BECICIE	and Natural Resou	July 21, 200
REGISTERE	D partment -rvation Division h 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 District IV	Santa Fe, NM 87505	For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the
1220 S. St. Francis Dr., Santa Fe, NM 87505		appropriate NMOCD District Office.
<u>P</u>	Pit, Closed-Loop System, Below-G	Grade Tank, or
Proposed	Alternative Method Permit or Cl	losure Plan Application
Type of action:	X Permit of a pit, closed-loop system, below-g	grade tank, or proposed alternative method
Ē	Closure of a pit, closed-loop system, below-	-grade tank, or proposed alternative method
Ē	Modification to an existing permit	
C	Closure plan only submitted for an existing	permitted or non-permitted pit, closed-loop system,
	below-grade tank, or proposed alternative m	nethod
Instructions: Please submit one app	lication (Form C-144) per individual pit, clos	sed-loop system, below-grade tank or alternative request
Please be advised that approval of the environment. Nor does approval relieve	is request does not relieve the operator of liability should oper the operator of its responsibility to comply with any other an	rations result in pollution of surface water, ground water or the plicable governmental authority's rules, regulations or ordinances.
1	, and a second sec	
Operator: Burlington Resources Oil 8	& Gas Company, LP	OGRID#: 14538
Address: PO Box 4289, Farmington,	NM 87499	
Facility or well name: SAN JUAN 27-	5 UNIT 98P	
API Number: 300	03927640 OCD Permit 1	Number:
U/L or Qtr/Qtr: <u>K</u> Section:	14 Township: 27N Range:	5W County: Rio Arriba
Center of Proposed Design: Latitude:	36.57237°N Longitude:	: NAD: X 1927 1983
Surface Owner: Federal	State X Private Tribal Trust or	Indian Allotment
Permanent Emergency Cavi	itation P&A r type: Thickness mil LLDPF	E HDPE PVC Other
Liner Seams: Welded Facto	ory Other Volume:	bbl Dimensions Lx Wx D
Liner Seams: Welded Factor Closed-loop System: Subsection Type of Operation: P&A C Drying Pad Above Ground Lined Unlined Liner ty Liner Seams: Welded Factor	ory Other Volume: Volume: Volume: Volume: Other Volume: Other Volume: Other Ot	bbl Dimensions Lx Wx D
Liner Seams: Welded Factor Closed-loop System: Subsection Type of Operation: P&A [Drying Pad Above Ground Lined Unlined Liner ty Liner Seams: Welded Factor K Below-grade tank: Subsection I of Volume: 120 bbl Tank Construction material: Secondary containment with leak detect Visible sidewalls and liner Liner Type: Thickness	ory Other Volume: Volume: Volume: Volume: Other Volume: Other Volume: Other Ot	bbl Dimensions L x W x D plies to activities which require prior approval of a permit or HDPE PVD Other and automatic overflow shut-off er Unspecified
Liner Seams: Welded Factor Closed-loop System: Subsection Type of Operation: P&A [Drying Pad Above Ground Lined Unlined Liner ty Liner Seams: Welded Factor K Below-grade tank: Subsection I of Volume: 120 bbl Tank Construction material: Secondary containment with leak detect Visible sidewalls and liner Liner Type: Thickness Alternative Method: Submittal of an exception request is require	ory Other Volume: Volume: Volume: Volume: Other Volume: Volume: Other Volume: Other Orilling a new well Workover or Drilling (Approximation of intent) Steel Tanks Haul-off Bins Other Volume: Thickness mil LLDPE Ory Other O	bbl Dimensions Lx Wx D plies to activities which require prior approval of a permit or HDPE PVD Other and automatic overflow shut-off er Unspecified Environmental Bureau office for consideration of approval.

6 Feifeing: Subsection D of 19.15.17.11.80MAC (American								
Subsection 12 of 19.15.17.11 NMAC (Applies to permanent pit, temporary pits, and below-grade tanks)								
Chain link, six feet in height, two strands of barbed wire at top (<i>Required if located within 1000 feet of a permanent residence, school, hospital, institution or church</i>)								
Item rout neight, rout strands of barbed wire evenly spaced between one and four feet X Alternate. Please specify 4' hog wire forcing to prove divite to p								
a mag wire rencing topped with two strands barbed wire.								
Netting: Subsection E of 19.15.17.11 NMAC (Applies to permanent pits and permanent area ton tools)								
X Screen Netting Other								
Monthly inspections (If netting or screening is not physically feasible)								
8 Signs: Subsection C of 1915 1711 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								
Administrative Approvals and Exceptions: Jüstifications and/or demonstrations of equivalence are experied. D								
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 Burgary (5).								
(Fencing/BGT Liner)	consideration of approval.							
Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.								
Siting Criteria (regarding permitting): 19.15.17.10 NMAC								
Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable								
source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which much be submitted to the Science of the sci								
consideration of approval. Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. Siting criteria								
and not apply to drying paus 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	Yes XINO							
- Topographic map; Visual inspection (certification) of the proposed site								
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)								
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image								
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.	Yes No							
(Applied to permanent pits) - Visual inspection (certification) of the processed in the later of a manual statement of the processed in the later of the processed in t	XNA							
Within 500 horizonal feet of a private, domestic fresh water well or contract that have the first here the								
purposes, or within 1000 horizontal feet of any other fresh water well or spring in a tess than live households use for domestic or stock watering	Yes XNo							
- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site.								
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							
Within 500 feet of a wetland,								
- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	Yes XNo							
Within the area overlying a subsurface mine. Written confirmation or verification or map from the NM EMNRD - Mining and Mineral Division	Yes XNo							
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							

<u>Temporary Pits, Emergene</u> Instructions: Each of the follow	v Pits and Below-grade Tanks	Permit Applicat	ion Attachment Check	list: Subsection B of 19.15.17.9 NMAC	
X Hydrogeologic Report	(Below-grade Tanks) - based up	m the requirement	ndicate, by a check mark i	n the box, that the documents are attache	sd.
Ilydrogeologic Data (Femporary and Emergency Pits) -	based mon the	and of Paragraph (4) of S	ubsection B of 19.15.17.9 NMAC	
X Siting Criteria Compli	ance Demonstrations - based upor	n the appropriate	Forthermones of 10-15-1	7.10 NB 11.0	
X Design Plan - based up	oon the appropriate requirements	of 19 15 17 11 N	MAC	7.10 NMAC	
X Operating and Mainter	nance Plan - based upon the appro	oriale requireme	1917C	0	
X Closure Plan (Please c	omplete Boxes 14 through 18, if a	applicable) - base	d upon the appropriate r	Culturements of Subsection Cost	
19.15.17.9 NMAC and	119.15.17.13 NMAC		, and a propriet	equirements of subsection C of	
Previously Approved Desi	gn (attach copy of design)	APE		or Permit	
Closed-loop Systems Permit Instructions: Each of the followi Geologic and Hydrogee Siting Criteria Complia Design Plan - based up Operating and Mainten Closure Plan (Please co NMAC and 19.15.17.1 Previously Approved Desig Previously Approved Opera 13 Permanent Plts Permit Appl Instructions: Each of the followi	Application Attachment Check mg items must be attached to the appro- ologic Data (only for on-site closu ince Demonstrations (only for on- on the appropriate requirements of ance Plan - based upon the approp- mplete Boxes 14 through 18, if appropriate Boxes 14 through 18, if appropriate 3 NMAC m (attach copy of design) tting and Maintenance Plan ication Checklist: Subsection I ng items must be attached to the app	dist: Subsection lication. Please in re) - based upon site closure) - ba of 19.15.17.11 NF priate requiremen pplicable) - basec API API B of 19.15.17.9 N plication. Please in	B of 19.15.17.9 NMAC dicate, by a check mark in the requirements of Para sed upon the appropriate MAC tts of 19.15.17.12 NMAG d upon the appropriate re MAC	the box, that the documents are attached, graph (3) of Subsection B of 19,15,17 requirements of 19,15,17,10 NMAC C quirements of Subsection C of 19,15,	7.9 17.9 ed.
 Fryatogetotogie Report - Siting Criteria Compliar Climatological Factors A Certified Engineering D Dike Protection and Stru Leak Detection Design - Liner Specifications and Quality Control/Quality Operating and Maintenau Freeboard and Overtoppi Nuisance or Hazardous O Emergency Response Pla Oil Field Waste Stream O Monitoring and Inspectio Erosion Control Plan Closure Plan - based upor 	Tased upon the requirements of P tice Demonstrations - based upon t assessment esign Plans - based upon the appro- tetural Integrity Design: based upon based upon the appropriate requir Compatibility Assessment - based Assurance Construction and Instal the Plan - based upon the appropri- ng Prevention Plan - based upon to Ddors, including H2S, Prevention in Characterization in Plan	aragraph (1) of S the appropriate re- opriate requirem- on the appropriat rements of 19.15 d upon the appro- llation Plan iate requirements the appropriate re Plan Subsection C of	ubsection B of 19.15.17. equirements of 19.15.17. ents of 19.15.17.11 NM/ e requirements of 19.15. .17.11 NMAC priate requirements of 19 s of 19.15.17.12 NMAC equirements of 19.15.17.	9 NMAC 10 NMAC AC 17.11 NMAC 2.15.17.11 NMAC 11 NMAC 9.15.17.13 NMAC	
14 Proposed Closure: 19151713	NMAC				
Instructions: Please complete the o	pplicable boxes, Boxes 14 through	18, in regards to th	he proposed closure plan.		
Type: Drilling Workove	r Emergency Cavitation		ermanent Pit X Below	grade Tank Closed-loop System	
Proposed Closure Method:	Vaste Excavation and Removal Vaste Removal (Closed-loop system On-site Closure Method (only for te In-place Burial (Court Mernative Closure Method (Except)	(Below-Gra ns only) mporary pits and On-site Trench tions must be sub	de Tank) closed-loop systems) mitted to the Santa Fe Fn	vironmental Purson (many 11	
15			Salina i c Ell	(includent outeau for consideration)	
Waste Excavation and Remova Please indicate, by a check mark in X Protocols and Procedures X Confirmation Sampling Pla X Disposal Facility Name and X Soil Backfill and Cover De X Re-vegetation Plan - based X Site Reclamation Plan - based	Closure Plan Checklist: (19.15. <i>the box, that the documents are atta</i> based upon the appropriate requir in (if applicable) - based upon the d Permit Number (for liquids, dril sign Specifications - based upon t upon the appropriate requirement sed upon the appropriate requirement	17.13 NMAC) Ins inched. rements of 19.15 appropriate requiling fluids and di- the appropriate re- s of Subsection I tents of Subsection	tructions: Each of the foll 17.13 NMAC tirements of Subsection I till cuttings) equirements of Subsectio of 19.15.17.13 NMAC on G of 19.15.17.13 NM	owing items must be attached to the clos F of 19.15.17.13 NMAC n H of 19.15.17.13 NMAC AC	ure plan.

16 Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel T Instructions: Please identify the Jacility or facilities for the disposal of liquids, drilling that	anks or Haul-off Bins Only: (19.15.17.13.D NMA) ids and drill cuttings. Use attachment if more than p	C)
Disposal Facility Name		in an autes
Disposal Facility Name	sposal Facility Permit #:	
Will any of the proposed closed-loop custem operations at the	sposal Facility Permit #:	
Yes (If yes, please provide the information No Required for impacted areas which will not be used for future areas	cur on or in areas that will not be used for futur	e service and operations?
Soil Backfill and Cover Design Specification - based upon the appropriate r	Publicements of Subsection II of 10.15.17.12 No.	140
Re-vegetation Plan - based upon the appropriate requirements of Subsection	11 of 19.15.17.13 NMAC	IAC
Site Reclamation Plan - based upon the appropriate requirements of Subsect	ion G of 19.15.17.13 NMAC	
17 Siting Criteria (Regarding on-site closure methods only: 19.15.17.10 NMAC Instructions: Each siting criteria remaines a demonstration of compliance in the data series of a		
certain suing criteria may require administrative approval from the appropriate district office or ma for consideration of approval. Justifications and/or demonstrations of equivalency are required. Pl	imendations of acceptable source material are provided by y be considered an exception which must be submitted to r ease refer to 19,15,17,10 NMAC for guidance.	elow, Requests regarding changes to the Santa Fe Environmental Bureawolj
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 obtained	from nearby wells	
Ground water is between 50 and 100 feet below the bottom of the buried waste		
- NM Office of the State Engineer - iWATERS database search; USGS: Data obtained f	rom nearby wells	
fround 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 f	rom nearby wells	Yes No
/ithin 300 feet of a continuously flowing watercourse, or 200 feet of any other significant w neasured from the ordinary high-water mark).	atercourse or lakebed, sinkhole, or playa lake	Yes No
- Topographic map: Visual inspection (certification) of the proposed site		
/ithin 300 feet from a permanent residence, school, hospital, institution, or church in existen	nce at the time of initial upplication	
- Visual inspection (certification) of the proposed site: Aerial photo: satellite image	ice at the time of instal application.	Yes No
		Yes DNo
/ithin 500 horizontal feet of a private, domestic fresh water well or spring that less than five urposes, or within 1000 horizontal fee of any other fresh water well or spring, in existence a - NM Office of the State Engineer - iWATERS database; Visual inspection (certification)	households use for domestic or stock watering t the time of the initial application.	
ithin incorporated municipal boundaries or within a defined municipal fresh water well fiel	d covered under a municipal ordinance adopted	
Written confirmation or verification from the municipality. Write		
(ithin 500 feet of a wetland	tom the municipality	
- US Fish and Wildlife Wetland Identification map: Topographic map; Visual inspection	(certification) of the proposed site	Yes No
ithin the area overlying a subsurface mine.	in proposed and	
- Written confiramtion or verification or map from the NM EMNRD-Mining and Mineral	Division	
Inn an unstable area.		Yes No
Topographic map	esources: USGS; NM Geological Society:	
thin a 100-year floodplain.		
- FEMA map		
<u>Site Closure Plan Checklist:</u> (19.15.17.13 NMAC) Instructions: Each of the J	ollowing items must bee attached to the closur	e plan. Please indicate
a check mark in the box, that the documents are attached.		print i reast mutcate,
Siting Criteria Compliance Demonstrations - based upon the appropriate requir	ements of 19.15.17.10 NMAC	
Construction (During Plan of P. 1) T	ibsection F of 19.15.17.13 NMAC	
Construction/Design Plan of Burial Trench (if applicable) based upon the appro	priate requirements of 19.15.17.11 NMAC	
Construction/Design Plan of Temporary Pit (for in place burial of a drying pad)	- based upon the appropriate requirements of 19	0.15.17.11 NMAC
Confirmation Sampling Disputition is a state of the state	7.13 NMAC	
	ments of Subsection F of 19.15.17.13 NMAC	
y waste waterial Sampling Plan - based upon the appropriate requirements of Sul	osection F of 19.15.17.13 NMAC	
J Disposal Pacifity Name and Permit Number (for liquids, drilling fluids and drill Suit Cover Device based	cuttings or in case on-site closure standards can	not be achieved)
Son Cover Design - based upon the appropriate requirements of Subsection H o	f 19.15.17.13 NMAC	

Re-vegetation Plan - based upon the appropriate requirements of Subsection 1 of 19.15.17.13 NMAC

Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

19			
Operator Application	Certification:		
Name (Print):	cormation submitted with this application is rue	accurate and complete to the	e best of my knowledge and belief.
Name (Frink).	Crystal Tafoya	Title:	Regulatory Technician
Signature:	- motal lapy	<u>2</u> Date:	12/22/2008
e-mail address:	27/stal taloyar@corrocophilip@.com/	Telephone:	505-326-9837
DCD Approval:	Permit Application (including closure plan)		
	in the second plant		UCD Conditions (see attachment)
CD Representative s	ignature:		Approval Date:
'itle:		OCD Par	mit Numbon
			Int Number:
1			
losure Report (requi	ed within 60 days of closure completion):	Subsection K of 19.15.17.13 NMAC	C
port is required to be su	required to obtain an approved closure plan pr mitted to the division within 60 days of the com	rior to implementing any close	ure activities and submitting the closure report. The closure
proved closure plan has	been obtained and the closure activities have be	en completed.	is. Traise up not complete this section of the form until an
		Closure	e Completion Date:
losure Method:			
Waste Excavation	nd Removal On-site Closure Metho	d Alternative Closure	Method Warts Barriel (C)
If different from a	proved plan, please explain	a Anemative Closure	waste Removal (Closed-loop systems only)
Disposal Facility Name Disposal Facility Name		Disposal Facility	Permit Number:
Were the closed-loop sa	tem operations and accognited equivier	Disposal Facility	Permit Number:
Yes (If yes, please)	emonstrate compliane to the items below)	No	be used for future service and opeartions?
Required for impacted a	reas which will not be used for future service an	d operations:	
Site Reclamation (I	noto Documentation)	a operations.	
Soil Backfilling and	Cover Installation		
Re-vegetation Appl	cation Rates and Seeding Technique		
Closure Report Atta the box, that the docum	<u>hment Checklist:</u> Instructions: Each of the f	following items must be attac	hed to the closure report. Please indicate, by a check mark in
Proof of Closure N	otice (surface owner and division)		
Proof of Deed Not	ce (required for on-site closure)		
Plot Plan (for on-s	te closures and temporary pits)		
Confirmation Sam	oling Analytical Results (if applicable)		
Waste Material Sa	npling Analytical Results (if applicable)		
Disposal Facility N	ame and Permit Number		
Soil Backfilling an	Cover Installation		
Re-vegetation App	ication Rates and Seeding Technique		
Site Reclamation (hoto Documentation)		
On-site Closure Lo	ation: Latitude:	Longitude:	NAD 1927 1983
erator Closure Certif	cation:		
erator Closure Certif reby certify that the infor	cation: nation and attachments submitted with this close indicable closure and in the second	ure report is ture, accurate an	id complete to the best of my knowledge and belief. I also certify that
erator Closure Certif reby certify that the info closure complies with all	<u>cation:</u> nation and attachments submitted with this clost applicable closure requirements and conditions .	ure report is ture, accurate an specified in the approved clos	ud complete to the best of my knowledge and belief. I also certify that sure plan.
erator Closure Certif reby certify that the info closure complies with all ne (Print):	cation: nation and attachments submitted with this close applicable closure requirements and conditions.	ure report is ture, accurate an specified in the approved clos	ud complete to the best of my knowledge and belief. I also certify that sure plan.
erator Closure Certif reby certify that the infor closure complies with all ne (Print):	cation: nation and attachments submitted with this clost applicable closure requirements and conditions .	ure report is ture, accurate an specified in the approved clos Title:	ud complete to the best of my knowledge and belief. I also certify that sure plan.

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New Mexico Office of the State Engineer

New Mexico Office of the State Engineer POD Reports and Downloads
Township: 27N Range: 05W Sections:
NAD27 X: Y: Zone: Search Radius:
County: Basin: Number: Suffix:
Owner Name: (First) (Last) CNon-Domestic CDomestic All
POD / Surface Data Report Avg Depth to Water Report Water Column Report
Clear Form iWATERS Menu Help

WATER COLUMN REPORT 08/20/2008

	(quarter (quarter	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are biggest to smallest)								Depth	Depth	Water	(in
POD Number	Tws	Rng	Sec	P	P	Q	Zone	x	Y	Well	Water	Column	
RG 81026	27N	05W	27	4	4	3				460	186	274	
SJ 00199	27N	05W	03	2	1					1840			
SJ 00046	27N	05W	04	4	4					506	260	246	

Record Count: 3



AERIAL MAP SAN JUAN 27-5 UNIT 98P



Mines, Mills and Quarries Web Map

SAN JUAN 27-5 UNIT 98P

Unit Letter: K, Section: 14, Town: 027N, Range: 005W











SAN JUAN 27-5 UNIT 98P

Site Specific Hydrogeology

A visual site inspection confirming the information contained herein was performed on the well 'SAN JUAN 27-5 UNIT 98P', which is located at 36.57237 degree, North latitude and 107.32728 degree, West longitude. This location is located on the Vigas Canyon 7.5' USGS topographic quadrangle. This location is in section 14 of Township 27 North Range 5 West of the Public Land Survey System (New Mexico Principal Meridian). This location is located in Rio Arriba County, New Mexico. The nearest town is Turley, located 28.1 miles to the northwest. The nearest large town (population greater than 10,000) is Farmington, located 50.1 miles to the west (National Atlas). The nearest highway is State Highway 537, located 8.5 miles to the southeast. The location is on Private land and is 379 feet from the edge of the parcel as notated in the BLM land status layer updated January 2008. This location is in the Blanco Canyon. New Mexico, Sub-basin. This location is located and receives 13 inches of rain each year. The vegetation at this location is classified as Inter-Mountain Basins Semi-Desert Shrub Steppe as per the Southwest Regional Gap Analysis Program.

The estimated depth to ground water at this point is 276 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 77 feet to the east and is classified by the USGS as an intermittent stream. The nearest perennial stream is 236 feet to the south. The nearest water body is 236 feet to the south. It is classified by the USGS as an intermittent lake and is 0.4 acres in size. The nearest spring is 11,197 feet to the east. 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 1,637 feet to the northeast. The nearest wetland is a 0.5 acre other located 859 feet to the southeast. The slope at this location is 1 degree, to the southwest 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 SAN JOSE FORMATION -- Siltstone, shale, and sandstone with a Sandstone dominated formations of all ages substrate. The soil at this location is 'Pinavetes-Florita complex, 2 to 10 percent slopes' and is excessively drained and not hydric with moderate erosion potential as taken from the NRCS SSURGO map unit, downloaded January 2008. The nearest underground mine is 18.0 miles to the north as indicated on the Mines, Mills and Quarries Map of New Mexico provided.

Regional Hydrogeological context:

The San Jose Formation of Eocene age occurs in New Mexico and Colorado, and its outcrop forms the land surface over much of the eastern half of the central basin. It overlies the Nacimiento Formation in the area generally south of the Colorado-New Mexico State line and overlies the Animas Formation in the area generally north of the State line. The San Jose Formation was deposited in various fluvial-type environments. In general, the unit consists of an interbedded sequence of sandstone, siltstone, and variegated shale. Thickness of the San Jose Formation generally increases from west to east (200 feet in the west and south to almost 2,700 feet in the center of the structural basin). Ground water is associated with alluvial and fluvial sandstone aquifers. Thus, the occurrence of ground water is mainly controlled by the distribution of sandstone in the formation. The distribution of such sandstone is the result of original depositional extent plus any post-depositional modifications, namely erosion and structural deformation. Transmissivity data for San Jose Formation are minimal. Values of 40 and 120 feet squared per day were determined from two aquifer tests (Stone et al, 1983, table 5). The reported or measured discharge from 46 water wells completed in San Jose Formation ranges from 0.15 to 61 gallons per minute and the median is 5 gallons per minute. Most of the wells provide water for livestock and domestic use. The San Jose Formation is a very suitable unit for recharge from precipitation because soils that form on the unit are sandy and highly permeable and therefore readily adsorb precipitation. However, low annual precipitation, relatively high transpiration and evaporation rates, and deep dissection of the San Jose Formation by the San Juan River and its tributaries all tend to reduce the effective recharge to the unit.

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

- 1. 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.
- 2. 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.
- 6. 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 below-grade 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.
- 11. The general specification for design and construction are attached in the BR document.



PROPERTIES TEST METHOD J30BB J36BE **J45BE** Min. Roll Typical Roll Min. Roll Typical Roll Min. Roll Typical Roll Averages Averages Averages Averages Averages 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 126 lbs 140 lbs ASTM D 5261 151 lbs 168 lbs (oz/vd²) 189 lbs 210 lbs (18.14)(20.16)(21.74)(24.19)(27.21)(30.24)Construction **Extrusion laminated with encapsulated tri-directional scrim reinforcement Ply Adhesion **ASTM D 413** 16 lbs 20 lbs 19 lbs 24 lbs 25 ibs 31 lbs 1" Tensile Strength 88 lbf MD 110 lbf MD 90 lbf MD **ASTM D 7003** 113 Ibf MD 110 lbf MD 138 lbf MD 63 lbf DD 79 lbf DD 70 lbf DD 87 (bf DD 84 lbf DD 105 lbf DD 1" Tensile Elongation @ 550 MD 750 MD **ASTM D 7003** 550 MD 750 MD 550 MD Break % (Film Break) 750 MD 550 DD 750 DD 550 DD 750 DD 550 DD 750 DD 1" Tensite Elongation @ 20 MD 33 MD 20 MD **ASTM D 7003** Peak % (Scrim Break) 30 MD 20 MD 36 MD 20 DD 33 DD 20 DD 31DD 20 DD 36 DD 75 lbf MD Tongue Tear Strength 97 lbf MD 75 lbf MD 104 lbf MD **ASTM D 5884** 100 lbf MD 117 lbf MD 75 lbf DD 90 lbf DD 75 lbf DD 92 lbf DD 100 lbf DD 118 lbf DD 180 lbf MD Grab Tensile 218 lbf MD 180 lbf MD ASTM D 7004 222 lbf MD 220 lbf MD 257 lbf MD 180 lbf DD 210 lbf DD 180 lbf DD 223 lbf DD 220 lbf DD 258 lbf DD 120 lbf MD Trapezoid Tear 146 lbf MD 130 lbf MD **ASTM D 4533** 189 lbf MD 160 lbf MD 193 lbf MD 120 lbf DD 141 lbf DD 130 lbf DD 172 lbf DD 160 lbf DD 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.

NORE I PAVEN INDUSTRIES MAKES NO MARRANTIES AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS REFERRED TO, no quarantee of satisfactory results from terance upon contained information or recommendations and use aims all lubitly for resulting loss or damage



PLANT LOCATION

Sioux Falls, South Dakota

SALES OFFICE

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.

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 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 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 below-grade 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 o f19.15.17.11 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 50 mg/kg; the TPH concentration, as determined by EPA method 418.1 or other EPA method that the division approves, does not exceed 50 mg/kg; the TPH 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.
- 8. 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