

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 April 3, 2017

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

16493

- 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: Dugan Production Corp. OGRID #: 006515  
Address: 709 E. Murray Drive Farmington NM 87401  
Facility or well name: Okie #1  
API Number: 30-045-22307 OCD Permit Number: \_\_\_\_\_  
U/L or Qtr/Qtr P Section 8 Township 24N Range 8W County: San Juan  
Center of Proposed Design: Latitude 36.32434 Longitude -107.69878 NAD83  
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  
 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 \_\_\_\_\_

*\*Current Blot must be retrofitted to the Design Requirement of 19.15.17.11 NMAC no later than 1/14/19*

Low Chloride Drilling Fluid  yes  no

3.  
 **Below-grade tank:** Subsection I of 19.15.17.11 NMAC  
Volume: 40 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 \_\_\_\_\_  
Liner type: Thickness 30 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 Field Fence (See Design and Construction Plan)

NMOCD  
OCT 29 2018  
DISTRICT III

18

## Smith, Cory, EMNRD

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**From:** Smith, Cory, EMNRD  
**Sent:** Friday, November 2, 2018 2:17 PM  
**To:** 'Kevin Smaka'  
**Cc:** Fields, Vanessa, EMNRD  
**Subject:** Okie#1 BGT approval

Kevin,

OCD has approved the BGT Registration for the Okie #1 received on 10/29/18. As previously mentioned the current BGT on location does not meet the Design requirements and are not what is indicated in the registration.

Dugan needs to retrofit the BGT to meet the approved Design that is detailed in the registration no later than January 4, 2019. Once the Retrofit has been completed please send pictures so I can clear the compliance as previously mentioned in the October 2, 2018 email.

Thank you,

Cory Smith  
Environmental Specialist  
Oil Conservation Division  
Energy, Minerals, & Natural Resources  
1000 Rio Brazos, Aztec, NM 87410  
(505)334-6178 ext 115  
[cory.smith@state.nm.us](mailto:cory.smith@state.nm.us)

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.*

<u>General siting</u>	
<b><u>Ground water is less than 25 feet below the bottom of a low chloride temporary pit or below-grade tank.</u></b> - <input checked="" type="checkbox"/> NM Office of the State Engineer - iWATERS database search; <input checked="" type="checkbox"/> USGS; <input type="checkbox"/> Data obtained from nearby wells	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
<b><u>Ground water is less than 50 feet below the bottom of a Temporary pit, permanent pit, or Multi-Well Fluid Management pit.</u></b> 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 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. <b>(Does not apply to below grade tanks)</b> - Written confirmation or verification from the municipality; Written approval obtained from the municipality	<input type="checkbox"/> Yes <input type="checkbox"/> No
Within the area overlying a subsurface mine. <b>(Does not apply to below grade tanks)</b> - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	<input type="checkbox"/> Yes <input type="checkbox"/> No
Within an unstable area. <b>(Does not apply to below grade tanks)</b> - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	<input type="checkbox"/> Yes <input type="checkbox"/> No
Within a 100-year floodplain. <b>(Does not apply to below grade tanks)</b> - FEMA map	<input type="checkbox"/> Yes <input type="checkbox"/> No
<b><u>Below Grade Tanks</u></b>	
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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b><u>Temporary Pit using Low Chloride Drilling Fluid</u></b> (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	<input type="checkbox"/> Yes <input type="checkbox"/> 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	<input type="checkbox"/> Yes <input type="checkbox"/> 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	<input type="checkbox"/> Yes <input type="checkbox"/> 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.<br>- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells   | <input type="checkbox"/> Yes <input type="checkbox"/> No<br><input type="checkbox"/> NA |
| Ground water is between 25-50 feet below the bottom of the buried waste<br>- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells   | <input type="checkbox"/> Yes <input type="checkbox"/> No<br><input type="checkbox"/> NA |
| Ground water is more than 100 feet below the bottom of the buried waste.<br>- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells  | <input type="checkbox"/> Yes <input type="checkbox"/> No<br><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).<br>- 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.<br>- 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.<br>- 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.<br>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.

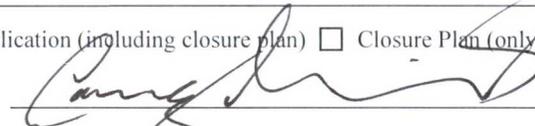
Name (Print): Kevin Smaka Title: Engineer

Signature:  Date: 10-25-2018

e-mail address: kevin.smaka@duganproduction.com Telephone: 325-1821

18.

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

OCD Representative Signature:  Approval Date: 11/2/18

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

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

## Okie #1 Hydrogeologic Report

The Okie #1 is located on Federal land on the Chaco Slope area of the San Juan Basin, San Juan County, New Mexico. The area can be characterized as an arid region with low ridges forested by Juniper and Pinon trees bordered by "Bad Lands" topography and sage brush flats.

A records search of the NM Office of the State Engineer –iWATERS database was conducted for the Okie #1 location. No water wells were located in the area of the below grade tank. The results of the search are shown on Exhibit 3.

The main source of stock water in the region is encountered in valley-fill deposits in existing arroyos at shallow depths of approximately 15 – 50 feet below the surface. The proposed below grade tank is not located in an arroyo. There is a small arroyo 200 feet to the south (Exhibit 1).

The Nacimiento Formation extends from the surface down to a depth of approximately 1218 feet. Thin silty sands inter-bedded with more dominant mudstones occur near the top. Toward the base of the unit, mud content decreases and sand content increases. Shale content in the Nacimiento increases to the west toward the outcrop and recharge area.

The Nacimiento is a source of ground water for livestock purposes and more rarely domestic use in some areas near the outcrop. With depth and distance from the outcrop, water quality decreases quickly and may be useful for livestock only (Stone, 1983)..

Based on electric open hole logs, the iWATERS database, literature reviewed, depth to ground water ranges from 25 - 50 feet below the surface in major arroyos in the area. Moving away from the wash ground water depth drops rapidly to greater than 200 feet below the surface. At the location of the subject below grade tank, lesser amounts of poor quality ground water might be found at depths of approximately 200-250 and 400-800 feet below the surface in laterally discontinuous sand intervals in the middle and lower Nacimiento Formation. A deeper source of ground water would include the Ojo Alamo interval; at a depth of 1218-1300 feet below the surface.

Due to the high silt content in the sands, poor water and reservoir quality and unpredictable nature of sand occurrence, there has not been any Nacimiento water wells drilled in the area of the subject below grade tank.

This Hydrogeologic Report was prepared by Mr. Kevin Smaka, Engineer for Dugan Production.

Stone, W.J., Lyford, F.P., Frenzel, P.F., Mizell, N.H., and Padgett, E.T., 1983,  
Hydrogeology and water resources of San Juan Basin, New Mexico: New Mexico  
Bureau of Mines and Mineral Resources Hydrologic Report 6, 70 p.

Brown, D.R., and Stone, W.J., 1979, Hydrogeology of Aztec quadrangle, San Juan  
County, New Mexico: New Mexico Bureau of Mines and Mineral Resources  
Hydrogeologic Sheet 1.

Levings, G.W., Craig, S.D., Dam, W.L. Kernodle, J.M., and Thorn, C.R., 1990,  
Hydrogeology of the San Jose, Nacimiento, and Animas Formations in the San Juan  
Structural Basin, New Mexico, Colorado, Arizona and Utah: U.S. Geological  
Survey, Atlas HA-720-A, Sheet 1 and 2.

Thorn, C.R., Levings, G.W., Craig, S.D., Dam, W.L., and Kernodle, J.M., 1990,  
Hydrogeology of the Ojo Alamo Sandstone in the San Juan Structural Basin, New  
Mexico, Colorado, Arizona and Utah: U.S. Geological Survey, Atlas HA-720-B,  
Sheet 1 and 2.

Exhibit #1







## New Mexico Office of the State Engineer

# Active & Inactive Points of Diversion

### (with Ownership Information)

WR File Nbr	(acre ft per annum)				County	POD Number	Code	Grant	(quarters are 1=NW 2=NE 3=SW 4=SE)				(quarters are smallest to largest)		(NAD83 UTM in meters)																	
	Sub basin	Use	Diversion	Owner					Source	6416	4	Sec	Tws	Rng	X	Y																
<a href="#">SJ 00870</a>	SJ	HWY	0	N.M. STATE HIGHWAY DEPT.	SJ	<a href="#">SJ 00870</a>			Shallow	2	3	36	24N	08W	263248	4017010*																
<a href="#">SJ 00960</a>	SJ	IRR	192.6	ODIE VAL CHAPMAN	SJ	<a href="#">SJ 00960</a>			Shallow	3	3	36	24N	08W	262730	4016518*																
																	3	1	3	36	24N	08W	262744	4016920*								
																									3	2	3	36	24N	08W	263147	4016909*
																	3	4	2	32	24N	08W	257502	4017472*								

Record Count: 6

**POD Search:**

POD Basin: San Juan

**PLSS Search:**

Township: 24N Range: 08W

Sorted by: File Number

\*UTM location was derived from PLSS - see Help

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.

10/26/18 11:31 AM

ACTIVE & INACTIVE POINTS OF DIVERSION

Exhibit #3

## Dugan Production Siting Criteria

The below grade tank located has been sited as directed by NMAC 19.15.17.10 (A)(8)(a,b,c)

1. The BGT is not within 200 feet of a spring or fresh water well used for public or livestock consumption (See Exhibit #3).
2. The BGT is not located where depth to ground water is less than 25 feet below the bottom of the tank (See Hydro-geologic Report).
3. The BGT is not located within 100 feet of a continuously flowing watercourse, significant watercourse, lakebed, sinkhole, wetland or playa lake (measured from the ordinary high-water mark)(See exhibit 1 & 2).

## Dugan Production BGT Design and Construction Plan

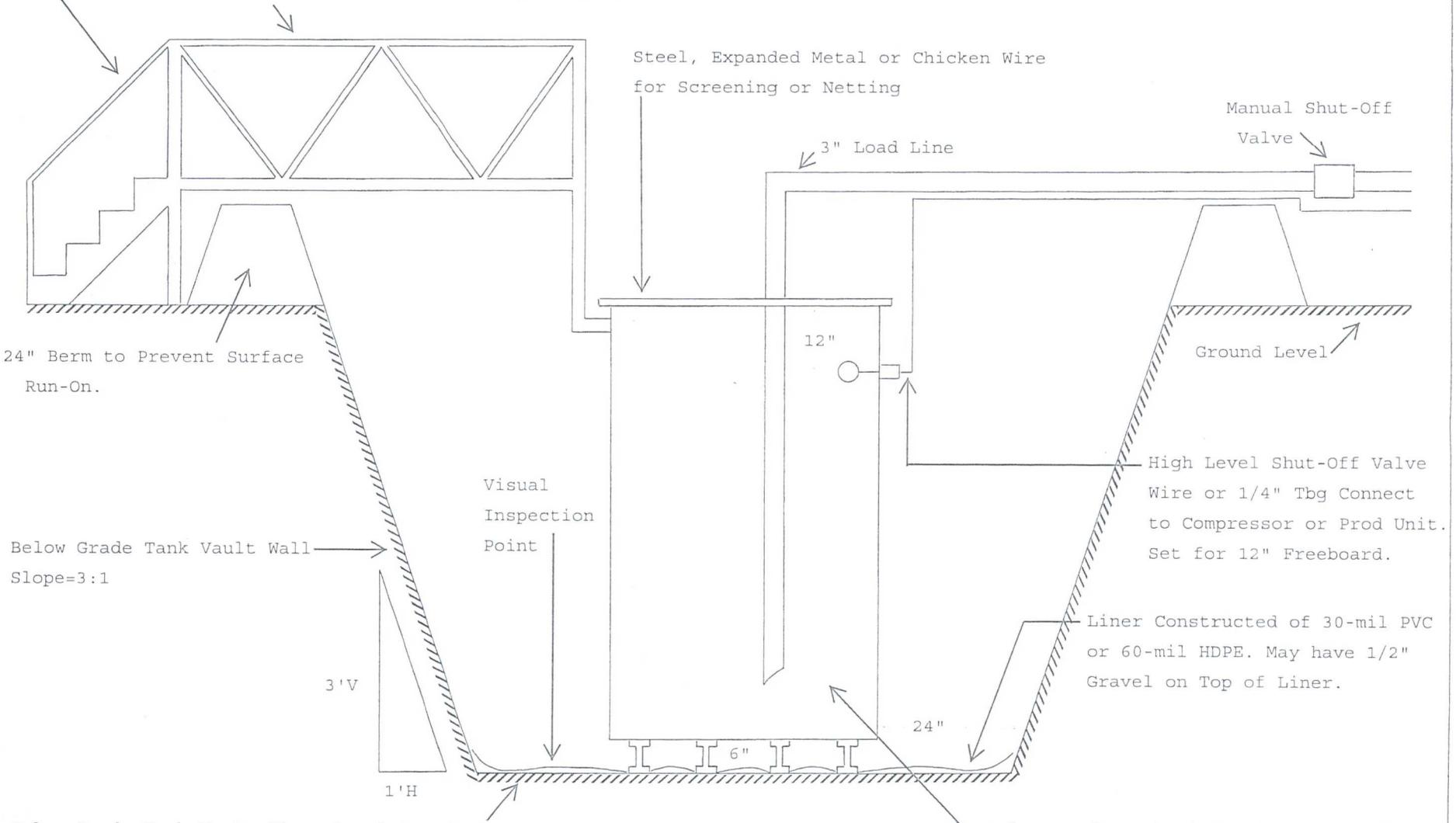
The BGT will be designed and constructed in accordance with the regulations found in NMAC 19.15.17.11.A.B.C.D.E & I.

Specifically these items are as follows:

1. The BGT will be constructed to contain liquids and solids; prevent contamination of fresh water; and protect public health and the environment.
2. The BGT area top soil will be stripped and stockpiled for use as the final cover or fill at the time of closure.
3. A sign will be posted not less than 12 inches by 24 inches with lettering not less than two inches in height in a conspicuous place on the fence surrounding the pit or below-grade tank, unless the pit or below-grade tank is located on a site where there is an existing well, signed in compliance with 19.15.16.8 NMAC, that is operated by the same operator. The operator shall post the sign in a manner and location such that a person can easily read the legend. The sign shall provide the following information: the operator's name; the location of the site by quarter-quarter or unit letter, section, township and range; and emergency telephone numbers.
4. The BGT will be fenced in a manner that deters unauthorized access and shall maintain the fences in good repair. Fences are not required if there is an adequate surrounding perimeter fence that prevents unauthorized access to the well site or facility, including the pit or below-grade tank. Fencing will include a 4-foot hog wire with 2 strands of barbed wire wrapped or top-rail of rebar or pipe on top. See attached request for administrative approval.
5. The BGT will be covered with steel, expanded metal or chicken wire for screening or netting on top of the BGT.
6. The BGT design will adhere to the following design criteria:
  - (1) The operator shall ensure that a below-grade tank is constructed of materials resistant to the below-grade tank's particular contents and resistant to damage from sunlight.
  - (2) A below-grade tank shall have a properly constructed foundation consisting of a level base free of rocks, debris, sharp edges or irregularities to prevent punctures, cracks or indentations of the liner or tank bottom.
  - (3) The operator shall construct a below-grade tank to prevent overflow and the collection of surface water run-on.
7. The BGT will be constructed such that all liquids will be confined to the BGT and releases will be prevented. The BGT will be constructed on a firm level foundation, free of sharp edges to prevent punctures, cracks or indentations of the BGT or its associated liner. Slope walls of the BGT will be a 3':1' to prevent the collapse of vault walls. Dependent on soil conditions 2"x12" pre-treated lumber will be used as needed to ensure vault integrity. A high level shut-off controller will be installed as well as a manual shut off valve to prevent the BGT from overfilling. 24" tall berms will be installed around the BGT vault perimeter to prevent the accumulation of runoff in the BGT and its associated vault. The BGT will be constructed of materials resistant to its contents as well as the damage caused by the sun. Specifically the tank will be constructed of carbon steel, ¼" thick and API rated.
8. Liner will be 30-mil flexible PVC or 60-mil HDPE, string reinforced, impervious material, resistant to UV light, hydrocarbons, salt, acidic and basic liquids. The liner will have a hydraulic conductivity less than  $1 \times 10^{-9}$  cm/sec. Liner compatibility will comply with EPA SW-846 method 9090A.
9. The BGT will be constructed with visible walls. The BGT will be elevated 6' above the underlying surface and set back 24' from the vault walls. The BGT will be underlain with a geo-membrane liner designed to divert any leaked fluid to a visual inspection point. Liner may be covered with gravel.
10. Diversionary berms, ditches or sloping will be used as needed to prevent overflow and the collection of surface water entrapment

# EXHIBIT 7.

Walkway/Bridge With Steps and Handrail, Constructed of 2" X 1/8" Angle Iron and Perforated Walk-Way Material.



24" Berm to Prevent Surface Run-On.

Below Grade Tank Vault Wall Slope=3:1

3'V  
1'H

Visual Inspection Point

Steel, Expanded Metal or Chicken Wire for Screening or Netting

12"

3" Load Line

Manual Shut-Off Valve

Ground Level

High Level Shut-Off Valve Wire or 1/4" Tbg Connect to Compressor or Prod Unit. Set for 12" Freeboard.

Liner Constructed of 30-mil PVC or 60-mil HDPE. May have 1/2" Gravel on Top of Liner.

24"

6"

Below Grade Tank Vault-Firm, Level Foundation Free of Rocks, Debris or Irregularities. Slope of Vault Walls Will Be 3'-Vert/1'-Horiz. Dependent on Soil Conditions, 2" x 12" Pre-Treated Lumber will be used as needed to insure integrity of vault walls.

Dugan Production Corp.

Below Grade Tank-Single Wall, Constructed of 1/4" Carbon Steel, API Rated, Visible Walls and Liner. Tank will have a Minimum 6" Lift Above Underlying Liner and Set-Back at least 24" from Walls of Vault. Tank Volume [ ] bbls, Depth [ ] Feet

## Dugan Production BGT Operational Requirements

1. Dugan will operate and maintain the below-grade tank to contain liquids and solids and maintain the integrity of the liner, liner system or secondary containment system, prevent contamination of fresh water and protect public health and the environment.
2. Dugan will not discharge into or store any hazardous waste in the below-grade tank.
3. If the below-grade tank develops a leak then the Dugan will remove all liquid above the damage or leak within 48 hours of discovery, notify the appropriate division office pursuant to 19.15.29 NMAC and repair the damage or replace below-grade tank as applicable.
4. Dugan will operate the BGT such that it prevents the collection of surface water run-on.
5. Any measurable oil will be continuously removed from the BGT to prevent the accumulation of oil over time.
6. Dugan will not allow a below-grade tank to overflow or allow surface water run-on to enter the below-grade tank. This will be accomplished by constructing berms and installing a high level shut off controller.
7. At least monthly the BGT will be inspected for damage and leaks. Dugan will document the integrity of the below-grade tank and maintain the record for 5 years.
8. Dugan will maintain adequate freeboard to prevent over topping. The high level shutoff controller will be calibrated to allow for the free board needed.
9. If DPC discovers that the below-grade tank does not demonstrate integrity or that the below-grade tank develops any of the conditions identified in Paragraph (5) of Subsection A of 19.15.17.12 NMAC shall repair the damage or close the existing below-grade tank pursuant to the closure requirements of 19.15.17.13 NMAC.
10. If DPC equips or retrofits the existing tank to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC shall visually inspect the area beneath the below-grade tank during the retrofit and document any areas that are wet, discolored or showing other evidence of a release on form C-141. The operator shall measure and report to the division the concentration of contaminants in the wet or discolored soil with respect to the standards set forth in Table I of 19.15.17.13 NMAC. If there is no wet or discolored soil or if the concentration of contaminants in the wet or discolored soil is less than the standard set forth in Table I of 19.15.17.13 NMAC, then the operator shall proceed with the closure requirements of 19.15.17.13 NMAC prior to initiating the retrofit or replacement.

General BGT Closure plan-Methods, Procedures and Protocols for  
Dugan operated BGTs

1. Dugan Production Corp. will follow all rules and regulations contained in 19.15.17.13 NMAC for all BGT closures.
2. Prior to beginning closure activities DPC will obtain approval of the closure plan submitted with the BGT registration pursuant to 19.15.17.9 NMAC.
3. DPC will remove the contents of the BGT, liners and dispose of these items at a division approved facility.

Liquid waste- Sanchez O'Brien SWD #1 (SWD-694)

Solid Waste- Envirotech (NM-01-0011)

IEI (NM-01-0010B)

Waste Management's Crouch Mesa Facility

4. The soils below the BGT will be tested using a 5 point composite sample to include any wet or stained soils or other evidence of contamination shall be taken under the liner or the below-grade tank and that sample shall be analyzed for the constituents listed in Table I of 19.15.17.13 NMAC.
5. If any contaminant concentration is higher than the parameters listed in Table I of 19.15.17.13 NMAC, DPC will consult with the division to determine if additional delineation is needed upon review of the results and before proceeding with closure. In General, Dugan will start following the "spill rule" and take appropriate action to remediate all releases.
6. If all contaminant concentrations are less than or equal to the parameters listed in Table I of 19.15.17.13 NMAC, then DPC will proceed to backfill the pit, pad, or excavation with non-waste containing, uncontaminated, earthen material.
7. DPC will notify the NMOCD and BLM (only when the BLM is surface owner) by email 72 hours prior to beginning closure activities but not sooner than 1 week prior to beginning closure activities. Notice will include well name, API # and location.
8. DPC will notify all other surface owners via certified mail of closure activities. Notice will include well name, API # and location. Notice will be given at least 72 hours prior to beginning closure but not sooner than 1 week prior to beginning closure activities.

9. Within 60 days of cessation of operations, DPC shall remove liquids and sludge from a below-grade tank prior to implementing a closure method and shall dispose of the liquids and sludge in a division-approved facility.
10. Within six months of cessation of operations, DPC shall remove the below-grade tank and dispose of it in a division-approved facility or recycle, reuse, or reclaim it in a manner that the appropriate division district office approves. If there is any equipment associated with a below-grade tank, then the operator shall remove the equipment, unless the equipment is required for some other purpose.
11. Once DPC has closed the BGT, DPC shall reclaim below-grade tank location or trench location and all areas associated with the below-grade tank including associated access roads to a safe and stable condition that blends with the surrounding undisturbed area. The operator shall substantially restore the impacted surface area to the condition that existed prior to oil and gas operations by placement of the soil cover as provided in Paragraph (2) of Subsection H of 19.15.17.13 NMAC, contour the location and associated areas to a contour that approximates the original contour and blends with the surrounding topography and re-vegetate according to Paragraph (5) in Subsection H of 19.15.17.13 NMAC.
12. The soil cover for closures after site contouring, where the operator has removed the below-grade tank or drying pad contents and liner, and if necessary remediated the soil beneath the below-grade tank or drying pad liner to chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0, shall consist of the background thickness of topsoil or one foot of suitable material, whichever is greater.
13. DPC shall construct the soil cover to the site's existing grade and prevent ponding of water and erosion of the cover material.
14. All areas disturbed by the closure of pits and below-grade tanks, except areas reasonably needed for production operations or for subsequent drilling operations, shall be reclaimed as early and as nearly as practicable to their original condition or their final land use and shall be maintained to control dust and minimize erosion to the extent practicable.
15. Topsoils and subsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability and preservation of surface water flow patterns. The disturbed area then shall be reseeded in the first favorable growing season following closure of a pit, drying pad associated with a closed-loop system or below-grade tank.
16. Reclamation of all disturbed areas no longer in use shall be considered complete when all ground surface disturbing activities at the site have been completed, and a uniform vegetative cover has been established that reflects a life-form ratio of plus or minus fifty

percent (50%) of pre-disturbance levels and a total percent plant cover of at least seventy percent (70%) of pre-disturbance levels, excluding noxious weeds.

17. The re-vegetation and reclamation obligations imposed by other applicable federal or tribal agencies on lands managed by those agencies shall supersede these provisions and govern the obligations of any operator subject to those provisions, provided that the other requirements provide equal or better protection of fresh water, human health and the environment.
18. DPC shall notify the division when reclamation and re-vegetation are complete.