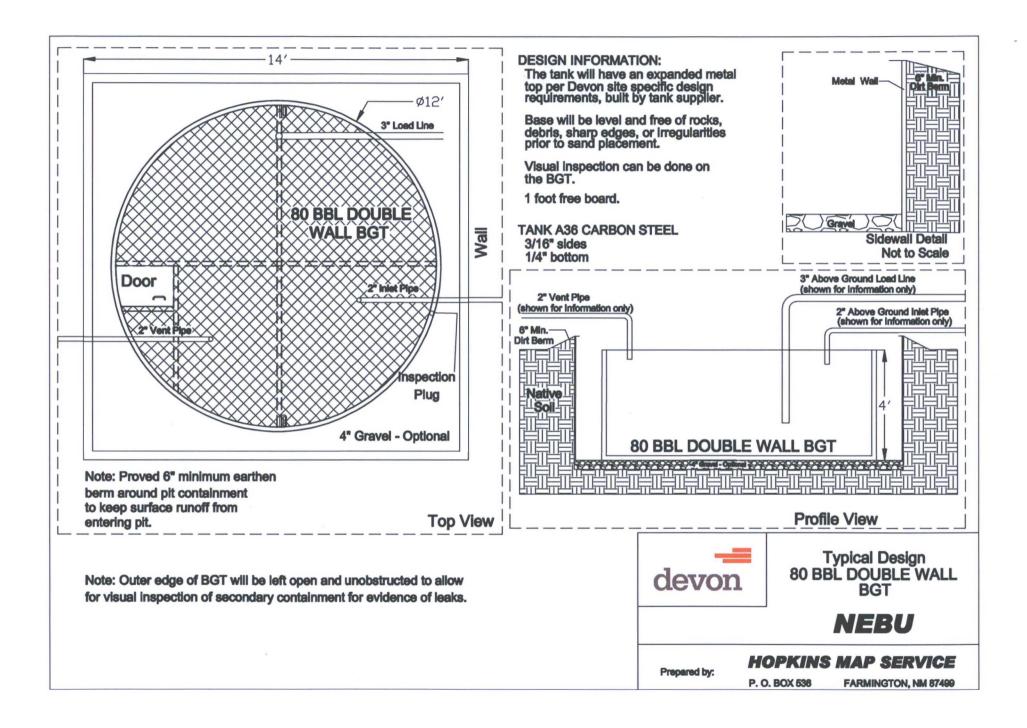






Lodestar Services, Inc PO Box 4465 Durango, CO 81302	NEBU #232 T31N, R07W, S14J San Juan County, NM	iWaters Groundwater Data Map	
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# Devon Energy Production Company, L.P. San Juan Basin Below Grade Tank Design and Construction Plan

In accordance with Rule 19.15.17 NMAC the following information describes the design and construction of below grade tanks on Devon Energy Production Company, L.P. locations. This is Devon Energy's standard procedure for all below grade tanks (BGT). A separate plan will be submitted for any BGT which does not conform to this plan.

### **General Plan**

- 1) Devon will design and construct a BGT to contain liquids to prevent contamination of fresh water and protect public health and the environment.
- 2) Devon will post a well sign, in compliance with 19.15.16.8 NMAC, on the existing well site operated by Devon Energy where the existing BGT is located. The sign will list the operator on record as the operator, the location of the well site by unit letter, section, township, range, and emergency telephone numbers.
- 3) Devon is requesting approval of an alternative fencing to be used on BGT locations. BGT locations will be fenced utilizing 48" steel mesh field-fence (hog wire) with pipe railing along the top. A 6' chain link fence will be utilized around the well pad if the well site is within a city limit or 1/4mile of a permanent residence, school, hospital, institution, or church. BGTs located within 1000' of a permanent residence, school, hospital, institution, or church will be fenced by a 6' chain link fence with at least 2 strands of barbed wire at the top. All gates associated with BGTs will remain closed when responsible individuals are not on site.
- 4) Devon will construct BGT with an expanded metal covering or solid vaulted top on the top of the BGT.
- 5) Devon shall ensure that a BGTs are constructed of materials resistant to the BGT's particular contents and resistant to damage from sunlight. Tanks will be constructed of A36 carbon steel with 3/16" sides and ¼" bottom. (see attached drawing)
- 6) Devon shall have a properly constructed foundation consisting of a level base free of rocks, debris, sharp edges or irregularities to prevent punctures, cracks or indentations of the tank bottom
- 7) Devon shall construct a BGT to prevent overflow and the collection of surface water runon. Devon Energy's free board is set at 1 foot from the top of the tank. We have berms set to prevent any surface water run-on.
- 8) Devon will construct and use BGT's having double walls. The BGT side walls will be open with a plug for visual inspection for leaks. The bottom shall be elevated with the use of gravel to raise the BGT above the underlying ground surface to prevent damage to the bottom of the BGT.
- 9) The general specification for design and construction are attached in the Devon document.

## Devon Energy Production Company, L.P. San Juan Basin Below Grade Tank Maintenance and Operating Plan

In accordance with Rule 19.15.17 NMAC the following information describes the maintenance and operation of below grade tanks on Devon Energy Production Company, L.P. locations. This is Devon Energy's standard procedure for all below grade tanks. A separate plan will be submitted for any BGT which does not conform to this plan.

### **General Plan**

- Devon will operate and maintain a BGT to contain liquids and solids as well as prevent contamination of fresh water to protect public health and the environment. Fluid levels will be monitored weekly and high levels will be removed as necessary. Monthly inspections will be conducted to monitor integrity of BGT systems.
- 2) Devon shall not allow a BGT to overflow or allow surface water run-on to enter the BGT. See attached drawing of vault design and placement of diversion berms.
- 3) Devon shall continuously remove any visible or measurable layer of oil from the fluid surface of a BGT in an effort to prevent significant accumulation of oil overtime.
- 4) Devon shall inspect the BGT at least once a month and maintain a written record of each inspection for five years. Monthly inspections will consist of documenting the following: (see attached template)
  - Well name
  - Section, Township, Range
  - Latitude longitude coordinates
  - Signature of inspector
  - Inspection date
  - Plug in place
  - Outer side wall ok
  - Fluid between walls
  - Measurable quantity oil
  - Comments
- 5) Devon shall maintain 1 foot free board to prevent overtopping of the BGT.
- 6) Devon will not discharge into or store any hazardous waste in any BGT.
- 7) If a BGT develops a leak or if any penetration of a BGT below the liquid surface on the outer wall, Devon will remove all liquids above the damage or leak within 48 hours, notify the appropriate division district office within 48 hours of the discovery and repair the damage or replace the BGT.

# Devon Energy Production Company, L.P. San Juan Basin Below Grade Tank Closure Plan

In accordance with Rule 19.15.17.13 NMAC the following information describes the closure requirements of a below grade tank on Devon Energy Production Company, L.P. locations. This is Devon Energy's standard procedure for all below grade tanks (BGT). A separate plan will be submitted for any BGT which does not conform to this plan.

### **General Plan**

- 1) Devon shall close a BGT within the time periods provided in 19.15.17.13 NMAC, or by an earlier date that the division requires because of imminent danger to fresh water, public health or the environment.
- 2) Devon will close a BGT that does not meet the requirements of Paragraphs 1-4 of the Subsection I of 19.15.17.11 NMAC or is not included in Paragraph 5 of Subsection I of 19.15.17.11 NMAC within five years after June 16, 2008, if not retrofitted to comply with Paragraphs 1-4 of the Subsection I of the 19.15.17.11 NMAC.
- 3) Devon shall close a permitted BGT within 60 days of cessation of the BGT operation or as required by the transitional provisions of Subsection B of 19.15.17.17 NMAC in accordance with a closure plan that the appropriate division district office approves. The closure report will be filed on C-144.
- 4) 72 Hour notice of Closure will be given via email, or verbally to the Aztec Division office prior to any closure activity. The notification of closure will include the following:
  - > Operator's Name
  - Location by Unit Letter, Section, Township, and Range. Well name and API number

The Surface owner shall be notified prior to the implementation of any closure operations of BGT's as per the approved closure plan using certified mail, return receipt requested.

- 5) Devon shall remove liquids and sludge from a BGT prior to implementing a closure method and shall dispose of the liquids and sludge in a division-approved facility.
  - Envirotech Permit No. NM01-0011 and IEI Permit No. NM 01-0010B
    - Soil contamination by exempt petroleum hydrocarbons Produced sand, pit sludge and contaminated bottoms from storage of exempt wastes
  - Basin Disposal Permit No. NM01-005
    - Produced water
  - Middle Mesa SWD#1 30-045-27341
     Produced water
  - Middle Mesa SWD #2 30-045-28553
     Produced water
  - Pump Mesa SWD 30-045-27340
     Produced water
  - Sims Mesa SWD 30-039-24236
     Produced water
- 6) Devon will obtain prior approval from the OCD to dispose, recycle, reuse or reclaim the BGT and provide documentation of the final disposition of the BGT in the closure report.
- 7) If there is any on-site equipment associated with a BGT, then Devon shall remove the equipment, unless the equipment is required for some other purpose.
- 8) Devon will test the soils beneath the BGT to determine whether a release has occurred. At a minimum a five point composite soil sample will be taken. As well as notifying the Aztec

District office of the results on form C-141. Devon Energy will take separate individual discrete soil samples from any area that is wet, discolored or showing any other visible signs of release. All samples will be tested for the items listed in the chart below. Should it be determined that a release has occurred Devon shall comply with 19.15.29 NMAC and 19.15.30 NMAC, as appropriate.

Components	Test Method	Limit (mg/Kg)		
Benzene	EPA SW-846 8021B or 8260B	0.2		
BTEX	EPA SW-846 8021B or 8260B	50		
TPH	EPA SW-846 418.1	100		
Chlorides	EPA 300.1	250 or Background		

9) If the sampling results demonstrate that there has been no release or that a release does not exceed the concentrations specified in Paragraph (4) of Subsection E of 19.15.17.13 NMAC, then Devon shall backfill the excavation with compacted, non-waste containing, earthen material; construct a division prescribed soil cover; re-contour and re-vegetate the site.

- 10) Re-contouring of the location will match fit, shape, line, form and texture of the surrounding area. Re-shaping will include drainage control to prevent ponding, and prevent erosion. Natural drainages will be unimpeded and water bars and/or silt traps will be placed in areas where needed to prevent erosion on a large scale. Final re-contour shall have a uniform appearance with smooth surface fitting the natural landscape.
- 11) A minimum of four feet of cover shall be achieved and the cover shall include one foot of suitable material to establish vegetation at the site, or the background thickness of topsoil, whichever is greater. Soil cover will be constructed to the site's existing grade and ponding of water and erosion of the cover material will be prevented with drainage control, natural drainages and silt traps where needed.
- 12) Devon shall seed the disturbed areas the first growing season after the operator closes the pit. Seeding will be accomplished via drilling when topography permits. BLM of Forest Service stipulated seed mixes will be used on all Federal Lands. Vegetative cover will equal 70% of the native perennial vegetative cover (un-impacted) consisting of at least three native plant species, including at least one grass, but not including noxious weeds, and maintain that cover through two successive growing seasons. Devon Energy will notify the Division of Seeding and Revegetation when we have seeded and when we have achieved revegitation. Repeat seeding or planting will be continued until successful vegetative growth occurs.

13) All closure activities will include proper documentation and be available for review upon request and will be submitted to OCD within 60 days of closure of the BGT. Closure report will be filed on C-144 and incorporate the following:

- > Proof of the closure notice to the division and the surface owner
- Inspection Reports
- Sampling Results
- Disposal facility and permit/API numbers
- Soil backfilling and cover installation
- Re-vegetation application rates and reseeding techniques (or approved alternative to re-vegetation requirements if applicable)
- > Photo documentation of the site reclamation

# Monthly Below Grade Pit Inspection

# NEBU 232 Pit Number 1

# 80bbl Steel DW

# <u>Sec.</u> 14, 31N, 7W

# Lat. N36° 89745 – Long W107° 53795

Date	Plug in Place	Outer Sidewall Ok	Fluid Between Walls	Measurable Qty Oil	Comments	Signature of Inspector
	☐ Yes ☐ No	TYes TNo N/A	∏ Yes ∏ No	TYes TNO		_
	· □ Yes □ No	└ Yes └ No └ N/A	☐ Yes ☐ No	∏ Yes ∏ No		
	T: Yes T: No	TYes TNo TN/A	r Yes r No	∏ Yes ∏ No		
	T: Yes T: No	└ Yes └ No └ N/A	∏:Yes ∏ No	T. Yes T. No		·
	F: Yes F No	└ Yes └ No └ N/A	□ Yes □ No	ſ Yes Γ No		
	T Yes T No	□Yes □No □N/A	∏ Yes ∏ No	∏ Yes ∏ No		
	TYes No	∏ Yes ∏ No ∏ N/A	□ Yes □ No	□ Yes □ No		
	∏ Yes ∏ No	└ Yes └ No └ N/A	□ Yes □ No	☐ Yes ☐ No		
	T Yes T No	└ Yes └ No └ N/A	□ Yes □ No	∏Yes ∏No		
	∏ Yes ∏ No	└ Yes └ No └ N/A	□ Yes □ No	∏Yes ∏No		
	☐ Yes ☐ No	└ Yes └ No └ N/A	☐ Yes ☐ No	☐ Yes ☐ No		
	☐ Yes ☐ No	└Yes └No └N/A	∏ Yes ∏ No	∏ Yes ∏ No		

GROUNDWATER Estimate depth to groundwater (if possible)	<ul> <li>☐ less than 50 feet</li> <li>☐ between 50 and 100 feet</li> <li>☑ greater than 100 feet</li> <li>☐ unknown</li> </ul>
Comments:	
SURFACE WATER	
Distance to continuously flowing watercourse	☐ less than 300 feet ⊠ greater than 300 feet
Name of Water Feature: Navajo Lake	
Distance to other significant watercourse, lakebed, sinkhole or playa lake	☐ less than 200 feet ⊠ greater than 200 feet
Name of Water Feature (if known): Type of Water Feature:	
Distance to wetlands (look for clusters of cottonwoods, green shrubbery, reeds)	$\Box$ less than 500 feet $\boxtimes$ greater than 500 feet
Comments: None observed.	·
PUBLIC FACILITIES	
Distance to permanent residence, school, hospital, institution or church	☐ less than 300 feet ⊠ greater than 300 feet
Distance to private or domestic fresh water well or spring (look for windmills, pump houses or small structures with power running to them)	☐ less than 500 feet ⊠ greater than 500 feet
Distance to freshwater well or spring (look for clusters of cottonwoods, green shrubbery, reeds)	☐ less than 1000 feet ⊠ greater than 1000 feet
Is site located within an incorporated municipal boundary or municipal fresh water field?	☐ yes ⊠ no
Comments:	
SITE STABILITY	
Are there any known mines in the vicinity?	☐ yes ⊠ no
If yes, how close?	
Mine Name: Mine Type:	
Does the site appear to be unstable?	yes
(any loose rocks, boulders, evidence of landslide)	⊠ no
Comments:	
- Additional Comments:	
I certify the above observations are true and accurate to the best o Signature: Date	f my knowledge.

# OCD Aztec District III Devon Production Checklist Below Grade Tank Registration

### 19.15.17.9 Permit application

Signed C-144 (Page 5 of C-144) Site Specific Hydrogeology Figure Citation List

### 19.15.17.10 Siting requirements

Pit Siting Criteria
 Ground water (NM State Engineer)
 Proximity to Water courses (Topo Map)
 Proximity to Flood Plain map (Aerial Map)
 Proximity to Water Wells (Aerial Map)
 Proximity to Wetlands (Aerial Map)
 Proximity to Subsurface Mines Map (Aerial Map)
 Proximity to Municipal Boundary (Structure Map)

### 19.15.17.11 Design Plan Contents

Below Grade Tank Design and Construction Plan.

#### 19.15.17.12 Operating and Maintenance Plan

Below Grade Tank Operating and Maintenance Plan

### 19.15.17.13 Closure Plan

Below Grade Tank Closure Plan

Requirements:

Registration Date: 511512018