2		
District I	State of New Mexico	Form C-14
1625 N. French Dr., Hobbs, NM 88240	Energy Minerals and Natural Resources	July 21, 20
District II	Department	For temporary pits, closed-loop sytems, and below-grade
1301 W. Grand Ave., Artesia, NM 88210	Oil Conservation Division	tanks, submit to the appropriate NMOCD District Office.
District III	1220 South St. Francis Dr.	
1000 Rio Brazos Rd., Aztec. NM 87410	Santa Fe, NM 87505	For permanent pits and exceptions submit to the Santa Fe
District IV 1220 S. St. Empris Dr. Santa Fe. NM. 87505		appropriate NMOCD District Office.
1220 3. St. Hallels DL., Salka Fe, HWI 67505	Pit Closed Loop System Below Grad	e Tank or
Drono	<u>1 It, Closed-Loop System, Delow-Olad</u>	no Dian Application
Propos	sed Alternative Method Permit of Closur	re Plan Application
Type of action:	X Permit of a pit, closed-loop system, below-grade t	ank, or proposed alternative method
	Closure of a pit, closed-loop system, below-grade	tank, or proposed alternative method
	Modification to an existing permit	
		ttad or non normittad nit alarad loon system
	below-grade tank, or proposed alternative method	tted of non-permitted pit, closed-loop system,
Instructions, Plaase submit one	application (Form C-114) par individual nit closed-lo	on system below grade tank or alternative reque
Disco be advised that array	of this request does not relieve the reporter of lightlith should exercise	by system, below-grade tunn of aller native reque
environment. Nor does approval re	lieve the operator of its responsibility to comply with any other applicable	governmental authority's rules, regulations or ordinances.
[]		
Operator: Burlington Resources O	il & Gas Company, LP	OGRID#: 14538
Address: PO Box 4289, Farmingt	on, NM 87499	
Facility or well name: SAN JUAN	28-6 UNIT 210N	
A PI Number:	3003029455 OCD Permit Numbe	······································
		(W) Country Dis Arrith
U/L or Qtr/Qtr: C Sect	ion: <u>31</u> Iownship: <u>28N</u> Range: (6W County: Rio Arriba
Center of Proposed Design: Latitud	le: <u>36.62344°N</u> Longitude:	-107.509°W NAD: X 1927 198
Surface Owner: X Federal	State Private Tribal Trust or Indian	n Allotment
Permanent Emergency Lined Unlined String-Reinforced Liner Seams: Welded	Cavitation P&A Liner type: Thickness mil LLDPE	HDPE PVC Other
2		
Closed-loop System: Subsec	tion H of 19.15.17.11 NMAC	
Type of Operation: P&A	Drilling a new well Workover or Drilling (Applies to	activities which require prior approval of a permit or
	notice of intent)	
Drying Pad Above Gro	und Steel Tanks Haul-off Bins Other	
Lined Unlined Lin	er type: Thickness mil LLDPE	IDPE PVD Other
Liner Seams: Welded F	Factory Other	
4 Palan Cubardo	Lof 10 15 17 11 NMAC	
A Delow-grade tank: Subsection		
volume: 120	DDI I ype of fluid: Produced Water	
Tank Construction material:	Metal	
Secondary containment with leak of	letection X Visible sidewalls, liner, 6-inch lift and auto	omatic overflow shut-off
Visible sidewalls and liner	Visible sidewalls only Other	
Liner Type: Thickness	mil HDPE PVC X Other U	Jnspecified
5 Alternative Methods		
Alternative Methou:		
Submittal of an exception request is re-	equired. Exceptions must be submitted to the Santa Fe Enviro	nmental Bureau office for consideration of approval.
Form C-144	Oil Conservation Division	Page 1 of

6 °	
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 barbart page at two (2) and (2)	
Done foot height, four strands of barbed wire evenly spaced between one and four foot	d, institution or church)
X Alternate. Please specify 4' hog wire fencing topped with two strands barbed wire.	
7	
Netting: Subsection E of 19.15.17.11 NMAC (Applies to permanent pits and permanent open top tanks)	
X Screen Netting Other	
Monthly inspections (If netting or screening is not physically feasible)	
8	
Signs: Subsection C of 19.15.17.11 NMAC	
$12^{-1} \times 24^{\circ}$, 2 ^o lettering, providing Operator's name, site location, and emergency telephone numbers	
Signed in comptance with 19.15.3.103 NMAC	
9 Administrative Approvals and Excentions:	
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:	
Administrative approval(s): Requests must be submitted to the appropriate division district of the Santa Fe Environmental Bureau office for (Fencing/BGT Liner)	consideration of approval.
Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of annual to	
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 such as the second	
appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Rureau 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 autom.	
Cround water is less than 20 F. d. L. and a construction of system.	
 NM Office of the State Engineer - iWATERS database search: USGS; Data obtained from nearby wells. 	Yes XNo
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other watercourse, lakebed, sinkhole, or playa	Yes XINO
- Topographic map; Visual inspection (certification) of the proposed site	
Within 300 feet from a permanent residence, school bospital institution or shursh in the second second	
application.	Yes XNo
(Applies to temporary, emergency, or cavitation pits and helow-grade tanks)	
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	
within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.	Yes No
(Applied to permanent pits) - Visual inspection (certification) of the proposed its. A side takes a site	XNA
Within 500 horizonal feet of a private domestic fresh water well as we	
purposes, or within 1000 horizontal feet of any other 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	
- US Fish and Wildlife Wetland Identification man: Topographic man: Visual inspection (application is a second sec	Yes X No
Within the area overlying a subsurface mine.	
- Written confirmation or verification or map from the NM EMNRD - Mining and Mineral Division	Yes X No
Within an unstable area.	Yes XINO
Society; Topographic map	
Within a 100-year floodplain	
- FEMA map	Tes XNo

11					
Temporary Pits, Emergency Instructions: Each of the followin	Pits and Below-grade Tanks	Permit Applie	cation Attachment Check	ist: Subsection B of 19.15.17.9 NMAC	
X Hydrogeologic Report (Below-grade Tanks) - basad up	putanon, ruca. an tha marie	se indicate, by a check mark i.	whe box, that the documents are attached.	
Hydrogeologic Data (Te	suporary and Emergency Das)	on me requirer	nents of Paragraph (4) of S	absection B of 19.15.17.9 NMAC	
X Siting Criteria Complian	ree Demonstrations have 1	oaseu upon in	e requirements of Paragrap	h (2) of Subsection B of 19:15.17.9	
X Dasian Blan, based	ice iremonstrations - based upo	n the appropria	ate requirements of 19,15,1	7.10 NMAC	
Vesign Fian - based upo	n the appropriate requirements	of 19.15.17.11	NMAC		
[X] Operating and Maintena	nce Plan - based upon the appro	opriate require	ments of 19.15.17.12 NMA	С	
X Closure Plan (Please cor 19.15.17.9 NMAC and	nplete Boxes 14 through 18, if ; 19.15.17.13 NMAC	applicable) - ba	ased upon the appropriate re	equirements of Subsection C of	
Previously Approved Design	i (attach copy of design)	API		or Permit	
12 Closed-loop Systems Permit 4 Instructions: Each of the following Geologic and Hydrogeold Siting Criteria Compliand Design Plan - based upor Operating and Maintenar Closure Plan (Please com NMAC and 19.15.17.13	Application Attachment Check items must be attached to the app ogic Data (only for on-site closu ce Demonstrations (only for on- it the appropriate requirements of ice Plan - based upon the appro- plete Boxes 14 through 18, if a NMAC	klist: Subsection dication: Please rrc) - based up (site closure) - of 19.15.17.11 priate requiren pplicable) - bas	on B of 19.15.17.9 NMAC indicate, by a check mark in on the requirements of Para based upon the appropriate NMAC nents of 19.15.17.12 NMAC sed upon the appropriate rec	the box, that the documents are attached, graph (3) of Subsection B of 19.15.17, requirements of 19.15.17.10 NMAC Computements of Subsection C of 19.15.17) 7.9
Previously Approved Design	(attach copy of design)	API			
Previously Approved Operati	ng and Maintenance Plan	API		-	
11					
Permanent Pits Permit Applic	ation Checklist Subcastion 1	D -6 10 16 17			
Instructions: Each of the following	items must be attached to the an	D 01 19.13.17.5	9 NMAC		
Hydrogeologic Report - b	ased upon the requirements of t	pucanon. Pieas	e indicate, by a check mark i	the box, that the documents are attached	l.
Siting Criteria Compliance	a Domonstration of F	aragraph (1) of	f Subsection B of 19.15.17.	9 NMAC	
Climatological Factors As	2 Demonstrations - based upon	the appropriate	e requirements of 19.15.17.	10 NMAC	
Certified Engineering Dec	sessment				
Dike Protection and Struct	ign mails - based upon the appr	opriate require	ments of 19.15.17.11 NM/	C	
Leak Detaction Dagian h	ural integrity Design: based up	on the appropr	iate requirements of 19.15.	7.11 NMAC	
Liner Specifications and C	ased upon the appropriate requi	rements of 19.	15.17.11 NMAC		
Quality Control/Ourling A	ompatibility Assessment - base	d upon the app	propriate requirements of 19	.15.17.11 NMAC	
Quality Control Quality As	surance Construction and Insta	llation Plan			
Enubland and Quest	e Plan - based upon the appropr	riate requireme	nts of 19.15.17.12 NMAC		
	g Prevention Plan - based upon	the appropriate	requirements of 19.15.17.	11 NMAC	
Nuisance or Hazardous Od	ors, including H2S, Prevention	Plan			
Emergency Response Plan					
Oil Field Waste Stream Ch	aracterization				
Monitoring and Inspection	Plan				
Erosion Control Plan					
Closure Plan - based upon I	he appropriate requirements of	Subsection C (of 19.15.17.9 NMAC and 1	9 15 17 13 NMAC	
14					
roposed Closure: 19.15.17.13 N	IMAC				
nstructions: Please complete the app	plicable boxes. Boxes 14 through	18, in regards to	o the proposed closure plan.		
ype: Drilling Workover	Emergency Cavitation	P&A	Permanent Pit X Below-	Prade Tank Closed-loop Sintam	
Alternative				grade rankClosed-loop System	
roposed Closure Method: XW	aste Excavation and Removal	(Below-G	rade Tank)		
w;	aste Removal (Closed-loop syster	ns only.)			
On	-site Closure Method (only for te	mporary nits a	nd closed-loon systemes		1
	In-place Burial	In-site Trench	in the start way against		
Alt	ernative Closure Method (Excen	tions must be	ubmitted as to Color in the		
		tions must be s	ubinitted to the Santa Fe Env	(ronmental Bureau for consideration)	
aste Excavation and Removal (Closure Plan Checklist: (19.15.	17.13 NMAC) /	Instructions: Each of the follo	wine items must be attached to the stand	
ease maicale, by a check mark in th	e box, that the documents are atte	ached.		o must be anached to the closur	e pian.
A Protocols and Procedures - b	ased upon the appropriate requi	rements of 19.	15.17.13 NMAC		
X Confirmation Sampling Plan	(if applicable) - based upon the	appropriate re	quirements of Subsection F	OF 19 15 17 13 NMAC	
X Disposal Facility Name and I	Permit Number (for liquids, dril	ling fluids and	drill cuttings)	STATISTICS NMAC	
X Soil Backfill and Cover Desi	gn Specifications - based upon t	the appropriate	requirements of Subsection	H of 19 15 17 13 NIMAG	
X Re-vegetation Plan - based up	oon the appropriate requirement	s of Subsection	n [of 19 15 17 13 MMAC	CLOCIT. J. LA NMAC	
X Site Reclamation Plan - baser	I upon the appropriate requirement	onto of Park			
		icitis of Subsec	uon G of 19.15.17.13 NMA	AC	

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On Conservation Devision

16	
Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haut-off Bins Only: (19.15.17.1.1.) St	N # N #**
institutions: Please identify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more the are required.	max.) an two facilities
Disposal Facility Name:	
Disposal Facility Name:	
Will any of the proposed closed-loop system operations and associated activities count on the start of the st	
Yes (If yes, please provide the information No	future service and operations?
Required for impacted areas which will not be used for future service and operations:	
Soll Backful and Cover Design Specification - based upon the appropriate requirements of Subsection H of 19.15.17.13	NMAC
Site Reclamation Plan - based upon the appropriate requirements of Subsection 1 of 19.15.17.13 NMAC	
17 Siling Criteria (Reparding on site closure methods only 10.15 to the second of the	
Instructions: Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of accentable courses in a wird in	
certain suing criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitte for consideration of approval. Justifications and/or demonstrations of a wind may be district office or may be considered an exception which must be submitte	ded below, Requests regarding changes to a to the Santa Fe Environmental Bureau office –
Cround meter in her the 50.5 and the state of an annual annual of equivalence are required. Please refer to 19.15, 17.10 NMAC for guidance.	
NM Office of the State Engineer WATERS database and the former and the state	Yes No
and the state signed of which and a 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	
Ground water is more than 100 feet below the bottom of the buried waste.	
 NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells 	
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole, or place lake	
(measured from the ordinary high-water mark).	Yes No
 Topographic map: Visual inspection (certification) of the proposed site 	
 Visual inspection (certification) of the proposed site: A gial abuse of the site of the site of the proposed site: A gial abuse of the site of the si	Yes No
and the second and the proposed site, Aerial photo: satellite image	
Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic an each sector of the sector of	Yes No
purposes, or within 1000 horizontal fee of any other fresh water well or spring, in existence at the time of the initial application.	
Within incorporated municipal boundaries or within a defined municipal for the proposed site	
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	
US Fish and Wildlife Weiland Identification and the state of the state	Yes No
Within the area overlying a subsurface mine	
- Written confiramtion or verification or map from the NM EMNRD-Mining and Mineral Division	Yes No
Within an unstable area.	
- Engineering measures incorporated into the design: NM Bureau of Geology & Mineral Resources: USGS; NM Geological Society:	Yes No
Topographic map	
- FEMA map	Yes No
Dn-Site Closure Plan Checklist: (19.15.17.13 NMAC) Instructions: Each of the following items much have	
by a check mark in the box, that the documents are attached.	osure plan. Please 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	1
Construction/Design Plan of Temporary Pit (for in place burial of a drying pad) - based upon the appropriate requirements of	f 19 15 17 11 NMAC
Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC	C C C C C C C C C C C C C C C C C C C
Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMA	с
Waste Material Sampling Plan - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC	
Utsposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on cite elements to be	connect he such

Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

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

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

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Operator Application Thereby certify that the in	Certification:		
Thereby certify that the in			
	formation submitted with this applicat	tion is true, accurate and complete to the f	est of my knowledge and belief
Name (Print):	Crystal Fafoya	Title:	Regulatory Technician
Signature:	Catel Tal	Data	
e-mail address:	to statial valora in the static	Date.	12/22/2008
	C. THIS INCLUSION CONTRACTOR	receptione:	505-326-9837
20			
OCD Approval:	Permit Application (including closu	re plan) Closure Plan (only)	OCD Conditions (see attackment)
			OCOD Conditions (see attachment)
OCD Representative?	ignature:		Approval Date:
Title:			4 N
		(CD Perm	
21 <u>Closure Report (requi</u> Instructions: Operators an report is required to be su approved closure plan has	red within 60 days of closure com e required to obtain an approved closh buitted to the division within 60 days of been obtained and the closure activiti	npletion): Subsection K of 19.15.17.13 NMAC ure plan prior to implementing any closur of the completion of the closure activities, ics have been completed.	e activities and submitting the closure report. The closure Please do not complete this section of the form until an
		Closure	Completion Date:
22			
Closure Method:		_	
Waste Excavation	and Removal On-site Close	are Method Alternative Closure M	lethod Waste Removal (Closed-loop systems only)
If different from a	proved plan, please explain.		
23			
Closure Report Regardin	g Waste Removal Closure For Closer	d-loop Systems That Utilize Above Grou	ind Steel Tanks or Haul-off Bins Only:
were utilized.	fy the facility or facilities for where th	he liquids, drilling fluids and drill cutting	s were disposed. Use attachment if more than two facilities
Disposal Facility Name		Disposal Engility P	Suma in Million 4
Disposal Facility Name		Disposal Facility P	
Were the closed-loop sy	stem operations and associated activiti	Disposal Facility Pe	
Yes (If yes, please	demonstrate compliane to the items be	respectormed on or in areas that will nor (be used for future service and opeartions?
 Required for impacted c 	reas which will not be used for future	samica and operations.	
Required for impacted of Site Reclamation (I	reas which will not be used for future . hoto Documentation)	service and operations:	
Required for impacted of Site Reclamation (I	reas which will not be used for future . hoto Documentation) Cover Instatlation	service and operations:	
Required for impacted of Site Reclamation (I Soil Backfilling and Re-vegetation Appl	reas which will not be used for future . hoto Documentation) Cover Installation ication Rates and Seeding Technique	service and operations:	
Required for impacted of Site Reclamation (I Soil Backfilling and Re-vegetation Appl	reas which will not be used for future . hoto Documentation) Cover Instatlation ication Rates and Seeding Technique	service and operations:	
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	reas which will not be used for future . thoto Documentation) (Cover Installation ication Rates and Seeding Technique <u>chment Checklist:</u> Instructions: Ea ents are attached. Notice (surface owner and division) ice (required for on-site closure)	service and operations:	ed to the closure report. Please indicate, by a check mark in
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New Mexico Office of the State Engineer POD Reports and Downloads
Township: 28N Range: 06W Sections:
NAD27 X: Y: Zone: Search Radius:
County: Basin: Number: Suffix:
Owner Name: (First) (Last) CNon-Domestic CDomestic All
POD / Surface Data Report Avg Depth to Water Report Water Column Report
Clear Form iWATERS Menu Help

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WATER COLUMN REPORT 08/20/2008

		(quarter	s ar	e 1=	NW	2:	=NE	3=SW	4=SE)					
		(quarter	s are	e bi	gge	est	t to	smal	lest)		Depth	Depth	Water	(in
POD 1	Number	Tws	Rng	Sec	q	q	g	Zone	x	Y	Well	Water	Column	
SJ 0	3700 POD1	28N	06W	12	2	2	4				450	200	250	
SJ 0	3675	28N	06W	14	4	3	4	С	153167	2059732	420	100	320	
SJ O	3700	28N	06W	21	2	4	4				450	200	250	
SJ 0	3043	28N	06W	21	4	2	2				290	240	50	
SJ 0	3005	28N	06W	21	4	2	2				245	175	70	
SJ O	3443	28N	06W	22	3	3	3				300			
SJ O	0200	28N	06W	23	3	3					1551			
SJ 0	3091	28N	06W	29	2	2	3				150	90	60	

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New Mexico Office of the State Engineer POD Reports and Downloads
Township: 28N Range: 07W Sections:
NAD27 X: Y: Zone: Search Radius:
County: Basin: Number: Suffix:
Owner Name: (First) (Last) CNon-Domestic CDomestic All
POD / Surface Data Report Avg Depth to Water Report Water Column Report
Clear Form iWATERS Menu Help
WATER COLUMN REPORT 08/21/2008
(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are biggest to smallest) Depth Depth Water (in
POD Number Tws Rng Sec q q q Zone X Y Well Water Column ST 00002 29N 07W 14 1 275
SJ 03116 28N 07W 14 1 375 SJ 03116 28N 07W 21 3 3 98 20 78

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Township: 27N Range: 06	W Sections:
NAD27 X: Y:	Zone: Search Radius:
County: Basin:	Number: Suffix:
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POD / Surface Data Report	Avg Depth to Water Report Water Column Report
Clear Form	iWATERS Menu Help

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WATER COLUMN REPORT 08/20/2008

	(quarter (quarter	s are	a 1=1 a big	NW gge	2= est	=NE to	3=SW 4=SE) smallest)			Depth	Depth	Water	(in
POD Number	Tws	Rng	Sec	đ	đ	g	Zone	x	Y	Well	Water	Column	
SJ 03001	27N	06W	07	2	2	1				141	41	100	
SJ 02403	27N	06W	30	3	1	3				505	300	205	
SJ 00213	27N	06W	32	1	4	4				1308	485	823	
SJ 00062	27N	06W	32	3	3	3				452	301	151	
SJ 00061	27N	06W	32	3	3	3				445	301	144	

New Mexico Office of the State Engineer POD Reports and Downloads										
Township: 27N	Range: 07W	Sections:								
NAD27 X:	Y:	Zone:		Search Radius:						
County: Basin	:]		Num	ber: Suffix:						
Owner Name: (First)	(Last)		- C	Non-Domestic C Domestic C All						
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WATER COLUMN REPORT 08/20/2008

	(quarter (quarter	s are s are	1=l big	NW gge	2= est	=NE to	3=SW 4=S smalles	E) t)		Depth	Depth	Water	(in
POD Number	Tws	Rng	Sec	q	g	Ð	Zone	х	Y	Well	Water	Column	
RG 81025	27N	07W	35	4	3	3				560	465	95	
SJ 00195	27N	07W	15	2						1633	500	1133	
SJ 02314	27N	07W	17	3	3					355	320	35	
SJ 02408	27N	07W	21	2	1	3				400	300	100	
SJ 03274	27N	07W	35	3	4	4				450			
SJ 02404	27N	07W	3.5	4	3	-3				550	250	300	





Mines, Mills and Quarries Web Map

SAN JUAN 28-6 UNIT 210N

Unit Letter: C, Section: 31, Town: 028N, Range: 006W





SAN JUAN 28-6 UNIT 210N

Site Specific Hydrogeology

A visual site inspection confirming the information contained herein was performed on the well 'SAN JUAN 28-6 UNIT 210N', which is located at 36.62344 degrees North latitude and 107.509 degrees West longitude. This location is located on the Gould Pass 7.5' USGS topographic quadrangle. This location is in section 31 of Township 28 North Range 6 West of the Public Land Survey System (New Mexico Principal Meridian). This location is located in Rio Arriba County, New Mexico. The nearest town is Turley, located 17.5 miles to the northwest. The nearest large town (population greater than 10,000) is Farmington, located 39.4 miles to the west (National Atlas). The nearest highway is US Highway 64, located 5.4 miles to the north. The location is on BLM land and is 3,747 feet from the edge of the parcel as notated in the BLM land status layer updated January 2008. This location is in the Blanco Canyon. New Mexico, Sub-basin. This location is located 2004 meters or 6573 feet above sea level and receives 12.5 inches of rain each year. The vegetation at this location is classified as Colorado Plateau Pinion-Juniper Woodland as per the Southwest Regional Gap Analysis Program.

The estimated depth to ground water at this point is 369 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 290 feet to the southeast and is classified by the USGS as an intermittent stream. The nearest perrenial stream is 5,473 feet to the east. The nearest water body is 5,473 feet to the east. It is classified by the USGS as an intermittent lake and is 1.1 acres in size. The nearest spring is 6,035 feet to the northwest. All stream, river, water body and spring information was determined as per the USGS Hydrographic Dataset (High Resolution), downloaded 3/2008. The nearest water well is 3,126 feet to the northwest. The nearest wetland is a 2.9 acre Freshwater Forested/Shrub Wetland located 3,817 feet to the southeast. The slope at this location is 3 degrees to the east as calculated from USGS 30M National Elevation Dataset. This information is also discerned from the aerial and topographic map included. The surface geology at this location is SAN JOSE FORMATION--Siltstone, shale, and sandstone with a Sandstone dominated formations of all ages substrate. The soil at this location is 'Vessilla-Menefee-Orlie complex, 1 to 30 percent slopes' and is well drained and not hydric with severe erosion potential as taken from the NRCS SSURGO map unit, downloaded January 2008. The nearest underground mine is 17.4 miles to the northeast as indicated on the Mines, Mills and Quarries Map of New Mexico provided.

Regional Hydrogeological context:

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

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

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

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

General Plan:

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

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



PROPERTIES TEST METHOD J30BB J36BE **J45BE** Min. Roll Typical Roll Min. Roll Typical Roll Min. Roll Averages Typical Roll Averages Averages Averages Averages Averages Appearance Black/Black Black/Black Black/Black Thickness ASTM D 5199 27 mil 30 mil 32 mil 36 mil 40 mil 45 mil Weight Lbs Per MSF 126 lbs 140 lbs ASTM D 5261 151 lbs 168 lbs (oz/yd²) 189 lbs 210 lbs (18.14)(20.16)(21.74)(24.19)(27.21)(30.24)Construction **Extrusion laminated with encapsulated tri-directional scrim reinforcement Ply Adhesion **ASTM D 413** 16 lbs 20 lbs 19 lbs 24 lbs 25 lbs 31 lbs 88 lbf MD 1" Tensile Strength 110 lbf MD 113 Ibf MD ASTM D 7003 90 lbf MD 110 lbf MD 138 lbf MD 63 lbf DD 79 lbf DD 70 lbf DD 87 lbf DD 84 lbf DD 105 lbf DD 1" Tensile Elongation @ 550 MD 750 MD Break % (Film Break) **ASTM D 7003** 550 MD 750 MD 550 MD 750 MD 750 DD 550 DD 550 DD 750 DD 550 DD 750 DD 1" Tensile Elongation @ 20 MD 33 MD ASTM D 7003 20 MD Peak % (Scrim Break) 30 MD 20 MD 36 MD 20 DD 33 DD 20 DD 31DD 20 DD 36 DD

97 lbf MD

90 lbf DD

218 lbf MD

210 lbf DD

146 lbf MD

141 lbf DD

<0.5

64 lbf

180° F

-70° F

MD = Machine Direction DD = Diagonal Directions

Tongue Tear Strength

Grab Tensile

Trapezoid Tear

* Dimensional Stability

Puncture Resistance

Maximum Use Temperature

Minimum Use Temperature

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

75 lbf MD

75 lbf DD

180 lbf MD

180 lbf DD

130 lbf MD

130 lbf DD

<1

65 lbf

180° F

-70° F

104 lbf MD

92 lbf DD

222 lbf MD

223 lbf DD

189 lbf MD

172 lbf DD

<0.5

83 lbf

180° F

-70° F

100 lbf MD

100 lbf DD

220 lbf MD

220 lbf DD

160 lbf MD

160 lbf DD

<1

80 lbf

180° F

-70° F

117 lbf MD

118 lbf DD

257 lbf MD

258 lbf DD

193 lbf MD

191 lbf DD

< 0.5

99 lbf

180° F

-70° F

*Dimensional Stability Maximum Value

75 lbf MD

75 lbf DD

180 Ibf MD

180 lbf DD

120 lbf MD

120 lbf DD

<1

50 lbf

180° F

-70° F

ASTM D 5884

ASTM D 7004

ASTM D 4533

ASTM D 1204

ASTM D 4833

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

Note: ISAVEN INDUSTRIES MAKES NO WARRANTIES AS TO THE FITMESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS REFERRED TO, no quarinities of satisfactory results from Jouance upon contained information or recommendations and process all factory for resulting loss or damage.

RAVEN

PLANT LOCATION

Sioux Falls, South Dakota

SALES OFFICE

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



RAVEN INDUSTRIES INC. EXPOSED GEOMEMBRANE LIMITED WARRANTY

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

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

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

Any claim for any alleged breach of this warranty must be made in writing, by certified mail, to the General Manager of Engineered Films Division of Raven Industries Inc. within ten (10) days of becoming aware of the alleged defect. Should the required notice not be given, the defect and all warranties are waived by the Purchaser, and Purchaser shall not have any rights under this warranty. Raven Industries Inc. shall not be obligated to perform repairs or replacements under this warranty unless and until the area to be replaced is clean, dry, and unencumbered. This includes, but is not limited to, the area made available for repair and/or replacement of Raven geomembrane to be free from all water, dirt, sludge, residuals and liquids of any kind. If after inspection it is associated with the site inspection.

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

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

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

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

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

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

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

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

General Plan:

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

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

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

General Requirements:

- BR shall close a below-grade tank within the time periods provided in Subsection A of 19.15.17.13 NMAC. This will include a) below-grade tanks that do not meet the requirements of Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC or is not included in Paragraph (5) of Subsection I o f19.15.17.11 NMAC within five years, if not retrofitted to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC; b) permitted below-grade tanks within 60 days of cessation of the below-grade tank's operation., or c) an earlier date that the division requires because of imminent danger to fresh water, public health or the environment. For any closure, BR will file the C144 Closure Report as required.
- 2. BR shall remove liquids and sludge from a below-grade tank prior to implementing a closure method and shall dispose of the liquids and sludge in a division-approved facility. The facilities to be used will be Basin Disposal (Permit #NM-01-005) and Envirotech Land Farm (Permit #NM-01-011). The liner after being cleaned well (Subsection D, Paragraph 1, Subparagraph (m) of 19.15.9.712 NMAC) will be disposed of at the San Juan County Regional Landfill located on CR 3100.
- 3. BR will receive prior approval to remove the below-grade tank and dispose of it in a division-approved facility or recycle, reuse, or reclaim it in a manner that the appropriate division district office approves. Documentation of how the below-grade tank was disposed of or recycled will be provided in the closure report.
- 4. If there is any on-site equipment associated with a below-grade tank, then BR shall remove the equipment, unless the equipment is required for some other purpose.
- 5. BR shall test the soils beneath the below-grade tank to determine whether a release has occurred. BR shall collect, at a minimum, a five point, composite sample; collect individual grab samples from any area that is wet, discolored or showing other evidence of a release; and analyze for BTEX, TPH and chlorides to demonstrate that the benzene concentration, as determined by EPA SW-846 methods 8021B or 8260B or other EPA method that the division approves, does not exceed 0.2 mg/kg; total BTEX concentration, as determined by EPA SW-846 methods 8021B or 8260B or other EPA method that the division approves, does not exceed 0.2 mg/kg; total BTEX concentration, as determined by EPA SW-846 methods 8021B or 8260B or other EPA method that the division approves, does not exceed 50 mg/kg; the TPH concentration, as determined by EPA method 418.1 or other EPA method that the division approves, does not exceed 50 mg/kg; or other 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, nonwaste containing, earthen material; construct a division-prescribed soil cover; recontour and re-vegetate the site.
- 8. Notice of Closure will be given prior to closure to the Aztec Division office between 72 hours and one week via email or verbally. The notification of closure will include
 - i. Operator's name
 - ii. Location by Unit Letter, Section, Township, and Range. Well name and API number.
- 9. The surface owner shall be notified of BR's closing of the below-grade tank prior to closure as per the approved closure plan via certified mail, return receipt requested.
- 10. Re-contouring of location will match fit, shape, line, form and texture of the surrounding. Re-shaping will include drainage control, prevent ponding, and prevent erosion. Natural drainages will be unimpeded and water bars and/or silt traps will be place in areas where needed to prevent erosion on a large scale. Final re-contour shall have a uniform appearance with smooth surface, fitting the natural landscape.
- 11. BR shall seed the disturbed areas the first growing season after the operator closes the pit. Seeding will be accomplished via drilling on the contour whenever practical or by other division-approved methods. BLM stipulated seed mixes will used on federally jurisdicted lands and division-approved seed mixtures (administratively approved if required) will be utilized on all State or private lands. Vegetative cover will equal 70% of the native perennial vegetative cover (un-impacted) consisting of at least three native plant species, including at least one grass, but not including noxious weeds, and maintain that cover through two successive growing seasons. If alternate seed mix is required by the state, private owner or tribe, it will be implemented with administrative approval if needed. BR will repeat seeding or planting will be continued until successful vegetative growth occurs.
- 12. A minimum of four feet of cover shall be achieved and the cover shall include one foot of suitable material to establish vegetation at the site, or the background thickness of topsoil, whichever is greater.
- 13. All closure activities will include proper documentation and be available for review upon request and will be submitted to OCD within 60 days of closure of the belowgrade tank. Closure report will be filed on C-144 and incorporate the following:
 - Soil Backfilling and Cover Installation
 - Re-vegetation application rates and seeding techniques •
 - Photo documentation of the site reclamation
 - Confirmation Sampling Results
 - Proof of closure notice