District 1 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.

12004		Pit, Be	elow-Grade T	ank, or				
13998	Propos	sed Alternative Met	hod Permit or	Closure	e Plan A	pplicatio	n	
		Below grade tank regis	stration				DIL CONS. DI	V DIST. 3
		<ul> <li>Permit of a pit or propo</li> <li>Closure of a pit, below</li> <li>Modification to an exis</li> </ul>	-grade tank, or pro	posed altern	native meth	nod	DEC 17	2015
		Closure plan only subn			l or non-pe	ermitted pit, l	below-grade tan	k,
	or proposed alter							
		ase submit one application (Fo						
		equest does not relieve the operate the operator of its responsibility						
I.								
	Star Oil and Gas Co.	and the second se	(	OGRID #:	131994	-		
	0 Smith Street, Hous	State N5 CDP				187.74		
		Section <u>2</u> Township						
		e <u>36.923306</u>						1983
		Private Tribal Trust or I						
Permanent Lined U String-Reinfo	nlined Liner type: preed	ver avitation	] LLDPE 🗌 HDPE	PVC	Other			
3.				-				
	Concerns of the second second	1 of 19.15.17.11 NMAC – <b>BG</b>						
		bl Type of fluid: <u>Produce</u>	d water					
	on material: <u>Ste</u>	k detection 🗌 Visible sidewa	lle lines 6 inch lift :	and automati		hut off		in the second
				and automati	c overnow s	snut-on		-01.5
Liner type: Thic		Visible sidewalls only  Oth mil HDPE					<u>.</u>	Charles and
	KIIC55							
4.	Method:							
Submittal of an e	exception request is r	required. Exceptions must be	submitted to the Sant	a Fe Enviror	nmental Bur	eau office for	consideration of a	pproval.
5.				_				
Fencing: Subse	ction D of 19.15.17.	11 NMAC (Applies to permane	ent pits, temporary pi	ts, and below	v-grade tank	ks)		
Chain link, si		strands of barbed wire at top (	Required if located w	ithin 1000 fe	eet of a perm	nanent residen	nce, school, hospit	al,
		barbed wire evenly spaced betw	veen one and four fee	t				1.6.1
Alternate. Pl	ease specify	Cattle Panel						100

6. <u>Netting</u> : Subsection E of 19.15.17.11 NMAC (Applies to permanent pits and permanent open top tanks)	
Screen Netting Other Solid/Cone top	
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	
<ul> <li>8. <u>Variances and Exceptions:</u> Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.</li> <li><i>Please check a box if one or more of the following is requested, if not leave blank:</i> <ul> <li>Variance(s): Requests must be submitted to the appropriate division district for consideration of approval.</li> <li>Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.</li> </ul> </li> </ul>	
<sup>9.</sup> <u>Siting Criteria (regarding permitting)</u> : 19.15.17.10 NMAC <i>Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of accept material are provided below.</i> Siting criteria does not apply to drying pads or above-grade tanks.	ptable source
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
<ul> <li>Within an unstable area. (Does not apply to below grade tanks)</li> <li>Engineering measures incorporated into the design; NM Bureau of Geology &amp; Mineral Resources; USGS; NM Geological Society; Topographic map</li> </ul>	🗆 Yes 🛛 No
Within a 100-year floodplain. (Does not apply to below grade tanks) - FEMA map	Yes 🛛 No
Below Grade Tanks	14.00 million
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)	1.1.1.1
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

<ul> <li>Within 100 feet of a wetland.</li> <li>US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site</li> </ul>	Yes No
Temporary Pit Non-low chloride drilling fluid	
<ul> <li>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).</li> <li>Topographic map; Visual inspection (certification) of the proposed site</li> </ul>	Yes No
<ul> <li>Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.</li> <li>Visual inspection (certification) of the proposed site; Aerial photo; Satellite image</li> </ul>	🗌 Yes 🗌 No
<ul> <li>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;</li> <li>NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site</li> </ul>	Yes No
<ul> <li>Within 300 feet of a wetland.</li> <li>US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site</li> </ul>	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).	
<ul> <li>Topographic map; Visual inspection (certification) of the proposed site</li> </ul>	Yes No
<ul> <li>Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.</li> <li>Visual inspection (certification) of the proposed site; Aerial photo; Satellite image</li> </ul>	Yes No
<ul> <li>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.</li> <li>NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site</li> </ul>	Yes No
<ul> <li>Within 500 feet of a wetland.</li> <li>US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site</li> </ul>	Yes No
10. <b>Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist:</b> Subsection B of 19.15.17.9 N         Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the doc attached.	nmac
II.         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 doc         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.         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:	

44	
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 a 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         Quality Control/Quality Assurance Construction and Installation Plan         Operating and Maintenance 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 19.15.17.9 NMAC and 19.15.17.13 NMAC	locuments are
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         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	uid Management Pit
14.	
Waste Excavation and Removal Closure Plan Checklist:       (19.15.17.13 NMAC) Instructions: Each of the following items must be a 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                  More than the appropriate requirements of Subsection C of 19.15.17.13 NMAC                  Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC                  More than the appropriate requirements of Subsection H of 19.15.17.13 NMAC                 Soil Backfill and Cover Design Specifications - 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 provided below. Requests regarding changes to certain siting criteria require justifications and/or demonstrations of equivalency. Plan 19.15.17.10 NMAC	
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
<ul> <li>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.</li> <li>NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site</li> </ul>	🗌 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	

<ul> <li>adopted pursuant to NMSA 1978, Section 3-27-3, as amended.</li> <li>Written confirmation or verification from the municipality; Written approval obtained from the municipality</li> </ul>	🗌 Yes 🗌 No
<ul> <li>Within the area overlying a subsurface mine.</li> <li>Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division</li> </ul>	Yes No
<ul> <li>Within an unstable area.</li> <li>Engineering measures incorporated into the design; NM Bureau of Geology &amp; Mineral Resources; USGS; NM Geological Society; Topographic map</li> </ul>	🗌 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 planes by a check mark in the box, that the documents are attached.	11 NMAC 15.17.11 NMAC
17. One star textile city Contification	
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 believed and belie	of
	ci.
Name (Print): <u>April E Pohl</u> Title: <u>furmitting Specialist</u>	
Signature: April Efohl Date: 12/17/15	1
e-mail address: April. Pohle chevron.com Telephone: 505-333-1941	
18. OCD Approval: Permit Application (including closure plan) Closure Plan (only) OCD Conditions (see attachment)	
OCD Representative Signature: Approval Date: _2/1	6/10
Title: Environmendel Sper. OCD Permit Number: 13998	
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 is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not section of the form until an approved closure plan has been obtained and the closure activities have been completed.	
20.     Closure Method:     Waste Excavation and Removal On-Site Closure Method Alternative Closure Method Waste Removal (Closed-lo     If different from approved plan, please explain.	op systems only)
21.         Closure Report Attachment Checklist: Instructions: Each of the following items must be attached to the closure report. Please intermark 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	dicate, by a check

belief. I also certify that the closure complies with	s submitted with this closure report is true, accurate an all applicable closure requirements and conditions spec	cified in the approved closure plan.
Name (Print):		
e-mail address:	l elephone:	

## Quinoco State N5 CDP Hydrogeologic Report

## Topography and Surface Hydrology

The Quinoco State N5 well site is located in what is considered the Colorado River Basin. The largest, continuously flowing streams of the Colorado River Basin are the Animas and San Juan Rivers. The San Juan River is the closest continuously flowing waterway to the site and is approximately 17,054 feet southeast of the site. Most stream channels within the Colorado River Basin are ephemeral, with some being intermittent (Stone et al., 1983). The tributaries of the San Juan River that contribute large quantities of water during precipitation events are Canyon Largo, Gallegos Canyon, Chaco River, Animas River, and La Plata River. The nearest significant water course to the Quinoco State N5 is Negro Andy Canyon approximately 1,861 feet southwest of the below grade tank and is a first order tributary of Navajo Lake/San Juan River; see *Topographic Map.* The general topographic slope of the site is to the south. Storm water runoff flows off of the Quinoco State N5 well site toward the south and then follows storm water channels toward Negro Andy Canyon to Navajo Lake/San Juan River which is approximately 17,054 feet southwest of the south and then follows storm water channels toward Negro Andy Canyon to Navajo Lake/San Juan River which is approximately 17,054 feet southwest of the site; (scale at 1:24,00, San Juan River/Navajo Lake are beyond the map boundaries).

The nearest wetland area to the Quinoco State N5 well site is approximately 17,582 feet southeast of the BGT. This wetland area is identified as Lake in accordance with the attached U.S. Fish and Wildlife Service National Wetlands Inventory Map.

There are no named lake beds or playa lakes within 100 feet of the BGT location; see attached *Topographic Map* (scale at 1:24,000, nearest named lake bed or playa lake are beyond the map boundaries). The nearest unnamed possible lakebed or playa lake is approximately 816 feet southwest of the location; see attached *Topographic Map*.

## Geology

The San Jose Formation (Tsi) is the youngest Tertiary unit in the San Juan Basin and was named by Simpson (1948, p. 277-283). It is of early Eocene age and as early as 1875 was correlated with the Wasatch Formation in Wyoming. The San Jose is the surface formation in the eastern two-thirds of the San Juan Basin. Although largely exposed in New Mexico, the San Jose also straddles the New Mexico/Colorado State boundaries. It outcrops in its west, south and northeast boundaries in a broad, and in some places irregular, southeasterly trending band in the Blanco Canyon to Largo Canyon area. On the east side, it rises structurally and outcrops in a narrow band along the west face of the Nacimiento Uplift forming the eastern boundary of the San Juan Basin. There are several smaller, isolated remnants of the San Jose Formation west of the central exposure. The San Jose has eroded deeply in some areas and because of differential resistance to erosion of its various sandstone and shale units, produces a large thickness variance and in some places formation of very rugged topographic expression (Baltz, 1967, p. 45). In some places it erodes to horseshoe-shaped badlands and massive cliffs. The San Jose overlays the nonresistant slope-forming Nacimiento Formation (Tn). Thickness of the San Jose ranges from less than 200 feet at the outcrop on the west and south sides to almost 2,700 feet in the Basin center (Stone, et al, p. 25). The thickness is 1,300 feet or less on the southern part of the Tapicitos Plateau where the San Jose structurally rises and its upper beds are eroded. In the Largo Plains area (Largo Canyon), which marks the western exposure of the preserved San Jose, more than half of the Formation was removed by erosion (Baltz, p. 46). The San Jose Formation contact is that of an angular unconformity surface with the underlying Paleocene-age Nacimiento Formation near the Nacimiento Uplift, but is slightly disconformable to conformable in the Basin center (Stone, et al, p. 25).

The San Jose Formation is comprised of four identifiable rock facies (in ascending order) called the Cuba Mesa, the Regina, the Llaves and the Tapicitos Members. These four members are only present in the far eastern part of the basin (Brimhall, 1973, p. 198). Within the preserved area, only the Cuba Mesa and Regina are widespread throughout the basin. The oldest Member of the San Jose is the Cuba Mesa (150-800 feet thick), which is largely a massive cliff-forming buff and yellow, rusty-weathering cross-bedded arkosic coarse-grained sandstone with lenticular reddish, green and gray shale beds (Baltz, p. 46). The Cuba Mesa is overlain in the southern two-thirds of the area by drab-colored variegated shale and interbedded soft to hard sandstones known as the Regina Member (100 to 1,700 feet thick) and overlain in the northern one-third by a thick sequence of sandstone called the Llaves (50 to 1,300 feet thick) which in turn intertongues and grades southward into the Regina. In the northeastern part of

the area, the upper Llaves Member grades southward and westward into the red silty mudstones, siltstones and interbedded poorly consolidated sandstones of the Tapicitos Member (120-500 feet thick) (Stone, et al, p. 25).

The local underlying geology of the basin is not conducive to sinkhole features, more predominant in soluble rocks such as limestone and dolomite, creating what is considered to be Karst features. Karst features are formed by the dissolution of soluble rocks, such as limestone and dolomite, and can be characterized by springs, caves, and sinkholes. There are no documented Karst features within 50 miles of Quinoco State N5 CDP well site in accordance with the *United States Geological Survey (USGS)*; see attached *Karst Image*.

## Groundwater Hydrology

Most water supplies in the San Juan Basin are from groundwater that is accessed through wells completed within the surficial valley-fill deposits of Quaternary age and sandstones of Tertiary, Cretaceous, Jurassic, and Triassic age. The Quinoco State N5 well site lies in the San Jose Formation Aquifer which dips at 7 degrees to the northeast (Frenzel, 1983). The San Jose Formation ranges from less than 200 feet in the west and south to nearly 2,700 feet in the basin center between Cuba and Gobernador (Frenzel, 1983).

There are no registered water wells within 200 feet (~60 meters) of the Quinoco State N5 well site determined by a 3,000 meter (~9,842 feet) radius search of the BGT on the well site; see attached *New Mexico Office of the State Engineer Water Column/Average Depth to Water Report.* A cathodic well report was not identified for the Quinoco State N5 well site. The attached iWATERS database search shows a water well approximately 3,847 feet to the northwest of the location with a depth to groundwater of 300 feet. The SJ 03649 water well is labeled on the topographic map with a blue point. The soil type at the Quinoco State N5 well site is a Penistaja-Buckle association, gently sloping, and Rock outcrop-Travessilla-Weska complex, extremely steep; see attached *USDA Custom Soil Resource Report.* Penistaja-Buckle association is characterized by Eolian deposits over fan alluvium derived from sandstone and shale, high permeability, and high water capacity. The Rock outcrop-Travessilla-Weska complex is characterized by Residuum weathered from sandstone, high permeability, and low water capacity; see attached *USDA Custom Soil Resource Report.* 

#### Resources

New Mexico Office of the State Engineer (NMOSE) New Mexico Water Right Reporting System (iWaters database)

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

United States Geological Survey, Karst in the United States: A Digital Map Compilation and Database; Weary, David J., and Doctor, Daniel H.

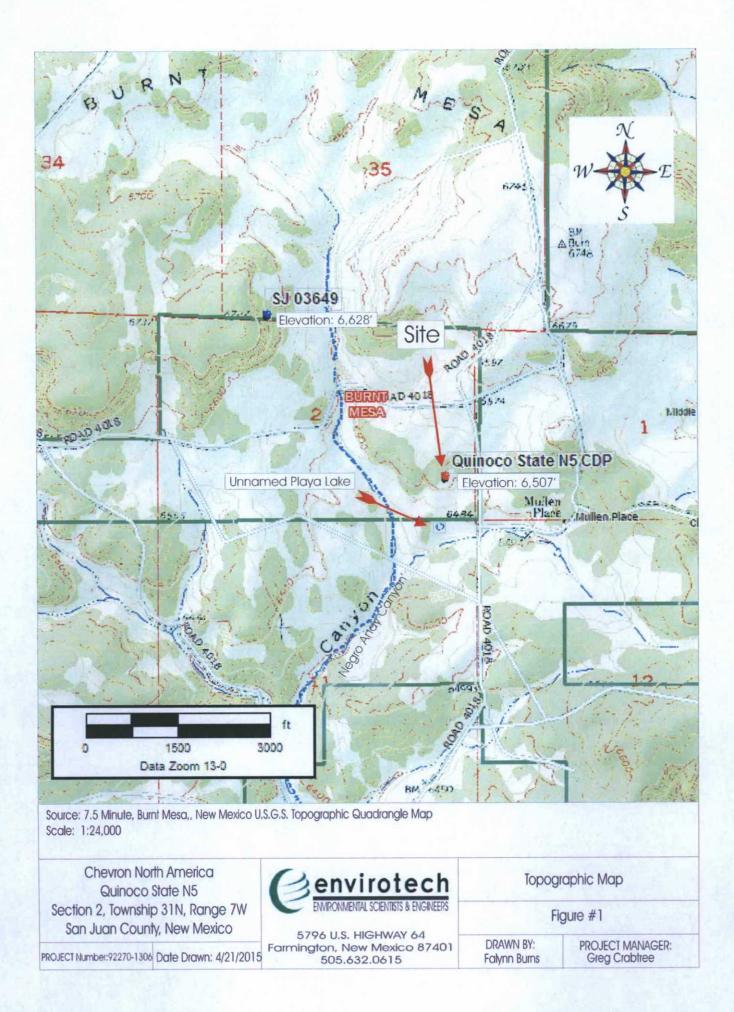
New Mexico Mining and Minerals Division (www.nmmines.com)

## Chevron Midcontinent, LP Below Grade Tank Registration Siting Criteria Compliance Demonstration Quinoco State N5 CDP

- Groundwater is not less than 25 feet below the bottom of the below-grade tank: Groundwater will be approximately 174 feet below the bottom of the BGT. This was calculated using information from the closest water well located approximately 3,847 feet northwest of the Quinoco State N5 CDP at an elevation of 6,628 feet. The depth of the water well is 600 feet and the depth to groundwater is recorded as 300 feet; see the *attached New Mexico Office of the State Engineer (NMOSE) Water Column/Average Depth to Water Sheet*. The topographic map indicates the site elevation to be 6,507 feet; see *Topographic Map*. The BGT is buried 5 feet below ground surface which gives a bottom of the BGT elevation of 6,502 feet. The difference between the BGT bottom elevation and groundwater elevation is 174 feet.
- The below grade tank is not within 100 feet of a continuously flowing watercourse, significant water course, lake bed, sinkhole, wetland or playa lake:
  - The nearest continuously flowing watercourse is the San Juan River estimated to 17,054 feet southeast of the BGT location and the Quinoco State N5 CDP well site; see attached *Topographic Map* (scale at 1:24,000, the nearest continuously flowing watercourse is beyond the map boundaries).
  - The nearest significant watercourse is the Negro Andy Canyon, a first order tributary to the San Juan River. The tributary is approximately 1,861 feet southwest of the BGT location; see attached *Topographic Map*.
  - There are no named lake beds or playa lakes within 100 feet for the BGT location; see attached *Topographic Map* (scale at 1:24,000, nearest named lake bed or playa lake is beyond the map boundaries). The nearest unnamed lakebed or playa lake is estimated to be 816 feet southwest of the BGT; see attached *Topographic Map*.
  - The nearest wetland is located approximately 17,582 feet southeast of the BGT location; see attached U.S. Fish and Wildlife Service National Wetlands Inventory Map.
  - There are no sinkholes located within 100 feet of the BGT location at the Quinoco State N5 CDP well site; see attached *Hydrogeologic Report* and *USGS Karst Image.*
  - o The BGT lies approximately 19,008 feet east of the nearest floodplain; see attached FEMA FIRM.
- The below grade tank is not within 200 horizontal feet of a spring or a fresh water well used for public or livestock consumption:
  - There are no registered water wells located within 200 feet of the BGT location at the Quinoco State N5 CDP well site; see attached New Mexico Office of the State Engineer (NMOSE) Water Column/Average Depth to Water Sheet (search radius is 3000 meters (~9,842) from the center of the proposed BGT).
- The below grade tank is not 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:
  - The BGT location resides outside all local municipal boundaries; see attached *Municipal Boundary Map.*
- The below grade tank is not within the area overlying a subsurface mine:
  - There are no registered mines underlying the BGT on the Quinoco State N5 CDP; see attached Mines of San Juan County Map.
- The below grade tank does not lie within a 100 year floodplain:
  - The BGT lies approximately 19,008 feet east of the nearest floodplain; see attached FEMA FIRM.

• The below grade tank is not within 300 feet of an occupied residence, school, hospital, institution or church:

• The BGT is not within 300 feet of any of the aforementioned structures; see attached Site Map.



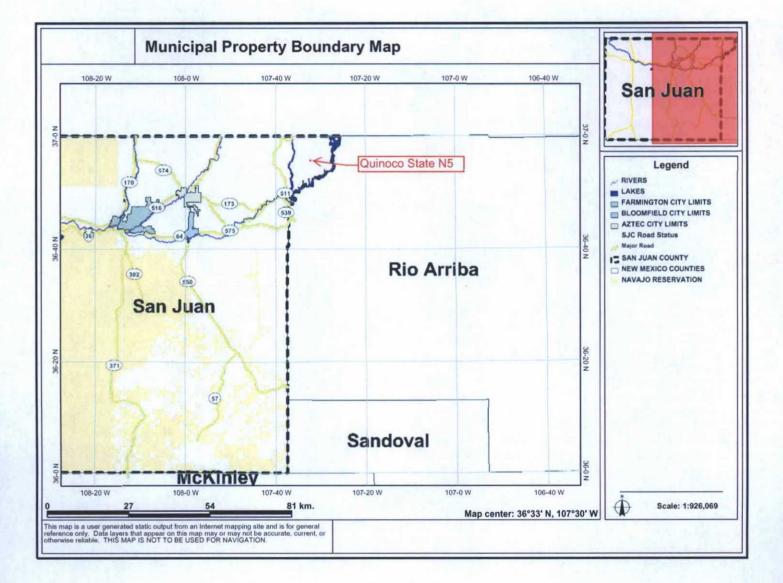


## New Mexico Office of the State Engineer Water Column/Average Depth to Water

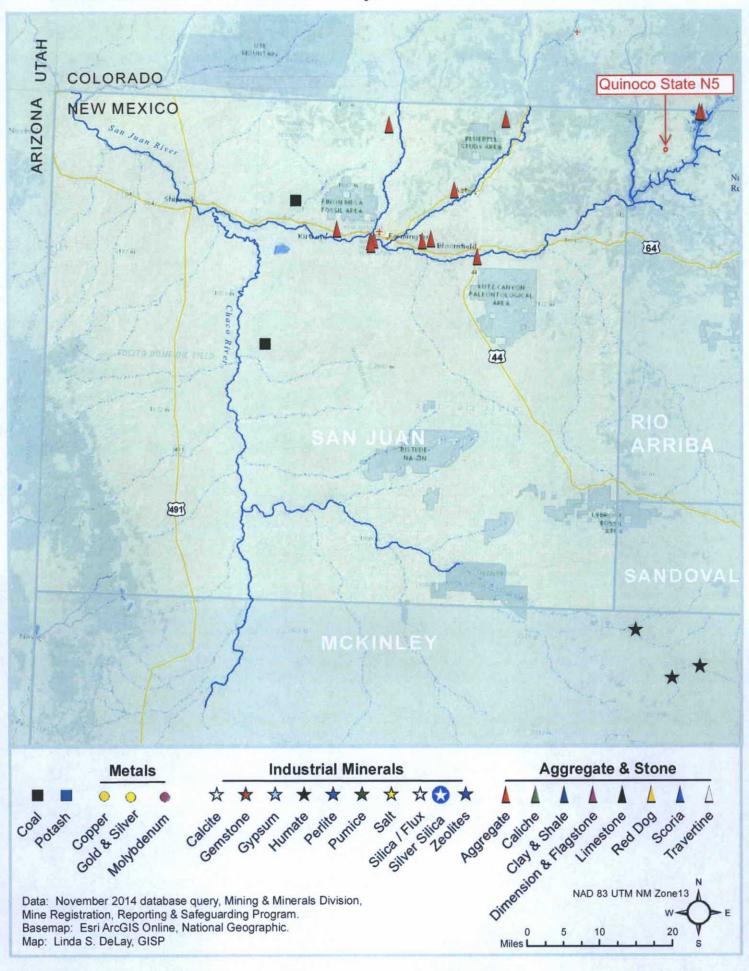
(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)	(R=POD has been replaced, O=orphaned, C=the file is closed)							2=NE 3	=SW 4=SE lest) (N/	) AD83 UTM in me	eters)	(1	n feet)	
POD Number	POD Sub- Code basin Cou	inty	1.22	Q 16	-	Sec	Tws	Rng	x	Y	Distance			Water Column
SJ 03649	S	J		4	1	02	31N	07W	273538	4090167* 🌍	1184	600	300	300
SJ 03426	S	J	4	2	1	14	31N	07W	273560	4087251* 🌑	2238	540	420	120
SJ 03685 POD1	S	J	4	2	1	07	31N	06W	276814	4088772* 🍏	2498	460	310	150
SJ 01612	S	J			3	34	32N	07W	272046	4090671* 🍏	2689	800		
										Avera	ge Depth to Minimum			feet feet
											Maximum	Depth:	420	feet
Record Count: 4														
UTMNAD83 Radius	Search (in meters)	:												
Easting (X): 2743	380		No	rth	ing	) (Y)	408	39334		Radius	: 3000			

\*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.



## Active Mines in San Juan County, New Mexico, November 2014

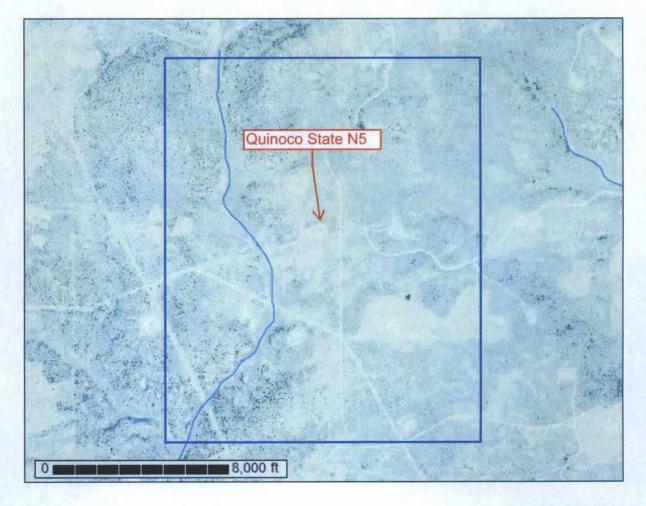




United States Department of Agriculture

Natural Resources Conservation Service A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants Custom Soil Resource Report for San Juan County, New Mexico, Eastern Part

**Quinoco State N5** 



## Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http:// offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/? cid=nrcs142p2\_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

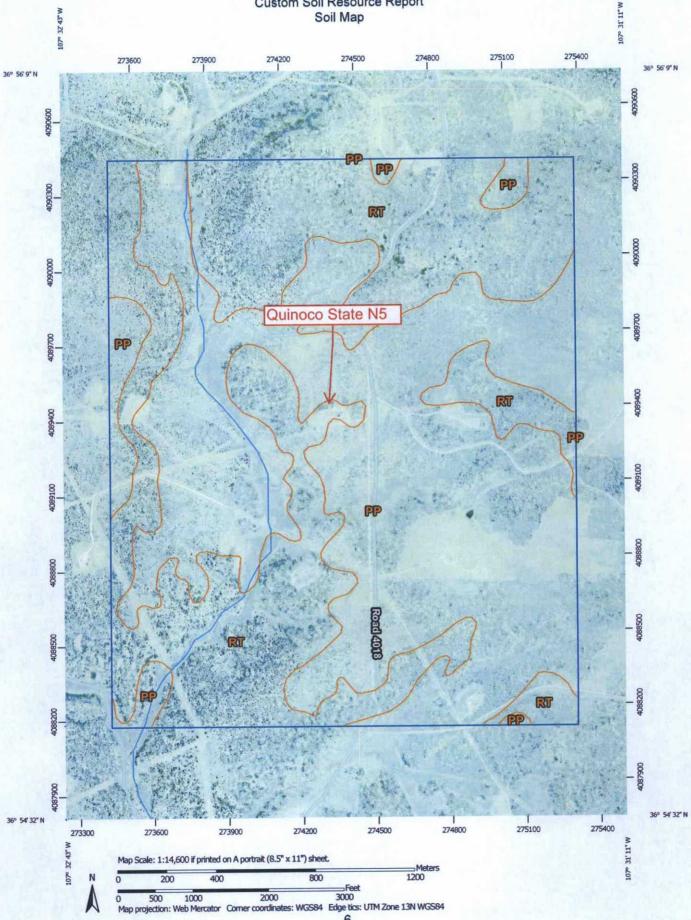
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## Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

## **Custom Soil Resource Report** Soil Map



#### **Custom Soil Resource Report**

## MAP LEGEND

Area of Interest (AOI) Area of Interest (AOI) Soils Soil Map Unit Polygons Soll Map Unit Lines

Soll Map Unit Points 

in

Special Point Features () Blowout

Borrow Pit

Clay Spot

36 Closed Depression

Gravel Pit

Gravelly Spot

C Landfill

Lava Flow x

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Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot Severely Eroded Spot -

Sinkhole 0

Slide or Slip

Sodic Spot

#### Transportation Rails ++++ Interstate Highways ~ ~ US Routes

Spoil Area

Stony Spot

2

..

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Water Features

Very Stony Spot

Wet Spot

Special Line Features

Streams and Canals

Other

Major Roads

Local Roads Background

Aerial Photography Dis.

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:63,400.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Juan County, New Mexico, Eastern Part Survey Area Data: Version 12, Sep 26, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

7

San Juan County, New Mexico, Eastern Part (NM618)							
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI				
PP	Penistaja-Buckle association, gently sloping	586.6	55.4%				
RT	Rock outcrop-Travessilla- Weska complex, extremely steep	471.5	44.6%				
Totals for Area of Interest		1,058.1	100.0%				

## Map Unit Legend

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If

## Custom Soil Resource Report

intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An association is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

## San Juan County, New Mexico, Eastern Part

## PP—Penistaja-Buckle association, gently sloping

## Map Unit Setting

National map unit symbol: 1wx7 Elevation: 6,400 to 7,200 feet Mean annual precipitation: 10 to 14 inches Mean annual air temperature: 48 to 52 degrees F Frost-free period: 125 to 145 days Farmland classification: Not prime farmland

## Map Unit Composition

Penistaja and similar soils: 50 percent Buckle and similar soils: 35 percent Estimates are based on observations, descriptions, and transects of the mapunit.

## **Description of Penistaja**

## Setting

Landform: Mesas, fan remnants Landform position (three-dimensional): Talf Down-slope shape: Convex Across-slope shape: Convex Parent material: Eolian deposits over fan alluvium derived from sandstone and shale

## **Typical profile**

A - 0 to 3 inches: loam Btk - 3 to 60 inches: clay loam Ck - 60 to 64 inches: sandy loam

## Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/ cm)
Sodium adsorption ratio, maximum in profile: 2.0

Available water storage in profile: High (about 11.3 inches)

#### Interpretive groups

Land capability classification (irrigated): 3e Land capability classification (nonirrigated): 6c Hydrologic Soil Group: C Ecological site: Loamy (R036XB006NM)

## **Description of Buckle**

## Setting

Landform: Fan remnants, mesas Landform position (three-dimensional): Talf Down-slope shape: Convex Across-slope shape: Convex Parent material: Eolian deposits over fan alluvium derived from sandstone and shale

## **Typical profile**

A - 0 to 13 inches: silt loam CB - 13 to 47 inches: clay loam Ck - 47 to 66 inches: silty clay loam

## **Properties and qualities**

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 2 percent
Gypsum, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: High (about 9.9 inches)

## Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 6c Hydrologic Soil Group: C Ecological site: Loamy (R036XB006NM)

## RT-Rock outcrop-Travessilla-Weska complex, extremely steep

## Map Unit Setting

National map unit symbol: 1wxd Elevation: 6,400 to 7,200 feet Mean annual precipitation: 10 to 14 inches Mean annual air temperature: 48 to 52 degrees F Frost-free period: 125 to 145 days Farmland classification: Not prime farmland

## Map Unit Composition

Rock outcrop: 40 percent Travessilla and similar soils: 30 percent Weska and similar soils: 20 percent Estimates are based on observations, descriptions, and transects of the mapunit.

## **Description of Rock Outcrop**

### Typical profile

R - 0 to 60 inches: bedrock

## **Properties and qualities**

Slope: 30 to 70 percent Depth to restrictive feature: 0 inches to lithic bedrock Runoff class: Very high Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)

#### Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 8s

## **Description of Travessilla**

## Setting

Landform: Escarpments Landform position (three-dimensional): Side slope Down-slope shape: Convex Across-slope shape: Convex Parent material: Residuum weathered from sandstone

## **Typical profile**

A - 0 to 1 inches: sandy loam

- C 1 to 9 inches: sandy loam
- R 9 to 20 inches: bedrock

## Properties and qualities

Slope: 30 to 40 percent
Depth to restrictive feature: 5 to 20 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 2 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Very low (about 1.2 inches)

## Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 7e Hydrologic Soil Group: D Ecological site: Shallow upland (R070AY003NM)

## **Description of Weska**

## Setting

Landform: Escarpments Landform position (three-dimensional): Side slope Down-slope shape: Convex Across-slope shape: Convex

## Custom Soil Resource Report

Parent material: Residuum weathered from shale

## Typical profile

A - 0 to 1 inches: silty clay loam

C - 1 to 7 inches: clay loam

Cr - 7 to 20 inches: bedrock

## **Properties and qualities**

Slope: 30 to 40 percent
Depth to restrictive feature: 5 to 20 inches to paralithic bedrock
Natural drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 2 percent
Gypsum, maximum in profile: 2 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0

Available water storage in profile: Very low (about 1.4 inches)

### Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 7e Hydrologic Soil Group: D Ecological site: Sandstone upland 10-14" p.z. (R035XC314AZ)

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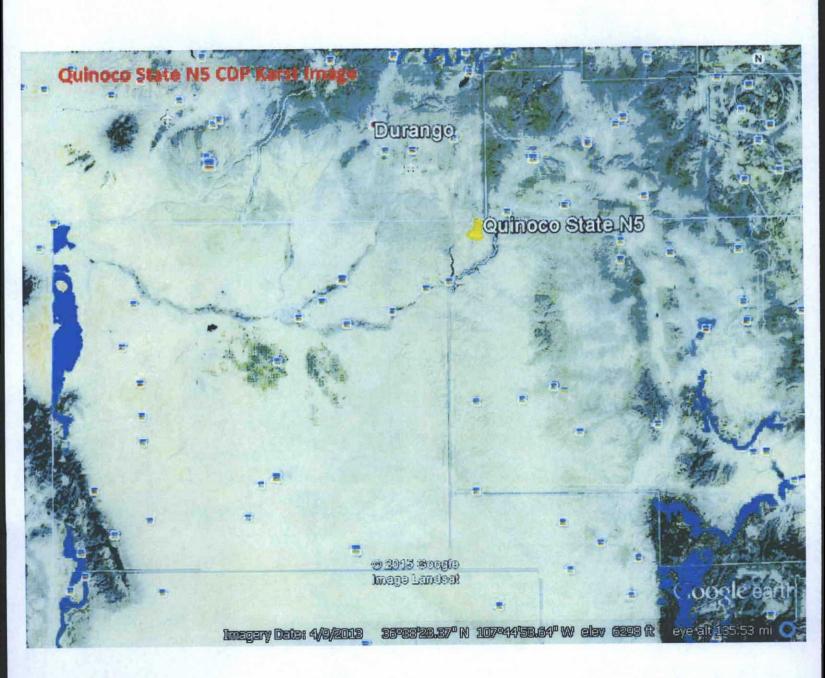
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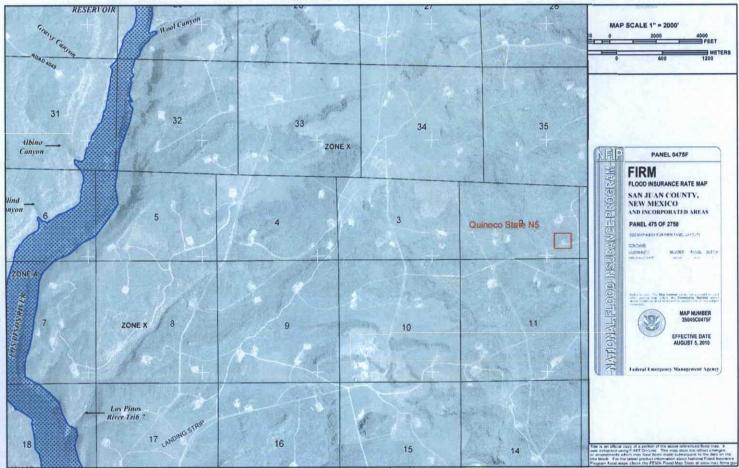
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Quinoco State N5

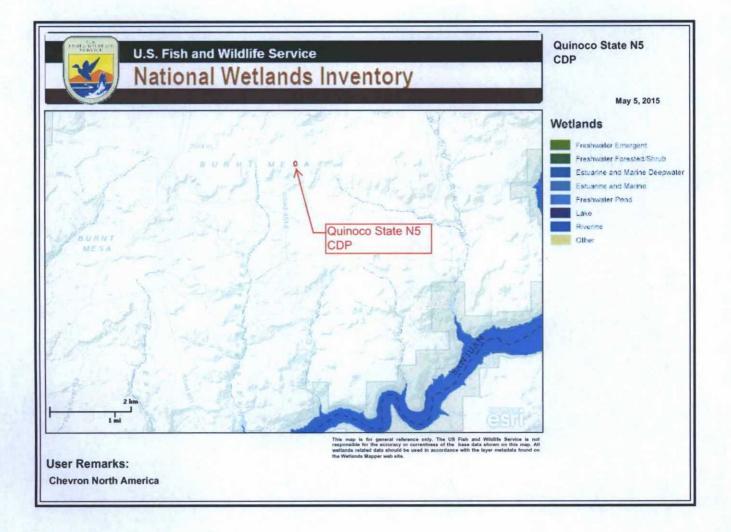
The below grade tank (BGT) on the Quinoco State N5 CDP well site is not within 300 feet of:

AL

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- an occupied residence
- a school
- hospital
  institution or church
- **BGT #1** X
- O Previously Permitted

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SECTION	Quir 2, TW	SITE MAP IN North America Noco State N5 CDP VP 31 NORTH, RANGE 7 N COUNTY, NEW MEXICO	WEST
SCALE: NT PROJECT NO		FIGURE NO. 2	REV
		REVISIONS	
MAP DRWN	FB	10/21/15 BASE DRWN	1
5796 U.S	-	PONICON, NM 87401	



## BELOW GRADE TANK (BGT) DESIGN AND CONSTRUCTION PLAN

SUBMITTED TO:

## ENVIRONMENTAL BUREAU,

## NEW MEXICO OIL CONSERVATION DIVISION

ON BEHALF OF:

CHEVRON USA INC., CHEVRON MIDCONTINENT, L.P., AND FOUR STAR OIL & GAS

COMPANY

P.O. BOX 730

AZTEC, NEW MEXICO 87410

(505) 333-1901

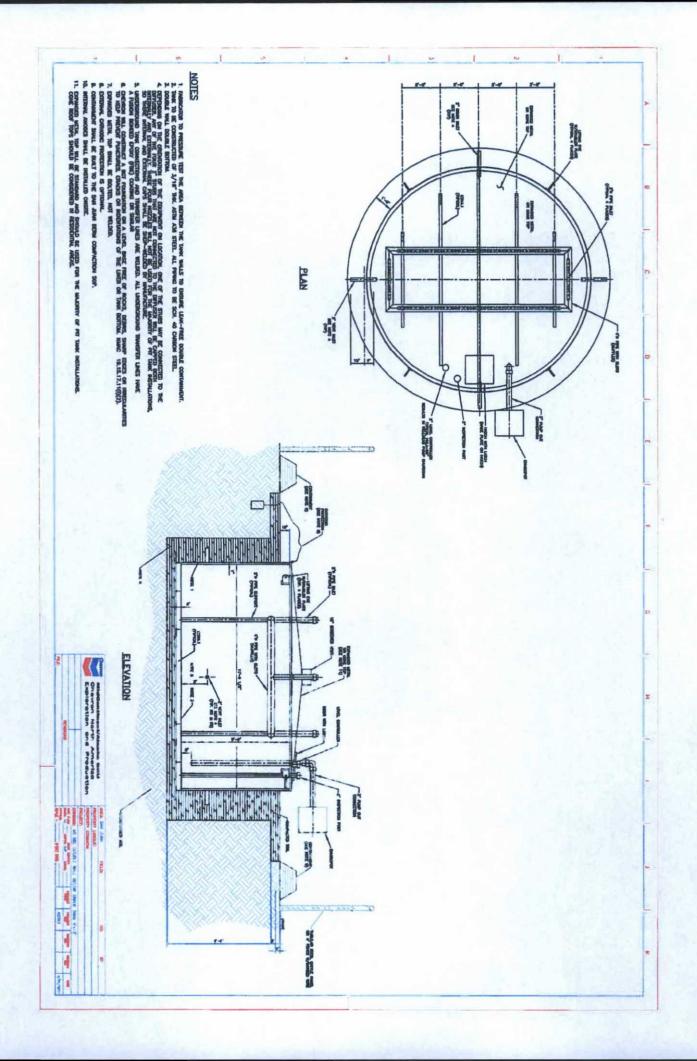
## CHEVRON SAN JUAN BASIN BELOW GRADE TANK DESIGN AND CONSTRUCTION PLAN

## INTRODUCTION

In accordance with NMAC §§ 19.15.17.9(B)(3) and 19.15.17.11 Chevron (representing Chevron USA Inc, Chevron Midcontinent, L.P., and Four Star Oil & Gas Company) submits this Design and Construction Plan for below grade tanks (BGTs) in New Mexico. This Plan contains standard conditions that attach to multiple BGTs.

- Chevron will design and construct a BGT to contain liquids and solids, prevent contamination of fresh water, and protect public health and the environment. NMAC § 19.15.17.11(A).
- 2. Chevron will post an upright sign not less than 12 inches by 24 inches with lettering not less than two inches in height in a conspicuous place on the fence surrounding the BGT, unless the BGT is located on a site where there is an existing well, signed in compliance with NMAC § 19.15.16.8, that is operated by Chevron. Chevron will post the sign in a manner and location such that a person can easily read the legend. The sign will provide the following information: Chevron's name; the location of the site by quarter-quarter or unit letter, section, township and range; and emergency telephone numbers. NMAC § 19.15.17.11(C).
- 3. Chevron will fence or enclose a BGT in a manner that prevents unauthorized access and will 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 BGT. NMAC § 19.15.17.11(D)(1).
- 4. Chevron will fence BGTs to exclude livestock with a four foot fence that has at least four strands of barbed wire evenly spaced in the interval between one foot and four feet above ground level. NMAC § 19.15.17.11(D)(3). Chevron may install tubular steel cattle panels, as it determines appropriate (photo of cattle panel fence submitted to NMOCD, 24 June 2009).
- Chevron will screen the permanent opening on the tank top with expanding steel mesh in order to render it non-hazardous to wildlife, including migratory birds. NMAC § 19.15.17.11(E).
- Chevron's BGTs will be constructed with the design features illustrated on the attached drawing.
- 7. Only double-walled, double-bottomed BGTs will be installed.
- Chevron will use 3/16" carbon steel which is resistant to the anticipated contents and resistant to damage from sunlight. NMAC § 19.15.17.11(I)(1).

- Chevron will construct a BGT foundation on a level base free of rocks, debris, sharp edges or irregularities to help prevent punctures, cracks or indentations of the liner or tank bottom. NMAC § 19.15.17.11(I)(2).
- 10. Chevron will construct a BGT to prevent overflow and the collection of surface water run-on. NMAC § 19.15.17.11(I)(3). Chevron, or a contractor representing Chevron, will install a level control device to help prevent overflow from the BGT and will use berms and/or a diversion ditch to prevent surface run on from entering the BGT. NMAC §§ 19.15.17.11(I)(3), 19.15.17.12(A)(7), and 19.15.17.12(D)(1).
- 11. All BGTs, in which the side walls are not open for visible inspection for leaks, will be double walled with leak detection capability. NMAC § 19.15.17.11(I)(4)(b).



## BELOW GRADE TANK (BGT) OPERATING AND MAINTENANCE PLAN

SUBMITTED TO:

ENVIRONMENTAL BUREAU,

NEW MEXICO OIL CONSERVATION DIVISION

ON BEHALF OF:

CHEVRON USA INC., CHEVRON MIDCONTINENT, L.P., AND FOUR STAR OIL & GAS COMPANY

P.O. Box 730

AZTEC, NEW MEXICO 87410

(505) 333-1901

## Chevron

## San Juan Basin

## **Below Grade Tank Operating and Maintenance Plan**

## INTRODUCTION

In accordance with NMAC §§ 19.15.17.9(B)(4) and 19.15.17.12 Chevron (representing Chevron USA Inc, Chevron Midcontinent, L.P., and Four Star Oil & Gas Company) submits this Operating and Maintenance Plan (O&M Plan) for below grade tanks (BGTs) in New Mexico. This O&M Plan contains standard conditions that attach to multiple BGTs. If needed for a particular BGT, a modified O&M Plan will be submitted to the New Mexico Oil Conservation Division (NMOCD or the division) for approval prior to implementation.

## **GENERAL PLAN:**

- Chevron, or a contractor representing Chevron, will operate and maintain a BGT to contain liquids and solids to prevent contamination of fresh water and to protect public health and environment. NMAC § 19.15.17.12(A)(1).
- Chevron will not discharge into or store any hazardous waste in a BGT. NMAC § 19.15.17.12(A)(3).
- 3. If a BGT develops a leak or is penetrated below the liquid surface, Chevron will remove liquid above the damage within 48 hours, notify the appropriate division district office within 48 hours of discovery and will promptly repair the BGT. If a BGT develops a leak Chevron will remove liquid above the damage within 48 hours, notify the appropriate division district office within 48 hours of discovery and will promptly repair or replace the BGT. If replacement is required, the BGT will meet all specification included in the attached approved design drawing and comply with 19.15.17.11(I)(1-4).
- 4. If Chevron as an operator of a below-grade tank that was constructed and installed prior to June 16, 2008 that does not meet the requirements of Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC and 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, then Chevron or their representative shall close the existing below-grade tank pursuant to the closure requirements of 19.15.17.13 NMAC and install a below-grade tank that complies with the requirements of Paragraphs

(1) through (4) of Subsection I of 19.15.17.11 NMAC. NMAC § 19.15.17.12(D)(5). If replacement is required, the BGT will meet all specification included in the attached approved design drawing.

- 5. If Chevron as the operator of the below-grade tank that was constructed and installed prior to June 16, 2008 that does not comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC and equips or retrofits the existing tank to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC, then Chevron or their representative 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. Chevron shall demonstrate to the division whether the evidence of contamination indicates that an imminent threat to fresh water, public health, safety or the environment exists. If the division determines that the contamination does not pose an imminent threat to fresh water, public health, safety or the environment, the operator shall complete the retrofit or the replacement of the below-grade tank. If Chevron or division determines that the contamination poses an imminent threat to fresh water, public health, safety or the environment, then Chevron shall close the existing below-grade tank pursuant to the closure requirements of 19.15.17.13 NMAC prior to initiating the retrofit or replacement. NMAC § 19.15.17.12(D)(6). If replacement is required, the BGT will meet all specification included in the attached approved design drawing.
- Chevron, or a contractor representing Chevron, will use berms and/or diversion ditches to prevent surface run-on from entering the BGT by diverting surface water run-on away from the bermed area. NMAC §§ 19.15.17.12(A)(7) and 19.15.17.12(D)(1).
- 7. Chevron, or a contractor representing Chevron, will not allow a BGT to overflow and will maintain adequate freeboard on existing BGTs by routine inspections utilizing pumper trucks whose routes are timed based on known production rates. Fluid is pumped out on this schedule. For newly constructed BGTs Chevron, or a contractor representing Chevron, will maintain adequate freeboard by installing level control devices that automatically shut off inflow to alleviate potential overtopping. NMAC § 19.15.17.12(D)(1) and 19.15.17.12(D)(4).
- Chevron, or a contractor representing Chevron, will remove a visible or measurable layer of oil from the fluid surface of a BGT\_NMAC § 19.15.17.12(D)(2).
  - 9. Chevron, or a contractor representing Chevron, will inspect the BGT to assess compliance with NMAC § 19.15.17.12, Operational Requirements, at least once monthly and maintain a written record of each inspection for at least five (5) years. The approved inspection form is attached.

## Chevron: New Mexico Inspection Form for Below Grade Tanks

Inspection Date:\_\_\_\_\_

Below Grade Tank (BGT) Location:

Does the BGT have adequate freeboard to prevent overflow;	yes	no
Does the tank have visible leaks or signs of corrosion;	yes	no
Do tank valves, flanges and hatches have visible leaks;	yes	no
Is there evidence of significant spillage of produced liquids;	yes	no
Is this a single or double wall tank;	1 and a second	
Are berms and/or diversion ditches in place to prevent surface		
run-on from entering the BGT;	yes	no
Have visible or measurable layers of oil been removed from		
liquid surface fluid;	yes	no

## BELOW GRADE TANK (BGT) CLOSURE PLAN

SUBMITTED TO:

## ENVIRONMENTAL BUREAU,

## NEW MEXICO OIL CONSERVATION DIVISION

ON BEHALF OF:

CHEVRON USA INC., CHEVRON MIDCONTINENT, L.P., AND FOUR STAR OIL & GAS

COMPANY

P.O. BOX 730

AZTEC, NEW MEXICO 87410

(505) 333-1901

## CHEVRON SAN JUAN BASIN BELOW GRADE TANK CLOSURE PLAN

#### INTRODUCTION

In accordance with NMAC §§ 19.15.17.9(B)(3) and 19.15.17.13, Chevron {representing Chevron USA, Inc., Chevron Midcontinent, L.P., and Four Star Oil & Gas Company) submits this Closure Plan for below grade tanks (BGTs) in New Mexico. This Closure Plan contains standard conditions that attach to multiple BGTs. If needed for a particular BGT, a modified Closure Plan for a proposed alternative closure will be submitted to the New Mexico Oil Conservation Division (NMOCD or the division) for approval prior to closure.

#### CLOSURE PLAN PROCEDURES AND PROTOCOLS (NMAC §§ 19.15.17.13).

1) Chevron, or a contractor acting on behalf of Chevron, will close a BGT within the time periods provided in NMAC § 19.15.17.13(G)(4), or by an earlier date required by NMOCD to prevent an imminent danger to fresh water, public health, or the environment. NMAC § 19.15.17.13(G)(4).

2) Chevron, or a contractor acting on behalf of Chevron, 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 within 60 days of cessation of the BGT's operation. NMAC §§ 19.15.17.13(G)(4.a). A list of Chevron currently approved disposal facilities is included at the end of this document.

3) Chevron, or a contractor acting on behalf of Chevron, 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. When required, prior approval for disposal will be obtained. NMAC § 19.15.17.13(GX4.b). Documentation regarding disposal of the BGT and its associated liner, if any, will be included in the closure report.

4) In accordance with NMAC § 19.15.17.13(E)(I), Chevron will notify the surface owner by certified mail, return receipt requested, of its plans to close a BGT, at least 72 hours, but not more than one (1) week, prior to beginning closure activities. Chevron will notify the landowner by email if the landowner is determined to be a state, federal. or tribal entity. The notice shall include well name, API number and location. Evidence of mailing of the notice to the address of the surface owner shown in the county tax records is sufficient to demonstrate compliance.

5) Chevron will also notify the appropriate division district office verbally and in writing at least 72 hours, but not more than one week, prior to any closure operation. The notice shall include the operator's name and the location to be closed by unit letter, section, township and range. If the closure is associated with a particular well, then the notice shall also include the well's name, number and API number. NMAC § 19.15.17.13(EX2).

6) The proposed method of closure for this Closure Plan is waste excavation and removal. NMAC §§ 19.15.17.13 (C).

7) Waste generated during closure will be handled and disposed of in accordance with applicable laws. NMAC § 19.15.35.8(C)(1)(m) provides that plastic pit liners may be disposed at a solid waste facility without testing before disposal, provided they are cleaned well.

8) Chevron, or a contractor acting on behalf of Chevron, will remove all contents and, if applicable, synthetic liners and transferring those materials to a division approved facility. NMAC § 19.15.17.13(C)(2).

9) Chevron, or a contractor acting on behalf of Chevron, will collect at a minimum, a five point composite sample to include any obvious stained or wet 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.

Constituent	Method	Unit
Chloride	EPA 300.0	20,000 mg/Kg
ТРН	EPASW-846 Method 418.1	2,500 mg/Kg
GRO+DRO	EPA SW-846 Method 8015M	1,000 mg/kg
BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg
Benzene	EPA SW-846 Method 8021B or 8015M	10 mg/kg

## Table 1 19.15.17.13 NMAC Quinoco State N5 CDP Well Site Depth to Groundwater, Beneath BGT (>100 feet)

10) If Chevron or the division determines that a release has occurred, Chevron will comply with NMAC §§ 19.15.29 and 19.15.30, as appropriate. NMAC § 19.15.17.13(C)(3).

11) If the sampling program demonstrates that a release has not occurred or that any release does not exceed the concentrations specified in Table I of NMAC § 19.15.17.13, Chevron will backfill the excavation with compacted, non-waste containing, earthen materials; construct a division prescribed soil cover; re-contour and re-vegetate the site. The division-prescribed soil cover, re-contouring and re-vegetation requirements shall comply with NMAC § 19.15.17.13(H).

12) As per NMAC § 19.15.17.13(H), once Chevron has closed a BGT or is no longer using the BGT or an area associated with the BGT. Chevron will reclaim the BGT location and all areas associated with it including associated access roads not needed by the surface estate owner to a safe and stable condition that blends with the surrounding undisturbed area. Chevron will substantially restore impacted surface area to the condition that existed prior to its oil and gas operations by placement of soil cover as provided in NMAC § 19.15.17.13(H) (see below), re-contour the location and associated areas to a contour that approximates the original contour and blends with the surrounding topography, andre-vegetate according to NMAC § 19.15.17.13(H).

13) Chevron may propose an alternative to the re-vegetation requirement of NMAC § 19.15.17.13(H)(I) if it demonstrates that the proposed alternative effectively prevents erosion, and protects fresh water, human health and the environment. The proposed alternative must be agreed upon in writing by the surface owner. Chevron will submit the proposed alternative, with written documentation that the surface owner agrees to the alternative, to the division for approval. NMAC § 19.15.17.13(H)(I).

14) Soil cover for closures where Chevron has removed the pit contents or remediated the contaminated soil to the division's satisfaction will consist of the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater. NMAC 9.15.17.13(H)(2).

15) Chevron will construct the soil cover to the site's existing grade and prevent ponding of water and erosion of the cover material. NMAC  $\S$  19.15.17.13(H)(4).

16) As per NMAC § 19 15.17.13(H)(5). Chevron will seed or plant disturbed areas during the first growing season after it is no longer using a BGT or an area associated with the BGT including access roads unless needed by the surface estate owner as evidenced by a written agreement with the surface estate owner, if any and written approval by NMOCD.

17) Seeding will be accomplished by drilling on the contour whenever practical or by other division approved methods. Chevron will obtain vegetative cover that equals 70% of the native perennial vegetative cover (un-impacted by overgrazing, fire or other intrusion damaging to native vegetation) consisting of at least three native plant species, including at least one grass, but not including noxious weeds, and maintain that cover through two successive growing seasons. During the two growing seasons that prove viability, Chevron will not artificially irrigate the vegetation. NMAC § 19.15.17.13(HX5).

18) Chevron will notify the division when it has seeded or planted and when it successfully achieves re-vegetation NMAC § 19.15.17.13(H)(5).

19)Seeding or planting will be repeated until Chevron successfully achieves the required vegetative cover. NMAC § 19 15.17.13(H)(5).

20) When conditions are not favorable for the establishment of vegetation, such as periods of drought, the division may allow Chevron to delay seeding or planting until soil moisture conditions become favorable or may require Chevron to use additional cultural techniques such as mulching, fertilizing, irrigating, fencing or other practices. NMAC § 19.15.17.13(H)(5).

21) As per NMAC § 19.15.17.13(F), within 60 days of closure completion, Chevron will submit a closure report containing the elements required by NMAC § 19.15.17.13(F) including:

i) Confirmation sampling results,

ii) A plot plan,

iii) Details on back-filling, capping and covering, where applicable, including re-

vegetation application rates and seeding technique,

iv) Proof of closure notice to the surface owner, if any, and the division,

v) Name and permit number of disposal facility, and

vi) Photo documentation.

22) The closure report will be filed on NMOCD Form C-144. Chevron will certify that all information in the closure report and attachments is correct and that it has complied with all applicable closure requirements and conditions specified in the approved closure plan. NMAC § 19.15.17.13(F).

23) As requested, the following are the current Chevron approved Waste Disposal Sites for the identified waste streams:

#### Soils and Sludge

i) Envirotech, Inc. Soil Remediation Facility, Permit No. NM-01-0011 Solids

ii) San Juan County Regional Land Fill (NMAC § 19.15.35.8 items only, with prior NMOCD approval when required)

#### Liquids

i) Agua Moss Crouch Mesa Facility, Sunco SWD #I Permit No. NM-01-0009

ii) Basin Disposals Facility. Permit No. NM-01-005.

24) These waste disposal sites are subject to change if their certification is lost or they are closed or other more appropriate, equally protective sites become available. Chevron will provide notice if such a change is affected.