

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

State of New Mexico  
Energy Minerals and Natural Resources  
Department  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-144  
Revised June 6, 2013

**For temporary pits, below-grade tanks, and multi-well fluid management pits**, submit to the appropriate NMOCD District Office.  
**For permanent pits** submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

BGT B

Pit, Below-Grade Tank, or  
Proposed Alternative Method Permit or Closure Plan Application

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

**Instructions: Please submit one application (Form C-144) per individual pit, 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: BP AMERICA PROD. CO. OGRID #: 778  
Address: 1199 Main Ave., Suite 101, Durango, CO 81301  
Facility or well name: E E ELLIOTT B 003A  
API Number: 3004522059 OCD Permit Number: \_\_\_\_\_  
U/L or Qtr/Qtr C Section 26.0 Township 30.0N Range 09W County: San Juan County  
Center of Proposed Design: Latitude 36.786418 Longitude -107.752771 NAD: ☐ 1927 ☒ 1983  
Surface Owner: ☒ Federal ☐ State ☐ Private ☐ Tribal Trust or Indian Allotment

2.  
☐ **Pit:** Subsection F, G or J of 19.15.17.11 NMAC  
Temporary: ☐ Drilling ☐ Workover  
☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A ☐ Multi-Well Fluid Management Low Chloride Drilling Fluid ☐ yes ☐ no  
☐ 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.  
☒ **Below-grade tank:** Subsection I of 19.15.17.11 NMAC **TANK ID: B**  
Volume: 105.0 bbl Type of fluid: Produced Water  
Tank Construction material: Steel  
☐ Secondary containment with leak detection ☒ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off  
☐ Visible sidewalls and liner ☐ Visible sidewalls only ☐ Other SINGLE WALLED SINGLE BOTTOMED  
Liner type: Thickness 45 mil ☐ HDPE ☐ PVC ☒ Other LLDPE

4.  
☐ **Alternative Method:**  
Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

5.  
**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 \_\_\_\_\_

6.

**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)

7.

**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 19.15.16.8 NMAC

8.

**Variations 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:***

- ☐ Variance(s): Requests must be submitted to the appropriate division district for consideration of approval.
- ☐ Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

9.

**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. Siting criteria does not apply to drying pads or above-grade tanks.*****General siting****Ground water is less than 25 feet below the bottom of a low chloride temporary pit or below-grade tank.**

- ☒ NM Office of the State Engineer - iWATERS database search; ☐ USGS; ☐ Data obtained from nearby wells

☐ Yes ☒ No

☐ NA

**Ground water is less than 50 feet below the bottom of a Temporary pit, permanent pit, or Multi-Well Fluid Management pit.**

NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells

☐ Yes ☐ No

☐ NA

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. **(Does not apply to below grade tanks)**

- Written confirmation or verification from the municipality; Written approval obtained from the municipality

☐ Yes ☐ No

Within the area overlying a subsurface mine. **(Does not apply to below grade tanks)**

- Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division

☐ Yes ☐ No

Within an unstable area. **(Does not apply to below grade tanks)**

- 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. **(Does not apply to below grade tanks)**

- FEMA map

☐ Yes ☐ No

**Below Grade Tanks**

Within 100 feet of a continuously flowing watercourse, significant watercourse, lake bed, sinkhole, wetland or playa lake (measured from the ordinary high-water mark).

- Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☒ No

Within 200 horizontal feet of a spring or a fresh water well used for public or livestock consumption;.

- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

☐ Yes ☒ No

**Temporary Pit using Low Chloride Drilling Fluid** (maximum chloride content 15,000 mg/liter)

Within 100 feet of a continuously flowing watercourse, or any other significant watercourse or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). (Applies to low chloride temporary pits.)

- Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

Within 300 feet from a occupied 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 200 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 300feet of any other fresh water well or spring, in existence at the time of the initial application.

NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

Within 100 feet of a wetland.

- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

### **Temporary Pit Non-low chloride drilling fluid**

Within 300 feet of a continuously flowing watercourse, or any other significant watercourse, or within 200 feet of any 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 spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 1000 feet of any other fresh water well or spring, in the existence at the time of the initial application;

- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

Within 300 feet of a wetland.

- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

### **Permanent Pit or Multi-Well Fluid Management Pit**

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 1000 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 spring or a fresh water well used for domestic or stock watering purposes, 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 500 feet of a wetland.

- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

10.

#### **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: \_\_\_\_\_

11.

#### **Multi-Well Fluid Management Pit 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.

- ☐ 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
- ☐ A List of wells with approved application for permit to drill associated with the pit.
- ☐ 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
- ☐ Hydrogeologic Data - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC

☐ Previously Approved Design (attach copy of design) API Number: \_\_\_\_\_ or Permit Number: \_\_\_\_\_

12. **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

13. **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 ☐ Multi-well Fluid Management Pit  
☐ 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

14. **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 C 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 H of 19.15.17.13 NMAC
- ☒ Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

15. **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 require justifications and/or demonstrations of equivalency. Please refer to 19.15.17.10 NMAC for guidance.

Ground water is less than 25 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 type="checkbox"/> No <input type="checkbox"/> NA
Ground water is between 25-50 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 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 type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Within 100 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, 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 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 type="checkbox"/> No
Within 300 horizontal feet of a private, domestic fresh water well or spring used for domestic or stock watering purposes, 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 type="checkbox"/> No
Written confirmation or verification from the municipality; Written approval obtained from the municipality	<input type="checkbox"/> Yes <input type="checkbox"/> No
Within 300 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 type="checkbox"/> No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance	<input type="checkbox"/> Yes <input type="checkbox"/> No

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 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

16.

**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 E of 19.15.17.13 NMAC
- ☐ Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of Subsection K 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 19.15.17.13 NMAC
- ☐ Waste Material Sampling Plan - based upon the appropriate requirements 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 H of 19.15.17.13 NMAC
- ☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

17.

**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): Steve Moskal Steven Moskal Title: Environmental Coordinator

Signature:  2020.06.24 13:39:20 Date: 6/24/2020

e-mail address: steven.moskal@bpx.com Telephone: (505) 330-9174

18.

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

OCD Representative Signature:  Approval Date: 8/28/2020

Title: Environmental Specialist OCD Permit Number: BGT B

19.

**Closure Report (required within 60 days of closure completion):** 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: \_\_\_\_\_

20.

**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.

21.

**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 for private land only)
- ☐ 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

22.

**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: \_\_\_\_\_



## **SITING AND HYDRO-GEOLOGICAL REPORT E E ELLIOTT B 003A**

### **SITING CRITERIA 19.15.17.10 NMAC**

Depth to groundwater at the site is estimated to be well greater than 100 feet (**ft.**) below ground surface (**bgs**). This estimation is based on data from Stone and others (1983), and depth to groundwater data reviewed from the New Mexico State Engineer's Office (**NMOSE**). Local topography and proximity to adjacent water features were also evaluated.

There are no water wells permitted by NMOSE within 200 ft. from the below-grade tank (**BGT**) (Figure 1). A topographic map (Figure 2) demonstrates that the BGT is not within 100 feet of any continuously flowing watercourse, significant watercourse, lake bed, sinkhole, wetland, or playa lake as measured from the ordinary high water mark.

### **LOCAL GEOLOGY AND HYDROLOGY**

Groundwater is estimated at greater than 250 ft. bgs. This estimation is based on Google Earth's aerial photography (see Figure 3A - imagery date: 10/5/2016) elevation difference between the site's ground level (5,929 ft.) and the closest proximity to the San Juan River's water level (5,648 ft. at 36.780592,-107.732677) and is located approximately 1.2 miles, S70E from the BGT.

This particular site is located on a mesa top north west of the San Juan River, but hundreds of feet higher in elevation. The mesa is composed of the Nacimiento Formation. Broad shaley hills are interspersed with occasional sandstone outcrops, and systems of canyons and drainages lead north to the San Juan River, which is approximately 1 mile away, but hundreds of feet lower in elevation.

### **REGIONAL GEOLOGY AND HYDROLOGY**

The San Juan Basin is situated in the Navajo section of the Colorado Plateau and is characterized by broad open valleys, mesas, buttes and hogbacks. Away from major valleys and canyons topographic relief is generally low. Native vegetation is sparse and shrubby. Drainage is mainly by the San Juan River, the only permanent stream in the Navajo Section of the Colorado Plateau. The San Juan River is a tributary of the Colorado River. Major tributaries include the Animas, Chaco and La Plata Rivers. Flow of the San Juan River across the basin is regulated by the Navajo Dam, located about 30 miles northeast of Farmington, New Mexico. The climate is arid to semiarid with an average annual precipitation of 8 to 10 inches. Soils within the basin consist of weathered parent rock derived from predominantly physical means mostly from eolian depositional system with fluvial having a lesser impact.

Cretaceous and Tertiary sandstones, as well as Quaternary Alluvial deposits, serve as the primary aquifers in the San Juan Basin (Stone et al., 1983). The Nacimiento Formation of Paleocene age occurs at the surface in a broad belt at the western and southern edges of the central San Juan Basin and dips beneath the San Jose Formation in the center. The lower part of the Nacimiento Formation is composed of interbedded black, carbonaceous mudstones and white coarse-grained sandstones. The upper part is comprised of mudstone and sandstone. It is generally slope-forming, even within the sandstone units. Thickness of the Nacimiento ranges from 418 to 2,232 feet. Aquifers within the coarser and continuous sandstone bodies of the Nacimiento Formation are between 0 and 1,000 feet deep in this section of the basin. Wells within these bodies flow from 16 to 100 gallons per minute (gpm), and transmissivities are expected to be 100 ft<sup>2</sup>/d (Stone et al, 1983). Groundwater within these aquifers flows toward the San Juan River.

## **REFERENCES**

Circular 154—Guidebook to coal geology of northwest New Mexico By E. C. Beaumont, J. W. Shomaker, W. J. Stone, and others, 1976

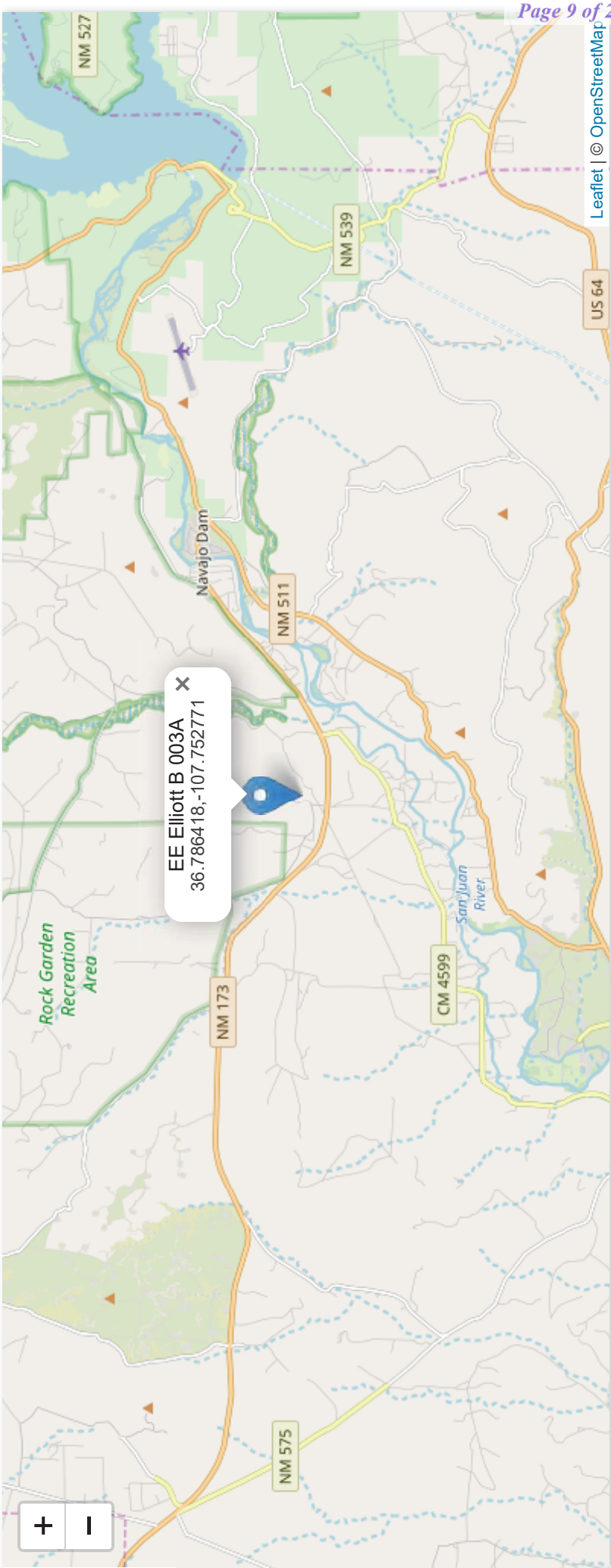
Stone, et al., 1983, Hydrogeology and Water Resources of the San Juan Basin, New Mexico, Socorro, New Mexico Bureau of Mines and Mineral Resources Hydrologic Report 6, 70 p

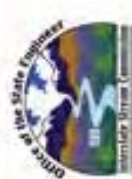


# Convert Lat Long to UTM

Type the latitude and longitude values to convert into **UTM** (Universal Transverse Mercator) coordinate system.

Latitude	<div>36.786418</div>	Longitude	<div>-107.752771</div>
Convert			
UTM Easting	<div>254358.94</div>	UTM Northing	<div>4074714.68</div>
UTM Zone	<div>12S</div>		





# New Mexico Office of the State Engineer

## Wells with Well Log Information

**Basin/County Search:**

**Basin:** San Juan      **County:** San Juan      **Subbasin:** San Juan

**UTMNAD83 Radius Search (in meters):**

**Easting (X):** 254358.9      **Northing (Y):** 4074714.7      **Radius:** 60.96 or 200 ft.

No wells found.



# New Mexico Office of the State Engineer

## Wells Without Well Log Information

---

No wells found.

**Basin/County Search:**

**Basin:** San Juan

**County:** San Juan

**Subbasin:** San Juan

**UTMNAD83 Radius Search (in meters):**

**Easting (X):** 254358.9

**Northing (Y):** 4074714.7

**Radius:** 60.96 or 200 ft.



New Mexico Office of the State Engineer

Point of Diversion with Meter Attached

Basin/County Search: No PODs found.

Basin: San Juan County: San Juan Subbasin: San Juan

UTM/NAD83 Radius Search (in meters):

Easting (X): 254358.9 Northing (Y): 4074714.7 Radius: 60.96 or 200 ft.

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.



**FIGURE 1**

**BPX - EE ELLIOTT B 003A**

(C) Section 26, T30N, R9W  
API #: 3004522059

Imagery date: 10/5/2016  
WH GPS Coord.: 36.786362, -107.753249  
105 BGT GPS Coord.: 36.786418, -107.752771

200 ft. radius  
from 105 bbl bgt center

105 bbl BGT  
GPS Coordinates:  
36.786418, -107.752771  
Ground Level Elevation: 5,929 ft.

Groundwater & Water Well Proximity  
per 19.15.17.10 NMAC



200 ft

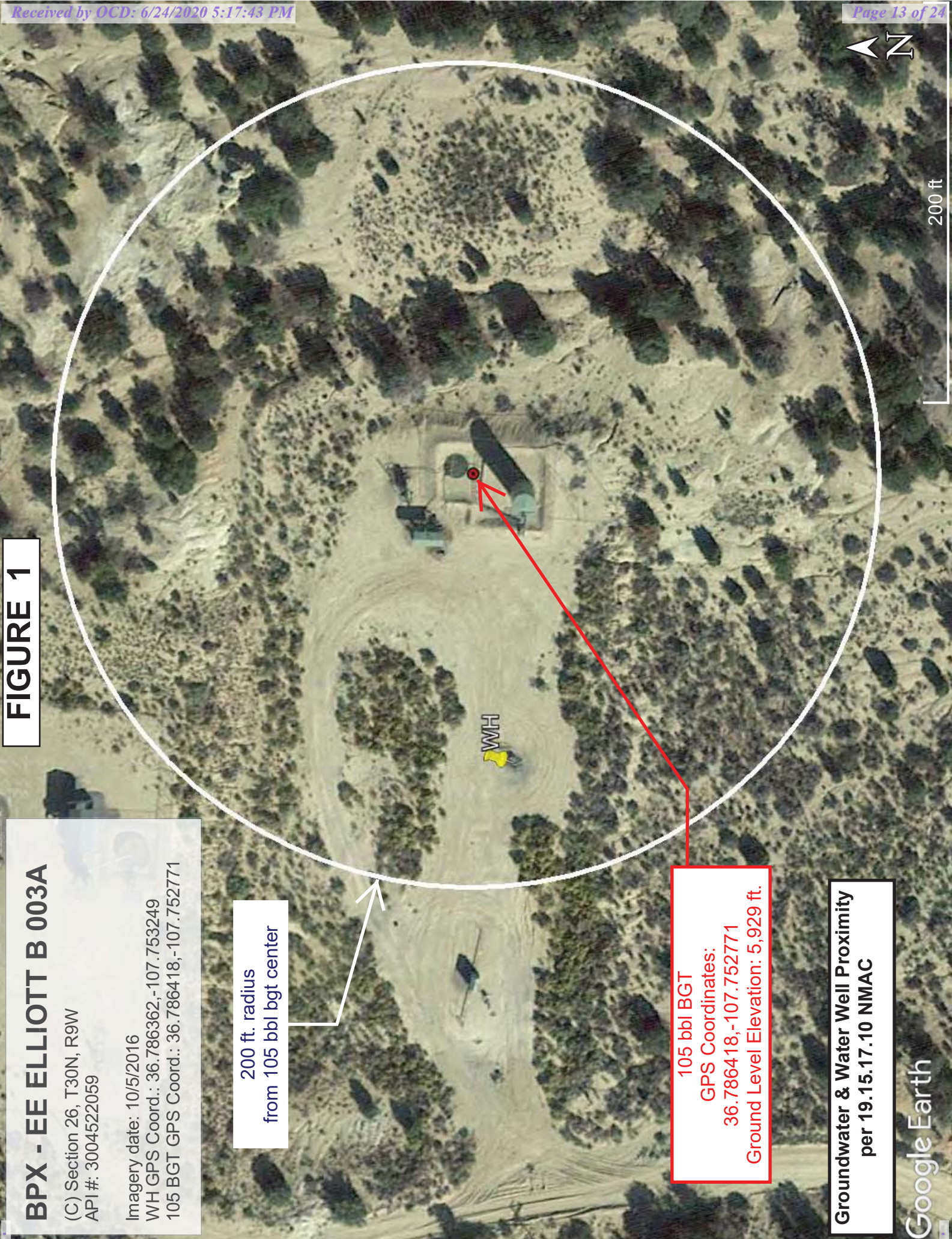




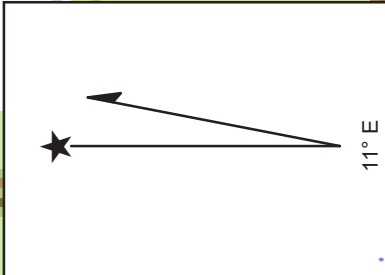
FIGURE 2

# Ventana Spring

105 bbl BGT  
GPS Coordinates:  
36.786418, -107.752771  
Ground Level Elevation: 5,929 ft.

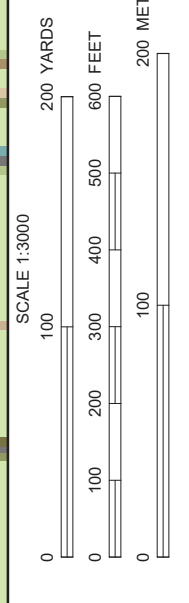
100 ft. radius  
from 105 bgt center

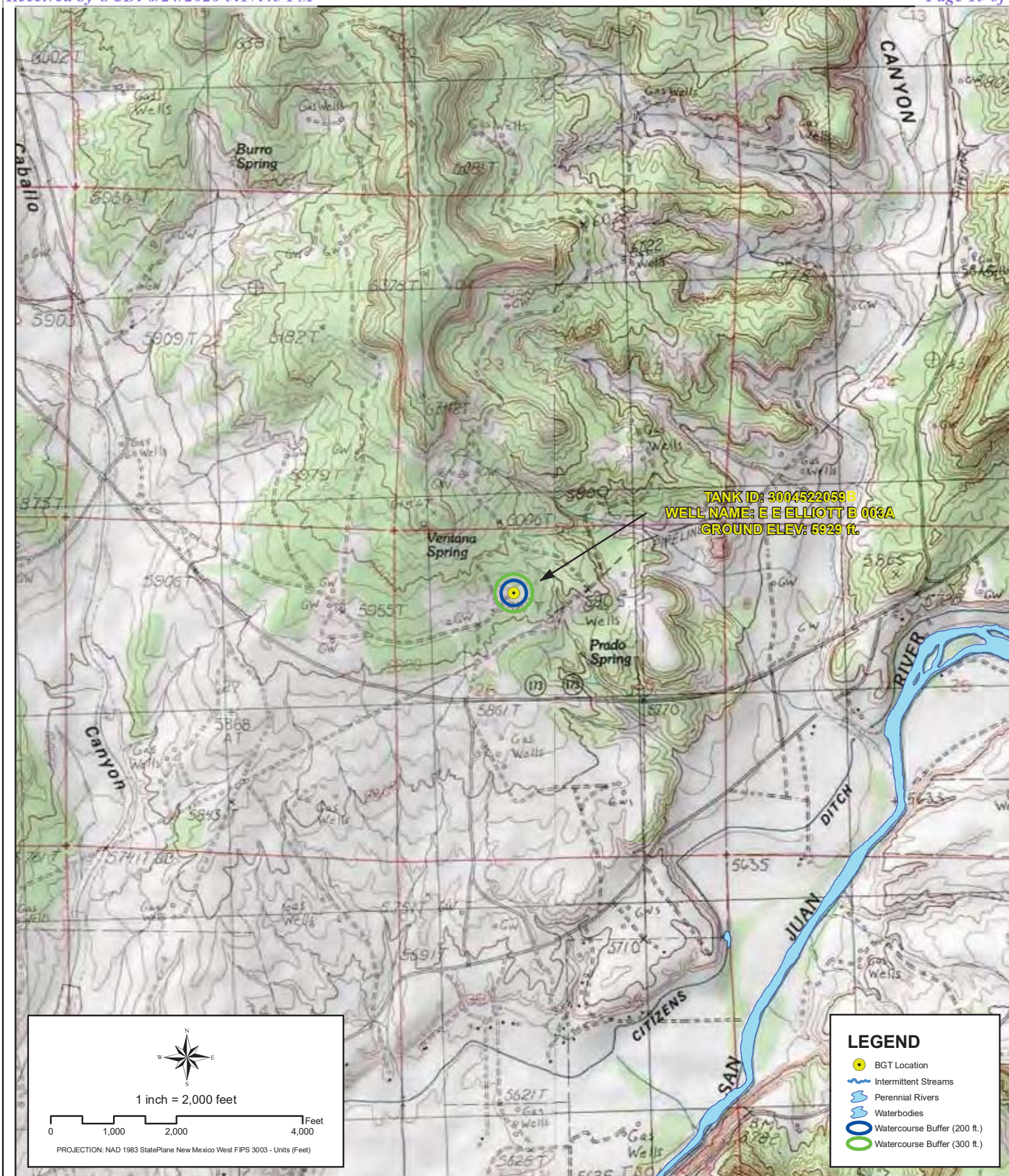
Surface gradient  
direction: SSE



**BPX - E E ELLIOTT B 003A**  
API #: 3004522059  
Tank ID: 3004522059B  
(C) Section 26, Township 30.0N, Range 09W, P.M. NM 23

Proximity to Watercourses





Creation Date: 4/29/2010

File Path: X:\BP\PASS\Sector 6\Sector 6B\IMXD\3004522059A.mxd

Created by: EBB

Reviewed by: AGH



## PROXIMITY TO WATERCOURSES

**WELL NAME: E E ELLIOTT B 003A**

API NUMBER: 3004522059 TANK ID: 3004522059B

**SECTION 26, TOWNSHIP 30.0N, RANGE 09W, P.M. NM23**

**FIGURE**  
**2A**



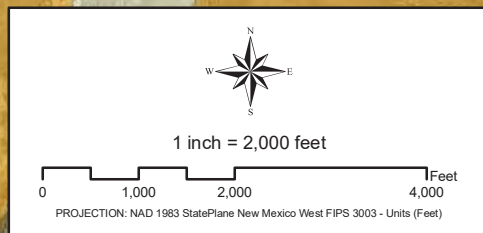
**LEGEND**

- BGT Location
- Water Well Location
- Distance to BGT (Line of Sight)
- 1 Mile Buffer
- Groundwater Evaluation (Alluvial Geology)**
- Groundwater Likely Less Than 50 Feet BGS
- Groundwater Suspected to be Less Than 50 Feet BGS

**Surficial Geology Units**

- |  |  |  |
|--|--|--|
| <span style="background-color: #d9ead3; width: 20px; height: 10px; display: inline-block;"></span> Ka - Animas formation                             | <span style="background-color: #d9ead3; width: 20px; height: 10px; display: inline-block;"></span> Kpc - Pictured Cliffs sandstone | <span style="background-color: #fff2cc; width: 20px; height: 10px; display: inline-block;"></span> Qg - Terrace gravel       |
| <span style="background-color: #c4e1a1; width: 20px; height: 10px; display: inline-block;"></span> Kch - Cliff House sandstone                       | <span style="background-color: #c4e1a1; width: 20px; height: 10px; display: inline-block;"></span> Kpl - Point Lookout sandstone   | <span style="background-color: #fff2cc; width: 20px; height: 10px; display: inline-block;"></span> Qgs - Gravelly sand       |
| <span style="background-color: #d9ead3; width: 20px; height: 10px; display: inline-block;"></span> Kf - Fruitland formation                          | <span style="background-color: #a6c9ec; width: 20px; height: 10px; display: inline-block;"></span> Lake                            | <span style="background-color: #fff2cc; width: 20px; height: 10px; display: inline-block;"></span> Qsw - Sheetwash alluvium  |
| <span style="background-color: #d9ead3; width: 20px; height: 10px; display: inline-block;"></span> Kkl - Kirtland shale, lower shale member          | <span style="background-color: #fff2cc; width: 20px; height: 10px; display: inline-block;"></span> Qa - Alluvium                   | <span style="background-color: #fff2cc; width: 20px; height: 10px; display: inline-block;"></span> Tbg - Bridgetimber Gravel |
| <span style="background-color: #d9ead3; width: 20px; height: 10px; display: inline-block;"></span> Kkm - Kirtland shale, Farmington sandstone member | <span style="background-color: #fff2cc; width: 20px; height: 10px; display: inline-block;"></span> Qal - Alluvium                  | <span style="background-color: #f4cccc; width: 20px; height: 10px; display: inline-block;"></span> Ti - Intrusive rocks      |
| <span style="background-color: #d9ead3; width: 20px; height: 10px; display: inline-block;"></span> Kku - Kirtland shale, upper shale member          | <span style="background-color: #fff2cc; width: 20px; height: 10px; display: inline-block;"></span> Qap - Pediment gravel           | <span style="background-color: #f4cccc; width: 20px; height: 10px; display: inline-block;"></span> Tn - Nacimiento formation |
| <span style="background-color: #f4cccc; width: 20px; height: 10px; display: inline-block;"></span> Kl - Lewis shale                                  | <span style="background-color: #fff2cc; width: 20px; height: 10px; display: inline-block;"></span> Qat - Terrace gravel            | <span style="background-color: #f4cccc; width: 20px; height: 10px; display: inline-block;"></span> Tsc - Cuba Mesa Member    |
| <span style="background-color: #c4e1a1; width: 20px; height: 10px; display: inline-block;"></span> Kmf - Menefee formation                           | <span style="background-color: #fff2cc; width: 20px; height: 10px; display: inline-block;"></span> Qes - Eolian sand               | <span style="background-color: #f4cccc; width: 20px; height: 10px; display: inline-block;"></span> Tsj - San Jose Formation  |
| <span style="background-color: #d9ead3; width: 20px; height: 10px; display: inline-block;"></span> Koa - Ojo Alamo sandstone                         |  | <span style="background-color: #f4cccc; width: 20px; height: 10px; display: inline-block;"></span> Tsr - Regina Member       |

**TANK ID: 3004522059B**  
**WELL NAME: E E ELLIOTT B 003A**  
**GROUND ELEV: 5929 ft.**



POD Number	Well Depth	Water Depth	Elevation
SJ 00459	0	0	5698
SJ 01330	20	5	5637
SJ 01823	0	0	5670
SJ 02155	0	0	5870
SJ 00140	10	0	5661

Creation Date: 4/29/2010

File Path: X:\BP\PASS\Sector 6\Sector 6B\IMXD\3004522023C.mxd

Created by: EBB

Reviewed by: AGH



# GROUNDWATER LESS THAN 50 FT.

**WELL NAME: E E ELLIOTT B 003A**

API NUMBER: 3004522059 TANK ID: 3004522059B

SECTION 26, TOWNSHIP 30.0N, RANGE 09W, P.M. NM23

FIGURE  
3



**FIGURE 3A**

**BP - EE ELLIOTT B 003A**

(C) Section 26, T30N, R9W  
API #: 3004522059

Imagery date: 10/5/2016  
WH GPS Coord.: 36.786362, -107.753249  
105 bbl BGT GPS Coord.: 36.786418, -107.752771

Approximately 1.2 miles  
S70E from 105 BGT

WH

105 bbl BGT  
GPS Coordinates:  
36.786418, -107.752771  
Ground Level Elevation: 5,929 ft.

Navajo Dam Rd

Rd 4599

Rd 4600

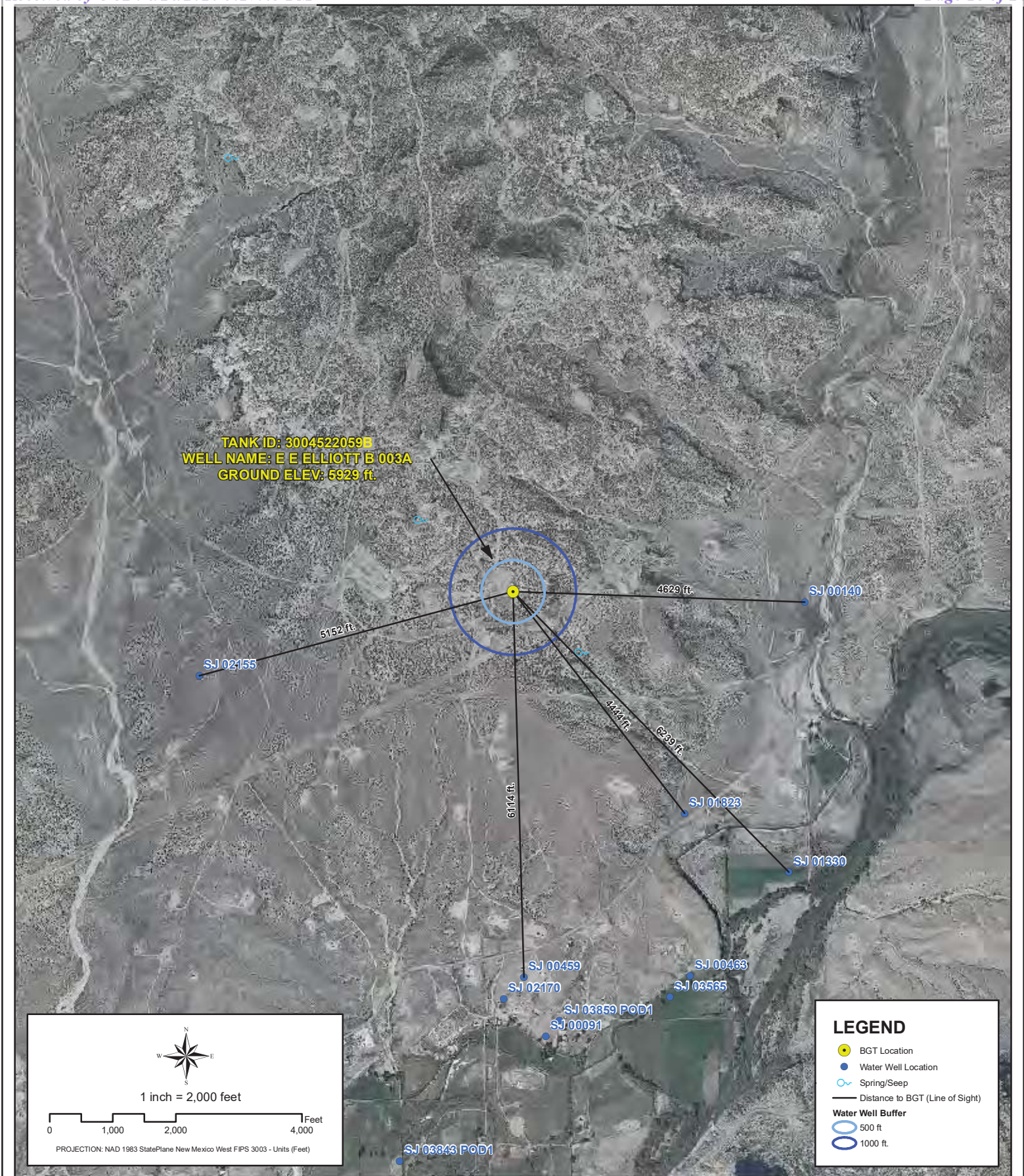
San Juan River  
GPS Coordinates:  
36.780592, -107.732677  
Water Level Elevation: 5,648 ft.

Groundwater & Water Well Proximity  
per 19.15.17.10 NMAC



2000 ft





# PROXIMITY TO WATER WELLS

**WELL NAME: E E ELLIOTT B 003A**

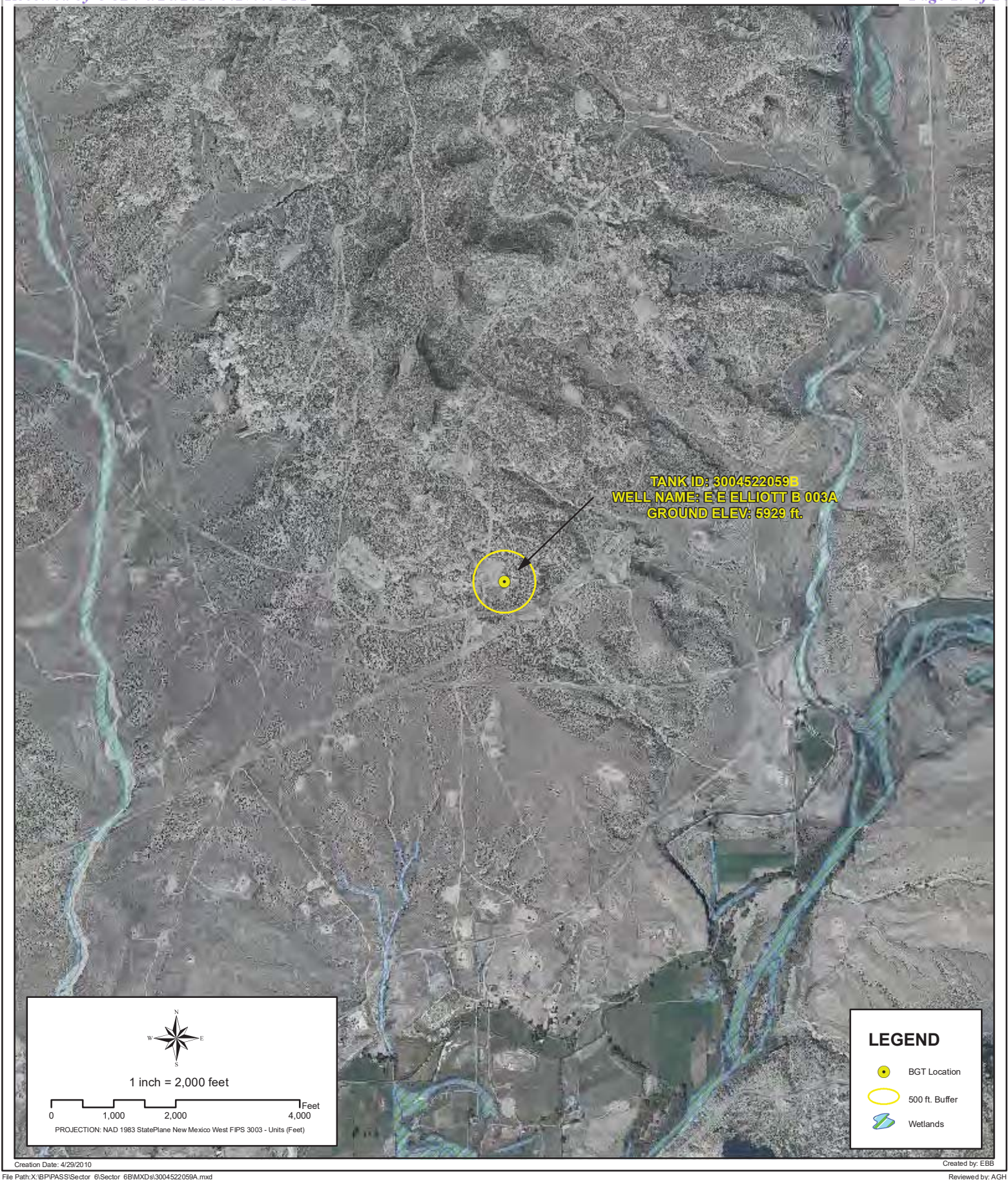
API NUMBER: 3004522059 TANK ID: 3004522059B

SECTION 26, TOWNSHIP 30.0N, RANGE 09W, P.M. NM23

FIGURE

4

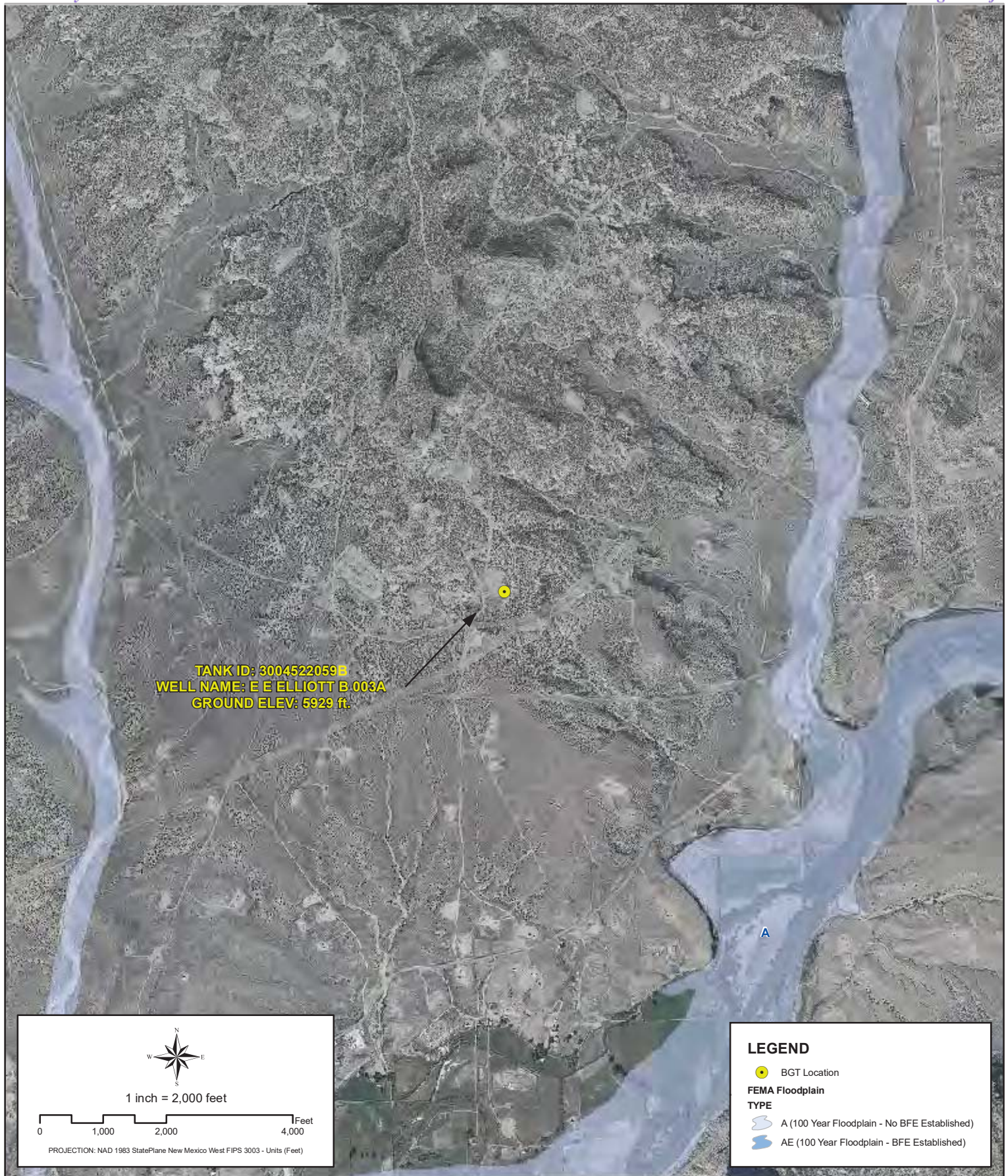




**PROXIMITY TO WETLANDS**  
**WELL NAME: E E ELLIOTT B 003A**  
API NUMBER: 3004522059 TANK ID: 3004522059B  
**SECTION 26, TOWNSHIP 30.0N, RANGE 09W, P.M. NM23**

**FIGURE**  
**5**





## PROXIMITY TO FLOODPLAIN

**WELL NAME: E E ELLIOTT B 003A**

API NUMBER: 3004522059 TANK ID: 3004522059B

**SECTION 26, TOWNSHIP 30.0N, RANGE 09W, P.M. NM23**

**FIGURE**  
**6**



**BP AMERICA PRODUCTION COMPANY**  
SAN JUAN BASIN, NORTHWEST NEW MEXICO  
BELOW-GRADE TANK DESIGN AND CONSTRUCTION PLAN

Pursuant to Rule 19.15.17.11 NMAC, BP America Production Company (BP) shall construct a below-grade tank (BGT) or modify an existing permitted BGT according to the following plan. Any deviations from this plan will be addressed on the New Mexico Oil Conservation Division's (NMOCD) form C-144 at the time of submittal.

**Design and Construction Plan**

1. BP will design and construct a BGT which will be constructed to contain liquids and prevent contamination of fresh water and protect public health and the environment.
2. BP is the well operator and shall install and maintain a well sign that is in compliance with 19.15.16.8 NMAC. The sign will be posted at the well site to address, at a minimum;
  - a. Well Number
  - b. Property name
  - c. Operators name
  - d. Location by footage, quarter-quarter section, township and range (or unit letter)
  - e. API number
  - f. Emergency contact information
3. BP will fence or enclose its BGTs in a manner that prevents unauthorized access and shall maintain its fence in good repair.
4. BP will fence or enclose a BGT located within 1,000 feet of a permanent residence, school, hospital, institution or church with, at a minimum a chain link security fence at least six (6) feet in height with at least two (2) strands of barbed wire at the top. BP will ensure that all gates associated with the fence are closed and locked when responsible personnel are not on-site.
5. BP is requesting NMOCD's approval for an alternative fence design that provides, at a minimum, equivalent protection to the design specified in Paragraph 3 of Subsection D of 19.15.17.11 NMAC for BGTs beyond the stated distance in paragraph 4 of this document. BP's proposed design for its BGTs will utilize 48" steel mesh field-fence (hogwire) with a metal or steel top rail. Perimeter T-post will be installed roughly every 10 feet.
6. BP will construct an expanded metal covering that completely covers the top of the BGT. The covering will be constructed such that it will prevent hazardous conditions to wildlife, including migratory birds
7. BP shall construct the BGT of materials that are resistant to produced water, any contained liquids, and damage from sunlight. BP's BGTs will be constructed of carbon steel that meets the requirements of ASTM A36.
8. BP's BGTs shall have a properly constructed earthen foundation consisting of a level base free of rocks, debris, sharp edges, or irregularities as to prevent punctures, cracks or indentations to the tank bottom as demonstrated on the design drawing.
9. BP will construct and operate the BGT to prevent surface water run-on by using both earthen berms and leaving a portion of the BGT above the original grade as demonstrated on the design drawing.
10. BP will construct and operate the BGT to prevent overflow and overfilling of the BGT. Overflow will be prevented by use of an electronic high fluid level detector that will automatically engage an electronic shut-off valve when a 1 foot freeboard is reached. The Hi-level automatic alarm notifies well optimizers when liquid level has reached within a pre-set distance to the top of the BGT. The Hi Hi alarm will trigger the Hi-level automatic shutdown valve which will close in the well until the liquid level can be lowered.

## SOUTHERN SAN JUAN BASIN (SSJB) Figure Citation List

### **Figure 2: Proximity to Significant Watercourses**

**Layers: Topographic Imagery: USGS (1999)**

USGS 24k Topographic map series. 1:24000. Maps are seamless, scanned images of USGS paper topographic maps. Data created using Terrain Navigator, Copyright 1999, Maptech Inc.

### **Figure 3: Groundwater Greater Than 50 ft.**

**Layers: Water Wells: iWaters Database: NMOSE/ISC (Dec. 2009)** New Mexico Office of the State Engineer

/ISC iWaters database. (Data updated: 12/2009. Data received: 03/09/2010). Data available from:

[http://www.ose.state.nm.us/waters\\_db\\_index.html](http://www.ose.state.nm.us/waters_db_index.html).

**Cathodic Wells: Tierra Corrosion Control, Inc. (Aug. 2008)**

Tierra Corrosion Control, Inc. 1700 Schofield Ln. Farmington, NM 87401. Driller's Data Log. (Data collected: All data are associated with cathodic protection wells installed at BP facilities between 2008-2009. Data received: 05/06/2010).

**Hydrogeological Evaluation: Wright Water Engineers, Inc. (2008)**

Evaluation completed by Wright Water Engineers, Inc. Durango Office. Data created using digital statewide geology at 1:500,000 from USGS in combination with 10m Digital Elevation Model (DEM) from NRCS. (Data compiled: 2008.)

Results: Spatial Polygons representing "Groundwater likely to be less than 50 ft." and "Groundwater suspected to be less than 50 ft."

**Surficial Geology: USGS (1963/1987)**

Data digitized and rectified by Geospatial Consultants. (Data digitized: 03/23/2010). Original hard copy maps sourced from United States Geological Survey (USGS). Data available from: <http://pubs.er.usgs.gov/>.

*Geology, Structure and Uranium Deposits of the Shiprock Quadrangle, New Mexico and Arizona.* 1:250,000. I - 345. Compiled by Robert B. O'Sullivan and Helen M. Beikman. 1963.

*Geologic Map of the Aztec 1 x 2 Quadrangle, Northwestern New Mexico and Southern Colorado.* 1:250,000. I - 1730. Compiled by Kim Manley, Glenn R. Scott, and Reinhard A. Wobus. 1987.

**Aerial Imagery: Conoco (Summer 2009)**

ConocoPhillips Company. (Flown: Summer 2009). 12 in. High Resolution Orthoimagery. Projected coordinate system name: NAD\_1983\_StatePlane\_New\_Mexico\_West\_FIPS\_3003\_Feet.

Provided as tiled .tiff images and indexed using polygon index layer.



**Layers:****Perennial Streams: NHD, USGS (2010)**

National Hydrography Dataset (NHD). U.S. Geological Survey. (Data last updated: 02/19/ 2010. Data received: 03/09/2010). High-resolution: 1:24,000. Digital Representation of USGS 24k Topographic map series with field updates as required. Data available from:  
<http://nhd.usgs.gov/>.

**Intermittent Streams: NHD, USGS (2010)**

National Hydrography Dataset (NHD). U.S. Geological Survey. (Data last updated: 02/19/ 2010. Data received: 03/09/2010). High-resolution: 1:24,000. Digital Representation of USGS 24k Topographic map series with field updates as required. Data available from:  
<http://nhd.usgs.gov/>.

**Water Bodies: NHD, USGS (2010)**

National Hydrography Dataset (NHD). U.S. Geological Survey. (Data last updated: 02/19/ 2010. Data received: 03/09/2010). High-resolution: 1:24,000. Digital representation of USGS 24k Topographic map series with field updates as required. Data available from:  
<http://nhd.usgs.gov/>.

**USGS Topographic Maps: USGS (2007)**

USGS 24k Topographic map series. 1:24000. Maps are seamless, scanned images of USGS paper topographic maps.

Data available from: <http://store.usgs.gov>.

**Layers: Aerial Imagery: Google Earth Pro (4/6/2019)**

Evaluation completed by Blagg Engineering, Inc., Bloomfield, NM. (2019)

**Figure 4: Proximity to Water Wells**

**Layers: Water Wells: iWaters Database: NMOSE/ISC (Dec. 2009)** New Mexico Office of the State Engineer (OSE) /ISC iWaters database. (Data updated: 12/2009. Data received: 03/09/2010). Data available from:

[http://www.ose.state.nm.us/waters\\_db\\_index.html](http://www.ose.state.nm.us/waters_db_index.html).

**Springs/Seeps: NHD, USGS (2010)**

National Hydrography Dataset (NHD). U.S. Geological Survey. (Data last updated: 02/19/ 2010. Data received: 03/09/2010). High-resolution: 1:24,000. Digital representation of USGS 24k Topographic map series with field updates as required. Data available from:  
<http://nhd.usgs.gov/>.

**Aerial Imagery: Conoco (Summer 2009)**

ConocoPhillips Company. (Flown: Summer 2009). 12 in. High Resolution Orthoimagery. Projected coordinate system name: NAD\_1983\_StatePlane\_New\_Mexico\_West\_FIPS\_3003\_Feet.

Provided as tiled .tiff images and indexed using polygon index layer.

**Figure 5: Proximity to Wetlands**

**Layers: Wetlands:**      **NWI (2010)** National Wetlands Inventory (NWI).    U.S Fish and Wildlife Service.    (Data last updated: 09/25/2009.    Data received: 03/21/2010).    Data available from: <http://www.fws.gov/wetlands/>.

**Aerial Imagery:**      **Conoco (Summer 2009)**

ConocoPhillips Company. (Flown: Summer 2009).    12 in. High Resolution Orthoimagery.    Projected coordinate system name: NAD\_1983\_StatePlane\_New\_Mexico\_West\_FIPS\_3003\_Feet.

Provided as tiled .tiff images and indexed using polygon index layer.

**Figure 6: Proximity to FEMA Floodplain**

**Layers: FEMA Floodplain:**      **FEMA (varying years)** Data digitized and rectified by Wright Water Engineers, Inc.    (Data digitized: August 2008).    Digitized from hard copy Flood Insurance Rate Maps (FIRMs) (varying years) of San Juan County.

**Aerial Imagery:**      **Conoco (Summer 2009)**

ConocoPhillips Company. (Flown: Summer 2009).    12 in. High Resolution Orthoimagery.    Projected coordinate system name: NAD\_1983\_StatePlane\_New\_Mexico\_West\_FIPS\_3003\_Feet.

Provided as tiled .tiff images and indexed using polygon index layer.