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.

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

13256
45-35736

OIL CONS. DIV DIST. 3
NOV 06 2015

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: Bridgecreek Resources (Colorado), L.L.C. OGRID #: 310262
Address: 405 Urban Street, Suite 400, Lakewood, CO 80228
Facility or well name: Osprey 30-7
API Number: 30-045-35736 OCD Permit Number:
U/L or Qtr/Qtr G SWNE Section 30 Township 31 N Range 14 W County: San Juan
Center of Proposed Design: Latitude N 36.8738951 Longitude W 108.3482163 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 20 mil ☒ LLDPE ☐ HDPE ☐ PVC ☐ Other
☒ String-Reinforced
Liner Seams: ☐ Welded ☐ Factory ☐ Other Volume: bbl Dimensions: L 56' x W 10' x D 10'

3.
☐ **Below-grade tank:** Subsection I of 19.15.17.11 NMAC
Volume: bbl Type of fluid:
Tank Construction material:
☐ Secondary containment with leak detection ☐ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off
☐ Visible sidewalls and liner ☐ Visible sidewalls only ☐ Other
Liner type: Thickness mil ☐ HDPE ☐ PVC ☐ Other

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 Burial Trench will be dug, lined, filled with stabilized cuttings and buried in a single day, no fencing required.

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.

Variances 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_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

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	☐ Yes ☐ No ☒ 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	☐ 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 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	☐ 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 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	☐ Yes ☒ No
Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ 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
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 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): Christine Campbell Title: Regulatory Lead

Signature: Christine Campbell Date: 11/4/15

e-mail address: CCampbell@PALOMARNR.COM Telephone: 303 945 2642

18.
OCD Approval: ☒ Permit Application (including closure plan) ☐ Closure Plan (only) ☐ OCD Conditions (see attachment)

OCD Representative Signature: _____ **Approval Date:** 11/24/15

Title: Environmental Spec **OCD Permit Number:** _____

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: _____

19.15.17.15 Exceptions and Variances.

Bridgecreek Resources (Colorado), LLC requests a variance for the items listed below. The requested variance, per 19.15.17.15.A, provides equal or better protection of freshwater, public health and the environment.

1. Pit Sampling Methodology
Request to utilize the extended range EPA 8015 method pit sampling results instead of the 418.1 sampling method.

2. Pit Marker
Bridgecreek will also be installing a temporary Flat Pit Marker upon closure. The temporary pit will be located with a steel marker, no less than four inches in diameter, cemented in a hole three feet deep in the center of the onsite burial upon the abandonment of all the wells on the pad. The marker will be flush with the ground to allow access of the active well pad and for safety concerns. The marker will include a threaded collar to be used for future abandonment. The top of the marker will contain a welded steel 12" square plate that will include operator name, lease number, section, township, range andindicates site is the onsite burial of the temporary pit. The plate will be easily removable and a four foot tall riser will be threaded into the top of the collar marker and welded around the base with the operator's information at the time all wells on the pad are abandoned. The operator's information will include the following: Operator Name, Lease Name, Well Name and number, Unit Number, Section, Township, Range and an indicator that the marker is an onsite burial location.

Bridgecreek will notify Surface Owners by email in lieu of certified mail.

Hydro geological report for Osprey 30-7

Regional Hydro geological context:

The Osprey 30-7 is located on Ute Mountain Ute lands in San Juan County, New Mexico. The proposed project is located in an area known as the Verde Oil Field on broad, open undulate plains with southeasterly aspects at about 1 to 4 degrees. Elevation in the project area is 5,571 feet, with no relief or drop-offs. The topography of the action area is characterized by gently sloping pediments to the south and Ute Dome, a steep dome, to the north.

The proposed project is located on the Four Corners platform of the Colorado Plateau. Surface geology in the area is the Lewis Shale and the from the Upper Cretaceous period (Condon 1991). Broken fragments and exposed outcrops occur within the project area.

Based on the Natural Resources Conservation Services Web Soil Survey (NRCS 2014), the soil-mapping unit in the project area is Monierco fine sandy loam, 3 to 12 percent slopes. Soils in the proposed project are fine sandy loam to loam. No biological soil crusts were observed within the project area.

No wetlands or perennial water resources in the form of rivers, lakes, ponds, or streams occur within the project area. Additionally, no well-defined ephemeral or intermittent drainages occur within the project area. Surface runoff from the proposed project area would flow via sheet drainages southwest into an unnamed tributary of Ute Canyon Wash, located approximately 0.1 miles southeast of the pad area. The well location sits on a relatively flat portion of terrain. The immediate area is drained going from north to south. Soils are mostly fine sandy loam to loam. The project area is classified as Great Basin desert shrub (Dick-Peddie 1993). The biotic plant community is locally dominated by low standing grass species, such as galleta and alkali sacation. In general, sparse to moderate cover of woody species are present in this biotic community, including shadscale saltbush, broom sankeweeed, and winterfat. Vegetation cover in the project area was visually estimated to range from 10 to 30 percent.

Depth to ground water

A records search of the NM Office of the State Engineer – iWATERS database indicates that the closest known water well is 3.2 miles away in section 3, T30N, R14W (SJ00944). The well is reported to be 61 feet deep with 5 feet to depth to ground water. The next closest well is located 5.6 miles away in section 18, T30N, R13W (SJ03867). The well is reported to be 200 feet deep but no information was given for depth to ground water.

Geologic maps of the area indicate that the surface formation at the proposed well site is the Lewis Shale from the Upper Cretaceous period (Condon 1991). Broken fragments and exposed outcrops occur within the project area. The Lewis Shale formation occurs

in New Mexico and Colorado and its outcrop forms the land surface over much of the northwest portion of the basin. It overlies the Mesaverde Formation.

The Lewis was deposited in various fluvial-type environments. In general, the unit consists of an interbedded sequence of sandstone, siltstone and variegated shale. Thickness of the Lewis Shale Formation near the project area is generally 165 m thick. Ground water is associated with alluvial and fluvial sandstone aquifers and the Lewis Shale has very low permeability and porosity thus, the occurrence of ground water is mainly controlled by the distribution of sandstone in the formation. The distribution of such sandstone is the result of original depositional extent plus any post-depositional modification, namely erosion and structural deformation. Transmissivity data for the Lewis Shale formation is minimal.

The Lewis Shale is a very suitable unit for recharge from precipitation because soils that form on the unity are sandy and highly permeable and therefore readily absorb precipitation. However, low annual precipitation, relatively high transpiration and evaporation rates, and deep dissection of the Lewis Shale Formation by the San Juan River and its tributaries all tend to reduce the effective recharge of the unit.

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, 70p

Site specific information:

Surface hydrology: The site is located on the lower portions of Purgatory Canyon drainage and is drained by a number of small intermittent drainages

First Water-bearing formation: Cliffhouse, Cretaceous
Formation thickness: 525 - 1250 feet
Underlying formation: Cliffhouse, Cretaceous
Depth to groundwater: Unknown, will verify when drilling surface hole

FEMA Map - 100 year floodplain

The attached FEMA Map indicates that the proposed location is outside of the mapped 100 year floodplain.

Siting Criteria Compliance Demonstrations

The Osprey 30-7 is not located in an unstable area. The location is not over a mine and is not on the side of a hill. The location of the excavated pit material will not be located within 300' of any continuously flowing watercourse or 200' from any other intermittent watercourse.

Bridgecreek Resources (Colorado), LLC
Osprey 30-7
Cuttings Burial Trench Application Siting Criteria

1. According to the iWaters Database from the State Engineers Office, the closest know water well is 3.2 miles away in section 3, T30N, R14W. The next closest well is located 5.6 miles away in section 18, T30N, R13W. The well is reported to be 200 feet deep but no information was given for depth to ground water. See attached printout.

2. Based on OSE well drilling records the minimum depth to groundwater was 5 feet deep and a maximum depth of 5 feet deep. Based on this information and the ground elevation of the proposed location being approximately 193 feet lower than the wells near Osprey 30-7 the assumption is that the formation that is producing water at a depth of 5 feet would not correlate to our location that is over 3 miles away with the current data the depth to ground water is undeterminable.

3. As shown on the attached topographic map and aerial photos, there are no continuously flowing watercourses within 300' of the well, or any significant watercourses, lakebeds, sinkholes, or playa lakes within 200' of the well.

4. There are no permanent residences, schools, hospitals, institutions, churches within 300' of the well.

5. There are no domestic water wells or springs within 500' of the well. See iWaters Database printout.

6. The well is not located within any municipal boundaries.

7. The well is not within 500' of any wetlands. See attached topographic map and aerial photos.

8. There are no subsurface mines in Section 34; T31N, R15W. See attached map from the NM EMNRD Mining and Mineral Division.

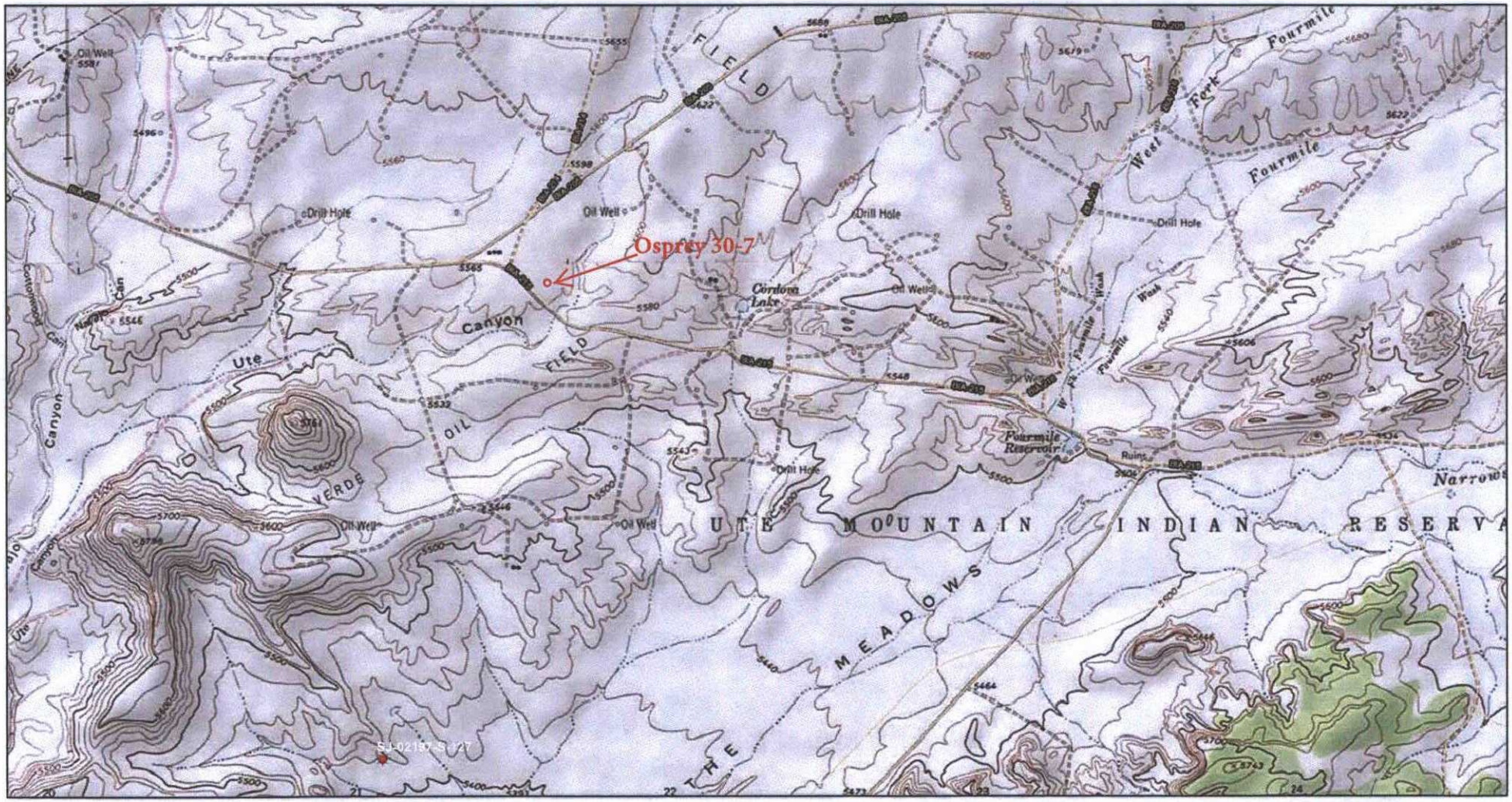
9. The Osprey 30-7 is not located in an "unstable" area. The location is not over a mine and is not on the side of a hill. The location of the excavated pit material will not be located within 300' of a continuously flowing watercourse or 200' from any other watercourse.

10. The well is not located in a 100-year floodplain as visible on the topographic map and the FEMA Flood Insurance Rate Map.

11. In the event that the composite pit sample that is mixed 3:1 with native soils does not meet the requirements for onsite burial, the pit contents will be removed and disposed of at the Industrial Ecosystem, Inc. Land Farm (NMOCD Permit #NM 01-00 I OB).

Osprey 30-7, Sec.30, T31N-R14W

OSE Well Locations



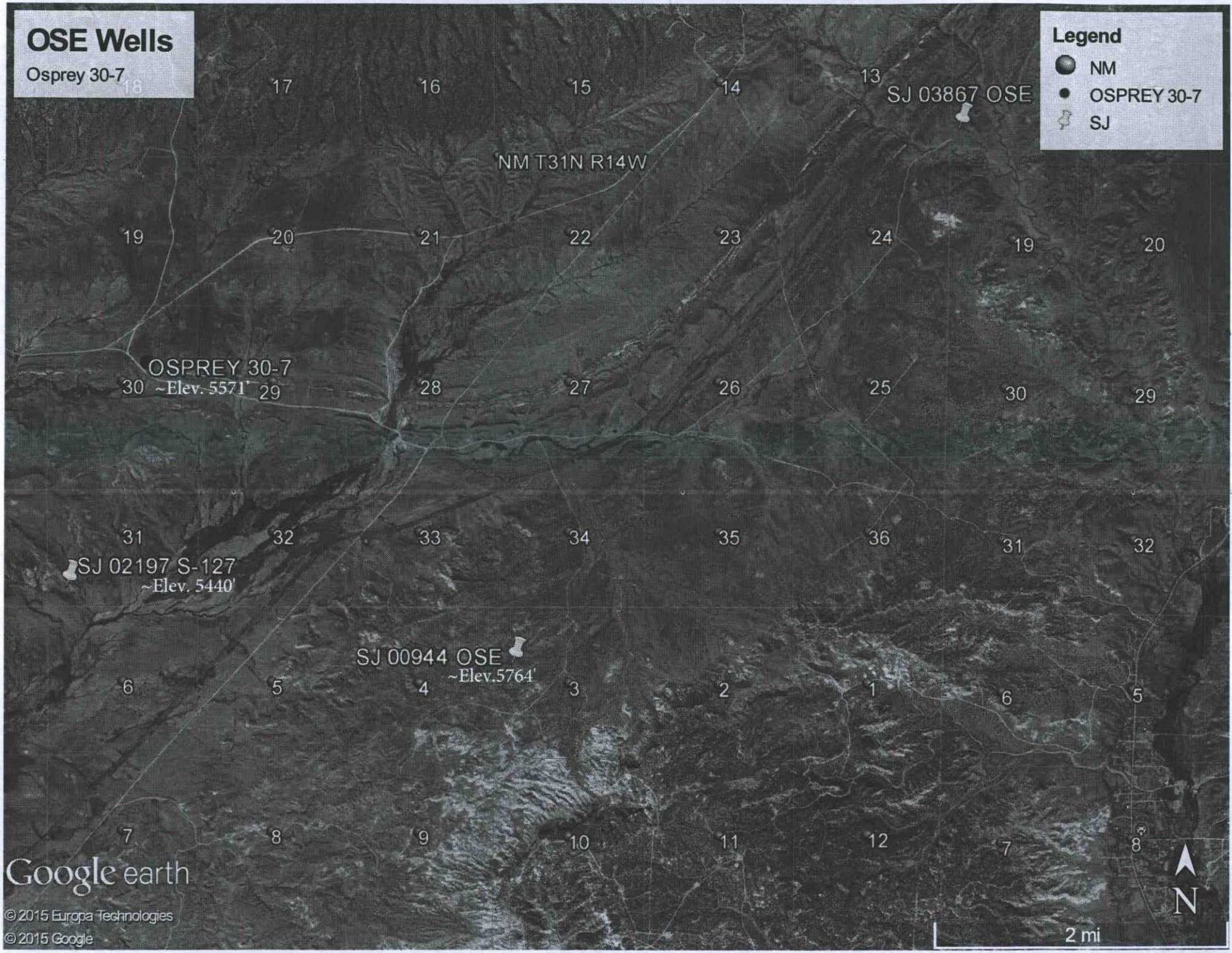
October 27, 2015

OSE_WELLS_May_2015

1:24,056

0 0.3 0.6 1.2 mi

0 0.475 0.95 1.9 km


OSE Wells
Osprey 30-7
Legend
NM
OSPREY 30-7
SJ
SJ 03867 OSE
NM T31N R14W
OSPREY 30-7
~Elev. 5571'
SJ 02197 S-127
~Elev. 5440'
SJ 00944 OSE
~Elev.5764'
Google earth
© 2015 Europa Technologies
© 2015 Google
N
2 mi

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
SJ 00944		SJ		3	1	03	30N	14W	205449	4082758*	5159	61	5	56
SJ 03867		SJ	1	4	3	18	31N	13E	210438	4088324	9179	200		
SJ 00815 EXPLOR-2		SJ	4	3	3	22	30N	15W	195711	4077373*	10499	240		

Average Depth to Water: **5 feet**

Minimum Depth: **5 feet**

Maximum Depth: **5 feet**

Record Count: 3

UTMNAD83 Radius Search (in meters):

Easting (X): 201529 **Northing (Y):** 4086113 **Radius:** 10500

***UTM location was derived from PLSS - see Help**

New Mexico Office of the State Engineer
Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
SJ 03867	1	4	3	18	31N	13E	210438	4088324

Driller License:
Driller Name:

Drill Start Date:		**Drill Finish Date:**		**Plug Date:**	
Log File Date:	01/26/2009	**PCW Rcv Date:**		**Source:**	Shallow
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:		**Depth Well:**	200 feet	**Depth Water:**	

New Mexico Office of the State Engineer
Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
SJ 00944	3	1		03	30N	14W	205449	4082758*

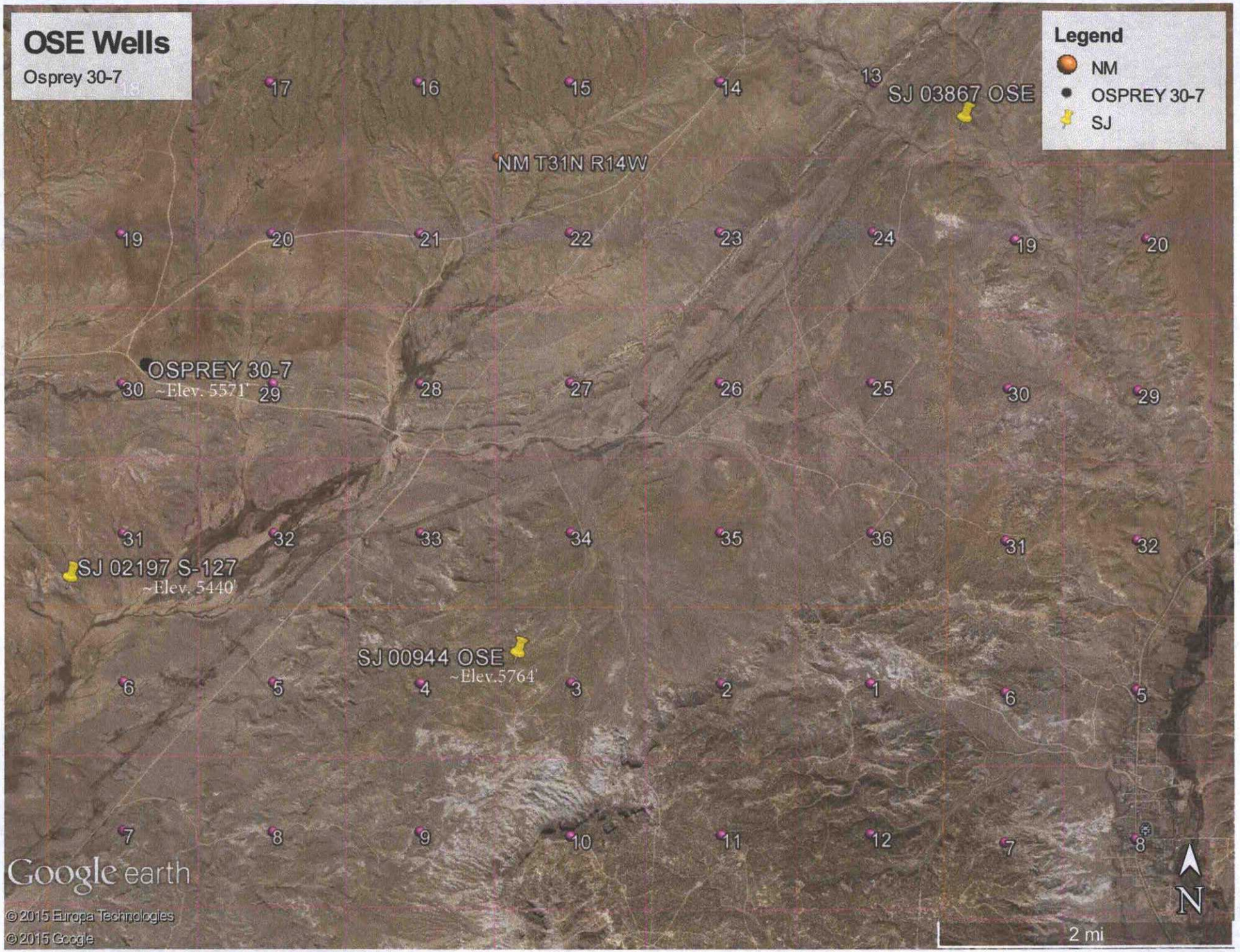
Driller License: 717
Driller Name: WJ HOOD

Drill Start Date: 05/25/1979 **Drill Finish Date:** 06/06/1979 **Plug Date:**
Log File Date: 06/11/1979 **PCW Rcv Date:** **Source:** Shallow
Pump Type: **Pipe Discharge Size:** **Estimated Yield:** 20 GPM
Casing Size: 6.00 **Depth Well:** 61 feet **Depth Water:** 5 feet

Water Bearing Stratifications:	Top	Bottom	Description
	49	61	Sandstone/Gravel/Conglomerate

Casing Perforations:	Top	Bottom
	55	61

***UTM location was derived from PLSS - see Help**


OSE Wells
Osprey 30-7
Legend
NM
OSPREY 30-7
SJ
SJ 03867 OSE
NM T31N R14W
OSPREY 30-7
~Elev. 5571'
SJ 02197 S-127
~Elev. 5440'
SJ 00944 OSE
~Elev.5764'
Google earth
© 2015 Europa Technologies
© 2015 Google
2 mi
N

New Mexico Office of the State Engineer
Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

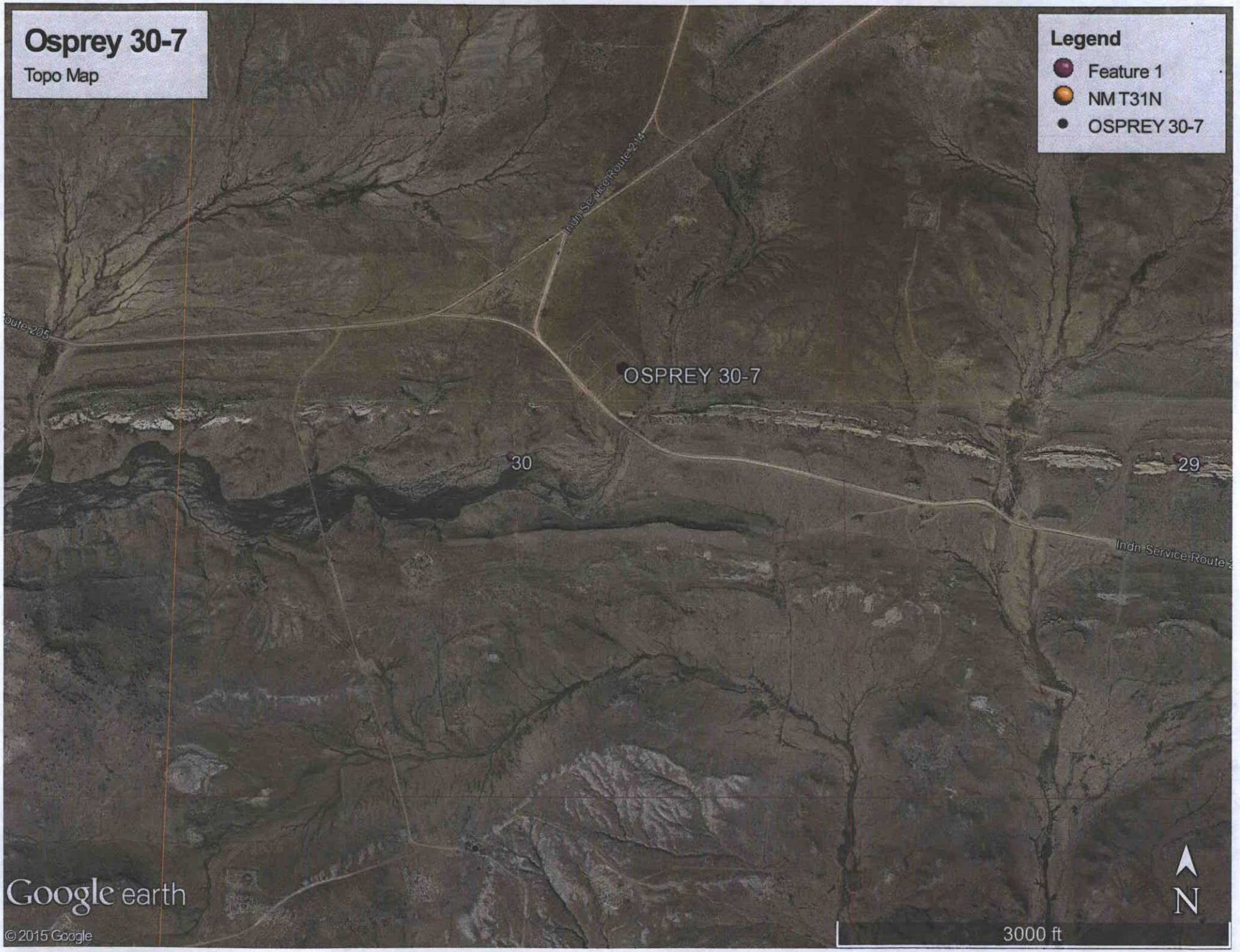
POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
SJ 00815 EXPLOR-2	4	3	3	22	30N	15W	195711	4077373*

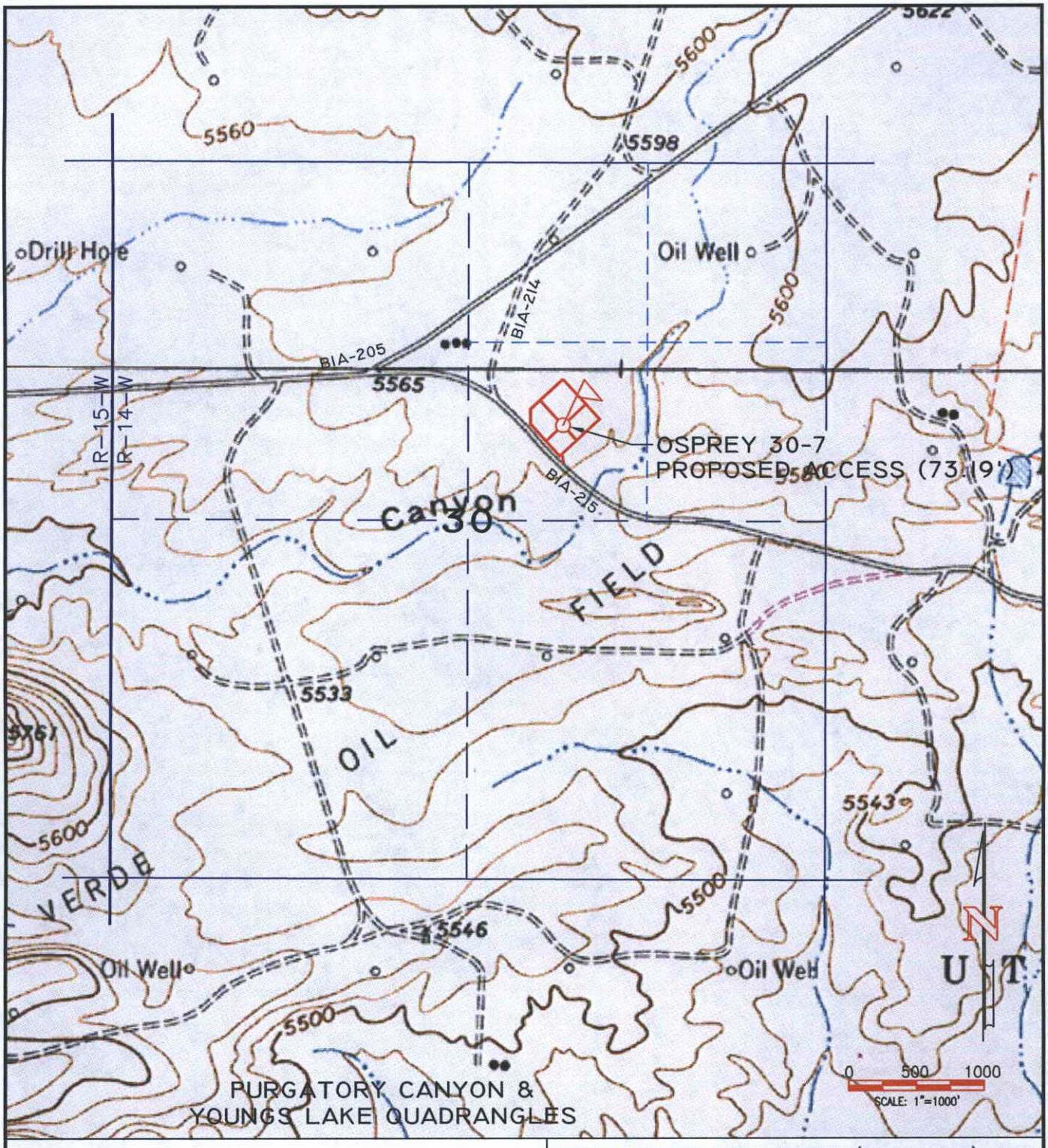
Driller License: 488
Driller Name:

Drill Start Date:	10/14/1978	**Drill Finish Date:**	10/14/1978	**Plug Date:**	
Log File Date:	11/07/1978	**PCW Rcv Date:**		**Source:**	Artesian
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:	4.50	**Depth Well:**	240 feet	**Depth Water:**	

Water Bearing Stratifications:	Top	Bottom	Description
	227	240	Other/Unknown

***UTM location was derived from PLSS - see Help**


Osprey 30-7
Topo Map
Legend
Feature 1
NM T31N
OSPREY 30-7
Indn Service Route 214
OSPREY 30-7
30
29
Indn Service Route
Google earth
© 2015 Google
N
3000 ft



LEASE: OSPREY 30-7

FOOTAGES: 1933' FNL, 1939' FEL

SEC. 30 TWN. 31 N RNG. 14 W N.M.P.M.

LAT: 36.8738951° N LONG: 108.3482163° W (NAD83)

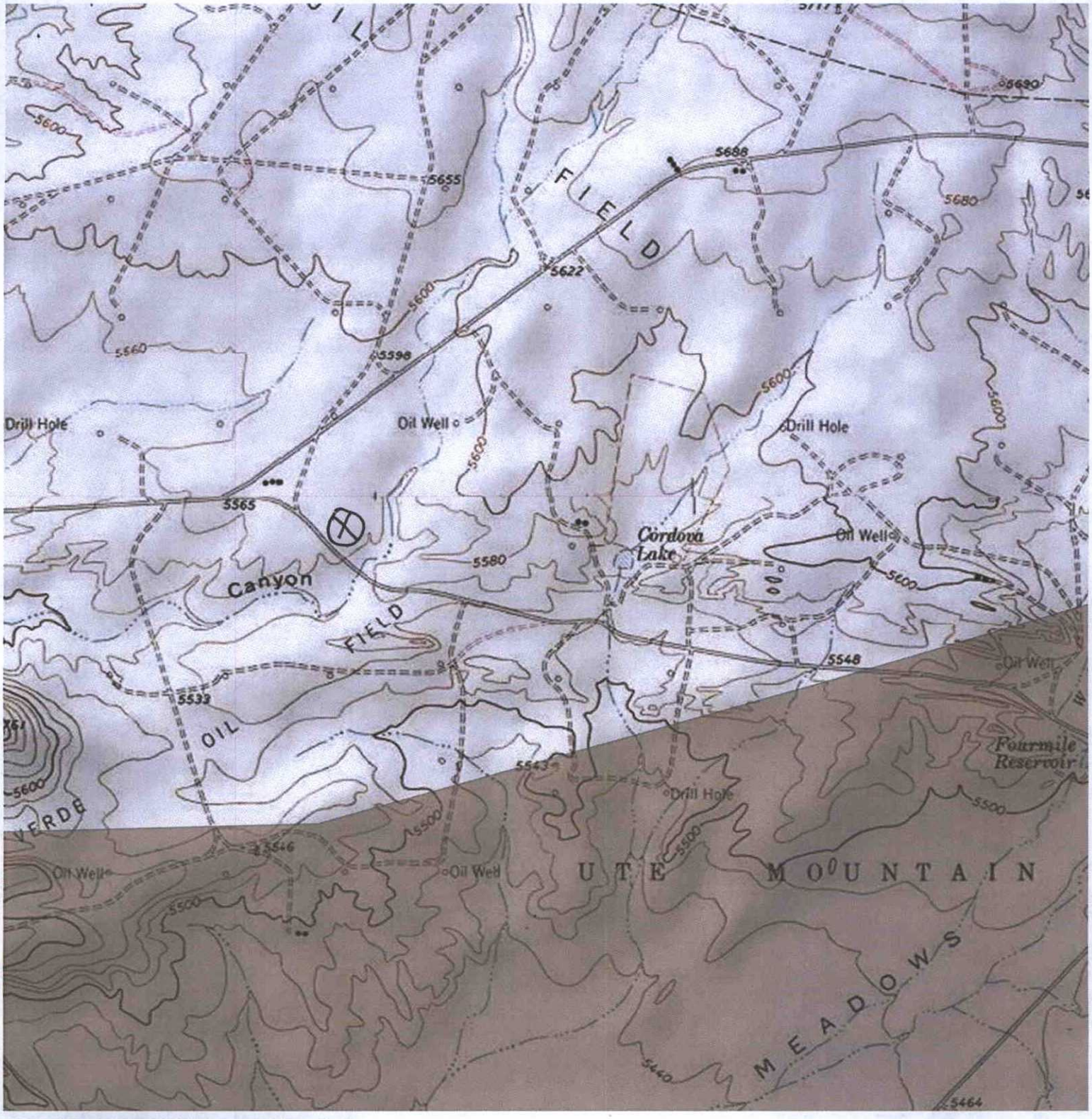
PROPOSED ELEVATION: 5570

BRIDGECREEK RESOURCES (COLORADO), LLC
LITTLETON, COLORADO

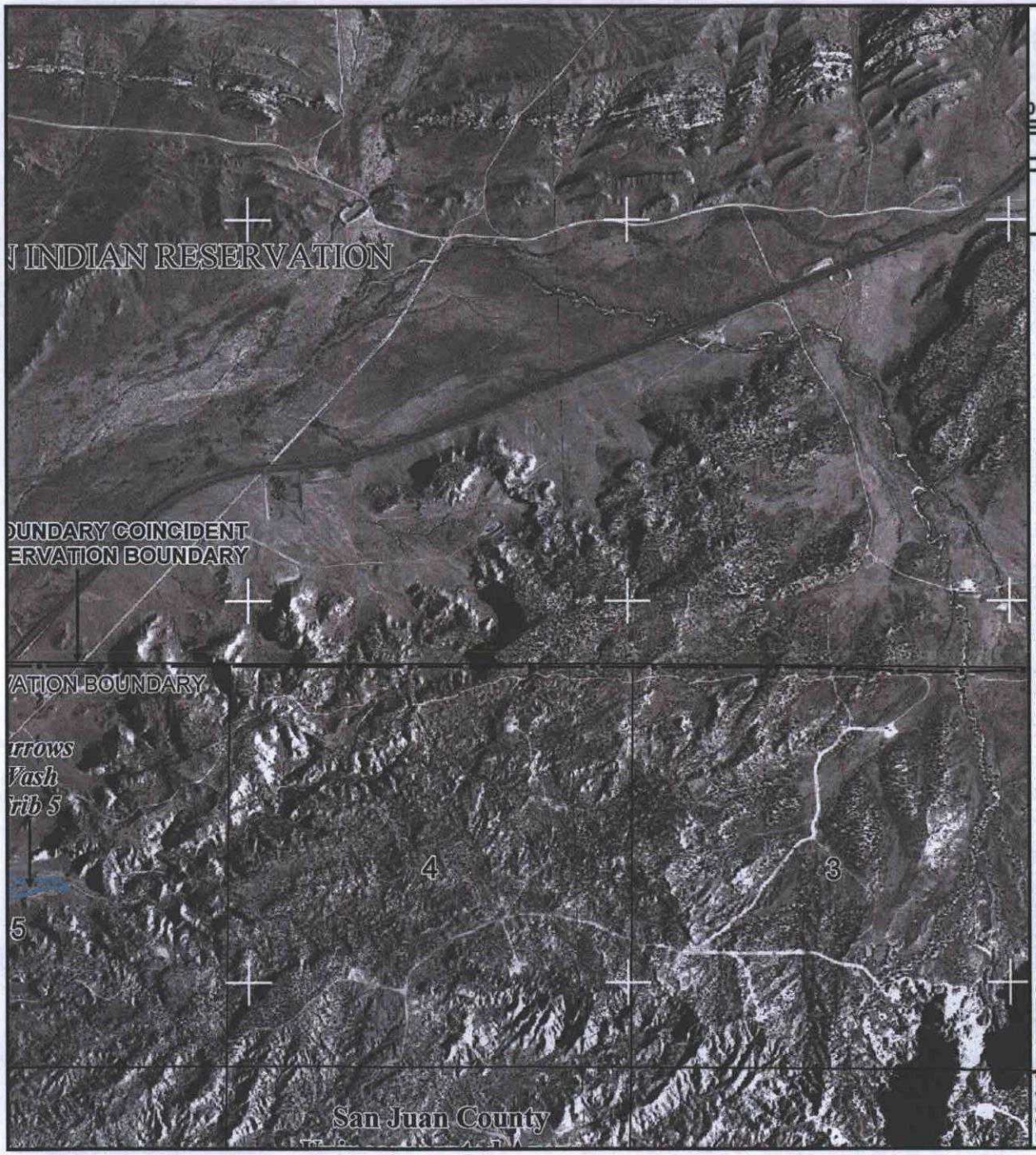
SURVEYED: 05/07/15, 06/24/15	REV. DATE: 06/26/15	APP. BY M.W.L.
DRAWN BY: K.S.	DATE DRAWN: 05/12/15	FILE NAME: 10986T02

UNITED FIELD SERVICES INC.
P.O. BOX 3651
FARMINGTON, NM 87499
OFFICE: (505) 334-0408

EMNRD MMD Coal Mine WebMap



Legend



MAP SCALE 1" = 2000'

00 0 2000 4000 FEET

0 600 1200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0675F

FIRM

FLOOD INSURANCE RATE MAP

SAN JUAN COUNTY, NEW MEXICO AND INCORPORATED AREAS

PANEL 675 OF 2750

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
SAN JUAN COUNTY	350064	0675	F

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
35045C0675F

EFFECTIVE DATE
AUGUST 5, 2010

Federal Emergency Management Agency

Bridgecreek Resources (Colorado) LLC
Temporary Pit Design and Construction Plan

General Plan

In accordance with Rule 19.15.17.11 the following information describes the design and construction for temporary pits on Bridgecreek locations; this is the standard procedure for all temporary pits.

1. Prior to constructing the burial trench, topsoil will be stockpiled in accordance with 19.15.17.11 NMAC in the construction zone for later use in reclamation.
2. Bridgecreek will post a well sign, not less than 12" by 24", on the well site prior to construction of the temporary pit. The sign will list the operator on record as the operator, the location of the well by unit letter, section, township range, and emergency telephone numbers (complying with 19.15.16.8 NMAC)
3. Drilling operations will utilize a closed loop water based mud system. Drill cuttings (rock fragments generated during drilling) will be produced during drilling of the borehole.
4. Drill cuttings will be disposed on-site in a burial trench. The entire area designated to include one or more burial trench will not exceed the dimension of 10 feet wide x 10 feet deep x 225 feet maximum length. The dimension of the burial trench for the Osprey 30-7 stabilized drill cuttings is L56' x W10' x D10'.
5. The operator will obtain an approved Form C-144 for each burial trench per NMOCD's Pit Rule NMAC 19.15.17 prior to on-site disposal of drill cuttings.
6. The drill cuttings will be temporarily stored in above-ground steel containment until drilling completion.
7. Cuttings will be dried and mixed with a bonding agent or clean fill for stabilization. The drill cuttings will not be mixed greater than a 3:1 ratio.
8. At least 72 hours prior to cuttings sampling NMOCD and BLM will be notified. Cuttings will be tested by taking at a minimum 5-point sample for the analysis of constituents under the regulations listed in the NMAC 19.15.17.13 Closure and Site Reclamation requirements, Ute Mountain Ute (UMU) Tribe's "Standards for Spill Clean-up and Chlorides Reclamation" table, and EPA SW-846 methods.
9. These results will be submitted to the Aztec NMOCD via a C-144 and BLM via a 3160-5 Sundry Form to the Tres Rios BLM Field Office.
10. After drilling operations and during equipment demobilization, the operator will transfer the drill cuttings into the burial trench.
11. The first well will be drilled and completed and a burial trench utilized. The remaining wells on this pad will be drilled at a later date and a subsequent burial trench(s) will be placed end-to-end within the same contiguous burial trench.
12. The boundaries of the trench will be designated by surface and depth markers to avoid the possibility of mixing one with another. The markers will clearly define the edge and the depth of the trench to allow for subsequent excavation without disturbing previously buried cuttings.
13. The cuttings burial trench will be compacted to ground level to prevent the collection of surface runoff and erosion and located on the pad as shown on the well pad layout. The burial trench

will be lined with a minimum of 20 mil string reinforced LLDPE liner or equivalent liner and capped with a minimum of 4 feet of clean fill dirt. The trench foundation and sidewalls will consist of a firm, unyielding base, smooth, and free of rocks, debris, sharp edges or irregularities to prevent the liner's rupture or tear. Enough liner will be placed to reduce stress-strain or buldging that may occur. Geotextile may be used under the liner where needed to reduce localized stress-strain that may otherwise compromise the liner's integrity. Liner will be secured on all edges prior to filling. No trash will be placed in the cuttings trench.

Maintenance and Operating Plan

In accordance with Rule 19 15 17.12 the following information describes the operation and maintenance of burial trenches on Bridgecreek locations.

General Plan

1. Bridgecreek intends to use the burial trench for stabilized drill cuttings disposal only after drilling operations are complete and cuttings are stabilized and tested
2. The burial trench will be dug, lined and buried in one equipment mobilization
3. Bridgecreek will utilize a closed loop drilling system and no drilling mud will be put into the trench
4. Bridgecreek will not discharge or store any hazardous waste in any temporary burial trench
5. If any penetration of the liner occurs below the stabilized cuttings fill line, then Bridgecreek shall notify the Aztec Division office by phone or email within 48 hours of the discovery and repair the damage or replace the liner
6. Bridgecreek will maintain the temporary burial trench free of trash or debris
7. Bridgecreek shall remove all free liquids from a cavitation immediately after completing cavitations. Bridgecreek may request additional time to remove liquids from Aztec Division office if it is not feasible to remove liquids within 48 hours

Closure Plan

In accordance with Rule 19.15.17.9 NMAC and 19.15.17.13 NMAC the following information describes the closure requirements of burial trenches on Bridgecreek's locations. This is Bridgecreek's standard procedure for all burial trenches.

All closure activities will include proper documentation and be available for review upon request and will be submitted to OCD within 60 days of the pit closure. Closure report will be filed with the OCD via C-144 and with the Tres Rios BLM office via Form 3160-5 Sundry and incorporate the following:

- Detail on Capping and Covering, where applicable
- Plot Plan (Pit diagram)
- Sampling Results

General Plan

1. The preferred method of closure for all temporary pits will be on-site burial, pursuant to Subsection B of 19.15.17.9 and assuming that all criteria listed in sub-section (D) of 19.15.17.13 are met
2. Prior to closure, the surface owner shall be notified at least 72 hrs but not more than one week prior to Bridgecreek's proposed closure plan using a means that provides proof of notice i.e., certified mail, return receipt requested
3. Within 6 months of the Rig-off status occurring Bridgecreek will ensure that temporary pits are closed. Re-contouring and reseeding will occur during interim reclamation.
4. Notice of Closure will be given to the Aztec Division office 72 hours but not more than one week of closure via email, or verbally, The notification of closure will include the following:
    i. Operator's name
    ii. Location by Unit Letter, Section, Township, and Range. Well name and API Number
5. All contents, including synthetic pit liners, will be buried in place. By folding outer edges of the pit liner to overlap waste material, and then installing a geomembrane liner cover that is 20 mil string reinforced LLDPE, synthetic material, impervious, resistant to ultra violet light, petroleum hydrocarbons, salts, acid and alkaline.
6. Cuttings will be contained in four-sided impermeable bins on location. Cuttings will be mixed with non-waste saw dust material in order to achieve the solidification process. The solidification process will be accomplished using a combination of natural drying and mechanically mixing. Cuttings will be mixed with non-waste, saw dust material to a consistency that is deemed a safe and stable. Cuttings will be mixed while in the four-sided bins. The mixing ratio shall not exceed 3 parts clean soil to 1 part pit

contents. The stabilized mixture must pass the paint filter liquids test (EPA SW-846, Method 9095 or other test methods approved by the division.

7. A five point composite sample will be taken of the pit using sampling tools and all samples tested per Subsection D of 19.15.17.13 (5). The concentration of any contaminant in the stabilized waste is cannot be higher than the parameters listed in Table II of 19.15.17.13 NMAC. In the event that the criteria are not met, all contents will be handled per Subsection C of 19.15.17.13
8. Upon completion of stabilization and testing in bins, the trench will be dug, lined and stabilized cuttings deposited and burrito-wrapped. The burrito-wrapped stabilized cuttings will be covered with a minimum of four feet of clean fill dirt.
9. Upon completion of interim reclamation re-contouring of location will match fit, shape, line, form and texture of the surrounding area. Re- shaping will include drainage control, prevent ponding, and prevent erosion. Natural drainages will be unimpeded and water bars and/or silt traps will be placed in areas where needed to prevent erosion on a large scale. Final re-contour shall have a uniform appearance with smooth surface, fitting the natural landscape.
10. Notification will be sent to OCD when the reclaimed area is seeded
11. Following 19.15.17.13 (H) (5) (a-e), Bridgecreek shall seed the distributed areas the first growing season after the operator completes interim reclamation. Seeding will be accomplished via drilling on the contour whenever practical or by other division-approved methods. Suggested BIA stipulated seed mixed 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 thorough two successive growing seasons. Repeat seeding or planting will be continued until successful vegetative growth occurs
12. The temporary pit will be located with a steel marker, no less than four inches in diameter, cemented in a hole three feet deep in the center of the onsite burial upon the abandonment of all the wells on the pad. The marker will be a four foot tall riser with the operator's information at the time of all wells on the pad are abandoned. The operator's information will include the following: Operator Name, Lease Name, Well Name and Number, unit Number, Section, Township, Range and an indicator that the marker is an onsite burial location

DISTRICT I
1625 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
811 S. First St., Artesia, N.M. 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, N.M. 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, N.M. 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name

[4] Property Code	[5] Property Name	[6] Well Number
	OSPREY 30	7
[7] OGRID No.	[8] Operator Name	[9] Elevation
	BRIDGECREEK RESOURCES (COLORADO), LLC	5571

[10] Surface Location

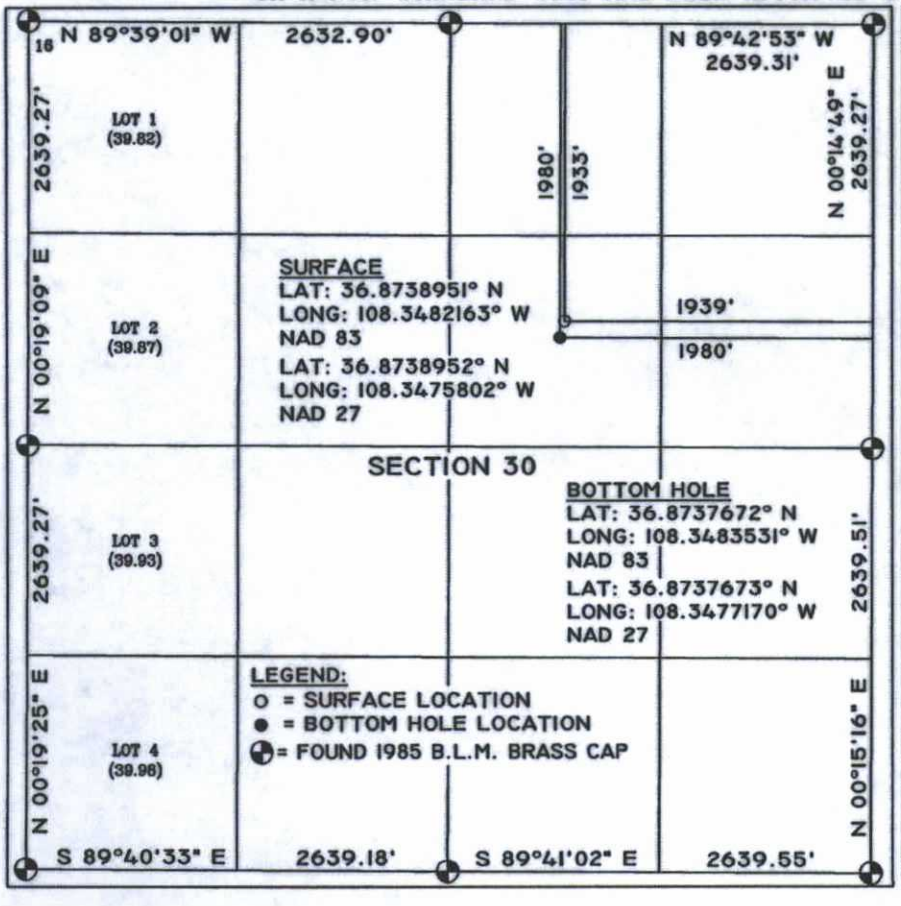
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
G	30	31 N	14 W		1933	NORTH	1939	EAST	SAN JUAN

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
G	30	31 N	14 W		1980	NORTH	1980	EAST	SAN JUAN

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature Date

Printed Name

E-mail Address

[18] SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

06/24/15
Date of Survey

Signature and Seal of Professional Surveyor

MARSHALL W. LINDEEN
NEW MEXICO
17078
7-21-15
PROFESSIONAL SURVEYOR

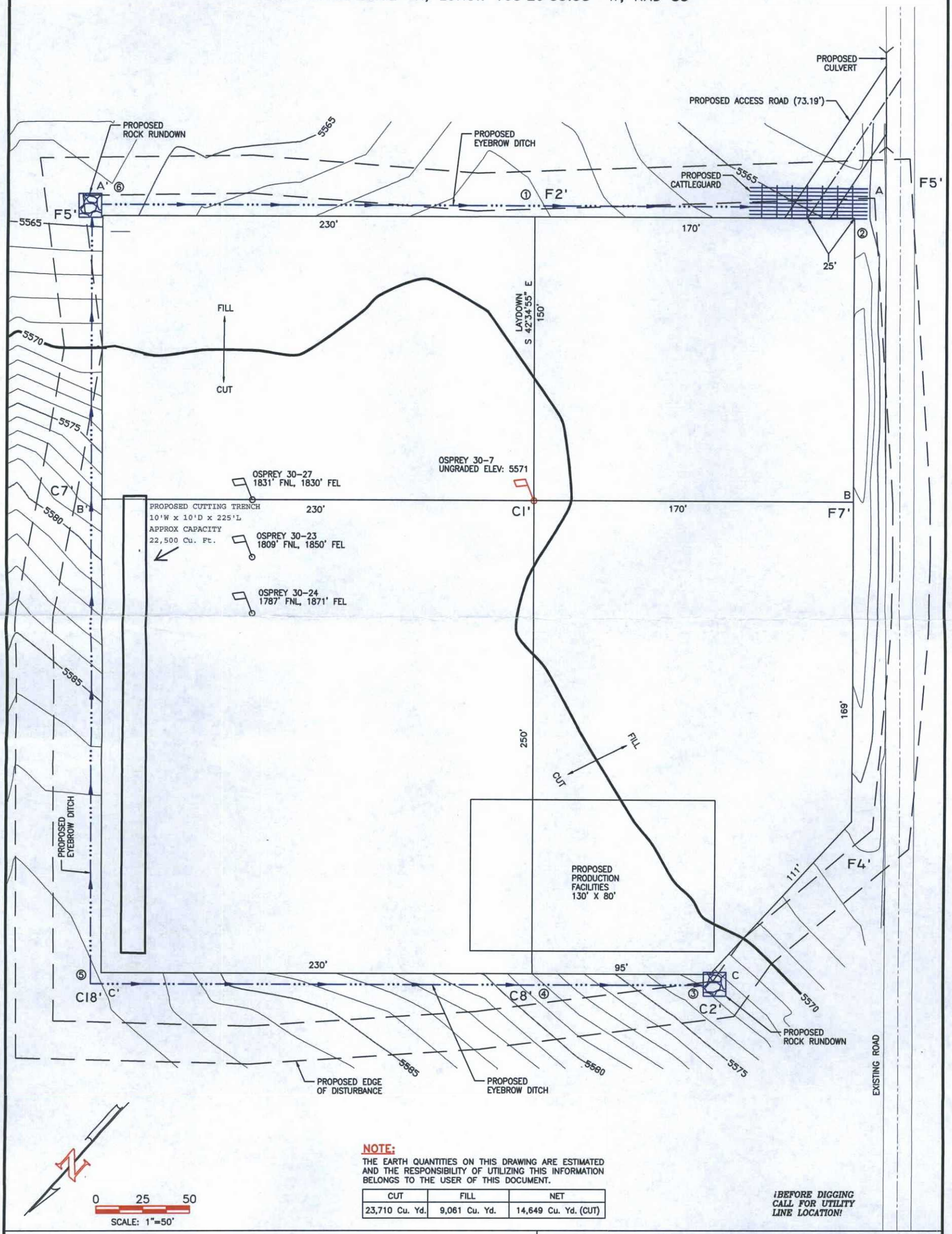
17078
Certificate Number

Attachment F--Well Pad Layout during drilling phase

BRIDGECREEK RESOURCES (COLORADO), LLC

OSPREY 30-7 PAD LAYOUT

SEC. 30, T-31-N, R-14-W, N.M.P.M., 1933' FNL, 1939' FEL
SAN JUAN COUNTY, NEW MEXICO
PROPOSED ELEVATION: 5570
LAT.: 36.8738951° N, LONG.: 108.3482163° W, NAD 83
LAT.: 36°52'26.02" N, LONG.: 108°20'53.58" W, NAD 83



0 25 50
SCALE: 1"=50'

NOTE:
THE EARTH QUANTITIES ON THIS DRAWING ARE ESTIMATED AND THE RESPONSIBILITY OF UTILIZING THIS INFORMATION BELONGS TO THE USER OF THIS DOCUMENT.

CUT	FILL	NET
23,710 Cu. Yd.	9,061 Cu. Yd.	14,649 Cu. Yd. (CUT)

¡BEFORE DIGGING CALL FOR UTILITY LINE LOCATION!

NOTES:

1.) BEARINGS & DISTANCES ARE REFERENCED TO THE NEW MEXICO COORDINATE SYSTEM, WEST ZONE, NAD 83.
2.) CONTRACTOR SHALL CONTACT "ONE-CALL" FOR LOCATION OF ANY MARKED OR UNMARKED BURIED PIPELINE OR CABLES ON WELLPAD AND/OR ACCESS ROAD AT LEAST TWO (2) WORKING DAYS PRIOR TO CONSTRUCTION.
3.) UNITED FIELD SERVICES, INC. IS NOT LIABLE FOR UNDERGROUND UTILITIES OR PIPELINES.
4.) CUT & FILL CALCULATIONS ARE ROUNDED TO THE NEAREST FOOT.

BRIDGECREEK RESOURCES (COLORADO), LLC
LITTLETON, COLORADO

SURVEYED:	05/07/15, 06/24/15	REV. DATE:	07/28/15	APP. BY	M.W.L.
DRAWN BY:	K.S.	DATE DRAWN:	05/11/15	FILE NAME:	10986PAD

UNITED FIELD SERVICES INC.
P.O. BOX 3651
FARMINGTON, NM 87499
OFFICE: (505) 334-0408

Remove By Operator Request

Site specific information:

Surface hydrology: The site is located on the lower portions of Purgatory Canyon drainage and is drained by a number of small intermittent drainages

First Water-bearing formation: Cliffhouse, Cretaceous
Formation thickness: 525 - 1250 feet
Underlying formation: Cliffhouse, Cretaceous
Depth to groundwater: Unknown, will verify when drilling surface hole

FEMA Map - 100 year floodplain

The attached FEMA Map indicates that the proposed location is outside of the mapped 100 year floodplain.

Siting Criteria Compliance Demonstrations

The Osprey 30-7 is not located in an unstable area. The location is not over a mine and is not on the side of a hill. The location of the excavated pit material will not be located within 300' of any continuously flowing watercourse or 200' from any other intermittent watercourse.

Revised

Bridgecreek Resources (Colorado), LLC
Osprey 30-7
Temporary Drilling Reserve Pit Application Siting Criteria

1. According to the iWaters Database from the State Engineers Office, the closest know water well is 3.2 miles away in section 3, T30N, R14W. The next closest well is located 5.6 miles away in section 18, T30N, R13W. The well is reported to be 200 feet deep but no information was given for depth to ground water. See attached printout.

   Because of the lack of information regarding depth to ground water, MO-TE, a local water well drilling company was contacted and they provided a map showing a Fruitland Coal pilot hole drilling project that they performed for the Ute Mountain Ute tribe in the past year. Over 29 wells were drilled to determine the thickness of the Fruitland coal in an area approximately 0.5 miles to the south of the proposed well location (see attached map showing test wells and their location relative to the proposed Osprey 30-7). Based on well drilling records the minimum depth to groundwater was 100 (plus) feet deep and a maximum depth of 200 feet deep. Based on this information and the ground elevation of the proposed location being approximately 130' higher than the test wells, the assumption is that depth to ground water will be greater than 100 feet deep.

2. As shown on the attached topographic map and aerial photos, there are no continuously flowing watercourses within 300' of the well, or any significant watercourses, lakebeds, sinkholes, or playa lakes within 200' of the well.

3. There are no permanent residences, schools, hospitals, institutions, churches within 300' of the well.

4. There are no domestic water wells or springs within 500' of the well. See iWaters Database printout.

5. The well is not located within any municipal boundaries.

6. The well is not within 500' of any wetlands. See attached topographic map and aerial photos.

7. There are no subsurface mines in Section 34; T31N, R15W. See attached map from the NM EMNRD Mining and Mineral Division.

8. The Osprey 30-7 is not located in an "unstable" area. The location is not over a mine and is not on the side of a hill. The location of the excavated pit material will not be located within 300' of a continuously flowing watercourse or 200' from any other watercourse.

Revised

9. The well is not located in a 100-year floodplain as visible on the topographic map and the FEMA Flood Insurance Rate Map.

10. In the event that the composite pit sample that is mixed 3:1 with native soils does not meet the requirements for onsite burial, the pit contents will be removed and disposed of at the Industrial Ecosystem, Inc. Land Farm (NMOCD Permit #NM 01-00 I OB).

Removed

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

(A CLW###### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
SJ 00944		SJ	3	1		03	30N	14W	205449	4082758*	5150	61	5	56
SJ 03867		SJ	1	4	3	18	31N	13E	210438	4088324	9059	200		

Average Depth to Water: **5 feet**

Minimum Depth: **5 feet**

Maximum Depth: **5 feet**

Record Count: 2

UTMNAD83 Radius Search (in meters):

Easting (X): 201628 **Northing (Y):** 4086212 **Radius:** 10500

***UTM location was derived from PLSS - see Help**

Bridgecreek Resources (Colorado) LLC
Pit Design and Construction Plan

General Plan

In accordance with Rule 19 15 17 the following information describes the design and construction for temporary pits on Bridgecreek locations; this is Bridgecreeks standard procedure for all temporary pits.

1. Prior to constructing the burial trench, topsoil will be stockpiled in the construction zone for later use in reclamation.
2. Bridgecreek will post a well sign, not less than 12" by 24", on the well site prior to construction of the temporary pit. The sign will list the operator on record as the operator, the location of the well by unit letter, section, township range, and emergency telephone numbers (complying with 19.15.16.8 NMAC)
3. Drilling operations will utilize a closed loop water based mud system. Drill cuttings (rock fragments generated during drilling) will be produced during drilling of the borehole.
4. Drill cuttings will be disposed on-site in a burial trench. The entire area designated to include one or more burial trench will not exceed the dimension of 10 feet wide x 10 feet deep x 225 feet maximum length. The dimension of the burial trench for the Osprey 30-7 stabilized drill cuttings is L56' x W10' x D10'.
5. The operator will obtain an approved Form C-144 for each burial trench per NMOCD's Pit Rule NMAC 19.15.17 prior to on-site disposal of drill cuttings.
6. The drill cuttings will be temporarily stored in above-ground steel containment until drilling completion.
7. Cuttings will be dried and mixed with a bonding agent or clean fill for stabilization. The drill cuttings will not be mixed greater than a 3:1 ratio.
8. Prior to disposal, cuttings will be tested by taking at a minimum 5-point sample for the analysis of constituents under the regulations listed in the NMAC 19.15.17.13 Closure and Site Reclamation requirements, Ute Mountain Ute (UMU) Tribe's "Standards for Spill Clean-up and Chlorides Reclamation" table, and EPA SW-846 methods.
9. These results will be submitted to the BLM via a 3160-5 Sundry Form to the Tres Rios BLM Field Office.
10. After drilling operations and during equipment demobilization, the operator will transfer the drill cuttings into the burial trench.
11. The first well will be drilled and completed and a burial trench utilized. The remaining wells on this pad will be drilled at a later date and a subsequent burial trench(s) will be placed end-to-end within the same contiguous burial trench.
12. The boundaries of the trench will be designated by surface and depth markers to avoid the possibility of mixing one with another. The markers will clearly define the edge and the depth of the trench to allow for subsequent excavation without disturbing previously buried cuttings.
13. The cuttings burial trench will be compacted to ground level to prevent the collection of surface runoff and erosion and located on the pad as shown on the well pad layout. The burial trench

*Removed

will be lined with a minimum of 20 mil string reinforced LLDPE liner or equivalent liner and capped with a minimum of 4 feet of clean fill dirt. No trash will be placed in the cuttings trench.

Maintenance and Operating Plan

In accordance with Rule 19 15 17.12 the following information describes the operation and maintenance of burial trenches on Bridgecreek locations.

General Plan

1. Bridgecreek intends to use the burial trench for stabilized drill cuttings disposal only after drilling operations are complete and cuttings are stabilized and tested
2. The burial trench will be dug, lined and buried in one equipment mobilization
3. Bridgecreek will utilize a closed loop drilling system and no drilling mud will be put into the trench
4. Bridgecreek will not discharge or store any hazardous waste in any temporary burial trench
5. If any penetration of the liner occurs below the stabilized cuttings fill line, then Bridgecreek shall notify the Aztec Division office by phone or email within 48 hours of the discovery and repair the damage or replace the liner
6. Bridgecreek will maintain the temporary burial trench free of trash or debris
7. Bridgecreek shall remove all free liquids from a cavitation immediately after completing cavitations. Bridgecreek may request additional time to remove liquids from Aztec Division office if it is not feasible to remove liquids within 48 hours

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Closure Plan

In accordance with Rule 19.15.17.9 NMAC and 19.15.17.13 NMAC the following information describes the closure requirements of burial trenches on Bridgecreek's locations. This is Bridgecreek's standard procedure for all burial trenches.

All closure activities will include proper documentation and be available for review upon request and will be submitted to OCD within 60 days of the pit closure. Closure report will be filed with the Tres Rios BLM office via Form 3160-5 Sundry and incorporate the following:

- Detail on Capping and Covering, where applicable
- Plot Plan (Pit diagram)
- Sampling Results

General Plan

1. The preferred method of closure for all temporary pits will be on-site burial, pursuant to Subsection B of 19.15.17.9 and assuming that all criteria listed in sub-section (D) of 19.15.17.13 are met
2. Prior to closure, the surface owner shall be notified at least 72 hrs but not more than one week prior to Bridgecreek's proposed closure plan using a means that provides proof of notice i.e., certified mail, return receipt requested
3. Within 6 months of the Rig-off status occurring Bridgecreek will ensure that temporary pits are closed. Re-contouring and reseeding will occur during interim reclamation.
4. Notice of Closure will be given to the Aztec Division office 72 hours but not more than one week of closure via email, or verbally, The notification of closure will include the following:
    i. Operator's name
    ii. Location by Unit Letter, Section, Township, and Range. Well name and API Number
5. All contents, including synthetic pit liners, will be buried in place. By folding outer edges of the pit liner to overlap waste material, and then installing a geomembrane liner cover that is 20 mil string reinforced LLDPE, synthetic material, impervious, resistant to ultra violet light, petroleum hydrocarbons, salts, acid and alkaline.
6. Cuttings will be contained in four-sided impermeable bins on location. Cuttings will be mixed with non-waste saw dust material in order to achieve the solidification process. The solidification process will be accomplished using a combination of natural drying and mechanically mixing. Cuttings will be mixed with non-waste, saw dust material to a consistency that is deemed a safe and stable. Cuttings will be mixed while in the four-sided bins. The mixing ratio shall not exceed 3 parts clean soil to 1 part pit contents. The stabilized mixture must pass the paint filter liquids test (EPA SW-846, Method 9095 or

other test methods approved by the division.

7. A five point composite sample will be taken of the pit using sampling tools and all samples tested per Subsection D of 19.15.17.13 (5). The concentration of any contaminant in the stabilized waste is cannot be higher than the parameters listed in Table II of 19.15.17.13 NMAC. In the event that the criteria are not met, all contents will be handled per Subsection C of 19.15.17.13
8. Upon completion of stabilization and testing in bins, the trench will be dug, lined and stabilized cuttings deposited and burrito-wrapped. The burrito-wrapped stabilized cuttings will be covered with a minimum of four feet of clean fill dirt.
9. Upon completion of interim reclamation re-contouring of location will match fit, shape, line, form and texture of the surrounding area. Re- shaping will include drainage control, prevent ponding, and prevent erosion. Natural drainages will be unimpeded and water bars and/or silt traps will be placed in areas where needed to prevent erosion on a large scale. Final re-contour shall have a uniform appearance with smooth surface, fitting the natural landscape.
10. Notification will be sent to OCD when the reclaimed area is seeded
11. Following 19.15.17.13 (H) (5) (a-e), Bridgecreek shall seed the distributed areas the first growing season after the operator completes interim reclamation. Seeding will be accomplished via drilling on the contour whenever practical or by other division-approved methods. Suggested BIA stipulated seed mixed 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 thorough two successive growing seasons. Repeat seeding or planting will be continued until successful vegetative growth occurs
12. The temporary pit will be located with a steel marker, no less than four inches in diameter, cemented in a hole three feet deep in the center of the onsite burial upon the abandonment of all the wells on the pad. The marker will be a four foot tall riser with the operator's information at the time of all wells on the pad are abandoned. The operator's information will include the following: Operator Name, Lease Name, Well Name and Number, unit Number, Section, Township, Range and an indicator that the marker is an onsite burial location

* Remove

19.15.17.15 Exceptions and Variances.

Bridgecreek Resources (Colorado), LLC requests a variance for the items listed below. The requested variance, per 19.15.17.15.A, provides equal or better protection of freshwater, public health and the environment.

1. Pit Sampling Methodology
Request to utilize the extended range EPA 8015 method pit sampling results instead of the 418.1 sampling method.

2. Pit Marker
Bridgecreek will also be installing a temporary Flat Pit Marker upon closure. The temporary pit will be located with a steel marker, no less than four inches in diameter, cemented in a hole three feet deep in the center of the onsite burial upon the abandonment of all the wells on the pad. The marker will be flush with the ground to allow access of the active well pad and for safety concerns. The marker will include a threaded collar to be used for future abandonment. The top of the marker will contain a welded steel 12" square plate that indicates the onsite burial of the temporary pit. The plate will be easily removable and a four foot tall riser will be threaded into the top of the collar marker and welded around the base with the operator's information at the time all wells on the pad are abandoned. The operator's information will include the following: Operator Name, Lease Name, Well Name and number, Unit Number, Section, Township, Range and an indicator that the marker is an onsite burial location.

Bridgecreek will notify Surface Owners by email in lieu of certified mail.

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Hydro geological report for Osprey 30-7

Regional Hydro geological context:

The Osprey 30-7 is located on Ute Mountain Ute lands in San Juan County, New Mexico. The proposed project is located in an area known as the Verde Oil Field on broad, open undulate plains with southeasterly aspects at about 1 to 4 degrees. Elevation in the project area is 5,571 feet, with no relief or drop-offs. The topography of the action area is characterized by gently sloping pediments to the south and Ute Dome, a steep dome, to the north.

The proposed project is located on the Four Corners platform of the Colorado Plateau. Surface geology in the area is the Lewis Shale and the from the Upper Cretaceous period (Condon 1991). Broken fragments and exposed outcrops occur within the project area.

Based on the Natural Resources Conservation Services Web Soil Survey (NRCS 2014), the soil-mapping unit in the project area is Monierco fine sandy loam, 3 to 12 percent slopes. Soils in the proposed project are fine sandy loam to loam. No biological soil crusts were observed within the project area.

No wetlands or perennial water resources in the form of rivers, lakes, ponds, or streams occur within the project area. Additionally, no well-defined ephemeral or intermittent drainages occur within the project area. Surface runoff from the proposed project area would flow via sheet drainages southwest into an unnamed tributary of Ute Canyon Wash, located approximately 0.1 miles southeast of the pad area. The well location sits on a relatively flat portion of terrain. The immediate area is drained going from north to south. Soils are mostly fine sandy loam to loam. The project area is classified as Great Basin desert shrub (Dick-Peddie 1993). The biotic plant community is locally dominated by low standing grass species, such as galleta and alkali sacation. In general, sparse to moderate cover of woody species are present in this biotic community, including shadscale saltbush, broom sankeweeed, and winterfat. Vegetation cover in the project area was visually estimated to range from 10 to 30 percent.

Depth to ground water

A records search of the NM Office of the State Engineer – iWATERS database indicates that the closest known water well is 3.2 miles away in section 3, T30N, R14W. The next closest well is located 5.6 miles away in section 18, T30N, R13W. The well is reported to be 200 feet deep but no information was given for depth to ground water.

Because of the lack of information regarding depth to ground water, MO-TE, a local water well drilling company was contacted and they provided a map showing a Fruitland Coal pilot hole drilling project that they performed for the Ute Mountain Ute tribe in the past year. Over 29 wells were drilled to determine the thickness of the Fruitland coal in an area approximately 0.5 miles to the south and east of the proposed well location (see attached

*Remove

map showing test wells and their location relative to the proposed Osprey 30-7). Based on well drilling records the minimum depth to groundwater was 100 (plus) feet deep and a maximum depth of 200 feet deep. Based on this information and the ground elevation of the proposed location being approximately 130' higher than the test wells, the assumption is that depth to ground water will be greater than 100 feet deep.

Geologic maps of the area indicate that the surface formation at the proposed well site is the Lewis Shale from the Upper Cretaceous period (Condon 1991). Broken fragments and exposed outcrops occur within the project area. The Lewis Shale formation occurs in New Mexico and Colorado and its outcrop forms the land surface over much of the northwest portion of the basin. It overlies the Mesaverde Formation.

The Lewis was deposited in various fluvial-type environments. In general, the unit consists of an interbedded sequence of sandstone, siltstone and variegated shale. Thickness of the Lewis Shale Formation near the project area is generally 165 m thick. Ground water is associated with alluvial and fluvial sandstone aquifers and the Lewis Shale has very low permeability and porosity thus, the occurrence of ground water is mainly controlled by the distribution of sandstone in the formation. The distribution of such sandstone is the result of original depositional extent plus any post-depositional modification, namely erosion and structural deformation. Transmissivity data for the Lewis Shale formation is minimal.

The Lewis Shale is a very suitable unit for recharge from precipitation because soils that form on the unity are sandy and highly permeable and therefore readily absorb precipitation. However, low annual precipitation, relatively high transpiration and evaporation rates, and deep dissection of the Lewis Shale Formation by the San Juan River and its tributaries all tend to reduce the effective recharge of the unit.

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, 70p

*Remove.

First Hole

#1 FT-4 (49)
#2 Boyd 1 (50)
#3 Boyd 2

T 31 N

R 15 W

R 14 W

Indian Svc Rte 210

Indian Svc Rte 205

Indian Svc Rte 214

Indian Svc Rte 215

Indian Svc Rte 216

Osprey 30-7

Comanche Lake

Fourmile Wash

West Fork Fourmile Wash

Anadarko

El Paso

Bunker Arroyo

U-04 103
U-12
U-11
U-03
U-13
U-09
U-10
U-08
U-02
U-07
U-01
U-05
O-1L
O-1M
O-1
U-06
O-1T

BOYD-01 400
BOYD-02 400

FT-04 103
FT-07 457
FT-09 272
FT-10 331
FT-11 343
FT-12 279
FT-13 265
FT-14 302
FT-15 291
FT-16 292
FT-17 302
FT-18 359
FT-19 457
FT-20 421
FT-21 442
FT-22 501
FT-24 140
FT-25 1174
FT-26 1141
FT-27 861
FT-28 750
FT-29 640
FT-30 688
FT-31 617
FT-32 625
FT-33 596
FT-34 771
FT-35 712
FT-45 150
FT-46 200
FT-47 300
FT-48 300
FT-4 100

N36°52'30"
W108°22'30"

N36°52'30"
W108°15'00"

40 ft Contours
20 ft Contours

SCALE (ft)
3000 2000 1000 0 1500 3000

Map Coordinate System: UTM with NAD83 datum, Zone 12, International Feet, Central Meridian 111d W

DRAFT

LEGEND

- Permit Boundary
- Roads
- Active Pipelines: Anadarko, El Paso

Oil & Gas Locations
- Active
- Abandoned

U-04 Existing Core Holes

Proposed Drill Holes and Depths
- FT-10 150 Continuous Core
- FT-27 150 Rotary
- FT-10 150 Spot Core
- FT-16 150 Pilot & Spot Core

FIELD MAP

FRUITLAND COAL EXPLORATION

Ute Mountain Ute Reservation, New Mexico

Prepared For

Ute Mountain Ute Tribe

John T. Boyd Company

June 2014