C-144

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

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: Koch Exploration Company, LLC OGRID #: 12807
Address: PO Box 489, Aztec, NM 87410
Facility or well name: Dryden 1E
API Number: 30-045-26003 OCD Permit Number:
U/L or Qtr/Qtr A Section 28 Township 28N Range 08W County: San Juan
Center of Proposed Design: Latitude 36° 38' 10" N Longitude 107° 40' 45" W NAD: ☐ 1927 ☒ 1983
Surface Owner: ☒ Federal ☐ State ☐ Private ☐ Tribal Trust or Indian Allotment

RECEIVED
2009 SEP 15 P 1:53

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: 80 bbl Type of fluid: produced water
Tank Construction material: Steel open-top with expanded metal cover
☐ Secondary containment with leak detection ☐ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off
☐ Visible sidewalls and liner ☒ Visible sidewalls only ☒ Other 6-inch lift, automatic overflow shut-off, no liner
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.

6.

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 4 foot hog wire with top rail-this design keeps out smaller livestock and wildlife that barbed wire would not

7.

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

☐ Screen ☐ Netting ☒ Other Expanded metal top

☐ 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): **Fencing** 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	☒ Yes ☐ 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	☐ Yes ☒ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. *(Applies to temporary, emergency, or cavitation pits and below-grade tanks)* - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☒ No ☐ NA
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. *(Applies to permanent pits)* - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☐ No ☒ 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	☐ Yes ☒ 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	☐ Yes ☒ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☒ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ 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 19.15.17.11 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: _____

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: _____

☐ 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_2S, 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
☐ 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)

15.
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

16.

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 indentify 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

17.

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	☐ 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
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	☐ Yes ☐ No ☐ 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	☐ Yes ☐ 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	☐ 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
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	☐ Yes ☐ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☐ No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☐ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☐ No
Within a 100-year floodplain. - FEMA map	☐ Yes ☐ 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

19.
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): John Clark Title: District Superintendent

Signature: John Clark Date: 9-9-09

e-mail address: clark23j@kochind.com Telephone: (505) 334-9111

20.
OCD Approval: ☒ Permit Application (including closure plan) ☐ Closure Plan (only) ☐ OCD Conditions (see attachment)

OCD Representative Signature: Approval Date: 12/3/09

Title: Environmental Engineer **OCD Permit Number:**

21.
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:**

22.
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.

23.
Closure Report Regarding Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:

Instructions: Please indentify 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

24.
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

25.
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): Title:

Signature: Date:

e-mail address: Telephone:

Attachment to Form C-144
Below-grade Tank Permit Application

Introduction

Koch Exploration Company, LLC (KEC) is submitting this permit application to operate an existing below-grade tank under the authority of 19.15.17 NMAC. The tank isn't currently permitted. This document serves as supporting documentation referenced in the attached Form C-144. KEC operates Basin Dakota production sites in San Juan County, New Mexico. The below-grade tank at the subject facility is used to collect precipitation and produced water from the primary separator.
This application is being submitted for the following well site:

Site Name: Dryden 1E
Location (S/T/R): S28, T28N, R08W

The supporting documentation contained in this C-144 attachment is organized as follows:

Section 1 – Hydrogeologic Report
Section 2 – Siting Criteria Compliance Demonstration
Section 3 – Design Plan
Section 4 – Operating and Maintenance Plan
Section 5 – Closure Plan
References

Appendices
A – USGS 7.5 Minute Topography Map and US Fish and Wildlife Wetland Identification Map
B – Groundwater Data (water well searches and/or depth to groundwater per cathodic bed data)
C – Aerial Photo
D – FEMA 100-year Floodplain Map
E – Municipal Boundary Map
F – Mine Map
G – Monthly Tank Inspection Form

Regulatory citations are listed throughout this report. Regulatory citations are presented using *italic* font.

Section 1 – Hydrogeologic Report

The site is located in the San Juan Basin. The San Juan Basin covers an area of about 7,500 square miles across the Colorado/New Mexico line in the Four Corners region. It measures roughly 100 miles long in the north-south direction and 90 miles wide. The Continental Divide trends north-south along the east side of the basin, and land surface elevations within the basin range from 5,100 feet on the western side to over 8,000 feet in the northern part (EPA 2004).

The geology of the area as written in the Final Approved Total Maximum Daily Load (TMDL) For The San Juan River Watershed (May 2005) is described below:

> The San Juan Basin lies on the Colorado Plateau. Several formations of Tertiary and Cretaceousage compose the consolidated geology in the New Mexico portion of the San Juan River basin. The predominant geologic formation is the Nacimiento Formation of Tertiary age which underlies the soils and crops out along nearly all of the reach of the San Juan River valley east of Farmington (Blanchard et al. 1993). The Cretaceous Kirtland and Fruitland Formation and the Mancos Shale layers underlie the soils and crop out west of the Hogback. These two formations underlie tile soils and compose the outcrop in most of the upland area south of the San Juan River. Near Farmington, Cretaceous rocks rise sharply in some areas, forming hogback ridges (Chronic 1987). All of the shales of Cretaceous age consist at least in part of gray arid black shale. The San Juan River valley is composed in part of Quaternary unconsolidated sand, gravel, silt, clay, and terrace gravel and boulder deposits. Valley soils typically are derived from sandstone, shale, siltstone, and mudstone and range in permeability from moderately rapid to moderately slow (Blanchard et al. 1993).

The San Juan County-Eastern Part Soil Survey lists the permeability of native soils as moderate with an infiltration rate of 0.2 – 2.0 in/hr. A 7.5 minute USGS topography map depicting the site location and localized surface drainage (topography) is included as Appendix A.

Based on information obtained during installation of cathodic beds at the location (see Appendix B), depth to groundwater is expected to be 34 ft from the bottom of the below grade tank (40 ft from site grade).

There is no available soil classification data contained in either the cathodic bed or production well logs. Based on knowledge of the area and the location of the site, lithology is believed to consist of a sandstone layer near grade beneath the site. Soils beneath the sandstone are likely to consist of fine to medium fine sand. The site is situated on a mesa, approximately 1,700 feet from the edge of Canon Largo Wash. The site is approximately 550 feet higher in elevation then the bottom of the wash.

Section 2 – Siting Requirements (19.15.17.10)

A. Except as otherwise provided in 19.15.17 NMAC.

(1) An operator shall not locate a temporary pit or below-grade tank:

(a) where ground water is less than 50 feet below the bottom of the temporary pit or below-grade tank, unless the operator is using a pit solely to cavitate a coal bed methane well and the appropriate division district office finds based upon the operator's demonstration that the operator's proposed operation will protect ground water during the temporary pit's use;

Based on cathodic bed data, groundwater is believed to be 34 feet from bottom of tank (Appendix B). Although the location fails to meet required depth to groundwater siting criteria, there is a bedrock formation directly below the well pad that acts as a natural barrier. The bedrock formation has been observed during well pad construction but not formally documented in production well or cathodic bed construction logs.

(b) within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse[1] or lakebed, sinkhole or playa lake (measured from the ordinary high-water mark), unless the appropriate division district office approves an alternative distance based upon the operator's demonstration that surface and ground water will be protected; [[1] A significant watercourse is defined as "a watercourse with a defined bed and bank either named on a USGS 7.5 quadrangle map or a first order tributary of such watercourse" [19.15.17.7(G)]

The nearest continuously flowing water course is greater then 300 ft from tank. The nearest significant watercourse, lakebed, sinkhole, or playa lake is greater then 200 ft from tank (visual inspection and Appendix A).

(c) within 300 feet from a permanent residence, school, hospital, institution or church in existence at the time of initial application;

The nearest residence, school, or hospital is greater then 300 ft from tank (visual inspection and Appendix C). There are no public or private structures, other then other gas wells, within 1,000 ft of the location.

(d) within 500 feet of a private, domestic fresh water well or spring used by less than five households for domestic or stock watering purposes, or within 1000 feet of any other fresh water well or spring, in existence at the time of initial application;

Nearest private, domestic fresh water well is greater then 500 ft from tank and any other fresh water well or spring > 1,000 ft from tank (visual inspection and Appendix B)

(e) 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, unless the municipality specifically approves;

The below-grade tank is not within incorporated municipal boundary or defined municipal fresh water field (Appendix E)

(f) *within 500 feet of a wetland;*

There are no wetlands within 500 ft (Visual inspection and Appendix A)

(g) *within the area overlying a subsurface mine, unless the appropriate division district office specifically approves the proposed location based upon the operator's demonstration that the temporary pit's or below-grade tank's construction and use will not compromise the subsurface integrity;*

The below-grade tank is not overlying a subsurface mine (Appendix F)

(h) *within an unstable area, unless the operator demonstrates that it has incorporated engineering measures into the design to ensure that the temporary pit's or below-grade tank's integrity is not compromised; or*

The below-grade tank is not within an unstable area. Engineering measures are incorporated into well pad design.

(i) *within a 100-year floodplain.*

The below-grade tank is not within a 100-year floodplain (Appendix D).

Visual Inspection for Siting Criteria Certification Statement
Site Name: Dryden 1E
Location (S/T/R): S28, T28N, R08W

I hereby certify that the visual observations referenced in Section 2 and restated below are true to the best of my knowledge.

- The nearest continuously flowing water course is greater then 300 ft from tank. The nearest significant watercourse, lakebed, sinkhole, or playa lake is greater then 200 ft from tank.
- The nearest residence, school, or hospital is greater then 300 ft from tank (visual inspection and Appendix C). There are no public or private structures, other then other gas wells, within 1,000 ft of the location.
- Nearest private, domestic fresh water well is greater then 500 ft from tank and any other fresh water well or spring > 1,000 ft from tank
- There are no wetlands within 500 ft

Don Johnson
KEC Field Operations Manager

Date 9/9/09

Section 3 – Design and Construction Specifications (19.15.17.11)

A. *General specifications. An operator shall design and construct a pit, closed-loop system, below-grade tank or sump to contain liquids and solids and prevent contamination of fresh water and protect public health and the environment.*

The current below-grade tank design is described in Section 4 of the attached C-144 form. Should retrofit be required in accordance with 19.15.17.17(D) NMAC, KEC will install a tank constructed of steel with minimum ¼ inch bottom and 3/16 inch sidewalls. The storage capacity of the tank will be sufficient to contain the flow of liquids into the tank without overtopping. Automatic and manual shutoff valves will be installed. The tank is used for storage of produced water and incidental volumes of rainwater and produced oil. Steel is resistant to corrosion from the contents of the tank and sunlight.

B. *Stockpiling of topsoil.* Not applicable.

C. *Signs. The operator shall post an upright sign not less than 12 inches by 24 inches with lettering not less than two inches in height in a conspicuous place on the fence surrounding the pit, closed-loop system or below-grade tank, unless the pit, closed-loop system or below-grade tank is located on a site where there is an existing well, signed in compliance with 19.15.16.8 NMAC, that is operated by the same operator. The operator shall post the sign in a manner and location such that a person can easily read the legend. The sign shall provide the following information: the operator's name; the location of the site by quarter-quarter or unit letter, section, township and range; and emergency telephone numbers.*

A sign is posted on the well site in a prominent place indicating the operator name, location of site (legal description), and emergency telephone numbers. The sign is in compliance with 19.15.16.8 NMAC.

D. *Fencing.*

(1) *The operator shall fence or enclose a pit or below-grade tank in a manner that prevents unauthorized access and shall maintain the fences in good repair. Fences are not required if there is an adequate surrounding perimeter fence that prevents unauthorized access to the well site or facility, including the pit or below-grade tank. During drilling or workover operations, the operator is not required to fence the edge of the pit adjacent to the drilling or workover rig.*

(2) *The operator shall fence or enclose a pit or below-grade tank located within 1000 feet of a permanent residence, school, hospital, institution or church with a chain link security fence, at least six feet in height with at least two strands of barbed wire at the top. The operator shall ensure that all gates associated with the fence are closed and locked when responsible personnel are not on-site. During drilling or workover operations, the operator is not required to fence the edge of the temporary pit adjacent to the drilling or workover rig.*

(3) *The operator shall fence any other pit or below-grade tank to exclude livestock with a four foot fence that has at least four strands of barbed wire evenly spaced in the interval between one foot and four feet above ground level. The appropriate division district office may approve an alternative to this requirement if the operator demonstrates that an alternative provides equivalent or better protection. The appropriate division district office may impose additional fencing requirements for protection of wildlife in particular areas.*

Below-grade tanks that are greater then 1,000 feet from a permanent residence, school, hospital, institution, or church are surrounded by a fence composed of 4 foot welded hog panels or 4 foot hog wire with top rail. Posts are spaced approximately 10 feet apart. Hog panel and hog wire fences have sufficient strength to withstand damage from livestock.

Below-grade tanks that are within 1,000 feet of a permanent residence, school, hospital, institution, or church will be constructed with chain link security fence, at least six feet in height with at least two strands of barbed wire at the top and all gates associated with the fence will be kept closed and locked when responsible personnel are not on-site.

E. *Netting. The operator shall ensure that a permanent pit or a permanent open top tank is screened, netted or otherwise rendered non-hazardous to wildlife, including migratory birds. Where netting or screening is not feasible, the operator shall on a monthly basis inspect for, and within 30 days of discovery, report discovery of dead migratory birds or other wildlife to the appropriate wildlife agency and to the appropriate division district office in order to facilitate assessment and implementation of measures to prevent incidents from reoccurring.*

Tanks are covered with either solid or expanded metal mesh top to prevent entry of wildlife, including migratory birds.

F – H. Not applicable

I. *Below-grade tanks. The operator shall design and construct a below-grade tank in accordance with the following requirements, as applicable.*

(1) *The operator shall ensure that a below-grade tank is constructed of materials resistant to the below-grade tank's particular contents and resistant to damage from sunlight.*

The current below-grade tank design is described in Section 4 of the attached C-144 form. Should retrofit be required in accordance with 19.15.17.17(D) NMAC, KEC will install a tank constructed of steel with minimum ¼ inch bottom and 3/16 inch sidewalls. The tank is used for storage of produced water and incidental volumes of rainwater and produced oil. Steel is resistant to corrosion from the contents of the tank and sunlight.

(2) *A below-grade tank system 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 liner or tank bottom.*

The current below-grade tank design is described in Section 4 of the attached C-144 form. Should retrofit be required in accordance with 19.15.17.17(D) NMAC, KEC will install a tank with a minimum of two level steel I-beams or concrete pads. The liner will be set on a level base consisting of native soil free of rocks, debris, sharp edges or irregularities.

(3) *The operator shall construct a below-grade tank to prevent overflow and the collection of surface water run-on.*

The current below-grade tank design is described in Section 4 of the attached C-144 form. Should retrofit be required in accordance with 19.15.17.17(D) NMAC, KEC will install a tank equipped with an automatic high-level shutoff control device. Operating freeboard will be set at 6 inches or more

from the top of the tank. If liquids reach this level, the well is automatically shut-in and an automation alarm is triggered. The tank will be surrounded by an earthen berm on all sides to divert run-on.

(4) *An operator shall construct a below-grade tank in accordance with one of the following designs.*

(a) *An operator may construct and use a below-grade tank that does not have double walls provided that the below-grade tank's side walls are open for visual inspection for leaks, the below-grade tank's bottom is elevated a minimum of six inches above the underlying ground surface and the below-grade tank is underlain with a geomembrane liner, which may be covered with gravel, to divert leaked liquid to a location that can be visually inspected. The operator shall equip below-grade tanks designed in this manner with a properly operating automatic high-level shut-off control device and manual controls to prevent overflows. The geomembrane liner shall consist of 30-mil flexible PVC or 60-mil HDPE liner, or an equivalent liner material that the appropriate division district office approves. The geomembrane liner shall have a hydraulic conductivity no greater than 1 x 10^{-9} cm/sec. The geomembrane liner shall be composed of an impervious, synthetic material that is resistant to petroleum hydrocarbons, salts and acidic and alkaline solutions. The liner material shall be resistant to ultraviolet light. Liner compatibility shall comply with EPA SW-846 method 9090A.*

The current below-grade tank design is described in Section 4 of the attached C-144 form. Should retrofit be required in accordance with 19.15.17.17(D) NMAC, KEC will install a tank with sidewalls open for visual leak inspection. The below-grade tank's bottom will be elevated a minimum of six inches above the underlying ground surface. New tanks and retrofits will be designed with a liner set beneath the tank foundation (I-beams or cement blocks) and extending up the side walls (see Figure 2). Sandstone along the earthen pit walls will prevent collapsing. If the liner manufacturer can't demonstrate compliance with the liner specifications in the subpart, KEC will submit liner specs to OCD for approval.

The below-grade tank will be equipped with an automatic high-level shutoff control device and manual shutoff valve. Operating freeboard will be set at 6 inches or more from the top of the tank. If liquids reach this level, the well is automatically shut-in and an automation alarm is triggered.

(b) *All other below-grade tanks, in which the side walls are not open for visible inspection for leaks shall be double walled with leak detection capability.*

Not applicable as the current and proposed design have side walls open for visible inspection.

(c) *An operator may construct a below-grade tank according to an alternative system that the appropriate district office approves based upon the operator's demonstration that the alternative provides equivalent or better protection.*

Not applicable. No alternative system is proposed.

(5) *The operator of a below-grade tank constructed and installed prior to June 16, 2008 that does not meet all the requirements in Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC and is not included in Paragraph (6) of Subsection I of 19.15.17.11 NMAC is not required to equip or retrofit the below-grade tank to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC so long as it demonstrates integrity. If the existing below-grade tank does not demonstrate integrity, the operator shall promptly remove that below-grade tank and install a below-*

grade tank that complies with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC. The operator shall comply with the operational requirements of 19.15.17.12 NMAC.

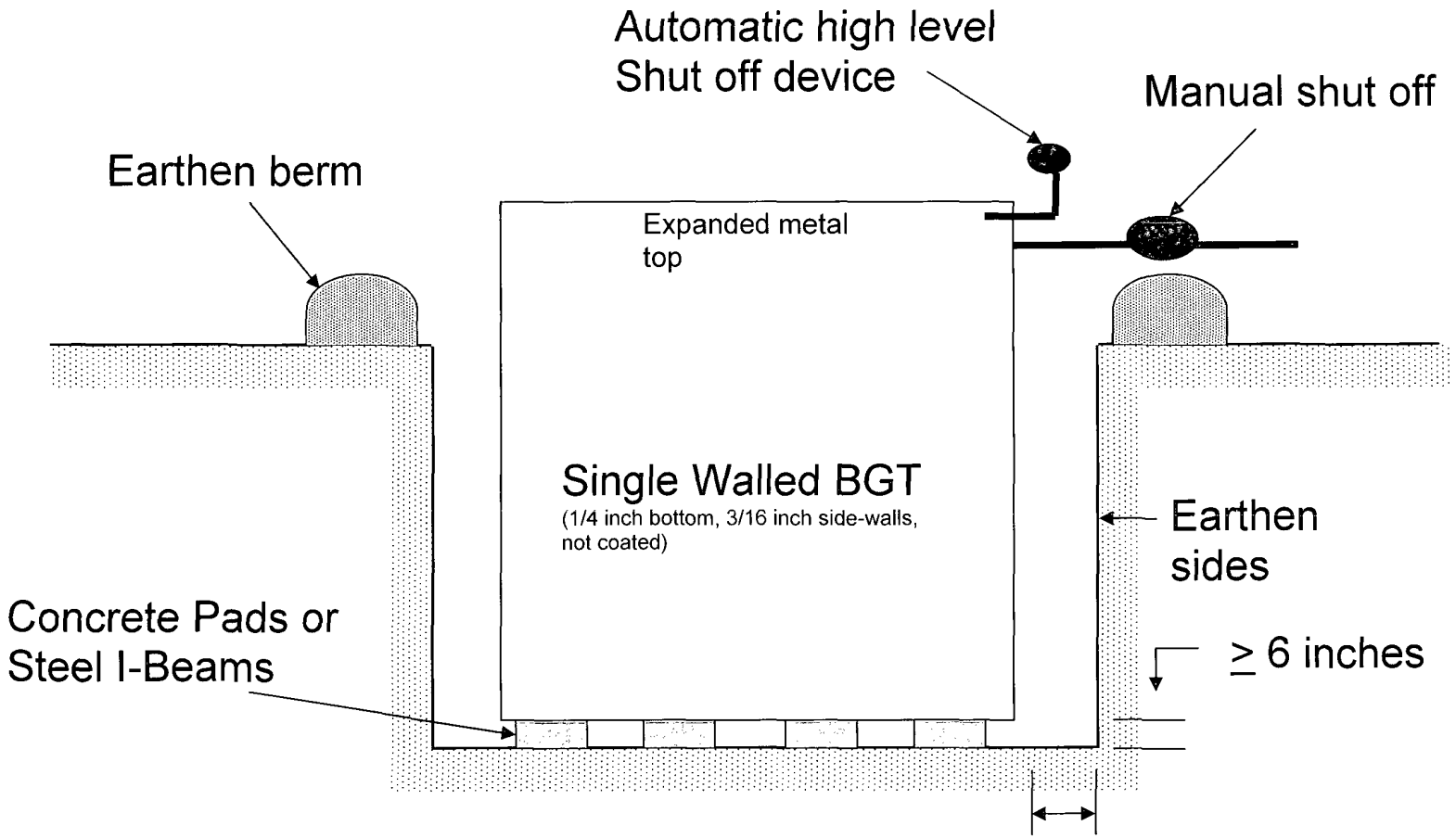
Below-grade tanks that are constructed and installed prior to June 16, 2008 and don't meet all requirements of Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC and are not included in Paragraph (6) of 19.15.17.11 NMAC don't have to be retrofitted unless they don't demonstrate integrity. If the below-grade tank doesn't demonstrate integrity, KEC will promptly remove the below-grade tank and install a below-grade tank that complies with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC. The retro-fitted tank system will be designed as presented in Figure 2. KEC will comply with the operational requirements of 19.15.17.12 NMAC.

(6) *The operator of a below-grade tank constructed and installed prior to June 16, 2008 that is single walled and where any portion of the tank sidewall is below the ground surface and not visible shall equip or retrofit the below-grade tank to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC, or close it, within five years after June 16, 2008. If the existing below-grade tank does not demonstrate integrity, the operator shall promptly remove that below-grade tank and install a below-grade tank that complies with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC. The operator shall comply with the operational requirements of 19.15.17.12 NMAC.*

Figure 1 presents the existing design of the below-grade tank system. Tanks are single walled and the sidewalls are above ground surface and visible. KEC will retrofit the existing below-grade tank system to comply with Paragraphs (1) through (4) if the tank is determined to no longer demonstrate integrity. KEC will promptly remove the below-grade tank and install a system that complies with paragraphs (1) through (4). The retro-fitted tank system will be designed as presented in Figure 2. KEC will comply with the operational requirements of 19.15.17.12 NMAC.

Figure 1
Below-grade Tank as Currently Constructed

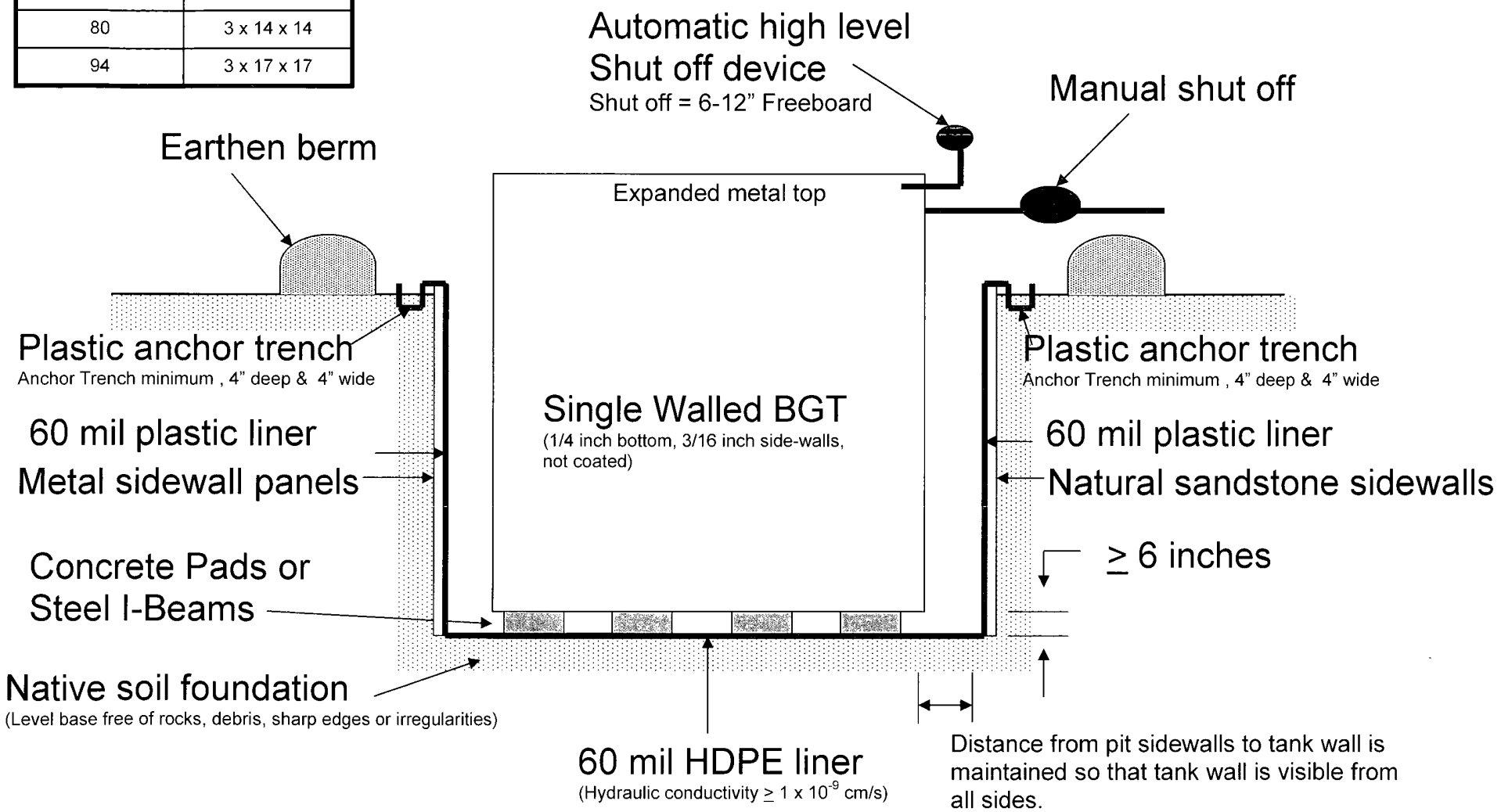
Note: Not to Scale



Distance from pit sidewalls to tank wall is maintained so that tank wall is visible from all sides.

Standard Tank Sizes vs. Minimum Excavation Dimensions	
Tank Capacity, bbl	Minimum Excavation Dimensions, ft (D x L x W)
25	3 x 10 x 10
80	3 x 14 x 14
94	3 x 17 x 17

Figure 2
Below-grade Tank Retrofit Plan
Note: Not to Scale



Section 4 – Operational Requirements (19.15.17.12 NMAC)

General Specifications (19.15.17.12 (A) NMAC)

A. *General specifications. An operator shall maintain and operate a pit, closed-loop system, below-grade tank or sump in accordance with the following requirements.*

(1) *The operator shall operate and maintain a pit, closed-loop system, below-grade tank or sump to contain liquids and solids and maintain the integrity of the liner, liner system or secondary containment system, prevent contamination of fresh water and protect public health and the environment.*

The below-grade tank will be operated such that the liner integrity and secondary containment system are maintained to prevent contamination of fresh water and protect public health and the environment. The tank and containment are inspected monthly using the form in Appendix G. The tank is equipped with an automated high liquid level alarm (see Section 3).

(2) *The operator shall recycle, reuse or reclaim or dispose of all drilling fluids in a manner, approved by division rules, that prevents the contamination of fresh water and protects public health and the environment.*

Only liquids generated by normal gas production operations (produced water, rain fall precipitation, and incidental produced oil) will be stored in the tank. Accumulated produced water and precipitation is collected by a vacuum truck and disposed in a licensed Class I or Class II underground injection well.

(3) *The operator shall not discharge into or store any hazardous waste in a pit, closed-loop system, below-grade tank or sump.*

Hazardous wastes will not be discharged into or stored in the tank.

(4) *If any pit liner's integrity is compromised, or if any penetration of the liner occurs above the liquid's surface, then the operator shall notify the appropriate division district office within 48 hours of the discovery and repair the damage or replace the liner.*

Not applicable, applies to pits.

(5) *If a pit, below-grade tank, closed-loop system or sump develops a leak, or if any penetration of the pit liner, below-grade tank, closed-loop system or sump occurs below the liquid's surface, then the operator shall remove all liquid above the damage or leak line within 48 hours, notify the appropriate division district office within 48 hours of the discovery and repair the damage or replace the pit liner, below-grade tank, closed-loop system or sump.*

If the below-grade tank or liner develops a leak, KEC will remove all liquid above the damage or leak line within 48 hours. The division district office will be contacted within 48 hours of the discovery. KEC will repair the damage to the existing tank, replace the below-grade tank, or close the below-grade tank in accordance with 19.15.17.13(E). If the tank isn't already designed per 19.15.17.11(I)(1)-(4), the tank and containment systems will be retrofitted per Figure 2.

(6) The injection or withdrawal of liquids from a pit shall be accomplished through a header, diverter or other hardware that prevents damage to the liner by erosion, fluid jets or impact from installation and removal of hoses or pipes.

Not applicable, applies to pits.

(7) The operator shall operate and install a pit, below-grade tank or sump to prevent the collection of surface water run-on.

An earthen berm surrounds all sides of the below-grade tank to prevent surface water run-on.

(8) The operator shall install, or maintain on site, an oil absorbent boom or other device to contain and remove oil from a pit's surface.

Not applicable, applies to pits.

Additional Requirements for Below-Grade Tanks (19.15.17.12 (D) NMAC)

D. *Below-grade tanks. An operator shall maintain and operate a below-grade tank in accordance with the following additional requirements.*

(1) The operator shall not allow a below-grade tank to overflow or allow surface water run-on to enter the below-grade tank.

The below-grade tank is equipped with an automated high liquid level alarm to prevent overflows. An earthen berm surrounds all sides of the tank to prevent run-on. (See Section 3)

(2) The operator shall remove any visible or measurable layer of oil from the fluid surface of a below-grade tank.

Incidental quantities of produced oil may collect in the below-grade tank. This oil will be removed periodically recaptured and put back in production tank.

(3) The operator shall inspect the below-grade tank at least monthly and maintain a written record of each inspection for five years.

The tank is inspected monthly and a written record is maintained for at least five years. The inspection form is provided in Appendix G.

(4) The operator shall maintain adequate freeboard to prevent overtopping of the below-grade tank.

See Section 3, 19.15.17.11(I)(4)(a).

(5) The operator of a below-grade tank constructed and installed prior to June16, 2008 that does not meet the requirements of Paragraphs (1) through (4) of Subsection I of 19. l 5.17.11 NMAC who

discovers that the below-grade tank does not demonstrate integrity or that the below-grade tank develops any of the conditions identified in Paragraph (5) of Subsection A of 19.15.17.12 NMAC shall close the existing below-grade tank pursuant to the closure requirements of 19.15.17.13 NMAC and install a belowgrade tank that complies with the requirements of Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC.

If the below-grade tank is constructed prior to June 16, 2008 and doesn't demonstrate integrity or develops any of the conditions identified in Paragraph (5) of Subsection A of 19.15.17.12 NMAC, KEC will promptly close the tank pursuant to the closure requirements of 19.15.17.13 NMAC and install a below-grade tank that complies with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC and detailed in Figure 2..

(6) *The operator of a below-grade tank constructed and installed prior to June 16, 2008 that does not comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC who equips or retrofits the existing tank to comply with Paragraphs 1) through (4) of Subsection I of 19.15.17.11 NMAC shall visually inspect the area beneath the below-grade tank during the retrofit and document any areas that are wet, discolored, or showing other evidence of a release on form C-141. The operator shall demonstrate to the division whether the evidence of contamination indicates that an imminent threat to fresh water, public health safety or the environment exists. If the division determines that the contamination does not pose an imminent threat to fresh water, public health, safety or the environment, the operator shall complete the retrofit or the replacement of the below-grade tank. If the operator or division determines that the contamination poses an imminent threat to fresh water, public health safety or the environment then the operator shall close the existing below-grade tank pursuant to the closure requirements of 19.15.17.13 NMAC prior to initiating the retrofit or replacement.*

If KEC equips or retrofits the existing tank to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC (as detailed in Figure 2), KEC shall visually inspect the area beneath the below-grade tank during the retrofit and document any areas that are wet, discolored, or showing other evidence of a release on form C-141. KEC shall demonstrate to the division whether the evidence of contamination indicates that an imminent threat to fresh water, public health safety or the environment exists. If the division determines that the contamination does not pose an imminent threat to fresh water, public health, safety or the environment KEC shall complete the retrofit or replacement of the tank. If the division determines that the contamination poses an imminent threat to fresh water, public health safety or the environment then KEC shall close the existing below-grade tank pursuant to the closure requirements of 19.15.17.13 NMAC prior to initiating the retrofit or replacement.

Section 5 – Closure and Reclamation Plan (19.15.17.13 NMAC)

A. *Time requirements for closure. An operator shall close a pit, closed-loop system or below-grade tank 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.*

(1) *An operator shall cease discharging into an existing unlined permanent pit that is permitted by or registered with the division within two years after June 16, 2008. An operator shall close an existing unlined permanent pit that is permitted by or registered with the division within three years after June 16, 2008.*

Not applicable, applies to pits.

(2) *An operator shall cease discharging into an existing, lined or unlined, permanent pit that is not permitted by or registered with the division on or by June 16, 2008. An operator shall close an existing, lined or unlined, permanent pit that is not permitted by or registered with the division within six months after June 16, 2008.*

Not applicable, applies to pits.

(3) *An operator shall close an existing unlined temporary pit within three months after June 16, 2008.*

Not applicable, applies to pits.

(4) *An operator shall close an existing below-grade tank that does not meet the requirements of Paragraphs (1) through (4) of 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) through (4) of Subsection I of 19.15.17.11 NMAC.*

If a below-grade tank doesn't meet the requirements of Paragraphs (1) through (4) cited above, KEC intends to retrofit the tank in accordance with 19.15.17.11(I)(6). If KEC elects to close the tank instead, the below-grade tank will be closed within five years after June 16, 2008, in accordance with 19.15.17.13(E).

If the tank is determined to no longer demonstrate integrity, KEC will promptly remove the below-grade tank and install a system that complies with paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC or close the tank per 19.15.17.13(E). The retro-fitted tank system will be designed as presented in Figure 2.

(5) *An operator shall close an existing below-grade tank that does not meet the requirements of Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC, if not retrofitted to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC, prior to any sale or change of operator Pursuant to 19.15.9.9 NMAC.*

Prior to any sale or change of operator pursuant to 19.15.9.9 NMAC, KEC shall close an existing below-grade tank that does not meet the requirements of Paragraphs (1) through (4) of Subsection I of

19.15.17.11 NMAC, if not retrofitted to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC.

(6) An operator shall close any other permitted permanent pit within 60 days of cessation of operation of the permanent pit in accordance with a closure plan that the environmental bureau in the division's Santa Fe office approves.

Not applicable, applies to pits.

(7) An operator shall close any other permitted temporary pit within six months from the date that the operator releases the drilling or workover rig. The appropriate division district office may grant an extension not to exceed three months.

Not applicable, applies to pits.

(8) An operator shall close a drying pad used for a closed-loop system permitted under 19.15.17 NMAC or in operation on June 16, 2008, within six months from the date that the operator releases the drilling or workover rig. The operator shall note the date of the drilling or workover rig's release on form C-105 or C-103, filed with the division, upon the well's or workover's completion. The appropriate division district office may grant an extension not to exceed six months.

Not applicable, applies to drying pads.

(9) An operator shall close a permitted below-grade tank within 60 days of cessation of the below-grade tank's 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.

KEC will close a permitted below-grade tank within 60 days of cessation of the below-grade tank's 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.

B – D. *Not applicable*

E. *Closure method for below-grade tanks.*

(1) The operator shall remove liquids and sludge from a below-grade tank prior to implementing a closure method and shall dispose of the liquids and sludge in a division-approved facility.

Liquids and sludge will be removed from the tank prior to implementing a closure method and disposed in a division-approved facility (Liquids: Basin Disposal, OCD Permit NM-01-0005, Key Disposal, OCD Permit NM-01-0009, or other OCD approved facility; Sludge: JFJ Landfarm, LLC OCD Permit No. 10, or other OCD approved facility).

(2) The operator shall remove the below-grade tank 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.

The liner will be removed and disposed in the San Juan Regional Landfill in accordance with 19.15.35.8(C)(1)(m) (or other division approved facility). The tank will be reconditioned and reused, or recycled in a manner to be approved by the division district office.

(3) *If there is any on-site equipment associated with a below-grade tank, then the operator shall remove the equipment, unless the equipment is required for some other purpose.*

Equipment associated with the below-grade tank will be removed from the site, unless required for some other purpose.

(4) *The operator shall test the soils beneath the below-grade tank to determine whether a release has occurred. The operator shall collect, at a minimum, a five point, composite sample; collect individual grab samples from any area that is wet, discolored or showing other evidence of a release; and analyze for BTEX, TPH and chlorides to demonstrate that the benzene concentration, as determined by EPA SW-846 methods 8021B or 8260B or other EPA method that the division approves, does not exceed 0.2 mg/kg; total BTEX concentration, as determined by EPA SW-846 methods 8021B or 8260B or other EPA method that the division approves, does not exceed 50 mg/kg; the TPH concentration, as determined by EPA method 418.1 or other EPA method that the division approves, does not exceed 100 mg/kg; and the chloride concentration, as determined by EPA method 300.1 or other EPA method that the division approves, does not exceed 250 mg/kg, or the background concentration, whichever is greater. The operator shall notify the division of its results on form C-141. The division may require additional delineation upon review of the results.*

KEC will test the soils beneath the below-grade tank to determine whether a release has occurred. KEC will collect, at a minimum, a five point, composite sample; collect individual grab samples from any area that is wet, discolored or showing other evidence of a release; and analyze for BTEX, TPH and chlorides to demonstrate that the benzene concentration, as determined by EPA SW-846 methods 8021B or 8260B or other EPA method that the division approves, does not exceed 0.2 mg/kg; total BTEX concentration, as determined by EPA SW-846 methods 8021B or 8260B or other EPA method that the division approves, does not exceed 50 mg/kg; the TPH concentration, as determined by EPA method 418.1 or other EPA method that the division approves, does not exceed 100 mg/kg; and the chloride concentration, as determined by EPA method 300.1 or other EPA method that the division approves (such as EPA Method 300.0 or Standard Method 4500B, as approved in the July 24, 2008 NMOCD memorandum from Mark Fesmire), does not exceed 250 mg/kg, or the background concentration, whichever is greater. KEC will notify the division of its results on form C-141.

(5) *If the operator or the division determines that a release has occurred, then the operator shall comply with 19.15.29 NMAC and 19.15.30 NMAC, as appropriate.*

If it's determined that a release has occurred, KEC will comply with 19.15.29 or 19.15.30 NMAC as appropriate.

(6) *If the sampling program demonstrates that a release has not occurred or that any release does not exceed the concentrations specified in Paragraph (4) of Subsection E of 19.15.17.13 NMAC, then the operator shall backfill the excavation with compacted, non-waste containing, earthen material; construct a division-prescribed soil cover; recontour and re-vegetate the site. The division-prescribed soil cover, recontouring and re-vegetation requirements shall comply with Subsections G, H and I of 19.15.17.13 NMAC.*

Once sampling demonstrates that concentrations specified in 19.15.17.13(E)(4) are not exceeded, KEC will backfill the excavation with compacted, non-waste containing, earthen material, construct a division-prescribed soil cover, and recontour and re-vegetate the site. The division-prescribed soil cover, recontouring, and re-vegetation shall comply with Subsections G, H, and I or 19.15.17.13 NMAC.

G. *Reclamation of pit locations, on-site burial locations and drying pad locations.*

(1) *Once the operator has closed a pit or trench or is no longer using a drying pad, below-grade tank or an area associated with a closed-loop system, pit, trench or below-grade tank, the operator shall reclaim the pit location, drying pad location, below-grade tank location or trench location and all areas associated with the closed-loop system, pit, trench or below-grade tank including associated access roads to a safe and stable condition that blends with the surrounding undisturbed area. The operator shall substantially restore the impacted surface area to the condition that existed prior to oil and gas operations by placement of the soil cover as provided in Subsection H of 19.15.17.13 NMAC, recontour the location and associated areas to a contour that approximates the original contour and blends with the surrounding topography and re-vegetate according to Subsection I of 19.15.17.13 NMAC.*

After the below-grade tank and associated equipment are removed and test results demonstrate that a release has not occurred, KEC will reclaim the location and all associated areas to a safe and stable condition that blends with the surrounding undisturbed area. KEC shall substantially restore the impacted surface area to the condition that existed prior to oil and gas operations by placement of the soil cover as provided in Subsection H of 19.15.17.13 NMAC, recontour the location and associated areas to a contour that approximates the original contour and blends with the surrounding topography and re-vegetate according to Subsection I of 19.15.17.13 NMAC.

(2) *The operator may propose an alternative to the re-vegetation requirement if the operator demonstrates that the proposed alternative effectively prevents erosion, and protects fresh water, human health and the environment. The proposed alternative shall be agreed upon by the surface owner. The operator shall submit the proposed alternative, with written documentation that the surface owner agrees to the alternative, to the division for approval.*

KEC doesn't anticipate proposing an alternative to the re-vegetation requirement, however requirements of this paragraph will be adhered to if applicable.

H. *Soil cover designs.*

(1) *The soil cover for closures where the operator has removed the pit contents or remediated the contaminated soil to the division's satisfaction shall consist of the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater.*

Where KEC removed contaminated soil to the division's satisfaction, the soil cover shall consist of the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater.

(2) *The soil cover for burial-in-place or trench burial shall consist of a minimum of four feet of compacted, non-waste containing, earthen material. The soil cover shall include either the*

background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater.

Not applicable. KEC does not intend to bury any equipment in place.

(3) *The operator shall construct the soil cover to the site's existing grade and prevent ponding of water and erosion of the cover material.*

KEC will construct the soil cover to the site's existing grade and prevent ponding of water and erosion of the cover material.

I. *Re-vegetation.*

(1) *The first growing season after the operator closes a pit or trench or is no longer using a drying pad, below-grade tank or an area associated with a closed-loop system, pit or below-grade tank including access roads, the operator shall seed or plant the disturbed areas.*

(2) *The operator shall accomplish seeding by drilling on the contour whenever practical or by other division-approved methods. The operator shall obtain vegetative cover that equals 70% of the native perennial vegetative cover (un-impacted by overgrazing, fire or other intrusion damaging to native vegetation) 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. During the two growing seasons that prove viability, there shall be no artificial irrigation of the vegetation.*

(3) *The operator shall repeat seeding or planting until it successfully achieves the required vegetative cover.*

(4) *When conditions are not favorable for the establishment of vegetation, such as periods of drought, the division may allow the operator to delay seeding or planting until soil moisture conditions become favorable or may require the operator to use additional cultural techniques such as mulching, fertilizing, irrigating, fencing or other practices.*

(5) *The operator shall notify the division when it has seeded or planted and when it successfully achieves re-vegetation.*

KEC will seed the disturbed areas the first growing season after closing the below grade tank. Seeding will be accomplished via drilling on the contour whenever practical or by other division-approved methods. BLM or Forest Service stipulated seed mixes will be used on 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. During the two growing seasons that prove viability, there shall be no artificial irrigation of the vegetation. KEC will notify the division when seeding and planting is done and when re-vegetation is complete.

J. *Closure notice.*

(1) *The operator shall notify the surface owner by certified mail, return receipt requested, that the operator plans to close a temporary pit, a permanent pit, a below-grade tank or where the operator has approval for on-site closure. Evidence of mailing of the notice to the address of the surface owner shown in the county tax records is sufficient to demonstrate compliance with this requirement.*

KEC shall notify the surface owner by certified mail, return receipt requested, that the operator plans to close a temporary pit, a permanent pit, a below-grade tank or where the operator has approval for on-site closure. Evidence of mailing of the notice to the address of the surface owner shown in the county tax records is sufficient to demonstrate compliance with this requirement.

(2) The operator of a temporary pit or below-grade tank or an operator who is approved for on-site closure shall notify the appropriate division district office verbally or by other means at least 72 hours, but not more than one week, prior to any closure operation. The notice shall include the operator's name and the location to be closed by unit letter, section, township and range. If the closure is associated with a particular well, then the notice shall also include the well's name, number and API number.

KEC will notify the appropriate division district office verbally or by other means at least 72 hours, but not more than one week, prior to any closure operation

(3) An operator of a permanent pit shall notify the environmental bureau in the division's Santa Fe office at least 60 days prior to cessation of operations and provide a proposed schedule for closure. If there is no closure plan on file with the environmental bureau in the division's Santa Fe office applicable to the permanent pit, the operator shall provide a closure plan with this notice. Upon receipt of the notice and proposed schedule, the environmental bureau in the division's Santa Fe office shall review the current closure plan for adequacy and inspect the site.

Not applicable, not a permanent pit.

K. *Closure report. Within 60 days of closure completion, the operator shall submit a closure report on form C-144, with necessary attachments to document all closure activities including sampling results; information required by 19.15.17 NMAC; a plot plan; and details on back-filling, capping and covering, where applicable. In the closure report, the operator shall certify that all information in the report and attachments is correct and that the operator has complied with all applicable closure requirements and conditions specified in the approved closure plan. If the operator used a temporary pit, the operator shall provide a plat of the pit location on form C-105 within 60 days of closing the temporary pit.*

Within 60 days of closure completion, KEC shall submit a closure report on form C-144 and other supporting documentation as required by Paragraph K. KEC will certify that all information in the report and attachments is correct and that the operator has complied with all applicable closure requirements and conditions specified in the approved closure plan. The following attachments will be included with the report:

- Proof of Closure Notice (surface owner and division)
- Confirmation Sampling Analytical Results (if applicable)
- Disposal Facility Name and Permit Number
- Soil Backfilling and Cover Installation
- Re-vegetation Application Rates and Seeding Technique
- Site Reclamation (Photo Documentation)

Section 5 – Transitional Provisions (19.15.17.17 NMAC)

D. *By no later than October 31, 2009, an operator of an existing below-grade tank shall submit to the division a list of the below-grade tank or tanks of which it is the operator for registration purposes. The registration list shall include the operator's name, the name of the well or facility with which the below-grade tank is associated, the API number or facility name, a legal description, global positioning coordinates to the sixth decimal point, the number of below-grade tanks associated with the site and an evaluation if a permit or permit modification is required.*

KEC has submitted to the NMOCD a list of below-grade tanks operated by KEC with the following information: Operator name, name of well, API number or facility name, legal description, GPS coordinates in decimal degrees rounded to the sixth decimal point, number of below-grade tanks associated with the site, and an evaluation if a permit or permit modification is required.

An operator of an existing below-grade tank shall apply for a permit or permit modification pursuant to 19.15.17 NMAC within two years after June 16, 2008.

For existing below-grade tanks, KEC will apply for a permit or permit modification pursuant to 19.15.17 NMAC within two years after June 16, 2008.

An operator of an existing below-grade tank shall comply with the construction requirements of 19.15.17.11 NMAC within the time provided by applicable provisions of Paragraph (5) or (6) of Subsection I of 19.15.17.11 NMAC or prior to any sale or change of operator pursuant to 19.15.9.9 NMAC.

For below-grade tanks that were constructed prior to June 16, 2008: If it is determined that a below-grade tank doesn't demonstrate integrity, it will be promptly removed and replaced with a tank that meets the construction requirements of Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC, as described in Figure 2.

For below grade tanks constructed prior to June 16, 2008 that demonstrate integrity and are single walled and with sidewalls NOT visible: KEC will equip or retrofit the below-grade tank to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC (as described in Figure 2), or close it within five years after June 16, 2008.

References

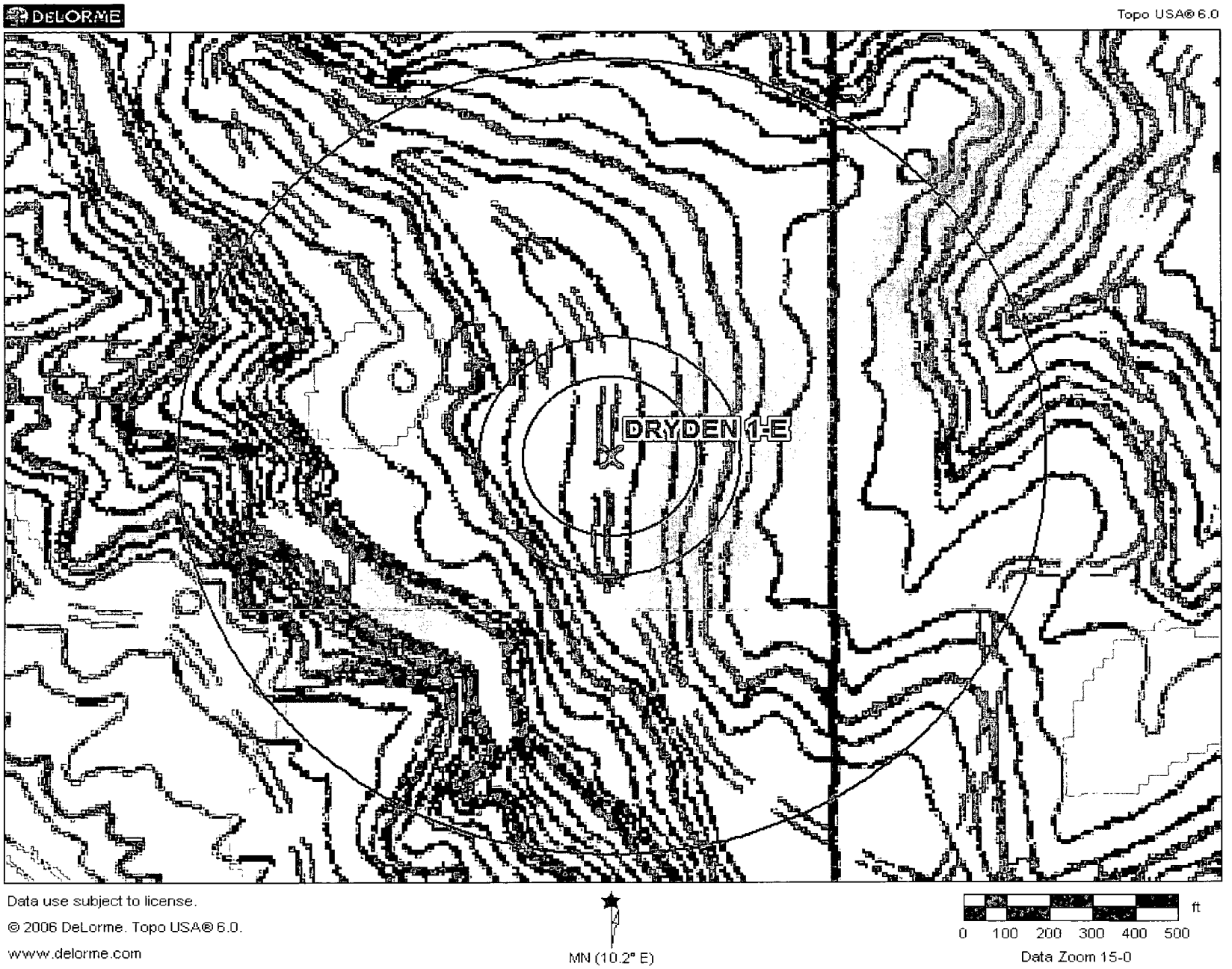
Environmental Protection Agency. 2004. Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs. Available at www.nmenv.state.nm.us/swqb/Projects/SanJuan/TMDL1/11.pdf

Blanchard, P., R. Roy, and T. O'Brien. 1993. Reconnaissance Investigation of Water Quality, Bottom Sediment, and Biota Associated with Irrigation Drainage in the San Juan River Area, San Juan County, Northwestern New Mexico, 1990-91. USGS Water Resources Investigations Report 93-4065.

Chronic, H. 1987. Roadside Geology of New Mexico. Mountain Press Publishing Company, Missoula, MT.

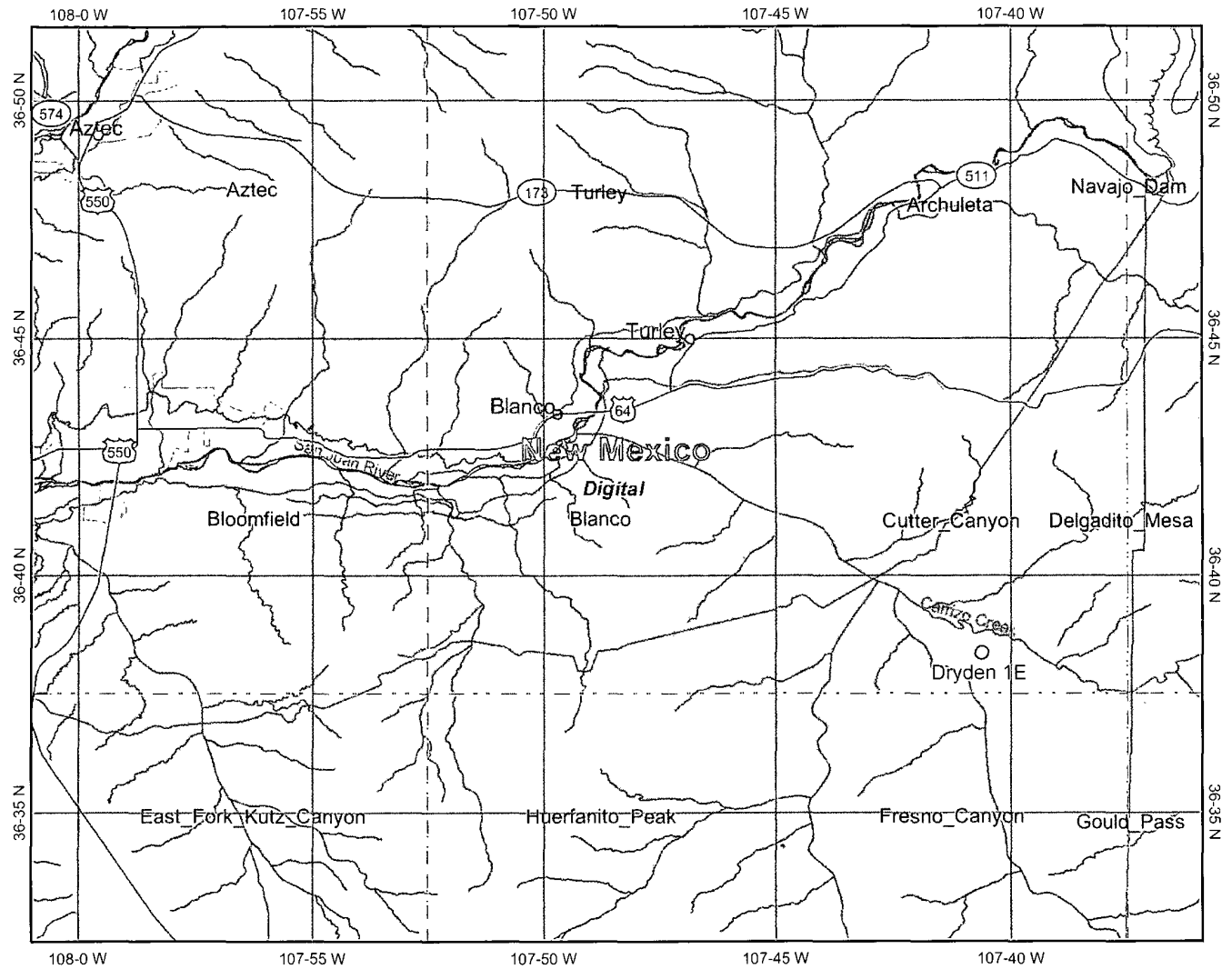
APPENDIX A

USGS 7.5 Minute Topography Map and US Fish & Wildlife Wetland Identification Map



Radii denote 200 feet, 300 feet and 1,000 feet from location

Wetlands



Map center: 36°41' N, 107°48' W

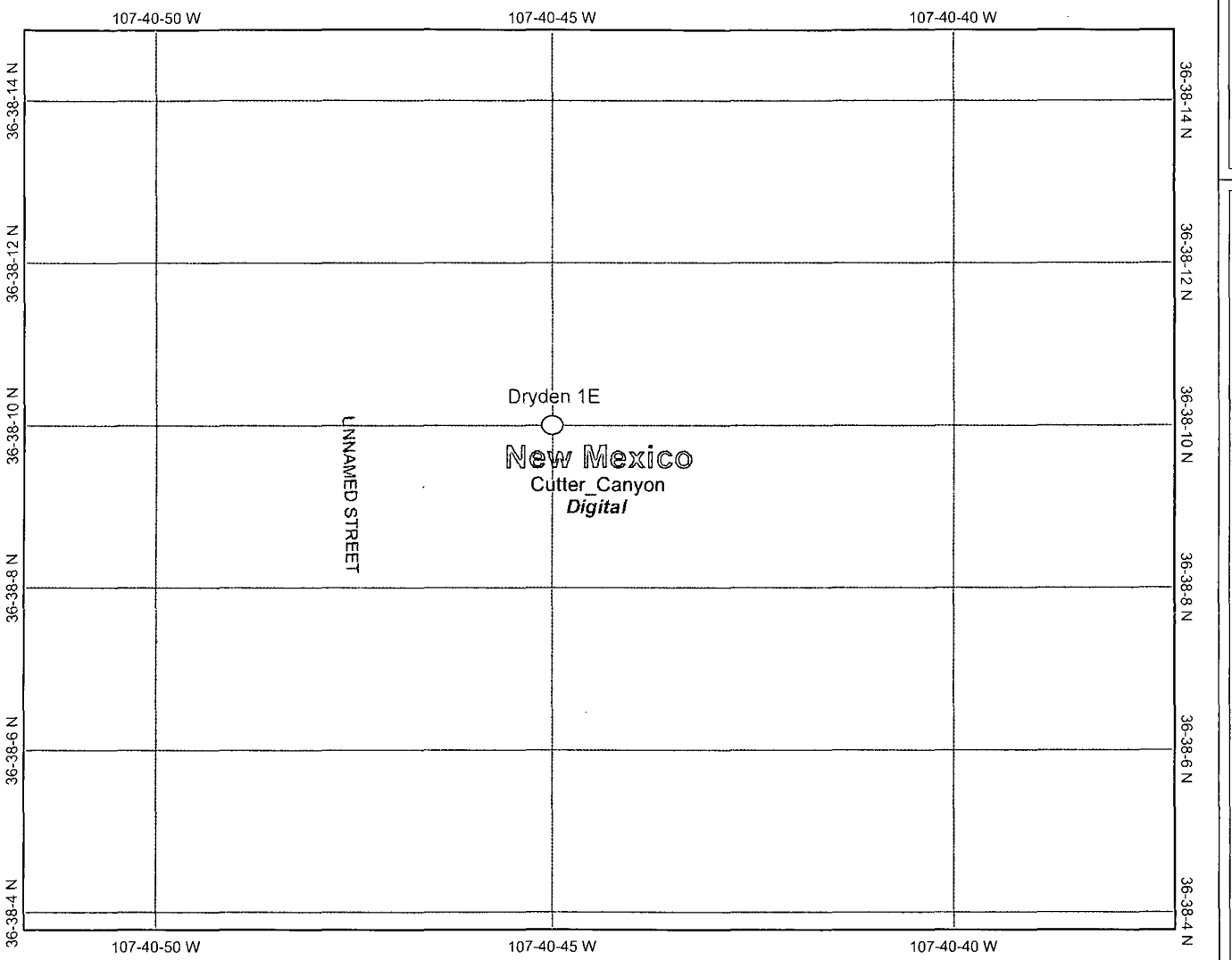
APPENDIX A

Legend

- Interstate
- *Major Roads*
- Other Road
- Interstate
- State highway
- US highway
- Cities
- USGS Quad Index 24K
- Lower 48 Available Wetland Data
- Non-Digital
- Digital
- No Data
- Scan
- NHD Waterbodies
- *LAKE/POND*
- RESERVOIR
- STREAM/RIVER
- NHD Streams
- Counties 100K
- Urban Areas 300K
- States 100K
- South America
- North America

Scale: 1:250,749

Dryden 1E



Map center: 36° 38' 9.3" N, 107° 40' 44.4" W

Legend

Ohio_wet_scan
- 0
- 1
- Out of range

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

PDF_scans_100k

Lower 48 Available Wetland Data
- Non-Digital
- Digital
- No Data
- Scan

NHD Streams

Counties 100K

States 100K

South America

Scale: 1:2,400

APPENDIX B

Groundwater Data (water well searches and/or depth to groundwater per cathodic bed data)

New Mexico Office of the State Engineer

Point of Diversion by Location

(with Drilling Information)

No PODs found.

POD Search:

POD Basin: San Juan

PLSS Search:

Section(s): 28 **Township:** 28N **Range:** 08W

New Mexico Office of the State Engineer

Point of Diversion by Location

(with Drilling Information)

No PODs found.

POD Search:

POD Basin: San Juan

PLSS Search:

Section(s): 27 **Township:** 28N **Range:** 08W

5234

30-045-26003

DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS
NORTHWESTERN NEW MEXICO
(Submit 3 copies to OCD Aztec Office)

Operator KOCH EXPLORATION COMPANY Location: Unit A Sec. 28 Twp 28 Rng 8

Name of Well/Wells or Pipeline Serviced DRYDEN--1-E

Elevation 6267 Completion Date 12-19-85 Total Depth 376' Land Type* F-NM-013861

Casing, Sizes, Types & Depths NONE

If Casing is cemented, show amounts & types used

NONE

If Cement or Bentonite Plugs have been placed, show depths & amounts used

NONE

Depths & thickness of water zones with description of water when possible:

Fresh, Clear, Salty, Sulphur, Etc. CLEAR @-40' AND @-300'

Depths gas encountered: NONE

Type & amount of coke breeze used: 3000 #

Depths anodes placed: @355'-340'-320'-310'-170'-160'-100'-90'-60'-50'

Depths vent pipes placed: 360'

Vent pipe perforations: 280' OF PERFORATIONS

Remarks:

RECEIVED
MAR 1 6 1990
OIL CON. DIV.
DIST. 3

If any of the above data is unavailable, please indicate so. Copies of all logs, including Drillers Log, Water Analyses & Well Bore Schematics should be submitted when available. Unplugged abandoned wells are to be included.

*Land Type may be shown: F-Federal; I-Indian; S-State; P-Fee.
If Federal or Indian, add Lease Number.

BURGE CORROSION SYSTEMS, INC.

P.O. BOX 1359 - PHONE 334-6141
AZTEC, NEW MEXICO 87410

Drilling Log (Attach Hereto). ☐ Completion Date DECEMBER 19,19

Well Name	Location	
DRYDEN #1E	KOCH EXPLORATION	
Type & Size Bit Used		**Work Order No.**
6-3/4 inch		84

Anode Hole Depth	Total Drilling Rig Time	Total Lbs. Coke Used	Lost Circulation Mat'l Used	No. Sacks Mud Used
376 feet		3000		

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Anode Depth	355	340	320	310	170	160	100	90	60	50
Anode Output (Amps)	1.82	1.80	1.72	2.13	1.68	1.82	1.76	1.95	2.08	3.1
Anode Depth	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
Anode Output (Amps)	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20

Total Circuit Resistance			No. 8 C.P. Cable Used	No. 2 C.P. Cable Used
Volts 11.0	Amps 9.4	Ohms 1.2	2155 feet	

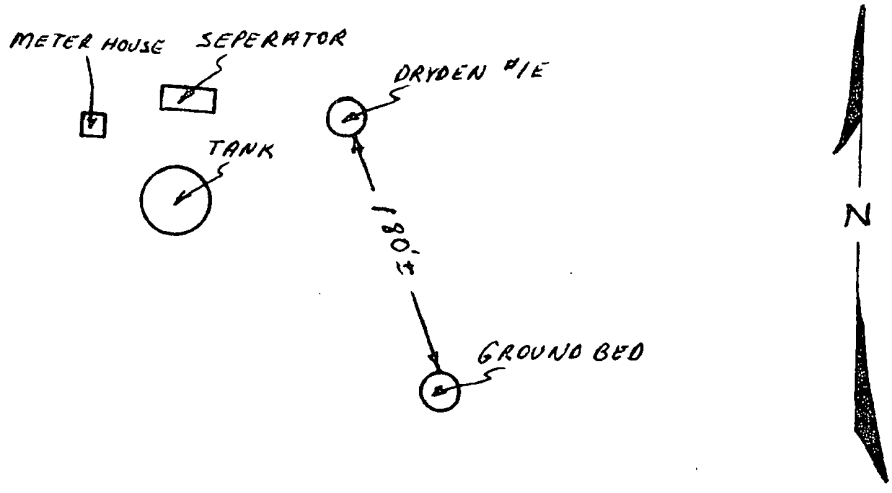
Remarks: Found a little ground water at 40 feet, and some more at 300 feet.

Used 360 feet of 3/4 inch polyethelene vent pipe.

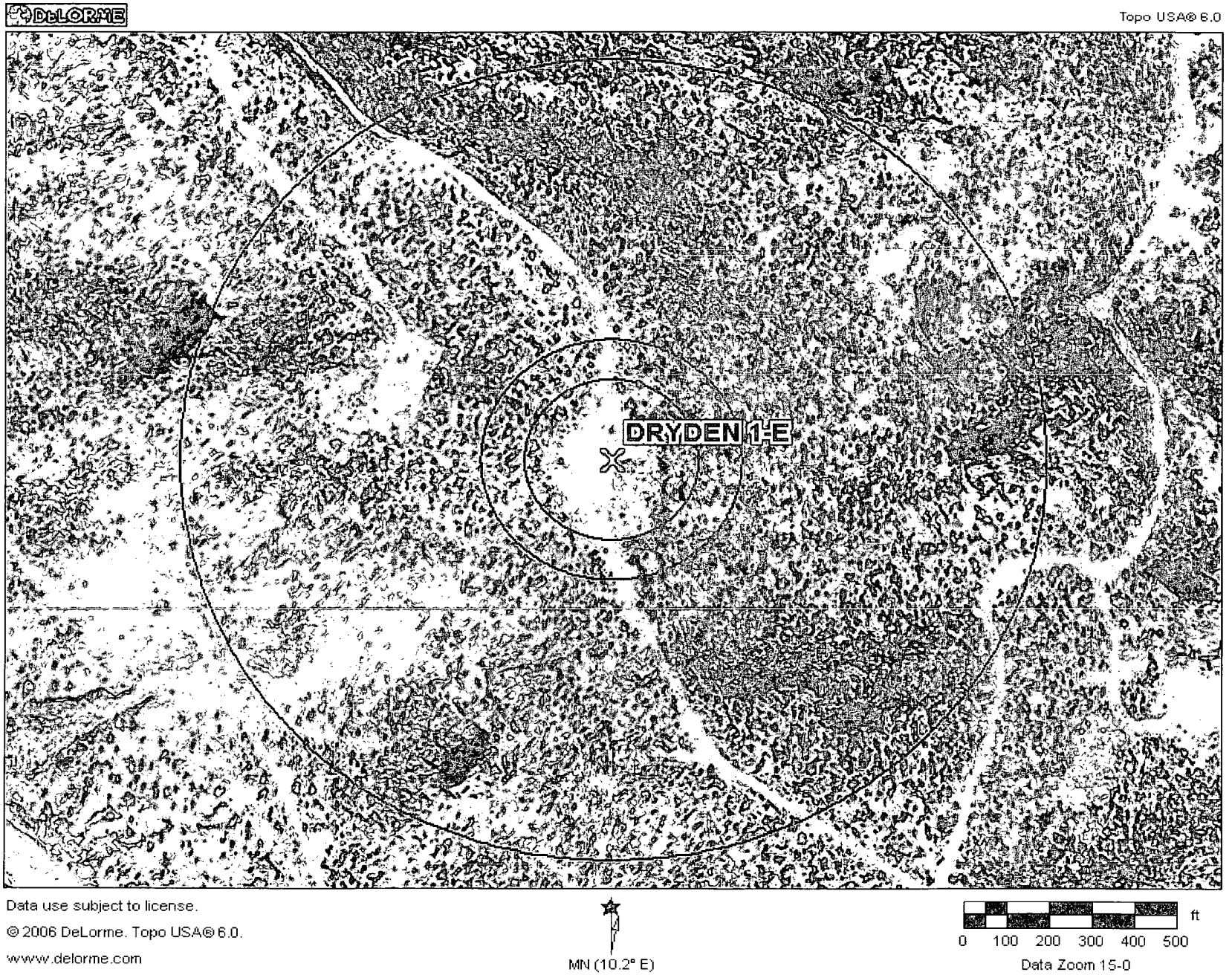
All Construction Completed

Johnny L. Smith
(Signature)

GROUND BED LAYOUT SKETCH

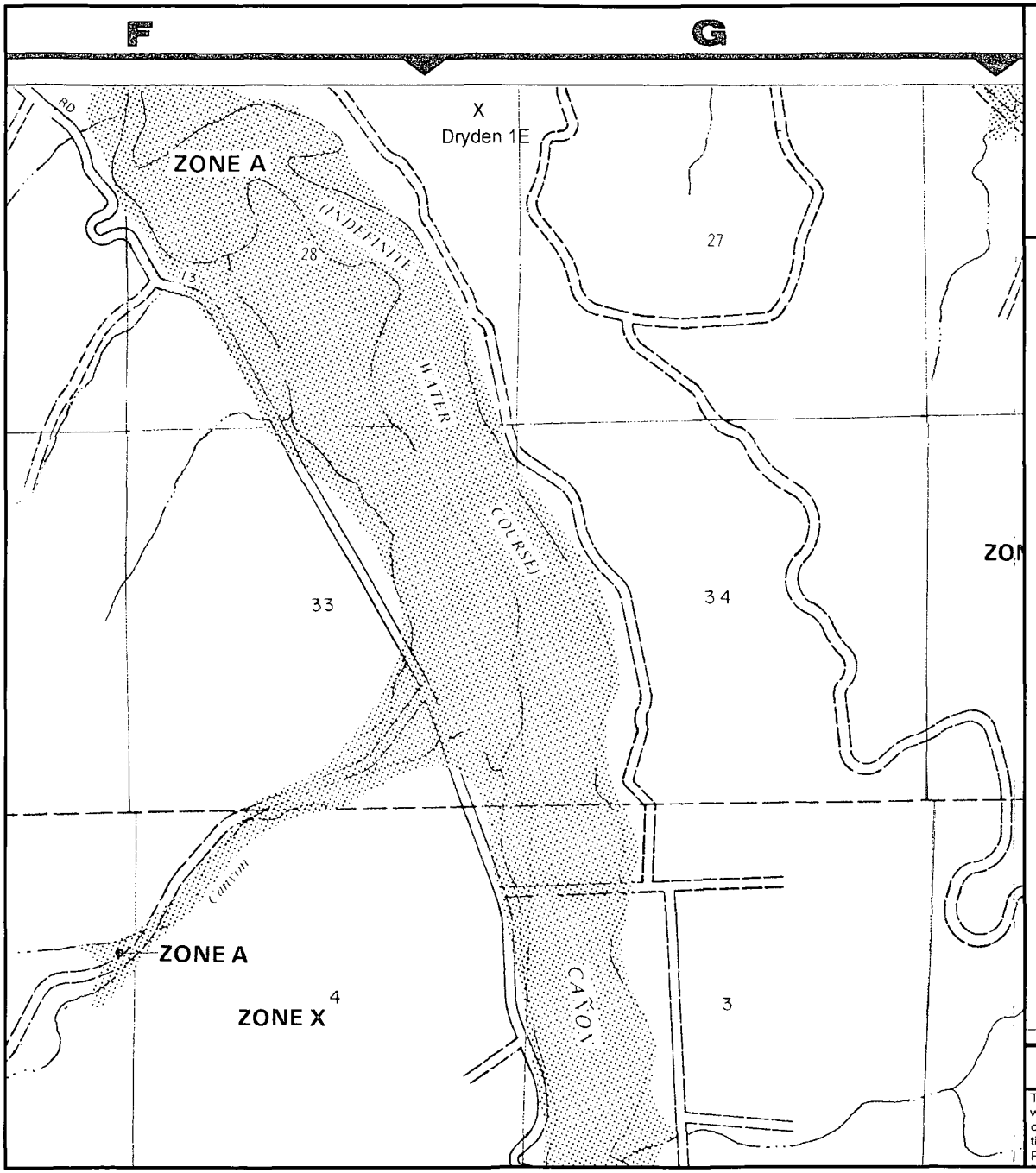


APPENDIX C
Aerial Photo



Radii denote 200 feet, 300 feet and 1,000 feet from location

APPENDIX D
FEMA 100-year Floodplain Map



638-6620.

APPROXIMATE SCALE

2000 0

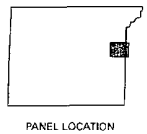
APPENDIX D

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

SAN JUAN COUNTY, NEW MEXICO
UNINCORPORATED AREAS

PANEL 750 OF 1450
(SEE MAP INDEX FOR PANELS NOT PRINTED)



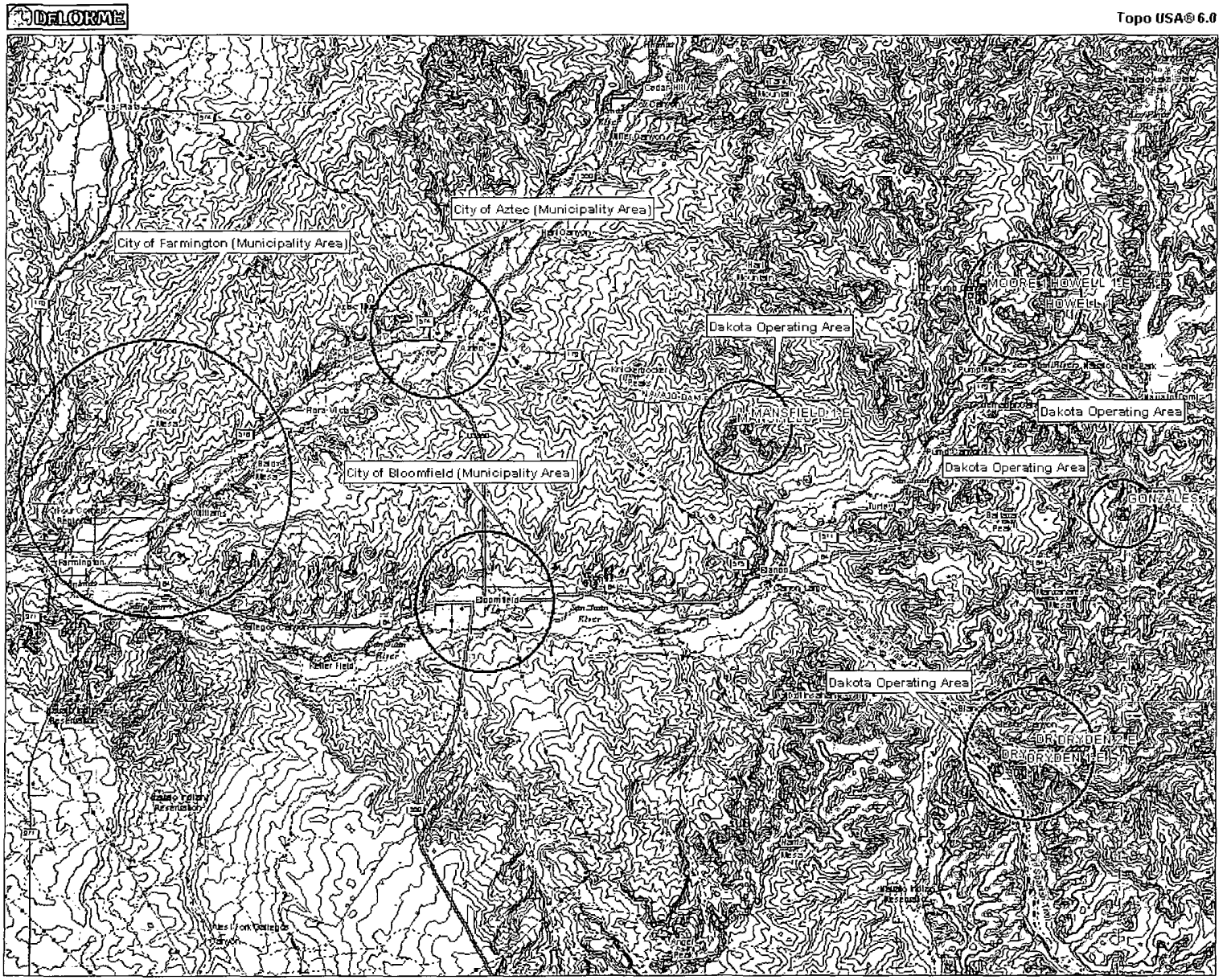
PANEL LOCATION

COMMUNITY-PANEL NUMBER
350064 0750 B

EFFECTIVE DATE:
AUGUST 4, 1988

Federal Emergency Management Agency

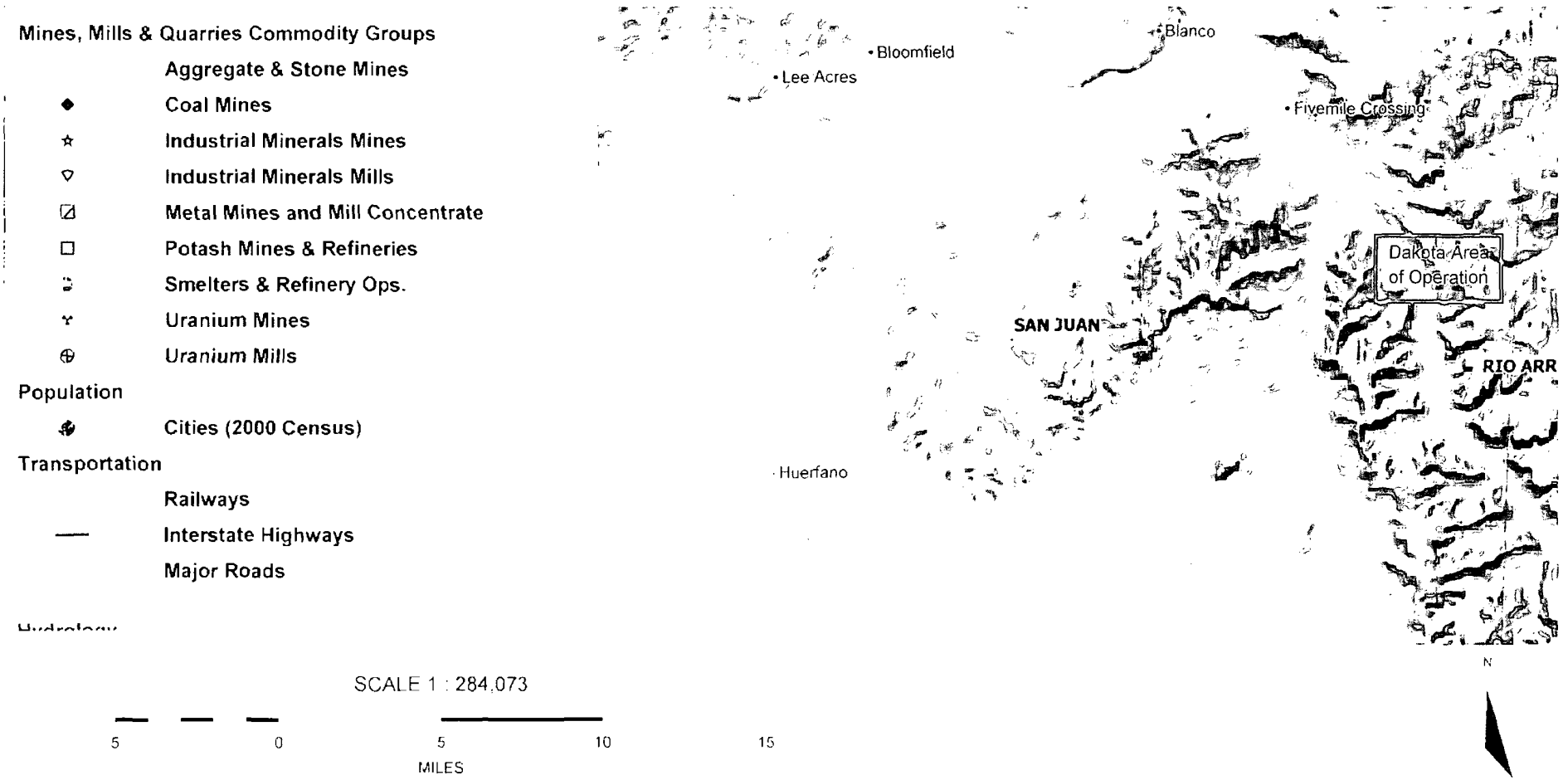
APPENDIX E
Municipal Boundary Map



The belowgrade tank is located within the Dakota Operating Area.

APPENDIX F
Mine Map

MMQonline Public Version



APPENDIX G
Monthly Tank Inspection Form

KOCH EXPLORATION COMPANY, LLC
Site_____
MONTHLY EXTERNAL INSPECTION FORM

Month: (circle) Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Visually inspect supports and secondary containment structures for excessive settlement, apparent structural weakness, cracks, areas of wear, excessive corrosion. Inspect and monitor existing leak detection systems (for example, observation ports leakage beneath support systems, cathodic protection equipment, and other warning systems such as alarms and/or level indication).

Monthly Observations (X=satisfactory, D=deficiency)								
Equipment	**Tank 1**	**Tank 2**	**Separator 1**	**Separator 2**	**Dehydrator**	**Other Equipment** _____	**Other Equipment** _____	**Comments**
Contents[2]								
Capacity (bbls)								
Tank								
Signs of leakage/staining								
Evidence of rust/corrosion/damage								
Overfill protection/tank gauge in working order				n/a	n/a	n/a		
Valves closed and secured								
Drip pan present and in good condition								Drip pans carried by vacuum trucks. Pan will be inspected if truck is onsite during site inspection.
Secondary Containment								
Evidence of erosion								
Excessive vegetation								
Holes/cracks/other breaches								
Accumulated water/sheen								
Walkway over berm								
Staining/evidence of leak								
Unbreached floor/Valves closed								
Piping/Valves/Aboveground Flow Lines								
Equipment in good working condition								
No visible leaks								
Soil staining								

[1] You must keep this inspection record, signed by the appropriate supervisor or inspector, with the SPCC Plan for a period of three years. (40 CFR 112.7(e))

[2] Use "C" for condensate; "OW" for oil/water mixtures; "Other" for other substances

[3] Attach a full copy of all work orders. Work order numbers are equal to the date as described on the work order form.

Inspection Date
Inspected By (Signature)
Management Review (Signature)
Management Review Date
Deficiency Work Order Date[3]