

STATE OF UTAH DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS AND MINING				FORM 3 AMENDED REPORT <input type="checkbox"/>		
APPLICATION FOR PERMIT TO DRILL				1. WELL NAME and NUMBER Painted Rock Federal 29-1A		
2. TYPE OF WORK DRILL NEW WELL <input checked="" type="checkbox"/> REENTER P&A WELL <input type="checkbox"/> DEEPEN WELL <input type="checkbox"/>				3. FIELD OR WILDCAT WILDCAT		
4. TYPE OF WELL Gas Well Coalbed Methane Well: NO				5. UNIT or COMMUNITIZATION AGREEMENT NAME		
6. NAME OF OPERATOR WOLVERINE OPERATING COMPANY OF UTAH, LLC				7. OPERATOR PHONE 435 896-1943		
8. ADDRESS OF OPERATOR 1140 N. Centennial Park Dr., Richfield, UT, 84701				9. OPERATOR E-MAIL ciron@wolvgas.com		
10. MINERAL LEASE NUMBER (FEDERAL, INDIAN, OR STATE) UTU-081346		11. MINERAL OWNERSHIP FEDERAL <input checked="" type="checkbox"/> INDIAN <input type="checkbox"/> STATE <input type="checkbox"/> FEE <input type="checkbox"/>		12. SURFACE OWNERSHIP FEDERAL <input checked="" type="checkbox"/> INDIAN <input type="checkbox"/> STATE <input type="checkbox"/> FEE <input type="checkbox"/>		
13. NAME OF SURFACE OWNER (if box 12 = 'fee')				14. SURFACE OWNER PHONE (if box 12 = 'fee')		
15. ADDRESS OF SURFACE OWNER (if box 12 = 'fee')				16. SURFACE OWNER E-MAIL (if box 12 = 'fee')		
17. INDIAN ALLOTTEE OR TRIBE NAME (if box 12 = 'INDIAN')		18. INTEND TO COMMINGLE PRODUCTION FROM MULTIPLE FORMATIONS YES <input type="checkbox"/> (Submit Commingling Application) NO <input checked="" type="checkbox"/>		19. SLANT VERTICAL <input type="checkbox"/> DIRECTIONAL <input checked="" type="checkbox"/> HORIZONTAL <input type="checkbox"/>		
20. LOCATION OF WELL	FOOTAGES	QTR-QTR	SECTION	TOWNSHIP	RANGE	MERIDIAN
LOCATION AT SURFACE	373 FSL 2728 FEL	SESW	29	17.0 S	1.0 W	S
Top of Uppermost Producing Zone	471 FSL 1636 FEL	SWSE	29	17.0 S	1.0 W	S
At Total Depth	471 FSL 1636 FEL	SWSE	29	17.0 S	1.0 W	S
21. COUNTY SANPETE		22. DISTANCE TO NEAREST LEASE LINE (Feet) 471		23. NUMBER OF ACRES IN DRILLING UNIT 40		
		25. DISTANCE TO NEAREST WELL IN SAME POOL (Applied For Drilling or Completed) 0		26. PROPOSED DEPTH MD: 13800 TVD: 13660		
27. ELEVATION - GROUND LEVEL 5785		28. BOND NUMBER BLM WYB000616		29. SOURCE OF DRILLING WATER / WATER RIGHTS APPROVAL NUMBER IF APPLICABLE Fayette Town		
ATTACHMENTS						
VERIFY THE FOLLOWING ARE ATTACHED IN ACCORDANCE WITH THE UTAH OIL AND GAS CONSERVATION GENERAL RULES						
<input checked="" type="checkbox"/> WELL PLAT OR MAP PREPARED BY LICENSED SURVEYOR OR ENGINEER			<input checked="" type="checkbox"/> COMPLETE DRILLING PLAN			
<input type="checkbox"/> AFFIDAVIT OF STATUS OF SURFACE OWNER AGREEMENT (IF FEE SURFACE)			<input type="checkbox"/> FORM 5. IF OPERATOR IS OTHER THAN THE LEASE OWNER			
<input checked="" type="checkbox"/> DIRECTIONAL SURVEY PLAN (IF DIRECTIONALLY OR HORIZONTALLY DRILLED)			<input checked="" type="checkbox"/> TOPOGRAPHICAL MAP			
NAME Charles Irons		TITLE Senior Landman		PHONE 435 896-1943		
SIGNATURE		DATE 10/04/2010		EMAIL ciron@wolvgas.com		
API NUMBER ASSIGNED 43039500040000		APPROVAL  Permit Manager				

Proposed Hole, Casing, and Cement						
String	Hole Size	Casing Size	Top (MD)	Bottom (MD)		
Cond	26	22	0	2000		
Pipe	Grade	Length	Weight			
	Unknown	2000	114.8			

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Proposed Hole, Casing, and Cement						
String	Hole Size	Casing Size	Top (MD)	Bottom (MD)		
Surf	19	13.375	0	4500		
Pipe	Grade	Length	Weight			
	Grade J-55 Buttress	4500	68.0			

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Proposed Hole, Casing, and Cement						
String	Hole Size	Casing Size	Top (MD)	Bottom (MD)		
I1	12.25	9.625	0	6000		
Pipe	Grade	Length	Weight			
	Grade L-80 LT&C	6000	53.5			

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Proposed Hole, Casing, and Cement						
String	Hole Size	Casing Size	Top (MD)	Bottom (MD)		
I2	12.25	9.625	0	9500		
Pipe	Grade	Length	Weight			
	Grade P-110 LT&C	3500	53.5			

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Proposed Hole, Casing, and Cement						
String	Hole Size	Casing Size	Top (MD)	Bottom (MD)		
L1	8.5	7.625	0	12000		
Pipe	Grade	Length	Weight			
	Grade N-80 LT&C	2700	33.7			

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Proposed Hole, Casing, and Cement						
String	Hole Size	Casing Size	Top (MD)	Bottom (MD)		
L2	6.5	5	0	13800		
Pipe	Grade	Length	Weight			
	Grade N-80 LT&C	2000	15.0			

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WOLVERINE OPERATING COMPANY OF UTAH, LLC

DRILLING PLAN

Painted Rock Federal 29-1A

**SHL: SE/4 SW/4 Section 29, Township 17 South, Range 1 West, S.L.B & M.
Sanpete County, Utah**

Note: This Plan covers the replacement well for the Painted Rock Federal 29-1, where drilling was suspended because of drilling/hole issues. The original well had 13-3/8" casing set at 3472' MD (TD @ 3714'). This wellbore will be temporarily abandoned by setting a plug in the casing and welding a cap on top for possible future use (TBD after drilling replacement well). The new well, the Painted Rock Federal 29-1A, is the replacement well and will be drilled from the same pad site at a location approximately 100 feet south of the original wellbore. It will use the same reserve pits. The well will be drilled with a Boart rig using the reverse circulation method to set 22" conductor to 2000' and then drill ahead to set the 13-3/8" casing into the Arapien at +/- 4500'. After that, the Boart rig will be rigged down, and Patterson rig #304 will be moved in to finish drilling the well to TD.

Plan Summary:

It is planned to drill this confidential exploratory well as a directional hole to a measured depth of 13,800' MD to test the Jurassic Twin Creek and Navajo, Triassic Kaibab and Toroweap, Mississippian Redwall. Well bore issues caused by subsurface geologic irregularities, plastic salts, possible loss circulation and hole instabilities are expected to be the primary drilling concerns in this area. Abnormal pressure is not anticipated.

The planned location is as follows:

Surface Location:	373' FSL, 2728' FEL, Section 29, T17S, R1W, S.L.B. & M.
Bottom Hole Location @ total depth	471' FSL, 1636' FEL, Section 29, T17S, R1W, S.L.B. & M.

A Boart rig, using the reverse circulation method, will drill the upper section of the hole: thirty-inch conductor will be set to approximately 72' (DF) and cemented to surface. A 26" hole will be drilled to 2000' and 22" conductor will be set and cemented. A 19" hole will be drilled in to the Arapien and 13-3/8" surface casing will be set at approximately 4500' MD. The Boart rig will then be rigged down and moved off location and Patterson rig #304 will be moved in and rigged up to finish the rest of the hole: 12-1/4" hole will be drilled to approximately 9500' and 9-5/8" casing will be set. An 8.5" hole will be drilled from approximately 9500' to 11,200' where the well will be logged and a 7-5/8" liner will be set and cemented from 9300' to 12,000'. A 6.5" bit will be used to drill out from the liner to a projected total depth of 13,800, where the well will be logged, and if justified by results, a 5" liner will be set and cemented from 11,800 to 13,800'.

The well will be drilled vertically with the Boart rig unless directional control is needed. Once the 13-3/8" casing is set, the well will be directionally drilled to the target depth. With a KOP of ~ 4550 (50' below casing shoe), the angle will be increased 1.5 degrees/100' to a maximum inclination of 15 degrees. At 8600' MD, the angle will be dropped 1.5 degrees/100 feet to vertical at 9600' and then continue vertical to the projected TD.

Because this well is a replacement, drilling activities are expected to commence as early as October 25, or as soon as the permit is issued.

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Well Name: Painted Rock Federal 29-1

Surface Location: 373' FSL, 2728' FEL, Section 29, T17S, R1W, S.L.B. & M
 SE/4 of the SW/4 Section 29, T17S, R1W, S.L.B. & M.
 Sanpete County, Utah

TD Bottom-Hole Location: 471' FSL, 1636' FEL, Section 29, T17S, R1W, S.L.B. & M
 SW/4 of the SE/4 Section 29, T17S, R1W, S.L.B. & M.
 Sanpete County, Utah

Elevations: 5785' GL (graded), 5807' KB (est.)

I. Geology:

Tops of important geologic markers and anticipated oil (O), gas (G), or water (W), content are as follows:

Formation	TVD Interval (KB)	MD Interval (KB)	Contents	Pressure Gradient
Flagstaff	0-470'	0-300'		
North Horn	470	470'		
Indianola/Canyon R.	1580'	1580'		
Arapien	4350'	4350'		
Twin Creek	6673'	6730'		
Navajo	7093'	7170'		
Kayenta	8093'	8207'	O, G, W	0.44 psi/ft
Wingate	8183'	8301'	O, G, W	0.44 psi/ft
Chinle	8683'	8818'		
Moenkopi	9333'	9473'		
Sinbad	10883'	11023'		
Black Dragon	11413'	11553'		
Kaibab	11863'	12006'	G, W	0.44 psi/ft
Toroweap	12206'	12346'	G, W	0.44 psi/ft
Pakoon	12623'	12763'	G, W	0.44 psi/ft
Redwall	13168'	13308'	G, W	0.44 psi/ft
Proposed TD	13660'	13800'		

II. Well Control:

The contracted drilling rig will have a minimum 5M BOP system. BOPE will be in place on the 13-3/8" surface casing and tested as a 5M system prior to drilling out the surface casing shoe. See attached schematic of BOPE.

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- A. The BOPE will, as a minimum, include the following:

Wellhead Equipment (5M Min.):

<u>BOPE Item</u>	<u>Flange Size and Rating</u>
Annular Preventer	13-5/8" 5M
Double Rams (5" Pipe - top, Blind - bottom)	13-5/8" 10M
Drilling Spool w/ 2 side outlets (4" Choke Line, 4" Kill Line)	13-5/8" 10M x 13-5/8" 10M
Single Ram (Pipe)	13-5/8" 10M
DSA	13-5/8" 10M x 13-5/8" 5M
Casing Head (13-5/8" SOW w/ two 2-1/16" SSO's)	13-5/8" 5M

Auxiliary Equipment (5M Min.):

<u>BOPE Item</u>
Choke Line with 2 valves (3" minimum)
Kill Line with 2 valves and one check valve (2" Minimum)
2 Chokes with one remotely controlled at a location readily accessible to the driller
Upper and lower kelly cock valves with handles
Safety Valves to fit all drill string connections in use
Inside BOP or float sub
Pressure gauge on choke manifold
Fill-up line above the uppermost preventer
Wear bushing in casing head

- B. **Choke manifold** will be functionally equipped and sized at a minimum as shown on the attached diagram. All choke lines will be straight lines unless turns have tee blocks or are targeted with running tees, and all choke lines will be anchored. All valves (except chokes) in the kill line choke manifold and choke line will be full opening and allow straight through flow.
- C. **System accumulator** will have sufficient capacity to open the hydraulically-controlled gate valve and close all rams plus the annular preventer (3 ram system will have added 50 percent safety factor to compensate for any fluid loss in the control system or preventers) and retain a minimum pressure of 200 psi above pre-charge on the closing manifold without use of the closing unit pumps. The fluid reservoir capacity shall be double the usable fluid volume of the accumulator system capacity and the fluid level of the reservoir shall be maintained at the manufacturer's recommendations. The accumulator will have two (2) independent power sources available to close the preventers. Nitrogen bottles may be one of those sources, and if so, will have charge maintained per manufacturer's specifications.
- D. **Accumulator pre-charge pressure test** will be conducted prior to connecting the closing unit to the BOP stack and at least once every 6 months. The accumulator pressure will be corrected if the measured precharge pressure is found to be above or below the maximum or minimum specified limits. Only nitrogen gas will be used to precharge.
- E. **Power for the closing unit pumps** will be available to the unit at all times so that the pumps will automatically start when the closing valve manifold pressure has decreased to the pre-set level.
- F. **Accumulator pump capacity** will be such that, with the accumulator system isolated from service, the pumps will be capable of opening the hydraulically-operated gate valve (if so equipped), plus closing the annular preventer on the smallest size drill pipe to be used within 2 minutes, and retaining a minimum of 200 psi above the specified accumulator pre-charge pressure.
- G. **Locking devices**, either manual (i.e., hand wheels) or automatic, will be installed on the ram type preventers. A valve will be installed in the closing line as close as possible to the annular preventer to act as a locking device. This valve shall be maintained in the open position and shall be closed only when the power source for the accumulator system is inoperative.

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- H. **Remote controls** will be readily accessible to the driller and will be capable of both opening and closing all preventers. Master controls shall be at the accumulator and shall be capable of opening and closing all preventers and the choke line valve.
- I. **Well control equipment testing** will be performed using clear water when the equipment is initially installed, whenever any seal subject to test pressure is broken, following related repairs, and as a minimum, every 30-day interval. The tests will apply to all related well control equipment.

Ram type preventers and associated equipment will be isolated and tested to 5000 psi. The annular preventer will be tested to 2500 psi. Pressure shall be maintained for at least 10 minutes or until requirements of test are met, whichever is longer, for all tests. A casing head valve will be open below the test plug during testing of the BOP stack. Valves will be tested from the working pressure side with all down-stream valves open. Kill line valves will be tested with the check valve held open or the ball removed.

Pipe and blind rams will be activated each trip, but not more than once a day. The annular preventers will be functionally operated at least weekly. A pit level drill will be conducted weekly for each crew. All BOPE drills and tests will be recorded in the IADC driller's log.

III. Casing and Cementing:

- A. Casing Program (all new casing):

<u>Hole Size</u>	<u>Casing Size</u>	<u>Weight</u>	<u>Grade</u>	<u>Connection</u>	<u>Coupling Diameter</u>	<u>Setting Depth</u>
38"	32"	126.7	B line pipe	PE	NA	0' - 72' DK
26"	22"	114.8	A53B ERW	PE	NA	0' - 2000' DF
19"	13.375"	68	J-55	BTC	14.375	0' - 4500' DF
12.25"	9.625"	53.5	L-80	LTC	10.625	0' - 6000' DF
12.25"	9.625"	53.5	P-110	LTC	10.625	6000' - 9500' DF
8.50"	7.625"	33.7	N-80	FJ	7.625	9300' - 12,000' DF
6.50"	5.00"	15	N-80	FJ	5.0	11800' - 13,800' DF

32-inch conductor-set at 50 GL (72' DF)

The Boart LM 700 will drill this conductor hole. The 32" casing is used to allow drilling fluid to be diverted into the hole and into tanks, as needed, by the Boart-Longyear. No design is conducted on this pipe. It will be cemented with Class G neat cement, using a tremie pipe, placed in stages with a 2-inch pipe in the 32" x 38" annulus.

22", 114.6 #/ft, A53B ERW Pipe, set at 2000' DF

The 26" hole/20-inch casing section will be drilled vertically with Boart-Longyear rig. The casing design parameters are detailed below:

Burst: No blowout preventer will be in place while drilling below the 22" conductor casing. The well will never be shut-in on any pressure. We drilled 3714' in the original 29-1 well, which is 100 feet away, and no gas or pressured water was encountered, and it is not expected at the 29-1A location either. Water was encountered in the 29-1 well and the static fluid level was 850' GL. Any attempt to lift water above 850' resulted in fluid losses. The listed burst strength of the casing is 1390 psi. This casing will never be tested by a shut in on the flow while drilling in the 19" hole that will be below this casing. The highest expected pressure will be from the

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hydrostatic head created by the fluid level, or $(2000-850') \cdot 0.433 \text{ psi/ft} = 498 \text{ psi}$, which results in a $DFb = 1390/498 = 2.79$.

Collapse: Worst case collapse load occurs if the casing is evacuated. Fluid level on the backside of the casing stands at 850' GL. Collapse pressure attributed to fresh water pore pressure is equal to hydrostatic head of the water, or $P = (2000-850') \cdot 0.433 = 498 \text{ psi}$. The selected casing has collapse strength of 580 psi. The collapse design factor is: $DFc = 580/498 = 1.16$, which is > 1 , which is OK in this application.

Tension: String weight in air is: $T = 114.8 \times 2000' = 229,000 \text{ lbs}$. Body yield strength on this plain end pipe is 1,182,000 lbs. The tension design factor in air is: $DFt = 1,182,000/229,000 = 5.15$, > 1.8 , therefore OK.

Cementing Program-22":

22" casing will be cemented from setting depth (2000' MD DF) to surface and cemented in stages using tremie pipe from TD to surface. Cement volumes are based on 50% excess in the openhole, 2000 feet of 15.8 ppg cement from surface to TD (~ 3300 cu. Ft).

Cement: 2772 sacks Glass G cement, 15.8 ppg, 1.19 cf/sk Yield

13-3/8", 68 #/ft, J-55 BTC casing set at 4500' MD DF (into top of Arapien)

The 19" hole/13-3/8" casing section will be drilled with the Boart LM 700 rig into the top of the Arapien, where casing will be set and cemented to surface. The casing design parameters are detailed below:

Burst: Worst case burst load occurs, while drilling the 12.25" hole section, if the well experiences an influx of gas from ~ 9300 feet TVD (~ 9500' MD). Assume the casing is 90% filled with gas. In that case, assuming a fresh water pore pressure gradient to 9300 ft, 9 ppg fluid inside the casing and a gas gradient equal to 0.1 psi/ft, maximum burst differential pressure would occur at the surface: $P = 0.433 \times 9300 - 0.1 \times 9300 \times 0.052 \cdot 9 - 0.1 \times 0.9 \times 9300 = 2755 \text{ psi}$. The selected casing, 13-3/8" 68# J-55 BTC, has burst strength of 3450 psi. The burst design factor is $DFb = 3450/2755 = 1.25$ which is > 1.1 , therefore OK.

Collapse: Worst case collapse load occurs if the casing is evacuated during drilling, although this is very unlikely and has not been seen drilling the Arapien or Navajo in this region. Assuming a pore pressure in the Navajo of 0.44 psi/ft, and 11.5 ppg mud in the hole, a fluid column of 5053' would be in the well bore ($h = (7100' \cdot 0.44)/0.052 \cdot 11.5 = 5053'$; $7100-5053 = 2047'$ fluid level). With this 2000' drop in fluid level, the collapse pressure at the bottom of the casing attributed to fresh water pore pressure gradient is: $P = 0.433 (4400-2000') = 1039 \text{ psi}$. The selected casing has a collapse strength of 1950 psi. The collapse design factor is: $DFc = 1950/1039 = 1.88$, which is > 1.126 , therefore OK. (Note: The fluid level could drop to 3800' and the design factor would still be acceptable).

Tension: String weight in air is: $T = 68 \times 4400 = 299,200 \text{ lbs}$. Tube strength is 1069 kips; joint strength (BTC) is 1140 kips. The tension design factor in air is: $DFt = 1069000/299000 = 3.57$, which is > 1.8 , therefore OK.

Cementing Program -13-3/8":

13-3/8" casing will be cemented from setting depth (4500' MD DF) to surface. It is anticipated Boart will cement the well through drill pipe to anchor the bottom and then be topped off in batches using with tremie pipe in the annulus. Cement volumes are based on 50% excess in the openhole (i.e., 2000' to 4500'), of 15.8 cement from 4500' to surface (~ 6043 cu. Ft). If the well will allow it, the cement will be placed conventionally, with a different design. The volumes below assume placement with tremie pipe in batches.

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Cement: 5078 sacks Class G, 15.8 ppg, 1.19 cf/sx Yield

9-5/8", 53.5 #/ft, L-80 and P-110 LTC casing set at 9500' MD DF (~9300' TVD)

The 12-1/4" hole/9-5/8" casing section will be drilled directionally with Patterson Rig 304 through the Twin Creek, and Navajo, where 9-5/8" casing will be set and cemented to inside the 13-3/8" casing. The casing design parameters are detailed below:

Burst: Worst case burst load occurs if the well experiences an influx of gas from 13,350 feet TVD. Assume the casing is filled with gas. In that case, assuming a fresh water pore pressure gradient to 13,350 ft TVD and a gas gradient equal to 0.1 psi/ft, maximum burst differential pressure would occur at the surface:

$P = 0.433 \times 13350 - 0.1 \times 13250 = 4456$ psi. The selected casing, 9-5/8" 53.5 #/ft L-80 LTC, has burst strength of 7930 psi. The burst design factor is $DFc = 7930/4163 = 1.78$, which is > 1.1 , therefore OK.

Collapse: Worst case collapse load occurs if the casing is evacuated. Collapse pressure attributed to fresh water pore pressure gradient is: $P = 0.433 \times 9300 = 4027$ psi. The selected casing has collapse strength of 6620 psi. The collapse design factor is $DFc = 6620/4027 = 1.64$, which is > 1.125 , therefore OK.

Alternate Collapse, salt considerations: The Arapien formation contains salt stringers throughout. The salt stringers, due to creep, can apply unusually high collapse loads to the casing. Wolverine standard design for this area is to design for 1 psi/ft of depth external pressure with a fresh water gradient inside the pipe and with a minimum design factor of 1.000. Arapien is predicted to occur from 4400' to 6673' TVD.

Maximum salt induced pressure applied to the 53.5# L-80 casing occurs at 6000 ft (max depth of this casing): $P = 6000 - 0.433 \times 6000 = 3402$ psi. 9-5/8" 53.5 #/ft L-80 has collapse strength of 6620. The collapse design factor across the salts in the L-80 casing is: $DFc = 6620/3402 = 1.95$, which is greater than 1.0, therefore OK.

Maximum potential collapse pressure occurs at 6673' TVD (at base of Arapien) and is:

$P = 6673 - 0.433 \times 6673 = 3783$ psi. Switch over to 9-5/8" 53.5#/ft P-110 LTC at 6000 and run the casing to TD of 9500' MD. The 9-5/8", 53.5#/ft P-110 casing has collapse strength of 7950 psi. The collapse design factor across the salts in the P-110 casing is $DFc = 7950/6673 = 1.19$, which is > 1.0 , therefore OK. (Note: For well planning purposes, P-110 casing is planned to handle salt collapse load potential should the Twin Creek come in deeper than projected).

Another maximum potential collapse pressure involves evacuating the string such as would occur if the well were swabbed below 9300' MD, the depth to the top of the 7-5/8" liner. In this case, salt collapse load could be applied to the outside of the 9-5/8" casing with no backup pressure on the inside of the casing. $P = 6673$ psi. The DFc for P-110 casing = $7950/6773 = 1.17$, which is > 1.0 , therefore OK.

Tension: String weight in air is: $T = 53.5 \times 9500 = 508,250$ lbs. Joint strength (LTC) is 1047 kips; tube strength is 1244 kips. The tension design factor in air is: $DFt = 1047000/508250 = 2.06$, which is > 1.8 , therefore OK.

Cementing Program- 9-5/8":

9-5/8" casing will be cemented from setting depth 9500 to 4000' (500 feet inside casing) in a single stage using the following mix. Hardware will include a guide shoe, two shoe joints, float collar, top plug, and a minimum of one centralizer per joint on the bottom three (3) casing joints. Water or other pre-flush fluid pumped ahead of the slurry will separate cement from the drilling fluids. Cement volumes are based on 25% excess in the openhole, 5000 of 14.4 ppg lead cement from 4000 to 9000 feet and 500 feet of 15.8 ppg tail cement from 9000' to 9500' feet.

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Cement: Lead 1135 sacks 50/50 Pox mix, 13 ppg, 1.7 cf/sx Yield

Tail: 190 sacks Class G cement blend, 15.8 ppg, 1.19 cf/sx Yield

7-5/8", 33.7 N-80 FJ liner set from 9300 to 12,000' (top of Kaibab)

The 8.5" hole/7-5/8" liner section will be directionally drilled with Patterson Rig 304 to the top of the Kaibab, and then the liner will be run and cemented, covering the potentially problematic Moenkopi, Sinbad, and Black Dragon. The casing design parameters are detailed below:

Burst: Worst case burst occurs at 11,900' MD (just above the 5" liner top) with a tubing leak at surface. Assuming a fresh water pore pressure gradient, the well is producing from perforations at 13,600 TVD, the tubing is filled with gas and the packer fluid has a gradient of 0.465 psi. $P = 0.433 \times 13600 - 0.1 \times 13600 + 0.465 \times 11900 - 0.433 \times 11900 = 4910$ psi. The 7-5/8, 33.7# N-80 liner has burst strength of 7900 psi. The burst design factor is: $DF_b = 7900/4910 = 1.6$, which is > 1.1 , therefore OK.

Collapse: Worst case collapse occurs if the casing is evacuated. Collapse pressure attributed to fresh water pore pressure gradient is: $P = 0.433 \times 12000 = 5196$ psi. The selected casing has collapse strength of 6560 psi. The collapse design factor is $DF_c = 6560/5196 = 1.26$, which is > 1.125 , therefore OK.

Tension: String weight in air is: $T = 33.7 \times (12000-9300) = 90,990$ lbs. Joint strength is 547,100 (Ultra FJ); body strength is 778,000 lbs. The tension design factor in air is: $DF_t = 547100/90990 = 6.01$, which is > 1.8 , therefore OK.

Cementing Program – 7-5/8" liner:

The 7-5/8" liner will be cemented from 9300' MD (200' overlap) to 12,000' MD in a single stage using the following mix. The liner will be suspended from drill pipe and a liner hanger with a tie-back option. The 7-5/8" liner will be cemented over its entire length (~ 2700 feet of length from 9300' to 12000' MD). Hardware will include a guide shoe, two shoe joints, float collar, top plug, and a minimum of one centralizer per joint on the bottom three (3) casing joints. Water or other pre-flush fluid pumped ahead of the slurry will separate cement from the drilling fluids. Cement volumes are based on 25% excess in the openhole, 2700 of cement from 9300 to 12000 feet.

Cement: 190 sacks Bondcem, 14.5 ppg, 1.45 cf/sx Yield

5", 15 #/ft, N-80 FJ set from 11,800' to 13800' MD

The 6.5" hole/5" liner section will be drilled directionally with Patterson Rig 304 through the target Mississippian, where the formations will be logged and evaluated. If warranted a 5" liner would be set across the prospective pay zone and cemented to inside the 7-5/8" liner. The casing design parameters are detailed below:

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APD Drilling Program
Painted Rock Federal 29-1A

Burst: Worst case burst load occurs at 13,400 ft TVD, just above a packer, with a tubing leak at surface. Assume a fresh water pore pressure gradient, the well is producing from perforations at 13,500' TVD, the tubing is filled with gas and the packer fluid has a gradient of 0.465 psi/ft.
 $P = 0.433 \times 13500 - 0.1 \times 13500 + 0.465 \times 13400 - 0.433 \times 12400 = 5357$ psi. The selected casing, 5" 15#/ft N-80 has burst strength of 8290 psi. The burst design factor is: $DF_b = 8290/5357 = 1.55$, which is > 1.1 , therefore OK.

Collapse: Worst case collapse load occurs if the casing is evacuated. Collapse pressure attributed to fresh water pore pressure gradient is: $P = 0.433 \times 13500 = 5845$ psi. The selected casing has collapse strength of 7250 psi. The collapse design factor is $DF_c = 7250/5845 = 1.24$, which is > 1.125 , therefore OK.

Tension: String weight in air is: $T = 15 \times (13750 - 11000) = 41,250$. Joint strength is 235,000 lbs; body strength is 350,000 lbs. The tension design factor in air is: $DF_t = 235,000/41,250 = 5.7$, which is > 1.8 , therefore OK.

Cementing Program-5" liner:

This is a liner cement job. 6.5" hole will be drilled from 12,000' to 13800'MD. The liner will be suspended from drill pipe and a liner hanger. The 5" liner will be cemented over its entire length (~ 2000 feet of length from 11,800' to 13800'MD) in a single stage using the following mix. Hardware will include a guide shoe, two shoe joints, float collar, top plug, and a minimum of one centralizer per joint on the bottom three (3) casing joints and over the pay zones. Water or other preflush fluid pumped ahead of the slurry will separate cement from the drilling fluids.

Cement: 165 sacks Bondcem, 14.5 ppg, 1.45 cf/sk Yield

Casing with same or greater burst, collapse, and tension rating may be substituted for any of the planned casing sizes depending on availability and actual conditions. A minimum of 20 percent silica will be added to the cement slurry if bottom-hole temperature exceeds 230 °F.

- Other:
- The BLM will be notified at least twenty-four hours prior to running and cementing the surface and production casing strings.
 - Actual cement slurries for all casing will be based on final service company recommendations.
 - The size, weight, grade, type of thread, number of joints, and footage of all casing run will be recorded in the driller's log. The amount and type of all cement pumped will be recorded in the driller's log.
 - Adequate time will be allowed before drilling out for the cement at the casing shoe to achieve a minimum 500-psi compressive strength.
 - All casing strings will be tested to 1500 psi before drilling out and if pressure declines by more than 10 percent in 30 minutes, corrective action will be taken.
 - Before drilling more than 20 feet of new hole below each casing string, a pressure integrity test of the casing shoe will be performed to a minimum of the mud weight equivalent anticipated to control the pore pressure to the next casing depth or at total depth of the well.

IV. Mud Program:

<u>Depth</u>	<u>Mud Weight (ppg)</u>	<u>Mud Type</u>	<u>Viscosity, s/qt</u>	<u>Fluid Loss</u>
0 – 4500'	8.5	Fresh Water mud	35 – 50	NC to 15 cc
4500'- 9500'	8.8-10	OBM	36 – 50	8 -12 cc
9500-12000'	9-10	OBM	36-42	8 cc
12000'-13800'	9-10	LSND Water Mud	36-42	8 cc

- A. After mudding up, slow pump rates will be taken daily and recorded in the driller's log.
- B. Visual mud monitoring equipment will be in place to detect volume changes indicating loss or gain of circulating fluid volume.
- C. Abnormal pressures are not anticipated. In the event such pressures are to be anticipated, electronic/mechanical mud monitoring equipment will be in place and include as a minimum; pit volume totalizer (PVT); stroke counter; and flow sensor.
- D. A mud test will be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.
- E. The 10M BOPE system is not required for conditions on this well and use of the trip tank is not anticipated.
- F. Gas detecting equipment will be installed in the mud return system after surface casing is installed, and hydrocarbon gas shall be monitored for pore pressure changes. The presence of Hydrogen Sulfide gas is possible so appropriate precautions will be taken in the event that it is encountered.
- G. A flare system designed to gather and burn all gas will be available. The flare line discharge will be located at least 150 feet from the well head and it will be positioned downwind of the prevailing wind direction. The flare line will have straight lines unless turns are targeted with running tees and it will be anchored. The flare system will have an effective method for ignition.
- H. Abnormal pressure is not expected. If abnormal pressure is to be anticipated, a mud-gas separator (gas buster) will be installed and operable beginning at a point at least 500 feet above any anticipated hydrocarbon zone of interest.

V. Evaluation:

- A. Mud Log: a mud logger will collect samples from surface to TD. A mud logging unit will be in operation from a depth of approximately 4500 feet to TD. Samples will be caught, cleaned, bagged, and marked as required.
- B. Drill Stem Tests: There are no DSTs planned.
- C. Coring: There are no cores planned.
- D. Wireline Logs: Wireline logs will be run as hole conditions allow from total depth to surface casing to assist in determining lithology and potential for hydrocarbon recovery. The logging tools will at a minimum survey resistivity, gamma radiation, and porosity logs.

VI. Expected Bottom-Hole Pressure and Abnormal Conditions:

- A. Hydrogen Sulfide: The presence of Hydrogen Sulfide (H₂S) gas is possible and appropriate safety procedures are to be in place before penetrating the Twin Creek Formation.

Wolverine Operating Company of Utah, LLC
APD Drilling Program
Painted Rock Federal 29-1A

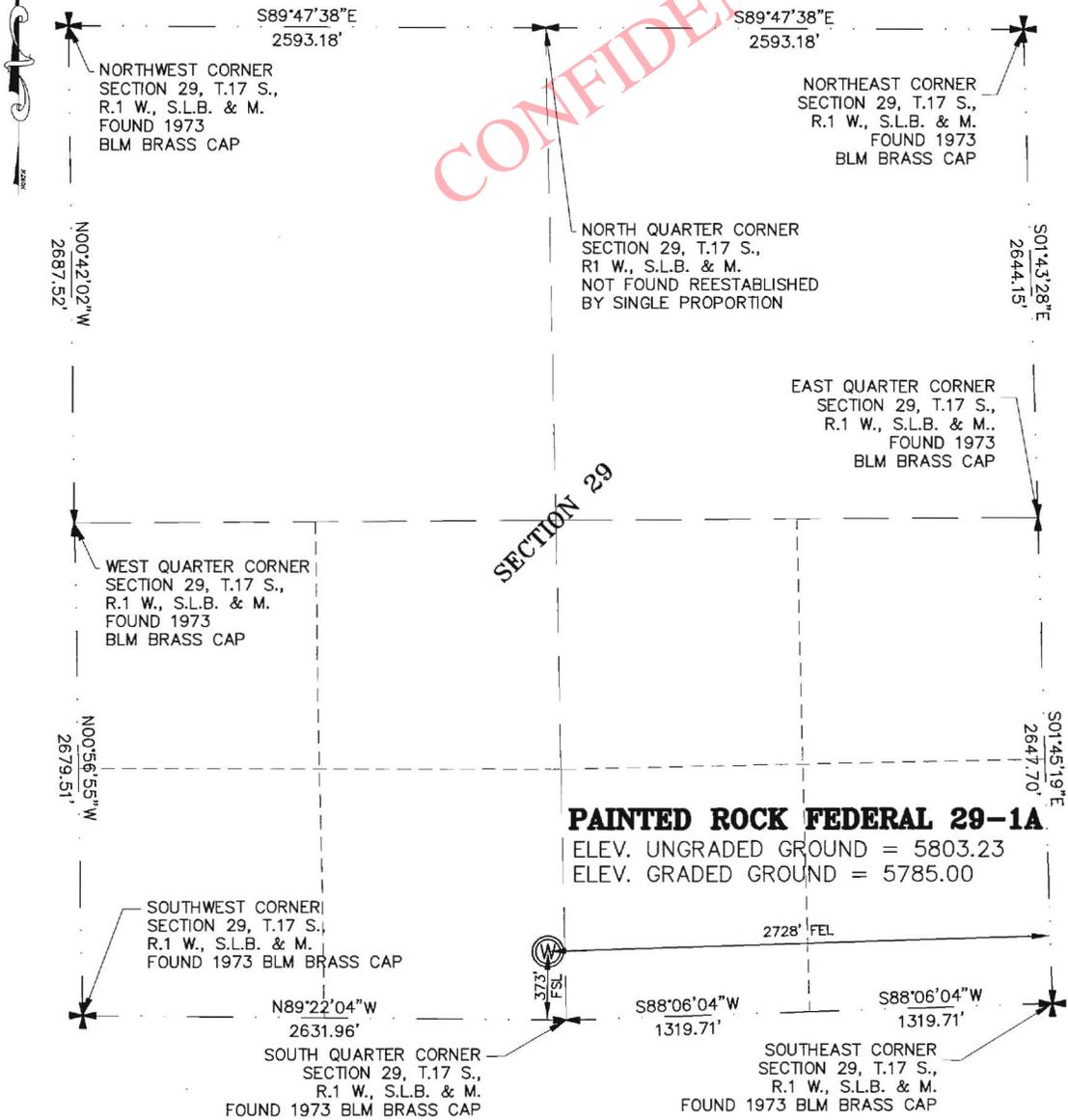
- B. Pressure: No abnormally pressured zones are expected in this well. The pressure gradient for all potentially productive formations is expected to be approximately 0.44 psi/ft.
- C. Temperature: Static bottom-hole temperature at TD is expected to be approximately 270 °F.

end

CONFIDENTIAL

SECTION 29, T.17 S., R.1 W., S.L.B. & M.

CONFIDENTIAL



PROJECT
WOLVERINE OPERATING COMPANY OF UTAH, LLC
 WELL LOCATION, LOCATED AS SHOWN
 IN THE SE 1/4 OF THE SW 1/4 OF
 SECTION 29, T.17 S., R.1 W., S.L.B. & M.
 SANPETE COUNTY, UTAH

LEGEND

- SECTION CORNER AS NOTED
- QUARTER CORNER AS NOTED
- PROPOSED WELL LOCATION

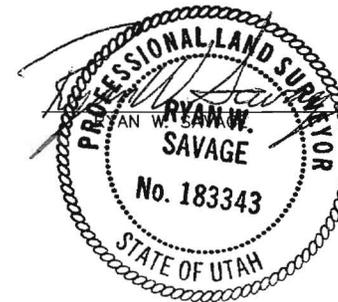
NOTE: THE PURPOSE OF THIS SURVEY WAS TO PLAT
 PAINTED ROCK FEDERAL 29-1A
 LOCATED IN THE SE 1/4 OF THE SW 1/4 OF
 SECTION 29, T.17 S., R.1 W., S.L.B. & M.
 SANPETE COUNTY, UTAH.

BASIS OF ELEVATION

ELEVATION BASED ON REFERENCE MARK TO TRIANGULATION
 STATION MW2, LOCATED IN THE NORTHWEST 1/4 OF SECTION
 13, T.18 S., R.2 W., S.L.B. & M.
 ELEVATION USED 7841.71.

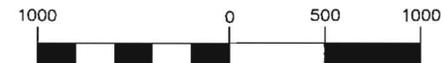
CERTIFICATE

THIS IS TO CERTIFY THAT THIS PLAT WAS PREPARED FROM
 FIELD NOTES OF ACTUAL SURVEYS MADE BY ME UNDER
 MY SUPERVISION, AND THAT THE SAME ARE TRUE AND
 CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



9/21/10
 DATE

GRAPHIC SCALE



1 inch = 1000 ft.

BASIS OF BEARING

BASIS OF BEARING WAS S88°06'04"W BETWEEN THE SOUTHEAST CORNER
 AND THE SOUTH 1/4 CORNER OF SECTION 29, T.17 S., R.1 W., S.L.B. & M.

COORDINATE DATUM = NAD 83
 WELL LATITUDE: 39°17'40.050" OR 39.29445833
 WELL LONGITUDE: -111°56'50.164" OR -111.9472678

Savage Surveying, Inc.

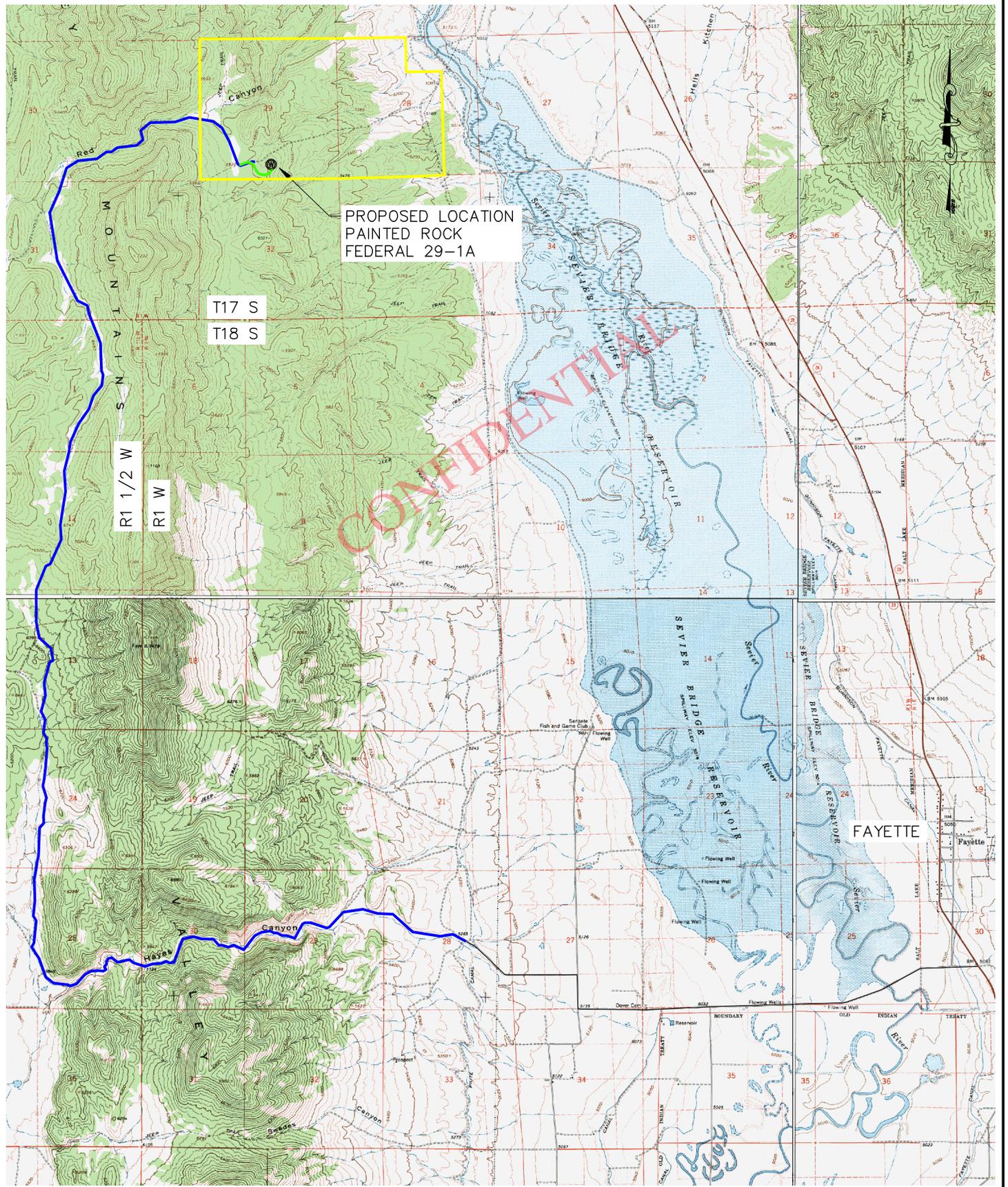
1925 South Industrial Park Rd.
 Richfield, UT 84701
 Office: 435-896-8635
 Fax: 435-896-0200



LOCATION PLAT PAINTED ROCK FEDERAL 29-1A

WOLVERINE OPERATING COMPANY OF UTAH, LLC

DESIGNED BY:	SURVEYED BY:	CHECKED BY:	DRAWN BY:	PROJECT NUMBER	SHEET NUMBER
T.M.	T.K.S.	R.W.S.	R.W.S.	1004-011S	1



PROPOSED LOCATION
PAINTED ROCK
FEDERAL 29-1A

T17 S
T18 S

R1 1/2 W
R1 W

CONFIDENTIAL

FAYETTE

LEGEND

-  EXISTING ROADWAY
-  EXISTING ROAD NEEDING UPGRADES
-  LEASE BOUNDARY
-  NEW ROADWAY

Savage Surveying, INC.
 Ryan W. Savage, FLS
 PROFESSIONAL SURVEYOR
 LICENSE NO. 10001
 1100 W. UNIVERSITY BLVD
 SUITE 400-0000
 GALT, ARIZONA 85301
 (520) 466-1000



PAINTED ROCK FEDERAL 29-1A

WOLVERINE OPERATING COMPANY OF UTAH, LLC

DESIGNED BY: R.W.S.	SURVEYED BY: T.K.S.	CHECKED BY: R.W.S.	DATE 9/29/10	SCALE VICINITY MAP 1" = 5000'	PROJECT NUMBER 1004-011S	SHEET NUMBER 1
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Company: Wolverine Gas & Oil
 Field: Wildcat
 Cty/Blk/Par: Sanpete County, UT
 Well Name: Painted Rock 29-1A
 Rig: _____

Job Number: _____
 Magnetic Decl.: _____
 Grid Corr.: _____
 Total Survey Corr.: _____
 Target Info: _____

Calculation Method Minimum Curvature
 Proposed Azimuth 85.75
 Depth Reference _____
 Tie Into: Surface
DRAFT-For Sundry Purposes Only (eah 9-20-10)

No.	Tool Type	Survey Depth (ft)	Incl (°)	Azimuth (°)	Course Lgth (ft)	TVD (ft)	VS (ft)	Coordinates		Closure		DLS (°/100')	Bld Rate (°/100')	Wik Rate (°/100')
								N/S (ft)	E/W (ft)	Dist (ft)	Ang (°)			
0		0	0.00	0.00		0.00		0.00	0.00					
1		2,000.00	0.00	0.00	2000	2000.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
2		2,100.00	0.00	0.00	100	2100.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
3		2,200.00	0.00	0.00	100	2200.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
4		2,300.00	0.00	0.00	100	2300.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
5		2,400.00	0.00	0.00	100	2400.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
6		2,500.00	0.00	0.00	100	2500.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
7		2,600.00	0.00	0.00	100	2600.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
8		2,700.00	0.00	0.00	100	2700.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
9		2,800.00	0.00	0.00	100	2800.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
10		2,900.00	0.00	0.00	100	2900.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
11		3,000.00	0.00	0.00	100	3000.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
12		3,100.00	0.00	0.00	100	3100.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
13		3,200.00	0.00	0.00	100	3200.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
14		3,300.00	0.00	0.00	100	3300.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
15		3,400.00	0.00	0.00	100	3400.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
16		3,500.00	0.00	0.00	100	3500.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
17		3,600.00	0.00	0.00	100	3600.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
18		3,700.00	0.00	0.00	100	3700.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
19		3,800.00	0.00	0.00	100	3800.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
20		3,900.00	0.00	0.00	100	3900.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
21		4,000.00	0.00	0.00	100	4000.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
22		4,100.00	0.00	0.00	100	4100.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
23		4,200.00	0.00	0.00	100	4200.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
24		4,300.00	0.00	0.00	100	4300.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0
25		4,400.00	0.00	0.00	100	4400.00	0.00	0.00 N	0.00 E	0.00	0.00	0.00	0.0	0.0



Company: Wolverine Gas & Oil
 Field: Wildcat
 Cty/Blk/Par: Sanpete County, UT
 Well Name: Painted Rock 29-1A
 Rig: _____

Job Number: _____
 Magnetic Decl.: _____
 Grid Corr.: _____
 Total Survey Corr.: _____
 Target Info: _____

Calculation Method Minimum Curvature
 Proposed Azimuth 85.75
 Depth Reference _____
 Tie Into: Surface
 DRAFT-For Sundry Purposes Only (eah 9-20-10)

No.	Tool Type	Survey Depth (ft)	Incl (°)	Azimuth (°)	Course Lgth (ft)	TVD (ft)	VS (ft)	Coordinates		Closure		DLS (°/100')	Bld Rate (°/100')	Wik Rate (°/100')
								N/S (ft)	E/W (ft)	Dist (ft)	Ang (°)			
26		4,500.00	1.50	0.00	100	4499.99	0.10	1.31 N	0.00 E	1.31	0.00	1.50	1.5	0.0
27		4,600.00	3.00	0.00	100	4599.91	0.39	5.23 N	0.00 E	5.23	0.00	1.50	1.5	0.0
28		4,700.00	4.50	0.00	100	4699.69	0.87	11.77 N	0.00 E	11.77	0.00	1.50	1.5	0.0
29		4,800.00	6.00	85.75	100	4799.40	6.40	16.09 N	5.22 E	16.92	17.97	7.22	1.5	85.8
30		4,900.00	7.50	85.75	100	4898.70	18.15	16.96 N	16.94 E	23.97	44.96	1.50	1.5	0.0
31		5,000.00	9.00	85.75	100	4997.66	32.50	18.03 N	31.25 E	36.08	60.02	1.50	1.5	0.0
32		5,100.00	10.50	85.75	100	5096.21	49.43	19.28 N	48.14 E	51.85	68.17	1.50	1.5	0.0
33		5,200.00	12.00	85.75	100	5194.29	68.94	20.73 N	67.59 E	70.70	72.95	1.50	1.5	0.0
34		5,300.00	13.50	85.75	100	5291.82	91.01	22.36 N	89.60 E	92.35	75.99	1.50	1.5	0.0
35		5,400.00	15.00	85.75	100	5388.74	115.63	24.19 N	114.15 E	116.68	78.04	1.50	1.5	0.0
36		5,500.00	15.60	85.75	100	5485.20	142.01	26.14 N	140.46 E	142.87	79.46	0.60	0.6	0.0
37		5,600.00	15.60	85.75	100	5581.51	168.91	28.13 N	167.28 E	169.63	80.45	0.00	0.0	0.0
38		5,700.00	15.60	85.75	100	5677.83	195.80	30.13 N	194.10 E	196.42	81.18	0.00	0.0	0.0
39		5,800.00	15.60	85.75	100	5774.15	222.69	32.12 N	220.92 E	223.24	81.73	0.00	0.0	0.0
40		5,900.00	15.60	85.75	100	5870.46	249.58	34.11 N	247.73 E	250.07	82.16	0.00	0.0	0.0
41		6,000.00	15.60	85.75	100	5966.78	276.47	36.11 N	274.55 E	276.92	82.51	0.00	0.0	0.0
42		6,100.00	15.60	85.75	100	6063.10	303.37	38.10 N	301.37 E	303.77	82.79	0.00	0.0	0.0
43		6,200.00	15.60	85.75	100	6159.41	330.26	40.09 N	328.19 E	330.63	83.04	0.00	0.0	0.0
44		6,300.00	15.60	85.75	100	6255.73	357.15	42.08 N	355.01 E	357.49	83.24	0.00	0.0	0.0
45		6,400.00	15.60	85.75	100	6352.04	384.04	44.08 N	381.82 E	384.36	83.41	0.00	0.0	0.0
46		6,500.00	15.60	85.75	100	6448.36	410.93	46.07 N	408.64 E	411.23	83.57	0.00	0.0	0.0
47		6,600.00	15.60	85.75	100	6544.68	437.83	48.06 N	435.46 E	438.10	83.70	0.00	0.0	0.0
48		6,700.00	15.60	85.75	100	6640.99	464.72	50.06 N	462.28 E	464.98	83.82	0.00	0.0	0.0
49		6,800.00	15.60	85.75	100	6737.31	491.61	52.05 N	489.10 E	491.86	83.93	0.00	0.0	0.0
50		6,900.00	15.60	85.75	100	6833.63	518.50	54.04 N	515.91 E	518.74	84.02	0.00	0.0	0.0



Company: Wolverine Gas & Oil
 Field: Wildcat
 Cty/Blk/Par: Sanpete County, UT
 Well Name: Painted Rock 29-1A
 Rig: _____

Job Number: _____
 Magnetic Decl.: _____
 Grid Corr.: _____
 Total Survey Corr.: _____
 Target Info: _____

Calculation Method Minimum Curvature
 Proposed Azimuth 85.75
 Depth Reference _____
 Tie Into: Surface
 DRAFT-For Sundry Purposes Only (eah 9-20-10)

No.	Tool Type	Survey Depth (ft)	Incl (°)	Azimuth (°)	Course Lgth (ft)	TVD (ft)	VS (ft)	Coordinates		Closure		DLS (°/100')	Bld Rate (°/100')	Wik Rate (°/100')
								N/S (ft)	E/W (ft)	Dist (ft)	Ang (°)			
51		7,000.00	15.60	85.75	100	6929.94	545.39	56.04 N	542.73 E	545.62	84.11	0.00	0.0	0.0
52		7,100.00	15.60	85.75	100	7026.26	572.28	58.03 N	569.55 E	572.50	84.18	0.00	0.0	0.0
53		7,200.00	15.60	85.75	100	7122.57	599.18	60.02 N	596.37 E	599.38	84.25	0.00	0.0	0.0
54		7,300.00	15.60	85.75	100	7218.89	626.07	62.01 N	623.19 E	626.26	84.32	0.00	0.0	0.0
55		7,400.00	15.60	85.75	100	7315.21	652.96	64.01 N	650.00 E	653.15	84.38	0.00	0.0	0.0
56		7,500.00	15.60	85.75	100	7411.52	679.85	66.00 N	676.82 E	680.03	84.43	0.00	0.0	0.0
57		7,600.00	15.60	85.75	100	7507.84	706.74	67.99 N	703.64 E	706.92	84.48	0.00	0.0	0.0
58		7,700.00	15.60	85.75	100	7604.16	733.64	69.99 N	730.46 E	733.80	84.53	0.00	0.0	0.0
59		7,800.00	15.60	85.75	100	7700.47	760.53	71.98 N	757.28 E	760.69	84.57	0.00	0.0	0.0
60		7,900.00	15.60	85.75	100	7796.79	787.42	73.97 N	784.09 E	787.58	84.61	0.00	0.0	0.0
61		8,000.00	15.60	85.75	100	7893.10	814.31	75.96 N	810.91 E	814.46	84.65	0.00	0.0	0.0
62		8,100.00	15.60	85.75	100	7989.42	841.20	77.96 N	837.73 E	841.35	84.68	0.00	0.0	0.0
63		8,200.00	15.60	85.75	100	8085.74	868.10	79.95 N	864.55 E	868.24	84.72	0.00	0.0	0.0
64		8,300.00	15.60	85.75	100	8182.05	894.99	81.94 N	891.37 E	895.13	84.75	0.00	0.0	0.0
65		8,400.00	15.60	85.75	100	8278.37	921.88	83.94 N	918.19 E	922.01	84.78	0.00	0.0	0.0
66		8,500.00	15.60	85.75	100	8374.69	948.77	85.93 N	945.00 E	948.90	84.80	0.00	0.0	0.0
67		8,600.00	15.60	85.75	100	8471.00	975.66	87.92 N	971.82 E	975.79	84.83	0.00	0.0	0.0
68		8,700.00	14.00	85.75	100	8567.68	1001.21	89.81 N	997.29 E	1001.33	84.85	1.60	-1.6	0.0
69		8,800.00	12.00	85.75	100	8665.11	1023.70	91.48 N	1019.73 E	1023.82	84.87	2.00	-2.0	0.0
70		8,900.00	10.00	85.75	100	8763.27	1042.78	92.90 N	1038.75 E	1042.90	84.89	2.00	-2.0	0.0
71		9,000.00	8.00	85.75	100	8862.03	1058.42	94.06 N	1054.35 E	1058.54	84.90	2.00	-2.0	0.0
72		9,100.00	6.50	85.75	100	8961.23	1071.04	94.99 N	1066.94 E	1071.16	84.91	1.50	-1.5	0.0
73		9,200.00	5.00	85.75	100	9060.73	1081.06	95.73 N	1076.93 E	1081.18	84.92	1.50	-1.5	0.0
74		9,300.00	3.00	85.75	100	9160.48	1088.04	96.25 N	1083.89 E	1088.15	84.93	2.00	-2.0	0.0
75		9,400.00	2.00	85.75	100	9260.38	1092.40	96.57 N	1088.24 E	1092.51	84.93	1.00	-1.0	0.0



Company: Wolverine Gas & Oil
 Field: Wildcat
 Cty/Blk/Par: Sanpete County, UT
 Well Name: Painted Rock 29-1A
 Rig: _____

Job Number: _____
 Magnetic Decl.: _____
 Grid Corr.: _____
 Total Survey Corr.: _____
 Target Info: _____

Calculation Method Minimum Curvature
 Proposed Azimuth 85.75
 Depth Reference _____
 Tie Into: Surface
 DRAFT-For Sundry Purposes Only (eah 9-20-10)

No.	Tool Type	Survey Depth (ft)	Incl (°)	Azimuth (°)	Course Lgth (ft)	TVD (ft)	VS (ft)	Coordinates		Closure		DLS (°/100')	Bld Rate (°/100')	Wik Rate (°/100')
								N/S (ft)	E/W (ft)	Dist (ft)	Ang (°)			
76		9,500.00	1.50	85.75	100	9360.33	1095.45	96.80 N	1091.28 E	1095.57	84.93	0.50	-0.5	0.0
77		9,600.00	0.00	85.75	100	9460.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	1.50	-1.5	0.0
78		9,700.00	0.00	85.75	100	9560.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
79		9,800.00	0.00	85.75	100	9660.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
80		9,900.00	0.00	85.75	100	9760.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
81		10,000.00	0.00	85.75	100	9860.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
82		10,100.00	0.00	85.75	100	9960.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
83		10,200.00	0.00	85.75	100	10060.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
84		10,300.00	0.00	85.75	100	10160.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
85		10,400.00	0.00	85.75	100	10260.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
86		10,500.00	0.00	85.75	100	10360.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
87		10,600.00	0.00	85.75	100	10460.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
88		10,700.00	0.00	85.75	100	10560.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
89		10,800.00	0.00	85.75	100	10660.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
90		10,900.00	0.00	85.75	100	10760.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
91		11,000.00	0.00	85.75	100	10860.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
92		11,100.00	0.00	85.75	100	10960.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
93		11,200.00	0.00	85.75	100	11060.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
94		11,300.00	0.00	85.75	100	11160.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
95		11,400.00	0.00	85.75	100	11260.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
96		11,500.00	0.00	85.75	100	11360.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
97		11,600.00	0.00	85.75	100	11460.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
98		11,700.00	0.00	85.75	100	11560.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
99		11,800.00	0.00	85.75	100	11660.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
100		11,900.00	0.00	85.75	100	11760.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0



Company: Wolverine Gas & Oil
 Field: Wildcat
 Cty/Blk/Par: Sanpete County, UT
 Well Name: Painted Rock 29-1A
 Rig: _____

Job Number: _____
 Magnetic Decl.: _____
 Grid Corr.: _____
 Total Survey Corr.: _____
 Target Info: _____

Calculation Method Minimum Curvature
 Proposed Azimuth 85.75
 Depth Reference _____
 Tie Into: Surface
DRAFT-For Sundry Purposes Only (eah 9-20-10)

No.	Tool Type	Survey Depth (ft)	Incl (°)	Azimuth (°)	Course Lgth (ft)	TVD (ft)	VS (ft)	Coordinates		Closure		DLS (°/100')	Bld Rate (°/100')	Wik Rate (°/100')
								N/S (ft)	E/W (ft)	Dist (ft)	Ang (°)			
101		12,000.00	0.00	85.75	100	11860.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
102		12,100.00	0.00	85.75	100	11960.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
103		12,200.00	0.00	85.75	100	12060.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
104		12,300.00	0.00	85.75	100	12160.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
105		12,400.00	0.00	85.75	100	12260.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
106		12,500.00	0.00	85.75	100	12360.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
107		12,600.00	0.00	85.75	100	12460.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
108		12,700.00	0.00	85.75	100	12560.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
109		12,800.00	0.00	85.75	100	12660.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
110		12,900.00	0.00	85.75	100	12760.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
111		13,000.00	0.00	85.75	100	12860.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
112		13,100.00	0.00	85.75	100	12960.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
113		13,200.00	0.00	85.75	100	13060.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
114		13,300.00	0.00	85.75	100	13160.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
115		13,400.00	0.00	85.75	100	13260.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
116		13,500.00	0.00	85.75	100	13360.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
117		13,600.00	0.00	85.75	100	13460.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
118		13,700.00	0.00	85.75	100	13560.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
119		13,800.00	0.00	85.75	100	13660.32	1096.76	96.90 N	1092.59 E	1096.87	84.93	0.00	0.0	0.0
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Company: Wolverine Gas & Oil
 Field: Wildcat
 Cty/Blk/Par: Sanpete County, UT
 Well Name: Painted Rock 29-1A
 Rig: _____

Job Number: _____
 Magnetic Decl.: _____
 Grid Corr.: _____
 Total Survey Corr.: _____
 Target Info: DRAFT-For Sundry Purposes Only (eah 9-20-10)

Calculation Method Minimum Curvature
 Proposed Azimuth 85.75
 Depth Reference _____
 Tie Into: Surface

No.	Tool Type	Survey Depth (ft)	Incl (°)	Azimuth (°)	Course Lgth (ft)	TVD (ft)	VS (ft)	Coordinates		Closure		DLS (°/100')	Bld Rate (°/100')	Wik Rate (°/100')
								N/S (ft)	E/W (ft)	Dist (ft)	Ang (°)			

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Company: Wolverine Gas & Oil
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Calculation Method Minimum Curvature
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 Depth Reference _____
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No.	Tool Type	Survey Depth (ft)	Incl (°)	Azimuth (°)	Course Lgth (ft)	TVD (ft)	VS (ft)	Coordinates		Closure		DLS (°/100')	Bld Rate (°/100')	Wik Rate (°/100')
								N/S (ft)	E/W (ft)	Dist (ft)	Ang (°)			

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Company: Wolverine Gas & Oil
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 Well Name: Painted Rock 29-1A
 Rig: _____

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Calculation Method Minimum Curvature
 Proposed Azimuth 85.75
 Depth Reference _____
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No.	Tool Type	Survey Depth (ft)	Incl (°)	Azimuth (°)	Course Lgth (ft)	TVD (ft)	VS (ft)	Coordinates		Closure		DLS (°/100')	Bld Rate (°/100')	Wik Rate (°/100')
								N/S (ft)	E/W (ft)	Dist (ft)	Ang (°)			

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Company: Wolverine Gas & Oil
 Field: Wildcat
 Cty/Blk/Par: Sanpete County, UT
 Well Name: Painted Rock 29-1A
 Rig: _____

Job Number: _____
 Magnetic Decl.: _____
 Grid Corr.: _____
 Total Survey Corr.: _____
 Target Info: DRAFT-For Sundry Purposes Only (eah 9-20-10)

Calculation Method Minimum Curvature
 Proposed Azimuth 85.75
 Depth Reference _____
 Tie Into: Surface

No.	Tool Type	Survey Depth (ft)	Incl (°)	Azimuth (°)	Course Lgth (ft)	TVD (ft)	VS (ft)	Coordinates		Closure		DLS (°/100')	Bld Rate (°/100')	Wik Rate (°/100')
								N/S (ft)	E/W (ft)	Dist (ft)	Ang (°)			

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SURFACE USE PLAN OF OPERATIONS

For inclusion with Application for Permit to Drill

Name of Operator: Wolverine Operating Company of Utah, LLC
Address: 1140 North Centennial Park Drive
Richfield, Utah 84701

Painted Rock Federal 29-1A

Surface Well Location: 373' FSL & 2728' FEL, (being in SE/4 SW/4)
Section 29, T17S, R1W, SLB&M
Sanpete County, Utah

Bottom Hole Location: 471' FSL & 1636' FEL, (being in SW/4 SE/4)
Section 29, T17S, R1W, SLB&M
Sanpete County, Utah

Access Road Location: Off-Lease: See Right-of-Way Grant UTU-82013

The proposed well is to replace the Painted Rock Federal 29-1 that encountered difficulty in drilling to the extent that it will have to be plugged and abandoned. The proposed well is to be drilled from the existing drill pad and will require no additional surface disturbance. State and Fee surface use are not required for construction and drilling of the referenced well. Federal surface use is being requested with the associated Application for Permit to Drill (APD) through the BLM – Richfield Field Office. A right-of-way grant was issued for the “off-lease” access road as part of the approved APD for the Painted Rock Federal 29-1. Portions of the below narrative are taken from the Surface Use Plan of Operations for the original well, and contain future tense references to construction that has already been completed.

A Federal onsite inspection of the original proposed Painted Rock Federal 29-1 location was conducted on Tuesday, May 1st, 2007 with the following individuals present:

Charlie Irons - Wolverine Operating Company of Utah, LLC
Paul Spiering - Wolverine Operating Company of Utah, LLC.
Ryan Savage - Savage Surveying
Glen Nebeker - Western Land Services
Wayne Wetzel - BLM Associate Field Manager
Chris Colton - BLM Natural Resource Specialist
Craig Harmon - BLM Archaeologist
Chris Horting-Jones - BLM Archaeologist
Rod Lee - BLM Environmental Coordinator
Michael Jackson - BLM Geologist
Tim Finger - BLM Outdoor Recreation Planner
Brant Hallows - BLM Range Management Specialist
Bert Hart - BLM Team Leader

Existing Roads:

The vicinity map shows the proposed well location and its proximity to the town of Fayette, Utah. The location is approximately 6.8 miles northwest of Fayette and 9.8 miles northeast of Scipio, Utah.

Driving directions: From Gunnison, Utah, travel north on SR-28 under Utah Department of Transportation (UDOT) maintenance approximately 4.3 miles to Fayette Road (a paved county road), follow ¼ mile then turn left onto River Lane Road (a gravel county road), proceed westerly on River Lane about 3 miles to Gun Club Road (a gravel county road), then north .2 mile to Hayes Canyon Road (a dirt county road). Continue on same westerly through Hayes

Canyon about 4 miles to Japps Valley Road (a dirt road maintained by BLM). Continue northerly on same about 6 miles to its intersection with Red Canyon Road (a dirt road/trail maintained by BLM). Continue easterly on same about 2 miles to the new access road that was constructed to the well site.

The condition of Fayette Road, River Lane Road and Gun Club Road is considered adequate to bear rig-related traffic without improvement.

Access Roads to be Constructed and Reconstructed:

The following described road construction was performed under Right-of-Way Grant UTU-82013, issued with the approved APD for the Painted Rock Federal 29-1 well:

Proposed access will require upgrade and realignment to portions of Hayes Canyon county road (Sheets RD 57 through RD 81). Additionally, turnouts will be added where deemed necessary to allow traffic to pass. Sanpete County Road Department does not require an encroachment permit. In the event the Painted Rock Federal 29-1A is a producing well the Operator/Grant Holder would blade and maintain the upgraded and realigned portions of Hayes Canyon Road for as long as production continues. In the event no production is achieved, or after production ceases, the Operator would terminate its use and maintenance of the road and surrender its right-of-way under BLM guidelines. Sanpete County might then apply to BLM for a Title V Right-of Way to use and maintain the road as-constructed.

Proposed access will also necessitate upgrade and realignment to portions of BLM-maintained Japps Valley Road (Sheets RD 14 through RD 57) and BLM-maintained Red Canyon Road (Sheets RD 2 through RD 14). As stated above, in the event of production the Operator/Grant Holder would blade and maintain these roads for as long as production continues. In the event no production is achieved, or after production ceases, the Operator would terminate its use and maintenance of the road and surrender its right-of-way under BLM guidelines. Sanpete County would then have the option to apply to BLM for a Title V Right-of Way to use and maintain the roads as-constructed.

Total length of constructed and reconstructed access road, both on-lease and off-lease, is 60,978 feet, or 11.5488 miles. On-lease road length is 4,117.04 feet, or 0.7797 mile. Off-lease road length is 56,860.96 feet, or 10.7691 miles.

Road construction, operation and maintenance would be in compliance with the terms and conditions of the subject grant, the American Association of State Highway and Transportation (AASHTO) safety standards, and will meet criteria for the Manual of Uniform Traffic Control Devices (MUTCD) manual for signs.

Off-lease portion of access road (See APD for Painted Rock Federal 29-1)

Pursuant to Title V of the Federal Land Policy and Management Act (FLPMA) of October 21, 1976 (43 U.S. C. 1761) a right-of-way grant is required for the improved and realigned portions of Hayes Canyon Road, Japps Valley Road and the "off-lease" portion of Red Canyon Road, up to the lease boundary. As stated above the grant was issued with the approved APD for the Painted Rock Federal 29-1, and the construction has been completed. The following references to drawings are to be found in the application for that grant.

General right-of-way width is 20 feet in areas where existing roadway is not realigned. Areas requiring additional right-of-way width to accommodate improvement and realignment are shown in the drawings binder attached hereto, beginning at Station 50+97.18 (the lease boundary) on Sheet RD 7 and continuing through Sheet RD 81. These drawings show right-of-way width, truck turnouts, water bars, location and size of low-water crossings, and one new and two existing cattle guards. Refer to tables on pages T1 and T2 for locations, dimensions and area of these features. For typical sections of road, reserve pit and low-water crossings refer to pages TS-1 and TS-2.

Total area of off-lease access road is 36.719 acres. Total area of off-lease truck turnouts is 2.1149 acres. No additional right-of-way width for temporary construction will be needed (except for the three staging areas described below).

Equipment to be used in construction will consist of conventional heavy equipment, including bulldozers, scrapers, excavators, backhoes, compactors and water trucks. In the event rock blasting is necessary in excavation a certified blaster will be called in to perform the operation on an as-needed basis. All applicable regulations, including those of the Bureau of Alcohol, Tobacco and Firearms, will be followed for the use of explosive materials. No explosives

will be stored on site. Boulders that are exposed by excavation, that cannot be broken up and used as aggregate, will be buried in the right-of-way.

Temporary staging areas for parking equipment during construction are shown along Hayes Canyon Road (off lease) on Sheet #ST 1, Japps Valley Road (off lease) on Sheet ST 2, and Red Canyon Road (on lease) on Sheet ST 3. The Hayes Canyon staging area is a 0.127-acre barren flat historically used as a loadout for gravel (no gravel will be taken). The Japps Valley staging area is a 0.122-acre open area midway along Japps Valley Road. The Red Canyon staging area is a 0.3-acre flat and open area about 500 feet westerly from the point where the new-built portion of the access road turns off Red Canyon Road. None of the temporary staging areas will involve earthwork, with the exception of the one at Red Canyon, which was grubbed and graveled under a subsequent Sundry associated with the Painted Rock Federal 29-1 well, and the need for a man camp.

No construction spoil will impact the wash along Hayes Canyon Road and no Corps of Engineers Section 404 permits will be needed. All cuts into hillsides are to be on the side of the road opposite the wash and no fill will be placed on the wash-side of the road where the wash is in proximity.

Trees that are removed during construction along Red Canyon Road will be mulched and broadcast in an area designated by BLM.

On-lease portion of access road (See APD for Painted Rock Federal 29-1)

A Federal right-of-way is not required for the improved and/or realigned portion of Red Canyon Road, from the well pad to the lease boundary. Specifications for improvement and realignment are shown on pages RD 3 through RD 6 (Station 23+09.24 to Station 50+97.18) in the engineering drawings attached hereto.

From Red Canyon Road a new road (on lease) approximately 1300 feet in length will be constructed to access the well pad. Design and dimensions of the new road are shown on pages RD 1 and RD 2 (Station 10+00 to Station 23+09.24).

Energy dissipating structures and silt fences will be utilized to minimize erosion that may result from the drainage structures.

All existing county roads, realigned roads and the new lease road will be maintained and kept in good repair during all phases of operation. Vehicle operators will obey posted speed restrictions and observe safe speeds commensurate with road and weather conditions.

Location of Existing Wells:

Well	Type/status	Surface Location	Bottom Hole Location
Painted Rock Federal 29-1	To be P&A	SE4SW4 Section 29	Not achieved

There are no other wells (water, injection or disposal, producing or being drilled) within a one-mile radius of the proposed location.

Location of Existing and/or Proposed Facilities if Well is Productive:

(a) *On well pad* – Due to the unpredictable outcome of drilling in this wildcat area it is impossible to know what kind of production facilities might be required in the event gas, oil, or gas and oil are discovered.

(b) *Off well pad* – As above, it is not possible to know whether an off-well pad production facility would be necessary in the event of a discovery.

The Operator will submit this information for approval at such time as production requirements are known.

Location and Type of Water Supply (Rivers, Creeks, Lakes, Ponds and Wells):

The volume of water normally required for drilling is significantly lessened by the use of an oil-based mud system proposed for this well. The Operator intends to purchase water from the Town of Fayette and, depending on supply, from the City of Gunnison. Should additional water sources be pursued they will be properly permitted through the State of Utah – Division of Water Rights. The BLM will be notified of any changes in water supply.

Construction Materials:

Natural earth materials used for fill on the well pad will be taken from cuts at the pad. Natural earth materials used for fill on realigned portions of roads will be taken from cut locations essentially contiguous to the locations to be improved, all within the described right-of-way. Imported granular borrow from an approved source will be applied to the surface of the well pad and on portions of the surface of access roads where deemed necessary.

Methods for Handling Waste Disposal:

The reserve pit will be used for the disposal of waste mud and drill cuttings. All borehole fluids and salts will be contained in the reserve pit. It has been located in cut material and will be lined with 12 mil minimum thickness plastic nylon reinforced liner material. The liner overlays a felt liner pad. The pit liner will overlap the top of the pit walls and be covered with dirt and/or rocks to hold it in place. No trash, scrap pipe, etc. that could puncture the liner will be disposed of in the pit. Pit walls will be sloped no greater than 2:1. A minimum 2-foot freeboard will be maintained in the pit at all times during the drilling and completion operations. After evaporation of fluids, back-fill of sub-soil and compaction to prevent settling will occur within 90 days of cessation of pit use. If necessary, any remaining fluids will be pumped out of the pit and transported off site.

No chemicals subject to reporting under SARA Title III (hazardous materials) in an amount greater than 10,000 pounds will be used, produced, stored, transported, or disposed of in association with the drilling, testing, or completion of the well. Furthermore, no extremely hazardous substances, as defined in 40 CFR 355, in threshold planning quantities, will be used, produced, stored, transported, or disposed of in association with the drilling, testing, or completion of the well.

Wastewater will not be discharged on the surface at this site and the drilling of the well will not require a wastewater management plan.

All rubbish and debris will be kept in containers on the well site, and will be hauled to an approved disposal site upon completion of drilling operations and as needed during such operations. There will be no chemical disposal of any type.

Self-contained, portable toilets will be used for human waste, and the waste will be disposed at an approved human waste disposal facility. Sanitation will comply with local and state regulations.

Ancillary Facilities:

No ancillary facilities will be required other than the man camp at the Red Canyon staging area.

Well Site Layout:

The attached Revised Pad Layout Drawing for Painted Rock Federal 29-1A shows the proposed orientation of the rig with respect to the pad and other facilities, the abandoned Painted Rock Federal 29-1 wellbore, the reserve pit and access road onto the pad, turnaround areas, parking areas, and living facilities. Profile of the pad is not shown, being the same as the Painted Rock Federal 29-1. As detailed above under Methods for Handling Waste Disposal, the reserve pit is lined and appropriate measures as described above have been taken to prevent leakage. The pit will be fenced on three sides during drilling operations and then the fourth side will be immediately fenced when the rig is moved off location.

The pad and road designs would be consistent with BLM specifications.

All surface disturbing activities will be supervised by a qualified, responsible company representative who is aware of the terms and conditions of the APD specifications in the approved plans, and associated "off-lease" access road right-of-way grant.

All cut and fill slopes will be such that stability can be maintained for the life of the activity.

The stockpiled topsoil (first 6 inches or maximum available) will be isolated in a berm on the south end of the well pad. Topsoil will be stockpiled for reclamation in such a way as to prevent soil loss and contamination.

Water spraying may be implemented if necessary to minimize dust.

Plans for Reclamation of the Surface:

Interim Reclamation: In the event production is achieved the Operator will perform interim reclamation of the site. Interim reclamation will consist of reclamation of the reserve pit and reclamation of that portion of the well pad not needed for ongoing operations. After evaporation of fluids, the pit will be back-filled with sub-soil and/or rock and compacted to prevent settling. The pit area will be surfaced with granular borrow to render it a usable part of the well pad. All portions of the pad no longer necessary for well workover, testing or treating will be contoured to match the surrounding terrain to the best extent practicable. Stockpiled topsoil will be evenly distributed thereon, scarified and seeded as per BLM conditions of approval.

Final Reclamation: In the event the well is a dry hole, or at such time that all production ceases and the well has been plugged and abandoned, the Operator/Grant Holder will perform final reclamation of the site. Final reclamation will consist of reclamation of the reserve pit, the well pad and the new-construction portion of the access road. The Operator proposes that Hayes Canyon, Japps Valley and Red Canyon roads would be left as-constructed, for the following reasons: The improvements to Hayes Canyon Road will be a benefit to public safety and reduced maintenance cost for Sanpete County. The improvements to Japps Valley Road and Red Canyon Road will be a benefit to public safety and range use, and reduced maintenance cost for BLM. Further, should Sanpete County desire a Title V right-of-way for Japps Valley and Red Canyon roads, maintenance would be the obligation of the county. In either case returning these roads to their pre-construction alignment and condition would be detrimental to the public.

Any accumulation of hydrocarbons in the reserve pit will be removed and recovered for sale unless it is determined by the authorized officer to be waste oil. All waste oil will be disposed of properly at approved facilities. The portion of the reserve pit liner which is exposed above the cuttings will be cut and removed from the site and disposed in an authorized landfill. After evaporation of fluids, the pit will be back-filled with subsoil and/or rock from the reserve pit stockpile and compacted to prevent settling.

The steel cellar will be removed from the site and similarly disposed in a landfill. Road base material used in the construction of the access road and pad will be removed from the site and disposed in a proper manner. If the reserve pit has adequate capacity, then some or all of the road base material will be buried in the reserve pit, provided that the granular is not contaminated by oil or other waste materials. The new-construction portion of the access road will be contoured using an excavator or similar equipment, rather than simply ripping the surface.

Subsoil from the side slopes of the well pad that are fill will be pulled up onto the pad in order to reestablish the original hilltop contour to the best extent possible. The side slopes that are cut will be filled to match the original slope of the land to the best extent possible. Topsoil from the stockpile will then be evenly distributed over the entire impacted area, including the new-construction portion of the access road. The entire impacted area will be scarified and seeded in late fall, using the seed mix and methods described in BLM conditions of approval. Final reclamation will take place within 180 days after plugging date of the last well on site, depending on weather and other extenuating circumstances.

During the life of the project and until the site is released from liability for reclamation, the project will be inspected at least annually for noxious weeds. If invasive noxious weeds are found, the weeds will be treated to eliminate further reproduction, and treatment shall continue until the weeds have been eradicated. If noxious weeds are found, the BLM will be notified of their occurrence.

Surface Ownership:

The surface of the proposed well site, Hayes Canyon Road, Japps Valley Road and Red Canyon Road is federally owned and is administered by the Bureau of Land Management, United States Department of Interior.

Other Information:

The top 6 to 8 inches of soil material will be stripped and removed from the new-construction portion of the access road and well pad and stockpiled for future reclamation of the site. This topsoil shall be stockpiled separately from any other excavated materials. It will be reserved for reclamation and not utilized for any other purpose. If it is stockpiled for more than one year it will be seeded with a seed mix approved by the authorized officer.

Heavy equipment used to construct and rehabilitate the well pad and access road will be cleaned and/or sprayed to remove any noxious or invasive weeds and seeds, prior to entering to the project site. Any other equipment and vehicles that have been used in other locations where noxious weeds or seeds could have attached to the equipment

will also be sprayed and/or cleaned.

All equipment and vehicles will be confined to the access roads and well pad.

Any facilities in an existing right of way that are damaged as a result of the oil and gas operations will be repaired or replaced in a timely manner by the Operator/Grant Holder. The cost for repairs and replacements shall be the sole responsibility of the Operator/Grant Holder.

Western Land Services conducted a Class III archeological survey and has submitted same under separate cover to the appropriate agencies.

Western Land Services conducted a T&E survey and has submitted an EA for the proposed well site and access roads.

No stream alteration or drainage crossings are involved that require additional State or Federal approval.

All permanent structures, including pumping units, constructed or installed will be painted a flat, non-reflective color as described on page 40 of the Gold Book (Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development, 4th Edition 2006). Permanent structures are defined as being on location for six months or longer. Facilities required to comply with Occupational Safety and Health Act (OSHA) shall be excluded.

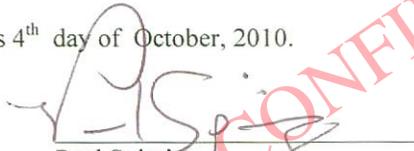
Fire suppression equipment will be available to suppress any wildfires caused by construction or related activities. In the event of a wildfire the Sanpete County Fire Warden will be notified, (435) 835-2117.

Operator Certification

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I, or someone under my direct supervision, have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Executed this 4th day of October, 2010.

Signature:


Paul Spiering

Position Title:

District Land Manager

Address:

Wolverine Operating Company of Utah, LLC
1140 N. Centennial Park Drive
Richfield, Utah 84701

Telephone:

435-896-1943

Field representative: Charlie Irons

Address:

1140 N Centennial Park Drive
Richfield, Utah 84701

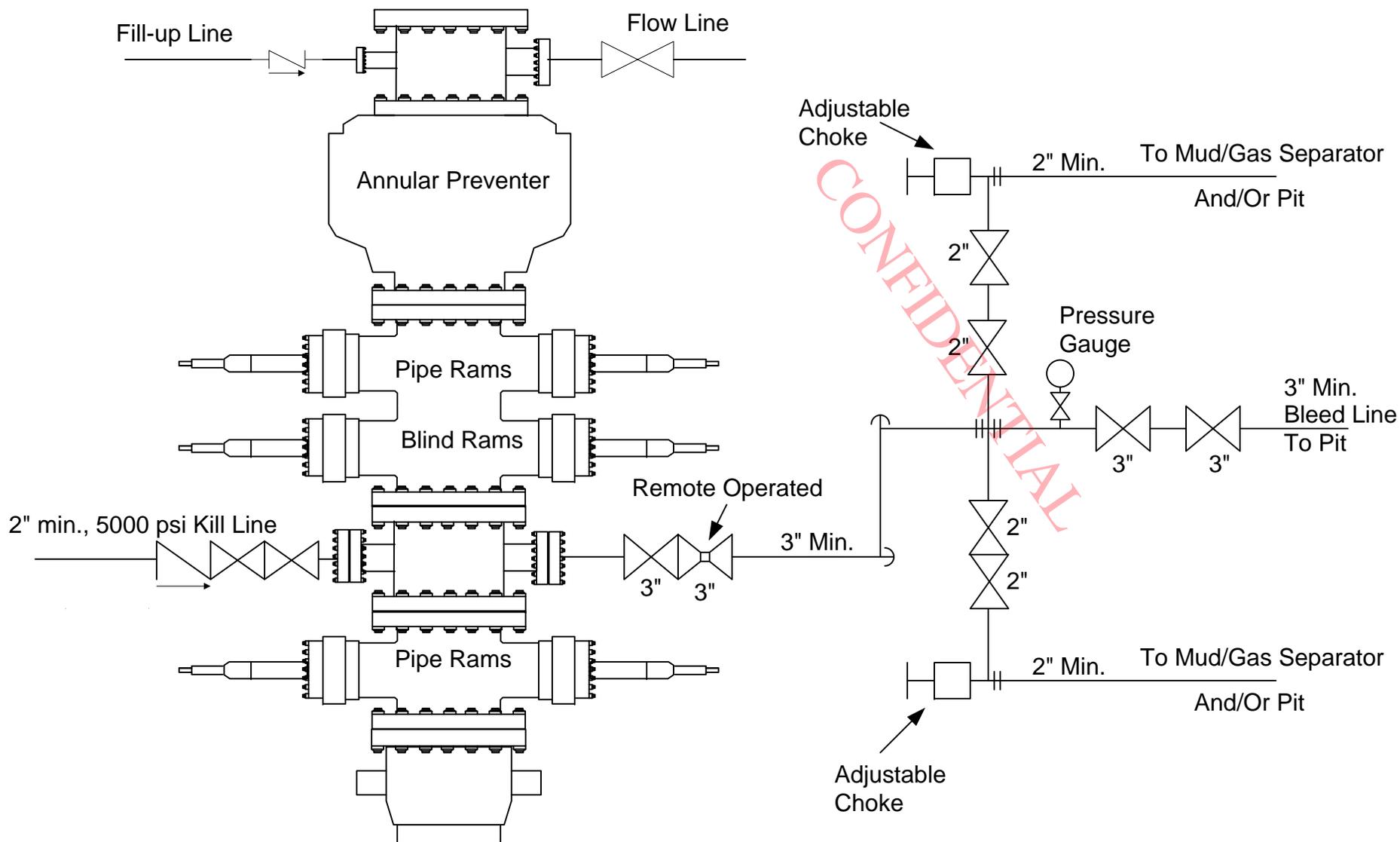
Telephone:

435-896-1943

Agents not directly employed by the operator must submit a letter from the operator authorizing that agent to act or file this application on their behalf.

5k BOPE Schematic

(Not to Scale)



CONFIDENTIAL

H2S Drilling Operations Plan

Wolverine Operating Company of Utah, LLC

Painted Rock Federal 29-1A

**Section 29
Township 17S - Range 01W
Sanpete County, Utah**

GL Elevation: 5785 feet (est. graded)

**One Riverfront Plaza
55 Campau, NW
Grand Rapids, Michigan 49503-2616**

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Introduction

This H2S contingency plan has been prepared for the Painted Rock Federal 29-1A well, which will be located on a federal lease in Section 29, T17S-R01W, Sanpete County. This Plan is intended as a guide for personnel working at the well site should an accidental release of natural gas containing hydrogen sulfide occur during drilling or completion operations. Operational requirements included installation of gas monitors and safety equipment on the drill site, personnel training, and response procedures. All personnel, including anyone who may travel to location on an unscheduled basis, must review and be familiar with onsite duties as well as the safety equipment involved. For the plan to be effective, the cooperation and participation of all personnel working at the well site is required.

The location is a remote location, located approximately 14.7 miles off of Highway 28 up into Painted Rock location (see attached map). Therefore exposure to H2S by the general public is very unlikely during drilling or completion operations. The prevailing wind direction is expected to be from the west is drilled.

Directions

Driving directions: From Gunnison, Utah, travel north on SR 28 to Mile Marker 4 and turn west at Fayette Sign and go 0.2 miles and turn left, travelling 2.8 miles on River Lane Road and turn right at "T" in road, then 0.2 miles and turn back left and go 0.8 miles, bearing left at fork. Travel 3.6 miles on Hayes Canyon Road and bear right and stay on improved road 7.3 miles to location (north on Japps Valley Road and then Red Canyon Road turning back to the east to well site).

I. Duties & Responsibilities

In order to assure proper execution of the contingency plan, it is essential that one person be responsible for and have authority for implementing the procedures outlined in this plan. The order of responsibility will be as follows:

1. Wolverine supervisor on location - if unable to perform his/ her duties;
2. Alternate Wolverine representative - if unable to perform his/ her duties;
3. Rig Supervisor/Toolpusher - if unable to perform his/her duties;
4. Safety consultant representative - if available.

A. All Personnel

1. Always be alert for possible H2S alarms - both audible and visual.
2. Be familiar with location of Safe Briefing Areas (SBA) and protective breathing equipment.
3. Develop "wind awareness". Be aware of prevailing wind direction as well as nearby uphill areas should there be no wind.
4. Familiarize yourself with nearest escape routes for safe evacuation.
5. Should H2S alarm sound, DON'T PANIC - remain calm and follow instructions of person in charge.
6. If the H2S alarms sound:
 - a. Essential personnel shall don the appropriate respiratory protective equipment and follow safety procedures. They will continue to wear respiratory protective equipment until the area is deemed safe (H2S concentration less than 10 PPM).
 - b. Non-essential personnel shall evacuate to the appropriate safe briefing area using escape-breathing systems. They are to wait there for further instructions from the Wolverine foreman or the designated person in charge.
 - c. Initiate rescue protocol if necessary and following training procedures.

B. Wellsite Supervisor

1. The Wellsite Supervisor will confirm that all personnel on location at any time are trained in H2S safety and aware of above list of duties.
2. The Wellsite Supervisor will ensure that all personnel observe all safety and emergency procedures.
3. The Wellsite Supervisor will make an effort to keep the number of personnel on location to a minimum and to ensure that only essential personnel are on location during critical operations.
4. Should an extreme danger condition exist, the Wellsite Supervisor will:
 - a. Assess the situation and advise all personnel by appropriate means of communication.
 - b. Be responsible for determining that the extreme danger condition is warranted and have the red flag posted at location entrance.
 - c. Go to safe briefing area. Give clear instructions relative to hazard on location and actions for personnel to follow.
 - d. Notify company and regulatory groups of current situation as required per company policy and regulatory protocol. Follow appropriate procedures for emergency services notification.
 - e. Proceed to well and supervise operations with rig supervisor. Take action to control and reduce the H2S hazard.
 - f. Ensure that essential personnel are properly protected with supplied air breathing equipment and that non-essential personnel are in a "poison gas free" area.
 - g. Authorize evacuation of any persons/residents in area surrounding the well location.
 - h. Commence any ignition procedures if ignition criteria are met.

C. Rig Supervisor/Toolpusher

1. If the Wellsite Supervisor is unable to perform his/her duties and an alternate Wolverine representative is also unable or unavailable to perform his/her duties, the rig supervisor will assume command of wellsite operations and all responsibilities listed above for Wellsite Supervisor.
2. The Rig Supervisor will ensure that all rig personnel are properly trained to work in H2S environment, fully understand the purpose of H2S alarms, and know actions to take when alarms activate. He/She will ensure that all crew personnel understand the buddy system, safe briefing areas, and individual duties as well as emergency evacuation procedures.

3. Should any extreme danger operational condition arise, the Rig Supervisor shall assist the Wellsite Supervisor by:
 - a. Proceeding to the rig floor and assist in supervising rig operations.
 - b. Ensuring that only essential working personnel remain in hazardous areas.
 - c. Ensuring that all crewmembers that remain in hazardous area, wear respiratory protective equipment until notified that area is "clear" of any toxic gases.
 - d. Assigning rig crewmember or other service representative to block entrance to location. No unauthorized personnel are to be allowed entry to location.
 - e. Helping to determine hazardous "danger zones" on location using portable detection equipment, and positioning electric fans to move gas in any high concentration areas.

D. Safety Consultant

1. During normal operations (no H₂S present), the safety consultant will be responsible for the following:
 - a. Ensuring that all wellsite safety equipment is in place and operational.
 - b. Ensuring that all wellsite personnel are familiar with location safety layout and operation of all safety equipment.
 - c. Assisting the Wellsite Supervisor in performing weekly H₂S drills for location personnel.
2. When an operational condition is classified as extreme danger, the safety consultant will be responsible for the following:
 - a. Accounting for all wellsite personnel.
 - b. Assessing any injuries and directing first aid measures.
 - c. Ensuring that all safety and monitoring equipment are functioning properly and available.
 - d. Monitoring the safety of wellsite personnel.
 - e. Maintaining close communication with the Wellsite Supervisor.
 - f. Being prepared to assist Wellsite Supervisor with support for rig crew or other personnel using breathing equipment.
 - g. Being prepared to assist the Wellsite Supervisor with emergency procedures including possible well ignition.
 - h. Being prepared to assist with evacuation of any area residents or other personnel in the immediate area.

E. Drilling Manager

1. The Wolverine Drilling Manager will be responsible for notifying and maintaining contact with the company Production Manager and/or other company supervisory personnel as required.
2. Maintaining communication with the Wellsite Supervisor and providing any other assistance that might be required.
3. Travelling to wellsite if appropriate
4. Assisting Wellsite Supervisor with all other notifications – including both company and regulatory.

II. Well Location Layout

A. Location

1. An attached well site diagram depict location and rig orientation, prevailing wind direction, terrain of surrounding area, location of briefing areas, access roads, location of flare lines and pits, location of caution/danger signs, and location of wind indicators.
2. If practical, the drilling rig will be situated to allow for the prevailing winds to blow across the rig toward the circulation tanks or at right angles to the lines from the BOP stack to the circulation tanks or as near this configuration as possible.
3. If practical, there will be 2 roads from location with one at each end of location or as dictated by prevailing winds and terrain. If an alternate road is not practical, a clearly marked footpath to a safe area will be provided. The auxiliary escape route will be kept available and passable at all times so that a shift in wind direction will not prevent escape from the location if an emergency should occur. An auxiliary footpath egress will be near the northwestern corner of the location to provide an emergency egress off the pad for foot traffic.
4. The entrance(s) to the location will be designed to be barricaded if necessary because of a hydrogen sulfide emergency condition.
5. A minimum of 2 safe briefing areas (SBA) will be designated for assembly of personnel during emergency conditions. These will be located at least 200 feet from the wellbore and in such a location that at least one area will be upwind of the well at all times. Upon recognition of an emergency situation, all personnel will be trained to assemble at the designated briefing area for instructions.
6. Smoking areas will be established and smoking will be allowed only at those established smoking areas.
7. Reliable 24-hour telephone communications will be available at the wellsite supervisor's office.
8. The drilling rig will have a continuous electronic H₂S detection system that will be located to detect the presence of hydrogen sulfide in areas where it is most likely to appear on site. The sensor head locations will be: 1) rig floor by driller's console, 2)

substructure area near the bell nipple, 3) the shale shaker, 4) the mud mixing area. Additional sensors will be positioned at the discretion of the drilling foreman. At least 1 light and 1 siren will be placed on the rig to indicate the presence of hydrogen sulfide. The light and siren will be strategically placed to be visible to all personnel on the drill site.

9. Equipment to indicate wind direction will be installed at prominent locations and will be visible at all times during drilling operations. At least 2 wind direction indicators (i.e. windsocks) will be placed at separate elevations (i.e. near ground level and rig floor height). At least 1 wind direction indicator will be clearly visible from all principal working areas at all times so that wind direction can be easily determined. In addition, a wind direction indicator will be provided at each of the two briefing areas if the other wind direction indicators on location are not visible from the briefing areas.
10. Operational danger or caution sign(s) will be displayed along all controlled accesses to the site. The sign(s) will legible and large enough to be read by all persons entering the wellsite and be placed a minimum of 200 feet but not more than 500 feet from the wellsite and at a location which allows vehicles to turn around at a safe distance prior to reaching the site.
11. Protective safety equipment will be available for all essential personnel. There will be five 30-minute SCBA and five air line breathing units with emergency escape cylinders located at the drilling floor or dog house, one SCBA and air line unit will be located in the derrick (for derrick man), one 30-minute SCBA per person will be located by the quarters of all personnel on location, and 30-minute SCBA and escape units will be distributed as needed near the shaker, mud tanks, and any other area where escape from an H₂S contaminated area could be difficult. A safety trailer containing the compressed breathing air will be located near the well site and air lines will be run from the safety trailer to where the air line breathing units are located.

III. Safety Procedures

A. Training

When this plan is in effect, all personnel who come onto the location must be properly trained in hydrogen sulfide, nitrogen, and oxygen deficient atmospheres safety. The personnel shall carry documentation with them indicating that the training has occurred within the previous 12 months. All training will comply with federal and state regulatory guidelines. There will be a session that reviews this site specific H₂S plan and the H₂S PPP (if applicable) for all personnel in each work crew on location. Training will also include weekly H₂S and well control drills. All training sessions and drills are to be recorded in the driller's log, as well as in the safety trailer logbook.

Training topics shall include at a minimum:

1. Hazards and characteristics of hydrogen sulfide, nitrogen, and oxygen deficient atmospheres and symptoms of exposure to these gases.
2. Proper use, care and limitations of respiratory protective equipment with hands-on practice.
3. Use of both fixed and portable toxic gas detection equipment.

4. Work practices to reduce chances for toxic gas exposure and procedures for confined space.
5. First aid for toxic gas exposure and resuscitation equipment.
6. The buddy system.
7. Emergency evacuation procedures.
8. A review of the contingency plan for the well.

B. Operating Conditions

A three color- flag warning system will be used to notify personnel approaching the drill site as to operating conditions on the wellsite. This system is in compliance with BLM Onshore Order 6 and follows industry standards.

Green Flag - Potential Danger

Yellow Flag - Moderate Danger

Red Flag- Extreme Danger - Do not approach if red flag is flying.

A red warning flag will be displayed when H₂S is detected in excess of 10 ppm at any detection point.

The operational danger or caution signs located near the entrance to the location will be painted a high visibility red, black and white, or yellow with black lettering. They will be legible and large enough to be read by all persons entering the wellsite and will read "DANGER – POISON GAS – HYDROGEN SULFIDE" and in small lettering "Do not approach if Red Flag is Flying".

All sign(s) and, when appropriate, flag(s) will be visible to all personnel approaching the location under normal lighting and weather conditions.

Location access will be monitored and controlled during "non-routine" operations such as perforating, pressurized pumping, and well testing of potential H₂S bearing formations. The number of personnel on location will be restricted to "essential" personnel only

C. Warning System Response and Evacuation Plan

When H₂S is detected in excess of 10 ppm at any detection point indicating that an extreme danger condition exists, all non-essential personnel will be moved to a safe area and essential personnel (i.e., those necessary to maintain control of the well) shall don a pressure-demand type protective breathing apparatus. Once accomplished, operations may proceed.

If an H₂S emergency situation arises, the Wellsite Supervisor will contact local authorities to authorize and work in coordination with them to evacuate and restrict non-essential personnel from areas near the wellsite where H₂S concentration levels could potentially exceed 10 ppm. All associated regulatory agencies will then be notified as soon as possible.

D. Emergency Rescue Procedures

Well site personnel should not attempt emergency rescues unless they have been properly trained. A trained person who discovers another person overcome by hydrogen sulfide **should not attempt to rescue without donning the proper breathing equipment**. When making an emergency rescue always use the following procedures:

1. Don rescue breathing equipment before attempting to rescue someone.
2. Remove the victim from the contaminated area to an area free of gas by traveling upwind or cross wind. Be certain that you are in a safe area before removing your breathing equipment.
3. If the victim is not breathing, initiate mouth-to-mouth resuscitation immediately. Follow CPR guidelines and replace mouth-to-mouth with a bag mask resuscitator if available.
4. Treat the victim for shock, keeping the victim warm and calm. Never leave the victim alone.
5. Any personnel who experience hydrogen sulfide exposure must be taken to a hospital for examination and their supervisor notified of the incident.
6. Their supervisor shall follow the company Emergency Preparedness plan.

E. Planning with Local Officials

Wolverine representatives will meet with local officials and apprise them of key elements of the H₂S Drilling Operations Plan.

IV. H2S Safety Equipment on Well Location Procedures

<u>Item</u>	<u>Amount</u>	<u>Description</u>
1.	1	Safety trailer with a cascade system of 10-300 cu. ft bottles of compressed breathing air complete with high-pressure regulators.
2.	At least 1000 ft.	Low-pressure airline equipped with Hanson locking fittings. This airline will be rigged up with manifolds to supply breathing air to the rig floor, substructure, derrick, shale shaker area, and mud mixing areas. Three high-pressure refill hoses will be attached to cascade systems for cylinder refill.
3.	Twelve (12)	Scott 30-minute self-contained breathing apparatuses (SCBA).
4.	Twelve (12)	Scott airline units with emergency escape cylinders.
5.	One (1)	4-channel continuous electronic H2S monitors with audible and visual alarms. The set points for these alarms are 10 ppm for the low alarm and 15 ppm for the high alarm.
6.	Two (2)	Sensidyne portable hand operated pump type detection units with tubes for hydrogen sulfide and sulfur dioxide.
7.	One (1)	Oxygen resuscitator with spare oxygen cylinder.
8.	One (1)	Trauma first aid kit.
9.	One (1)	Stokes stretcher and one (1) KED
10.	Four (4)	Windssocks.
11.	At least one (1)	Well condition sign with 3 flag system.
12.	Two (2)	Safe Briefing Area (SBA) signs.
13.	One (1)	Fire blanket.
14.	One (1)	Set air splints.
15.	Two (2)	Electric explosion proof fans.
16.	One (1)	Bullhorn and chalk board.
17.	Three (3)	300 cu. ft. air bottles for the safe briefing area.
18.	Two (2)	30# fire extinguishers.
19.	Six (6)	Battery powered voice microphones for communication when wearing air masks.
20.	One (1)	Battery powered combustible gas meter.

V. Operating Procedures and Equipment

1. If zones containing in excess of 100 ppm of H₂S gas are encountered while drilling with air, gas, mist, other non-mud circulating mediums for aerated mud, the well will be killed with a water-based mud and mud will be used thereafter as the circulating medium for continued drilling.
2. A flare system will be designed and installed to safely gather and burn H₂S-bearing gas and it will be equipped with a suitable and safe means of ignition. If noncombustible gas is to be flared, the system will have a supplemental fuel to maintain ignition.
3. Flare lines will be located as far from the operating site as feasible and in a manner to compensate for wind changes. The flare line(s) mouth(s) will be located not less than 150 feet from the wellbore. Flare lines will be straight unless targeted with running tees.
4. If SO₂ is to be released as a result of flaring of H₂S, portable SO₂ detection equipment will be available for checking the SO₂ level in the flare impact area. If the flare impact area reaches a sustained ambient threshold level of 2 ppm or greater of SO₂ in air and includes any occupied residence, school, church, park, or place of business, or other area where the public could reasonably be expected to frequent, the PPP will be implemented.
5. The choke manifold included as a component of the well control system will have at least one remote controlled choke with controls readily accessible to the drilling or other authorized personnel.
6. A rotating head will be installed and operable.
7. A mud-gas separator will be rigged up and manifolded to the choke and flare system.
8. The drilling mud will be a fresh water system from surface to 13-3/8 casing point (about 4500'). No gas or h₂S is expected in this hole section. From 4500' to 9500' the hole will be drilled with OBM. From 9500 to 12000' the hole will be drilled with OBM. Below 12,000', the hole could be drilled with a will be a water-based system maintained with a pH of 10 or greater. Corrosion inhibitor additives will be in the mud. Sufficient scavenger chemicals will be available on location and will be used to scavenge or neutralize any H₂S in the drilling fluid. Mud weight will be maintained as needed to control pressure in any formations encountered.
9. All equipment that has potential for exposure to H₂S will be suitable for H₂S service. The casing head and spools, blowout preventer assembly, rotating head, kill lines, choke, choke manifold and lines, valves, mud-gas separator and other related equipment will have metallurgical standards conforming to NACE MR0175/ISO 15156. Elastomers, packing, and similar inner parts exposed to H₂S will be resistant at the maximum anticipated temperature of exposure. Drill strings, surface casing, intermediate casing, and BOP shear rams are exempt from these requirements.

10. All respiratory protective, H₂S detection, and other needed safety equipment will be in place and ready for use, and all rig crews and other service personnel will be trained in its use when this plan is effective.
11. There will be a continuous electronic H₂S detection system that will automatically activate visible and audible alarms if hydrogen sulfide is detected. The visible light will activate if 10 ppm H₂S is present. The audible siren will activate if 15 ppm H₂S or higher concentration is present. There will be at least four H₂S sensors in place on the drilling rig. Additional alarm lights & sirens may be added to ensure that all personnel on the drill site are able to notice the alarms at any time. All H₂S detection equipment will be calibrated as recommended by the manufacturer and calibration records will be maintained on location.
12. Both 30-minute self-contained breathing apparatuses (SCBA) and workline units with escape cylinders will be available on location. There will be sufficient numbers of this supplied air breathing equipment on location to ensure that all personnel on location have equipment available to them. All respiratory protective equipment will use nose cups to prevent fogging in temperatures below 32°F. Spectacle kits will be available for personnel that require corrective lenses when working under mask.
13. Electronic voice-microphones will be available for essential personnel to use when working under mask to facilitate communication.
14. Additional breathing equipment will be provided for non routine operations that require additional service personnel on the well location to ensure that all personnel on the well location have a dedicated supplied air respirator.
15. Electric explosion-proof ventilating fans (bug blowers) will be available to provide air movement in enclosed areas where gas might accumulate.
16. Any drill stem test performed on any formation potentially containing H₂S will be done with a minimal number of personnel at the drilling site as necessary to safely operate the test equipment. Any such drill-stem test will be conducted only during daylight hours and will be a closed chamber test with no fluids allowed to flow from surface.
17. Any production testing of an H₂S bearing formation will be done with proper wellhead and other equipment in place to allow a controlled test through separation equipment and flare as needed. Any such test would be conducted with monitoring and warning devices in place and proper safety equipment available.

VI. Well Ignition Procedures

If it should become apparent that an uncontrolled release of hydrogen sulfide to the atmosphere might endanger the health and safety of the public or well site personnel, the Wolverine Wellsite Supervisor will make a decision to ignite the well. The following procedure should be followed before attempting to ignite the well.

A. Ignition equipment - The following equipment will be available for on-site for use by the ignition team.

1. Two 12 gauge flare guns with flare shells
2. Two 500 ft. Fire resistant retrieval ropes
3. One portable combustible gas meter
4. Self contained breathing apparatus (SCBA) for each member of the ignition team.
5. One backup vehicle with communication equipment

B. Ignition Procedures

1. The Wellsite Supervisor will ensure that well site personnel are evacuated to a safe area upwind of the well bore prior to any ignition action.
2. The Wellsite Supervisor and a designated partner "buddy" backed up by well site safety personnel will comprise the ignition team. All team members will be wearing 30 minute SCBAs.
3. The backup crew will be positioned near a radio-equipped vehicle at a safe distance from the sour gas release. They will standby to rescue the actual team igniting the well.
4. The partner of the ignition team will carry a combustible gas/ hydrogen sulfide meter to continuously monitor the area in which they are working and define the perimeter of the gas cloud.
5. The Wellsite Supervisor will carry the flare gun and shells.
6. The ignition team will determine the hazardous area and establish safe working perimeters. Once this is identified the team will proceed upwind of the leak and fire into the area with flare gun. If trouble is encountered in trying to light the leak, retry to ignite by firing the flare shells at 45 and 90 angles to the gas source, but DO NOT approach closer to the leak.
7. After ignition, monitor for sulfur dioxide and work with the support group to restrict access to the contaminated area.

VII. Residents – Public in Radius of Exposure

Exposure to H₂S by the general public is very unlikely during drilling or completion operations. The well site is located in a remote area, approximately 14.7 miles off the nearest major road. There are no permanent residents within a 1-mile radius of the well site and the 100 PPM and the 500 PPM radii of exposure for this well based on offset well parameters of 2.0 MMCFD flow rate and 0.1% H₂S content are less than 2000' and 1000', respectively. The surrounding area is federally owned. This land may be used for recreational purposes including hunting or recreational vehicles during the drilling or completion of this well. The well pad will have controlled access during drilling.

VIII. Emergency Phone Directory

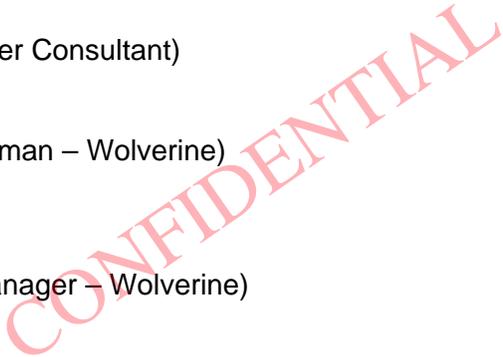
A. Wolverine Gas and Oil Company of Utah, LLC

Chuck Emerson (Drilling Wellsite Supervisor – Wolverine) Rig Phone 970-812-0022
Tom Zupan (Drilling Wellsite Supervisor – Wolverine)
Bill Donovan (Drilling Wellsite Supervisor – Wolverine)

Jack Magill (Drilling Engineer Consultant) office 308-848-3279
Cell 303-868-6408

Tony Cook (Production Forman – Wolverine) office 435-896-2956
cell 435-201-1622
truck 435-201-2871

Ed Higuera (Operations Manager – Wolverine) office 616-458-1150
Cell 616-690-0023



B. Emergency Services Phone List

1. Sevier Valley Medical Center - Richfield, UT.....435 - 896-8271
2. Gunnison Valley Hospital, Sanpete County.....435 - 528-7246
3. Ambulance Services – Sevier County, UT911 or 435-896-6471
4. Ambulance Services – Sanpete County, UT911 or 435-835-2191
5. Sheriff Department - Sevier County, UT911 or 435-896-6471
6. Sheriff Department – Sanpete County, UT911 or 435-835-2191
7. Highway Patrol - Utah.....800 - 222-0038
8. Fire Department - Sevier County911 or 435-896-6471
9. Marvin Hendricks, BLM – Price Field Office, UT (cell phone)435- 650-9136
10. Utah Division Oil, Gas & Mining - Salt Lake City, UT.....801- 538-5277
11. Medical Helicopter - Air Med- Salt Lake City, UT.....800 - 453-0120
12. Utah OSHA (Mark LeBlanc)801- 530-6862
13. Sevier Valley Medical Center - Richfield, UT435-896-8271

C. Nearest Hospital

The nearest hospital to the site is the Gunnison Valley Hospital, located at 64 E 100 N, Gunnison, UT. A map and directions to the hospital can be found in Section X-Attachments.

IX. Reference Material for Hydrogen Sulfide and Sulfur Dioxide

If gas should be produced, it could be a mixture of Carbon Dioxide, Hydrogen Sulfide, and Methane.

TOXICITY OF VARIOUS GASES

<u>Common Name</u>	<u>Chemical Formula</u>	<u>Specific Gravity of Air=1</u>	<u>1 Threshold Limit</u>	<u>2 Hazardous Limit</u>	<u>3 Lethal Concern</u>
Hydrogen Cyanide	HCN	0.94	10 ppm	150 ppm/hr	300 ppm
Hydrogen Sulfide	H ₂ S	1.18	10 ppm	250 ppm/hr	600 ppm
Sulfur Dioxide	SO ₂	2.21	2 ppm	-----	1,000 ppm
Chloride	CL ₁	2.45	1 ppm	4 ppm/hr	1,000 ppm
Carbon Monoxide	CO	0.97	50 ppm	400 ppm/hr	1,000 ppm
Carbon Dioxide	CO ₂	1.52	5,000 ppm	5%	10%
Methane	CH ₄	0.55	90,000 ppm	Combustible Above 5% in Air	-----

1. **Threshold** = Concentration at which it is believed that all workers may repeatedly be exposed, day after day, without adverse side effects.

2. **Hazardous** = Concentration that may cause death.

3. **Lethal** = Concentration that will cause death with short-term exposure.

HYDROGEN SULFIDE

GENERAL PROPERTIES

Hydrogen Sulfide itself is a colorless and transparent gas and is flammable. It is heavier than air and, hence, may accumulate in low places.

Although the slightest presence of H₂S in the air is normally detectable by its characteristic “Rotten Egg” odor, it is dangerous to rely on the odor as a means of detecting excessive concentrations because the sense of smell is rapidly lost allowing lethal concentrations to be accumulated without warning. The following table indicates the poisonous nature of Hydrogen Sulfide, which is more toxic than Carbon Monoxide.

COMMON NAMES: Sour Gas, Rotten Egg Gas, Sulphurated Hydrogen, Hydrogen sulfide, Stink Damp, H₂S, Acid Gas, Sweet Gas*

PHYSICAL-CHEMICAL PROPERTIES

- Chemical FormulaH₂S
1. Specific Gravity (Air = 1.000)1.193 (@ 77°F)
 2. Color.....None
 3. OdorCompared to Rotten Eggs
 4. Odor Threshold.....0.13 part of 1 ppm
 5. CorrosivityReacts with metals, plastics, tissues and nerves.
 6. Solubility in Water4.0 to 1 in H₂O @ 32°F
2.6 to 1 in H₂O @ 68°F
 7. Effects on HumansOlfactory nerves, respiratory nerves, irritates sensitive membranes in eyes, nose, and throat.
 8. Vapor Pressure.....19.6 atmospheres at 25°C
 9. Explosive Limits.....4.3% to 46% by volume in air.
* H₂S is a sweet tasting Gas, but often the word “tasting” is left out.
 10. Ignition Temperature.....18°F (Burns with a pale blue flame)
 11. Molecular Weight.....34.08
 12. Conversion Factors..... 1 mg/1 of air = 717 ppm (at 25°C and 760 mm HG). 1 ppm = 0.00139 mg/1 of air.
 13. pH.....3 in water

INDUSTRIAL OCCURRENCES

Hydrogen Sulfide exposures occur in certain processes in the petroleum industry, chemical plants, chemical laboratories, sulfur and gypsum mines, viscose rayon and rubber industries,

tanneries, and in the manufacture of some chemicals, dyes, and pigments. It may be encountered in excavations in the swampy or filled ground. It is produced when sulfur-containing organic matter decomposes, and it can therefore be found in sewage or organic-waste treatment plants. A common sewer gas, it may find its way into utility manhole, particularly dangerous when encountered in tanks, vessels, and other enclosed spaces.

TOXIC PROPERTIES

Hydrogen Sulfide is an extremely toxic and irritating gas. Free Hydrogen Sulfide in the blood reduces its oxygen carrying capacity, thereby depressing the nervous system. Sufficiently high concentrations can cause blockage of the phrenic nerve, resulting in immediate collapse and death due to respiratory failure and asphyxiation.

Because Hydrogen Sulfide is oxidized quite rapidly to sulfates in the body, no permanent after effects occur in cases of recovery from acute exposures unless oxygen deprivation of the nervous system is prolonged. However, in cases of acute exposures, there is always the possibility that pulmonary edema may develop. It is also reported that symptoms such as nervousness, dry nonproductive coughing, nausea, headache, and insomnia, lasting up to about 3 days have occurred after acute exposures to Hydrogen Sulfide.

At low concentrations the predominant effect of Hydrogen Sulfide is on the eyes and respiratory tract. Eye irritation, conjunctivitis, pain, lacrimation, keratitis, and photophobia may persist for several days. Respiratory tract symptoms include coughing, painful breathing, and pain in the nose and throat.

There is no evidence that repeated exposures to Hydrogen Sulfide results in accumulative or systemic poisoning. Effects such as eye irritation, respiratory tract irritation, slow pulse rate, lassitude, digestive disturbances, and cold sweats may occur, but these symptoms disappear in a relatively short time after removal from the exposure. Repeated exposure to Hydrogen Sulfide does not appear to cause any increase or decrease in susceptibility to this gas.

The paralytic effect of Hydrogen Sulfide on the olfactory nerve is probably the most significant property of the gas. This paralysis may create a false sense of security. A worker can be overcome after the typical rotten-egg odor has disappeared. Rather than the characteristic Hydrogen Sulfide odor, some victims of sudden acute overexposure have reported a brief sickeningly sweet odor just prior to unconsciousness.

Subjective olfactory responses to various concentrations of Hydrogen Sulfide may be summarized as follows:

0.02 ppm	No odor
0.13 ppm	Minimal perceptible odor
0.77 ppm	Faint, but readily perceptible odor

4.60 ppm	Easily detectable, moderate odor
27.0 ppm	Strong, unpleasant odor, but not intolerable

Physiological responses to various concentrations of Hydrogen Sulfide have been reported as follows:

10 ppm	Beginning eye irritation
50-100 ppm	Slight conjunctivitis and respiratory tract irritation after 1 hour exposure
100 ppm	Coughing, eye irritation, loss of sense of smell after 2-15 minutes. Altered respiration, pain in the eyes, and drowsiness after 15-30 minutes, followed by throat irritation after 1 hour. Several hours ¹ exposure results in gradual increase in severity of these symptoms and death may occur within the next 48 hours
200-300 ppm	Marked conjunctivitis and respiratory tract irritation after 1 hour exposure
500-700 ppm	Loss of consciousness and possibly death in 30 minutes
700 ppm	Rapid unconsciousness, cessation of respiration, and death
1000-2000 ppm	Unconsciousness at once, with early cessation of respiration and death in a few minutes. Death may occur even if individual is removed to fresh air at once.

ACCEPTABLE CONCENTRATIONS

ACCEPTABLE EIGHT-HOUR TIME-WEIGHTED AVERAGE

To avoid discomfort, the Time-Weighted average concentration of Hydrogen Sulfide shall not exceed 10 ppm.

ACCEPTABLE CEILING CONCENTRATION

The acceptable concentration for protection of health for an eight-hour, five-day week shall be 20 ppm. Fluctuations are to occur below this concentration.

ACCEPTABLE MAXIMUM FOR PEAKS ABOVE ACCEPTABLE BASE LINE FOR CONTINUOUS EXPOSURE

A single-peak concentration not exceeding 50 ppm for a maximum of 10 minutes is allowable provided that the daily time-weighted average is not exceeded.

H₂S EQUIVALENTS

Parts per

Grains per

<u>Million</u>	<u>Percents</u>	<u>100 cu. Ft.</u>
1	0.0001	0.055
10	0.001	0.55
18	0.0018	1.0
100	0.01	5.5
1000	0.1	55.5
10000	1.0	555.5

Grains per 100 cu. Ft. = % by volume Mole 636.4
 1% by volume = 10,000 ppm

SULFUR DIOXIDE

Sulfur Dioxide (SO₂) is a colorless, transparent gas and is non-flammable.

Sulfur Dioxide is produced during the burning of H₂S. Although SO₂ is heavier than air, it will be picked up by a breeze and carried downwind at elevated temperatures. While Sulfur Dioxide is extremely irritating to the eyes and mucous membranes of the upper respiratory tract, it has exceptionally good warning powers in this respect.

CONCENTRATIONS

EFFECTS

%SO₂ ppm

0.0002 2

Safe for eight (8) hour exposure

0.0005 5

Pungent odor - normally a person can detect SO₂ in this range.

0.0012 12

Throat irritation, coughing, constriction of the chest, tearing and smarting of the eyes.

0.015 150

So irritating that it can only be endured for a few minutes.

0.05 500

Causes a sense of suffocation, even with the first breath.

PHYSICAL PROPERTIES AND CHARACTERISTICS

Chemical Formula	SO ₂
1. Specific Gravity	2.212
2. Color	None
3. Flammable	No
4. Odor	Characteristic, pungent, gives ample warning of its presence.
5. Corrosivity	Dry---not corrosive to ordinary metals. Wet---corrosive to most common metals.
6. Allowable Concentrations	2 ppm (ACGIH and OSHA)
7. Effects on Humans	Irritates eyes, throat and upper respiratory system

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TOXIC PROPERTIES

Sulfur Dioxide is an irritating gas in its vapor form and the odor is so intensely irritating that concentrations of 3 to 5 parts per million in the air are readily detectable by the normal person. In higher concentrations, the severely irritating effect of the gas makes it unlikely that any person would be able to remain in a Sulfur Dioxide contaminated atmosphere unless they were unconscious or trapped.

Sulfur Dioxide gas is intensely irritating to the eyes, throat, and upper respiratory system. Inhalation of this gas in concentrations of 8 to 12 parts per million in air causes throat irritation, coughing, constriction of the chest, tearing and smarting of the eyes. 150 parts per million is so extremely irritating that it can be endured only for a few minutes. 500 parts per million is so acutely irritating to the upper respiratory tract that it causes a sense of suffocation, even with the first breath.

Out of numerous reported exposures to Sulfur Dioxide, there are few references that would indicate pneumonia as an after effect.

X. Attachments-Maps, Diagrams

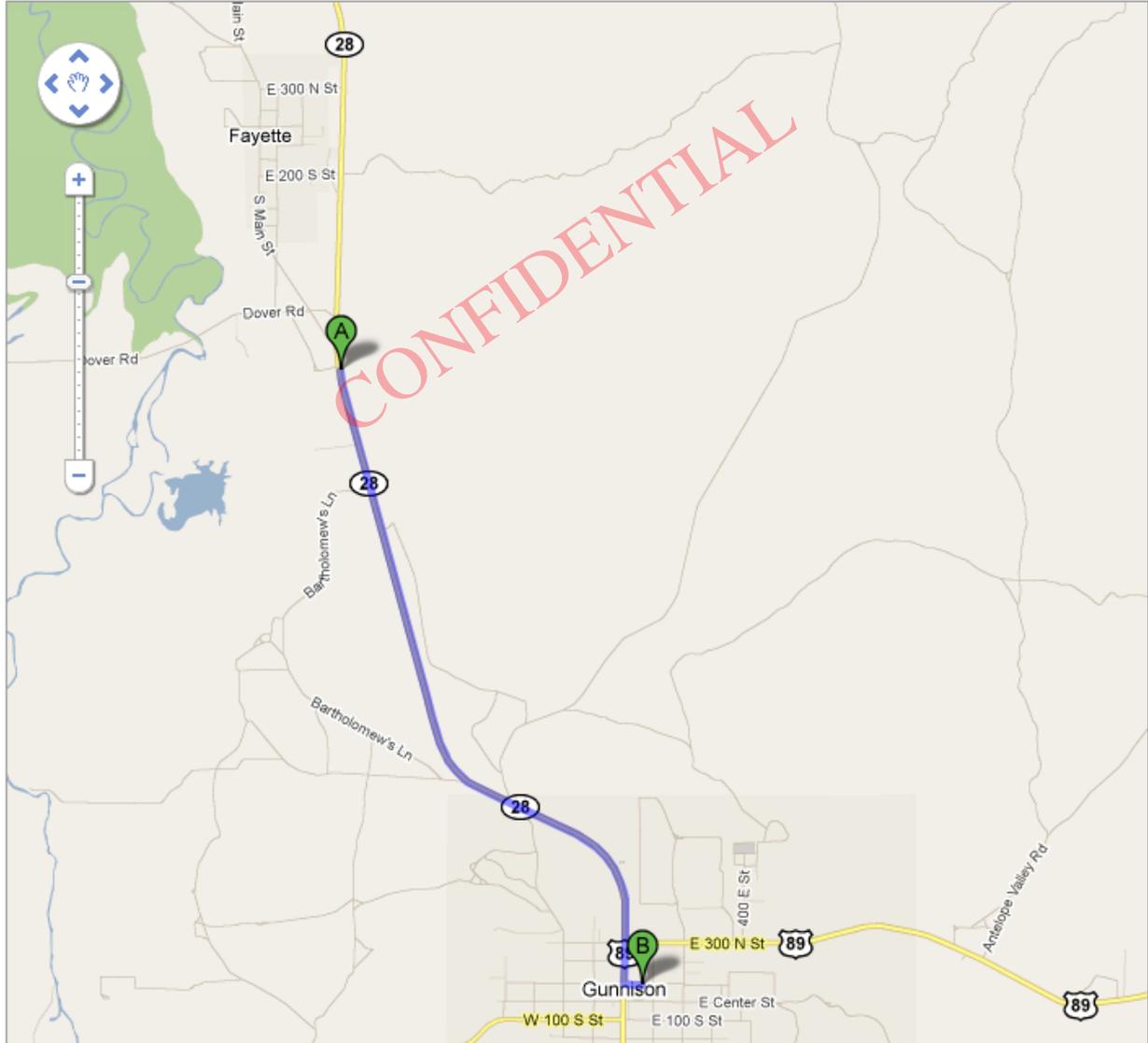
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Directions to 64 E 100 N St, Gunnison, UT 84630

4.2 mi – about 6 mins

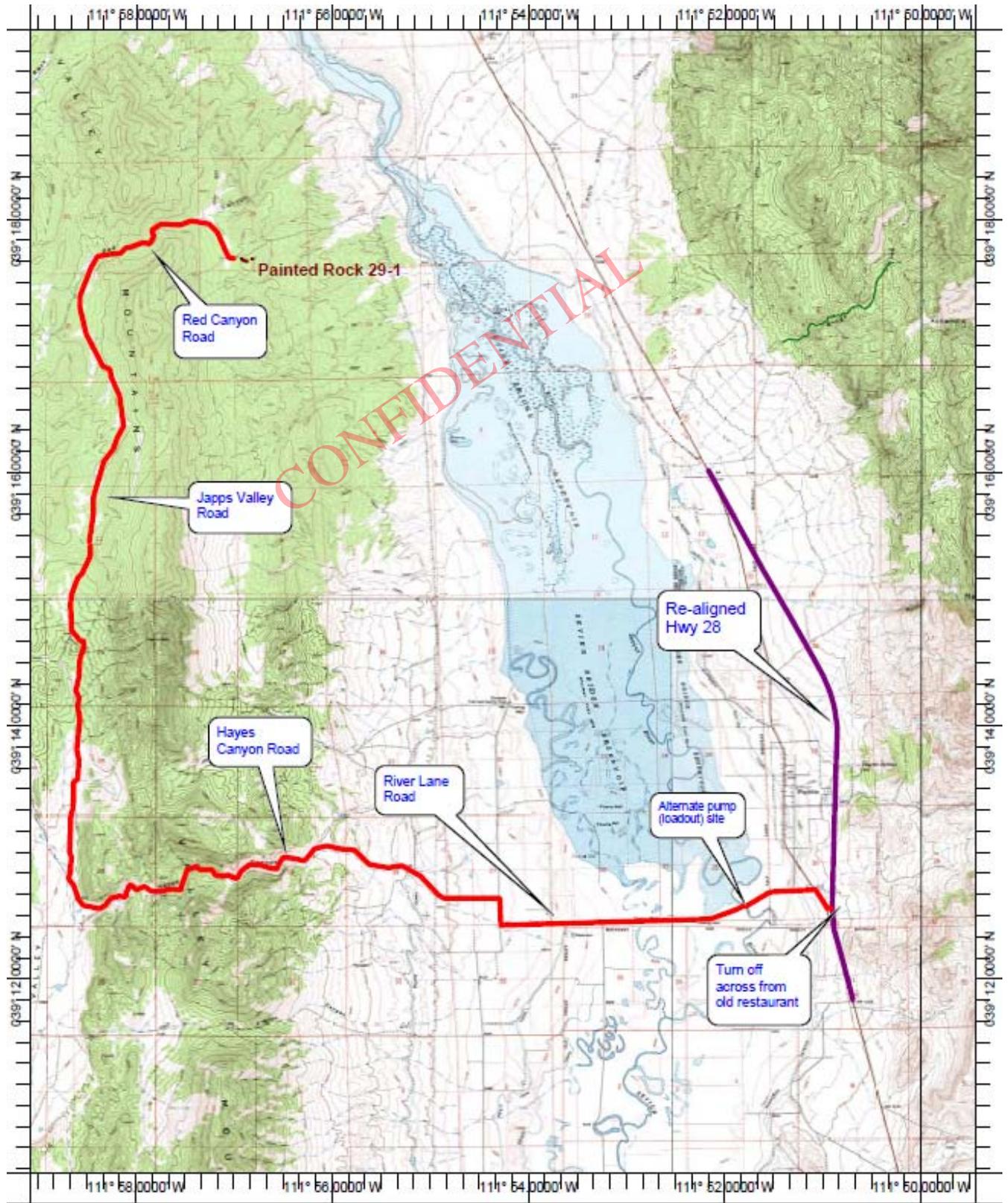
Directions from UT 28 Turn-off at River Lane Road to Hospital



A UT-28 S

- 28** 1. Head **south** on **UT-28 S** toward **Bartholomew's Ln** go 3.9 mi
total 3.9 mi
About 5 mins
- 2. Continue onto **N Main St** go 0.2 mi
total 4.1 mi
About 1 min
- ⬅** 3. Turn **left** at **E 100 N St** go 0.1 mi
total 4.2 mi
Destination will be on the right
About 1 min

B 64 E 100 N St, Gunnison, UT 84630



Name: HAYES CANYON
Date: 11/11/2009
Scale: 1 inch equals 1.082 miles

Location: 039° 14.9800' N 111° 54.2683' W WGS 84
Caption: Rough Canyon
T17S-R1E

Copyright (C) 1997, Maptech, Inc.

WOLVERINE OPERATING COMPANY OF UTAH, LLC

PAINTED ROCK FEDERAL 20-1A
SECTION 20, T17 S, R11 W, SLR 4 N

ELEV. UNGRADED GROUND AT NBL = 5903.23
ELEV. GRADED GROUND AT NBL = 5791.00

APPROXIMATE YARDPACK
(6") TOPSOIL STRIPPING = 2,000 CU. YDS.
RESERVE PIT = 6,174 CU. YDS.
REMAINING LOCATION = 42,400 CU. YDS.
TOTAL CUT = 48,674 CU. YDS.
TOTAL FILL = 28,013 CU. YDS.
FILL IS UNAVAILABLE

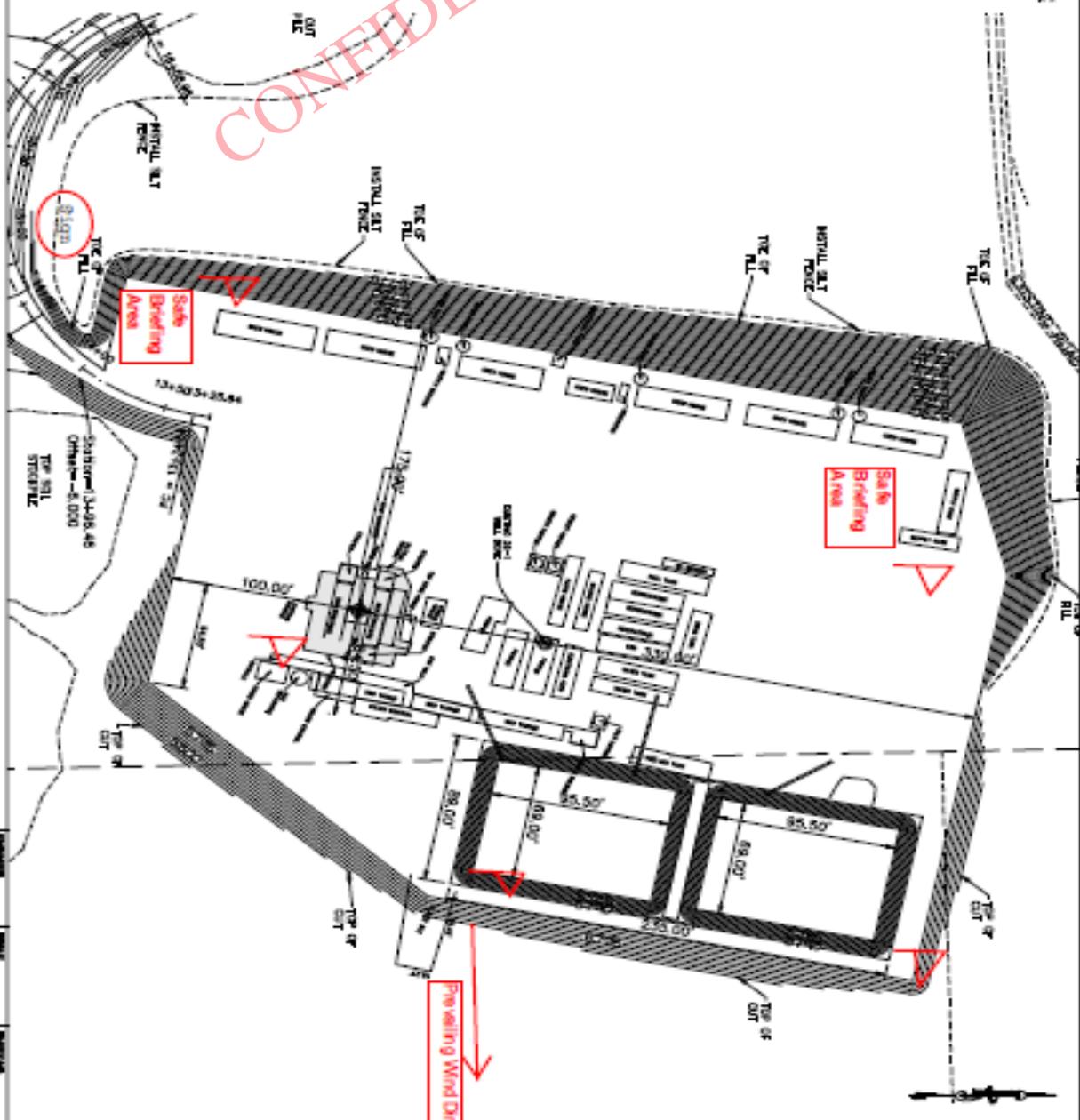
TOTAL PIT CAPACITY WITH 2' FREEBOARD = 29,680 HBM

LEGEND

- SECTION LINE
- PAISER CONTOUR PRO
- PAISER CONTOUR ES

▲ = Wind Break Location

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REVISED PAD LAYOUT FOR PAINTED ROCK FEDERAL 20-1A
WOLVERINE OPERATING COMPANY OF UTAH, LLC



DATE	BY	REVISION	DESCRIPTION
11/14/11	WJ	1	REVISED PAD LAYOUT
11/14/11	WJ	2	REVISED PAD LAYOUT
11/14/11	WJ	3	REVISED PAD LAYOUT
11/14/11	WJ	4	REVISED PAD LAYOUT
11/14/11	WJ	5	REVISED PAD LAYOUT
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11/14/11	WJ	97	REVISED PAD LAYOUT
11/14/11	WJ	98	REVISED PAD LAYOUT
11/14/11	WJ	99	REVISED PAD LAYOUT
11/14/11	WJ	100	REVISED PAD LAYOUT

---End---

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WOLVERINE OPERATING COMPANY OF UTAH, LLC

PAINTED ROCK FEDERAL 29-1A
SECTION 29, T.17 S., R.1 W., S.L.B. & M.

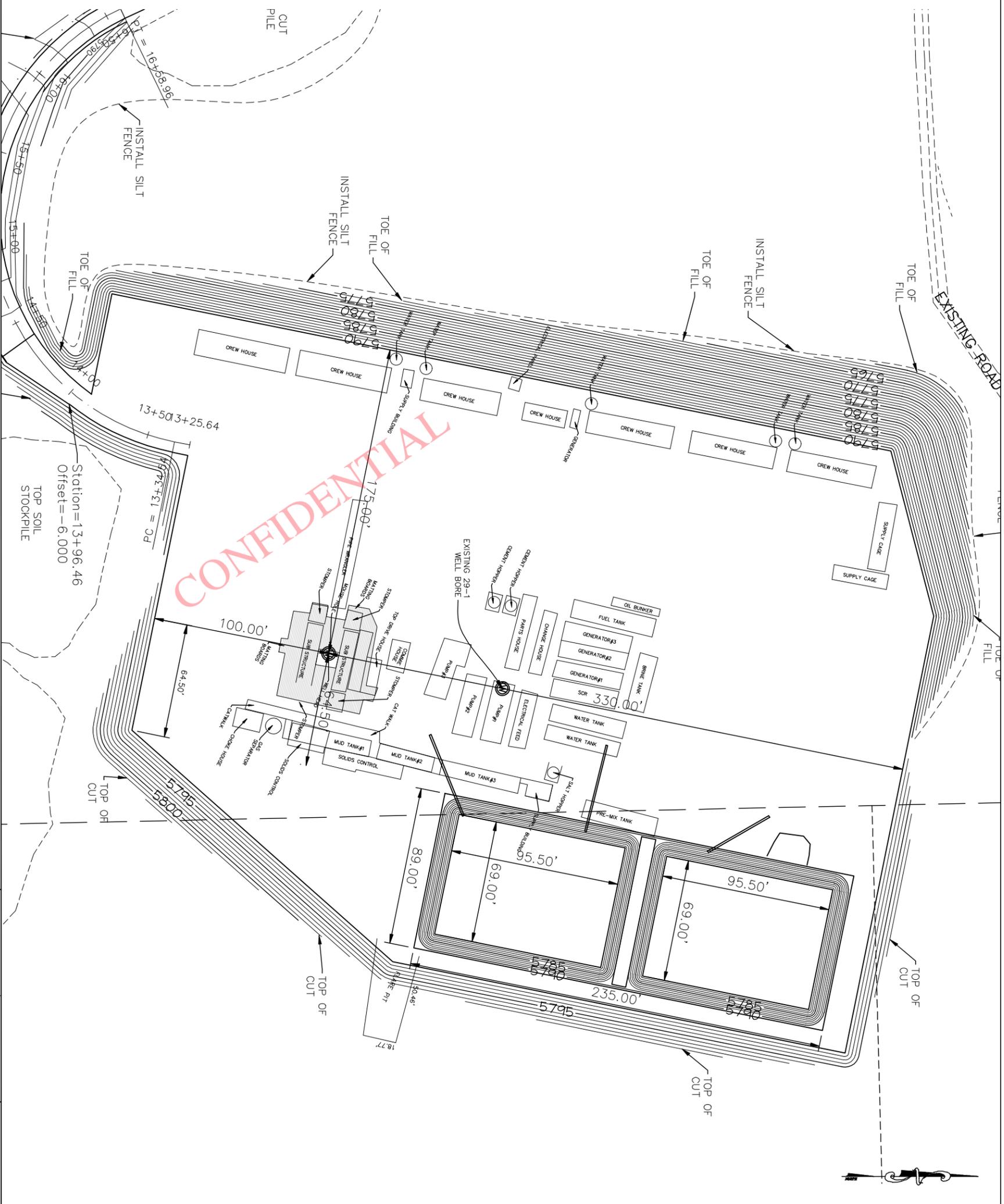
ELEV. UNGRADED GROUND AT WELL = 5803.23
ELEV. GRADED GROUND AT WELL = 5791.00

APPROXIMATE YARDAGE
(6") TOPSOIL STRIPPING = 2,600 CU. YDS.
RESERVE PIT = 6,174 CU. YDS.
REMAINING LOCATION = 42,400 CU. YDS.
TOTAL CUT = 45,000 CU. YDS.
TOTAL FILL = 29,013 CU. YDS.
*FILL IS UNADJUSTED

TOTAL PIT CAPACITY WITH 2' FREEBOARD = 29,690 bbis

LEGEND

- SECTION LINE
- 5090 — MAJOR CONTOUR PRO
- - - 5090 - - MAJOR CONTOUR EG



REVISED PAD LAYOUT FOR PAINTED ROCK FEDERAL 29-1A
WOLVERINE OPERATING COMPANY OF UTAH, LLC



ENGINEER	T.M.	SCALE	1"=80'	SHEET NO.
CHECKED	R.W.S.	PROJ.	1004-0115	PAD
DRAWN	R.W.S.	DWG. NO.	SKID_FIG_29-1A	
		DATE	9/8/21	

WOLVERINE OPERATING COMPANY OF UTAH, LLC

Energy Exploration in Partnership with the Environment



October 4, 2010

Diana Mason
Permitting—Petroleum Technician
Utah Division of Oil, Gas and Mining
P.O. Box 145801
Salt Lake City, Utah 84114-5801

Re: Application for Permit to Drill (Utah ePermit #3041)
Wolverine Operating Company of Utah, LLC
Painted Rock Federal 29-1A
Exception location letter/ Directional drilling letter

Dear Mrs. Mason:

Wolverine Operating Company of Utah, LLC (Wolverine) hereby submits this letter with the accompanying plats, as part of the *Application for Permit to Drill* (APD) for the referenced well:

- R649-3-2 Exception Plat showing proposed BHL;
- R649-3-11 Directional Drilling Application Plat showing proposed BHL;

The Town of Fayette will be the source for water during drilling and completion operations on this proposed well. The surface at the planned drill site is administered by BLM.

The proposed location is within 460' of a drilling unit boundary, so a request for exception to spacing (R649-3-2) is hereby requested for the well based on restrictive topography relative to and the need to drill at an optimum structural location. Wolverine is the only owner and operator within 460' of the proposed well location.

This letter and the accompanying plats are also intended to serve as an application for directionally drilling the well per R649-3-11. Wolverine is the owner of all oil and gas within 460 feet from all points along the intended wellbore for the well. Information relating to R649-3-11 is as follows:

Operator: Wolverine Operating Company of Utah, LLC

Address: 1140 N Centennial Park Drive
Richfield, Utah 84701

Well: Painted Rock Federal 29-1A

Field: NA (Wildcat)

Reservoir: NA (Wildcat)

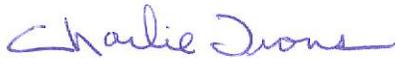
County: Sanpete

Reason: Restrictive topography and to minimize surface impact

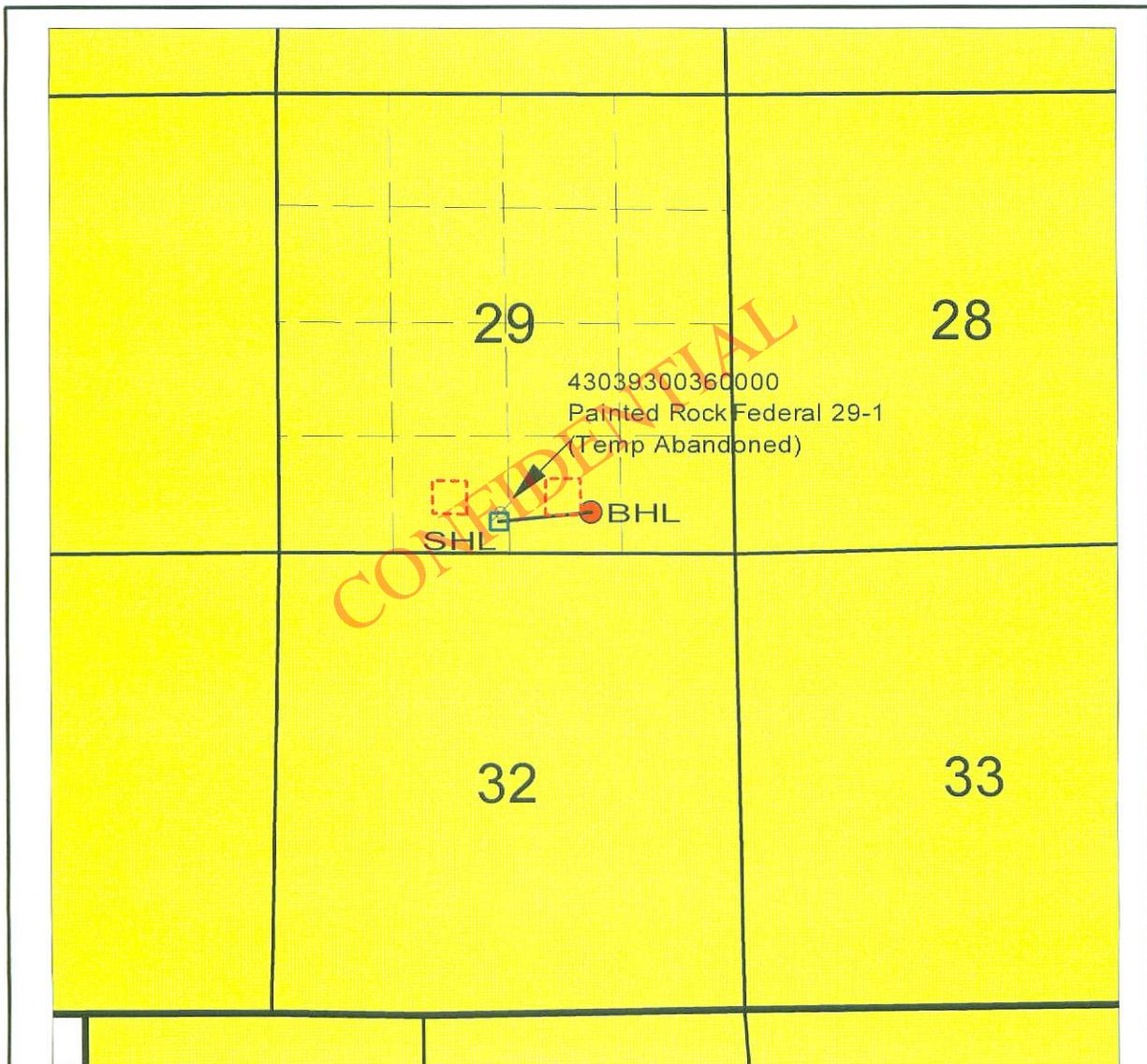
Please accept this letter as Wolverine's written request for confidential treatment of all information contained in and relating to this application and proposed well.

Thank you for consideration of this application. Please feel free to contact me or Paul Spiering of this office if you have any questions or need additional information.

Sincerely,



Charlie Irons
Senior Landman



Painted Rock Federal 29-1A

SHL: 2728' FEL, 373' FSL, SE/4 SW/4, Sec. 29, T17S, R1W, Sanpete Co., UT

BHL: 1636' FEL, 471' FSL, SW/4 SE/4, Sec. 29, T17S, R1W, Sanpete Co., UT

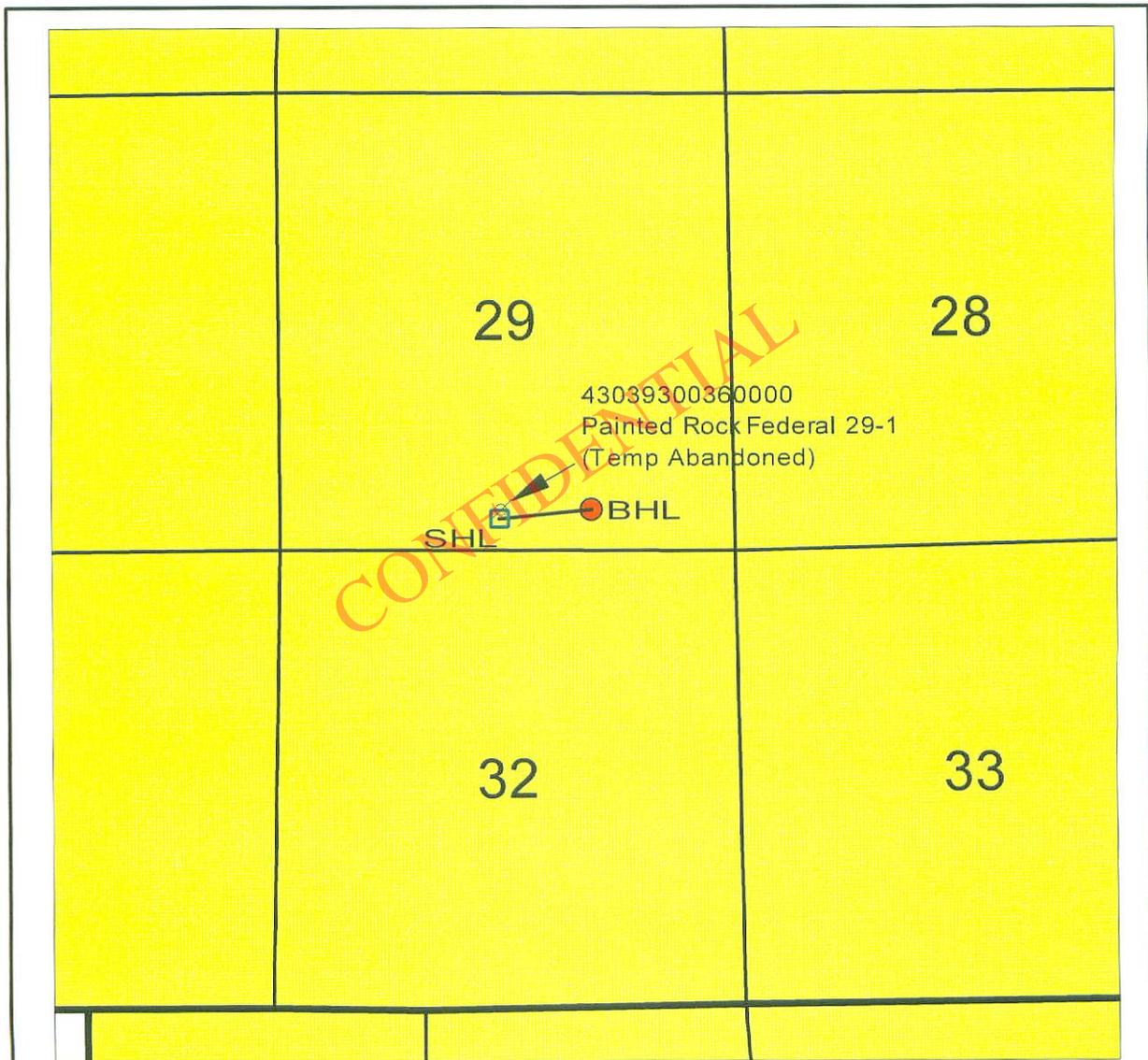
 400' x 400' R649-3-2 window

 Wolverine Lease

1 inch = 2000 feet



	<p>WOLVERINE GAS & OIL Company of Utah, LLC (Operator) <i>Energy Exploration in Partnership with the Environment</i> ONE RIVERFRONT PLAZA 55 CAMPAU, N.W. GRAND RAPIDS, MI 49503-2816 (616) 458-1150</p>
<p>Painted Rock Federal 29-1A Well Location Exception Location and Ownership Plat (R649-3-2)</p>	
<p>Date: 9/30/2010</p>	<p>Author: Mark Lutz Filename: Document in mjl painted rock exception and directional plats.gmp</p>



Painted Rock Federal 29-1A

SHL: 2728' FEL, 373' FSL, SE/4 SW/4, Sec. 29, T17S, R1W, Sanpete Co., UT

BHL: 1636' FEL, 471' FSL, SW/4 SE/4, Sec. 29, T17S, R1W, Sanpete Co., UT

 Wolverine Lease

1 inch = 2000 feet



WOLVERINE GAS & OIL Company of Utah, LLC

(Operator)
Energy Exploration in Partnership with the Environment

ONE RIVERFRONT PLAZA
55 CAMPAU, N.W.
GRAND RAPIDS, MI 49503-2616
(616) 458-1150

Painted Rock Federal 29-1A Well Location
Directional Drilling Application Plat
(R649-3-11)

Date: 9/30/2010

Author: Mark Lutz
Filename: Document in mjl painted rock drilling block.gmp

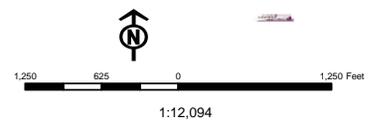
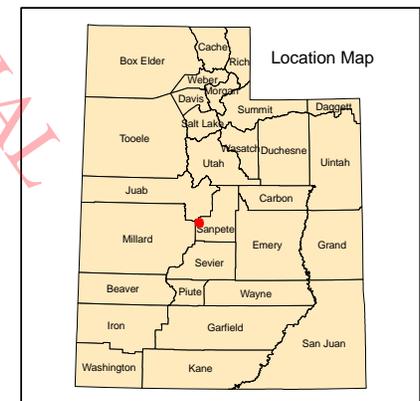
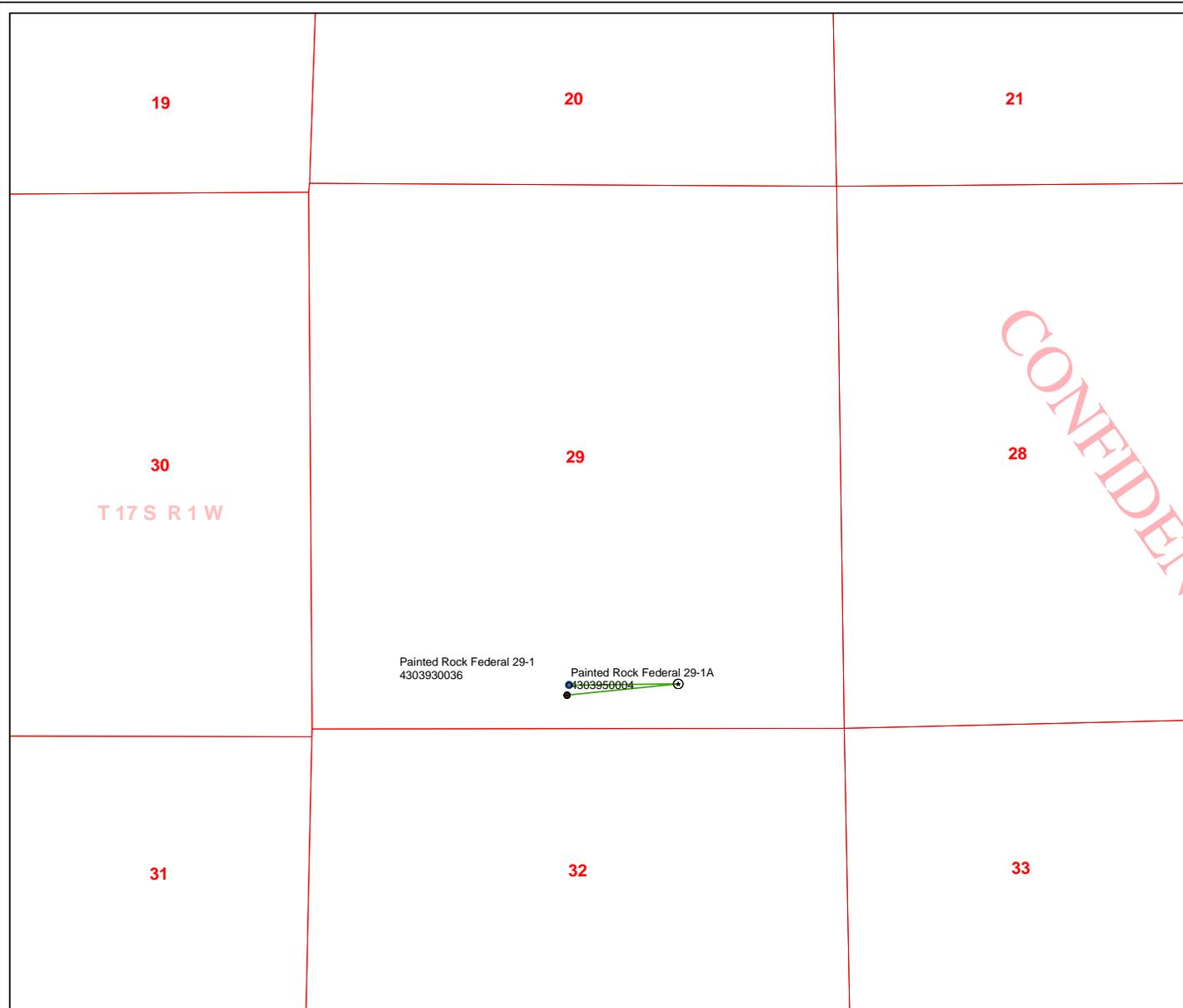
API Number: 4303950004
Well Name: Painted Rock Federal 29-1A
Township 17.0 S Range 01.0 W Section 29
Meridian: SLBM

Operator: WOLVERINE OPERATING COMPANY OF UTAH, LLC

Map Prepared:
Map Produced by Diana Mason

- | Units | Wells Query |
|-----------------------------|------------------------------------|
| ACTIVE | <all other values> |
| EXPLORATORY | APD - Approved Permit |
| GAS STORAGE | DRL - Spudded (Drilling Commenced) |
| NF PP OIL | GIW - Gas Injection |
| NF SECONDARY | GS - Gas Storage |
| PI OIL | LA - Location Abandoned |
| PP GAS | LOC - New Location |
| PP GEOTHERML | OPS - Operation Suspended |
| PP OIL | PA - Plugged Abandoned |
| SECONDARY | PGW - Producing Gas Well |
| TERMINATED | POW - Producing Oil Well |
| Fields | RET - Returned APD |
| Sections | SGW - Shut-in Gas Well |
| Township | SOW - Shut-in Oil Well |
| Bottom Hole Location - AGRC | TA - Temp. Abandoned |
| | TW - Test Well |
| | WDW - Water Disposal |
| | WW - Water Injection Well |
| | WSW - Water Supply Well |

CONFIDENTIAL



**WORKSHEET
APPLICATION FOR PERMIT TO DRILL**

APD RECEIVED: 10/4/2010

API NO. ASSIGNED: 43039500040000

WELL NAME: Painted Rock Federal 29-1A

OPERATOR: WOLVERINE OPERATING COMPANY OF UTAH, LLC (N3035)

PHONE NUMBER: 435 896-1943

CONTACT: Charles Irons

PROPOSED LOCATION: SESW 29 170S 010W

Permit Tech Review:

SURFACE: 0373 FSL 2728 FEL

Engineering Review:

BOTTOM: 0471 FSL 1636 FEL

Geology Review:

COUNTY: SANPETE

LATITUDE: 39.29442

LONGITUDE: -111.94648

UTM SURF EASTINGS: 418381.00

NORTHINGS: 4349668.00

FIELD NAME: WILDCAT

LEASE TYPE: 1 - Federal

LEASE NUMBER: UTU-081346

PROPOSED PRODUCING FORMATION(S): MISSISSIPPIAN

SURFACE OWNER: 1 - Federal

COALBED METHANE: NO

RECEIVED AND/OR REVIEWED:

- PLAT
- Bond: FEDERAL - BLM WYB000616
- Potash
- Oil Shale 190-5
- Oil Shale 190-3
- Oil Shale 190-13
- Water Permit: Fayette Town
- RDCC Review:
- Fee Surface Agreement
- Intent to Commingle

Commingling Approved

LOCATION AND SITING:

- R649-2-3.
- Unit:**
- R649-3-2. General
- R649-3-3. Exception
- Drilling Unit
- Board Cause No:** R649-3-11
- Effective Date:**
- Siting:**
- R649-3-11. Directional Drill

Comments: Presite Completed

Stipulations:
1 - Exception Location - dmason
4 - Federal Approval - dmason
15 - Directional - dmason
23 - Spacing - dmason



GARY R. HERBERT
Governor

GREGORY S. BELL
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

Permit To Drill

Well Name: Painted Rock Federal 29-1A

API Well Number: 43039500040000

Lease Number: UTU-081346

Surface Owner: FEDERAL

Approval Date: 10/13/2010

Issued to:

WOLVERINE OPERATING COMPANY OF UTAH, LLC, 1140 N. Centennial Park Dr., Richfield, UT 84701

Authority:

Pursuant to Utah Code Ann. §40-6-1 et seq., and Utah Administrative Code R649-3-1 et seq., the Utah Division of Oil, Gas and Mining issues conditions of approval, and permit to drill the listed well. This permit is issued in accordance with the requirements of R649-3-11. The expected producing formation or pool is the MISSISSIPPIAN Formation(s), completion into any other zones will require filing a Sundry Notice (Form 9). Completion and commingling of more than one pool will require approval in accordance with R649-3-22.

Duration:

This approval shall expire one year from the above date unless substantial and continuous operation is underway, or a request for extension is made prior to the expiration date

Exception Location:

Appropriate information has been submitted to DOGM and administrative approval of the requested exception location is hereby granted.

General:

Compliance with the requirements of Utah Admin. R. 649-1 et seq., the Oil and Gas Conservation General Rules, and the applicable terms and provisions of the approved Application for permit to drill.

Conditions of Approval:

State approval of this well does not supercede the required federal approval, which must be obtained prior to drilling.

In accordance with Utah Admin. R.649-3-11, Directional Drilling, the operator shall submit a complete angular deviation and directional survey report to the Division within 30 days following completion of the well.

This proposed well is located in an area for which drilling units (well spacing patterns) have not been established through an order of the Board of Oil, Gas and Mining (the "Board"). In order to avoid the possibility of waste or injury to correlative rights, the operator is requested, once the well has been drilled, completed, and has produced, to analyze geological and engineering data generated therefrom, as well as any similar data from surrounding areas if available. As soon as is practicable after completion of its analysis, and if the analysis suggests an area larger than the quarter-quarter

section upon which the well is located is being drained, the operator is requested to seek an appropriate order from the Board establishing drilling and spacing units in conformance with such analysis by filing a Request for Agency Action with the Board.

Notification Requirements:

The operator is required to notify the Division of Oil, Gas and Mining of the following actions during drilling of this well:

- Within 24 hours following the spudding of the well – contact Carol Daniels at 801-538-5284 (please leave a voicemail message if not available)
OR
submit an electronic sundry notice (pre-registration required) via the Utah Oil & Gas website at <https://oilgas.ogm.utah.gov>

Reporting Requirements:

All reports, forms and submittals as required by the Utah Oil and Gas Conservation General Rules will be promptly filed with the Division of Oil, Gas and Mining, including but not limited to:

- Entity Action Form (Form 6) – due within 5 days of spudding the well
- Monthly Status Report (Form 9) – due by 5th day of the following calendar month
- Requests to Change Plans (Form 9) – due prior to implementation
- Written Notice of Emergency Changes (Form 9) – due within 5 days
- Notice of Operations Suspension or Resumption (Form 9) – due prior to implementation
- Report of Water Encountered (Form 7) – due within 30 days after completion
- Well Completion Report (Form 8) – due within 30 days after completion or plugging

Approved By:



For John Rogers
Associate Director, Oil & Gas



GARY R. HERBERT
Governor

GREGORY S. BELL
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

December 27, 2011

Wolverine Operating Company of Utah, LLC
1140 N. Centennial Park Dr.
Richfield UT 84701

Re: APD Rescinded – Painted Rock Fed 29-1A, Sec. 29 T. 17S, R. 1W
Sanpete County, Utah API No. 43-039-50004

Ladies and Gentlemen:

The Application for Permit to Drill (APD) for the subject well was approved by the Division of Oil, Gas and Mining (Division) on October 13, 2010. No drilling activity at this location has been reported to the division. Therefore, approval to drill the well is hereby rescinded, effective December 27, 2011.

A new APD must be filed with this office for approval prior to the commencement of any future work on the subject location.

If any previously unreported operations have been performed on this well location, it is imperative that you notify the Division immediately.

Sincerely,

Diana Mason
Environmental Scientist

cc: Well File
Bureau of Land Management, Richfield Office