District I	State of New Mexico	Form C-144 July 21, 2008
REGISTER	EDartment 'ation Division St. Francis Dr.	For temporary pits, closed-loop sytems, and below-grade tanks, submit to the appropriate NMOCD District Office.
1000 Rio Brazós Rd., Aztec, NM 87410 District IV 1220 S. St. Francis Dr. Santa Fe. NM 87505	Santa Fe, NM 87505	For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.
Pi	t. Closed-Loop System, Below-Grad	e Tank, or
Proposed	Alternative Method Permit or Closur	re Plan Application
Type of action:	Permit of a nit closed-loop system below-grade	tank or proposed alternative method
Type of action.	Closure of a pit, closed-loop system, below-grade	tank, or proposed alternative method
F	Modification to an existing permit	
	Closure plan only submitted for an existing permit below-grade tank, or proposed alternative method	itted or non-permitted pit, closed-loop system,
Instructions: Please submit one appli	ication (Form C-144) per individual pit, closed-lo	op system, below-grade tank or alternative request
Please be advised that approval of this environment. Nor does approval relieve t	request does not relieve the operator of liability should operations the operator of its responsibility to comply with any other applicable	result in pollution of surface water, ground water or the governmental authority's rules, regulations or ordinances.
1 Operator: Burlington Resources Oil & Address: DO Ber 4380 Formington D	Gas Company, LP	OGRID#: 14538
Eacility or well name: SAN HIAN 27.5	NM 87499	·····
API Number: 3003	1082361 OCD Permit Number	×r-
U/L or Otr/Otr: A Section:	12 Township: 27N Range:	5W County: Rio Arriba
Center of Proposed Design: Latitude:	36.59163°N Longitude:	-107.30286°W NAD: X 1927 1983
Surface Owner: X Federal	State Private Tribal Trust or India	n Allotment
Pit: Subsection F or G of 19.15.17.11 Temporary: Drilling Workova Permanent Emergency Cavit Lined Unlined Liner String-Reinforced Liner Seams: Welded Factor	NMAC er ation P&A type: Thickness mil LLDPE ry Other Volume:	HDPE PVC Other
3 Closed-loop System: Subsection Type of Operation: P&A Driving Drying Pad Above Ground S Lined Unlined Liner type Liner Seams: Welded Factor	H of 19.15.17.11 NMAC rilling a new well Workover or Drilling (Applies to notice of intent) Steel Tanks Haul-off Bins Other pe: Thickness mil LLDPE I ry Other	activities which require prior approval of a permit or
4 X Below-grade tank: Subsection I of Volume: 120 bbl Tank Construction material:	19.15.17.11 NMAC Type of fluid: Produced Water Metal tion X Visible sidewalls, liner, 6-inch lift and aut Visible sidewalls only Other mil HDPE PVC X Other	omatic overflow shut-off
5 Alternative Method: Submittal of an exception request is require	ed. Exceptions must be submitted to the Santa Fe Enviro	numental Bureau office for consideration of approval
Form C-144	Oil Conservation Division	Page 1 of 5

3

6.						
Fencing: Subsection D of 19.15.17.11 NMAC (Applies to permanent pit, temporary pits, and below-arady 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, hospita</i>	d, institution or church)					
Point toot 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 NMACCO. E						
X Screen Netting Other						
Monthly inspections (If netting or screening is not physically for site)						
5 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:						
Please check a hav if any any solid of the first in the second se						
X Administrative approval (a) Provide the following is requested, if not leave blank:						
(Fencing/BGT Liner)	consideration of approval.					
Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.						
10						
Siting Criteria (regarding permitting): 19.15.17.10 NMAC						
source material are provided below. Requests regarding changes to certain siting criteria may require administrative amount of acceptable						
appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau Office for						
does not apply to drying pads or above grade-tanks associated with a closed-loop system.						
Ground water is less than 50 feet below the bottom of the temporary pit, permanent pit, or below-grade tank						
- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	Yes XNo					
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other watercourse, lakebed, sinkhole, or playa	Yes X No					
- Topographic map; Visual inspection (certification) of the proposed site						
Within 300 feet from a permanent residence, school, hospital institution, or church in gripter as at the discussion of the second						
application.	Yes X 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.	TYes No					
(Applied to permanent pits) - Visual inspection (curtification) of the approach is the interview of the permanent is the perm	XNA					
Within 500 horizonal feet of a grinete dependent for the proposed site; Aerial photo; Satellite image						
purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application.	Yes XNo					
- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site.						
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended	Yes XNo					
 Written confirmation or verification from the municipality: Written approval obtained from the municipality Within 500 fort of a water and 						
- 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.	TYes VINA					
- Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map						
Within a 100-year floodplain - FEMA map	Yes XNo					

•

11		
Temporary Pits, Eme Instructions: Fach of the	cgency Pits and Below-grade Tanf	aks Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC
X Hydrogeologic R	coort (Below, and Tanks) have be	e application. Please indicate, by a check mark in the box, that the documents are attached.
Ilydrogeologic D	ala (Tepporary and Epsisonese Dia	upon the requirements of Paragraph (4) of Subsection B of 19,15,17,9 NMAC
X Siting Criteria C	moliance Demonstrations	(s) - based upon the requirements of Paragraph (2) of Subsection B of 19:15.17.9
X Design Plan - has	and upon the neuronal data - based to	upon the appropriate requirements of 19.15.17.10 NMAC
X Operating and M	eo upon tre appropriate requiremen	nts of 19.15.17.11 NMAC
	antenance Plan - based upon the app	ppropriate requirements of 19.15.17.12 NMAC
19 15 17 9 NMA	ase complete Boxes 14 through 18, i	if applicable) - based upon the appropriate requirements of Subsection C of
Previously Approved	Danim (aug. b. 17.15 NMAC	
	Design (attach copy of design)	API or Permit
	ermit Application Attachment Che Howing items must be attached to the al- rogeologic Data (only for on-site clo mpliance Demonstrations (only for o ed upon the appropriate requirements intenance Plan - based upon the appi se complete Boxes 14 through 18, if 17.13 NMAC	hecklist: Subsection B of 19.15.17.9 NMAC application. Please indicate, by a check mark in the box, that the documents are attached. losure) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9 on-site closure) - based upon the appropriate requirements of 19.15.17.10 NMAC its of 19.15.17.11 NMAC propriate requirements of 19.15.37.12 NMAC if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9
Drewinsby Approved I	Design (attach copy of design)	API
Previously Approved (Operating and Maintenance Plan	API
13		
Permanent Pits Permit	Application Checklist: Subsection	on B of 19.15.17.9 NMAC
Unistructions: Each of the fo	llowing items must be attached to the a	application. Please indicate, by a check mark in the box, that the documents are attached
Sitian Criteria C	ort - based upon the requirements of	of Paragraph (I) of Subsection B of 19.15.17.9 NMAC
Climatokariast Form	pliance Demonstrations - based upo	on the appropriate requirements of 19.15.17.10 NMAC
Certified Environment	ors Assessment	
Dike Protection and	Structure Lettering D	ppropriate requirements of 19.15.17.11 NMAC
Leak Detection Des	subclural integrity Design: based u	upon the appropriate requirements of 19.15.17.11 NMAC
Liner Specifications	and Compatibility And	quirements of 19.15.17.11 NMAC
Quality Control/Ou	and compatibility Assessment - bas ibity Assurance Construction and In-	ased upon the appropriate requirements of 19.15.17.11 NMAC
Operating and Main	tenance Plan - based upon the appro-	Istallation Plan
Freeboard and Over	opping Prevention Plan - based upon	ophate requirements of 19.15.17.12 NMAC
Nuisance or Hazarde	ous Odors, including H2S. Prevention	ion line appropriate requirements of 19.15.17.11 NMAC
Emergency Respons	e Plan	
Oil Field Waste Stre	am Characterization	
Monitoring and Insp	ection Plan	
Erosion Control Plan		
Closure Plan - based	upon the appropriate requirements c	of Subsection C of 19.15.17.9 NMAC 110.15.17 Inc.
4		
roposed Closure: 19.15.	17.13 NMAC	
nstructions: Please complete	the applicable boxes. Boxes 14 through	gh 18, in regards to the proposed closure plan
ype: Drilling Wor	kover Emergency Cavitation	on P&A Permanent Pit VIBelow grade Test Det to
	_	Closed-loop System
oposed Closure Method:	X Waste Excavation and Removal	(Below-Grade Tank)
	Waste Removal (Closed-loop syst	stems only)
	On-site Closure Method (only for	r temporary pits and closed-loop systems)
	In-place Burial	On-site Trench
	Alternative Closure Method (Exce	ceptions must be submitted to the Santa Fe Environmental Duran 6
		Surface to the Santa re Environmental Bureau for consideration)
aste Excavation and Ren	ioval Closure Plan Checklister (10.1	15 17 13 19 19 4 6 1
ease indicate, by a check mai	k in the box, that the documents are a	attached.
X Protocols and Procedu	res - based upon the appropriate requ	autements of 19151713 NMAC
X Confirmation Samplin	g Plan (if applicable) - hased upon th	the appropriate sequiroments of Column
X Confirmation Samplin X Disposal Facility Name	g Plan (if applicable) - based upon the and Permit Number (for liquids dr	the appropriate requirements of Subsection F of 19.15.17.13 NMAC
X Confirmation Samplin X Disposal Facility Name X Soil Backfill and Cove	g Plan (if applicable) - based upon the and Permit Number (for liquids, dr besign Specifications - based upon	the appropriate requirements of Subsection F of 19.15.17.13 NMAC trilling fluids and drill cuttings)
X Confirmation Samplin, X Disposal Facility Name X Soil Backfill and Cove X Re-vegetation Plan - hat	g Plan (if applicable) - based upon the e and Permit Number (for liquids, dr r Design Specifications - based upon used upon the appropriate requirements	the appropriate requirements of Subsection F of 19.15.17.13 NMAC trilling fluids and drill cuttings) on the appropriate requirements of Subsection H of 19.15.17.13 NMAC
X Confirmation Samplin, X Disposal Facility Name X Soil Backfill and Cove X Re-vegetation Plan - backfill X Site Reclamation Plan	g Plan (if applicable) - based upon the e and Permit Number (for liquids, dr r Design Specifications - based upon used upon the appropriate requirement based upon the appropriate requirement	the appropriate requirements of Subsection F of 19.15.17.13 NMAC trilling fluids and drill cuttings) on the appropriate requirements of Subsection H of 19.15.17.13 NMAC ents of Subsection I of 19.15.17.13 NMAC

٠

1.

.

Oil Conservation Devision

16								
Waste Removal Closure For Closed-le	DOP Systems That Utilize Above Ground Steel Tanks or Hand set by a state							
are required,	or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more-than	AC) Two facilities						
Disposal Facility Name:	Discuss 1 P. officers							
Disposal Facility Name:	Disposal Facility Name:							
Will any of the proposed closed-loop	System operations and associated activities							
Yes (If yes, please provide the	information No No	ure service and operations?						
Required for impacted areas which will i	tot be used for future service and operations;							
Re-vegetation Plan - based ino	n Specification - based upon the appropriate requirements of Subsection H of 19.15.17.13 N	MAC						
Site Reclamation Plan - based	upon the appropriate requirements of Subsection 1 of 19.15.17.13 NMAC							
17	Suscention G of 19.15.17.13 NMAC							
Siting Criteria (Regarding on-site c	losure methods only: 1915 17 10 NMAC							
Instructions: Each siting criteria requires a de certain situité criteria may ramifica durité	emonstration of compliance in the closure plan. Recommendations of accentable source material							
for consideration of approval. Justifications a	tive approval from the appropriate district office or may be considered an exception which must be submitted ti ind/or demonstrations of equivalency are required. Places a data to be a built of the submitted to be a built of	below. Requests regarding changes to) the Santa Fe Environmental Bureau atta-						
Ground water is less than 50 feet below	w the bottom of the buried waves							
 NM Office of the State Engineer - if 	WATERS database search: USGS: Data obtained from exactly a	Yes No						
Ground water is between 50 and 100 c	and believe the house of the bala obtained from heardy wells	N/A						
- NM Office of the State Engineer - iV	VATERS durabases superbulled as a second sec	Yes No						
Ground waters in more star too o								
- NM Office of the State Continue - W	low the bottom of the buried waste.							
in once of the state Engineer - iw	VATERS database search; USGS; Data obtained from nearby wells							
Within 300 feet of a continuously flowing v (measured from the ordinary high-water re-	watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake							
 Topographic map: Visual inspection ((certification) of the proposed size	Yes No						
Within 300 feet from a permanent residence	e school howing inclusion							
- Visual inspection (certification) of the	proposed site; Aerial photo; satellite image	Yes No						
Within 500 horizontal feet of a private, dom	estic fresh water well or spring that less than five households use for domestic or stock watering	Yes No						
-NM Office of the State Engineer - jWA	ny other fresh water well or spring, in existence at the time of the initial application.							
Vithin incorporated municipal boundaries o	r within a defined municipal fresh water well field counted and and							
 Written confirmation or varification from the section of the section	amended.	Yes No						
Vithin 500 feet of a wetland	on the municipality; Written approval obtained from the municipality							
- US Fish and Wildlife Wetland Identific	ation map: Topographic map: Visual inspection (contification) of	Yes No						
ithin the area overlying a subsurface m	ine.							
Written confirantion or verification or r	map from the NM EMNRD-Mining and Mineral Division	Yes No						
Ithin an unstable area.								
Topographic map	the design; NM Bureau of Geology & Mineral Resources: USGS; NM Geological Society;							
ithin a 100-year floodplain.								
- FEMA тар		Yes No						
a check mark in the bar that it	17.13 NMAC) Instructions: Each of the following items must bee attached to the closure							
Siting Criteria Compliance D	iments are attached.	e plan. Please indicate,						
Proof of Surface Owner Notice be	strations - based upon the appropriate requirements of 19.15.17.10 NMAC							
Construction/Design Plan of Ruriel	ised upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC							
Construction/Design Plan of Terror	Trench (it applicable) based upon the appropriate requirements of 19.15.17.11 NMAC							
Protocols and Procedures - buod un	orary Pit (tor in place burial of a drying pad) - based upon the appropriate requirements of 19	15.17.11 NMAC						
Confirmation Sampling Plan (if and	licable to based upon the second							
Waste Material Sampling Plan bas	ed upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC							
Disposal Facility Name and Permit	Number (for liquide statute and a							
Soil Cover Design - based upon the appropriate requirements of a								
Re-vegetation Plan - based upon the	appropriate requirements of Subsection H of 19.15.17.13 NMAC							
Site Reclamation Plan - based upon	the appropriate requirements of Subsection G of 10 15 17 12 NMAC							

19	· · · · · · · · · · · · · · · · · · ·	
Operator Application Certification:		
Thereby certify that the information submitted with this application is true, accu	rate and complete to the	best of my knowledge and belief.
Name (Trint):Crystal Tafoya	Title:	Regulatory Technician
Signature:	Date:	12/22/2008
e-mail address: <u>27.5tai tafoya 🕸 conveephilities com</u>	Telephone:	505-326-9837
20		
OCD Approval: Permit Application (including closure plan)	Closure Plan (only)	OCD Conditions (see attachment)
OCD Representative Signature:		
		Approval Date:
Title:	OCD Pern	nit Number:
21		
Closure Report (required within 60 days of closure completion): Subset	ction K of 19.15.17.13 NMAC	
report is required to be submitted to the division within 60 days of the completion	o implementing any closu n of the closure activities	re activities and submitting the closure report. The closure
approved closure plan has been obtained and the closure activities have been co	mpleted.	a rease to not complete this section of the form until an
	Closure	Completion Date:
22		
Closure Method:		
Waste Excavation and Removal On-site Closure Method	Alternative Closure	Method Waste Removal (Closed-loop systems only)
If different from approved plan: please explain.	_	
23		
Closure Report Regarding Waste Removal Closure For Closed-loop Systems	That Utilize Above Gro	ound Steel Tanks or Haul-off Bins Only:
Instructions: Please identify the facility or facilities for where the liquids, drillin	ng fluids and drill cuttin	gs were disposed. Use attachment if more than two facilities
Disposal Facility Name:	Disposal Facility 1	Denvils M 1
Disposal Facility Name:	Disposal Facility I	Permit Number:
Were the closed-loop system operations and associated activities performed or	or in areas that will not	ha mad for future inclusion in a second seco
Yes (If yes, please demonstrate compliane to the items below)	No	be used for future service and opeartions?
Required for impacted areas which will not be used for future service and one	rations	
Site Reclamation (Photo Documentation)		
Soil Backfilling and Cover Installation		
Re-vegetation Application Rates and Seeding Technique		
24		
<u>Closure Report Attachment Checklist:</u> Instructions: Each of the follow the box, that the documents are attached	ring items must be attack	hed to the closure report. Please indicate, by a check mark in
Proof of Closure Notice (surface owner and division)		
Proof of Deed Notice (required for on-site closure)		
Plot Plan (for on-site closures and temporary pits)		
Confirmation Sampling Analytical Results (if applicable)		
Waste Material Sampling Analytical Results (if applicable)		
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
5		
perator Closure Certification:		
hereby certify that the information and attachments submitted with this closure re	port is ture, accurate and	d complete to the best of my knowledge and belief. I also certify that
e closure complies with all applicable closure requirements and conditions specij	fied in the approved clos	ure plan.
ame (Print):	Title:	
gnature:	Date:	
-	Date.	
mail address:	Telephone:	

.

.

New Mexico Office of the State Engineer

,

New Mexico Office of the State POD Reports and Downle	<i>Engineer</i> oads				
Township: 27N Range: 05W Sections:					
NAD27 X: Y: Zone:	Sear	ch Radius	s:		
County: Basin:	Number:		Suffix:		
Owner Name: (First) (Last)	C Non-I	Domestic	⊂ Dom	estic @	All
POD / Surface Data Report Avg Depth to Water R	eport	Wate	er Column	Report	A brown a
Clear Form iWATERS Men	Help				
			<u></u>		
WATER COLUMN REPORT	08/20/20	808			
(quarters are higgest to smallest)		Dopth	Donth	Water	(1-
POD Number Tws Rng Sec q q q Zone X	Y	Well	Water	Column	(11
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

		New M P	<i>exico (</i> OD Re	<i>Office of the Sta</i> ports and Dov	ate Engir vnloads	neer				
Т	ownship: 27	N Range	04W	Sections:			Depart of the second second			
NAD	027 X:	Y:		Zone:	V	Search	h Radius	: [-	
County:	B	asin:			Num	ber:		Suffix:		
Owner Name:	(First)		(Last)	- C	Non-D	omestic	⊂ Dom	estic •	All
POD/S	urface Data Re	eport	A	vg Depth to Wat	er Report		Wate	er Column	Report	
		Clear	Form	IWATERS N	Nenu	Help				
			WATE	R COLUMN REP	PORT 08/	20/20	08			
	(quarter	s are 1=N	W 2 = NE	3=SW 4=SE)			Depth	Depth	Water	(in
DOD Number	(quarter	Rng Sec	aaa	Zone	x	Y	Well	Water	Column	
ST 00048	27N	04W 01					143			
SJ 01049	27N	04W 18	4 2 2				15			
CT 0120E	27N	0414 34	4 4 4				3054	750	2304	

Record Count: 3

SJ 01205

27N 04W 34 4 4 4





AERIAL MAP SAN JUAN 27-5 UNIT 88



1:6,000

8/08

Mines, Mills and Quarries Web Map

SAN JUAN 27-5 UNIT 88

Unit Letter: A, Section: 12, Town: 027N, Range: 005W





SAN JUAN 27-5 UNIT 88

Site Specific Hydrogeology

A visual site inspection confirming the information contained herein was performed on the well 'SAN JUAN 27-5 UNIT 88', which is located at 36.59163 degree, North latitude and 107.30286 degree, West longitude. This location is located on the Vigas Canyon 7.5' USGS topographic quadrangle. This location is in section 12 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 28.8 miles to the northwest. The nearest large town (population greater than 10,000) is Farmington, located 51.1 miles to the west (National Atlas). The nearest highway is State Highway 537, located 8.1 miles to the southeast. The location is on BLM land and is 636 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 14 inches of rain each year. The vegetation at this location is classified as Colorado Plateau Pinon-Juniper Woodland as per the Southwest Regional Gap Analysis Program.

The estimated depth to ground water at this point is 260 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 326 feet to the west and is classified by the USGS as an intermittent stream. The nearest perennial stream is 448 feet to the west. The nearest water body is 432 feet to the northwest. It is classified by the USGS as a perennial lake and is 0.4 acres in size. The nearest spring is 5,394 feet to the north. 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 2,718 feet to the east. The nearest wetland is a 0.6 acre other located 4,722 feet to the southeast. The slope at this location is 11 degree, to the west 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 'Rock outcrop-Vessilla-Menefee complex, 15 to 45 percent slopes' and is well drained and not hydric with not rated erosion potential as taken from the NRCS SSURGO map unit, downloaded January 2008. The nearest underground mine is 16.8 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
- 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.



PROPERTIES TEST METHOD JJOBB J36BE **J45BB** Min. Roll Typical Roll Min. Roll Typical Roll Min. Roll Averages Averages **Typical Roll** 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 (oz/yd²) 151 lbs 168 lbs 189 lbs 210 lbs (18.14)(20.16)(21.74)(24.19)(27.21)(30.24)Construction **Extrusion laminated with encapsular

Ply Adhesion		string with encapsulated tri-directional scrim reinforcement					
,	ASTM D 413	16 lbs	20 lbs	19 lbs	24 lbs	25 lbs	31 lbs
1" Tensile Strength	ASTM D 7003	88 lbf MD 63 lbf DD	110 lbf MD 79 lbf DD	90 lbf MD 70 lbf DD	113 lbf MD 87 lbf DD	110 lbf MD 84 lbf DD	138 lbf ME
1" Tensile Elongation @ Break, % (Film Break)	ASTM D 7003	550 MD 550 DD	750 MD 750 DD	550 MD 550 DD	750 MD 750 DD	550 MD	750 MD
1" Tensile Elongation @ Peak % (Scrim Break)	ASTM D 7003	20 MD 20 DD	33 MD 33 DD	20 MD 20 DD	30 MD 31DD	20 MD 20 DD	36 MD
Tongue Tear Strength	ASTM D 5884	75 lbf MD 75 lbf DD	97 Ibf MD 90 Ibf DD	75 lbf MD 75 lbf DD	104 lbf MD 92 lbf DD	100 lbf MD 100 lbf DD	117 lbf MD 118 lbf DD
Grab Tensile	ASTM D 7004	180 lbf MD 180 lbf DD	218 lbf MD 210 lbf DD	180 lbf MD 180 lbf DD	222 lbf MD 223 lbf DD	220 lbf MD 220 lbf DD	257 lbf MD 258 lbf DD
Trapezoid Tear	ASTM D 4533	120 lbf MD 120 lbf DD	146 lbf MD 141 lbf DD	130 lbf MD 130 lbf DD	189 lbf MD 172 lbf DD	160 lbf MD 160 lbf DD	193 lbf MD 191 lbf DD
Dimensional Stability	ASTM D 1204	<1	<0.5	<1	<0.5	<1	-0.5
Puncture Resistance	ASTM D 4833	50 lbf	64 lbf	65 lbf	83 lbf		<0.5
Maximum Use Temperature		180° F	180° F	1909 5			99 lbf
Minimum Use Temperature		70% 5		180° F	180° F	180° F	180° F
D = Machine Direction		-70 F	-70° F	-70° F	-70° F	-70° F	-70° F

DD = Diagonal Directions

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

*Dimensional Stability Maximum Value

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

Note: PAVEN INDUSTRIES MAKES NO WARRANTIES AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS REFERRED TO, no guarantee of substactory results from reliance upon contained information or recommendations and associations all function provides or damage.

RAVEN INDUSTRIES

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, at its 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:

- 1. 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.
- 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, 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
 - 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