

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

Form C-144  
July 21, 2008

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

**Pit, Closed-Loop System, Below-Grade Tank, or  
Proposed Alternative Method Permit or Closure Plan Application**

1525  
Type of action: ☒ Permit of a pit, closed-loop system, below-grade tank, or proposed alternative method  
☐ Closure of a pit, closed-loop system, below-grade tank, or proposed alternative method  
☐ Modification to an existing permit  
☐ Closure plan only submitted for an existing permitted or non-permitted pit, closed-loop system, below-grade tank, or proposed alternative method

**Instructions: Please submit one application (Form C-144) per individual pit, closed-loop system, below-grade tank or alternative request**

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances

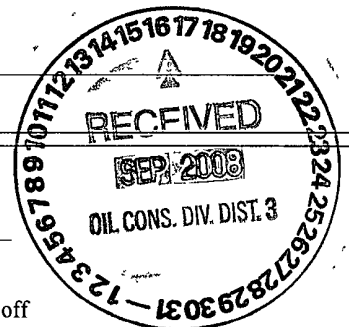
1.  
Operator Devon Energy Production Company, L P OGRID # 6137  
Address 20 N. Broadway, Oklahoma City, OK 73102  
Facility or well name NEBU 8  
API Number 30-039-07880 OCD Permit Number \_\_\_\_\_  
U/L or Qtr/Qtr K / NE SW Section 10 Township 30N Range 7W County Rio Arriba  
Center of Proposed Design Latitude N 36 49 455 Longitude -107 33 730 NAD ☐ 1927 ☒ 1983  
Surface Owner ☒ Federal ☐ State ☐ Private ☐ Tribal Trust or Indian Allotment

2  
☐ **Pit:** Subsection F or G of 19.15.17.11 NMAC  
Temporary ☐ Drilling ☐ Workover  
☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A  
☐ Lined ☐ Unlined Liner type. Thickness \_\_\_\_\_ mil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other \_\_\_\_\_  
☐ String-Reinforced  
Liner Seams ☐ Welded ☐ Factory ☐ Other \_\_\_\_\_ Volume. \_\_\_\_\_ bbl Dimensions L \_\_\_\_\_ x W \_\_\_\_\_ x D \_\_\_\_\_

3  
☐ **Closed-loop System:** Subsection H of 19.15.17.11 NMAC  
Type of Operation ☐ P&A ☐ Drilling a new well ☐ Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent)  
☐ Drying Pad ☐ Above Ground Steel Tanks ☐ Haul-off Bins ☐ Other \_\_\_\_\_  
☐ Lined ☐ Unlined Liner type Thickness \_\_\_\_\_ mil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other \_\_\_\_\_  
Liner Seams ☐ Welded ☐ Factory ☐ Other \_\_\_\_\_

4  
☒ **Below-grade tank:** Subsection I of 19.15.17.11 NMAC  
Volume 35 bbl Type of fluid Produced Water & Oil  
Tank Construction material Fiber Glass  
☒ Secondary containment with leak detection ☐ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off  
☐ Visible sidewalls and liner ☐ Visible sidewalls only ☐ Other \_\_\_\_\_  
Liner type Thickness \_\_\_\_\_ mil ☐ HDPE ☐ PVC ☐ Other \_\_\_\_\_

5  
☐ **Alternative Method:**  
Submittal of an exception request is required Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.



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**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*)
- ☐ Four foot height, four strands of barbed wire evenly spaced between one and four feet
- ☒ Alternate Please specify \_\_\_\_\_ Steel Mesh Fence with single strand barbed wire \_\_\_\_\_

7

**Netting:** Subsection E of 19 15 17 11 NMAC (*Applies to permanent pits and permanent open top tanks*)

- ☐ Screen ☐ Netting ☐ Other \_\_\_\_\_
- ☒ Monthly inspections (If netting or screening is not physically feasible)

8

**Signs:** Subsection C of 19 15 17 11 NMAC

- ☐ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers
- ☒ Signed in compliance with 19 15 3 103 NMAC

9

**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:**

- ☐ 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

**Instructions:** *The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. Siting criteria does not apply to drying pads or above-grade tanks associated with a closed-loop system.*

Ground water is less than 50 feet below the bottom of the temporary pit, permanent pit, or below-grade tank - NM Office of the State Engineer - iWATERS database search, USGS; Data obtained from nearby wells	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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) - Topographic map, Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application ( <i>Applies to temporary, emergency, or cavitation pits and below-grade tanks</i> ) - Visual inspection (certification) of the proposed site, Aerial photo; Satellite image	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
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> ) - Visual inspection (certification) of the proposed site, Aerial photo, Satellite image	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
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 search, Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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 - Written confirmation or verification from the municipality, Written approval obtained from the municipality	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map, Topographic map; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within an unstable area - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources, USGS, NM Geological Society; Topographic map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within a 100-year floodplain - FEMA map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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**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 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 \_\_\_\_\_ or Permit Number \_\_\_\_\_

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**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 \_\_\_\_\_

☐ Previously Approved Operating and Maintenance Plan API Number \_\_\_\_\_ (Applies only to closed-loop system that use above ground steel tanks or haul-off bins and propose to implement waste removal for closure)

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
- ☐ Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19 15 17 11 NMAC
- ☐ Leak Detection Design - based upon the appropriate requirements of 19 15 17 11 NMAC
- ☐ Liner Specifications and Compatibility Assessment - 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 12 NMAC
- ☐ Freeboard and Overtopping Prevention 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 Subsection C 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)

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**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.

- ☒ Protocols and Procedures - based upon the appropriate requirements of 19 15 17 13 NMAC
- ☒ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19 15 17 13 NMAC
- ☒ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
- ☒ 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

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**Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:** (19 15 17 13 D NMAC)

**Instructions:** Please identify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more than two facilities are required.

Disposal Facility Name \_\_\_\_\_ Disposal Facility Permit Number \_\_\_\_\_

Disposal Facility Name \_\_\_\_\_ Disposal Facility Permit Number \_\_\_\_\_

Will any of the proposed closed-loop system operations and associated activities occur on or in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please provide the information below) ☐ No

*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

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**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 source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17.10 NMAC for guidance.

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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> 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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Ground water is more than 100 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search, USGS, Data obtained from nearby wells	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
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) - Topographic map, Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application - Visual inspection (certification) of the proposed site, Aerial photo, Satellite image	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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. - Written confirmation or verification from the municipality, Written approval obtained from the municipality	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within 500 feet of a wetland - US Fish and Wildlife Wetland Identification map, Topographic map; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within the area overlying a subsurface mine - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within an unstable area. - Engineering measures incorporated into the design, NM Bureau of Geology & Mineral Resources, USGS, NM Geological Society, Topographic map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Within a 100-year floodplain - FEMA map	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

18

**On-Site 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.

- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19 15 17.10 NMAC
- ☐ Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection F of 19 15 17 13 NMAC
- ☐ Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of 19.15 17.11 NMAC
- ☐ Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19 15 17.11 NMAC
- ☐ Protocols and Procedures - based upon the appropriate requirements of 19 15 17 13 NMAC
- ☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19 15 17 13 NMAC
- ☐ Waste Material Sampling Plan - based upon the appropriate requirements of Subsection F of 19.15 17 13 NMAC
- ☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)
- ☐ Soil Cover Design - 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

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**Operator Application Certification:**

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief

Name (Print) Katie Lam Title Office Technician

Signature Katie Lam Date 9-16-08

e-mail address katie.lam@dnv.com Telephone (505) 324-5600

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**OCD Approval:** ☒ Permit Application (including closure plan) ☐ Closure Plan (only) ☐ OCD Conditions (see attachment)

OCD Representative Signature: Jonathan D. Kelly Approval Date: 3/28/2012

Title: Compliance Officer OCD Permit Number: \_\_\_\_\_

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**Closure Report (required within 60 days of closure completion):** Subsection K of 19 15 17 13 NMAC

*Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.*

☐ Closure Completion Date: \_\_\_\_\_

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**Closure Method:**

☐ Waste Excavation and Removal ☐ On-Site Closure Method ☐ Alternative Closure Method ☐ Waste Removal (Closed-loop systems only)  
☐ If different from approved plan, please explain

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**Closure Report Regarding Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:**

*Instructions: Please identify the facility or facilities for where the liquids, drilling fluids and drill cuttings were disposed. Use attachment if more than 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 in areas that *will not* be used for future service and operations?

☐ Yes (If yes, please demonstrate compliance to the items below) ☐ No

*Required for impacted areas which will not be used for future service and operations*

- ☐ Site Reclamation (Photo Documentation)  
☐ Soil Backfilling and Cover Installation  
☐ Re-vegetation Application Rates and Seeding Technique

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**Closure Report Attachment Checklist:** *Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check 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 \_\_\_\_\_ Longitude \_\_\_\_\_ NAD. ☐ 1927 ☐ 1983

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**Operator Closure Certification:**

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print) Katie Lam Title Office Technician

Signature Katie Lam Date 9-16-08

e-mail address katie.lam@dnv.com Telephone (505) 324-5600

## **Hydrogeological Report for the NEBU 8**

### **Geology:**

The stratigraphic sequence of Paleocene and Eocene rocks in the eastern part of the San Juan basin is the Nacimiento and Animas formation overlain by the San Jose Formation. The San Jose Formation of Eocene age was defined by Simpson (1948a, b). It occurs in New Mexico and Colorado and its outcrop forms the land surface over much of the central basin area. It overlies the Nacimiento Formation in the area generally south of the State line (Fassett, 1974. P229). The Basal contact of the San Jose varies with location in the basin. This contact is a disconformity along the basin margins, and it is an angular unconformity along the Nacimiento uplift; the contact is conformable in the central basin. The Nacimiento is a sequence of varicolored beds of sandstone and mudrock that attains a thickness of as much as 120 m thick (Baltz, 1967).

The Animas Formation occupies a stratigraphic position similar to that of the OJO Alamo and Nacimiento Formations. The Animas strata comprise a general fining upward sequence of volcanoclastic conglomerates and sandstones, with arkosic conglomerates and sandstones near the top. The upper member of the Animas has been shown to interfinger with the Nacimiento in its eastern (Dane, 1946) and western (Barnes et al., 1954) outcrop belts. Subsurface correlation of these formations has not been carried out in any detail because of the difficulty of recognizing their contact on Electric logs (Fassett and Hinds, 1971:33).

The nature of the contact between the lower Eocene San Jose Formation and the Nacimiento formation north of latitude 36 degrees 45'N has been described as conformable (Barnes et al., 1954, Stone et al., 1983 25-26), Whereas at latitude 36 it has been shown to be unconformable (Baltz, 1967; Lucas et al., 1981) Contact relationships between the San Jose and Animas Formations in the northernmost San Juan Basin have been shown to be intertonguing (Smith, 1988). The San Jose formation was deposited in various fluvial type environments. In general the unit consists of an interbedded sequence of sandstone siltstone and variegated shale, the sandstones are buff to yellow and rusty-colored crossbedded very fine to coarse grained arkose, which are locally conglomeratic and contain abundant silicified wood. The thickness of the San Jose Nacimiento and Animas Formations is ranges from zero to more than 3,500 feet in the east central part of the structural basin. The bottom of the Nacimiento and Animas Formations decreases from a maximum altitude of more than 8 000 feet above sea level along the northeastern basin rim to less than 4,000 feet above sea level in the east central part of the basin.

### **Hydraulic Properties:**

The San Jose, Nacimiento, and Animas Formations are a source of water for public-supply, commercial, private-domestic, and livestock use in areas where drilling depths and pumping levels are economically feasible and where water quality is suitable. Water in the San Jose Nacimiento and Animas Formations occurs under both water table and

artesian conditions. Recharge to the aquifer is from infiltration of precipitation and stream flow on outcrops and from vertical upward leakage of water from underlying units. Transmissivity data for the San Jose Nacimiento and Animas Formations are minimal-Values of 40 and 120 feet squared per day were determined from two aquifer tests (Stone and others 1983 table 5). The reported or measured discharge from 79 water wells completed in the San Jose, Nacimiento, and Animas Formations ranges from 1 to 61 gallons per minute and the median is 6 gallons per minute. The specific capacity of 12 of these wells ranges from 0.03 to 2.30 gallons per minute per foot of drawdown and the median is 0.23 gallon per minute per foot of drawdown. Water quality data described in this section are from the NWIS data base and were collected during 1938. 84 Well records were checked to assure to the extent possible that a particular sample represents water only from the San Jose Nacimiento and Animas Formations and not a mixture of water from other aquifers. Locally however these formations may have substantial differences in the concentration of some water quality constituents due in part to differences in rock characteristics as described in the Geology section.

**Reference:**

USGS Hydrologic investigations atlas HA-720-A plate 1,2  
Lucas, Spencer G and Smith, Larry N. 1991, Stratigraphy, Sedimentology and Paleontology of the Lower Eocene San Jose Formation in the central portion of the San Juan basin, Northwestern New Mexico, New Mexico Bureau of Mines & Mineral Resources Bulletin 126. 6-7p.

## **Sitting Requirements for NEBU 8**

The NEBU 8 is not located in an unstable area per topographic map attached.

There is no continuously flowing watercourse near the proposed location.

The proposed well location is neither near any private and/or public buildings nor any private and/or public water sources.

The proposed well location is not located within any incorporated municipal boundaries or municipal fresh water well field.

There are no wetlands located near the proposed well location as per the wetlands map attached.

Per the NM Bureau of Geology and Mineral Resources map attached there are no locations of any mines, mills or quarries near the proposed well location.

The FEMA floodplain map attached indicates the proposed well location is defined as outside of the 500 Year Flood Plain.

There will be no excavated material placed within 300 feet of a flowing watercourse or within 200 feet of any other defined water course.



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

Township: 31N Range: 07W Sections: 10,2,3,4,9,16

NAD27 X: Y: Zone: Search Radius:

County: Basin: Number: Suffix:

Owner Name: (First) (Last) Non-Domestic Domestic  
All

POD / Surface Data Report

Avg Depth to Water Report

Water Column Report

Clear Form

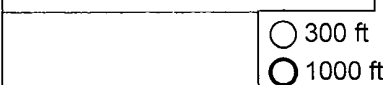
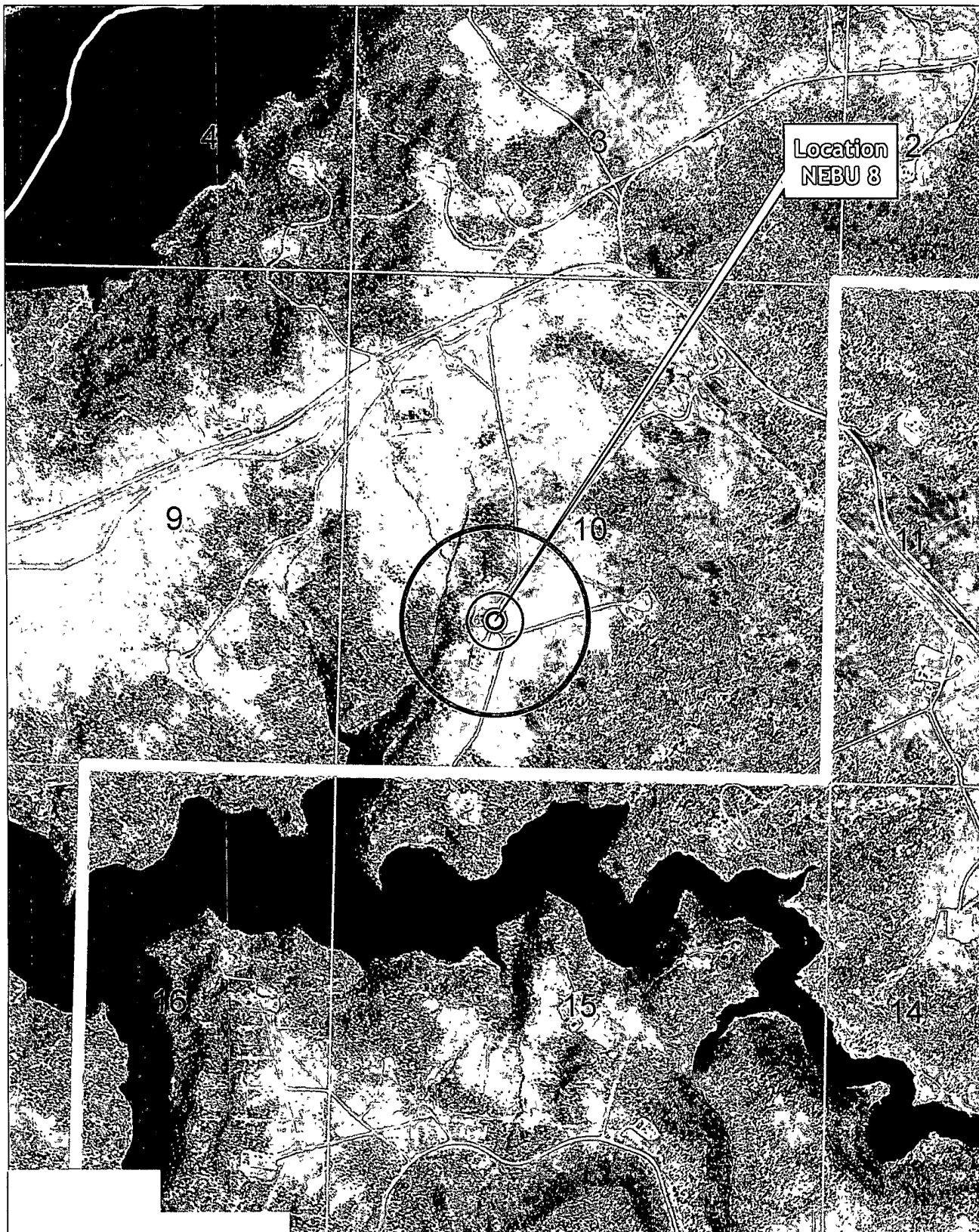
iWATERS Menu

Help

**AVERAGE DEPTH OF WATER REPORT 09/04/2008**

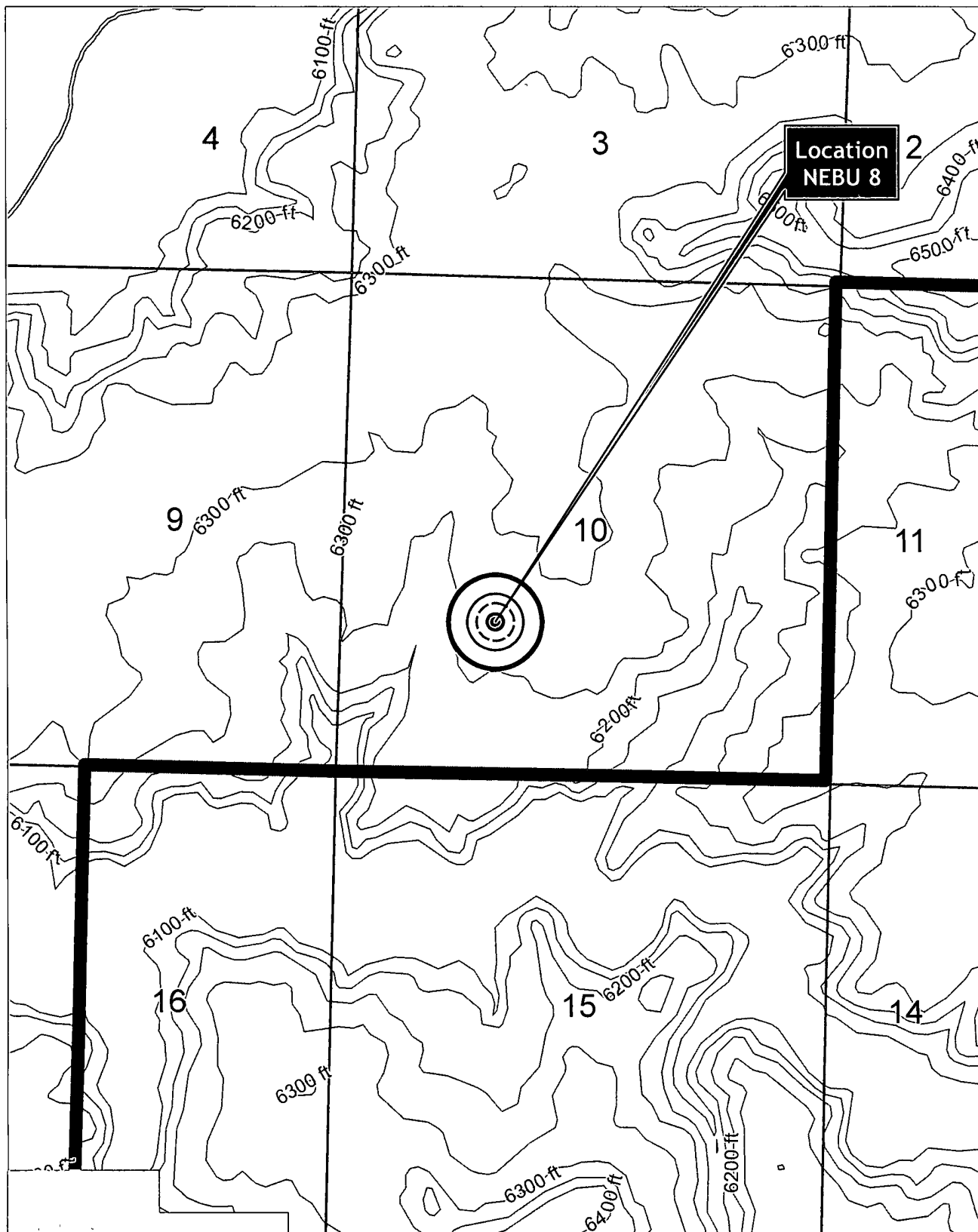
Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	(Depth Water in Feet)		
								Min	Max	Avg
SJ	31N	07W	02				1	300	300	300

Record Count: 1



**Northeast Blanco Unit**  
Aerial Map



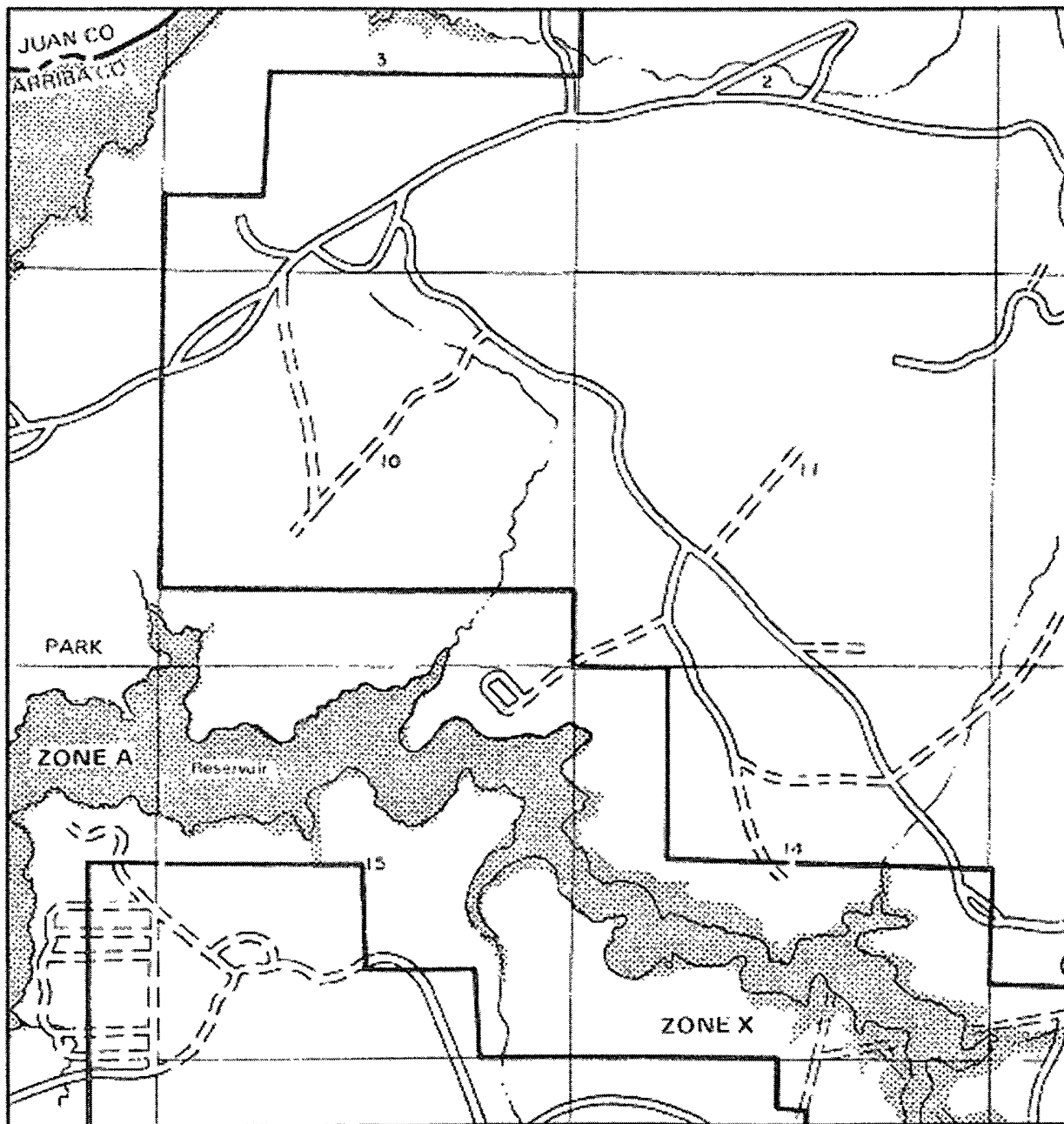


- 200 ft
- 300 ft
- 500 ft

## Northeast Blanco Unit

Topo Map

  
**devon**



APPROXIMATE SCALE

2000 0 2000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

**FIRM**  
FLOOD INSURANCE RATE MAP

RIO ARRIBA COUNTY,  
NEW MEXICO  
UNINCORPORATED AREAS

PANEL 200 OF 1325

(SEE MAP INDEX FOR PANELS NOT PRINTED)



SCALE: 1:62,500

COMMUNITY-PANEL NUMBER

350049 0200 B

EFFECTIVE DATE:

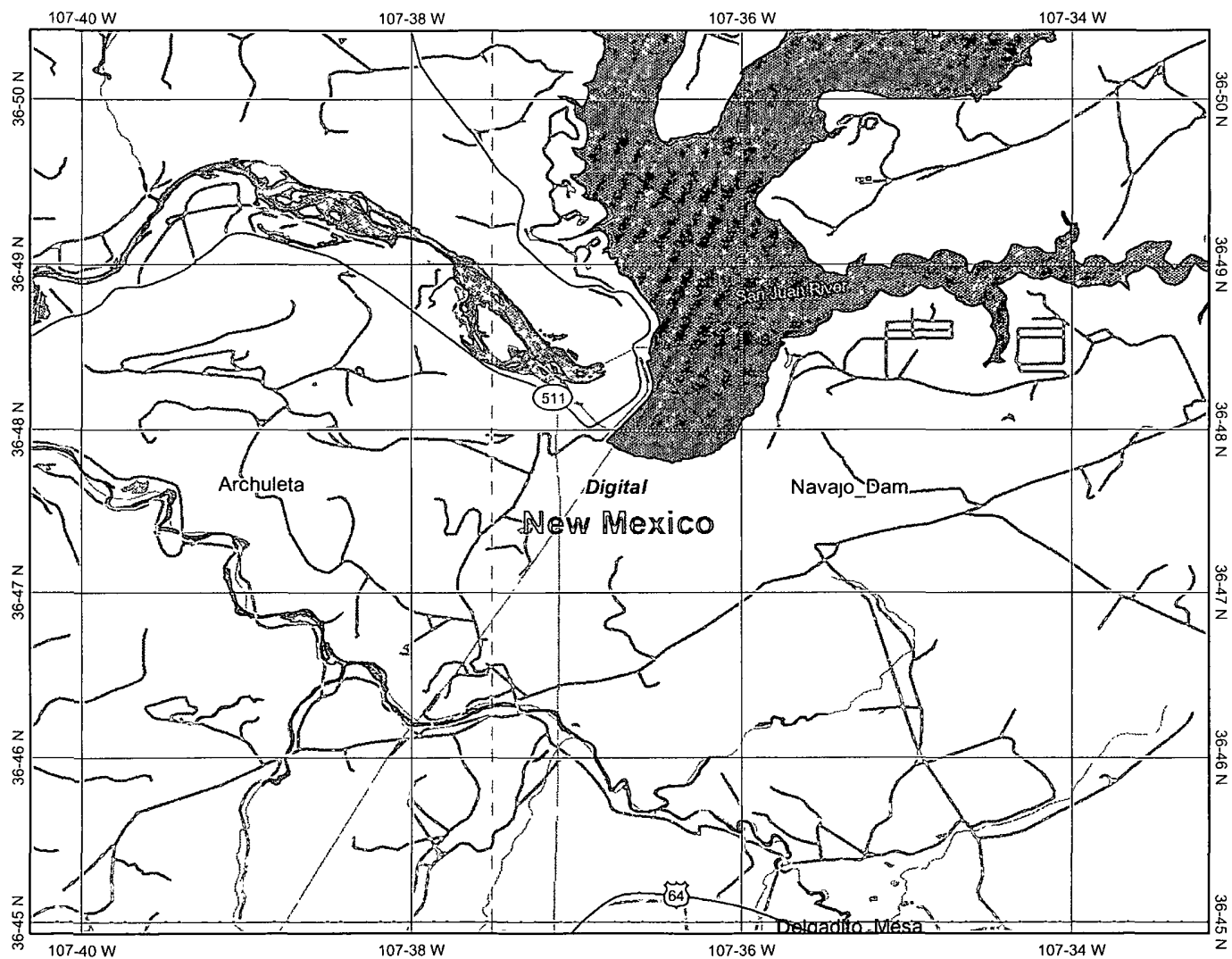
JANUARY 5, 1989



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using I-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.mie.fema.gov](http://www.mie.fema.gov)

# NEBU 8 Wetlands Map



## Legend

- Interstate
- Major Roads
- Other Road
- Interstate
- State highway
- US highway
- Roads
- Cities
- USGS Quad Index 24K
- Lower 48 Wetland Polygons
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine
- Lower 48 Available Wetland Data
- Non-Digital
- Digital
- No Data
- Scan
- NHD Streams
- Counties 100K
- States 100K
- South America
- North America



Scale: 1:71,271

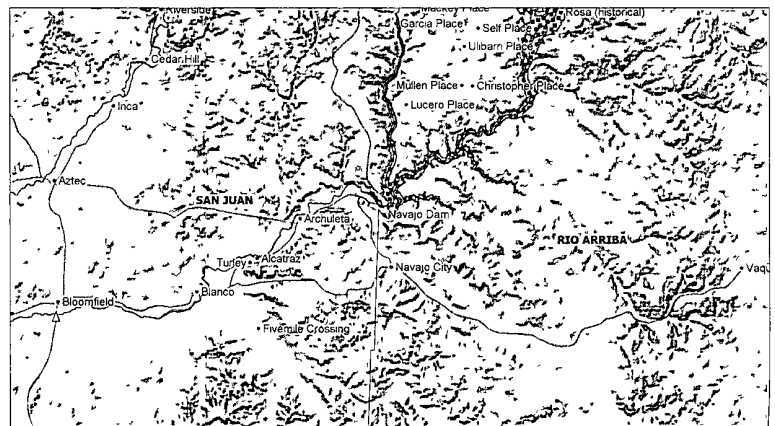
Map center: 36° 47' 41" N, 107° 36' 44" W

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

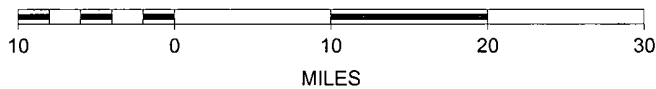
# MMQonline Public Version

## Mines, Mills & Quarries Commodity Groups

-  **Aggregate & Stone Mines**
-  **Coal Mines**
-  **Industrial Minerals Mines**
-  **Industrial Minerals Mills**
-  **Metal Mines and Mill Concentrate**
-  **Potash Mines & Refineries**
-  **Smelters & Refinery Ops.**
-  **Uranium Mines**



SCALE 1 : 751,601



**Lam, Katie**

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**From:** Lam, Katie  
**Sent:** Tuesday, September 09, 2008 11:22 AM  
**To:** 'pmartinez@slo.state.nm.us'  
**Subject:** State Land Office Notice BGT.doc

Devon Energy Corporation  
20 North Broadway  
Oklahoma City, OK 73102-8260

405 552 7917 Phone  
[www.devonenergy.com](http://www.devonenergy.com)

July 23, 2008

IN RE: NEBU 8  
API # 30-039-07880  
1650' FSL & 1650' FWL  
Sec. 10, T30N, R7W  
Rio Arriba County, New Mexico

VIA EMAIL:

Dear Mr. Martinez,

This submittal is pursuant to Rule 19.15.17.13 requiring operators to notify the surface owners of closure pertaining to a below-grade tank. Devon Energy Production Company, L.P. is hereby providing written documentation of our future intention to close the below-grade tank associated with the aforementioned location by means of waste excavation and removal.

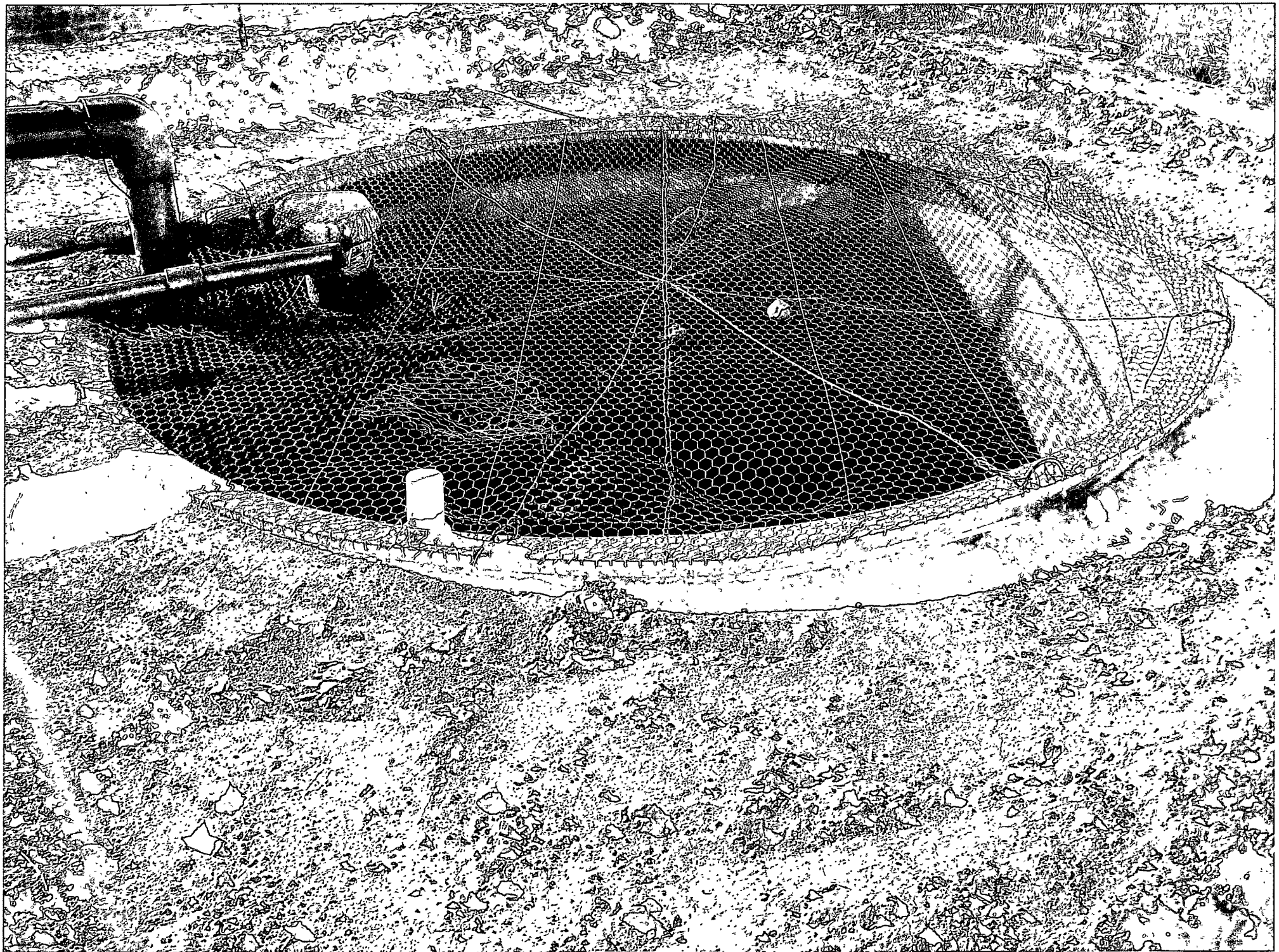
Please feel free to contact me with any questions or require further information. My contact information is listed below.

Respectfully,

Melisa S. Castro  
Devon Energy Production Company, L.P.  
Senior Staff Operations Technician  
405-323-3184 - Cell.  
405-323-1357 - Fax  
[Melisa.Castro@devon.com](mailto:Melisa.Castro@devon.com)

9/9/2008







**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 use the general location sign posted on location. If no general sign is posted a separate sign at the location of the BGT will be provided.
- 3) Devon shall construct fencing around the BGT using 4 foot hog wire fencing topped with a pipe top rail. A six foot chain link fence topped with three strands of barbed wire will be used if the well location is within 1000 feet of a permanent residence, school, hospital, institution or church.
- 4) Devon will construct an expanded metal covering on the top of the BGT.
- 5) Devon shall ensure that a BGT is constructed of materials resistant to the BGT's particular contents and resistant to damage from sunlight.
- 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 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**

- 1) 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.
- 2) Devon shall not allow a BGT to overflow or allow surface water run-on to enter the BGT.
- 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.
- 5) Devon shall maintain adequate freeboard to prevent overtopping of the BGT.

# **Devon Energy Production Company, L.P.**

## **San Juan Basin**

### **Below Grade Tank Closure Plan**

In accordance with Rule 19.15.17.12 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 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.
- 3) 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.
- 4) Devon shall remove the BGT and dispose of it in a division-approved facility or recycle, reuse, or reclaim it in a manner that the appropriate division district office approves.
- 5) 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.
- 6) A five point composite sample will be taken of the pit from any area that is wet, discolored or showing other evidence of a release and tested for the following as well as notifying the Aztec District office of the results on form C-141. Should it be determined that a release has occurred Devon shall comply with 19.15.3.116 NMAC and 19.15.1.19 NMAC, as appropriate.

<b>Components</b>	<b>Test Method</b>	<b>Limit (mg/Kg)</b>
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

- 7) Should contamination be confirmed by field sampling Devon will follow the "Guidelines For Remediation Of Leaks, Spills and Releases" NMOCD August 1993 when remediation contaminants identified.
- 8) 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.
- 9) Notice of Closure will be given to the Aztec Division office between 72 hours and one week of closure via email, or verbally. The notification of closure will include the following:
  - Operator's Name
  - Location by Unit Letter, Section, Township, and Range. Well name and API number
- 10) 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:

- Details on Capping and Covering, where applicable
  - Inspection Reports
  - Sampling Results
- 11) Re-contouring of the location will match fit, shape, line, form and texture of the surrounding. 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.
  - 12) Devon shall seed the disturbed areas the first growing season after the operator closes the pit. Seeding will be accomplished via broadcast or 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. Repeat seeding or planting will be continued until successful vegetative growth occurs.
  - 13) 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.
  - 14) The surface owner shall be notified of Devon's closing of the BGT as per the approved closure plan using certified mail with return receipt requested or via email.