State of New Mexico

Energy Minerals and Natural Resources

Form C-144 July 21, 2008

District III

1301 W. Grand Ave., Artesia, NM 88210

1000 Rio Brazos Rd., Aztec, NM 87410

District IV

Department Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505

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

For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

#### 1220 S. St. Francis Dr., Santa Fe, NM 87505 Pit, Closed-Loop System, Below-Grade Tank, or Proposed Alternative Method Permit or Closure Plan Application Type of action: X Permit of a pit, closed-loop system, below-grade tank, or proposed alternative method Closure of a pit, closed-loop system, below-grade tank, or proposed alternative method Modification to an existing permit Closure plan only submitted for an existing permitted or non-permitted pit, closed-loop system, below-grade tank, or proposed alternative method Instructions: Please submit one application (Form C-144) per individual pit, closed-loop system, below-grade tank or alternative request Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances. Operator: Burlington Resources Oil & Gas Company, LP OGRID#: 14538 Address: PO Box 4289, Farmington, NM 87499 Facility or well name: DUFF 5R OCD Permit Number: 3004530846 API Number: U/L or Otr/Otr: Section: Township: 29N Range: County: San Juan Center of Proposed Design: Latitude: 36.74976°N -108.01944°W NAD: X 1927 1983 Longitude: X Private Tribal Trust or Indian Allotment Surface Owner: Federal Pit: Subsection F or G of 19.15.17.11 NMAC Temporary: Drilling Workover Permanent Emergency Cavitation P&A Thickness mil LLDPE HDPE PVC Other Lined Unlined Liner type: String-Reinforced Liner Seams: Subsection H of 19.15.17.11 NMAC Closed-loop System: Workover or Drilling (Applies to activities which require prior approval of a permit or Type of Operation: Drilling a new well notice of intent) Above Ground Steel Tanks Haul-off Bins Drying Pad Other Unlined LLDPE HDPE PVD Other Lined Liner type: Thickness mil Liner Seams: Welded Factory Other 120 bbl Type of fluid: **Produced Water** Volume: Tank Construction material: Secondary containment with leak detection X Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off Visible sidewalls and liner Visible sidewalls only Other PVC Thickness HDPE X Other Unspecified Liner Type: mil

**Alternative Method:** 

Submittal of an exception request is required. Exceptions must be submitted to the Santa 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' hog wire fencing topped with two strands barbed wire.									
X Alternate. Please specify 4' hog wire fencing topped with two strands barbed wire.									
Netting: Subsection E of 19.15.17.11 NMAC (Applies to permanent pits and permanent open top tanks)  X Screen  Other  Monthly inspections (If netting or screening is not physically feasible)									
Signs: Subsection C of 19.15.17.11 NMAC  12" X 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers  X Signed in compliance with 19.15.3.103 NMAC									
9									
Administrative Approvals and Exceptions:  Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.									
Please check a box if one or more of the following is requested, if not leave blank:									
X Administrative approval(s): Requests must be submitted to the appropriate division district of the Santa Fe Environmental Bureau office for cons (Fencing/BGT Liner)	ideration of a	pproval.							
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 source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau Office for consideration of approval. Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. Siting criteria does not apply to drying pads or above grade-tanks associated with a closed-loop system.									
Ground water is less than 50 feet below the bottom of the temporary pit, permanent pit, or below-grade tank.  - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	Yes	X No							
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).  - Topographic map; Visual inspection (certification) of the proposed site	Yes	XNo							
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.	Yes	XNo							
(Applies to temporary, emergency, or cavitation pits and helow-grade tanks)	□NA								
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image									
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.	Yes	No							
(Applied to permanent pits)  - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	XNA								
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	XNo							
- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site Within the area overlying a subsurface mine.	Yes	XNo							
- Written confirmation or verification or map from the NM EMNRD - Mining and Mineral Division									
Within an unstable area.  - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	Yes	X No							
Within a 100-year floodplain - FEMA map	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.    V   Hudrogeologic Papert (Pology grade Tealer)   besed upon the gradient of Pology grade Tealer)   besed upon the gradient of Pology grade Tealer)   beside upon the grade Tealer   besi
X Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
Hydrogeologic Data (Temporary and Emergency Pits) - 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
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  Description of the Approved Operation and Maintenance Plants  API
Previously Approved Operating and Maintenance Plan API
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
Erosion Control Plan
Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC
14
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: 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)
On-site Closure Method (only for temporary pits and closed-loop systems)
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.  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
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 1 of 19.15.17.13 NMAC
X Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

16  Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only: (19.15.17.13.D NMAC)									
Instructions: Please identify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more than two are required.	facilities								
Disposal Facility Name: Disposal Facility Permit #:	<u>_</u>								
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									
Required for impacted areas which will not be used for future service and operations:  Soil Backfill and Cover Design Specification - based upon the appropriate requirements of Subsection H of 19.15.17.13 NM/	AC.								
Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC									
Site Reclamation Plan - based upon the appropraite requirements of Subsection G of 19.15.17.13 NMAC									
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. Recommendations of acceptable source material are provided becertain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the for consideration of approval. Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17.10 NMAC for guidance.	low. Requests reg e Santa Fe Envira	arding changes to nimental Bureau office							
Ground water is less than 50 feet below the bottom of the buried waste.	Yes	No							
- NM Office of the State Engineer - iWATERS database search; USGS: Data obtained from nearby wells	□N/A								
Ground water is between 50 and 100 feet below the bottom of the buried waste	Yes	No							
- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	∐N/A								
Ground water is more than 100 feet below the bottom of the buried waste.	Yes	No							
- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	□N/A								
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).	Yes	No							
- 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.  - Visual inspection (certification) of the proposed site: Aerial photo; satellite image	Yes	No							
	Yes	No							
Within 500 horizontal 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 fee of any other fresh water well or spring, in existence at the time of the initial application.  - NM Office of the State Engineer - iWATERS database; 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	No							
- Written confirmation or verification from the municipality; Written approval obtained from the municipality Within 500 feet of a wetland	□Yes	□No							
- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	Lies								
Within the area overlying a subsurface mine.	Yes	No							
- Written confirantion or verification or map from the NM EMNRD-Mining and Mineral Division  Within an unstable area.		<b></b>							
- Engineering measures incorporated into the design: NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	Yes	∐No							
Within a 100-year floodplain FEMA map	Yes	No							
On-Site Closure Plan Checklist: (19.15.17.13 NMAC) Instructions: Each of the following items must be attached to the closur by a check mark in the box, that the documents are attached.	re plan. Pleas	e indicate,							
Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC									
Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC		}							
Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of 19.15.17.11 NMAC									
Construction/Design Plan of Temporary Pit (for in place burial of a drying pad) - based upon the appropriate requirements of 1	9.15.17.11 NM	1AC							
Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC									
Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC									
Waste Material Sampling Plan - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC	_								
Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards can Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC	mot be achieve	ed)							
Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC									
Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC									

Operator Application (	Contification			
	ormation submitted with this application is true.	accurate and complete to the	best of my knowledge and belief.	
Name (Print):	Crystal Fafoya	Title:	Regulatory Technician	
Signature:	Catal Ta	Jora Date:	12/22/2008	
e-mail address:	costal latova wisconocuphilips com	Telephone:	505-326-9837	
	Permit Application (including closure plan)	Closure Plan (only)	OCD Conditions (see attachment)	
OCD Representative Si	ignature:		Approval Date:	
Title:		OCD Perm	it Number:	
Instructions: Operators are report is required to be sub-	red within 60 days of closure completion): required to obtain an approved closure plan promitted to the division within 60 days of the complete obtained and the closure activities have be	ior to implementing any closu pletion of the closure activities en completed.	re activities and submitting the closure report. The conference of the form un Complete this section of the form un	closure til an
Closure Method:  Waste Excavation :	and Removal On-site Closure Metho	d Alternative Closure	Method   Waste Removal (Closed-loop system	is only)
	proved plan, please explain.		Lad was teleposed toop system	···
		drilling fluids and drill cutting Disposal Facility	gs were disposed. Use attachment if more than two	o facilities
	stem operations and associated activities perform			
	demonstrate complilane to the items below)	No		
	reas which will not be used for future service ar	nd operations:		
Site Reclamation (F	hoto Documentation)			
	ication Rates and Seeding Technique			
24	1			
Closure Report Atta		following items must be attac	hed to the closure report. Please indicate, by a che	ck mark în
	tice (required for on-site closure)			
Plot Plan (for on-s	ite closures and temporary pits)			
Confirmation Sam	npling Analytical Results (if applicable)			
	impling Analytical Results (if applicable)			
	Name and Permit Number			
	nd Cover Installation Discation Rates and Seeding Technique			
	Photo Documentation)			
On-site Closure La		Longitude:	NAD ☐ 1927 ☐ 19	183
			nd complete to the best of my knowledge and belief. sure plan.	I also certify that
Name (Print):		Title:		
Signature:		Date:		_
e-mail address:		Telephone:		

### New Mexico Office of the State Engineer POD Reports and Downloads

NAD27 X:	Y: Zone:	Search Radius:
County: Basin:		Number: Suffix:
Owner Name: (First)	(Last)	C Non-Domestic C Domestic Al
POD / Surface Data Report	Avg Depth to W	ater Report Water Column Report
Cle	ear Form   iWATERS	S Menu Help

### WATER COLUMN REPORT 08/20/2008

	(quarter	s are	1=	NW	2=	=NE	3=SW	4=SE)								
	(quarter						smal	lest)				Depth	Depth	Water	(in	feet)
POD Number	Tws				q	q	Zone		X		Y	Well	Water	Column		
SJ 00867	29N	11W		4								77	55	22		
SJ 01302	29N	11W			1							250	210	40		
SJ 01891	29N	11W			1	3						157				
SJ 01851	29N	11W	10		4							125	48	77		
SJ 02466 S	29N	11W	11	4	3	3						65				
SJ 02466	29N	11W	11	4	3	3						66				
SJ 02991	29N	11W	13	3	4	2						60				
SJ 03136	29N	11W	13	3	4	4						20				
SJ 00987	29N	11W	13	4								415	300	115		
SJ 01426	29N	11W	14	1	4							155	10	145		
SJ 00007	29N	11W	14	2	2	3						752				
SJ 03550	29N	11W	14	3	2	1						10				
SJ 01774	29N	11W	14	3		2						82	6	76		
SJ 03360	29N	11W	14	3	4	2						40				
SJ 03175	29N	11W	14	4	2	1						60	24	36		
SJ 03164	29N	11W	14	4	2	1						75	56	19		
SJ 03733 POD1	29N	11W		4	-	1						64	20	44		
SJ 02378	29N	11W	15	4	3	2						75	12	6.3		
SJ 03579	29N	11W	15	4		1						83	30	5.3		
SJ 02141	29N	11W	16	4	3	4						110	40	70		
SJ 02926	29N	11W	17		4	3						375	80	295		
SJ 03399	29N	11W	17	4	2							100				
SJ 00487	29N	11W	17	4	4							60	6	54		
SJ 02868	29N	11W	17	4	4	4						50				
SJ 01641	29N	11W	19	2	2	3						120	55	65		
SJ 02026	29N	11W	19	3	1			44000	0	207770	0	27	6	21		
SJ 02970	29N	11W	19	4	3	2						100	1.8	82		
SJ 01250	29N	11W	19	4	4							60	2.0	40		
SJ 02869	29N	11W		2	2	1						50				
SJ 00583	29N	11W			3							150	30	120		
SJ 01355	29N	11W		4								36	3	33		
SJ 00452	29N	11W		_	_							42	10	32		
	25,14	J. J. 1										1.0	20	72		

SJ 01969	29N	11W 21	2		65	55	10
SJ 00701 CLW312190	29N	11W 21	2 2		7.0	14	56
SJ 00701	29N	11W 21	2 2	1	73		
SJ 03350	29N	11W 21	2 2	3	5.0		
SJ 01090	29N	11W 21	2 4		31	12	19
SJ 02863	29N	11W 21	2 4	1	52	20	32
SJ 03659	29N	11W 21	3 2	2	45	10	35
SJ 01888	29N	11W 21	4 2	2	47	8	39
SJ 02200	29N	11W 22			60	22	38
SJ 01557	29N	11W 22	1 2		70	11	59
SJ 00796	29N	11W 22	1 2		50	8	42
SJ 00704	29N	11W 22	1 2		55	20	35
SJ 01703	29N	11W 22	1 2		68	3	65
SJ 03747 POD1	29N	11W 22		3	47	27	20
SJ 02813	29N	11W 22	1 2	3	59	16	43
SJ 01214	29N	11W 22	1 3		49	12	37
SJ 00484	29N	11W 22	1 3	1	37	10	27
SJ 00320	29N	11W 22	1 3	1	38	10	28
SJ 03532	29N	11W 22	1 3	3	49	14	35
SJ 00151	29N	11W 22	1 3	4	45	18	27
SJ 02721	29N	11W 22	1 4	2	70	59	E 4
SJ 03503	29N	11W 22	2 3	3	72	18	54
SJ 02578	29N	11W 22 11W 22	2 3	3	58	24	34
SJ 03093 SJ 03189	29N	11W 22	2 3 3 2	4	42	22	20
SJ 03188	29N 29N	11W 22	3 2 3 2	1 2	45 45	20	25 34
SJ 02020	29N	11W 22	3 3	2	27	11 6	21
SJ 02138	29N	11W 22	4 2		40	7	33
SJ 02529	29N	11W 22	4 2	3	30	9	21
SJ 03479	29N	11W 22	4 2	3	43	4	39
SJ 03049	29N	11W 22	4 2	4	33	10	23
SJ 00696	29N	11W 22	4 3	•	34	12	22
SJ 01974	29N	11W 22	4 3	3	47	11	36
SJ 03567	29N	11W 23	1 2	3	50	22	28
SJ 03557	29N	11W 23	1 3	1	50	15	3.5
SJ 03558	29N	11W 23	1 3	1	50	15	35
SJ 03559	29N	11W 23	1 3	4	45	15	3.0
SJ 00812	29N	11W 23	1 4		44		
SJ 03546	29N	11W 23	1 4	2	50	15	3.5
SJ 03591	29N	11W 23	1 4	4	55	20	35
SJ 01870	29N	11W 23	2		58	30	28
SJ 03130	29N	11W 23	2 1		50	30	20
SJ 03201	29N	11W 23	2 1		60	3.0	30
SJ 03353	29N	11W 23	2 1	3	45	25	20
SJ 01610	29N	11W 23	2 2		52	25	27
SJ 01573	29N	11W 23	2 3		41	21	20
SJ 03073	29N	11W 23	2 3		30	2.0	1.0
SJ 03286	29N	11W 23	3 3		38	28	10
SJ 02799	29N	11W 23	4 1		56	15	41
SJ 03548	29N	11W 23	4 1		50	15	35
SJ 01962	29N	11W 24	1 2		45	12	33
SJ 03343	29N	11W 24	1 4	<u>+</u>	35	18	17
SJ 00804	29N	11W 25	1 4	1	37	25	12
SJ 01808 0-5	29N	11W 26	3 1	т	52	43	9
SJ 02121	29N 29N	11W 27 11W 27	1 1 1 1		30 32	6 8	24
SJ 02210 SJ 03588	29N	11W 27	1 1	2	34	0	24
SJ 03588 SJ 02227	29N	11W 27	1 1		27	6	21
SJ 00700	29N	11W 27	1 3		20	6 7	21 13
30 00700	2 3 IV	TIM 7/	т Э	J	40	,	Τ.)

Sy 01808 0-1	GT 01909 0 4	2 O N I	1114 07	2	2 -	)			2.0	٥٢	-
St   01408   0-2   29N   11w   27   24   4   3   3   3   3   3   3   5   5   01408   0-3   29N   11w   27   3   2   3   3   3   5   5   5   02664   S   29N   11w   27   3   2   3   3   3   5   5   02664   S   29N   11w   27   3   2   3   3   3   1   5   5   02664   S   29N   11w   27   3   2   3   3   3   1   1   3   5   5   02664   S   29N   11w   27   3   2   3   3   3   1   1   3   3   1   3   3											
SU   01408   0-3											
ST   02664   SPN   11W   27   3   2   38   23   15   15   102664   SPN   11W   27   3   2   38   23   15   15   102664   SP-3   29N   11W   27   3   2   31   34   19   15   15   102664   SP-3   29N   11W   27   3   2   31   31   31   31   31   31											
ST 02664 S						ŧ					
SU 02666 S-2	-										
SU 02666 S-3											
ST 02664 S-9											
ST 02664 S-4											
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SJ 03476   29N						-					
SJ 03415   29N 11W 28 1 2 1   60							267348	2075529		15	12
SJ 02559   29N											
SJ 02330   29N											
SJ 03021						Ŀ					
SJ 01606	· · · · · · · · · · · · · · · · · · ·										
SJ 03468   29N						}					
SJ 03469										8	27
SJ 02713   29N							367704	2073506			
SJ 02858											
SJ 02714   29N 11W 28										12	14
SJ 02708   29N 11W 28						,					
SJ 03149											15
SJ 03475       29N       11W       29       1 1 3       40       20       20         SJ 00292       29N       11W       29       2 1 4       4       24       9       15         SJ 01554       29N       11W       29       2 2       35       18       17         SJ 02038       29N       11W       29       4 1       1       70       6       64         SJ 03298       29N       11W       29       4 2       24       7       17         SJ 02023       29N       11W       29       4 2       24       7       17         SJ 02182       29N       11W       29       4 2       27       11       16         SJ 03421       29N       11W       29       4 3       3       40       25       15         SJ 03348       29N       11W       30       2       1       3       60       25       15         SJ 01260       29N       11W       30       2       2       2       27       12       15         SJ 01328       29N       11W       30       2       2       2       2       2       2 <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>											
SJ 00292       29N       11W       29       2 1 4       4       24       9       15         SJ 01554       29N       11W       29       2 2 2       35       18       17         SJ 02038       29N       11W       29 4 1 1       1       70 6 6       64         SJ 03298       29N       11W       29 4 2       2       24 7       17         SJ 02023       29N       11W       29 4 2       2       24 7       17         SJ 02182       29N       11W       29 4 2       3       34 15       19         SJ 03421       29N       11W       29 4 3       3       50 28       22         SJ 01391       29N       11W 30 2       2       40 25       15         SJ 03488       29N       11W 30 2       2       42 16       26         SJ 01260       29N       11W 30 2       2       2       27 12       15         SJ 01328       29N       11W 30 2       2       2       28 15       13         SJ 00875       29N       11W 30 3       2       4       266438       2067001       75       45       30         SJ 03541       29N											
SJ 01554       29N       11W       29       2       2         SJ 02038       29N       11W       29       4       1       14       4       10         SJ 03298       29N       11W       29       4       1       70       6       64         SJ 02023       29N       11W       29       4       2       24       7       17         SJ 02182       29N       11W       29       4       2       27       11       16         SJ 03421       29N       11W       29       4       3       50       28       22         SJ 01391       29N       11W       30       2       1       3       60       28       22         SJ 01260       29N       11W       30       2       2       42       16       26         SJ 01328       29N       11W       30       2       2       28       15       13         SJ 01821       29N       11W       30       2       2       28       15       13         SJ 02922       29N       11W       30       2       4       266438       2067001       75       45											
SJ 02038       29N       11W 29       4       1       14       4       10         SJ 03298       29N       11W 29       4       1       70       6       64         SJ 02023       29N       11W 29       4       2       24       7       17         SJ 02182       29N       11W 29       4       2       27       11       16         SJ 00822       29N       11W 29       4       3       34       15       19         SJ 03421       29N       11W 29       4       3       50       28       22         SJ 01391       29N       11W 30       2       2       40       25       15         SJ 03348       29N       11W 30       2       2       42       16       26         SJ 01260       29N       11W 30       2       2       27       12       15         SJ 01328       29N       11W 30       2       2       28       15       13         SJ 03875       29N       11W 30       4       1       37       20       17         SJ 03941       29N       11W 31       3       2       4       266438 <th></th> <th></th> <th></th> <th></th> <th></th> <th>:</th> <th></th> <th></th> <th></th> <th></th> <th></th>						:					
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SJ 02182       29N 11W 29 4 2       27 11 16         SJ 00822       29N 11W 29 4 3       34 15 19         SJ 03421       29N 11W 29 4 4 3       50 28 22         SJ 01391       29N 11W 30 2 1 3       40 25 15         SJ 03348       29N 11W 30 2 2 1 3       60         SJ 01260       29N 11W 30 2 2 2       27 12 15         SJ 01328       29N 11W 30 2 2 2       27 12 15         SJ 01821       29N 11W 30 2 4 4       70 6 64         SJ 00875       29N 11W 30 4 1       37 20 17         SJ 02922       29N 11W 31 3 2 2 6       266438 2067001 75 45 30         SJ 03795 POD1       29N 11W 31 3 4 1       80 40 40         SJ 00441       29N 11W 32 2 4 4 4 4       266438 2067001 75 45 30         SJ 00103       29N 11W 32 4 4 4 4       263         SJ 00103       29N 11W 32 4 4 4 4       263											
SJ 00822       29N 11W 29 4 3       34 15 19         SJ 03421       29N 11W 29 4 4 3       50 28 22         SJ 01391       29N 11W 30 2 1 3       40 25 15         SJ 03348       29N 11W 30 2 2 2       42 16 26         SJ 01260       29N 11W 30 2 2 2       27 12 15         SJ 01328       29N 11W 30 2 2 2       28 15 13         SJ 01821       29N 11W 30 2 4 4       70 6 64         SJ 00875       29N 11W 31 3 2 2       37 20 17         SJ 03795 POD1       29N 11W 31 3 2 4 266438 2067001       75 45 30         SJ 03541       29N 11W 31 3 4 1       80 40 40         SJ 00103       29N 11W 32 4 4 4 4       263         SJ 00103       29N 11W 32 4 4 4 4       263         SJ 00103       29N 11W 32 4 4 4 4       254											
SJ 03421       29N       11W       29       4       4       3       50       28       22         SJ 01391       29N       11W       30       2       15       40       25       15         SJ 03348       29N       11W       30       2       1       3       60       60       25       15         SJ 01260       29N       11W       30       2       2       42       16       26       26         SJ 01264       29N       11W       30       2       2       28       15       13         SJ 01328       29N       11W       30       2       2       28       15       13         SJ 01821       29N       11W       30       2       4       37       20       17         SJ 02922       29N       11W       31       3       2       2       75       45       30         SJ 03795 POD1       29N       11W       31       3       4       1       80       40       40         SJ 00441       29N       11W       32       2       2       2       263       2       2         SJ 00103											
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SJ 03348       29N       11W 30       2 1 3       60         SJ 01260       29N       11W 30       2 2       42       16       26         SJ 01264       29N       11W 30       2 2       27       12       15         SJ 01328       29N       11W 30       2 4       70       6       64         SJ 01821       29N       11W 30       4 1       37       20       17         SJ 02922       29N       11W 31       3 2 2       75         SJ 03795 POD1       29N       11W 31       3 2 4       266438       2067001       75       45       30         SJ 03541       29N       11W 32       2 2       2       80       40       40         SJ 00103       29N       11W 32       2 4       266438       2067001       75       45       30         SJ 00103       29N       11W 32       2 4       4       4       263         SJ 00103       29N       11W 32       4       4       4       263         SJ 00103       29N       11W 32       4       4       4       4					4 3						
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SJ 01328       29N       11W 30       2 2       28       15       13         SJ 01821       29N       11W 30       2 4       70       6       64         SJ 00875       29N       11W 31       3 2 2       75       75         SJ 02922       29N       11W 31       3 2 4       266438       2067001       75       45       30         SJ 03795 POD1       29N       11W 31       3 4 1       80       40       40         SJ 00441       29N       11W 32       2 2       2       263       254         SJ 00103       29N       11W 32       4 4 4       263       254											
SJ 01821       29N       11W 30       2 4       70       6       64         SJ 00875       29N       11W 30       4 1       37       20       17         SJ 02922       29N       11W 31       3 2 2       75       75         SJ 03795 POD1       29N       11W 31       3 4 1       80       40       40         SJ 03541       29N       11W 32       2 2       80       40       40         SJ 00441       29N       11W 32       4 4 4       263       254         SJ 00103       29N       11W 32       4 4 4       254											
SJ 00875       29N       11W 30       4 1       37       20       17         SJ 02922       29N       11W 31       3 2 2       75         SJ 03795 POD1       29N       11W 31       3 2 4       266438 2067001       75       45       30         SJ 03541       29N       11W 31       3 4 1       80       40       40         SJ 00441       29N       11W 32       2 2       2         SJ 00103       29N       11W 32       4 4 4       263         SJ 00103 S       29N       11W 32       4 4 4       254											
SJ 02922       29N       11W 31       3 2 2       75         SJ 03795 POD1       29N       11W 31       3 2 4       266438 2067001       75       45       30         SJ 03541       29N       11W 31       3 4 1       80       40       40         SJ 00441       29N       11W 32       2 2       2         SJ 00103       29N       11W 32       4 4 4       263         SJ 00103 S       29N       11W 32       4 4 4       254											
SJ 03795 POD1       29N       11W 31       3 2 4       266438 2067001       75       45       30         SJ 03541       29N       11W 31       3 4 1       80       40       40         SJ 00441       29N       11W 32       2 2       2         SJ 00103       29N       11W 32       4 4 4       263         SJ 00103 S       29N       11W 32       4 4 4       254										20	17
SJ 03541     29N     11W 31     3 4 1     80     40     40       SJ 00441     29N     11W 32     2 2     2       SJ 00103     29N     11W 32     4 4 4     263       SJ 00103 S     29N     11W 32     4 4 4     254							266430	2067001		4.5	2.0
SJ 00441       29N       11W 32       2 2         SJ 00103       29N       11W 32       4 4 4       263         SJ 00103 S       29N       11W 32       4 4 4       254							266438	2067001			
SJ 00103       29N       11W 32       4 4 4       4       263         SJ 00103       29N       11W 32       4 4 4       254									80	40	40
<b>SJ 00103 S</b> 29N 11W 32 4 4 4 2 254									262		
29N 11W 33 2 1 3 49 30 19										2.0	
	SU 03000	∠9N	TTM 33	2 1	1 3				49	30	19

Record Count: 145

	<b>3</b>
i	2
	19

### New Mexico Office of the State Engineer POD Reports and Downloads

Township: 30N Range	e: 11W Sections:
NAD27 X: Y:	Zone: Search Radius:
County: Basin:	Number: Suffix:
Owner Name: (First)	(Last) C Non-Domestic C Domestic All
POD / Surface Data Report	Avg Depth to Water Report Water Column Report
Clear	Form iWATERS Menu Help
Clear	Form iWATERS Menu Help

### WATER COLUMN REPORT 08/21/2008

(qu	arter	s are	a 1=	NW	2=	NE	3= <b>SW</b> 4	=SE)						
` <del>-</del>	arter						small	est)			Depth	Depth	Water	(in
POD Number	Tws	Rng		q	q	đ	Zone	X		Y	Well	Water	Column	
RG 50669	30N	11W									360	310	50	
SJ 02765	30N	11W		1							54	20	34	
SJ 00975	30N	11W		1	3						60	20	40	
SJ 01217	30N	11W		1	3						60	30	30	
SJ 02837	30N	11W		3	4	1					150			
SJ 01437	30N	11W		1							40	28	12	
SJ 03121	30N	11W		1	_	4					36	12	24	
SJ 02049	30N	11W		1							26	8	18	
SJ 01339	30N	11W	03	1	_	1					40	15	25	
SJ 02814	30N	11W	03	1	3	2					31	8	23	
SJ 00350	30N	11W	03	1	3	2					46	12	34	
SJ 01441	30N	11W		1	3	2					48	20	28	
SJ 02835	30N	11W	03	1	_	2					26	8	18	
SJ 01387	30N	11W		1	4						40	18	22	
SJ 03698 POD1	30N	11W		1	_	1					40	5	35	
SJ 02785	30N	11W	03	1	4	2					31	5	26	
SJ 01313	30N	11W		2							70	58	12	
SJ 01805	30N	11W	03	2							35	20	15	
SJ 01807	30N	11W		2							50	30	20	
SJ 01202	30N	11W	03	2	1	2					35	8	27	
SJ 02781	30N	11W	03	2		2					48	23	25	
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SJ 03765 POD1	30N	11W	03	2	1	2		268163	212	7605	43	20	23	
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SJ 00698	30N	11W	03	2	3	3					44	14	30	
SJ 01261	30N	11W	03	2	3	4						20		
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SJ 00402	30N	11W	03	3							32	18	14	
SJ 01734	30N	11W	03	3	2						33	5	28	

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SJ 03242	_ 30N	11W 03	3 3 1			23	9	14
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SJ 03153	30N	11W 03	4 2 1			80	60	20
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SJ 00889	30N	11W 07	1 4 3			55		
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SJ 02006	30N	11W 07	3 4 2			50	24	26
SJ 03484	30N	11W 07	3 4 3			75		
SJ 02005	30N	11W 07	3 4 4			55	20	35
SJ 02715	30N	11W 07	3 4 4			68	20	48
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SJ 00769	30N	11W 07	4 1			50	14	36

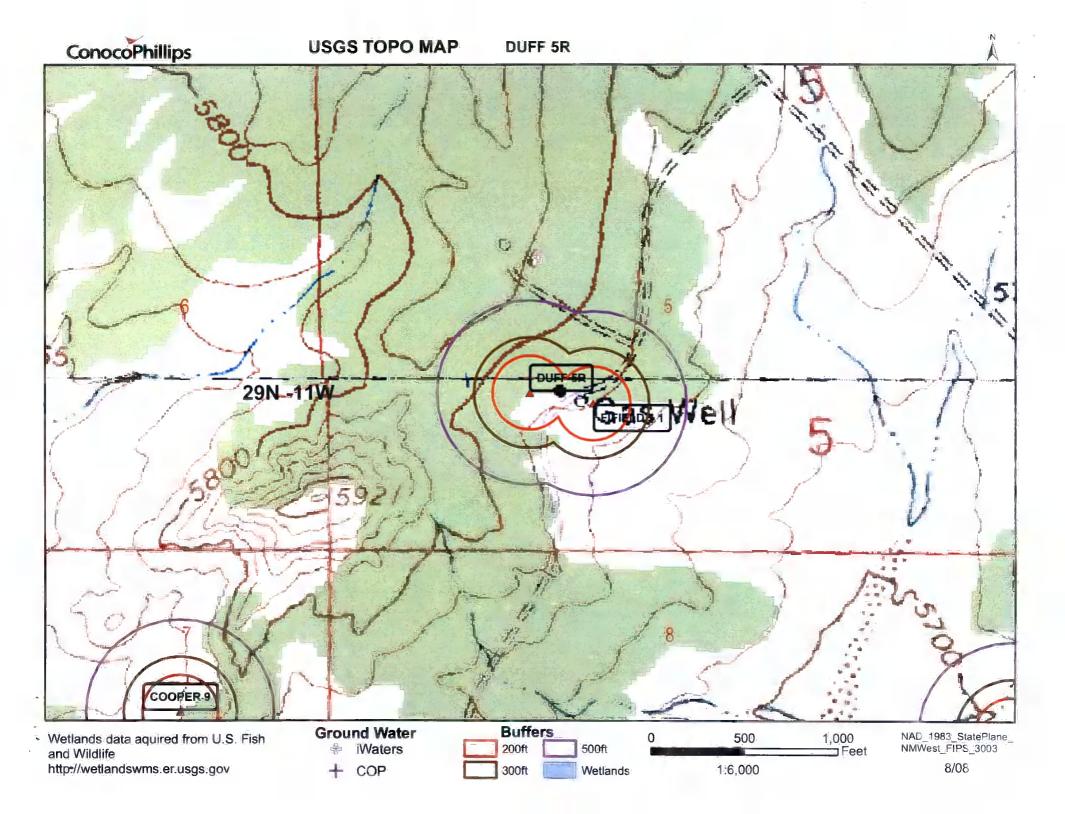
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				38	22	16
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SJ 00918	30N	11W 07	4 3 2	35	14	21
SJ 00920	30N	11W 07	4 3 2	35	12	23
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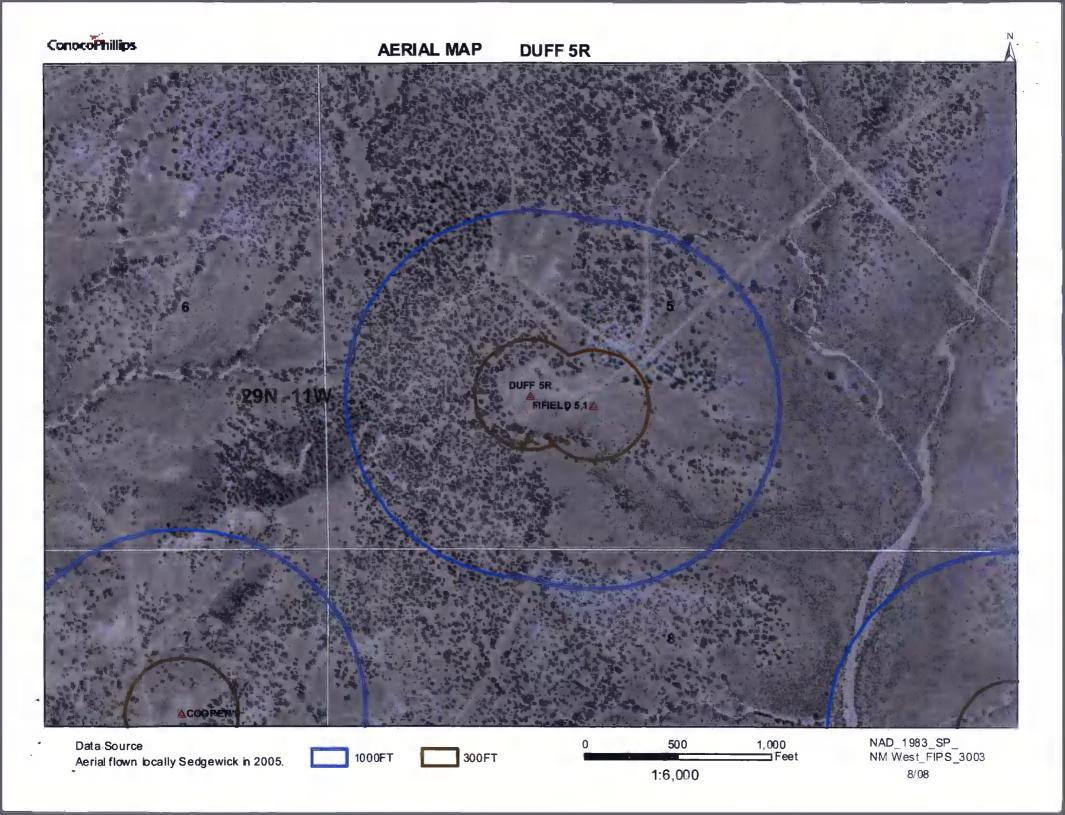
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DO 01474	2 014	TT.W TO	1 3	)	92	52	40

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Record Count: 303

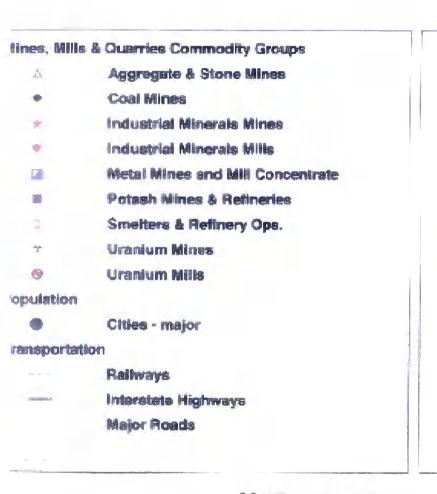


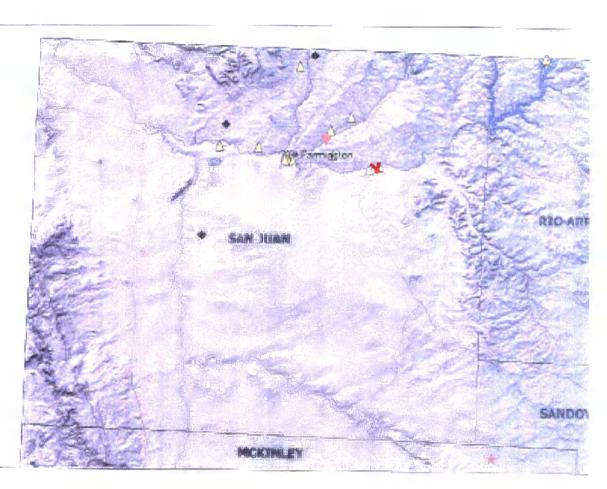


## Mines, Mills and Quarries Web Map

DUFF 5R

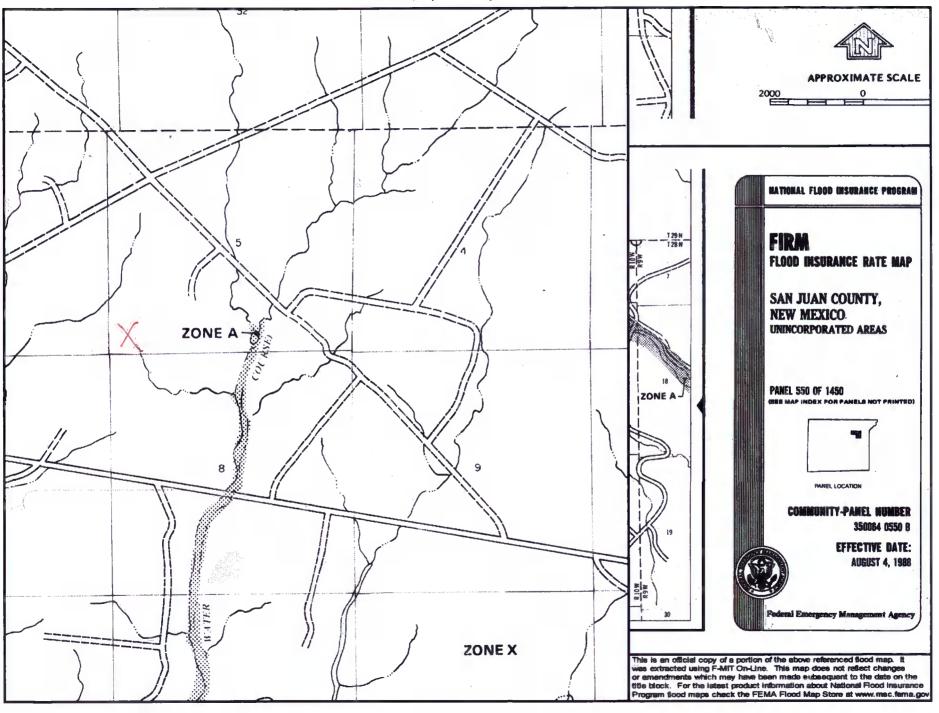
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Duff \$ 5R



### **DUFF 5R**

Site Specific Hydrogeology

A visual site inspection confirming the information contained herein was performed on the well 'DUFF 5R', which is located at 36.74976 degrees North latitude and 108.01944 degrees West longitude. This location is located on the Horn Canyon 7.5' USGS topographic quadrangle. This location is in section 5 of Township 29 North Range 11 West of the Public Land Survey System (New Mexico Principal Meridian). This location is located in San Juan county, New Mexico. The nearest town is Bloomfield, located 3.3 miles to the southeast. The nearest large town (population greater than 10,000) is Farmington, located 10.4 miles to the west (National Atlas). The nearest highway is US Highway 550, located 2.3 miles to the east. The location is on BLM land and is 71 feet from the edge of the parcel as notated in the BLM land status layer updated January 2008. This location is in the Upper San Juan. Colorado. New Mexico, Sub-basin. This location is located 1769 meters or 5802 feet above sea level and receives 10 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 114 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 987 feet to the southwest and is classified by the USGS as an intermittent stream. The nearest perennial stream is 1,942 feet to the southeast. The nearest water body is 719 feet to the north. It is classified by the USGS as an intermittent lake and is 0.1 acres in size. The nearest spring is 26,736 feet to the west. 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 4,201 feet to the northwest. The nearest wetland is a 5.3 acre Ravine located 10,184 feet to the southwest. The slope at this location is 4 degrees to the southeast as calculated from USGS 30M National Elevation Dataset. This information is also discerned from the aerial and topographic map included. The surface geology at this location is NACIMIENTO FORMATION--Shale and sandstone with a Shale dominated formations of all ages substrate. The soil at this location is 'Gypsiorthids-Badland-Stumble' complex, moderately steep' and is somewhat excessively drained and not hydric with severe erosion potential as taken from the NRCS SSURGO map unit, downloaded January 2008. The nearest underground mine is 13.5 miles to the west as indicated on the Mines, Mills and Quarries Map of New Mexico provided.

#### 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 conformably 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.

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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.

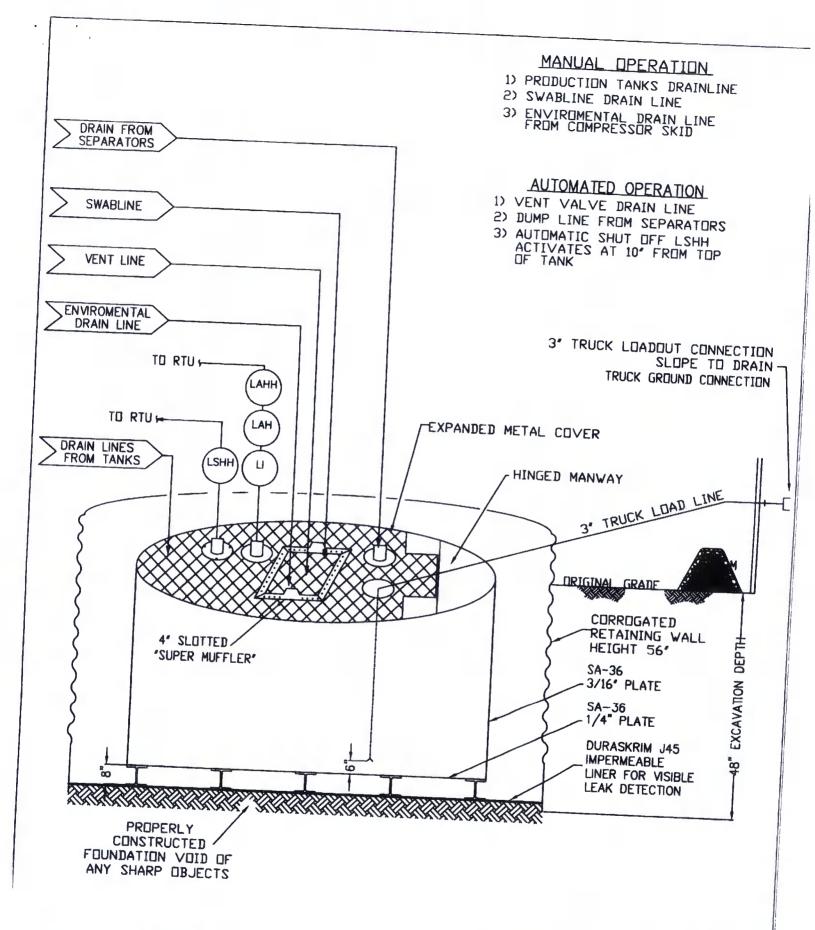
### Burlington Resources Oil & Gas Company, LP San Juan Basin Below Grade Tank Design and Construction

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

### General Plan:

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

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



### ConocoPhillips

San Juan Business Unit

PRODUCED WATER PIT TANK OPEN TOP GRAVITY FLOW TANK INTERNALLY COATED WITH 12-14 MILS AMERON AMERCOAT 385

## 130.136 & 145

PROPERTIES	TEST METHOD		130BB	J.	36BB	The state of the state of	15BB
		Min. Roll Averages	Typical Roll Averages	Min. Roll Averages	Typical Roll Averages	Min. Roll	Typical R
Appearance		Bla	ick/Black		:k/Black	Averages	Average
Thickness	ASTM D 5199	27 mil	30 mil	<del></del>		Blac	k/Black
Weight Lbs Per MSF	ASTM D 5261	126 lbs	140 lbs	32 mil	36 mil	40 mil	45 mil
Construction		(18.14)	(20.16)	(21.74)	(24.19)	(27.21)	210 lbs (30.24)
Ply Adhesion	AOTHE	"Ext	trusion laminated	d with encapsul	ated tri-direction	nal scrim reinfor	cement
	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 N
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	105 lbf D 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	550 DD 20 MD	750 DD 36 MD
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	20 DD 100 lbf MD 100 lbf DD	36 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
Dimensional Stability	ASTM D 1204	<1	<0.5	<1	<0.5		191 lbf DD
Puncture Resistance	ASTM D 4833	50 lbf	64 lbf	65 lbf	83 lbf	<1	<0.5
laximum Use Temperature		180° F	180° F	180° F		80 lbf	99 lbf
linimum Use Temperature		-70° F	-70° F	-70° F	180° F	180° F	180° F
D = Machine Direction D = Diagonal Directions			70 1	-/U" F	-70° F	-70° F	-70° F



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

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 confained information or recommendations and

### 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

### 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 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 replacement of replaced is clean, dry, and unencumbered. This includes, but is not limited to, the area made available for repair and/or 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 This Limited Warranty may only be modified by written document mutually executed by Owner and Raven Industries Inc.

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

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

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

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

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

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

### General Plan:

- BR will operate and maintain a BGT to contain liquids and solids and maintain the integrity of the liner, liner system and secondary containment system to prevent contamination of fresh water and protect public health and environment. BR will accomplish this by performing an inspection on a monthly basis, installing cathodic protection, and automatic overflow shutoff devices as seen on the design plan.
- 2. BR will not discharge into or store any hazardous waste in the BGT.
- 3. BR shall operate and install the below-grade tank to prevent the collection of surface water run-on. BR has built in shut off devices that do not allow a belowleast 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 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.
- 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 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 19.15.17.11 NMAC within five years, if 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 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.
- 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; or other EPA method that the division approves, does not exceed 50 mg/kg; the TPH 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 418.1 or other EPA method that the division approves, does not exceed 100 mg/kg; and the chloride concentration, as does not exceed 250 mg/kg, or the background concentration, whichever is greater.
- If BR or the division determines that a release has occurred, then BR shall comply with 19.15.3.116 NMAC and 19.15.1.19 NMAC, as appropriate.

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