District I 1625 N. French Dr., Hobbs, NM 88240	State of New Mexico Energy Minerals and Natural Resources	Form C- July 21, 2		
District II 1301 W. Grand Ave., Artesia, NM 88210 District III	Department Oil Conservation Division 1220 South St. Francis Dr.	For temporary pits, closed-loop sytems, and below-grade tanks, submit to the appropriate NMOCD District Office.		
1000 Rio Brazos Rd., Aztec, NM 87410 <u>District IV</u> 1220 S. St. Francis Dr., Santa Fe, NM 87505	Santa Fe, NM 87505	For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.		
	Pit, Closed-Loop System, Below-Grad	e Tank, or		
Propos	sed Alternative Method Permit or Closur			
Type of action:	X Permit of a pit, closed-loop system, below-grade t	tank or proposed alternative method		
Type of denom	Closure of a pit, closed-loop system, below-grade			
	Modification to an existing permit			
	Closure plan only submitted for an existing permi below-grade tank, or proposed alternative method			
Instructions: Please submit one	application (Form C-144) per individual pit, closed-lo			
	of this request does not relieve the operator of liability should operations i			
environment. Nor does approval re	lieve the operator of its responsibility to comply with any other applicable	governmental authority's rules, regulations or ordinances.		
¹ Operator: Burlington Resources O	il & Gas Company, LP	OGRID#: 14538		
Address: PO Box 4289, Farmingt	on, NM 87499			
Facility or well name: UTE 24	· · · · · · · · · · · · · · · · · · ·			
	3004529156 OCD Permit Number	и:		
U/L or Qtr/Qtr: E Section		14W County: San Juan		
Center of Proposed Design: Latitud		-108.33668°W NAD: X 1927 1983		
Surface Owner: Federal	State Private X Tribal Trust or India	n Allotment		
Permanent Emergency C Lined Unlined L String-Reinforced	rkover Cavitation P&A iner type: Thickness mil LLDPE Factory Other Volume:	HDPE PVC Other		
Type of Operation: P&A Drying Pad Above Group Lined Unlined	tion H of 19.15.17.11 NMAC Drilling a new well Workover or Drilling (Applies to notice of intent) und Steel Tanks Haul-off Bins Other er type: Thicknessmil LLDPE F factory Other	activities which require prior approval of a permit or HDPE PVD Other		
4 X Below-grade tank: Subsection Volume: 120 I Tank Construction material:	bbl Type of fluid: <u>Produced Water</u> <u>Metal</u> letection X Visible sidewalls, liner, 6-inch lift and auto Visible sidewalls only Other	omatic overflow shut-off		
5 Alternative Method: Submittal of an exception request is re	equired. Exceptions must be submitted to the Santa Fe Enviro	nmental Bureau office for consideration of approval.		
Form C-144	Oil Conservation Division	Page 1 of 5		

R

Fencing: Subsection D of 19.15.17.11 NMAC (Applies to permanent pit, temporary pits, and helow-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, in:	stitution or chi	urch)
Four foot height, four strands of barbed wire evenly spaced between one and four feet		
X Alternate. Please specify 4' hog wire fencing topped with two strands barbed wire.		
7 Netting: Subsection E of 19.15.17.11 NMAC (Applies to permanent pits and permanent open top tanks) X Screen Netting Other Monthly inspections (If netting or screening is not physically feasible)		
8 Signs: Subsection C of 19.15.17.11 NMAC		
12" X 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers		
X Signed in compliance with 19.15.3.103 NMAC		
9 9	-	
Administrative Approvals and Exceptions: Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance. Please check a box if one or more of the following is requested, if not leave blank:	-	
X Administrative approval(s): Requests must be submitted to the appropriate division district of the Santa Fe Environmental Bureau office for con (Fencing/BGT Liner)	sideration of a	pproval.
Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.		
¹⁰ <u>Siting Criteria (regarding permitting)</u> : 19.15.17.10 NMAC Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau Office for consideration of approval. Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. Siting criteria does not apply to drying pads or above grade-tanks associated with a closed-loop system.		
Ground water is less than 50 feet below the bottom of the temporary pit, permanent pit, or below-grade tank. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	Yes	XNo
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	Yes	XNo
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.	Yes	XNo
(Applies to temporary, emergency, or cavitation pits and below-grade tanks)	NA	
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	-	6 C 1
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. (Applied to permanent pits)	Yes X NA	No
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image		1
Within 500 horizonal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application.	Yes	XNo
- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site.		1.1
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	Yes	XNo
- Written confirmation or verification from the municipality; Written approval obtained from the municipality Within 500 feet of a wetland.	Yes	XNo
- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site Within the area overlying a subsurface mine.	Yes	XNo
- Written confirmation or verification or map from the NM EMNRD - Mining and Mineral Division		I
 Within an unstable area. Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map 	Yes	XNo
Within a 100-year floodplain - FEMA map	Yes	XNo

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	aks Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC e application. Please indicate, by a check mark in the box, that the documents are attached.				
	upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC				
	ts) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9				
Image: String Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC Image: String Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC Image: String Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC Image: String Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC					
	b, if applicable) - based upon the appropriate requirements of Subsection C of				
19.15.17.9 NMAC and 19.15.17.13 NMAC	, i appreade) - based upon the appropriate requirements of Subsection C of				
Previously Approved Design (attach copy of design)	API or Permit				
	Checklist: Subsection B of 19.15.17.9 NMAC e application. Please indicate, by a check mark in the box, that the documents are attached. closure) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9				
Siting Criteria Compliance Demonstrations (only for	r on-site closure) - based upon the appropriate requirements of 19.15.17.10 NMAC				
Design Plan - based upon the appropriate requireme	nts of 19.15.17.11 NMAC				
Operating and Maintenance Plan - based upon the ap					
Himit	, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9				
NMAC and 19.15.17.13 NMAC	, ii applicable) - based upon the appropriate requirements of Subsection C of 19.13.17.9				
Previously Approved Design (attach copy of design)	API				
Previously Approved Operating and Maintenance Plan	API				
 Hydrogeologic Report - based upon the requirement Siting Criteria Compliance Demonstrations - based in Climatological Factors Assessment Certified Engineering Design Plans - based upon the Dike Protection and Structural Integrity Design: based Leak Detection Design - based upon the appropriate Liner Specifications and Compatibility Assessment - Quality Control/Quality Assurance Construction and Operating and Maintenance Plan - based upon the ap Freeboard and Overtopping Prevention Plan - based Nuisance or Hazardous Odors, including H2S, Prevention Oil Field Waste Stream Characterization Monitoring and Inspection Plan Erosion Control Plan 	he application. Please indicate, by a check mark in the box, that the documents are attached. is of Paragraph (I) of Subsection B of 19.15.17.9 NMAC upon the appropriate requirements of 19.15.17.10 NMAC e appropriate requirements of 19.15.17.11 NMAC ed upon the appropriate requirements of 19.15.17.11 NMAC requirements of 19.15.17.11 NMAC - based upon the appropriate requirements of 19.15.17.11 NMAC Installation Plan ppropriate requirements of 19.15.17.12 NMAC upon the appropriate requirements of 19.15.17.11 NMAC				
4 Proposed Closure: 19.15.17.13 NMAC					
nstructions: Please complete the applicable boxes, Boxes 14 th	rough 18, in regards to the proposed closure plan.				
ype: Drilling Workover Emergency Cavi	itation P&A Permanent Pit X Below-grade Tank Closed-loop System				
roposed Closure Method: X Waste Excavation and Remo					
Waste Removal (Closed-loo					
	ly for temporary pits and closed-loop systems)				
	(Exceptions must be submitted to the Santa Fe Environmental Bureau for consideration)				
lease indicate, by a check mark in the box, that the documents					
X Protocols and Procedures - based upon the appropria					
	apon the appropriate requirements of Subsection F of 19.15.17.13 NMAC				
X Disposal Facility Name and Permit Number (for liqu					
X Soil Backfill and Cover Design Specifications - base	d upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC				
X Re-vegetation Plan - based upon the appropriate requ X Site Reclamation Plan - based upon the appropriate r	uirements of Subsection I of 19.15.17.13 NMAC requirements of Subsection G of 19.15.17.13 NMAC				

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		and the second s
16 <u>Waste Removal Closure For Closed-loop Systems That Utilize Above Ground 1</u> Instructions: Please identify the facility or facilities for the disposal of liquids, drill are required.		ucilities
Disposal Facility Name:	- 10 C	
Disposal Facility Name:		
Will any of the proposed closed-loop system operations and associated activ Yes (If yes, please provide the information No	vities occur on or in areas that will not be used for future se	ervice and operations?
Required for impacted areas which will not be used for future service and operatio Soil Backfill and Cover Design Specification - based upon the appro Re-vegetation Plan - based upon the appropriate requirements of Sut Site Reclamation Plan - based upon the appropriate requirements of Sut	opriate requirements of Subsection H of 19.15.17.13 NMAC bsection I of 19.15.17.13 NMAC	0
17		
Siting Criteria (Regarding on-site closure methods only: 19.15.17.10 NM Instructions: Each siting criteria requires a demonstration of compliance in the closure pla certain siting criteria may require administrative approval from the appropriate district off for consideration of approval. Justifications and/or demonstrations of equivalency are required.	an. Recommendations of acceptable source material are provided belo fice or may be considered an exception which must be submitted to the	
Ground water is less than 50 feet below the bottom of the buried waste.		Yes No
- NM Office of the State Engineer - iWATERS database search; USGS: Data of	obtained from nearby wells	N/A
Ground water is between 50 and 100 feet below the bottom of the buried wa	acte	Yes No
 NM Office of the State Engineer - iWATERS database search; USGS; Data of 		
Ground water is more than 100 feet below the bottom of the buried waste.		Yes No
 NM Office of the State Engineer - iWATERS database search; USGS; Data of 	blained from nearby wells	UN/A
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other sign (measured from the ordinary high-water mark).	nificant watercourse or lakebed, sinkhole, or playa lake	Yes No
- Topographic map; Visual inspection (certification) of the proposed site		
Within 300 feet from a permanent residence, school, hospital, institution, or church - Visual inspection (certification) of the proposed site; Aerial photo; satellite im		Yes No
Within 500 horizontal feet of a private, domestic fresh water well or spring that less purposes, or within 1000 horizontal fee of any other fresh water well or spring, in e - NM Office of the State Engineer - iWATERS database; Visual inspection (cer	existence at the time of the initial application.	Yes No
Within incorporated municipal boundaries or within a defined municipal fresh wate pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval		Yes No
Within 500 feet of a wetland	obtailed from the municipality	
- US Fish and Wildlife Wetland Identification map; Topographic map; Visual i	inspection (certification) of the proposed site	
Within the area overlying a subsurface mine.		Yes No
- Written confiramtion or verification or map from the NM EMNRD-Mining an	ad Mineral Division	
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology &	t Mineral Resources; USGS; NM Geological Society;	Yes No
Topographic map Within a 100-year floodplain.		Yes No
- FEMA map		
¹⁸ On-Site Closure Plan Checklist: (19.15.17.13 NMAC) Instructions: Ear by a check mark in the box, that the documents are attached.	ich of the following items must bee attached to the closure	e plan. Please indicate,
Siting Criteria Compliance Demonstrations - based upon the appropr	rate requirements of 19 15 17 10 NMAC	
Proof of Surface Owner Notice - based upon the appropriate requirer		
Construction/Design Plan of Burial Trench (if applicable) based upon		
Construction/Design Plan of Temporary Pit (for in place burial of a d		15.17.11 NMAC
Protocols and Procedures - based upon the appropriate requirements		
Confirmation Sampling Plan (if applicable) - based upon the appropri		
Waste Material Sampling Plan - based upon the appropriate requirem		
Disposal Facility Name and Permit Number (for liquids, drilling fluid		not be achieved)
Soil Cover Design - based upon the appropriate requirements of Subs		
Re-vegetation Plan - based upon the appropriate requirements of Sub		
Site Reclamation Plan - based upon the appropriate requirements of S		

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Oil Conservation Division

9 Pperator Application Certification:	
hereby certify that the information submitted with this appli	ication is true, accurate and complete to the best of my knowledge and belief.
Name (Print): Crystal Tafoya	Title: Regulatory Technician
Signature: Constal -	Talana Date: 12/22/2008
e-mail address:crystal.tafoya@conocophi	Telephone: 505-326-9837
CD Approval: Permit Application (including clo	osure plan) Closure Plan (only) OCD Conditions (see attachment)
CD Representative Signature:	Approval Date:
itle:	OCD Permit Number:
	completion): Subsection K of 19.15.17.13 NMAC closure plan prior to implementing any closure activities and submitting the closure report. The closure anys of the completion of the closure activities. Please do not complete this section of the form until an
pproved closure plan has been obtained and the closure action	
	Closure Completion Date:
2	
losure Method:	
Waste Excavation and Removal On-site C	Closure Method Alternative Closure Method Waste Removal (Closed-loop systems only)
in unrecent neur appretes plant prease explain.	
	losed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:
	re the liquids, drilling fluids and drill cuttings were disposed. Use attachment if more than two facilities
re utilized. Disposal Facility Name:	Disposal Facility Permit Number:
Disposal Facility Name:	Disposal Facility Permit Number:
	tivities performed on or in areas that will not be used for future service and opeartions?
Yes (If yes, please demonstrate complilane to the item	
Required for impacted areas which will not be used for ful	ture service and operations:
Site Reclamation (Photo Documentation)	
Soil Backfilling and Cover Installation	
Re-vegetation Application Rates and Seeding Technic	jue
<u>Closure Report Attachment Checklist:</u> Instructions the box, that the documents are attached.	s: Each of the following items must be attached to the closure report. Please indicate, by a check mark in
Proof of Closure Notice (surface owner and divis	ion)
Proof of Deed Notice (required for on-site closure	e)
Plot Plan (for on-site closures and temporary pits)	
Confirmation Sampling Analytical Results (if app	vlicable)
Waste Material Sampling Analytical Results (if a	pplicable)
Disposal Facility Name and Permit Number	
Soil Backfilling and Cover Installation	
Re-vegetation Application Rates and Seeding Tec	hnique
Site Reclamation (Photo Documentation)	
On-site Closure Location: Latitude:	Longitude:NAD [1927 [1983
	ed with this closure report is ture, accurate and complete to the best of my knowledge and belief. I also certify that
closure complies with all applicable closure requirements	
me (Print):	Title:
gnature:	Date:
nail address:	Date: Telephone:

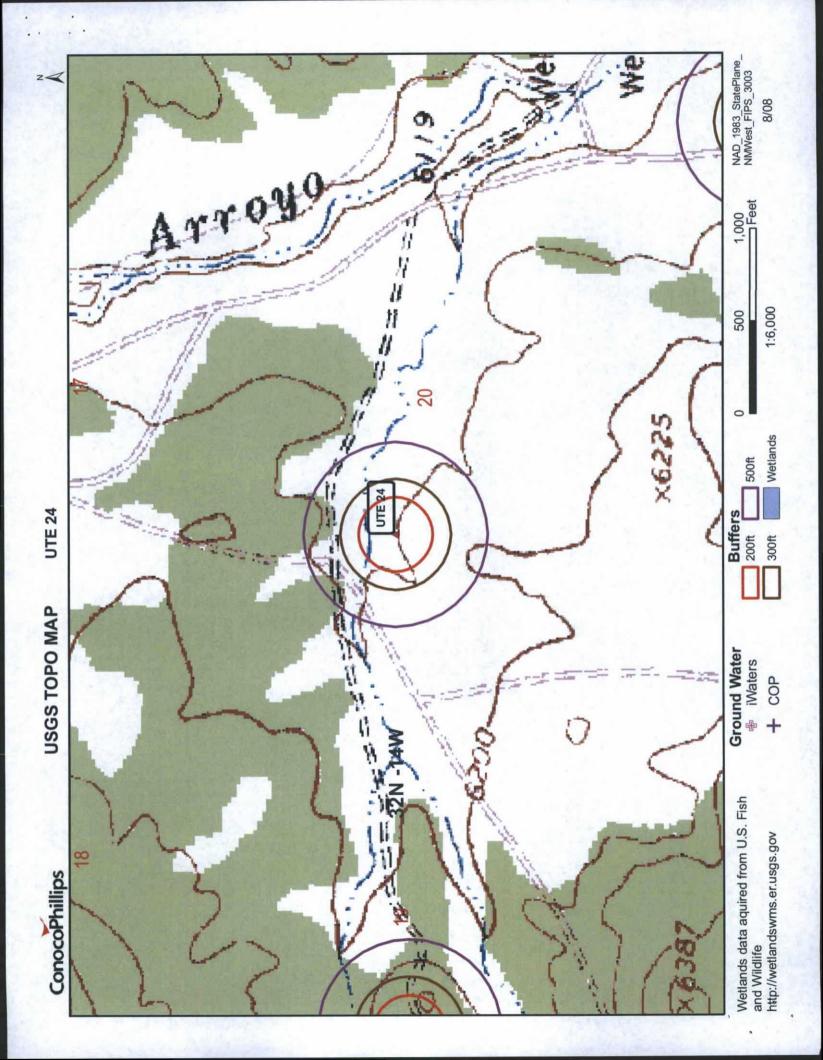
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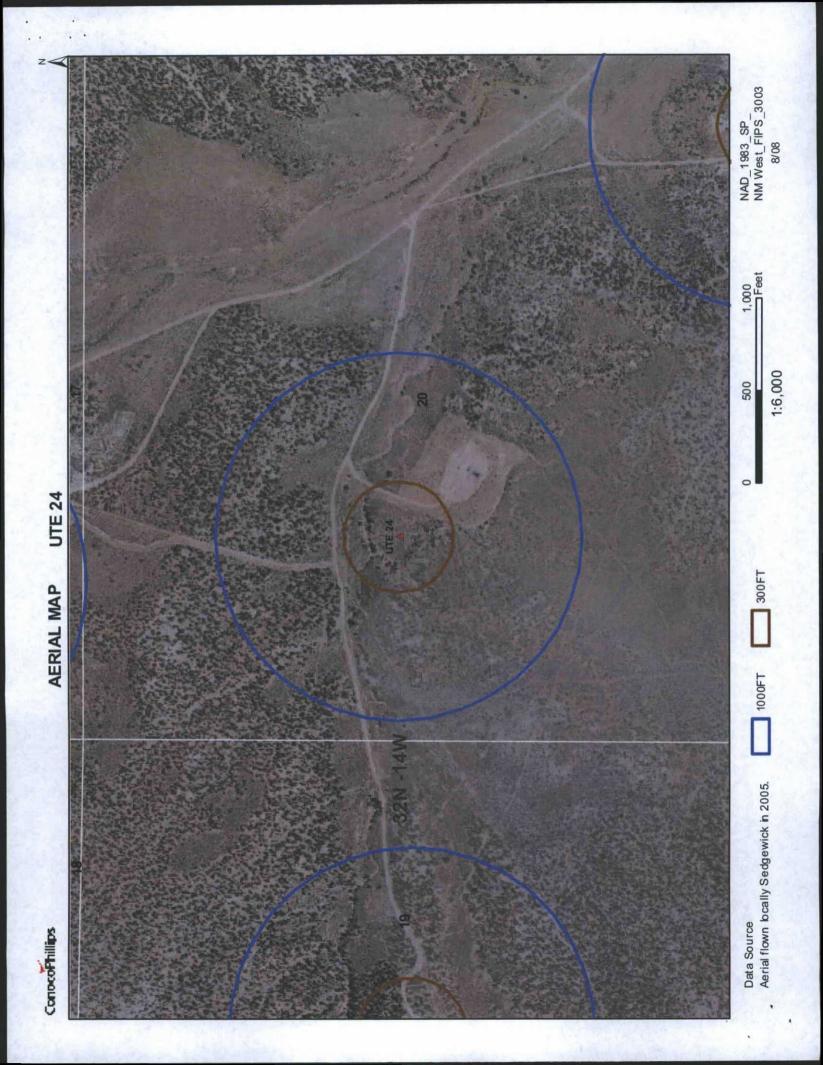
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New Mexico Office of the State Engineer

	Township: 32N	Range: 14W	Sections:		
N	AD27 X:	Y:	Zone:	Search Radius:	
County:	Bas	in:		Number: Suffix:	
Owner Nam	e: (First)	(Last)		○Non-Domestic ○Domestic	All
POD	/ Surface Data Repo	ort Avg	Depth to Wate	er Report Water Column Report	
		Clear Form	iWATERS M	lenu Help	
	the second second				

No Records found, try again

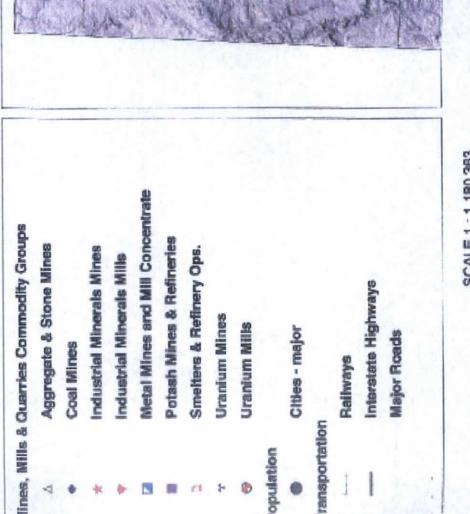




Mines, Mills and Quarries Web Map **UTE 24**

01E 24

Unit Letter: E, Section: 20, Town: 032N, Range: 014W









UTE 24

Site Specific Hydrogeology

A visual site inspection confirming the information contained herein was performed on the well 'UTE 24', which is located at 36.97626 degrees North latitude and 108.33668 degrees West longitude. This location is located on the Purgatory Canyon 7.5' USGS topographic quadrangle. This location is in section 0 of Township 32 North Range 14 West of the Public Land Survey System (New Mexico Principal Meridian). This location is located in San Juan County, New Mexico. The nearest town is La Plata, located 8.6 miles to the southeast. The nearest large town (population greater than 10,000) is Farmington, located 18.3 miles to the southeast (National Atlas). The nearest highway is State Highway 170, located 8.0 miles to the east. The location is on Tribal land and is 8,579 feet from the edge of the parcel as notated in the BLM land status layer updated January 2008. This location is in the Middle San Juan. Arizona, Colorado, New Mexico, Subbasin. This location is located 1876 meters or 6153 feet above sea level and receives 15 inches of rain each year. The vegetation at this location is classified as Inter-Mountain Basins Big Sagebrush Shrubland as per the Southwest Regional Gap Analysis Program.

The estimated depth to ground water at this point is 313 feet. This estimation is based on the data published on the New Mexico Engineer's iWaters Database website and water depth data from ConocoPhillips' Cathodic wells. Groundwater data available from the NM State Engineer's iWaters Database for wells near the proposed site are attached. The nearest stream is 175 feet to the north and is classified by the USGS as an intermittent stream. The nearest perrenial stream is 7,904 feet to the northwest. The nearest water body is 6,435 feet to the east. It is classified by the USGS as a perennial lake and is 0.2 acres in size. The nearest spring is 36,344 feet to the southwest. All stream, river, water body and spring information was determined as per the USGS Hydrographic Dataset (High Resolution), downloaded 3/2008. The nearest water well is 36,442 feet to the east. There is no wetland data available for this area. The slope at this location is 1 degree to the southeast as calculated from USGS 30M National Elevation Dataset. This information is also discerned from the aerial and topographic map included. The surface geology at this location is with a Shale dominated formations of all ages substrate. The soil at this location is 'Yarts fine sandy loam, 1 to 6 percent slopes' and is well drained and not hydric with moderate erosion potential as taken from the NRCS SSURGO map unit, downloaded January 2008. The nearest underground mine is 6.8 miles to the east as indicated on the Mines, Mills and Quarries Map of New Mexico provided.

Regional Geological context:

The Formation is of late Cretaceous age and crops out beyond the margins of the central San Juan Basin. Erosion-resistant sandstones in the Menefee Formation commonly cap isolated buttes and hillocks, whereas softer shale units form slopes and broad valleys or flats. Topography formed by the Menefee is typically rolling to rough, broken and steep, and generally has a badland appearance. The upper part of the Menefee Formation commonly forms steep slopes below mesas or buttes capped by the erosion-resistant Cliff House Sandstone.

The Menefee Formation is the middle unit of the classical three-part Mesaverde Group of the San Juan Basin. The Menefee Formation conformably or disconformably overlies the Point Lookout Sandstone and is conformably or disconformably overlain by the Cliff House Sandstone; intertonguing locally occurs at both contacts (Tabet and Frost, 1979, Stone et al, 1983). Some authors have reported the Menefee to be conformably overlain by the Lewis Shale in the southeastern part of the basin (Dane, 1936; Beaumont and others, 1956). South of the pinch-out of the Point Lookout Sandstone in the vicinity of Gallup, New Mexico, the Menefee conformably overlies the Crevasse Canyon Formation.

In general, the Menefee Formation consists of interbedded and repetitive sequences of differing thicknesses of sandstone, siltstone, shale and claystone, carbonaceous shale and coal beds of differing thicknesses (Tabet and Frost, 1979). Typically the sandstones are lenticular, light brown to gray, thick to very thick bedded, and fine to medium grained, with clay matrix and various types of cement. The siltstones commonly are tabular, gray, and thin to thick bedded; shales and claystones typically are light brownish gray and thick to very thick bedded (Tabet and Frost, 1979).

The Menefee Formation increases in thickness from north to south. Thickness ranges from zero where the unit pinches out between the Point Lookout and Cliff House Sandstones in Colorado to about 2,000 feet along its southern outcrop area (Molenaar, 1977)

Hydraulic Properties:

The transmissivity of the Menefee Formation depends on the thickness of sandstone lenses penetrated. Transmissivity values reported for nine aquifer tests (Stone et al, 1983) range from 2.7 to 112 feet squared per day and the median value is 10 feet squared per day. Hydraulic conductivity calculated from drill-stem tests in oil and gas wells in deeper parts of the basin averages 0.017 foot per day (Reneau and Harris, 1957).

The reported or measured discharge from 83 water wells and seven springs completed in the Menefee Formation ranges from 2 to 308 gallons per minute and the median is 10 gallons per minute. The specific capacity of 37 of these wells ranges from 0.002 to 0.57 gallon per minute per foot of drawdown and the median is 0.11 gallon per minute per foot of drawdown.

Water from the Menefee Formation is used for livestock watering and domestic purposes. Most wells completed in the Menefee are designed for a low but steady yield of water because the ultimate rate of yield is limited by the rate of leakage of water from shale and silt that encase the lenses of sandstone. Because of the extensive area of the outcrop and the lenticular occurrence of water-yielding sandstones in a clay matrix, the Menefee Formation is both one of the most widely used aquifers and one of the most regionally effective confining units in the basin.

References:

Beaumont, E.C., Dane, C.H., and Sears, J.D., 1956, revised nomenclature of Mesaverde Group in San Juan Basin, New Mexico: American Association of Petroleum Geologists Bulletin, v.40, no. 9, p. 2149-2162. Dane, C.H., 1936, The La Ventana-Chacra Mesa coal field, in The geology of fuels in the southern part of the San Juan Basin, New Mexico: U.S.G.S. Bulletin 860-C, p. 81-161.

Molenaar, C.M., 1977, Stratigraphy and depositional history of Upper Cretaceous rocks of the San Juan Basin area, New Mexico and Colorado, with a note on Economic resources, in Fassett, J.E., ed., Guidebook of San Juan Basin III: New Mexico Geological Society, 28th Field Conference, p. 159-166.

Reneau, W.E., Jr., and Harris, J.D., 1957, Reservoir characteristics of Cretaceous sands of the San Juan Basin, in Little, C.J., and Gill, J.J., eds., Guidebook to geology of southwestern San Juan Basin: Four Corners Geological Society, Second Field Conference, p. 40-43.

Stone, W.J., Lyford, F.P., Frenzel, P.F., Mizell, N.H., and Padgett, E.T., 1983, of Mines and Mineral Resources, Hydrologic Report 6.

Tabet, D.E., and Frost, S.J., 1979, Environmental characteristics of Menefee coals in the Torreon Wash area, New Mexico: Socorro, New Mexico Bureau of Mines and Mineral Resources Open-File Report 102, 134 p.

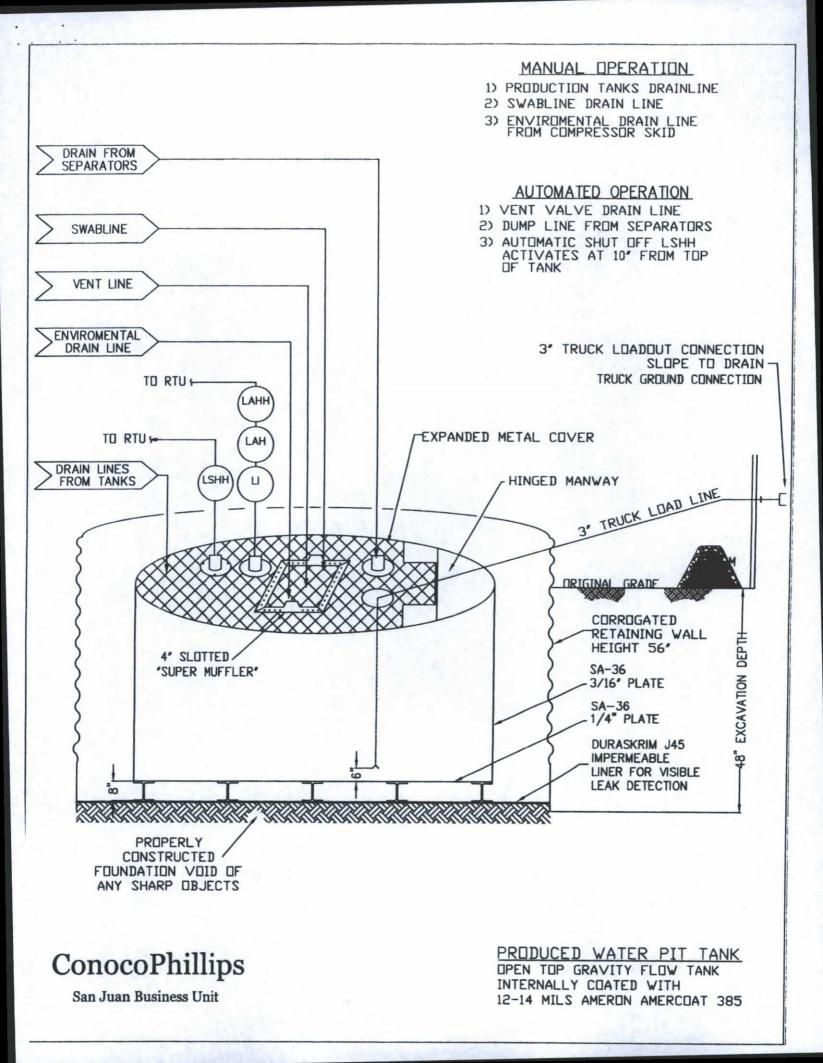
Burlington Resources Oil & Gas Company, LP San Juan Basin Below Grade Tank Design and Construction

In accordance with NMAC 19.15.17 the following information describes the design and construction of below grade tanks on Burlington Resources Oil & Gas Company, LP (BR) locations. This is BR's standard procedure for all below grade tanks (BGT). A separate plan will be submitted for any BGT which does not conform to this plan.

General Plan:

- BR will design and construct a properly sized and approved BGT which will contain liquids and should prevent contamination of fresh water to protect the public health and environment.
- BR signage will comply with 19.15.3.103 NMAC when BR is the operator. If BR is not the operator it will comply with 19.15.17.11NMAC. BR includes Emergency Contact information on all signage.
- 3. BR has approval to use alternative fencing that provides better protection. BR constructs fencing around the BGT using 4 foot hog wire fencing topped with two strands of barbed wire, or with a pipe top rail. A six foot chain link fence topped with three strands of barbed wire will be use if the well location is within 1000 feet of permanent residence, school, hospital, institution or church. BR ensures that all gates associated with the fence are closed and locked when responsible personnel are not onsite.
- 4. BR will construct a screened, expanded metal covering, on the top of the BGT.
- 5. BR 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 as shown on design drawing and specification sheet.
- The BR below-grade tank system shall have a properly constructed foundation consisting of a level base free of rocks, debris, sharp edges or irregularities to prevent punctures, cracks or indentations of the liner or tank bottom as shown on design drawing.
- 7. BR shall operate and install the below-grade tank to prevent the collection of surface water run-on. BR has built in shut off devices that do not allow a belowgrade tank to overflow. BR constructs berms and corrugated retaining walls at least 6" above ground to keep from surface water run-on entering the below grade tank as shown on the design plan.
- 8. BR will construct and use a below-grade tank that does not have double walls. The below-grade tank's side walls will be open for visual inspection for leaks, the below-grade tank's bottom is elevated a minimum of six inches above the underlying ground surface and the below-grade tank is underlain with a geomembrane liner to divert leaked liquid to a location that can be visually inspected.

- 9. BR has equipped the below-grade tanks with the ability to detect high level in the tank and provide alarm notification and shutdown process streams into the tank. Once high level is detected RTU logic closes the inlet separator sales valve and does not permit vent valve to open. This shutdown of the sales valve and gagging of the vent valves prevents any hydrocarbon process streams from entering the pit tank once a high level is detected. Furthermore, an electronic page is sent to the BR MSO for that well site and to the designated contract "Water-Hauling" Company indicating a high level and that action must be taken to address this alarm. The environmental drain line from BR's compressor skid under normal operating conditions is in the open position. The environmental drain line is in place to capture any collected rain water or spilled lubricants from our compressor skids. The swab drain line is a manually operated drain and by normal operating procedures is in the closed position. The tank drain line is also a manually operated drain and during normal operations it is in the closed position.
- 10. The geomembrane liner consists of a 45-mil flexible LLDPE material manufactured by Raven Industries as J45BB. This product is a four layer reinforced laminated containing no adhesives. The outer layers consist of a high strength polyethylene film manufactured using virgin grade resins and stabilizers for UV resistance in exposed applications. The J45BB is reinforced with 1300 denier (minimum) tri-directional scrim reinforcement. It exceeds ASTMD3083 standard by 10%. J45BB has a warranty for 20 years from Raven Industries and is attached. It is typically used in Brine Pond, Oilfield Pit liner and other industrial applications. The manufacture specific sheet is attached and the design attached displays the proper installation of the liner.
- The general specification for design and construction are attached in the BR document.



DURA-SKRIM®

PROPERTIES	TEST METHOD	J3	J30BE		J36BE		J45BB	
		Min. Roll Averages	Typical Roll Averages	Min. Roll Averages	Typical Roll Averages	Min. Roll Averages	Typical Roll Averages	
Appearance		Black/Black		Black/Black		Black/Black		
Thickness	ASTM D 5199	27 mil	30 mil	32 mil	36 mil	40 mil	45 mil	
Weight Lbs Per MSF (oz/yd²)	ASTM D 5261	126 lbs (18.14)	140 lbs (20.16)	151 lbs (21.74)	168 lbs (24.19)	189 lbs (27.21)	210 lbs (30.24)	
Construction		**Extr	**Extrusion laminated with encapsulated tri-directional scrim reinforcement					
Ply Adhesion	ASTM D 413	16 lbs	20 lbs	19 lbs	24 lbs	25 lbs	31 lbs	
1" Tensile Strength	ASTM D 7003	88 lbf MD 63 lbf DD	110 lbf MD 79 lbf DD	90 lbf MD 70 lbf DD	113 lbf MD 87 lbf DD	110 lbf MD 84 lbf DD	138 lbf MD 105 lbf DD	
1" Tensile Elongation @ Break % (Film Break)	ASTM D 7003	550 MD 550 DD	750 MD 750 DD	550 MD 550 DD	750 MD 750 DD	550 MD 550 DD	750 MD 750 DD	
1" Tensile Elongation @ Peak % (Scrim Break)	ASTM D 7003	20 MD 20 DD	33 MD 33 DD	20 MD 20 DD	30 MD 31DD	20 MD 20 DD	36 MD 36 DD	
Tongue Tear Strength	ASTM D 5884	75 lbf MD 75 lbf DD	97 lbf MD 90 lbf DD	75 lbf MD 75 lbf DD	104 lbf MD 92 lbf DD	100 lbf MD 100 lbf DD	117 lbf MD 118 lbf DD	
Grab Tensile	ASTM D 7004	180 lbf MD 180 lbf DD	218 lbf MD 210 lbf DD	180 lbf MD 180 lbf DD	222 lbf MD 223 lbf DD	220 lbf MD 220 lbf DD	257 lbf MD 258 lbf DD	
Trapezoid Tear	ASTM D 4533	120 lbf MD 120 lbf DD	146 lbf MD 141 lbf DD	130 lbf MD 130 lbf DD	189 lbf MD 172 lbf DD	160 lbf MD 160 lbf DD	193 lbf MD 191 lbf DD	
* Dimensional Stability	ASTM D 1204	<1	<0.5	<1	<0.5	<1	<0.5	
Puncture Resistance	ASTM D 4833	50 lbf	64 lbf	65 lbf	83 lbf	80 lbf	99 lbf	
Maximum Use Temperature		180° F	180° F	180° F	180° F	180° F	180° F	
Minimum Use Temperature		-70° F	-70° F	-70° F	-70° F	-70° F	-70° F	

MD = Machine Direction DD = Diagonal Directions

Note: Minimum Roll Averages are set to take into account product variability in addition to testing variability between laboratories.

*Dimensional Stability Maximum Value

**DURA-SKRIM J30BB, J36BB & J45BB are a four layer reinforced laminate containing no adhesives. The outer layers consist of a high strength polyethylene film manufactured using virgin grade resins and stabilizers for UV resistance in exposed applications. DURA-SKRIM J30BB, J36BB & J45BB are reinforced with a 1300 denier (minimum) tri-directional scrim reinforcement.

Note: RAVEN INDUSTRIES MAKES NO WARRANTIES AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS REFERRED TO, no guarantee of satisfactory results from reliance upon contained information or recommendations and discraims all liability for resulting loss or damage.

RAVEN INDUSTRIES

PLANT LOCATION

Sioux Falls, South Dakota

SALES OFFICE

Jao, Jac & J45

P.O. Box 5107 Sioux Falls, SD 57117-5107 (605) 335-0174 (605) 331-0333 FAX 800-635-3456



RAVEN INDUSTRIES INC. EXPOSED GEOMEMBRANE LIMITED WARRANTY

Raven Industries Inc. warrants Dura-Skrim J30BB, J36BB, and J45BB to be free from manufacturing defects and to be able to withstand normal exposure to sunlight for a period of 20 years from the date of sale for normal use in approved applications in the U.S and Canada, excluding Hawaii. This warranty is effective for products sold and shipped from January 1, 2008 to December 31, 2008. These dates will be updated prior to December 31, 2008.

This Limited Warranty does not include damages or defects in the Raven geomembrane resulting from acts of God, casualty or catastrophe including but not limited to: earthquakes, floods, piercing hail, or tornadoes. The term "normal use" as used herein does not include, among other things improper handling during transportation, unloading, storage or installation, the exposure of Raven geomembranes to harmful chemicals, atypical atmospheric conditions, abuse of Raven geomembranes by machinery, equipment or people; improper site preparation or covering materials, excessive pressures or stresses from any source or improper application or installation. Raven geomembrane material warranty is intended for commercial use only and is not in effect for the consumer as defined in the Magnuson Moss Warranty or any similar federal, state, or local statues. The parties expressly agree that the sale hereunder is for commercial or industrial use only.

Should defects or premature loss of use within the scope of the above Limited Warranty occur, Raven Industries Inc. will, at its option, repair or replace the Raven geomembrane on a pro-rata basis at the then current price in such manner as to charge the Purchaser/User only for that portion of the warranted life which has elapsed since purchase of the material. Raven Industries Inc. will have the right to inspect and determine the cause of any alleged defect in the Raven geomembrane and to take appropriate steps to repair or replace the Raven geomembrane if a defect exists which is covered under this warranty. This Limited Warranty extends only to Raven's geomembrane, and does not extend to the installation service of third parties nor does it extend to materials furnished or installed by others in connection with the intended use of the Raven geomembranes.

Any claim for any alleged breach of this warranty must be made in writing, by certified mail, to the General Manager of Engineered Films Division of Raven Industries Inc. within ten (10) days of becoming aware of the alleged defect. Should the required notice not be given, the defect and all warranties are waived by the Purchaser, and Purchaser shall not have any rights under this warranty. Raven Industries Inc. shall not be obligated to perform repairs or replacements under this warranty unless and until the area to be repaired or replaced is clean, dry, and unencumbered. This includes, but is not limited to, the area made available for repair and/or replacement of Raven geomembrane to be free from all water, dirt, sludge, residuals and liquids of any kind. If after inspection it is determined that there is no claim under this Limited Warranty, Purchaser shall reimburse Raven Industries Inc. for its costs associated with the site inspection.

In the event the exclusive remedy provided herein fails in its essential purpose, and in that event only, the Purchaser shall be entitled to a return of the purchase price for so much of the material as Raven Industries Inc. determines to have violated the warranty provided herein. Raven Industries Inc. shall not be liable for direct, indirect, special, consequential or incidental damages resulting from a breach of this warranty including, but not limited to, damages for loss of production, lost profits, personal injury or property damage. Raven Industries Inc. shall not be obligated to reimburse Purchaser for any repairs, replacement, modifications or alterations made by Purchaser unless Raven Industries Inc. specifically authorized, in writing, said repairs, replacements, modifications or alteration in advance of them having been made. Raven Industry's liability under this warranty shall in no event exceed the replacement cost of the material sold to the Purchaser for the particular installation in which it failed.

Raven Industries Inc. neither assumes nor authorizes any person other than the undersigned of Raven Industries Inc. to assume for it any other or additional liability in connection with the Raven geomembrane made on the basis of the Limited Warranty. The Limited Warranty on the Raven geomembrane herein is given in lieu of all other possible material warranties, either expressed or implied, and by accepting delivery of the material; Purchaser waives all other possible warranties, except those specifically given. This Limited Warranty may only be modified by written document mutually executed by Owner and Raven Industries Inc.

Limited Warranty is extended to the purchaser/owner and is non-transferable and non-assignable; i.e., there are no third-party beneficiaries to this warranty.

Purchaser acknowledges by acceptance that the Limited Warranty given herein is accepted in preference to any and other possible materials warranties.

THIS LIMITED WARRANTY SHALL BE GOVERNED BY SOUTH DAKOTA LAW AND VENUE FOR ALL LEGAL PROCEEDINGS IN CONNECTION WITH THIS LIMITED WARRANTY SHALL BE IN MINNEHAHA COUNTY, SOUTH DAKOTA. RAVEN INDUSTRIES INC. MAKES NO WARRANTY OF ANY KIND OTHER THAN THAT GIVEN ABOVE AND HEREBY DISCLAIMS ALL WARRANTIES, BOTH EXPRESSED OR IMPLIED, OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THIS IS THE ONLY WARRANTY THAT APPLIES TO THE MATERIALS REFERRED TO HEREIN AND RAVEN INDUSTRIES INC. DISCLAIMS ANY LIABILITY FOR ANY WARRANTIES GIVEN BY ANY OTHER PERSON OR ENTITY, EITHER WRITTEN OR ORAL.

RAVEN INDUSTRIES' WARRANTY BECOMES AN OBLIGATION OF RAVEN INDUSTRIES INC. TO PERFORM UNDER THE WARRANTY ONLY UPON RECEIPT OF FINAL PAYMENT AND EXECUTION BY A DULY AUTHORIZED OFFICER OF RAVEN INDUSTRIES INC.

Burlington Resources Oil & Gas Company, LP San Juan Basin Below Grade Tank Maintenance and Operating Plan .

In accordance with Rule 19.15.17 the following information describes the operation and maintenance of Below Grade Tank (BGT) on Burlington Resources Oil & Gas Company, LP (BR) locations. This is BR's standard procedure for all BGT. A separate plan will be submitted for any BGT which does not conform to this plan.

General Plan:

- BR will operate and maintain a BGT to contain liquids and solids and maintain the integrity of the liner, liner system and secondary containment system to prevent contamination of fresh water and protect public health and environment. BR will accomplish this by performing an inspection on a monthly basis, installing cathodic protection, and automatic overflow shutoff devices as seen on the design plan.
- 2. BR will not discharge into or store any hazardous waste in the BGT.
- 3. BR shall operate and install the below-grade tank to prevent the collection of surface water run-on. BR has built in shut off devices that do not allow a belowgrade tank to overflow. BR constructs berms and corrugated retaining walls at least 6" above ground to keep from surface water run-on entering the below grade tank as shown on the design plan.
- 4. As per 19.17.15.12 Subsection D, Paragraph 3, BR will inspect the below-grade tank at least monthly reviewing several items which include 1) containment berms adequate and no oil present, 2) tanks had no visible leaks or sign of corrosion, 3) tank valves, flanges, and hatches had no visible leaks and 4) no evidence of significant spillage of produced liquids. In addition, BR's multi-skilled operators (MSOs) are required to visit each well location once per week. If detected on either inspection, BR shall remove any visible or measurable layer of oil from the fluid surface of a below-grade tank in an effort to prevent significant accumulation of oil overtime. The written record of the monthly inspections will include the items listed above and will be maintained for five years.
- 5. BR shall require and maintain a 10" adequate freeboard to prevent overtopping of the below-grade tank.
- 6. If the below grade tank develops a leak, or if any penetration of the pit liner or below grade tank, occurs below the liquid's surface, then BR shall remove all liquid above the damage or leak line within 48 hours. BR shall notify the appropriate district office. BR shall repair or replace the pit liner or below grade tank, within 48 hours of discovery. If the below grade tank or pit liner does not demonstrate integrity, BR shall promptly remove and install a below grade tank or pit liner that complies with Subsection I of 19.15.17.11 NMAC. BR shall notify the appropriate district office of a discovery of leaks less than 25 barrels as required pursuant to Subsection B of 19.15.3.116 NMAC shall be reported within twenty-four (24) hours of discovery of leaks greater than 25 barrels. In addition, immediate verbal notification pursuant to Subsection B, Paragraph (1), and Subparagraph (d) of 19.15.3.116 NMAC shall be reported to the division's Environmental Bureau Chief.

Burlington Resources Oil & Gas Company, LP San Juan Basin Below Grade Tank Closure Plan

In accordance with Rule 19.15.17.13 NMAC the following information describes the closure requirements of Below Grade Tanks (BGTs) on Burlington Resources Oil & Gas Company, LP locations hereinafter known as BR locations. This is BR's standard procedure for all BGTs. A separate plan will be submitted for any BGT which does not conform to this plan.

General Requirements:

- BR shall close a below-grade tank within the time periods provided in Subsection A of 19.15.17.13 NMAC. This will include a) below-grade tanks that do not meet the requirements of Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC or is not included in Paragraph (5) of Subsection I of 19.15.17.11 NMAC within five years, if not retrofitted to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC; b) permitted below-grade tanks within 60 days of cessation of the below-grade tank's operation., or c) an earlier date that the division requires because of imminent danger to fresh water, public health or the environment. For any closure, BR will file the C144 Closure Report as required.
- 2. BR 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. The facilities to be used will be Basin Disposal (Permit #NM-01-005) and Envirotech Land Farm (Permit #NM-01-011). The liner after being cleaned well (Subsection D, Paragraph 1, Subparagraph (m) of 19.15.9.712 NMAC) will be disposed of at the San Juan County Regional Landfill located on CR 3100.
- 3. BR will receive prior approval to 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. Documentation of how the below-grade tank was disposed of or recycled will be provided in the closure report.
- 4. If there is any on-site equipment associated with a below-grade tank, then BR shall remove the equipment, unless the equipment is required for some other purpose.
- 5. BR shall test the soils beneath the below-grade tank to determine whether a release has occurred. BR shall collect, at a minimum, a five point, composite sample; collect individual grab samples from any area that is wet, discolored or showing other evidence of a release; and analyze for BTEX, TPH and chlorides to demonstrate that the benzene concentration, as determined by EPA SW-846 methods 8021B or 8260B or other EPA method that the division approves, does not exceed 0.2 mg/kg; total BTEX concentration, as determined by EPA SW-846 methods 8021B or 8260B or other EPA method that the division approves, does not exceed 0.2 mg/kg; total BTEX concentration, as determined by EPA SW-846 methods 8021B or 8260B or other EPA method that the division approves, does not exceed 50 mg/kg; the TPH concentration, as determined by EPA method 418.1 or other EPA method that the division approves, does not exceed 100 mg/kg; and the chloride concentration, as determined by EPA method that the division approves, does not exceed 250 mg/kg, or the background concentration, whichever is greater. BR shall notify the division of its results on form C-141.
- 6. If BR or the division determines that a release has occurred, then BR shall comply with 19.15.3.116 NMAC and 19.15.1.19 NMAC, as appropriate.

- 7. If the sampling program demonstrates that a release has not occurred or that any release does not exceed the concentrations specified in Paragraph (4) of Subsection E of 19.15.17.13 NMAC, then BR shall backfill the excavation with compacted, non-waste containing, earthen material; construct a division-prescribed soil cover; recontour and re-vegetate the site.
- Notice of Closure will be given prior to closure to the Aztec Division office between 72 hours and one week via email or verbally. The notification of closure will include the following:
 - i. Operator's name
 - ii. Location by Unit Letter, Section, Township, and Range. Well name and API number.
- The surface owner shall be notified of BR's closing of the below-grade tank prior to closure as per the approved closure plan via certified mail, return receipt requested.
- 10. Re-contouring of location will match fit, shape, line, form and texture of the surrounding. Re-shaping will include drainage control, prevent ponding, and prevent erosion. Natural drainages will be unimpeded and water bars and/or silt traps will be place in areas where needed to prevent erosion on a large scale. Final re-contour shall have a uniform appearance with smooth surface, fitting the natural landscape.
- 11. BR shall seed the disturbed areas the first growing season after the operator closes the pit. Seeding will be accomplished via drilling on the contour whenever practical or by other division-approved methods. BLM stipulated seed mixes will used on federally jurisdicted lands and division-approved seed mixtures (administratively approved if required) will be utilized on all State or private lands. Vegetative cover will equal 70% of the native perennial vegetative cover (un-impacted) consisting of at least three native plant species, including at least one grass, but not including noxious weeds, and maintain that cover through two successive growing seasons. If alternate seed mix is required by the state, private owner or tribe, it will be implemented with administrative approval if needed. BR will repeat seeding or planting will be continued until successful vegetative growth occurs.
- 12. A minimum of four feet of cover shall be achieved and the cover shall include one foot of suitable material to establish vegetation at the site, or the background thickness of topsoil, whichever is greater.
- 13. All closure activities will include proper documentation and be available for review upon request and will be submitted to OCD within 60 days of closure of the below-grade tank. Closure report will be filed on C-144 and incorporate the following:
 - Soil Backfilling and Cover Installation
 - · Re-vegetation application rates and seeding techniques
 - · Photo documentation of the site reclamation
 - Confirmation Sampling Results
 - Proof of closure notice

OCD Aztec District III Conoco Phillips/Burlington Checklist Below Grade Tank Registration

19.15.17.9 Permit application

Signed C-144 (Page 5 of C-144)

Site Specific Hydrogeology

19.15.17.10 Siting requirements

New Mexico Office of State Engineer attachment
 USGS TOPO map
 Aerial Map
 Mines, Mills and Quarries Web Map
 FIRM map (flood insurance rate map from Federal Emergency Management Agency)

19.15.17.11 Design Plan Contents

Below Grade Tank Design and Construction Plan.

19.15.17.12 Operating and Maintenance Plan

Below Grade Tank Operating and Maintenance Plan

19.15.17.13 Closure Plan

Below Grade Tank Closure Plan

Requirements:

Registration Date: 2/12/16