District I 1625 N. French Dr., Hobbs, NM 88240 District II 1301 W. Grand Ave., Artesia, NM 88210 District III 1000 Rio Brazos Rd., Aztec, NM 87410 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505 <u>Pit, (</u>	Form C-144 July 21, 2008 For temporary pits, closed-loop sytems, and below-grade tanks. submit to the appropriate NMOCD District Office. For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.	
Type of action: Type of action: Clo Mo Clo bel Instructions: Please submit one application Please be advised that approval of this requered on the proval of the second of the	mit of a pit, closed-loop system, below-grade osure of a pit, closed-loop system, below-grade odification to an existing permit osure plan only submitted for an existing permi ow-grade tank, or proposed alternative method on (Form C-144) per individual pit, closed-lo est does not relieve the operator of liability should operations erator of its responsibility to comply with any other applicable	tank, or proposed alternative method e tank, or proposed alternative method itted or non-permitted pit, closed-loop system, ap system, below-grade tank or alternative request result in pollution of surface water, ground water or the e governmental authority's rules, regulations or ordinances.
Operator: Burlington Resources Oil & Gas Address: PO Box 4289, Farmington, NM Facility or well name: SAN JUAN 28-6 UN API Number: 3003921 U/L or Qtr/Qtr: O Section: Center of Proposed Design: Latitude: Surface Owner: X Federal	8 Company, LP 87499 IIT 62A 876 OCD Permit Number 22 Township: 28N Range: 36.64247°N Longitude:	OGRID#: 14538 er: 6W County: Rio Arriba -107.44989°W NAD: X 1927 1983 n Allotment
 Pit: Subsection F or G of 19.15.17.11 NM Temporary: Drilling Workover Permanent Emergency Cavitation Lined Unlined Liner type: String-Reinforced Liner Seams: Welded Factory 	AC Definition P&A Thickness mil DLLDPE Other Volume:	HDPE PVC Other
3 Closed-loop System: Subsection H of Type of Operation: P&A Drillin; Drying Pad Above Ground Steel Lined Unlined Liner type: Liner Seams: Welded Factory	19.15.17.11 NMAC g a new well Workover or Drilling (Applies to notice of intent) Tanks Haul-off Bins Other Thickness mil LLDPE F	activities which require prior approval of a permit or
4 X. Below-grade tank: Subsection I of 19.15 Volume: 120 bbl Tank Construction material:	5.17.11 NMAC Type of fluid: <u>Produced Water</u> <u>Metal</u> X Visible sidewalls, liner, 6-inch lift and aut isible sidewalls only Other HDPE PVC X Other <u>I</u>	omatic overflow shut-off
Alternative Method:	in continue must be automitted to the Courte Fo Familie	

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6 <u>Fencing:</u> Subsection D of 19.15.47.11 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>) Four foot height, four strands of barbed wire evenly spaced between one and four feet									
X Atternate. 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 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 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 consideration of approval. (Fencing/BGT Liner) Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.									
10	1								
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 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 X	No							
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 X	No							
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.	Yes XI	No							
(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. (Applied to permanent pits)		No							
- Visual inspection (certification) of the proposed site; Aerial photo: Satellite image									
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 XN	ło							
- 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 J-27-3, as amended - Written confirmation or verification from the municipality: Written approval obtained from the municipality.	Yes XN	lo							
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map: Topographic map; Visual inspection (certification) of the proposed site	Yes XN	0							
Within the area overlying a subsurface mine. Written confirmation or verification or map from the NM EMNRD - Mining and Mineral Division	Yes XN	0							
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS: NM Geological		o							
Society: Topographic map Within a 100-year floodplain - FEMA map	Yes XN	D							

1

Temporary Pits, Emergency Pits and Below-grade Tanks Per Instructions: Each of the following items must be attached to the appli	ermit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC ication. Please indicate, by a check mark in the box, that the documents are attached.
X Hydrogeologic Report (Below-grade Tanks) - based upon	the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
Hydrogeologic Data (Temporary and Emergency Pits) - b	ased upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9
X Siting Criteria Compliance Demonstrations - based upon	the appropriate requirements of 19.15.17.10 NMAC
X Design Plan - based upon the appropriate requirements of	19.15.17.11 NMAC
X Operating and Maintenance Plan - based upon the approp	riate requirements of 19.15.17.12 NMAC
X Closure Plan (Please complete Boxes 14 through 18, if ap	plicable) - based upon the appropriate requirements of Subsection C of
19.15.17.9 NMAC and 19.15.17.13 NMAC	
Previously Approved Design (attach copy of design)	API or Permit
12 Closed-loop Systems Permit Application Attachment Checkl Instructions: Each of the following items must be attached to the applic Geologic and Hydrogeologic Data (only for on-site closure Siting Criteria Compliance Demonstrations (only for on-site Design Plan - based upon the appropriate requirements of Operating and Maintenance Plan - based upon the appropriate Closure Plan (Please complete Boxes 14 through 18, if apply NMAC and 19.15.17.13 NMAC Previously Approved Design (attach copy of design)	ist: Subsection B of 19.15.17.9 NMAC cation. Please indicate, by a check mark in the box, that the documents are attached. e) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9 ite closure) - based upon the appropriate requirements of 19.15.17.10 NMAC 19.15.17.11 NMAC riate requirements of 19.15.17.12 NMAC plicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9
Previously Approved Operating and Maintenance Plan	
13 Permanent Pits Permit Application Checklist: Subsection B Instructions: Each of the following items must be attached to the appro 1 Hydrogeologic Report - based upon the requirements of Pa 2 Siting Criteria Compliance Demonstrations - based upon the 2 Climatological Factors Assessment 3 Certified Engineering Design Plans - based upon the appropriate requirements of Dike Protection and Structural Integrity Design: based upo 3 Leak Detection Design - based upon the appropriate requirement based upon the appropriate and Maintenance Plan - based upon the appropriate freeboard and Overtopping Prevention Plan - based upon the Nuisance or Hazardous Odors, including H2S. Prevention I Emergency Response Plan 4 Oil Field Waste Stream Characterization 4 Monitoring and Inspection Plan 4 Erosion Control Plan 4 Closure Plan - based upon the appropriate requirements of Structure Plan - based upon the appropriate requirements of Structure Plan - based upon the appropriate requirements of Structure Plan - based upon the appropriate requirements of Structure Plan - based upon the appropriate requirements of Structure Plan - based upon the appropriate requirements of Structure Plan - based upon the appropriate requirements of Structure Plan - based upon the appropriate requirements of Structure Plan - based upon the appropriate r	of 19.15.17.9 NMAC lication. Please indicate, by a check mark in the box, that the documents are attached. aragraph (1) of Subsection B of 19.15.17.9 NMAC he appropriate requirements of 19.15.17.10 NMAC opriate requirements of 19.15.17.11 NMAC n the appropriate requirements of 19.15.17.11 NMAC ements of 19.15.17.11 NMAC I upon the appropriate requirements of 19.15.17.11 NMAC lation Plan iate requirements of 19.15.17.12 NMAC he appropriate requirements of 19.15.17.11 NMAC Plan Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC
Proposed Closure: 19.15.17.13 NMAC Instructions: Please complete the applicable baxes. Baxes 14 through	18 in regards to the proposed closure plan
Type: Drilling Workover Emergency Cavitation	P&A Permanent Pit X Below-grade Tank Closed-loop System
Proposed Closure Method: X Waste Excavation and Removal Waste Removal (Closed-loop system On-site Closure Method (only for te In-place Burial Alternative Closure Method (Except	(Below-Grade Tank) ns only) mporary pits and closed-loop systems) On-site Trench tions must be submitted to the Santa Fe Environmental Bureau for consideration)
15	
Waste Excavation and Removal Closure Plan Checklist: (19.15.	17.13 NMAC) Instructions: Each of the following items must be attached to the closure plan.
X Protocols and Procedures - based upon the approach	ached.
Confirmation Sampling Plan (if applicable) hand	Tements of 19.15.17.13 NMAC
(a) Communication sampling run (1) applicable) - based upon the [X] Disposal Facility Name and Permit Number (for the state at 1)	appropriate requirements of Subsection F of 19.15.17.13 NMAC
X Soil Backfill and Cover Design Specifications has determined	the energy into a service service service in the state of the service
Pe-veretation Plan based upon the	the appropriate requirements of Subsection H of 19.15.17.13 NMAC
A Re-vegetation Plan - based upon the appropriate requirement	ts of Subsection I of 19.15.17.13 NMAC
X Site Reclamation Plan - based upon the appropriate requirem	tents of Subsection G of 19.15.17.13 NMAC

10							
Waste Removal Closure For Closed-loop Systems That Utilize Above (Instructions): Please identify the facility or facilities for the disposed of loop	Fround Steel Tanks or Hauf-off Bins Only: (19.15.17.13.D NMAC	3					
are required.	has, arriving quairs and artic cutings. Use allachment if more than tw	o facilities					
Disposal Facility Name:	Disposal Facility Permit #:						
Disposal Facility Name:	Disposal Facility Permit #:						
Will any of the proposed closed-loop system operations and associat Yes (If yes, please provide the information No	ed activities occur on or in areas that will not be used for future	e service and operations?					
Required for impacted areas which will not be used for future service and	operations:						
Soil Backfill and Cover Design Specification - based upon th	e appropriate requirements of Subsection II of 19.15.17.13 NM	AC					
Site Reclamation Plan - based upon the appropriate requirement	s of Subsection 1 of 19.15.17.13 NMAC						
in the appropriate requirement	and of Subsection G of 19.15.17.13 NMAC						
17							
Siting Criteria (Regarding on-site closure methods only: 19.15.1 Instructions: Each siting criteria remires a demonstration of compliance in the ob-	7.10 NMAC						
cettain sting criteria may require administrative approval from the appropriate d	istic prim. Recommendations of acceptable source material are provided by istrict office or may be considered an exception which must be submitted to t	elow. Requests regarding changes to he Santa Fe Environmental Bureau office					
for consideration of approval. Justifications and/or demonstrations of equivalency	are required. Please refer to 19.15.17.10 NMAC for guidance.						
Ground water is less than 50 feet below the bottom of the buried was	te.	Yes No					
 NM Office of the State Engineer - iWATERS database search; USG 	j: Data obtained from nearby wells						
Ground water is between 50 and 100 feet below the bottom of the bu	ried waste						
- NM Office of the State Engineer - iWATERS database search; USGS	: Data obtained from nearby wells						
Ground water is more than 100 feet below the bottom of the buried w	/aste						
 NM Office of the State Engineer - iWATERS database search; USGS 	: Data obtained from nearby wells						
Within 100 fast of a continuou lu finalization and a start							
(measured from the ordinary high-water niark).	her significant watercourse or lakebed, sinkhole, or playa lake	Yes No					
- Topographic map: Visual inspection (certification) of the proposed sit	e						
Within 300 feet from a permanent residence, school, hospital, institution, or	church in existence at the time of initial application.						
 Visual inspection (certification) of the proposed site: Aerial photo: sate 	llite image						
		Yes No					
Within 500 horizontal feet of a private, domestic fresh water well or spring t purposes, or within 1000 horizontal fee of any other fresh water well or sprin	hat less than five households use for domestic or stock watering						
- NM Office of the State Engineer - iWATERS database; Visual inspecti	on (certification) of the proposed site						
Within incorporated municipal boundaries or within a defined municipal free	sh water well field covered under a municipal ordinance adopted	TYes No					
 Written confirmation or verification from the municipality: Written and 	proval obtained from the municipality						
Within 500 feet of a wetland	so an obtained noise the manifelpanty						
· US Fish and Wildlife Wetland Identification map; Topographic map; V	(isual inspection (certification) of the proposed site						
Within the area overlying a subsurface mine.		TYes No					
- Written confiramtion or verification or map from the NM EMNRD-Mir	ing and Mineral Division						
Within an unstable area.		Yes No					
 Engineering measures incorporated into the design; NM Bureau of Geo Topographic map 	logy & Mineral Resources: USGS; NM Geological Society:						
Within a 100-year floodplain.							
- FEMA map							
18							
On-Site Closure Plan Checklist: (19.15.17.13 NMAC) Instructions	Each of the following items must bee attached to the closur	e plan. Please indicate,					
Siting Criteria Counciling Descention are attached.							
Proof of Surface Owner Notice - based upon the ap	propriate requirements of 19.15.17.10 NMAC						
Construction/Device Plan of Public Transit (for the based	utrements of Subsection F of 19.15.17.13 NMAC						
Construction/Design Plan of Burlan (Ir applicable) based	upon the appropriate requirements of 19.15.17.11 NMAC						
Protocols and Prevedures - bused upon the appropriate	of a drying pad) - based upon the appropriate requirements of 10	9.15.17.11 NMAC					
Confirmation Sampling Plan (if applicable), based upon the	ents of 19.15.17.13 NMAC						
Waste Material Sampling Plan the applicable - based upon the app	ropriate requirements of Subsection F of 19.15.17.13 NMAC						
Disposal Facility Name and Damis New Local Line to the	Jirements of Subsection F of 19.15.17.13 NMAC						
Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)							

Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
 Re-vegetation Plan - based upon the appropriate requirements of Subsection 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 Cartification	
Thereby certify that the information submitted with this application is	is the accurate and complete to the best of an Unambed as on the Ref.
Name (Print): Crystal Pafava	Talle Dawlet or 2011
	Regulatory Technician
Signature:	Date: 12/22/2008
e-mail address: <u>stat tainvast conecoundips co</u> r	Telephone: 505-326-9837
20	
OCD Approval: Permit Application (including closure pl	olan) Closure Plan (only) OCD Conditions (see attachment)
OCD Representative Signature:	Approval Date:
Title:	OCD Permit Number:
31	
<u>Closure Report (required within 60 days of closure completi</u> Instructions: Operators are required to obtain an approved closure pl report is required to be submitted to the division within 60 days of the approved closure plan has been obtained and the closure activities ha	<u>tion):</u> Subsection K of 19.15.17.13 NMAC olan prior to implementing any closure activities and submitting the closure report. The closure e completion of the closure activities. Please do not complete this section of the form until an ave been completed.
	Closure Completion Date:
22 Closure Method:	
Waste Excavation and Removal	
If different from approved plan, places avaluin	Wethod Alternative Closure Method Waste Removal (Closed-loop systems only)
23	
Closure Report Regarding Waste Removal Closure For Closed-loo	op Systems That Utilize Above Ground Steel Tanks or Haut-off Bins Only:
vere utilized.	quids, drilling fluids and drill cuttings were disposed. Use attachment if more than two facilities
Disposal Facility Name:	Disposal Facility Permit Number
Disposal Facility Name:	Disposal Facility Permit Number:
Were the closed-loop system operations and associated activities pe	performed on or in areas that will not be used for future service and opeartions?
Yes (If yes, please demonstrate compliane to the items below)	/) No
Required for impacted areas which will not be used for future servi-	vice and operations:
Site Reclamation (Photo Documentation)	
Soil Backfilling and Cover Installation	
Re-vegetation Application Rates and Seeding Technique	
24	
Closure Report Attachment Checklist: Instructions: Each of	of the following items must be attached to the closure report. Please indicate, by a check mark in
Proof of Closure Notice (surface ourset and division)	
Proof of Deed Notice (required for on-site closure)	
Plot Plan (for on-site closures and temporary nits)	
Confirmation Sampling Application Results (if application)	
Wester Material Security Analytical Results (if applicable)	
Waste Material Sampling Analytical Results (if applicable)	2)
Disposal Facility Name and Permit Number	
Soil Backfilling and Cover Installation	
Re-vegetation Application Rates and Seeding Technique	
Site Reclamation (Photo Documentation)	
On-site Closure Location: Latitude:	Longitude:NAD 1927 1983
perator Closure Certification:	
hereby certify that the information and attachments submitted with this	is closure report is ture, accurate and complete to the best of my knowledge and belief. I also certify that
e cussure computes with all applicable closure requirements and condi-	utions specified in the approved closure plan.
10 1 m	
ame (Print):	Title:
ame (Print):	Title: Date:

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New Ma PO	exico Office of the State Engineer DD Reports and Downloads
Township: 28N Range:	06W Sections:
NAD27 X: Y:	Zone: Search Radius:
County: Basin:	Number: Suffix:
Owner Name: (First)	(Last) C Non-Domestic C Domestic @ All
POD / Surface Data Report	Avg Depth to Water Report Water Column Report
Clear Fo	orm IWATERS Menu Help

WATER COLUMN REPORT 08/20/2008

	(quarter:	s are 1=NW 2=NE 3=SW					3=SW	4=SE)					
	(quarter	s are	e bi	gg	est	t to	smal	lest)		Depth	Depth	Water	(in
POD Number	Tws	Rng	Sec	g	P	Q	Zone	х	Y	Well	Water	Column	
SJ 03700 POD1	28N	06W	12	2	2	4				450	200	250	
SJ 03675	28N	06W	14	4	3	4	С	153167	2059732	420	100	320	
SJ 03700	28N	06W	21	2	4	4				450	200	250	
SJ_03043	28N	06W	21	4	2	2				290	240	50	
SJ 03005	28N	06W	21	4	2	2				245	175	70	
SJ 03443	28N	06W	22	3	3	3				300			
SJ 00200	28N	06W	23	3	3					1551			
SJ 03091	28N	06W	29	2	2	3				150	90	60	

Record Count: 8

e K K



ConocoPhillips

AERIAL MAP SAN JUAN 28-6 UNIT 62A



. Aerial flown locally Sedgewick in 2005.

10.00FT

30.0FT

1:6,000

NAD_1983_SP_ NM West_FIPS_3003 8/08

Mines, Mills and Quarries Web Map

SAN JUAN 28-6 UNIT 62A

Espanola

AMOS

SANTA PE

Unit Letter: O, Section: 22, Town: 028N, Range: 006W



X



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SAN JUAN 28-6 UNIT 62A

Site Specific Hydrogeology

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A visual site inspection confirming the information contained herein was performed on the well 'SAN JUAN 28-6 UNIT 62A', which is located at 36.64247 degrees North latitude and 107.44989 degrees West longitude. This location is located on the Four mile Canyon 7.5' USGS topographic quadrangle. This location is in section 22 of Township 28 North Range 6 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 19.9 miles to the northwest. The nearest large town (population greater than 10,000) is Farmington, located 42.4 miles to the west (National Atlas). The nearest highway is US Highway 64, located 3.5 miles to the northeast. The location is on BLM land and is 1,288 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 2010 meters or 6592 feet above sea level and receives 12.5 inches of rain each year. The vegetation at this location is classified as Colorado Plateau Pinion-Juniper Woodland as per the Southwest Regional Gap Analysis Program.

The estimated depth to ground water at this point is 322 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 1,028 feet to the south and is classified by the USGS as an intermittent stream. The nearest perrenial stream is 2,940 feet to the east. The nearest water body is 2.913 feet to the east. It is classified by the USGS as an intermittent lake and is 0.2 acres in size. The nearest spring is 10,238 feet to the northwest. 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 1,959 feet to the east. The nearest wetland is a 0.6 acre other located 12,409 feet to the north. 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 SAN JOSE FORMATION -- Siltstone, shale, and sandstone with a Sandstone dominated formations of all ages substrate. The soil at this location is 'Orlie fine sandy loam, 1 to 8 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 14.7 miles to the northeast 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
- 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 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.
- 11. The general specification for design and construction are attached in the BR document.



14) 15) 2

PROPERTIES TEST METHOD J30BB J36BE **J45BB** Min. Roll Typical Roll Min. Roll Typical Roll Min. Roll Averages Typical Roll Averages Averages Averages Averages Appearance Averages 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 (oz/vd^2) 168 lbs 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 ibs 24 lbs 25 lbs 31 lbs 1° Tensile Strength 88 lbf MD 110 lbf MD ASTM D 7003 90 lbf MD 113 lbf MD 110 lbf MD 138 lbf MD 63 lbf DD 79 lbf DD 70 lbf DD 87 lbf DD 84 lbf DD 105 lbf DD 1" Tensile Elongation @ 550 MD 750 MD **ASTM D 7003** 550 MD Break % (Film Break) 750 MD 550 MD 750 MD 550 DD 750 DD 550 DD 750 DD 550 DD 750 DD 1" Tensile Elongation @ 20 MD 33 MD Peak % (Scrim Break) ASTM D 7003 20 MD 30 MD 20 MD 36 MD 20 DD 33 DD 20 DD 31DD 20 DD 36 DD **Tongue Tear Strength** 75 lbf MD 97 lbf MD ASTM D 5884 75 lbf MD 104 lbf MD 100 lbf MD 117 lbf MD 75 lbf DD 90 lbf DD 75 lbf DD 92 lbf DD 100 lbf DD 118 lbf DD Grab Tensile 180 lbf MD 218 lbf MD ASTM D 7004 180 lbf MD 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

146 lbf MD

141 lbf DD

< 0.5

64 lbf

180° F

-70° F

MD = Machine Direction

Trapezoid Tear

* Dimensional Stability

Puncture Resistance

Maximum Use Temperature

Minimum Use Temperature

DD = Diagonal Directions

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

130 lbf MD

130 lbf DD

<1

65 lbf

180° F

-70° F

189 lbf MD

172 lbf DD

< 0.5

83 lbf

180° F

-70° F

*Dimensional Stability Maximum Value

120 lbf MD

120 lbf DD

<1

50 lbf

180° F

-70° F

ASTM D 4533

ASTM D 1204

ASTM D 4833

**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 substactory results from tellance upon contained information or recommendations and use aims all subsity for resulting loss or damage.

RAVEN INDUSTRIES

PLANT LOCATION

Sioux Falls, South Dakota

SALES OFFICE

160 lbf MD

160 lbf DD

<1

80 lbf

180° F

-70° F

193 lbf MD

191 lbf DD

<0.5

99 lbf

180° F

-70° F

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



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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

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 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 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.
- 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 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, nonwaste 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.
- 9. 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 belowgrade 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