# \_District 1

1625 N French Dr., Hobbs, NM 88240

District II

1301 W Grand Ave , Artesia, NM 88210

District III

## State of New Mexico Energy Minerals and Natural Resources

Department Oil Conservation Division 1220 South St. Francis Dr.

July 21, 2008 For temporary pits, closed-loop sytems, and below-grade tanks, submit to the appropriate NMOCD District Office.

Form C-144

122	0 S	St	Fra	ncis Dr	, Santa	Fe,	NM	87505	
_		_			_				_
11	_	>	١		_				

1000 Rio Brazos Rd , Aztec, NM 87410 <u>District IV</u> 1220 S St Francis Dr , Santa Fe, NM 87505	Santa Fe, NM 87505	For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office
HILL THE REPORT OF THE PERSON	losed-Loop System, Belov	w-Grade Tank, or
$\mathcal{A}$		or Closure Plan Application
Type of action: X Perm	it of a pit, closed-loop system, below	ow-grade tank, or proposed alternative method
<b>=</b>		ow-grade tank, or proposed alternative method
<del></del>	fication to an existing permit	
	re plan only submitted for an existing a plan only submitted for an existing a proposed alternative and the proposed alternative and the proposed alternative are proposed alternative and the proposed alternative and the proposed alternative are proposed alternative and the proposed alternative are proposed alternative and a proposed alternative are proposed alternative	ing permitted or non-permitted pit, closed-loop system, ve method
Instructions: Please submit one application	(Form C-144) per individual pit, c	closed-loop system, below-grade tank or alternative request
		d operations result in pollution of surface water, ground water or the
1	tor or its responsibility to comply with any other	ner applicable governmental authority's rules, regulations or ordinances
Operator: Burlington Resources Oil & Gas C	ompany, LP	OGRID#: <u>14538</u>
Address: PO Box 4289, Farmington, NM 87	499	
Facility or well name: Sullivan 100S		
API Number: 30-045-	35037 OCD Per	ermit Number.
U/L or Qtr/Qtr: K(NE/SW) Section: 23	Township: 28N Ran	nge: 10W County: San Juan
Center of Proposed Design: Latitude:	<b>36.64483</b> °N Longitu	tude: <b>107.86692</b> °W NAD: 1927 X 1983
Surface Owner: X Federal St.	ate Private Tribal Trus	st or Indian Allotment
Permanent Emergency Cavitation  X Lined Unlined Liner type:  X String-Reinforced  Liner Seams X Welded X Factory	P&A Thickness 20 mil X LL Other Volume	
Drying Pad Above Ground Steel Ta Lined Unlined Liner type.	new well	LDPE HDPE PVD Other
X   Below-grade tank:   Subsection I of 19.15.1	7.11 NMAC  /pe of fluid Produced Water  Metal	NOV 2009  OIL CONS. DIV. DIST. 3
Secondary containment with leak detection	X Visible sidewalls, liner, 6-inch lible sidewalls only Other	Inft and automatic overflow shut-off    State   State
Alternative Method:		
Submittal of an exception request is required. Exce	eptions must be submitted to the Santa F	Fe Environmental Bureau office for consideration of approval

Fencing: Subsection D of 19.15 17.11 NMAC (Applies to permanent pit, temporary pits, and below-grade tanks)								
Chain link, six feet in height, two strands of barbed wire at top (Required if located within 1000 feet of a permanent residence, school, hospital, institution or church)								
Four foot height, four strands of barbed wire evenly spaced between one and four feet								
X Alternate Please specify 4' hogwire fence with a single strand of barbed wire on top.								
Netting: Subsection E of 19 15.17.11 NMAC (Applies to permanent pits and permanent open top tanks)								
X Screen Netting Other								
Monthly inspections (If netting or screening is not physically feasible)								
8 Signs: Subsection C of 19.15.17 11 NMAC								
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								
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 cons (Fencing/BGT Liner)	deration of ap	proval.						
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  Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable	İ							
source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the	\ 							
appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau Office for consideration of approval. Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. Siting criteria								
does not apply to drying pads or above grade-tanks associated with a closed-loop system.								
Ground water is less than 50 feet below the bottom of the temporary pit, permanent pit, or below-grade tank.  - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	Yes	XNo						
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).	Yes	XNo						
- Topographic map; Visual inspection (certification) of the proposed site								
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.	Yes	XNo						
(Applies to temporary, emergency, or cavitation pits and below-grade tanks)	NA							
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	<u> </u>	,						
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.  (Applied to permanent pits)	Yes  X NA	□No						
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image								
Within 500 horizonal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application.	Yes	XNo						
- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site.								
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended	Yes	XNo						
- Written confirmation or verification from the municipality; Written approval obtained from the municipality  Within 500 feet of a wetland.	∏Yes	X No						
- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site								
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.	Yes	X No						
- Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	<del>_</del>	_						
Within a 100-year floodplain	Yes	XNo						

Temporary Pits, Emergency Pits and Below-grade Tanks Permit Application Attachment Checklist: Subsection B of 19 15 17.9 NMAC
Instructions. Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the 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
X   Hydrogeologic Data (Temporary and Emergency Pits) - based 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 appropriate requirements of 19 15.17.12 NMAC
[X] Closure Plan (Please complete Boxes 14 through 18, if applicable) - 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
Closed-loop Systems Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached Geologic and Hydrogeologic Data (only for on-site closure) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9
Siting Criteria Compliance Demonstrations (only for on-site closure) - based upon the appropriate requirements of 19.15.17.10 NMAC
Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
Operating and Maintenance Plan - based upon the appropriate requirements of 19.15 17.12 NMAC
Closure Plan (Please complete Boxes 14 through 18, if applicable) - 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
Previously Approved Operating and Maintenance Plan API
13
Permanent Pits Permit Application Checklist: Subsection B of 19 15 17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.
Hydrogeologic Report - based upon the requirements of Paragraph (I) of Subsection B of 19.15.17 9 NMAC
Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
Climatological Factors Assessment
Certified Engineering Design Plans - based upon the appropriate requirements of 19 15.17 11 NMAC
Dike Protection and Structural Integrity Design: based upon the appropriate requirements of 19.15.17 11 NMAC
Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17 11 NMAC
Quality Control/Quality Assurance Construction and Installation Plan
Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
Nuisance or Hazardous Odors, including H2S, Prevention Plan
Emergency Response Plan
Oil Field Waste Stream Characterization
Monitoring and Inspection Plan
Closure Plan - based upon the appropriate requirements of 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 boxes, Boxes 14 through 18, in regards to the proposed closure plan.
Type: X Drilling Workover Emergency Cavitation P&A Permanent Pit X Below-grade Tank Closed-loop System
Alternative   Proposed Closure Method:   X   Waste Excavation and Removal   (Below-Grade Tank)
Waste Removal (Closed-loop systems only)
X On-site Closure Method (only for temporary pits and closed-loop systems)
X In-place Burial On-site Trench
Alternative Closure Method (Exceptions must be submitted to the Santa Fe Environmental Bureau for consideration)
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.
Please indicate, by a check mark in the box, that the documents are attached.  [V] Protocols and Procedures - based upon the appropriate requirements of 19 15 17 13 NIMAC
X   Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC   X   Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
X   Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC   X   Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
X   Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
X Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
X   Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

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16								
Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Stee								
Instructions: Please identify the facility or facilities for the disposal of liquids, drilling are required.	lluids and drill cuttings. Use attachment if more than two fa	cellities						
Disposal Facility Name.	Disposal Facility Permit #							
Disposal Facility Name.	Disposal Facility Permit #							
Will any of the proposed closed-loop system operations and associated activities occur on or in areas that will not be used for future service and operations?								
Yes (If yes, please provide the information No	, see al. of or all aleas and the first see also for failure se	, was and operations						
Required for impacted areas which will not be used for future service and operations:  Soil Backfill and Cover Design Specification - based upon the appropria	te requirements of Subsection H of 10 15 17 13 NMAA							
Re-vegetation Plan - based upon the appropriate requirements of Subsec	•							
Site Reclamation Plan - based upon the appropriate requirements of Sub								
Siting Criteria (Regarding on-site closure methods only: 19.15.17.10 NMAC Instructions: Each siting criteria requires a demonstration of compliance in the closure plan Recetain siting criteria may require administrative approval from the appropriate district office of for consideration of approval. Instifications and/or demonstrations of equivalency are required.	ecommendations of acceptable source material are provided belower may be considered an exception which must be submitted to the							
		Yes X No						
Ground water is less than 50 feet below the bottom of the buried waste  - NM Office of the State Engineer - iWATERS database search; USGS Data obta	ined from nearby wells	□N/A						
TWO OTHER OF THE STATE OF THE S	med from hearty works							
Ground water is between 50 and 100 feet below the bottom of the buried waste		Yes X No						
- NM Office of the State Engineer - 1WATERS database search; USGS; Data obtai	ned from nearby wells	∐N/A						
Ground water is more than 100 feet below the bottom of the buried waste.		X Yes No						
- NM Office of the State Engineer - (WATERS database search, USGS, Data obtain	ned from nearby wells	□N/A						
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other signific (measured from the ordinary high-water mark).	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 $\varepsilon$	Yes X No							
- Visual inspection (certification) of the proposed site; Aerial photo; satellite image								
		Yes X No						
Within 500 horizontal feet of a private, domestic fresh water well or spring that less that purposes, or within 1000 horizontal fee of any other fresh water well or spring, in existence - NM Office of the State Engineer - iWATERS database; Visual inspection (certific	ence at the time of the initial application.							
Within incorporated municipal boundaries or within a defined municipal fresh water we pursuant to NMSA 1978, Section 3-27-3, as amended.	ell field covered under a municipal ordinance adopted	Yes X No						
- Written confirmation or verification from the municipality, Written approval obtain	ined from the municipality							
<ul> <li>Within 500 feet of a wetland</li> <li>US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspired</li> </ul>	oction (certification) of the proposed site	Yes X No						
Within the area overlying a subsurface mine.	cettori (certification) of the proposed site	Yes X No						
- Written confiramtion or verification or map from the NM EMNRD-Mining and M	Ineral Division	103 1110						
Within an unstable area.		Yes X No						
- Engineering measures incorporated into the design; NM Bureau of Geology & Mi	neral Resources; USGS; NM Geological Society;							
Topographic map								
Within a 100-year floodplam - FEMA map		Yes XNo						
18								
On-Site Closure Plan Checklist: (19.15.17.13 NMAC) Instructions: Each by a check mark in the box, that the documents are attached.	of the following items must bee attached to the closur	e plan. Please indicate,						
X Siting Criteria Compliance Demonstrations - based upon the appropriate	requirements of 19 15 17.10 NMAC							
X Proof of Surface Owner Notice - based upon the appropriate requirement	-							
Construction/Design Plan of Burial Trench (if applicable) based upon the								
Construction/Design Plan of Temporary Pit (for in place burial of a dryin		9.15 17.11 NMAC						
X Protocols and Procedures - based upon the appropriate requirements of its								
Confirmation Sampling Plan (if applicable) - based upon the appropriate								
X Waste Material Sampling Plan - based upon the appropriate requirement	-							
X Disposal Facility Name and Permit Number (for liquids, drilling fluids a		nnot be achieved)						
X   Soil Cover Design - based upon the appropriate requirements of Subsect								
X Re-vegetation Plan - based upon the appropriate requirements of Subsection								
X   Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC								

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Name (Print):	Dollne L Busse	Title	Staff Regulatory Technician
Signature	Allie	Date Date	11-12-09
e-mail address:	dallie I busse@conocophillips.com	Telephone	505-324-6104
OCD Representative	Permit Application (including closure plan) [ Signature: 32   5   5   5   6   6   6   6   6   6   6		Approval Date:
itle:	1VID / SPEC	OCD Per	rmit Number:
nstructions: Operators a report is required to be si		or to implementing any clo letion of the closure activit en completed.	AC usure activities and submitting the closure report—The closure uses—Please do not complete this section of the form until an ure Completion Date:
2			
Closure Method:  Waste Excavation  If different from a	n and Removal On-site Closure Method approved plan, please explain.	Alternative Closus	re Method Waste Removal (Closed-loop systems only)
astructions: Please iden ere utilized. Disposal Facility Nam Disposal Facility Nam	е	drilling fluids and drill cu Dısposal Facili Dısposal Facıli	ttings were disposed. Use attachment if more than two facilities  ity Permit Number  ity Permit Number.
	e demonstrate complilane to the items below)	No	
Site Reclamation Soil Backfilling a	l areas which will not be used for future service an (Photo Documentation) ind Cover Installation iplication Rates and Seeding Technique	d operations:	
24			
the box, that the docu	ments are attached.	following items must be a	ttached to the closure report. Please indicate, by a check mark in
<u></u>	e Notice (surface owner and division)  Notice (required for on-site closure)		
=	n-site closures and temporary pits)		
Confirmation Sa	ampling Analytical Results (if applicable)		
Waste Material	Sampling Analytical Results (if applicable)		
<b>=</b> '	y Name and Permit Number		
= *	and Cover Installation  pplication Rates and Seeding Technique		
	n (Photo Documentation)		
On-site Closure	· ·	Longitude:	NAD 1927 1983
		Ţ	
	nformation and attachments submitted with this clo	•	te and complete to the best of my knowledge and belief. I also certify that
he closure complies with Name (Print):	all applicable closure requirements and condition	is specified in the approved Title:	и сномите риап.
		,	
Signature:		Date:	
e-mail address:		Telephone:	



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

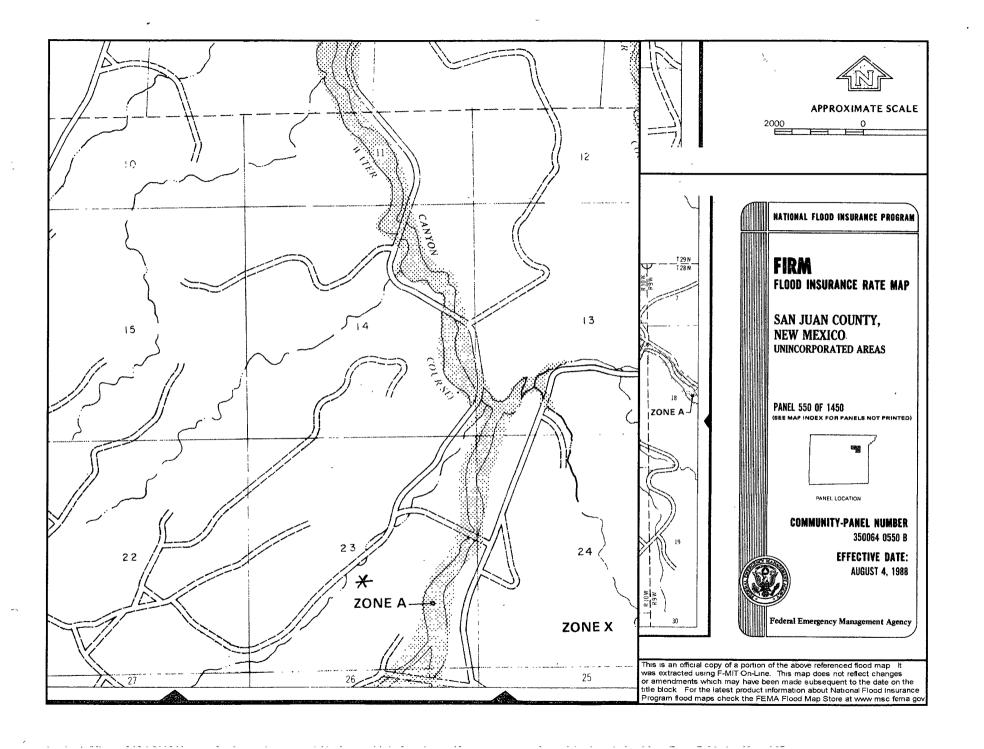
No records found.

PLSS Search:

Section(s): 13, 14, 15, 22, Township: 28N Range: 10W

23, 24, 25, 26,

27



# DATA SHEET FOR DEEP GROUND BED CATHODIC PROTECTION WELLS NORTHWESTERN NEW MEXICO

Operator Meridian Oil Co. Location: Unit M Sec. 23 Twp 28 Rng 10
Name of Well/Wells or Pipeline Serviced 30-045-07272, 30-045-/3069,
Mc CLANAHAN RM, RM2, + RM3 30-045-24757
Elevation 58// Completion Date 3-53-93Total Depth 4/3 Land Type F
Casing Strings, Sizes, Types & Depths 2/18 507 99 of 8" PVC CASING.
NO GAS WATER OF Boulders Were ENCOUNTERED DUTING CASING
If Casing Strings are cemented, show amounts & types used Comented
WITH 21 SACKS
If Cement or Bentonite Plugs have been placed, show depths & amounts used
None
Depths & thickness of water zones with description of water: Fresh, Clear,
Salty, Sulphur, Etc. 155' and was clear.
Depths gas encountered: No 9 - 5
Ground bed depth with type & amount of coke breeze used: 413 with
20 (100/5) sacks Lonesco S.W. and 80 (50/6) Asbury.
Depths anodes placed: 4/at 390' and 4/5 at 175'
Depths vent pipes placed: Bottom to surface 10 E 18 E 19
Vent pipe perforations: 00 40 150
JAN 31 1994 Remarks:
OIL CON. DIV.

If any of the above data is unavailable, please indicate so. Copies of all logs, including Drillers Log, Water Analyses & Well Bore Schematics should be submitted when available. Unplugged abandoned wells are to be included.

Land Type may be shown: F-Federal; I-Indian; S-State; P-Fee. If Federal or Indian, add Lease Number.

# UNITED STATES

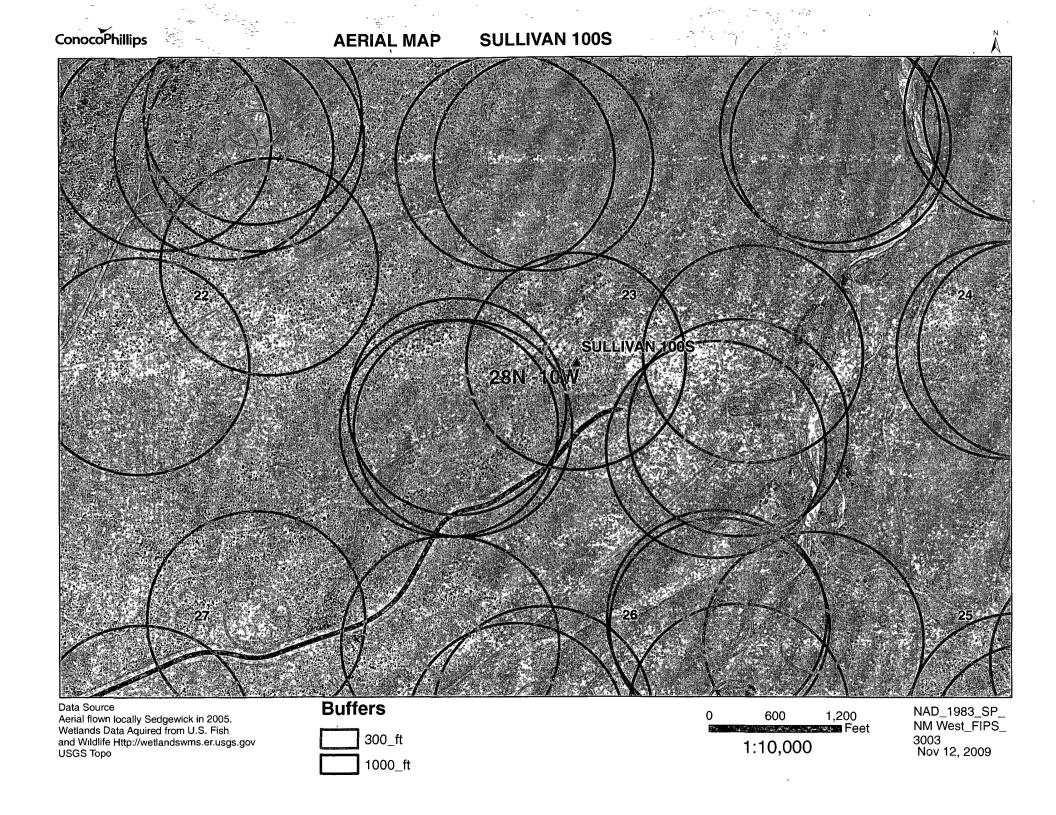
SUBMIT IN DUPLICATE\*

Form approved. Budget Bureau No. 42-R355.5.

FARMINGTON DISTRICT

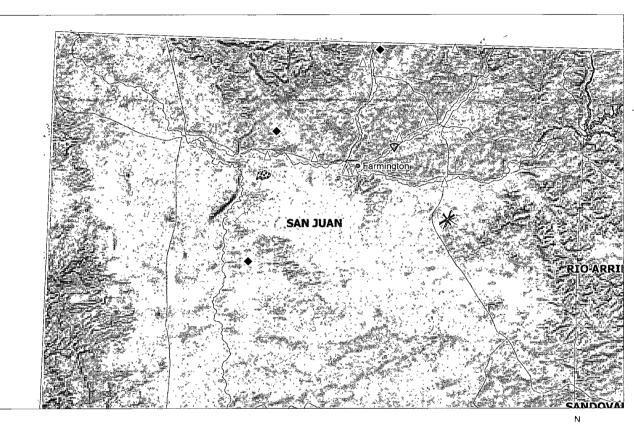
	DEPA		LIN I C LOGIC			, I ERIOI	R	struct revers			DESIGN	ATION AND SERIAL NO.
				AL 30	TVLI	·					7963	4 A LOTTEE OR TRIBE NAME
WELL CO	<b>OMPLETIO</b>	N OR	RECO	MPLET	ION I	REPORT	AND	LOC	<b>;</b> *	0. 15 1801	IN, ALI	COTTEE OR TRIBE NAME
1a. TYPE OF WE	LL:	WELL	GAS WELL	<b>X</b> D	RY 🗌	Other				7. UNIT AC	REEME	NT NAME
b. TYPE OF CO						•						
WELL X	OVER L	EN DEED.	BACK [	DIF	vR.	Other				S. FARM O	R LEAS	E NAME
2. NAME OF OPERA									_	McCl		an "A"
Supron En	ergy Corp	oratio	on							9. WELL N	U.	
P.O. Box		ni nator	n New	Merico	8740	11		TO D	)	\l	AND PO	OL, OR WILDCAT
4. LOCATION OF W	ELL (Report loc	ation clea	rly and in	accordance	with an	u State requi	semente)	*		Wild	cat	Chacra
At surface 9	90 Ft./So	uth;	1120 Ft	./West	lipe	REL	للمستثن تحجب	ارين ـ		1. SEC., T.		OH BLOCK AND SURVEY
At top prod. in	terval reported	below	Same	as abo	ve \	1,00	ne 1	(		의 시		T-28N, R-10W
At total depth	Same as	above			•	<i>f</i> /	10.10	S. 30	,	N.M.		1-20N, K-10W
•	5446 45	42010		14. PE	BMIT NO.	<del>\</del>	DAGE IS	SUED		12. COUNTY	OR	13. STATE
						/ 6.1	FARM	-		San Ju	an	New Mexic
15. DATE SPUDDED	16. DATE T.D	REACHE			Ready to	prod 18				B, RT, GR, ETC.)*	19.	ELEV. CASINGHEAD
3/12/81	3/16/8		_,	14/81				25 R.K				5814
20. TOTAL DEPTH, MD	i '		T.D., MD A	1 -	HOW M	TIPLE COMPL.	.   1	23. INTER DRILL		Y	_	CABLE TOOLS
3080 MD & T	,				NAME ()	ID AND TVD)*			<u> </u>	10 - 308		25. WAS DIRECTIONAL
						<b>-</b> ,						SURVEY MADE
2850 - 296	3 Chacra	(MD &	TVD)									No
6. TYPE ELECTRIC				• -				,			27.	WAS WELL CORED
Induction	Electric	and C				·				<del>,</del>		271175
CABING SIZE	WEIGHT, L	n/FT i				ort all strings LE SIZE	set in u		KTIN	NG RECORD	10	
7-5/8"	29.70					7/8" 125 Sacks					PULLED	
2-7/8" E.U.					5/8"				P	PR24 1981		
							-				1 OI	COM COM.
				ļ			<u> </u>				7	Turi.3
9.			ER RECORD			30.				TUBING REC		
SIZE	TOP (MD)	BOTTO	M (MD)	SACKS CEMENT*		SCREEN (MD)		SIZE	_	DEPTH SET (MD)		PACKER SET (MD)
		-						NO	TU	BING		
1. PERFORATION RE	CORD (Interval,	size and	number)		<u> </u>	32.	ACID,	SHOT,	TRA	CTURE, CEMEN	T SQT	JEEZE, ETC.
- 0.42" hol	e at each	of th	e foll	owing		DEPTH INT	ERVAL (			AMOUNT AND KI		
pths: 2850						2850 -	2963					HCL, 60,000 1
55, 58, 62,	63. (To	tal of	11 ho	les)							1, a	nd 45,000 gal
						ļ			U-	30 foam.		
3.•					PRGD	UCTION				· · · · · · · · · · · · · · · · · · ·	······································	
ATE PIRST PRODUCT	TION PRO	DUCTION	METHOD (F	lowing, ga		mping-size	and type	of pump	)		STATU	s (Producing or
			Flowi							870		ut-In
ATE OF TEST	HOURS TESTE	1	OKE SIZE	PROD'N TEST P	FOR	OIL-BBL.	- G	AS-MCF		WATER BB	L.	GAS-OIL BATIO
4/14/81 LOW, TUBING PRESS.	CASING PRESS		LCULATED	OIL—B	→ RI.	GAS	M CIF.	233	Ame	R—BBL.	1 077 (	GRAVITY-API (CORB.)
	143	24	HOUR RATI	, I	· · · ·	186	_	, "	A EE	a TDDL.	J OIL G	MATILITAFI (CURB.)
4. DISPOSITION OF G	<u> </u>	or fuel, ve	ented, etc.)			1 - 3				TEST WITNE	SSED E	Y Y
Vented		_								David	Roa	rk ren ena aze <b>nan</b>
5. LIST OF ATTACH	MENTS							·		illo	ודופי	<del>reu run Nebuk</del> u
R I hereby contide	that the force	olng and	ettoobod !-	formetter	In acres	ata and are:		4 a t		= 111 222025		
6. I hereby certify	LI -	allu k	reached in	rotmation	ra combi	ere and corre		rermine <b>d</b>	iroi	m an avallable	A L	R 2 2 1981
SIGNED KED	nnell E	oddy oddy	exy	_ TIT	LE P	roductio	n Sup	erint	en	dent DAT	£	ril 15, 1981
T/CII			/								- URW	MARCON FISTINGLE

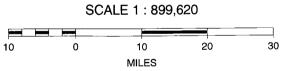
\*(See Instructions and Spaces for Additional Data on Reverse Side)



# SULLIVAN 100S MINES, MILLS & QUARRIES WEB MAP

Mines, Mills	s & Quarries Commodity Groups
Δ	Aggregate & Stone Mines
•	Coal Mines
<b>*</b>	Industrial Minerals Mines
♥ ,	Industrial Minerals Mills
	Metal Mines and Mill Concentrate
E	Potash Mines & Refineries
esi.	Smelters & Refinery Ops.
*	Uranium Mines
<b>⊕</b>	Uranium Mills
Population	
<b>©</b>	Cities - major
Transporta	tion
+-,-+	Railways
	Interstate Highways
	— Major Roads







### Siting Criteria Compliance Demonstration & Hydro Geologic Analysis

The Sullivan 100S is not located in an unstable area. The location is not over a mine and is not on the side of a hill as indicated on the Mines, Mills and Quarries Map and Topographic Map. The location of the excavated pit material will not be located within 300' of any continuously flowing watercourse or 200' from any other watercourse as indicated on the Topographic Map. The location is not within a 100-year floodplain area as indicated on the FEMA Map. The Cathodic well data from the McClanahan A 3 has an elevation of 5811'and groundwater depth of 155'. The subject well has an elevation of 5789' which is 22' lesser than the McClanahan A 3, therefore the groundwater depth is greater than 121'. There are no iWATERS data points located in the area as indicated on the TOPO Map. The hydro geologic analysis indicates the groundwater depth and the Nacimiento formation will create a stable area for this new location.

# Hydrogeological Report for Sullivan 100S

### **Regional Geological context:**

The Nacimiento Formation is of Paleocene age (Baltz, 1967, p. 35). It crops out in a broad band inside the southern and western margins of the central basin and in a narrow band along the west face of the Nacimiento Uplift. The Nacimiento is a nonresistant unit and typically erodes to low, rounded hills or forms badland topography.

The Nacimiento Formation occurs in approximately only the southern two-thirds of the San Juan Basin where it commformably overlies and intertongues with the Ojo Alamo Sandstone (Fassett, 1974, p. 229). The Nacimiento Formation grades laterally into the main part of the Animas Formation (Fassett and Hinds, 1971, p. 34); thus, in this area, the two formations occupy the same stratigraphic interval.

Strata of the Nacimiento Formation were deposited in lakebeds in the central basin area with lesser deposition in stream channels (Brimhall, 1973, p. 201). In general, the Nacimiento consists of drab, interbedded black and gray shale with discontinuous, white, medium- to very coarse grained arkosic sandstone (Stone e al., 1983, p.30). Stone et al. indicated that the formation may contain more sandstone than commonly reported because some investigators assume the slope-forming strata in the unit area shales, whereas in many places the strata actually are poorly consolidated sandstones. Total thickness of the Nacimiento Formation ranges from about 500 to 1,300 feet. The unit generally thickens from the basin margins toward the basin center (Steven et al., 1974). The sandstone deposits within the Nacimiento Formation are much thinner than the total thickness of the formation because their environment of deposition was localized stream channels (Brimhall, 1973, p. 201). The thickness of the combined San Jose, Animas, and Nacimiento Formations ranges from 500 to more than 3.500 feet.

## **Hydraulic Properties:**

Reported well yields for 53 wells completed in either the Animas or Nacimiento Formations range from 2 to 90 gallons per minute and the median yield is 7.5 gallons per minute. The primary use of water from Nacimiento and Animas Formations is domestic and livestock supplies. There are no known aquifer tests for the Animas or Nacimiento Formations, but specific capacities reported for six wells range from 0.24 to 2.30 gallons per minute per foot of drawdown (Levings et al., 1990).

The Animas and Nacimiento Formations are in many ways hydrologically similar to the San Jose Formation because sands in both units produce approximately the same quantities of water. However, the greater percentage of fine materials in the Animas and Nacimiento Formations may restrict downward vertical leakage to the Ojo Alamo Sandstone or Kirtland Shale. The poorly cemented fine material is highly erodible, forms a badland terrain, and supports only spotty vegetation. These conditions are more conductive to runoff than retention of precipitation.

### **References:**

Baltz, E.H., 1967, Stratigraphy and regional tectonic implications of part of Upper Cretaceous rocks, east-central San Juan Basin, New Mexico: USGS Professional Paper

552, 101 p.

Brimhall, R.M., 1973, Ground-water hydrology of Tertiary rocks of the San Juan Basin, New Mexico, in Fassett, J.E., ed., Cretaceous and Tertiary rocks of the Southern Colorado Plateau: Four Corners Geological Society Memoir, p. 197-207.

Fassett, J.E., 1974, Cretaceous and Tertiary rocks of the eastern San Juan Basin, New Mexico and Colorado, in Guidebook of Ghost Ranch, central-northern New Mexico: New Mexico Geological Society, 25th Field Conference, p. 225-230.

Fassett, J.E., and Hinds, J.S., 1971, Geology and fuel resources of the Fruitland Formation and Kirtland Shale of the San Juan Basin, New Mexico and Colorado: USGS Professional Paper 676, 76 p.

Levings, G.W., Craigg, S.d., Dam, W.L., Kernodle, J.M., and Thorn, C.R., 1990, Hydrogeology of the San Jose, Nacimiento, and Animas Formations in the San Juan structural basin, New Mexico, Colorado, Arizona, and Utah: USGS Hydrologic Investigations Atlas HA-720-A, 2 sheets.

Stone, W.J., Lyford, F.P., Frenzel, P.F., Mizell, N.H., and Padgett, E.T., 1983, Hydrogeology and water resources of San Juan Basin, New Mexico: New Mexico Bureau of Mines and Mineral Resources, Hydrologic Report 6.

# Busse, Dollie L

From:

Busse, Dollie L

Sent:

Thursday, November 12, 2009 11:54 AM

To:

Mark\_Kelly@blm.gov

Cc:

Tafoya, Crystal; Sessions, Tamra D

Subject:

Surface Owner Notification

The following location will have a temporary pit closed on-site. Please let me know if you have any questions.

Sullivan 100S

Thank you,

## Dollie L. Busse

ConocoPhillips Company-SJBU
Regulatory
Staff Regulatory Tech
505-324-6104
505-599-4062 (fax)
Dollie.L.Busse@conocophillips.com

<sup>&</sup>quot;Before someone's tomorrow has been taken away, cherish those you leve, appreciate them today."

·DISTRICT I 1625 N. French Dr., Hobbs, N.M. 88240 State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102 Revised October 12, 2005

DISTRICT II 1301 W. Grand Avenue, Artesia, N.M. 88210

DISTRICT III 1000 Rio Brazos Rd., Aztec, N.M. 87410

Κ

OIL CONSERVATION DIVISION 1220 South St. Francis Dr. Santa Fe, NM 87505 Submit to Appropriate District Office State Lease - 4 Copies Fee Lease - 3 Copies

WEST

2073'

☐ AMENDED REPORT

SAN JUAN

DISTRICT IV 1220 S. St. Francis Dr., Santa Fe, NM 87505

23

28N

10W

### WELL LOCATION AND ACREAGE DEDICATION PLAT

¹API 1	Number			Pool Code			Pool Nam BASIN FRUIT	TLAND COAL	
Property Co	de			The second secon	<sup>8</sup> Property SULLIV				Well Number
*OGRID No.			BUI	RLINGTON	*Operator RESOURCES O	Name	ANY LP		* Elevation 5789
					10 Surface	Location			
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

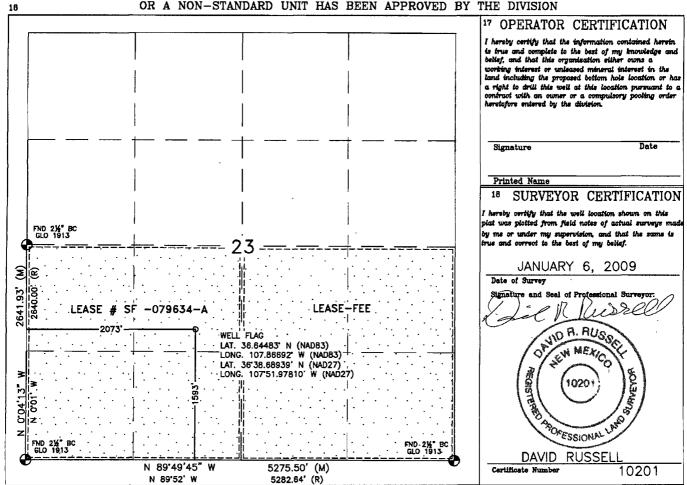
<sup>11</sup> Bottom Hole Location If Different From Surface

SOUTH

1593"

UL or lot no. Se	ction Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres 320.0 Acres	Bedicated Acres 320.0 Acres - (S/2)		<sup>19</sup> Joint or Infill <sup>14</sup> Consolidation Co		cde	<sup>16</sup> Order No.		

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



### WELL FLAG

LATITUDE: 36.64483°N LONGITUDE: 107.86692°W

#### **CENTER OF PIT**

LATITUDE: 36.64495° N LONGITUDE: 107.86716° W

ELEVATION: 5778' DATUM: NAD83 & NAVD88

### **BURLINGTON RESOURCES OIL & GAS COMPANY LP**

SULLIVAN #100 S

1593' FSL & 2073' FWL

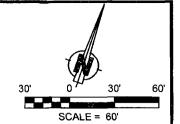
LOCATED IN THE NE/4 SW/4 OF SECTION 23,

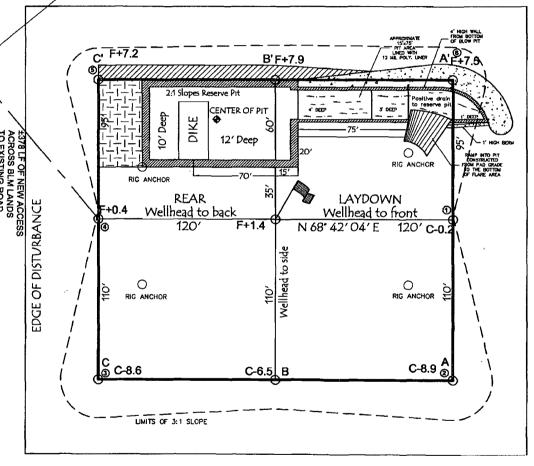
T28N, R10W, N.M.P.M.,

SAN JUAN COUNTY, NEW MEXICO

GROUND ELEVATION: 5789', NAVD 88

FINISHED PAD ELEVATION: 5790.0', NAVD 88





SLOPES TO BE CONSTRUCTED TO MATCH THE ORIGINAL CONTOURS AS CLOSE AS POSSIBLE.

320' x 390' =2.87 ACRES OF DISTURBANCE

SCALE: 1" = 60'

JOB No.: COPC248\_REV1

DATE: 01/08/09

NOTE:
RUSSELL SURVEYING, INC. IS NOT LIABLE FOR UNDERGROUND UTILITIES OR PIPELINES.
CONTRACTOR SHOULD CALL ONE-CALL FOR LOCATION OF ANY MARKED OR UNMARKED, BURIED PIPELINES OR
CABLES ON WELL PAD, IN CONSTRUCTION ZONE AND/OR ACCESS ROAD AT LEAST TWO (2) WORKING DAYS PRIOR
TO CONSTRUCTION.



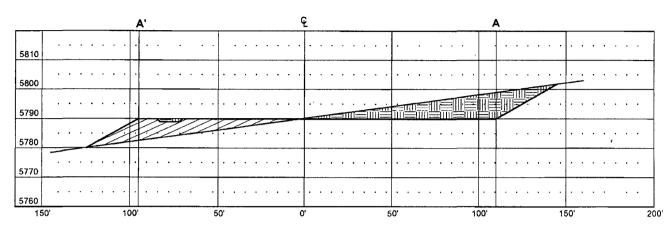
Russell Surveying 1409 W. Aztec Blvd. #2 Aztec, New Mexico 87410 (505) 334-8637 LATITUDE: 36.64483°N LONGITUDE: 107.86692°W DATUM. NAD 83

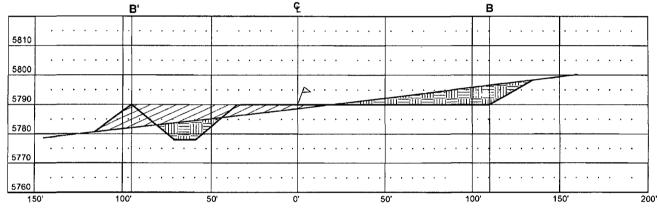
### **BURLINGTON RESOURCES OIL & GAS COMPANY LP**

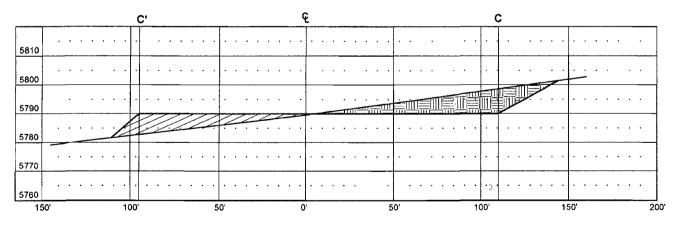
SULLIVAN #100 S 1593' FSL & 2073' FWL

LOCATED IN THE NE/4 SW/4 OF SECTION 23, T28N, R10W, N.M.P.M.,

SAN JUAN COUNTY, NEW MEXICO GROUND ELEVATION: 5789', NAVD 88 FINISHED PAD ELEVATION: 5790.0', NAVD 88







THIS DIAGRAM IS AN ESTIMATE OF DIRT BALANCE AND IS NOT INTENDED TO BE AN EXACT MEASURE OF VOLUME

VERT. SCALE: 1" = 30' HORZ. SCALE: 1" = 50' JOB No.: COPC248\_REV1 DATE: 01/08/09

FILL

 $R \searrow 5$ 

Russell Surveying 1409 W. Aztec Blvd. #2 Aztec, New Mexico 87410 (505) 334-8637

# Burlington Resources Oil & Gas Company, LP San Juan Basin Pit Design and Construction Plan

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

- 1. BR will design and construct a properly sized and approved temporary pit which will contain liquids and solids and should prevent contamination of fresh water and protect public health and environment.
- 2. Prior to constructing the pit, topsoil will be stockpiled in the construction zone for later use in restoration.
- 3. BR will sign the well location in compliance with 19.15.3.103 NMAC.
- 4. BR shall construct all new fences around the temporary pit utilizing 48" steel mesh field-fence (hogwire) on the bottom with a single strand of barbed wire on top. T-posts shall be installed every 12 feet and corners shall be anchored utilizing a secondary T-post. Temporary pits will be fenced at all times excluding drilling or workover operations, when the front side of the fence will be temporarily removed for operational purposes.
- 5. BR shall construct the temporary pit so that the foundation and interior slopes are firm and free of rocks, debris, sharp edges or irregularities to prevent liner failure.
- 6. BR shall construct the pit so that the slopes are no steeper than two horizontal feet to one vertical foot.
- 7. Pit walls will be walked down by a crawler type tractor following construction.
- 8. All temporary pits will be lined with a 20-mil, string reinforced, LLDPE liner, complying with EPA SW-846 method 9090A requirements.
- Geotextile will be installed beneath the liner when rocks, debris, sharp edges or irregularities cannot be avoided.
- 10. All liners will be anchored in the bottom of a compacted earth-filled trench at least 18 inches deep.
- 11. BR will minimize liner seams and orient them up and down, not across a slope. Factory seams will be used whenever possible. BR will ensure all field seams are welded by qualified personnel. Field seams will be overlapped four to six inches and will be oriented parallel to the line of maximum slope. BR will minimize the number of field seams in corners and irregularly shaped areas.
- 12. The liner shall be protected from any fluid force or mechanical damage through the use of mud pit slides, or a manifold system.
- 13. The pit shall be protected from run-off by constructing and maintaining diversion ditches around the location or around the perimeter of the pit in some cases.
- 14. The volume of the pit shall not exceed 10 acre-feet, including freeboard.
- 15. Temporary blow pits will be constructed to allow gravity flow to discharge into lined drill pit.
- 16. The lower half of the blow pit (nearest lined pit) will be lined with a 20-mil, string reinforced, LLDPE liner. The upper half of the blow pit will remain unlined as allowed in Rule 19.15.17.11 F.11.
- 17. BR will not allow freestanding liquids to remain on the unlined portion of a temporary blow pit.

# Burlington Resources Oil & Gas Company, LP San Juan Basin Maintenance and Operating Plan

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

- BR will operate and maintain a temporary pit to contain liquids and solids and maintain the integrity of the liner and liner system to prevent contamination of fresh water and protect public health and environment.
- 2. BR will conserve drilling fluids by transferring liquids to pits ahead of the rigs whenever possible. All other drilling fluids will be disposed at Basin Disposal Inc., permit # NM-01-005.
- 3. BR will not discharge or store any hazardous waste in any temporary pit.
- 4. If any pit liner's integrity is compromised, or if any penetration of the liner occurs above the liquid's surface, then BR shall notify the Aztec Division office by phone or email within 48 hours of the discovery and repair the damage or replace the liner.
- 5. If a leak develops below the liquid's level, BR shall remove all liquids above the damaged liner within 48 hours and repair the damage or replace the liner. BR shall notify the Aztec Division office by phone or email within 48 hours of the discovery for leaks less than 25 barrels. BR shall notify the Aztec Division office 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.
- 6. The liner shall be protected from any fluid force or mechanical damage through the use of mud pit slides, or a manifold system.
- 7. The pit shall be protected from run-off by constructing and maintaining diversion ditches around the location or around the perimeter of the pit in some cases.
- 8. BR shall immediately remove any visible layer of oil from the surface of the temporary pit after cessation of a drilling or workover operation. Oil absorbent booms will be utilized to contain and remove oil from the pit's surface. An oil absorbent boom will stored on-site until closure of pit.
- 9. Only fluids generated during the drilling or workover process may be discharged into a temporary pit.
- 10. BR will maintain the temporary pit free of miscellaneous solid waste or debris.
- 11. During drilling operations, BR will inspect the temporary pit at least once daily to ensure compliance with this plan. Inspections will be logged in the IADC reports. BR will file this log with the Aztec Division office upon closure of the pit.
- 12. After drilling operations, BR will inspect the temporary pit weekly so long as liquids remain in the temporary pit. A log of the inspections will be stored at BR's office electronically and will be filed with the Aztec Division office upon closure of the pit.
- 13. BR shall maintain at least two feet of freeboard for a temporary pit.
- 14. BR shall remove all free liquids from a temporary pit within 30 days from the date the operator releases the drilling rig.
- 15. BR shall remove all free liquids from a cavitation pit within 48 hours after completing cavitation. BR may request additional time to remove liquids from the Aztec Division office if it is not feasible to remove liquids within 48 hours.

# Burlington Resources Oil & Gas Company, LP San Juan Basin Closure Plan

In accordance with Rule 19.15.17.12 NMAC the following information describes the closure requirements of temporary pits on Burlington Resources Oil & Gas Company, LP (BR) locations. This is BR's standard procedure for all temporary pits. A separate plan will be submitted for any temporary pit which does not conform to this plan.

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 pit closure. Closure report will be filed on C-144 and incorporate the following:

- Details on Capping and Covering, where applicable.
- Plot Plan (Pit Diagram)
- Inspection Reports
- Sampling Results
- C-105
- Copy of Deed Notice will be filed with County Clerk

- All free standing liquids will be removed at the start of the pit closure process from the pit and disposed of in a division—approved facility or recycle, reuse or reclaim the liquids in a manner that the appropriate division district office approves. The facilities to be used will be Basin Disposal (Permit #NM-01-005) and Envirotech Land Farm (Permit #NM-01-011).
- 2. The preferred method of closure for all temporary pits will be on-site burial, assuming that all the criteria listed in sub-section (B) of 19.15.17.13 are met.
- 3. The surface owner shall be notified of BR's closing of the temporary pit prior to closure as per the approved closure plan via certified mail, return receipt requested.
- 4. Within 6 months of the Rig Off status occurring BR will ensure that temporary pits are closed, re-contoured, and reseeded.
- 5. 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
  - Location by Unit Letter, Section, Township, and Range. Well name and API number.
- 6. Liner of temporary pit shall be removed above "mud level" after stabilization. Removal of liner will consist of manually or mechanically cutting liner at mud level and removing all remaining liner. Care will be taken to remove "All" of the liner i.e., edges of liner entrenched or buried. All excessive liner will be disposed of at the San Juan County Landfill located on CR 3100.
- 7. Pit contents shall be mixed with non-waste containing, earthen material in order to achieve the solidification process. The solidification process will be accomplished using a combination of natural drying and mechanically mixing. Pit contents will be mixed with non-waste, earthen material to a consistency that is deemed a safe and stable. The mixing ratio shall not exceed 3 parts clean soil to 1 part pit contents.
- 8. A five point composite sample will be taken of the pit using sampling tools and all samples tested per Subsection B of 19.15.17.13(B)(1)(b). In the event that the criteria are not met, all contents will be handled per Subparagraph (a) of Paragraph (1) of Subsection B of 19.15.17.13 i.e., Dig and haul.

Components	Tests Method	Limit (mg/Kg)
Benzene	EPA SW-846 8021B or 8260B	0.2
BTEX	EPA SW-846 8021B or 8260B	50
TPH	EPA SW-846 418.1	2500
GRO/DRO	EPA SW-846 8015M	_500
Chlorides	EPA 300.1	(1000)500

9. A five point composite sample will be taken from the cavitation pit pursuant to 19.15.17.13(B)(1)(b)(i) in order to assure there has not been any type of release.

Components	Tests Method	Limit (mg/Kg)		
Benzene	EPA SW-846 8021B or 8260B	0.2		
BTEX	EPA SW-846 8021B or 8260B	50		
TPH	EPA SW-846 418.1	2500		
GRO/DRO	EPA SW-846 8015M	500		
Chlorides	EPA 300.1	500		

- 10. Upon completion of solidification and testing standards being passed, the pit area will be backfilled with compacted, non-waste containing, earthen material. 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. If standard testing fails BR will dig and haul all contents pursuant to 19.15.17.13.i.a. After doing such, confirmation sampling will be conducted to ensure a release has not occurred.
- 11. During the stabilization process if the liner is ripped by equipment the Aztec OCD office will be notified within 48 hours and the liner will be repaired if possible. If the liner can not be repaired then all contents will be excavated and removed.
- Dig and Haul Material will be transported to the Envirotech Land Farm located 16 miles south of Bloomfield on Angel Peak Road, CR 7175. Permit # NM010011
- 13. 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.
- 14. Notification will be sent to OCD when the reclaimed area is seeded.
- 15. 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 or Forest Service stipulated seed mixes will used on federal 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. Repeat seeding or planting will be continued until successful vegetative growth occurs.

Туре	Variety or Cultivator	PLS/A		
Western wheatgrass	Arriba	3.0		
Indian ricegrass	Paloma or Rimrock	3.0		
Slender wheatgrass	San Luis	2.0		
Crested wheatgrass	Hy-crest	3.0		
Bottlebrush Squirreltail	Unknown	2.0		
Four-wing Saltbrush	Delar	.25		

Species shall be planted in pounds of pure live seed per acre: Present Pure Live Seed (PLS) = Purity X Germination/100 Two lots of seed can be compared on the basis of PLS as follows:

Source No. One (poor quality)

Purity

50 percent

Germination

40 percent

Percent PLS

20 percent

Source No. two (better quality)

Purity

80 percent

Germination

63 percent

Percent PLS

50 percent

5 lb. bulk seed required to make 2 lb. bulk seed required to make

1 lb. PLS 1 lb. PLS

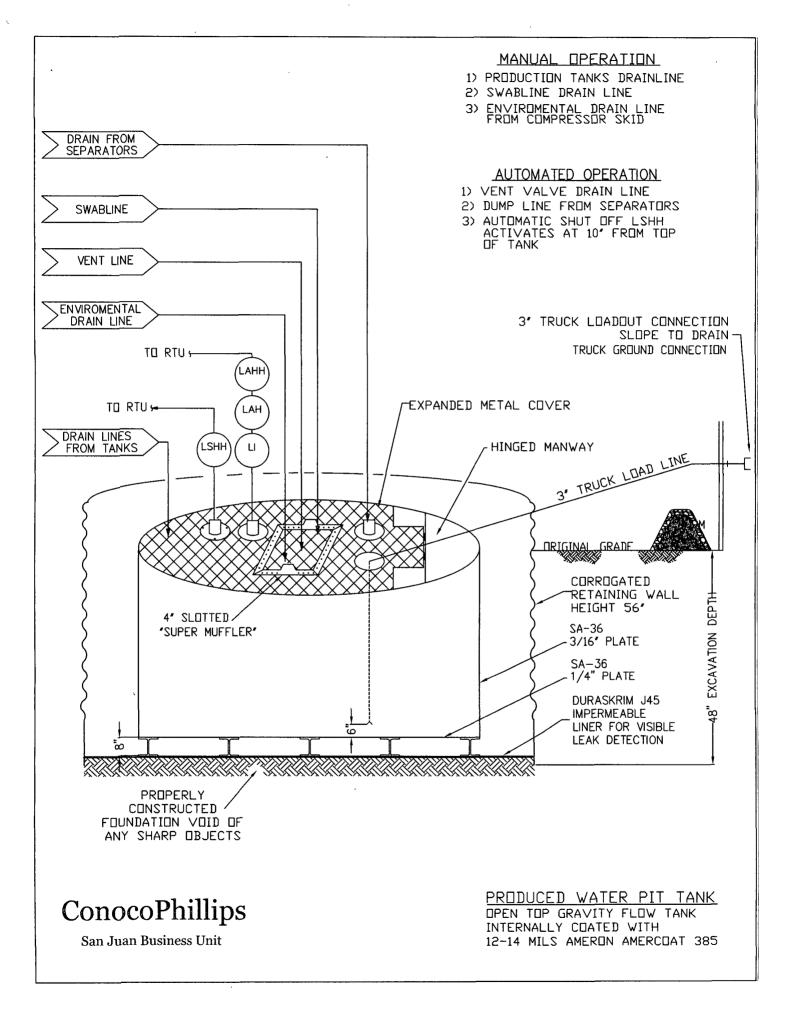
16. The temporary pit will be located with a steel marker, no less than four inches in diameter, cemented in a hole three feet deep in the center of the onsite burial upon the abandonment of all the wells on the pad. The marker will be flush with the ground to allow access of the active well pad and for safety concerns. The marker will include a threaded collar to be used for future abandonment. The top of the marker will contain a welded steel 12" square plate that indicates the onsite burial of the temporary pit. The plate will be easily removable and a four foot tall riser will be threaded into the top of the collar marker and welded around the base with the operator's information at the time of all wells on the pad are abandoned. The operator's information will include the following: Operator Name, Lease Name, Well Name and number, Unit Number, Section, Township, Range and an indicator that the marker is an onsite burial location.

### 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.

- 1. BR will design and construct a properly sized and approved BGT which will contain liquids and should prevent contamination of fresh water to protect the public health and environment.
- 2. BR signage will comply with 19.15.3.103 NMAC when BR is the operator. If BR is not the operator it will comply with 19.15.17.11NMAC. BR includes Emergency Contact information on all signage.
- 3. BR has approval to use alternative fencing that provides better protection. BR constructs fencing around the BGT using 4 foot hog wire fencing topped with two strands of barbed wire, or with a pipe top rail. A six foot chain link fence topped with three strands of barbed wire will be use if the well location is within 1000 feet of permanent residence, school, hospital, institution or church. BR ensures that all gates associated with the fence are closed and locked when responsible personnel are not onsite.
- 4. BR will construct a screened, expanded metal covering, on the top of the BGT.
- 5. BR shall ensure that a below-grade tank is constructed of materials resistant to the below-grade tank's particular contents and resistant to damage from sunlight as shown on design drawing and specification sheet.
- 6. The BR below-grade tank system shall have a properly constructed foundation consisting of a level base free of rocks, debris, sharp edges or irregularities to prevent punctures, cracks or indentations of the liner or tank bottom as shown on design drawing.
- 7. BR shall operate and install the below-grade tank to prevent the collection of surface water run-on. BR has built in shut off devices that do not allow a 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.



# DURA-SKRIM®

# J30, J36 & J45

PROPERTIES	TEST METHOD	J30BB		J36BB		J45BB		
		Min. Roll Averages	Typical Roll Averages	Min. Roll Averages	Typical Roll Averages	Min. Roll Averages	Typical Roll Averages	
Appearance		Black/Black		Black/Black		Black/Black		
Thickness	ASTM D 5199	27 mil	30 mil	32 mil	36 mil	40 mil	45 mil	
Weight Lbs Per MSF (oz/yd²)	ASTM D 5261	126 lbs (18.14)	140 lbs (20.16)	151 lbs (21.74)	168 lbs (24.19)	189 lbs (27.21)	210 lbs (30.24)	
Construction		**Extrusion laminated with encapsulated tri-directional scrim reinforcement						
Ply Adhesion	ASTM D 413	16 lbs	20 lbs	19 lbs	24 lbs	.25 lbs	31 lbs	
1." Tensile Strength	ASTM D 7003	88 lbf MD 63 lbf DD	110 lbf MD 79 lbf DD	90 lbf MD 70 lbf DD	113 lbf MD 87 lbf DD	110 lbf MD 84 lbf DD	138 lbf MD 105 lbf DD	
1" Tensile Elongation @ Break % (Film Break)	ASTM D 7003	550 MD 550 DD	750 MD 750 DD	550 MD 550 DD	750 MD 750 DD	550 MD 550 DD	750 MD 750 DD	
1. Tensile Elongation @ Peak % (Scrim Break)	ASTM D 7003	20 MD 20 DD	33 MD 33 DD	20 MD 20 DD	30 MD 31DD	20 MD 20 DD	36 MD 36 DD	
Tongue Tear Strength	ASTM D 5884	75 lbf MD 75 lbf DD	97 lbf MD 90 lbf DD	75 lbf MD 75 lbf DD	104 lbf MD 92 lbf DD	100 lbf MD 100 lbf DD	117 lbf MD 118 lbf DD	
Grab Tensile	ASTM D 7004	180 lbf MD 180 lbf DD	218 lbf MD 210 lbf DD	180 lbf MD 180 lbf DD	222 lbf MD 223 lbf DD	220 lbf MD 220 lbf DD	257 lbf MD 258 lbf DD	
Trapezoid: Tear	ASTM D 4533	120 lbf MD 120 lbf DD	146 lbf MD 141 lbf DD	130 lbf MD 130 lbf DD	189 lbf MD 172 lbf DD	160 lbf MD 160 lbf DD	193 lbf MD 191 lbf DD	
Dimensional Stability	ASTM D 1204	<1	<0.5	<1	<0.5	<1	<0.5	
Puncture Resistance	ASTM D 4833	50 lbf	64 lbf	65 lbf	83 lbf	80 lbf	99 lbf	
Maximum Use Temperature		180° F	180° F	180° F	180° F	180° F	180° F	
Minimum Use Temperature		-70° F	-70° F	-70° F	-70° F	-70° F	-70° F	

MD = Machine Direction DD = Diagonal Directions



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

\*Dimensional Stability Maximum Value

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

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

PLANT LOCATION

Sioux Falls, South Dakota

SALES OFFICE

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

08/06

# RAVEN INDUSTRIES INC. EXPOSED GEOMEMBRANE LIMITED WARRANTY

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

### **General Requirements:**

- 1. BR shall close a below-grade tank within the time periods provided in Subsection A of 19.15.17.13 NMAC. This will include a) below-grade tanks that do not meet the requirements of Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC or is not included in Paragraph (5) of Subsection I of fl9.15.17.11 NMAC within five years, if not retrofitted to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC; b) permitted below-grade tanks within 60 days of cessation of the below-grade tank's operation., or c) an earlier date that the division requires because of imminent danger to fresh water, public health or the environment. For any closure, BR will file the C144 Closure Report as required.
- 2. BR shall remove liquids and sludge from a below-grade tank prior to implementing a closure method and shall dispose of the liquids and sludge in a division-approved facility. The facilities to be used will be Basin Disposal (Permit #NM-01-005) and Envirotech Land Farm (Permit #NM-01-011). The liner after being cleaned well (Subsection D, Paragraph 1, Subparagraph (m) of 19.15.9.712 NMAC) will be disposed of at the San Juan County Regional Landfill located on CR 3100.
- 3. BR will receive prior approval to remove the below-grade tank and dispose of it in a division-approved facility or recycle, reuse, or reclaim it in a manner that the appropriate division district office approves. Documentation of how the below-grade tank was disposed of or recycled will be provided in the closure report.
- 4. If there is any on-site equipment associated with a below-grade tank, then BR shall remove the equipment, unless the equipment is required for some other purpose.
- 5. BR shall test the soils beneath the below-grade tank to determine whether a release has occurred. BR shall collect, at a minimum, a five point, composite sample; collect individual grab samples from any area that is wet, discolored or showing other evidence of a release; and analyze for BTEX, TPH and chlorides to demonstrate that the benzene concentration, as determined by EPA SW-846 methods 8021B or 8260B or other EPA method that the division approves, does not exceed 0.2 mg/kg; total BTEX concentration, as determined by EPA SW-846 methods 8021B or 8260B or other EPA method that the division approves, does not exceed 50 mg/kg; the TPH concentration, as determined by EPA method 418.1 or other EPA method that the division approves, does not exceed 100 mg/kg; and the chloride concentration, as determined by EPA method 300.1 or other EPA method that the division approves, does not exceed 250 mg/kg, or the background concentration, whichever is greater. BR shall notify the division of its results on form C-141.
- 6. If BR or the division determines that a release has occurred, then BR shall comply with 19.15.3.116 NMAC and 19.15.1.19 NMAC, as appropriate.

- 7. If the sampling program demonstrates that a release has not occurred or that any release does not exceed the concentrations specified in Paragraph (4) of Subsection E of 19.15.17.13 NMAC, then BR shall backfill the excavation with compacted, non-waste containing, earthen material; construct a division-prescribed soil cover; recontour and re-vegetate the site.
- 8. Notice of Closure will be given prior to closure to the Aztec Division office between 72 hours and one week via email or verbally. The notification of closure will include the following:
  - i. Operator's name
  - ii. Location by Unit Letter, Section, Township, and Range. Well name and API number.
- 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