Last ster 2		
District I'	State of New Mexico	Form C-144
1625 N. French Dr., Hobbs, NM 88240	Energy Minerals and Natural Resources	July 21, 2008
District II 301 W. Grand Ave., Artesia, NM 88210	Department Oil Conservation Division 1220 South St. Francis Dr.	For temporary pits, closed-loop sytems, and below-grade tanks, submit to the appropriate NMOCD District Office.
District III 000 Rio Brazos Rd., Aztec, NM 87410	Santa Fe, NM 87505	For permanent pits and exceptions submit to the Santa Fe
District IV 220 S. St. Francis Dr., Santa Fe, NM 87505	Sund Po, This Store	Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.
	t, Closed-Loop System, Below-Grad	e Tank, or
Proposed	Alternative Method Permit or Closur	e 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	
	Closure plan only submitted for an existing permi below-grade tank, or proposed alternative method	
Instructions: Please submit one appli	cation (Form C-144) per individual pit, closed-loc	op system, below-grade tank or alternative request
	request does not relieve the operator of liability should operations r he operator of its responsibility to comply with any other applicable	
Operator: ConocoPhillips Company	(S) Jan	OGRID#: 217817
Address: PO Box 4289, Farmington, N	NM 87499	1 CALDAR - 144
Facility or well name: SAN JUAN 28-7	UNIT 221F	1.1.5.2.5.1.1
	930146 OCD Permit Numbe	A set and some the set of the set of the
J/L or Qtr/Qtr: P Section: Center of Proposed Design: Latitude:	25 Township: 28N Range:	7W         County:         Rio Arriba           -107.5175500°W         NAD:         X 1927         1983
Surface Owner: X Federal	State Private Tribal Trust or India	the content of the second s
		JERCON DE LA CONTRACTÓRIO DE LA CONTRACTÓRIA DE LA CONTRACTÍRIA DE LA CONTRACTIC
2 Pit: Subsection F or G of 19.15.17.11	NMAC	
Temporary: Drilling Workove	T	
Permanent Emergency Cavit		a di maine method
Lined Unlined Liner	ype: Thickness mil LLDPE	HDPE PVC Other
String-Reinforced		in the second second
Liner Seams: Welded Factor	y Other Volume:	bbl Dimensions L x W x D
Closed-loop System: Subsection	H of 19.15.17.11 NMAC	$= (-i)n^{2} + i n^{2} + \cdots + (-i)n^{2}$
Type of Operation: P&A D	illing a new well Workover or Drilling (Applies to notice of intent)	activities which require prior approval of a permit or
Drying Pad Above Ground S		
Lined Unlined Liner typ		IDPE PVD Other
Liner Seams: Welded Factor		
and a second sec		
X Below-grade tank: Subsection I of	19.15.17.11 NMAC	The Art Han
Volume: 120 bbl	Type of fluid: Produced Water	NAD TO STATIST
Tank Construction material:	Metal	
Secondary containment with leak detect		omatic overflow shut-off
Visible sidewalls and liner	Visible sidewalls onlyOther	
Liner Type: Thickness	mil HDPE PVC X Other U	Jnspecified
5 Alternative Method:		
A CONTRACT OF A	d. Exceptions must be submitted to the Santa Fe Enviro	nmental Bureau office for consideration of annoval
Submittar of an exception request is require	. Exceptions must be submitted to the Santa Fe Enviro	Annotati Durvati Onice for consideration of approval.
Form C-144	Oil Conservation Division	Page 1 of 5

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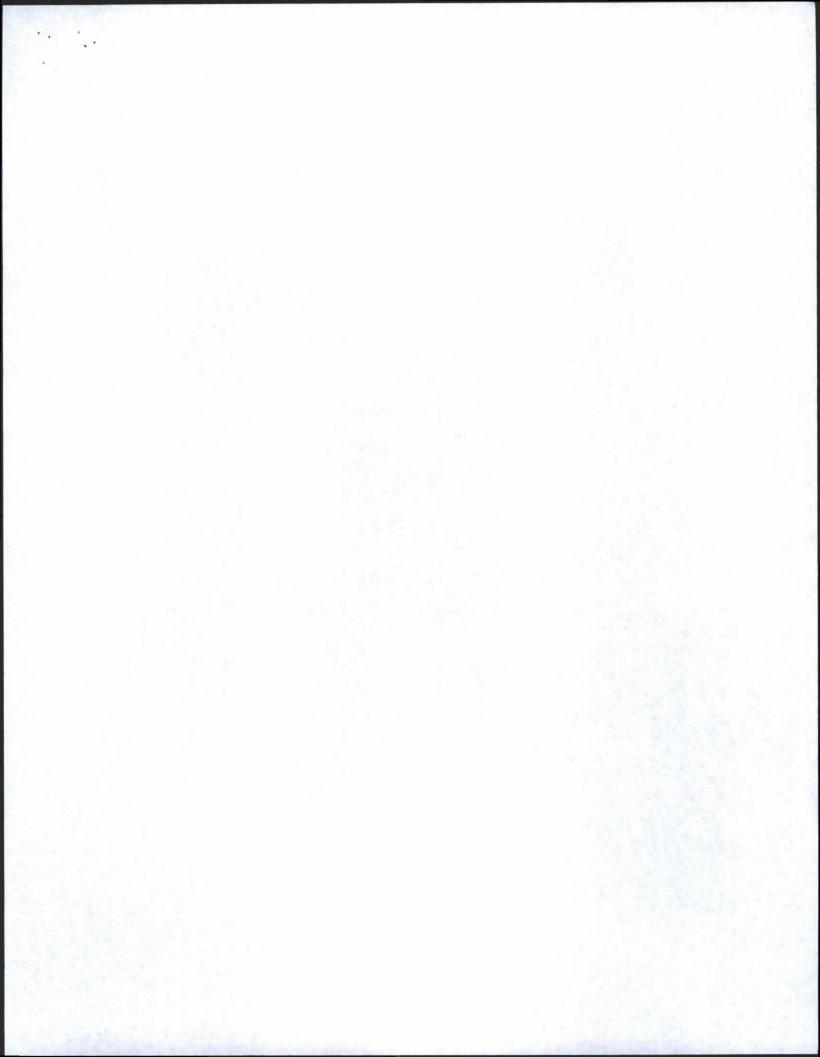
Subsection D of 19.15.17.11 NMAC (Applies to permanent pit, temporary pits, and below-grade tanks)		
Chain link, six feet in height, two strands of barbed wire at top (Required if located within 1000 feet of a permanent residence, school, hospital, in	istitution or chi	urch)
Four foot height, four strands of barbed wire evenly spaced between one and four feet		
X Alternate. Please specify 4' hog wire fencing topped with two strands barbed wire.		
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" 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 con-	nsideration of a	approval.
(Fencing/BGT Liner)		
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	Sec. 1	
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.	1	
Ground water is less than 50 feet below the bottom of the temporary pit, permanent pit, or below-grade tank. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	Yes	XNo
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).	Yes	XNo
- Topographic map; Visual inspection (certification) of the proposed site	1.00	1.1
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.	Yes	XNo
(Applies to temporary, emergency, or cavitation pits and below-grade tanks)	NA	1.11
- 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)	XNA	
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image		10.0
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.	1.20	6274
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		
<ul> <li>Within 500 feet of a wetland.</li> <li>US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site</li> </ul>	Yes	XNo
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	XNo
Society; Topographic map Within a 100-year floodplain		XNo
- FEMA map	Yes	

Oil Conservation Division

			<b><u>Attachment Checklist:</u></b> Subsection B of 19.15.17.9 NMAC te, by a check mark in the box, that the documents are attached.
			Paragraph (4) of Subsection B of 19.15.17.9 NMAC
the second se			ements of Paragraph (2) of Subsection B of 19.15.17.9 (MAC
	pliance Demonstrations - based up		
	upon the appropriate requirement		
X Operating and Mair	tenance Plan - based upon the app	propriate requirements of	f 19.15.17.12 NMAC
	e complete Boxes 14 through 18, i and 19.15.17.13 NMAC	if applicable) - based upo	on the appropriate requirements of Subsection C of
Previously Approved D	esign (attach copy of design)	API	or Permit
12			
	mit Application Attachment Ch	ecklist: Subsection B of	19.15.17.9 NMAC
			e, by a check mark in the box, that the documents are attached.
8			equirements of Paragraph (3) of Subsection B of 19.15.17.9
	11		ipon the appropriate requirements of 19.15.17.10 NMAC
Design Plan - based	upon the appropriate requirement	ts of 19.15.17.11 NMAC	
Operating and Mair	tenance Plan - based upon the app	propriate requirements of	f 19.15.17.12 NMAC
Closure Plan (Pleas NMAC and 19.15.1		f applicable) - based upo	on the appropriate requirements of Subsection C of 19.15.17.9
Previously Approved D	esign (attach copy of design)	API	
	perating and Maintenance Plan	API	
3 Dermanent Dite Permit A	pplication Checklist: Subsection	on B of 10 15 17 0 NM	
			ate, by a check mark in the box, that the documents are attached.
-	ort - based upon the requirements		
	pliance Demonstrations - based up		
Climatological Fact		son me appropriate requi	Tements of 19.13.17.10 NMAC
-	ig Design Plans - based upon the a	appropriate requirements	of 19 15 17 11 NMAC
			equirements of 19.15.17.11 NMAC
	ign - based upon the appropriate re		
Liner Specifications	and Compatibility Assessment - It	based upon the appropria	ate requirements of 19.15.17.11 NMAC
Quality Control/Qua	lity Assurance Construction and h	nstallation Plan	
Operating and Main	tenance Plan - based upon the app	ropriate requirements of	19.15.17.12 NMAC
Freeboard and Over	topping Prevention Plan - based up	pon the appropriate requ	irements of 19.15.17.11 NMAC
-	ous Odors, including H2S, Preven	tion Plan	
Emergency Respons			
	am Characterization		
Monitoring and Insp			
Erosion Control Plan			
Closure Plan - based	upon the appropriate requirement	ts of Subsection C of 19	15.17.9 NMAC and 19.15.17.13 NMAC
4 roposed Closure: 19.15	17.12 NMAC		The 19 19 19 19 19 19 19 19 19 19 19 19 19
	e the applicable boxes, Boxes 14 thro	ough 18, in regards to the	proposed closure plan.
	rkover Emergency Cavita		manent Pit X Below-grade Tank Closed-loop System
Alternative			
roposed Closure Method:	X Waste Excavation and Remov	al (Below-Grade	e Tank)
	Waste Removal (Closed-loop :	systems only)	
	On-site Closure Method (only	for temporary pits and cl	osed-loop systems)
	In-place Burial	On-site Trench	and the second sec
	Alternative Closure Method (F	Exceptions must be subm	itted to the Santa Fe Environmental Bureau for consideration)
5			uctions: Each of the following items must be attached to the closure plan
	ark in the box, that the documents a	re attached.	
lease indicate, by a check m			7.12.111.1.0
lease indicate, by a check m	lures - based upon the appropriate		
Rease indicate, by a check m         X       Protocols and Proced         X       Confirmation Sample	ing Plan (if applicable) - based upo	on the appropriate requir	rements of Subsection F of 19.15.17.13 NMAC
X       Protocols and Process         X       Confirmation Sample         X       Disposal Facility Na	ing Plan (if applicable) - based upo me and Permit Number (for liquid	on the appropriate requir ls, drilling fluids and dril	rements of Subsection F of 19.15.17.13 NMAC
X       Protocols and Process         X       Confirmation Sample         X       Disposal Facility Na	ing Plan (if applicable) - based upo me and Permit Number (for liquid	on the appropriate requir ls, drilling fluids and dril	rements of Subsection F of 19.15.17.13 NMAC
Mease indicate, by a check m         X       Protocols and Process         X       Confirmation Sample         X       Disposal Facility Na         X       Soil Backfill and Co	ing Plan (if applicable) - based upo me and Permit Number (for liquid	on the appropriate requir ls. drilling fluids and dril upon the appropriate req	rements of Subsection F of 19.15.17.13 NMAC Il cuttings) uirements of Subsection H of 19.15.17.13 NMAC

16		
Waste Removal Closure For Closed-loop Systems That Utilize Above Ground S Instructions: Please identify the facility or facilities for the disposal of liquids, drill are required.	<b>Steel Tanks or Haul-off Bins Only:</b> (19.15.17.13.D NMAC) ing fluids and drill cuttings. Use attachment if more than two	facilities
Disposal Facility Name:	Disposal Facility Permit #:	
Disposal Facility Name:		
Will any of the proposed closed-loop system operations and associated activ Yes (If yes, please provide the information No		service and operations?
Required for impacted areas which will not be used for future service and operatio     Soil Backfill and Cover Design Specification - based upon the appropriate requirements of Sub     Re-vegetation Plan - based upon the appropriate requirements of Sub     Site Reclamation Plan - based upon the appropriate requirements of Sub	priate requirements of Subsection H of 19.15.17.13 NMA section I of 19.15.17.13 NMAC	AC
17 Siting Criteria (Regarding on-site closure methods only: 19.15.17.10 NM Instructions: Each siting criteria requires a demonstration of compliance in the closure plat certain suing criteria may require administrative approval from the appropriate district off for consideration of approval. Justifications and/or demonstrations of equivalency are requ	n. Recommendations of acceptable source material are provided being for a provided being or may be considered an exception which must be submitted to the submitted to the submitted of the submitted of the submitted source or may be considered.	
Ground water is less than 50 feet below the bottom of the buried waste.		Yes No
<ul> <li>NM Office of the State Engineer - iWATERS database search; USGS: Data of</li> </ul>	obtained from nearby wells	
Ground water is between 50 and 100 feet below the bottom of the buried wa		Yes No
<ul> <li>NM Office of the State Engineer - iWATERS database search; USGS; Data o</li> </ul>	btained 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 o	btained from nearby wells	N/A
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other sign measured from the ordinary high-water mark).	ificant watercourse or lakebed, sinkhole, or playa lake	Yes No
- Topographic map; Visual inspection (certification) of the proposed site		
Within 300 feet from a permanent residence, school, hospital, institution, or church - Visual inspection (certification) of the proposed site; Aerial photo; satellite ima		Yes No
Within 500 horizontal feet of a private, domestic fresh water well or spring that less purposes, or within 1000 horizontal fee of any other fresh water well or spring, in e - NM Office of the State Engineer - iWATERS database; Visual inspection (cert	xistence at the time of the initial application.	Yes No
Within incorporated municipal boundaries or within a defined municipal fresh wate pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval of		Yes No
Within 500 feet of a wetland	wanted non the maneipanty	
- US Fish and Wildlife Wetland Identification map; Topographic map; Visual in	nspection (certification) of the proposed site	
Within the area overlying a subsurface mine.		Yes No
- Written confiramtion or verification or map from the NM EMNRD-Mining and	d Mineral Division	
Within an unstable area.		Yes No
- Engineering measures incorporated into the design; NM Bureau of Geology &	Mineral Resources; USGS; NM Geological Society;	
Topographic map Within a 100-year floodplain.		Yes No
- FEMA map 18 On-Site Closure Plan Checklist: (19.15.17.13 NMAC) Instructions: Eac	ch of the following items must bee attached to the closu	re plan Please indicate
by a check mark in the box, that the documents are attached.		
Siting Criteria Compliance Demonstrations - based upon the appropri	ate requirements of 19.15.17.10 NMAC	
Proof of Surface Owner Notice - based upon the appropriate requirem	nents 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 du Protocols and Procedures - based upon the appropriate requirements of		9.15.17.11 NMAC
Confirmation Sampling Plan (if applicable) - based upon the appropria		
8		
Waste Material Sampling Plan - based upon the appropriate requirement		
Disposal Facility Name and Permit Number (for liquids, drilling fluids		nnot be achieved)
Soil Cover Design - based upon the appropriate requirements of Subse		
Re-vegetation Plan - based upon the appropriate requirements of Subs	action 1 of 19.15.17.13 NMAC	

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



12/22/2008         505-326-9837         OCD Conditions (see attachment)
OCD Conditions (see attachment)        Approval Date:
Approval Date:
Approval Date:
amber:
tivities and submitting the closure report. The closure asse do not complete this section of the form until an npletion Date:
ase do not complete this section of the form until an  npletion Date:  od  Waste Removal (Closed-loop systems only)  Steel Tanks or Haul-off Bins Only:
Steel Tanks or Haul-off Bins Only:
it Number:
to the closure report. Please indicate, by a check mark in
NAD 1927 1983

Form C-144

Oil Conservation Division

New Mexico Office of the State Engineer

			Ν				fice of orts an			Enginee ads	er				
1	Townshi	ip: 28	NF	Range	: 07	w	Sectio	ons: [							
NAL	027 X	:		Y:		5	Zon	e: <b>[</b>		S	earch	Radiu	s:		
County:		E	Basin:						J	Number	: [	1	Suffix:		J
Owner Name:	(First)			-	(1	_ast)				C No	n-Do	omestic	C Dom	estic @	All
POD/S	urface E	ata Re	eport		1949 (1) 1944 (1)	Avg	) Depth	to Wat	er Re	eport		Wat	er Column	Report	
			(	Clear	Forn	1	iWAT	ERSI	Menu	He	elp				
					-					6					1
									PORT	08/21	/200	8			
							3=SW 4 small					Depth	Depth	Water	(in
POD Number	194	Tws	Rng	Sec	a a		Zone		x			Well	Water	Column	
SJ 00002 SJ 03116	-	28N 28N	07W 07W		1 3 3	3						375 98	20	78	
Becord Count:	2					8.1									

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New Mexico Office of the State Engineer

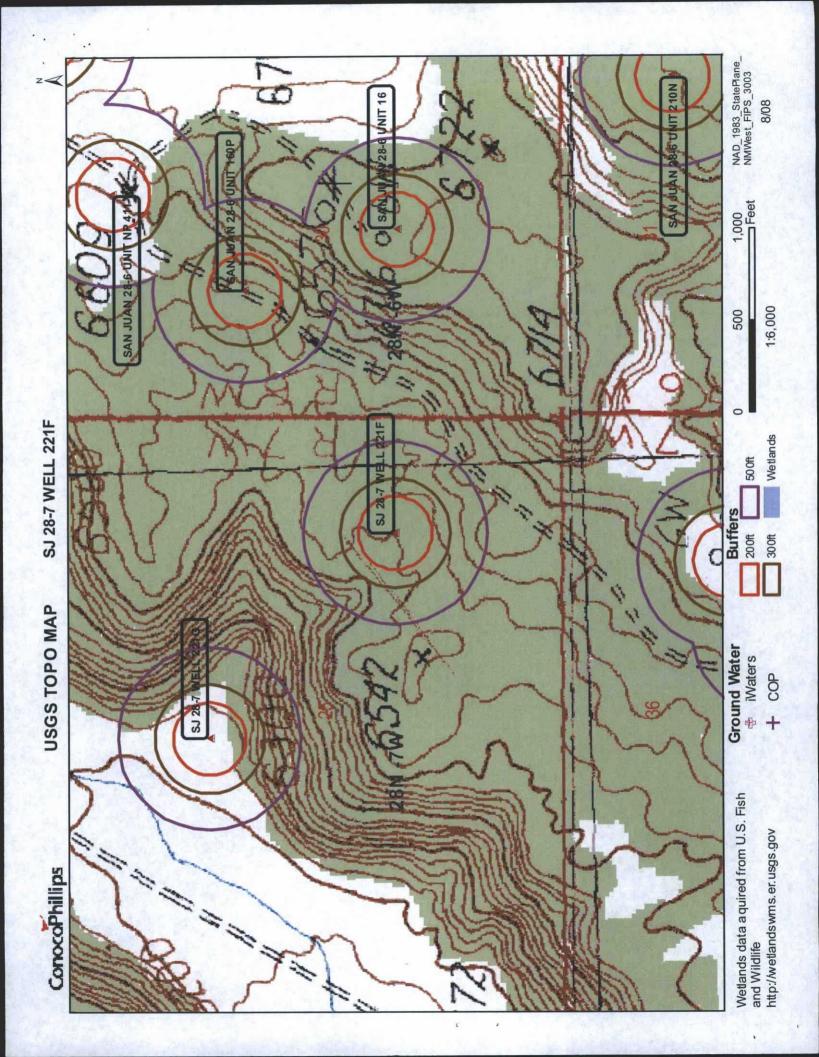
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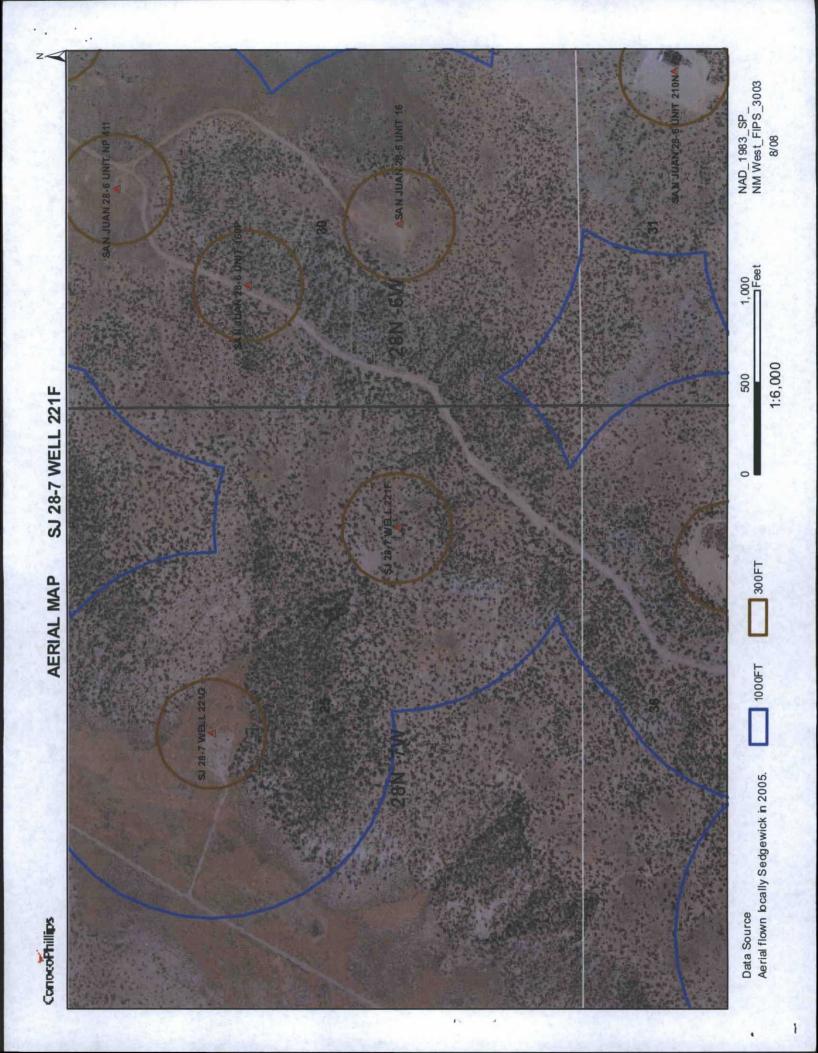
	ffice of the State Engineer orts and Downloads
Township: 28N Range: 06W	Sections:
NAD27 X: Y:	Zone: Search Radius:
County: Basin:	Number: Suffix:
Owner Name: (First) (Last)	C Non-Domestic C Domestic @ All
POD / Surface Data Report Avg	Depth to Water Report Water Column Report
Clear Form	iWATERS Menu Help

## WATER COLUMN REPORT 08/20/2008

	(quarter: (quarter:									Depth	Depth	Water	(in
POD Number	Tws	Rng	Sec	q	g	P	Zone	x	Y	Well	Water	Column	
SJ 03700 POD1	28N	06W	12	2	2	4				450	200	250	
SJ 03675	28N	06W	14	4	3	4	С	153167	2059732	420	100	320	
SJ 03700	28N	06W	21	2	4	4				450	200	250	
SJ 03043	28N	06W	21	4	2	2				290	240	50	
SJ 03005	28N	06W	21	4	2	2				245	175	70	
SJ 03443	28N	06W	22	3	3	3				300			
SJ 00200	28N	06W	23	3	3					1551		1 3	
SJ 03091	28N	06W	29	2	2	3				150	90	60	1

Record Count: 8

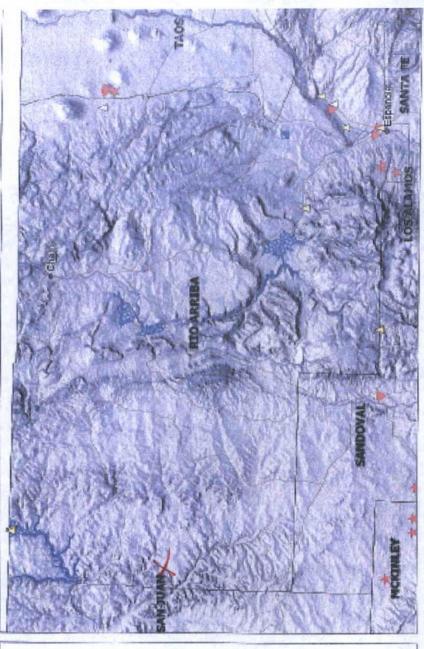




# Mines, Mills and Quarries Web Map

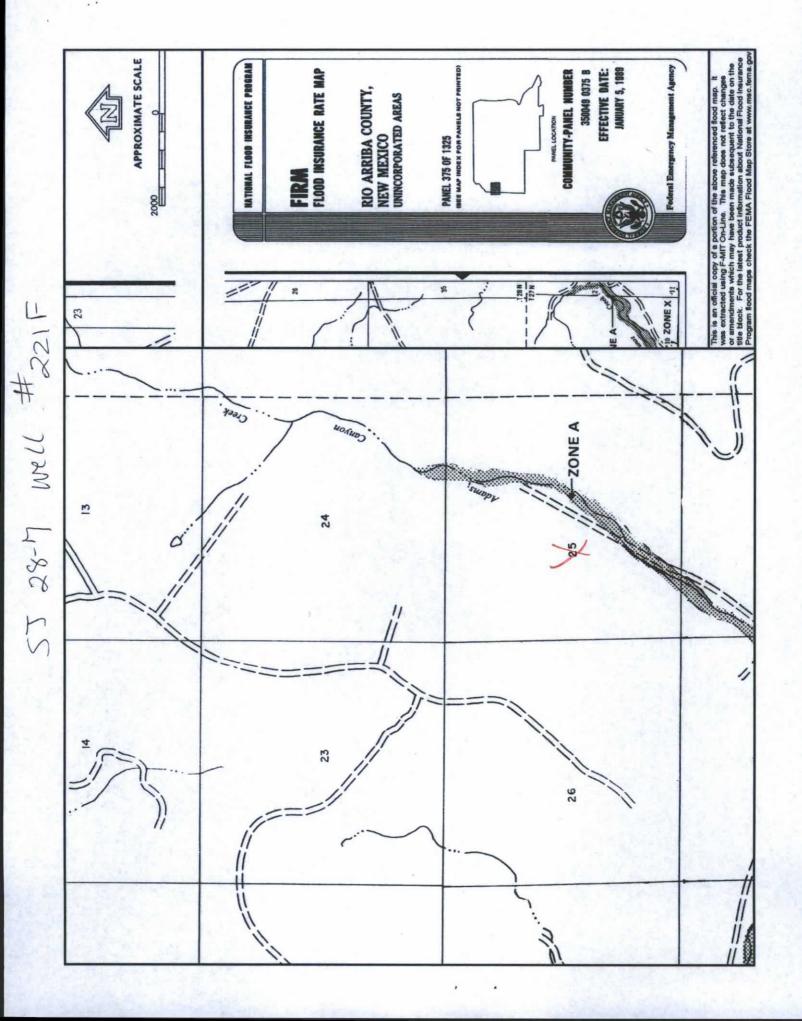
SJ 28-7 WELL 221F Unit Letter: , Section: 25, Town: 28N, Range: 7W

<ul> <li>Aggregate &amp; Stone Mines</li> <li>Coal Mines</li> <li>Industrial Minerals Mines</li> <li>Industrial Minerals Mills</li> <li>Industrial Minerals Mills</li> <li>Metal Mines and Mill Concentrate</li> <li>Potash Mines &amp; Refinery Ops.</li> <li>Uranium Mines</li> <li>Uranium Mills</li> <li>Uranium Mills</li> <li>Opulation</li> <li> <ul> <li>Citles - major</li> <li>Interstate Highways</li> <li>Major Roads</li> </ul> </li> </ul>
Uranium Mines Uranium Milis Cities - major Cities - major Railways Interstate Highways Major Roads
Uranium Mills Citles - major fion Railways Interstate Highways Major Roads
Citles - major tion Railways Interstate Highways Major Roads
Cities - major ttion Raitways Interstate Highways Major Roads
rtion Railways Interstate Highways Major Roads
Railways Interstate Highways Major Roads
Interstate Highways Major Roads
Major Roads





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## SAN JUAN 28-7 UNIT 221F

## Site Specific Hydrogeology

A visual site inspection confirming the information contained herein was performed on the well SAN JUAN 28-7 UNIT 221F, which is located at 36.627822 degrees North latitude and 107.51755 degrees West longitude. This location is located on the Delgadito Mesa 7.5' USGS topographic quadrangle. This location is in section 25 of Township 28 North Range 7 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 16.9 miles to the northwest. The nearest large town (population greater than 10,000) is Farmington, located 38.9 miles to the west (National Atlas). The nearest highway is US Highway 64, located 5.3 miles to the northeast. The location is on BLM land and is 793 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, Subbasin. This location is located 1992 meters or 6533 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 316 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 2,062 feet to the northwest and is classified by the USGS as an intermittent stream. The nearest perrenial stream is 6,486 feet to the south. The nearest water body is 6,614 feet to the northeast. It is classified by the USGS as an intermittent lake and is 0.3 acres in size. The nearest spring is 3,244 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 178 feet to the west. The nearest wetland is a 360.3 acre Ravine located 6,351 feet to the southwest. The slope at this location is 4 degrees to the northwest 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 17.5 miles to the northeast as indicated on the Mines, Mills and Quarries Map of New Mexico provided.

## Regional Hydrogeological context:

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

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

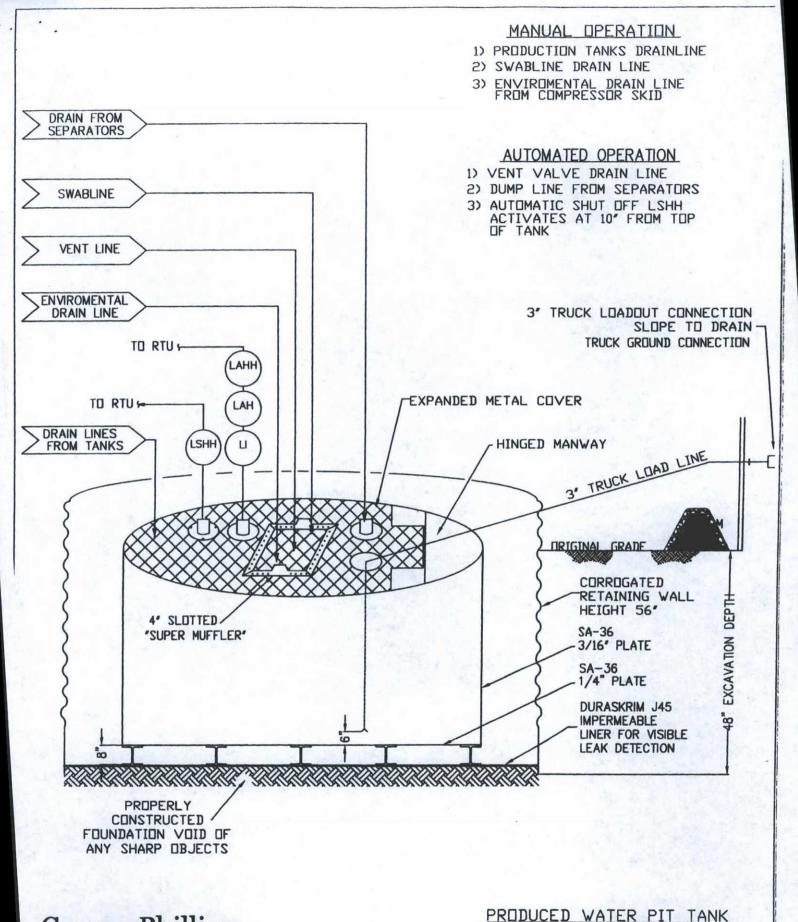
## ConocoPhillips Company San Juan Basin Below Grade Tank Design and Construction

In accordance with NMAC 19.15.17 the following information describes the design and construction of below grade tanks on ConocoPhillips Company (COPC) locations. This is COPC'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:

- COPC 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.
- COPC signage will comply with 19.15.3.103 NMAC when COPC is the operator. If COPC is not the operator it will comply with 19.15.17.11NMAC. COPC includes Emergency Contact information on all signage.
- 3. COPC has approval to use alternative fencing that provides better protection. COPC 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. COPC ensures that all gates associated with the fence are closed and locked when responsible personnel are not onsite.
- COPC will construct a screened, expanded metal covering, on the top of the BGT.
- 5. COPC 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 COPC 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. COPC shall operate and install the below-grade tank to prevent the collection of surface water run-on. COPC has built in shut off devices that do not allow a below-grade tank to overflow. COPC 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. COPC 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. COPC 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 COPC 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 COPC'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 COPC document.



**ConocoPhillips** 

San Juan Business Unit

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

# DURA-SKRIM®

## **J30, J36 & J45**

PROPERTIES	TEST METHOD	J3	0B <b>B</b>	J3(	6B <b>B</b>	J45BB										
		Min. Roll Averages	Typical Roll Averages	Min. Roll Averages	Typical Roll Averages	Min. Roll Averages	Typical Roll Averages									
Appearance		Blac	k/Black	Black	/Black	Black	/Black									
Thickness	ASTM D 5199	27 mil	30 mil	32 mil	36 mil	40 mil	45 mil									
Weight Lbs Per MSF (oz/yd²)	ASTM D 5261	126 lbs (18.14)	140 lbs (20.16)	151 lbs (21.74)	168 lbs (24.19)	189 lbs (27.21)	210 lbs (30.24)									
Construction		**Extr	usion laminated	with encapsula	ted tri-direction	al scrim reinfor	cement									
Ply Adhesion	ASTM D 413	16 lbs	20 lbs	19 lbs	24 lbs	25 lbs	31 lbs									
1" Tensile Strength	ASTM D 7003	88 lbf MD 63 lbf DD	110 lbf MD 79 lbf DD	90 lbf MD 70 lbf DD	113 lbf MD 87 lbf DD	110 lbf MD 84 lbf DD	138 lbf MD 105 lbf DD									
1" Tensile Elongation @ Break % (Film Break)	ASTM D 7003 ASTM D 7003	550 MD 550 DD	750 MD 750 DD	550 MD 550 DD	750 MD 750 DD	550 MD 550 DD	750 MD 750 DD									
1" Tensile Elongation @ Peak % (Scrim Break)		20 MD 20 DD	33 MD 33 DD	20 MD 20 DD	30 MD 31DD	20 MD 20 DD	36 MD 36 DD									
Tongue Tear Strength	ASTM D 5884	75 lbf MD 75 lbf DD	97 lbf MD 90 lbf DD	75 lbf MD 75 lbf DD	104 lbf MD 92 lbf DD	100 lbf MD 100 lbf DD	117 lbf MD 118 lbf DD									
Grab Tensile AST	ASTM D 7004	ASTM D 7004	ASTM D 7004	ASTM D 7004	ASTM D 7004	ASTM D 7004	ASTM D 7004	ASTM D 7004	ASTM D 7004	ASTM D 7004	180 lbf MD 180 lbf DD	218 lbf MD 210 lbf DD	180 lbf MD 180 lbf DD	222 lbf MD 223 lbf DD	220 lbf MD 220 lbf DD	257 lbf MD 258 lbf DD
Trapezoid Tear	ASTM D 4533	120 lbf MD 120 lbf DD	146 lbf MD 141 lbf DD	130 lbf MD 130 lbf DD	189 lbf MD 172 lbf DD	160 lbf MD 160 lbf DD	193 lbf MD 191 lbf DD									
* Dimensional Stability	ASTM D 1204	<1	<0.5	<1	<0.5	<1	<0.5									
Puncture Resistance	ASTM D 4833	50 lbf	64 lbf	65 lbf	83 lbf	80 lbf	99 lbf									
Maximum Use Temperature	125	180° F														
Minimum Use Temperature		-70° F														

MD = Machine Direction DD = Diagonal Directions



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

\*Dimensional Stability Maximum Value

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

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



PLANT LOCATION

Sioux Falls, South Dakota

## SALES OFFICE

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. These dates will be updated prior to December 31, 2008.

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

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

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

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

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

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

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

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

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

## ConocoPhillips Company 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 ConocoPhillips Company (COPC) locations. This is COPC's standard procedure for all BGT. A separate plan will be submitted for any BGT which does not conform to this plan.

## General Plan:

- COPC 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. COPC 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. COPC will not discharge into or store any hazardous waste in the BGT.
- 3. COPC shall operate and install the below-grade tank to prevent the collection of surface water run-on. COPC has built in shut off devices that do not allow a below-grade tank to overflow. COPC 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, COPC 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, COPC's multi-skilled operators (MSOs) are required to visit each well location once per week. If detected on either inspection, COPC 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.
- COPC 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 COPC shall remove all liquid above the damage or leak line within 48 hours. COPC shall notify the appropriate district office. COPC 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, COPC shall promptly remove and install a below grade tank or pit liner that complies with Subsection I of 19.15.17.11 NMAC. COPC 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.

## ConocoPhillips Company 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 ConocoPhillips Company locations hereinafter known as COPC locations. This is COPC's standard procedure for all BGTs. A separate plan will be submitted for any BGT which does not conform to this plan.

## General Requirements:

- COPC 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 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, COPC will file the C144 Closure Report as required.
- COPC 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. COPC 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 COPC shall remove the equipment, unless the equipment is required for some other purpose.
- 5. COPC shall test the soils beneath the below-grade tank to determine whether a release has occurred. COPC shall collect, at a minimum, a five point, composite sample; collect individual grab samples from any area that is wet, discolored or showing other evidence of a release; and analyze for BTEX, TPH and chlorides to demonstrate that the benzene concentration, as determined by EPA SW-846 methods 8021B or 8260B or other EPA method that the division approves, does not exceed 0.2 mg/kg; total BTEX concentration, as determined by EPA SW-846 methods 8021B or 8260B or other EPA method that the division approves, does not exceed 50 mg/kg; the TPH concentration, as determined by EPA method 418.1 or other EPA method that the division approves, does not exceed 100 mg/kg; and the chloride concentration, as determined by EPA method 300.1 or other EPA method that the division approves, does not exceed 250 mg/kg, or the background concentration, whichever is greater. COPC shall notify the division of its results on form C-141.

- If COPC or the division determines that a release has occurred, then COPC 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 COPC shall backfill the excavation with compacted, non-waste containing, earthen material; construct a division-prescribed soil cover; recontour and re-vegetate the site.
- Notice of Closure will be given prior to closure to the Aztec Division office between 72 hours and one week via email or verbally. The notification of closure will include the following:
  - i. Operator's name
  - ii. Location by Unit Letter, Section, Township, and Range. Well name and API number.
- The surface owner shall be notified of COPC'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. COPC 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. COPC 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 below-grade 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

## OCD Aztec District III Conoco Phillips/Burlington Checklist Below Grade Tank Registration

## 19.15.17.9 Permit application

Signed C-144 (Page 5 of C-144)

Site Specific Hydrogeology

## 19.15.17.10 Siting requirements

New Mexico Office of State Engineer attachment
 USGS TOPO map
 Aerial Map
 Mines, Mills and Quarries Web Map
 FIRM map (flood insurance rate map from Federal Emergency Management Agency)

## 19.15.17.11 Design Plan Contents

Below Grade Tank Design and Construction Plan.

## 19.15.17.12 Operating and Maintenance Plan

Below Grade Tank Operating and Maintenance Plan

## 19.15.17.13 Closure Plan

Below Grade Tank Closure Plan

**Requirements:** 

Registration Date: 2 12 16