

**STATE OF UTAH**  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

FORM 3

AMENDED REPORT 

<b>APPLICATION FOR PERMIT TO DRILL</b>						<b>1. WELL NAME and NUMBER</b> Denmark Wash Federal 15-1A	
<b>2. TYPE OF WORK</b> DRILL NEW WELL <input checked="" type="checkbox"/> REENTER P&A WELL <input type="checkbox"/> DEEPEN WELL <input type="checkbox"/>						<b>3. FIELD OR WILDCAT</b> WILDCAT	
<b>4. TYPE OF WELL</b> Oil Well Coalbed Methane Well: NO						<b>5. UNIT or COMMUNITIZATION AGREEMENT NAME</b>	
<b>6. NAME OF OPERATOR</b> WOLVERINE OPERATING COMPANY OF UTAH, LLC						<b>7. OPERATOR PHONE</b> 435 896-1943	
<b>8. ADDRESS OF OPERATOR</b> One Riverfront Plaza, Grand Rapids, MI, 49503						<b>9. OPERATOR E-MAIL</b> ciron@wolvgas.com	
<b>10. MINERAL LEASE NUMBER (FEDERAL, INDIAN, OR STATE)</b> UTU 81397			<b>11. MINERAL OWNERSHIP</b> FEDERAL <input checked="" type="checkbox"/> INDIAN <input type="checkbox"/> STATE <input type="checkbox"/> FEE <input type="checkbox"/>			<b>12. SURFACE OWNERSHIP</b> FEDERAL <input checked="" type="checkbox"/> INDIAN <input type="checkbox"/> STATE <input type="checkbox"/> FEE <input type="checkbox"/>	
<b>13. NAME OF SURFACE OWNER (if box 12 = 'fee')</b>						<b>14. SURFACE OWNER PHONE (if box 12 = 'fee')</b>	
<b>15. ADDRESS OF SURFACE OWNER (if box 12 = 'fee')</b>						<b>16. SURFACE OWNER E-MAIL (if box 12 = 'fee')</b>	
<b>17. INDIAN ALLOTTEE OR TRIBE NAME (if box 12 = 'INDIAN')</b>			<b>18. INTEND TO COMMINGLE PRODUCTION FROM MULTIPLE FORMATIONS</b> YES <input type="checkbox"/> (Submit Commingling Application) NO <input checked="" type="checkbox"/>			<b>19. SLANT</b> VERTICAL <input type="checkbox"/> DIRECTIONAL <input checked="" type="checkbox"/> HORIZONTAL <input type="checkbox"/>	
<b>20. LOCATION OF WELL</b>	<b>FOOTAGES</b>	<b>QTR-QTR</b>	<b>SECTION</b>	<b>TOWNSHIP</b>	<b>RANGE</b>	<b>MERIDIAN</b>	
<b>LOCATION AT SURFACE</b>	2478 FNL 1800 FEL	SWNE	15	21.0 S	2.0 W	S	
<b>Top of Uppermost Producing Zone</b>	2639 FNL 1185 FEL	SENE	15	21.0 S	2.0 W	S	
<b>At Total Depth</b>	2639 FNL 1185 FEL	SENE	15	21.0 S	2.0 W	S	
<b>21. COUNTY</b> SEVIER			<b>22. DISTANCE TO NEAREST LEASE LINE (Feet)</b> 2639			<b>23. NUMBER OF ACRES IN DRILLING UNIT</b> 40	
			<b>25. DISTANCE TO NEAREST WELL IN SAME POOL (Applied For Drilling or Completed)</b> 0			<b>26. PROPOSED DEPTH</b> MD: 16595 TVD: 16525	
<b>27. ELEVATION - GROUND LEVEL</b> 5994			<b>28. BOND NUMBER</b> WYB000616			<b>29. SOURCE OF DRILLING WATER / WATER RIGHTS APPROVAL NUMBER IF APPLICABLE</b> Salina City	
<b>ATTACHMENTS</b>							
<b>VERIFY THE FOLLOWING ARE ATTACHED IN ACCORCANCE WITH THE UTAH OIL AND GAS CONSERVATION GENERAL RULES</b>							
<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 type="checkbox"/> DIRECTIONAL SURVEY PLAN (IF DIRECTIONALLY OR HORIZONTALLY DRILLED)				<input checked="" type="checkbox"/> TOPOGRAPHICAL MAP			
<b>NAME</b> Charles Irons			<b>TITLE</b> Senior Landman			<b>PHONE</b> 435 896-1943	
<b>SIGNATURE</b>			<b>DATE</b> 05/18/2009			<b>EMAIL</b> ciron@wolvgas.com	
<b>API NUMBER ASSIGNED</b> 43041500010000			<b>APPROVAL</b>  Permit Manager				

<b>Proposed Hole, Casing, and Cement</b>						
<b>String</b>	<b>Hole Size</b>	<b>Casing Size</b>	<b>Top (MD)</b>	<b>Bottom (MD)</b>		
Surf	17.5	13.375	0	3000		
<b>Pipe</b>	<b>Grade</b>	<b>Length</b>	<b>Weight</b>			
	Grade J-55 Buttress	3000	68.0			

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<b>Proposed Hole, Casing, and Cement</b>						
<b>String</b>	<b>Hole Size</b>	<b>Casing Size</b>	<b>Top (MD)</b>	<b>Bottom (MD)</b>		
I1	12.25	9.625	0	11620		
<b>Pipe</b>	<b>Grade</b>	<b>Length</b>	<b>Weight</b>			
	Grade HCN-80 LT&C	11620	53.5			

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<b>Proposed Hole, Casing, and Cement</b>						
<b>String</b>	<b>Hole Size</b>	<b>Casing Size</b>	<b>Top (MD)</b>	<b>Bottom (MD)</b>		
Prod	8.5	5.5	0	16595		
<b>Pipe</b>	<b>Grade</b>	<b>Length</b>	<b>Weight</b>			
	Grade L-80 LT&C	5795	20.0			

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**OXY USA Inc.**



**DRILLING PLAN**

**Denmark Wash Federal 15-1A**  
**SW/4 NE/4 Section 15, Township 21 South, Range 2 West, S.L.B & M.**  
**Sevier County, Utah**

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**Plan Summary:**

It is planned to drill this confidential exploration well as a directional bore hole due to surface topography constraints and in accordance with the enclosed directional drilling plan. The well will be drilled to a measured depth of 16,595' (16,525' TVD) to test the White Rim formation. Well path deviation caused by subsurface geologic irregularities as well as loss circulation zones are expected to be the primary drilling concerns in this area. No abnormal pressure is anticipated.

The planned location is as follows:

Surface Location:	2478' FNL, 1800' FEL, Section 15, T21S, R2W, S.L.B. & M.
Bottom Hole Location @ top target (Navajo)	2639' FNL, 1185' FEL, Section 15, T21S, R2W, S.L.B. & M.
Bottom Hole Location @ total depth	2639' FNL, 1185' FEL, Section 15, T21S, R2W, S.L.B. & M.

Conductor casing will be set at approximately 120 feet and cemented to surface. A 17-1/2" hole will be drilled vertically to approximately 3000' where 13-3/8" surface casing will be set and cemented to surface. A 12-1/4" hole will be drilled vertically to 5100' where the well will build to 15 degrees from vertical and hold 15 degrees to approximately 7600'. At 7600' the well will begin to drop to vertical and be back to vertical by 9100'. The well will continue to be drilled vertically to approximately 11620' (11550' TVD) where the well will be logged and 9-5/8" intermediate casing will be set and cemented to 500' above the shallowest salt zone. An 8-1/2" hole will be drilled vertically to a total depth of 16595' (16525' TVD). The hole will again be logged and 5-1/2" production casing set at total depth of 16595'. The casing string will be cemented in place.

Drilling activities at this well are expected to commence as early as October, 2009 if regulatory approvals are obtained.

OXY USA Inc.  
Drilling Program  
Denmark Wash Federal 15-1A

**Well Name:** Denmark Wash Federal 15-1A

**Surface Location:** 2478' FNL, 1800' FEL  
SW/4 NE/4 Section 15, T21S, R2W, S.L.B. & M.  
Sevier County, Utah

**TD Bottom-Hole Location:** 2639' FNL, 1185' FEL

**Elevations (est):** 5994' GL, 6029' KB

**I. Geology:**

Tops of important geologic markers and anticipated water, oil, gas, and mineral content are as follows:

<b>Formation</b>	<b>TVD Interval (KB)</b>	<b>MD Interval (KB)</b>	<b>Contents</b>	<b>Pressure Gradient</b>
Arapien	6000' - 10070'	6002' - 10140'		
Twin Creek	10070' - 10550'	10140' - 10620'	Oil & water	0.44 psi/ft
Navajo	10550' - 12300'	10620' - 12370'	Oil & water	0.44 psi/ft
Chinle	12300' - 13000'	12370' - 13070'		
Moenkopi	13000' - 13775'	13070' - 13845'		
Shinkaibab	13775' - 14525'	13845' - 14595'		
Sinbad Member	14525' - 14925'	14595' - 14995'		
Black Dragon	14925' - 15375'	14995' - 15445'		
Kaibab	15375' - 15625'	15445' - 15695'	Oil & water	0.44 psi/ft
Toroweap	15625' - 16025'	15695' - 16095'	Oil & water	0.44 psi/ft
White Rim	16025' - 16525'	16095' - 16595'	Oil & water	0.44 psi/ft
Total Depth	16525'	16595'		

**II. Well Control:**

The contracted drilling rig has a 10M BOP system but conditions only require a 5M BOP system. BOPE will be in place and tested as a 5M system prior to drilling out the surface casing shoe. See attached schematic of BOPE.

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

Wellhead Equipment (5M Min.):

<b>BOPE Item</b>	<b>Flange Size and Rating</b>
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
Spacer Spool	13-5/8" 10M x 13-5/8" 10M
Casing Spool (Multi-Bowl)	13-5/8" 10M x 13-5/8" 5M
Casing Head (13-3/8" SOW w/ two 2-1/16" SSO's)	13-5/8" 5M

Auxiliary Equipment (5M Min.):

<b>BOPE Item</b>
Choke Line with 2 valves (3" minimum)
Kill Line with 2 valves and one check valve (2" Minimum)

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2 Chokes with one remotely controlled at a location readily accessible to the driller
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.
- 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.

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### 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 (TVD)</u>
30"	20"		Conductor			120' GL
17.50"	13.375"	68.0	J-55	BTC	14.375"	3000' KB
12.25"	9.625"	53.5	HCL-80	BTC	10.625"	11550' KB
8.50"	5.500"	20	L-80	LTC	6.050"	16525' KB

	<u>Surface</u>	<u>Intermediate</u>	<u>Production</u>
Casing O. D. (in)	13.375	9.625	5.500
Casing Grade	J-55	HCL-80	L-80
Weight of Pipe (lbs/ft)	68.0	53.5	20.0
Connection	BTC	BTC	LTC
Top Setting Depth - MD (ft)	0	0	10800
Top Setting Depth - TVD (ft)	0	0	0
Bottom Setting Depth - MD (ft)	3000	11620	16595
Bottom Setting Depth - TVD (ft)	3000	11550	16525
Maximum Mud Weight - Inside (ppg)	9.2	10.5	9.0
Maximum Mud Weight - Outside (ppg)	9.2	10.5	9.0
Design Cement Top - MD (ft)	Surface	2700	11320
Design Cement Top - TVD (ft)	Surface	2700	11250
Max. Hydrostatic Inside w/ Dry Outside (psi)	1435	6306	7734
Casing Burst Rating (psi)	3450	7930	9190
<b>Burst Safety Factor (1.10 Minimum)</b>	<b>2.40</b>	<b>1.26</b>	<b>1.19</b>
Max. Hydrostatic Outside w/ Dry Inside (psi)	1435	6306	7734
Collapse Rating	1950	8850	8830
<b>Collapse Safety Factor (1.125 Minimum)</b>	<b>1.36</b>	<b>1.40</b>	<b>1.14</b>
Buoyant Casing Weight (kips)	175.3	518.9	285.1
Body Yield (kips)	1069	1244	466
Joint Strength (kips)	1140	1414	503
<b>Tension Safety Factor (1.60 Minimum)</b>	<b>6.10</b>	<b>2.40</b>	<b>1.63</b>

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.

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 Drilling Program  
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**B. Cementing Program**

<u>Casing Size</u>	<u>Cement Slurry</u>	<u>Quantity (sks)</u>	<u>Density (ppg)</u>	<u>Yield (ft<sup>3</sup>/sk)</u>
13.375"	Lead: CBM Lite	900	10.5	4.12
	Tail: Premium Plus	380	15.6	1.19
9.625"	Lead: Premium G w/ KCL (foamed)	1870	13.0	1.45
	Tail: Premium G w/KCL	190	17.0	1.45
5.500"	Stage 1: Thermochem	301	13.0	2.03
	Stage 2: 50:50 POZ	650	12.7	1.82

**Surface:** 13-3/8" surface casing will be cemented from setting depth (3000' MD) to surface and topped out with premium cement if necessary. Hardware will include a guide shoe, float collar, top plug, and a minimum of one centralizer per joint on the bottom four (4) casing joints, then every fourth joint to surface. Water or other preflush fluid pumped ahead of the slurry will separate cement from the drilling fluids.

**Intermediate:** 9-5/8" intermediate casing will be cemented in one stage from setting depth (11620' MD) to 500' above the shallowest salt zone. In the event of a dry hole this will allow for some of the 9-5/8" casing to be recovered. Slurry volume will be based on callipered hole size plus 10% excess. The lead cement slurry will be foamed down to 13ppg. The tail cement will be 500' of un-foamed Premium cement. Hardware will include a guide shoe, float collar, top plug, and a minimum of one centralizer per joint on the bottom four (4) joints of casing and one centralizer per joint across any salt interval. Water and preflush fluid pumped ahead of the slurry will separate cement from the drilling fluids.

**Production:** 5-1/2" production casing will be cemented in two stages from setting depth (16595') to 11320' (300' inside the 9-5/8" intermediate casing). The second stage will be cemented inside the 9-5/8" casing across any and all salt zones as a backup to the casing to prevent the 9-5/8" from collapse due to salt. A minimum of 20 percent silica will be added to the cement slurry if bottom-hole temperature exceeds 230 °F. Slurry volume will be based on calipered hole size plus 10% excess. Hardware will include a guide shoe, float collar, top plug, and centralizers as needed across any pay zones. Water and preflush fluid pumped ahead of the slurry will separate cement from the drilling fluids.

**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.
- Surface casing will be tested to 1000 psi before drilling out. All subsequent 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.

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**IV. Mud Program:**

<u>Depth</u>	<u>Mud Weight (ppg)</u>	<u>Mud Type</u>	<u>Viscosity</u>	<u>Fluid Loss</u>
0 – 3000'	8.6 – 9.2	Fresh Water	45 – 60	N/C to 12 cc
3000' – 11620'	9.2 – 10.5	Salt Mud	35 – 50	10 to 12 cc
11620' – 16595'	8.8 – 9.0	LSND	35 – 50	6 - 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 24-hour mud engineer will be onsite at all times, mud tests will be performed as needed 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, and hydrocarbon gas shall be monitored for pore pressure changes. The presence of Hydrogen Sulfide gas is possible.
- G. The need to vent combustible or noncombustible gas is not expected. If needed, a flare system designed to gather and burn all gas will be available. The flare line discharge will be located more than 100 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 logging unit will be in operation from a depth of approximately 3000 feet to TD. Samples will be caught, cleaned, bagged, and marked as required.
- B. Drill Stem Tests: No DST's will be taken.
- C. Coring: Rotary side-wall cores may be taken at select intervals in conjunction with open-hole logging operations.
- 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 sonic velocity.

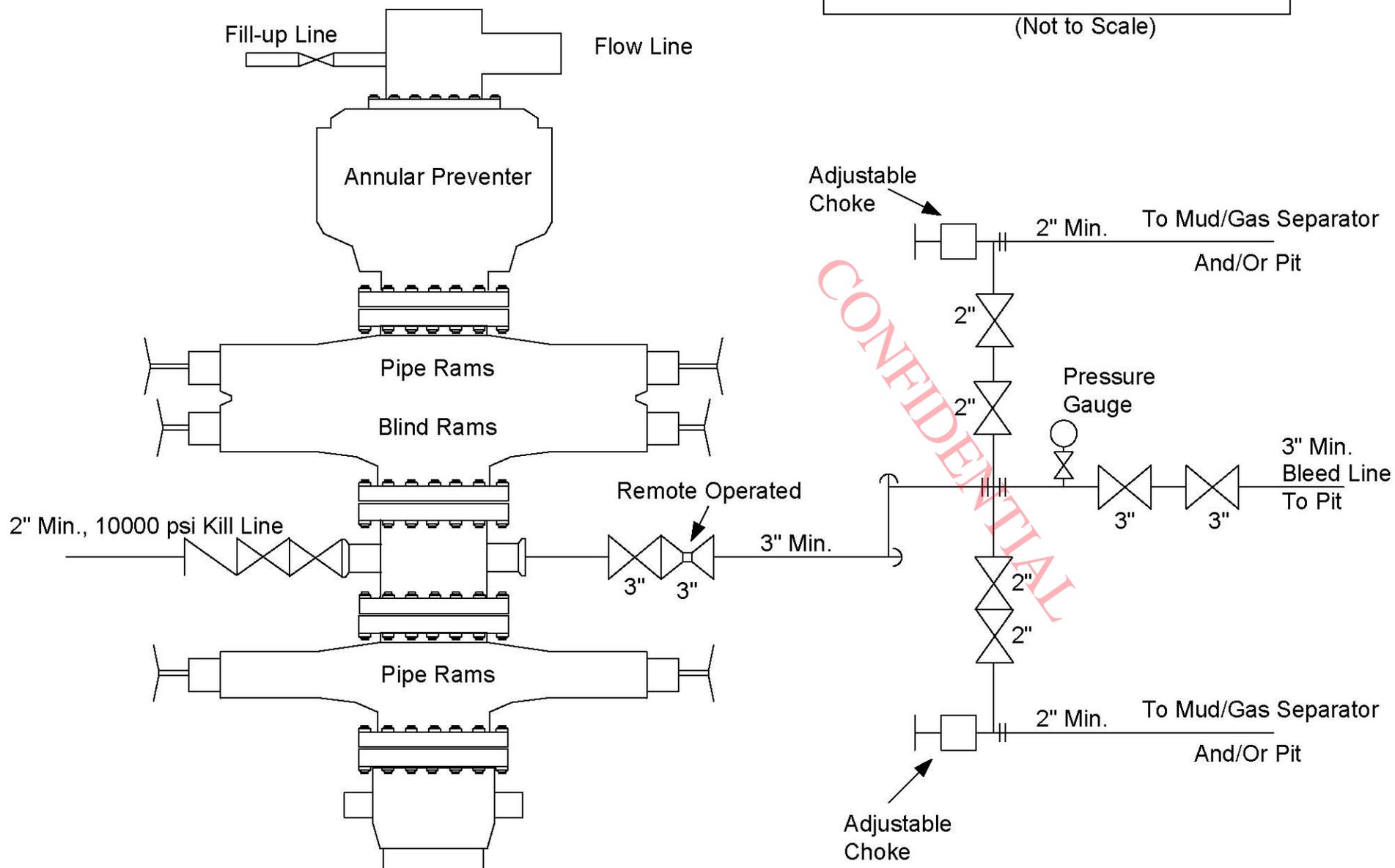
**VI. Expected Bottom-Hole Pressure and Abnormal Conditions:**

- A. Hydrogen Sulfide: Hydrogen Sulfide (H<sub>2</sub>S) gas is possible in the deeper geologic formations to be penetrated by this well. A H<sub>2</sub>S Drilling Operations Plan will be supplemented to this Drilling Plan.
- 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: Bottom-hole temperature at TD is expected to be approximately 355 °F.

end

# Denmark Wash Federal 15-1A BOPE Schematic

(Not to Scale)



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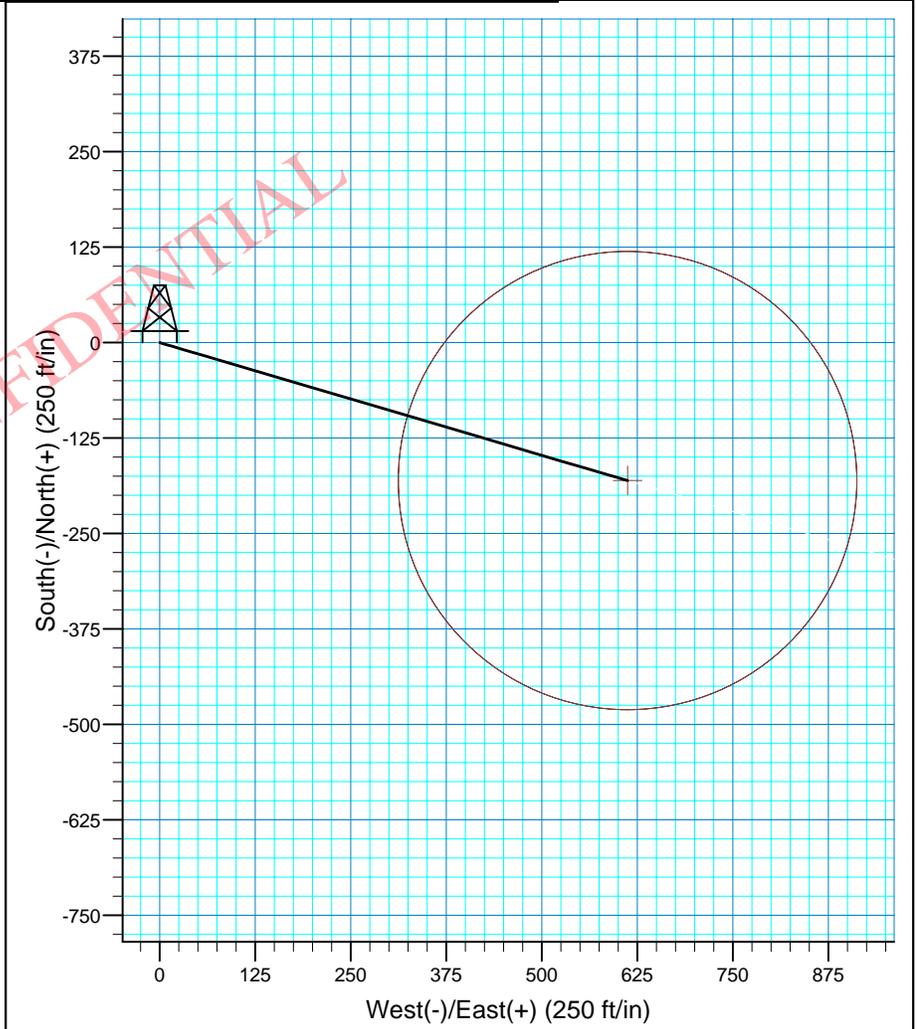
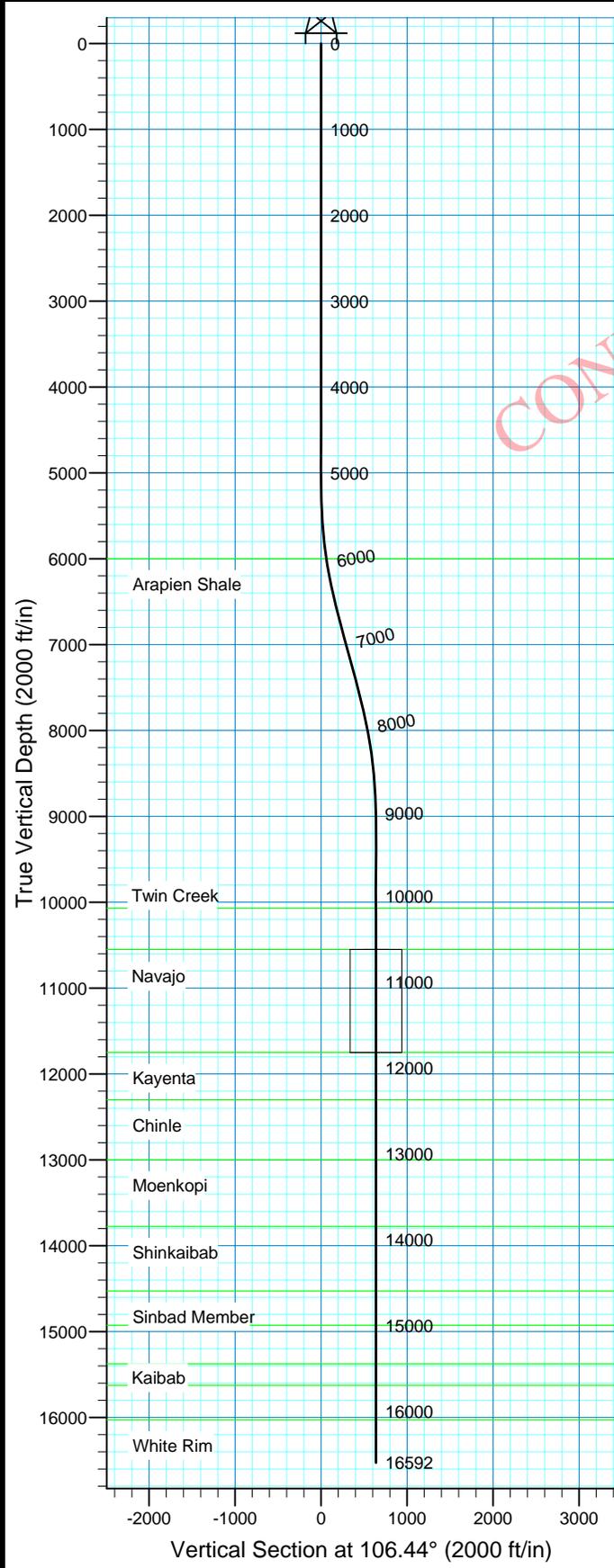
Azimuths to True North  
 Magnetic North: 12.14°

Magnetic Field  
 Strength: 51624.2nT  
 Dip Angle: 64.53°  
 Date: 3/10/2009  
 Model: IGRF2005

WELL DETAILS: DENMARK WASH FEDERAL 15-1A

GROUND ELEVATION @ 5994.0ft 5994.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	236642.06	1856111.08	38° 58' 54.8731N	102° 0' 22.148 W	



FORMATION TOP DETAILS			Plan: Plan #1 (DENMARK WASH FEDERAL 15-1A/Wellbore #1)
TVDPath	MDPath	Formation	Created By: Rusty Hanna Date: 14-Jan-2009
6000.0	6003.0	Arapien Shale	PROJECT DETAILS: UTAH  Geodetic System: US State Plane 1927 (Exact solution) Datum: NAD 1927 (NADCON CONUS) Ellipsoid: Clarke 1866 Zone: Utah Central 4302  System Datum: Mean Sea Level Local North: No north reference data is available
10070.0	10136.8	Twin Creek	
10550.0	10616.8	Navajo	
11750.0	11816.8	Kayenta	
12300.0	12366.8	Chinle	
13000.0	13066.8	Moenkopi	
13775.0	13841.8	Shinkaibab	
14525.0	14591.8	Sinbad Member	
14925.0	14991.8	Black Dragon	
15375.0	15441.8	Kaibab	
15625.0	15691.8	Toroweap	
16025.0	16091.8	White Rim	

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	3000.0	0.00	0.00	3000.0	0.0	0.0	0.00	0.00	0.0	
3	5159.9	0.00	0.00	5159.9	0.0	0.0	0.00	0.00	0.0	
4	6659.9	15.00	106.44	6642.8	-55.3	187.2	1.00	106.44	195.2	
5	7616.8	15.00	106.44	7567.1	-125.3	424.8	0.00	0.00	442.9	
6	9116.8	0.00	0.00	9050.0	-180.6	612.0	1.00	180.00	638.1	
7	10616.8	0.00	0.00	10550.0	-180.6	612.0	0.00	0.00	638.1	DW 15-1 Navajo
8	16591.8	0.00	0.00	16525.0	-180.6	612.0	0.00	0.00	638.1	

# **OXY USA RMAT**

**UTAH**

**DENMARK WASH**

**DENMARK WASH FEDERAL 15-1A**

**Wellbore #1**

**Plan: Plan #1**

**CONFIDENTIAL**

## **Standard Planning Report - Geographic**

**25 March, 2009**

## OXY Permian

### Planning Report - Geographic

<b>Database:</b> HOPSPP	<b>Local Co-ordinate Reference:</b> Well DENMARK WASH FEDERAL 15-1A
<b>Company:</b> OXY USA RMAT	<b>TVD Reference:</b> GROUND ELEVATION @ 5994.0ft
<b>Project:</b> UTAH	<b>MD Reference:</b> GROUND ELEVATION @ 5994.0ft
<b>Site:</b> DENMARK WASH	<b>North Reference:</b> True
<b>Well:</b> DENMARK WASH FEDERAL 15-1A	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Wellbore:</b> Wellbore #1	
<b>Design:</b> Plan #1	

<b>Project</b> UTAH, SEVIER COUNTY		
<b>Map System:</b> US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b> NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b> Utah Central 4302		

<b>Site</b> DENMARK WASH			
<b>Site Position:</b>	<b>Northing:</b> 236,642.06 ft	<b>Latitude:</b>	38.982
<b>From:</b> Map	<b>Easting:</b> 1,856,111.01 ft	<b>Longitude:</b>	-112.006
<b>Position Uncertainty:</b> 0.0 ft	<b>Slot Radius:</b> in	<b>Grid Convergence:</b>	-0.32 °

<b>Well</b> DENMARK WASH FEDERAL 15-1A					
<b>Well Position</b>	<b>+N/-S</b> 0.0 ft	<b>Northing:</b> 236,642.06 ft	<b>Latitude:</b>	38.982	
	<b>+E/-W</b> 0.0 ft	<b>Easting:</b> 1,856,111.01 ft	<b>Longitude:</b>	-112.006	
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	5,994.0 ft

<b>Wellbore</b> Wellbore #1					
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b>	<b>Dip Angle</b>	<b>Field Strength</b>
	IGRF2005	3/10/2009	(°) 12.14	(°) 64.53	(nT) 51,624

<b>Design</b> Plan #1				
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	106.44

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,159.9	0.00	0.00	5,159.9	0.0	0.0	0.00	0.00	0.00	0.00	
6,659.9	15.00	106.44	6,642.8	-55.3	187.2	1.00	1.00	0.00	106.44	
7,616.8	15.00	106.44	7,567.1	-125.3	424.8	0.00	0.00	0.00	0.00	
9,116.8	0.00	0.00	9,050.0	-180.6	612.0	1.00	-1.00	0.00	180.00	
10,616.8	0.00	0.00	10,550.0	-180.6	612.0	0.00	0.00	0.00	0.00	DW 15-1 Navajo
16,591.8	0.00	0.00	16,525.0	-180.6	612.0	0.00	0.00	0.00	0.00	

## OXY Permian

### Planning Report - Geographic

<b>Database:</b>	HOPSPP	<b>Local Co-ordinate Reference:</b>	Well DENMARK WASH FEDERAL 15-1A
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	GROUND ELEVATION @ 5994.0ft
<b>Project:</b>	UTAH	<b>MD Reference:</b>	GROUND ELEVATION @ 5994.0ft
<b>Site:</b>	DENMARK WASH	<b>North Reference:</b>	True
<b>Well:</b>	DENMARK WASH FEDERAL 15-1A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
100.0	0.00	0.00	100.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
200.0	0.00	0.00	200.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
300.0	0.00	0.00	300.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
400.0	0.00	0.00	400.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
500.0	0.00	0.00	500.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
600.0	0.00	0.00	600.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
700.0	0.00	0.00	700.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
800.0	0.00	0.00	800.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
900.0	0.00	0.00	900.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
1,000.0	0.00	0.00	1,000.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
1,100.0	0.00	0.00	1,100.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
1,200.0	0.00	0.00	1,200.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
1,300.0	0.00	0.00	1,300.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
1,400.0	0.00	0.00	1,400.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
1,500.0	0.00	0.00	1,500.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
1,600.0	0.00	0.00	1,600.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
1,700.0	0.00	0.00	1,700.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
1,800.0	0.00	0.00	1,800.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
1,900.0	0.00	0.00	1,900.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
2,000.0	0.00	0.00	2,000.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
2,100.0	0.00	0.00	2,100.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
2,200.0	0.00	0.00	2,200.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
2,300.0	0.00	0.00	2,300.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
2,400.0	0.00	0.00	2,400.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
2,500.0	0.00	0.00	2,500.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
2,600.0	0.00	0.00	2,600.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
2,700.0	0.00	0.00	2,700.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
2,800.0	0.00	0.00	2,800.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
2,900.0	0.00	0.00	2,900.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
3,000.0	0.00	0.00	3,000.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
3,100.0	0.00	0.00	3,100.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
3,200.0	0.00	0.00	3,200.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
3,300.0	0.00	0.00	3,300.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
3,400.0	0.00	0.00	3,400.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
3,500.0	0.00	0.00	3,500.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
3,600.0	0.00	0.00	3,600.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
3,700.0	0.00	0.00	3,700.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
3,800.0	0.00	0.00	3,800.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
3,900.0	0.00	0.00	3,900.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
4,000.0	0.00	0.00	4,000.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
4,100.0	0.00	0.00	4,100.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
4,200.0	0.00	0.00	4,200.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
4,300.0	0.00	0.00	4,300.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
4,400.0	0.00	0.00	4,400.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
4,500.0	0.00	0.00	4,500.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
4,600.0	0.00	0.00	4,600.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
4,700.0	0.00	0.00	4,700.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
4,800.0	0.00	0.00	4,800.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
4,900.0	0.00	0.00	4,900.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
5,000.0	0.00	0.00	5,000.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
5,100.0	0.00	0.00	5,100.0	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
5,159.9	0.00	0.00	5,159.9	0.0	0.0	236,642.06	1,856,111.01	38.982	-112.006
5,200.0	0.40	106.44	5,200.0	0.0	0.1	236,642.02	1,856,111.14	38.982	-112.006

### OXY Permian

#### Planning Report - Geographic

<b>Database:</b>	HOPSP	<b>Local Co-ordinate Reference:</b>	Well DENMARK WASH FEDERAL 15-1A
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	GROUND ELEVATION @ 5994.0ft
<b>Project:</b>	UTAH	<b>MD Reference:</b>	GROUND ELEVATION @ 5994.0ft
<b>Site:</b>	DENMARK WASH	<b>North Reference:</b>	True
<b>Well:</b>	DENMARK WASH FEDERAL 15-1A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude	
5,300.0	1.40	106.44	5,300.0	-0.5	1.6	236,641.57	1,856,112.65	38.982	-112.006	
5,400.0	2.40	106.44	5,399.9	-1.4	4.8	236,640.61	1,856,115.83	38.982	-112.006	
5,500.0	3.40	106.44	5,499.8	-2.9	9.7	236,639.15	1,856,120.67	38.982	-112.006	
5,600.0	4.40	106.44	5,599.6	-4.8	16.2	236,637.19	1,856,127.19	38.982	-112.006	
5,700.0	5.40	106.44	5,699.2	-7.2	24.4	236,634.72	1,856,135.37	38.982	-112.006	
5,800.0	6.40	106.44	5,798.7	-10.1	34.3	236,631.76	1,856,145.21	38.982	-112.006	
5,900.0	7.40	106.44	5,897.9	-13.5	45.8	236,628.29	1,856,156.71	38.982	-112.006	
6,000.0	8.40	106.44	5,997.0	-17.4	59.0	236,624.33	1,856,169.88	38.982	-112.006	
6,100.0	9.40	106.44	6,095.8	-21.8	73.8	236,619.86	1,856,184.69	38.982	-112.006	
6,200.0	10.40	106.44	6,194.3	-26.6	90.3	236,614.90	1,856,201.15	38.982	-112.006	
6,300.0	11.40	106.44	6,292.5	-32.0	108.4	236,609.45	1,856,219.26	38.982	-112.006	
6,400.0	12.40	106.44	6,390.3	-37.8	128.2	236,603.50	1,856,239.01	38.982	-112.006	
6,500.0	13.40	106.44	6,487.8	-44.2	149.6	236,597.06	1,856,260.38	38.982	-112.006	
6,600.0	14.40	106.44	6,584.9	-51.0	172.7	236,590.13	1,856,283.39	38.982	-112.006	
6,659.9	15.00	106.44	6,642.8	-55.3	187.2	236,585.75	1,856,297.94	38.982	-112.005	
6,700.0	15.00	106.44	6,681.6	-58.2	197.2	236,582.75	1,856,307.88	38.982	-112.005	
6,800.0	15.00	106.44	6,778.2	-65.5	222.0	236,575.29	1,856,332.66	38.982	-112.005	
6,900.0	15.00	106.44	6,874.7	-72.8	246.8	236,567.82	1,856,357.44	38.982	-112.005	
7,000.0	15.00	106.44	6,971.3	-80.2	271.7	236,560.36	1,856,382.22	38.982	-112.005	
7,100.0	15.00	106.44	7,067.9	-87.5	296.5	236,552.89	1,856,407.01	38.982	-112.005	
7,200.0	15.00	106.44	7,164.5	-94.8	321.3	236,545.43	1,856,431.79	38.982	-112.005	
7,300.0	15.00	106.44	7,261.1	-102.1	346.1	236,537.96	1,856,456.57	38.982	-112.005	
7,400.0	15.00	106.44	7,357.7	-109.5	371.0	236,530.50	1,856,481.35	38.982	-112.005	
7,500.0	15.00	106.44	7,454.3	-116.8	395.8	236,523.03	1,856,506.13	38.982	-112.005	
7,600.0	15.00	106.44	7,550.9	-124.1	420.6	236,515.56	1,856,530.91	38.982	-112.005	
7,616.8	15.00	106.44	7,567.1	-125.3	424.8	236,514.31	1,856,535.07	38.982	-112.005	
7,700.0	14.17	106.44	7,647.6	-131.3	444.9	236,508.27	1,856,555.14	38.982	-112.005	
7,800.0	13.17	106.44	7,744.8	-138.0	467.5	236,501.45	1,856,577.76	38.982	-112.005	
7,900.0	12.17	106.44	7,842.4	-144.2	488.6	236,495.13	1,856,598.76	38.982	-112.004	
8,000.0	11.17	106.44	7,940.3	-149.9	508.0	236,489.29	1,856,618.12	38.981	-112.004	
8,100.0	10.17	106.44	8,038.6	-155.1	525.7	236,483.95	1,856,635.85	38.981	-112.004	
8,200.0	9.17	106.44	8,137.2	-159.9	541.8	236,479.11	1,856,651.92	38.981	-112.004	
8,300.0	8.17	106.44	8,236.0	-164.2	556.3	236,474.76	1,856,666.35	38.981	-112.004	
8,400.0	7.17	106.44	8,335.1	-167.9	569.1	236,470.91	1,856,679.13	38.981	-112.004	
8,500.0	6.17	106.44	8,434.4	-171.2	580.2	236,467.57	1,856,690.25	38.981	-112.004	
8,600.0	5.17	106.44	8,533.9	-174.0	589.7	236,464.72	1,856,699.70	38.981	-112.004	
8,700.0	4.17	106.44	8,633.6	-176.3	597.5	236,462.37	1,856,707.49	38.981	-112.004	
8,800.0	3.17	106.44	8,733.4	-178.1	603.6	236,460.52	1,856,713.62	38.981	-112.004	
8,900.0	2.17	106.44	8,833.3	-179.4	608.1	236,459.18	1,856,718.07	38.981	-112.004	
9,000.0	1.17	106.44	8,933.3	-180.3	610.9	236,458.34	1,856,720.86	38.981	-112.004	
9,100.0	0.17	106.44	9,033.2	-180.6	612.0	236,458.01	1,856,721.98	38.981	-112.004	
9,116.8	0.00	0.00	9,050.0	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004	
9,200.0	0.00	0.00	9,133.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004	
9,300.0	0.00	0.00	9,233.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004	
9,400.0	0.00	0.00	9,333.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004	
9,500.0	0.00	0.00	9,433.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004	
9,600.0	0.00	0.00	9,533.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004	
9,700.0	0.00	0.00	9,633.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004	
9,800.0	0.00	0.00	9,733.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004	
9,900.0	0.00	0.00	9,833.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004	
10,000.0	0.00	0.00	9,933.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004	
10,100.0	0.00	0.00	10,033.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004	
10,200.0	0.00	0.00	10,133.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004	
10,300.0	0.00	0.00	10,233.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004	

**OXY Permian**  
 Planning Report - Geographic

<b>Database:</b>	HOPSPP	<b>Local Co-ordinate Reference:</b>	Well DENMARK WASH FEDERAL 15-1A
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	GROUND ELEVATION @ 5994.0ft
<b>Project:</b>	UTAH	<b>MD Reference:</b>	GROUND ELEVATION @ 5994.0ft
<b>Site:</b>	DENMARK WASH	<b>North Reference:</b>	True
<b>Well:</b>	DENMARK WASH FEDERAL 15-1A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
10,400.0	0.00	0.00	10,333.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
10,500.0	0.00	0.00	10,433.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
10,600.0	0.00	0.00	10,533.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
10,616.8	0.00	0.00	10,550.0	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
<b>DW 15-1 Navajo</b>									
10,700.0	0.00	0.00	10,633.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
10,800.0	0.00	0.00	10,733.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
10,900.0	0.00	0.00	10,833.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
11,000.0	0.00	0.00	10,933.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
11,100.0	0.00	0.00	11,033.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
11,200.0	0.00	0.00	11,133.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
11,300.0	0.00	0.00	11,233.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
11,400.0	0.00	0.00	11,333.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
11,500.0	0.00	0.00	11,433.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
11,600.0	0.00	0.00	11,533.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
11,700.0	0.00	0.00	11,633.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
11,800.0	0.00	0.00	11,733.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
11,900.0	0.00	0.00	11,833.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
12,000.0	0.00	0.00	11,933.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
12,100.0	0.00	0.00	12,033.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
12,200.0	0.00	0.00	12,133.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
12,300.0	0.00	0.00	12,233.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
12,400.0	0.00	0.00	12,333.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
12,500.0	0.00	0.00	12,433.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
12,600.0	0.00	0.00	12,533.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
12,700.0	0.00	0.00	12,633.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
12,800.0	0.00	0.00	12,733.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
12,900.0	0.00	0.00	12,833.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
13,000.0	0.00	0.00	12,933.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
13,100.0	0.00	0.00	13,033.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
13,200.0	0.00	0.00	13,133.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
13,300.0	0.00	0.00	13,233.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
13,400.0	0.00	0.00	13,333.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
13,500.0	0.00	0.00	13,433.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
13,600.0	0.00	0.00	13,533.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
13,700.0	0.00	0.00	13,633.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
13,800.0	0.00	0.00	13,733.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
13,900.0	0.00	0.00	13,833.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
14,000.0	0.00	0.00	13,933.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
14,100.0	0.00	0.00	14,033.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
14,200.0	0.00	0.00	14,133.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
14,300.0	0.00	0.00	14,233.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
14,400.0	0.00	0.00	14,333.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
14,500.0	0.00	0.00	14,433.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
14,600.0	0.00	0.00	14,533.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
14,700.0	0.00	0.00	14,633.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
14,800.0	0.00	0.00	14,733.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
14,900.0	0.00	0.00	14,833.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
15,000.0	0.00	0.00	14,933.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
15,100.0	0.00	0.00	15,033.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
15,200.0	0.00	0.00	15,133.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
15,300.0	0.00	0.00	15,233.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
15,400.0	0.00	0.00	15,333.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
15,500.0	0.00	0.00	15,433.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004

## OXY Permian

### Planning Report - Geographic

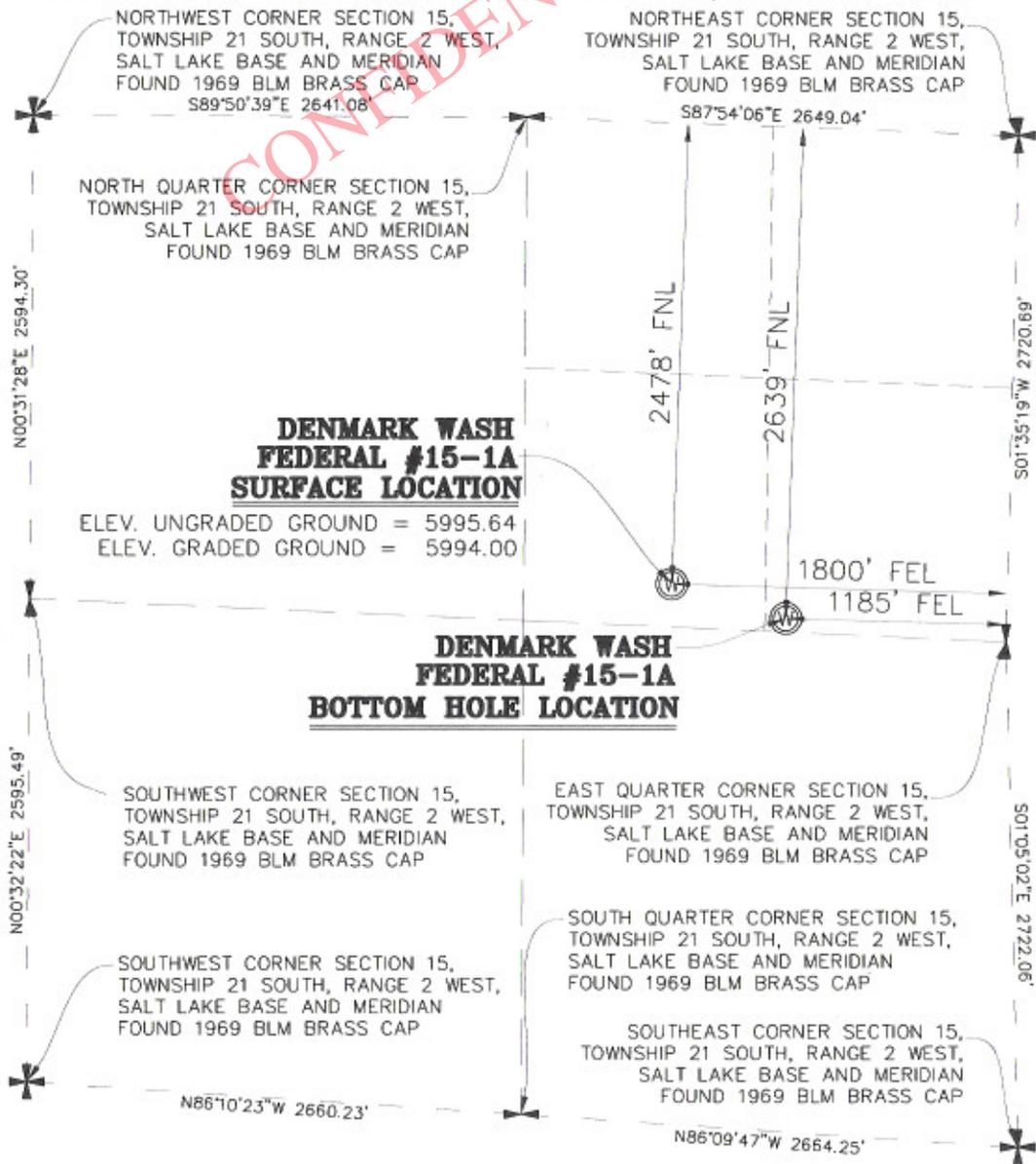
<b>Database:</b>	HOPSPP	<b>Local Co-ordinate Reference:</b>	Well DENMARK WASH FEDERAL 15-1A
<b>Company:</b>	OXY USA RMAT	<b>TVD Reference:</b>	GROUND ELEVATION @ 5994.0ft
<b>Project:</b>	UTAH	<b>MD Reference:</b>	GROUND ELEVATION @ 5994.0ft
<b>Site:</b>	DENMARK WASH	<b>North Reference:</b>	True
<b>Well:</b>	DENMARK WASH FEDERAL 15-1A	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
15,600.0	0.00	0.00	15,533.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
15,700.0	0.00	0.00	15,633.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
15,800.0	0.00	0.00	15,733.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
15,900.0	0.00	0.00	15,833.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
16,000.0	0.00	0.00	15,933.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
16,100.0	0.00	0.00	16,033.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
16,200.0	0.00	0.00	16,133.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
16,300.0	0.00	0.00	16,233.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
16,400.0	0.00	0.00	16,333.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
16,500.0	0.00	0.00	16,433.2	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004
16,591.8	0.00	0.00	16,525.0	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
DW 15-1 Navajo - hit/miss target - Shape - plan hits target - Circle (radius 300.0)	0.00	0.00	10,550.0	-180.6	612.0	236,458.00	1,856,722.00	38.981	-112.004

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,003.0	6,000.0	Arapien Shale		0.00		
10,136.8	10,070.0	Twin Creek		0.00		
10,616.8	10,550.0	Navajo		0.00		
11,816.8	11,750.0	Kayenta		0.00		
12,366.8	12,300.0	Chinle		0.00		
13,066.8	13,000.0	Moenkopi		0.00		
13,841.8	13,775.0	Shinkaibab		0.00		
14,591.8	14,525.0	Sinbad Member		0.00		
14,991.8	14,925.0	Black Dragon		0.00		
15,441.8	15,375.0	Kaibab		0.00		
15,691.8	15,625.0	Toroweap		0.00		
16,091.8	16,025.0	White Rim		0.00		

# SECTION 15, T.21 S., R.2 W., S.L.B. & M.



PROJECT  
**WOLVERINE OPERATING COMPANY OF UTAH, LLC.**  
 WELL LOCATION, LOCATED AS SHOWN  
 IN THE SW 1/4 OF THE NE 1/4 OF  
 SECTION 15, T.21 S., R.2 W., S.L.B. & M.  
 SEVIER COUNTY, UTAH

### LEGEND

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

NOTE: THE PURPOSE OF THIS SURVEY WAS TO PLAT DENMARK WASH FEDERAL 15-1A WELL LOCATED IN THE SW 1/4 OF THE NE 1/4 OF SECTION 32, T.21 S., R.2 W., S.L.B. & M. SEVIER COUNTY, UTAH.

### BASIS OF ELEVATION

ELEVATION BASED ON USGS BENCH MARK #50  
 LOCATED IN THE SE 1/4 OF SECTION 14 T.21 S.,  
 R.2 W., S.L.B. & M.  
 ELEVATION USED 5809.00

### NAD 27 CENTRAL ZONE (4302) UTAH STATE PLANE SURFACE LOCATION

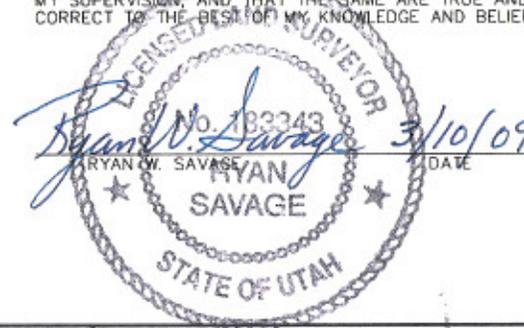
GRID NORTHING: 236642.060  
 GRID EASTING: 1856111.010  
 LATITUDE: 38°58'54.878" OR 38.98191056  
 LONGITUDE: -112°00'22.101" OR -112.00613917

### BOTTOM HOLE LOCATION

GRID NORTHING: 236458.000  
 GRID EASTING: 1856722.000  
 LATITUDE: 38°58'53.092" OR 38.98141444  
 LONGITUDE: -112°00'14.351" OR -112.00398639

### CERTIFICATE

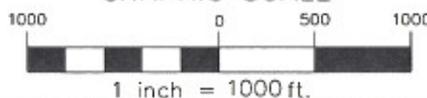
THIS IS TO CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME UNDER MY SUPERVISION, AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



### BASIS OF BEARING

BASIS OF BEARING USED WAS SOUTH 01°35'19" WEST BETWEEN THE NORTHEAST CORNER AND THE EAST QUARTER CORNERS OF SECTION 15, T.21 S., R.2 W., S.L.B. & M.

### GRAPHIC SCALE



Savage Surveying, Inc.

1925 South Industrial Park Rd.  
 Richfield, UT 84701  
 Office: 801-880-8835  
 Fax: 435-889-0300

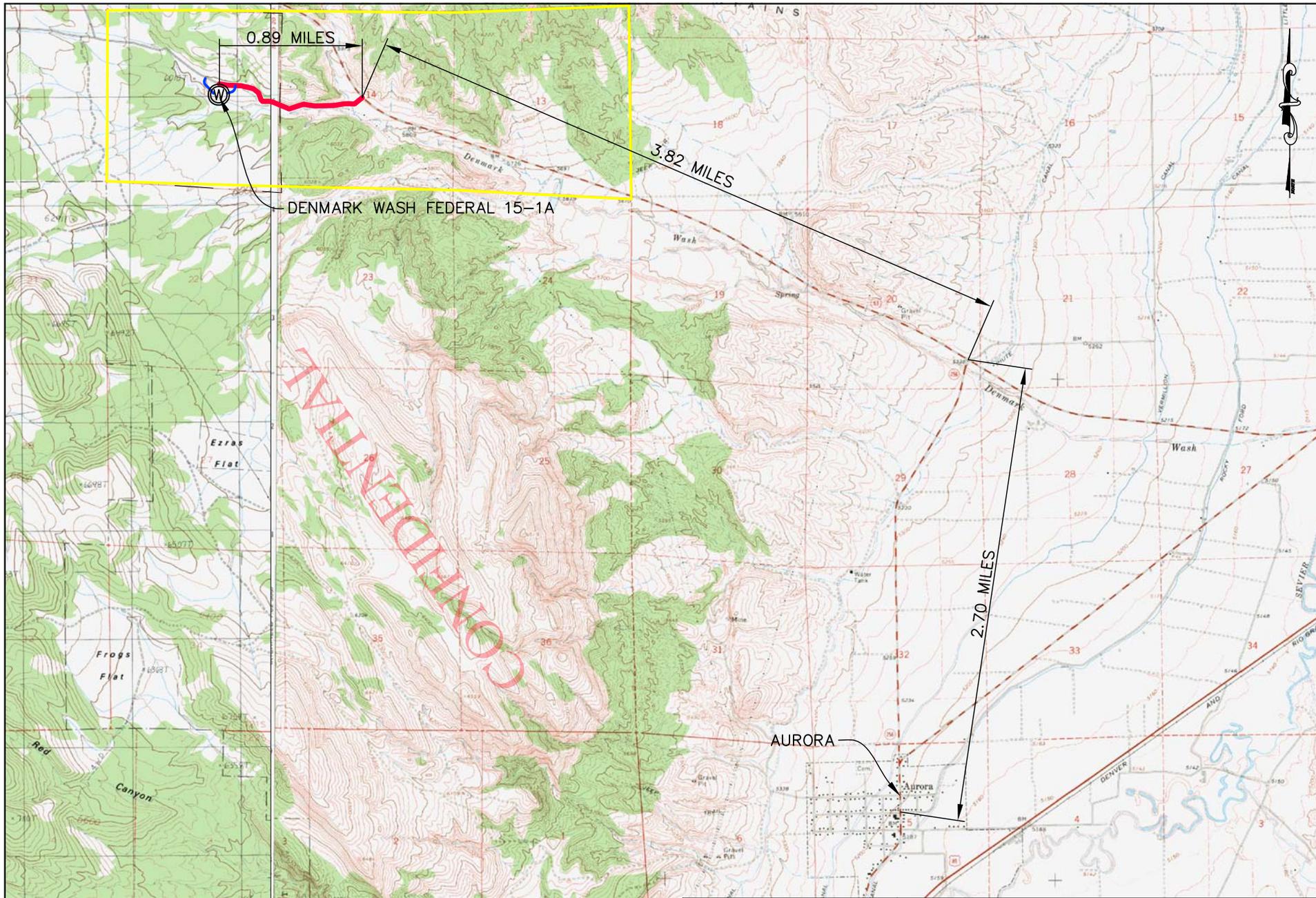


### LOCATION PLAT

WOLVERINE OPERATING COMPANY OF UTAH, LLC.

DESIGNED BY	SURVISED BY	SCALE	DATE	PROJECT NUMBER	SHEET NUMBER
---	E.G.	1" = 1000'	03/10/09	0808-007S	1 OF 1

'APIWellNo:43041500010000'



- UTU#81397 LEASE BOUNDARY
- NEW CONSTRUCTED ACCESS ROAD
- EXISTING ACCESS ROAD
- W PROPOSED WELL LOCATION

Savage Surveying, Inc.

1925 South Industrial Park Rd.  
Richfield, UT 84701  
Office: 435-896-8635  
Fax: 435-896-0220



DENMARK WASH FEDERAL 15-1A

WOLVERINE OPERATING COMPANY OF UTAH, LLC.

DESIGNED BY:	DRAWING NAME:	SCALE:	DATE:	PROJECT NUMBER:	SHEET NUMBER:
R.W.S.	0808-007S	1"=100'	04/27/2009	0808-007S	COVER
	SURVEYED BY:	CHECKED BY:	DRAWN BY:		
	E.G.	R.W.S.	A.S.A.		

WOLVERINE OPERATING COMPANY OF UTAH, LLC.  
 DENMARK WASH FEDERAL 15-1A  
 SECTION 15, T.21 S., R.2 W., S.L.B. & M.

ELEV. UNGRADED GROUND AT WELL = 5995.64  
 ELEV. GRADED GROUND AT WELL = 5994.00

APPROXIMATE YARDAGE

(6") TOPSOIL STRIPPING = 2,593 CU. YDS.  
 REMAINING LOCATION = 16,480 CU. TDS.  
 TOTAL CUT = 19,073 CU. YDS.  
 TOTAL FILL = 5,921 CU. TDS.  
 \*FILL IS UNADJUSTED

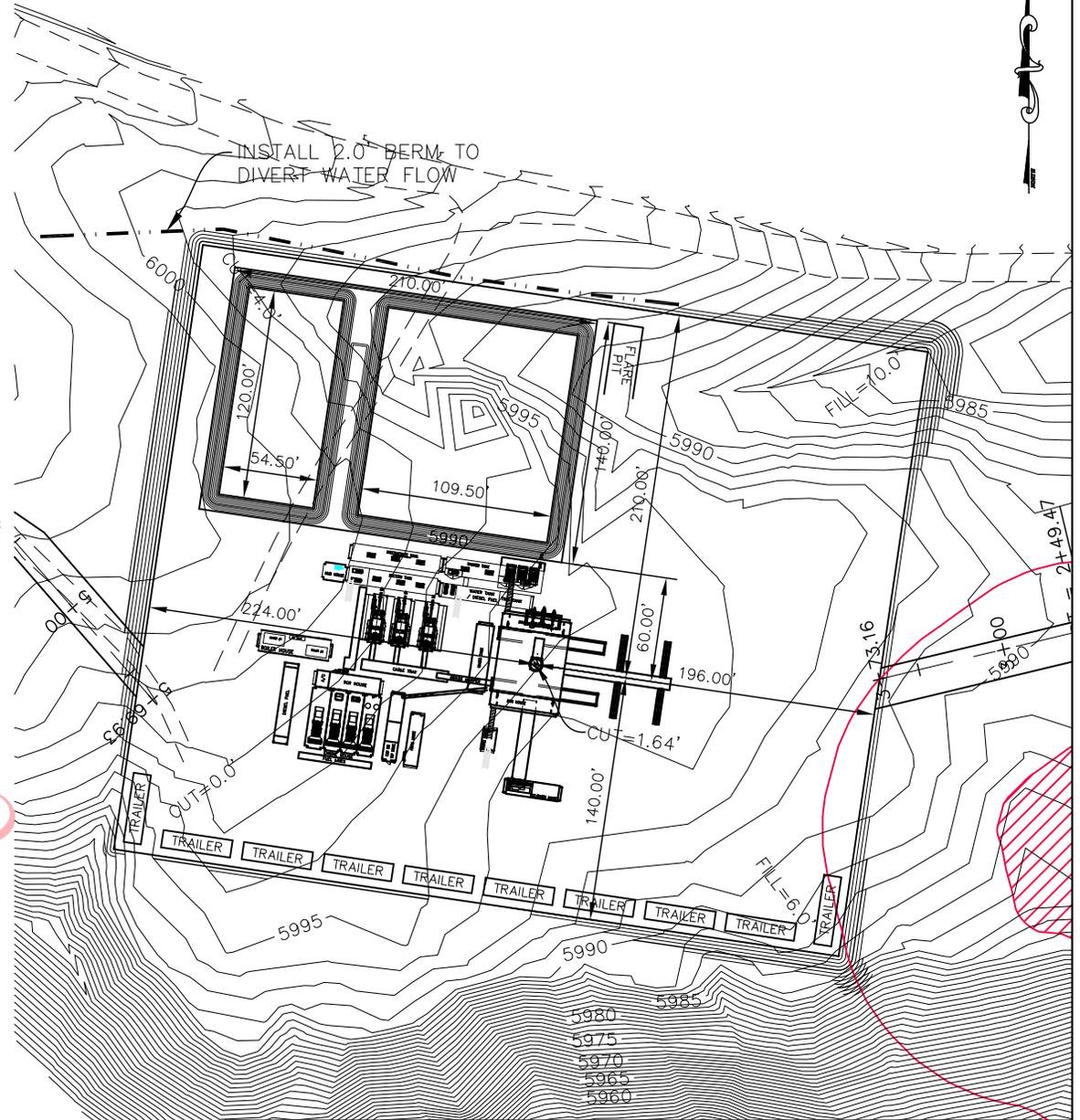
TOTAL PIT CAPACITY WITH 2' FREEBOARD = 37,048 bbls  
 TOTAL PIT VOLUME = 9,630 CU. YDS.

ROAD DATA:

LENGTH OF NEW ACCESS ROAD = 943.09'  
 LENGTH OF UPGRADED EXISTING ROAD = 0.00'  
 MAX TOTAL DISTURBED WIDTH = 38.0'  
 MAX TRAVEL SURFACE WIDTH = 12.0'  
 MAX TRAVEL SURFACE WIDTH (TURNOUT) = 22.0'  
 MAXIMUM GRADES = 6%  
 NUMBER OF TURNOUTS = 4

DISTURBANCE AREAS:

ROAD AREA = 0.69 ACRES  
 PAD AREA = 4.66 ACRES



Savage Surveying, Inc.

1925 South Industrial Park Rd.  
 Richfield, UT 84701  
 Office: 435-896-8635  
 Fax: 435-896-0220

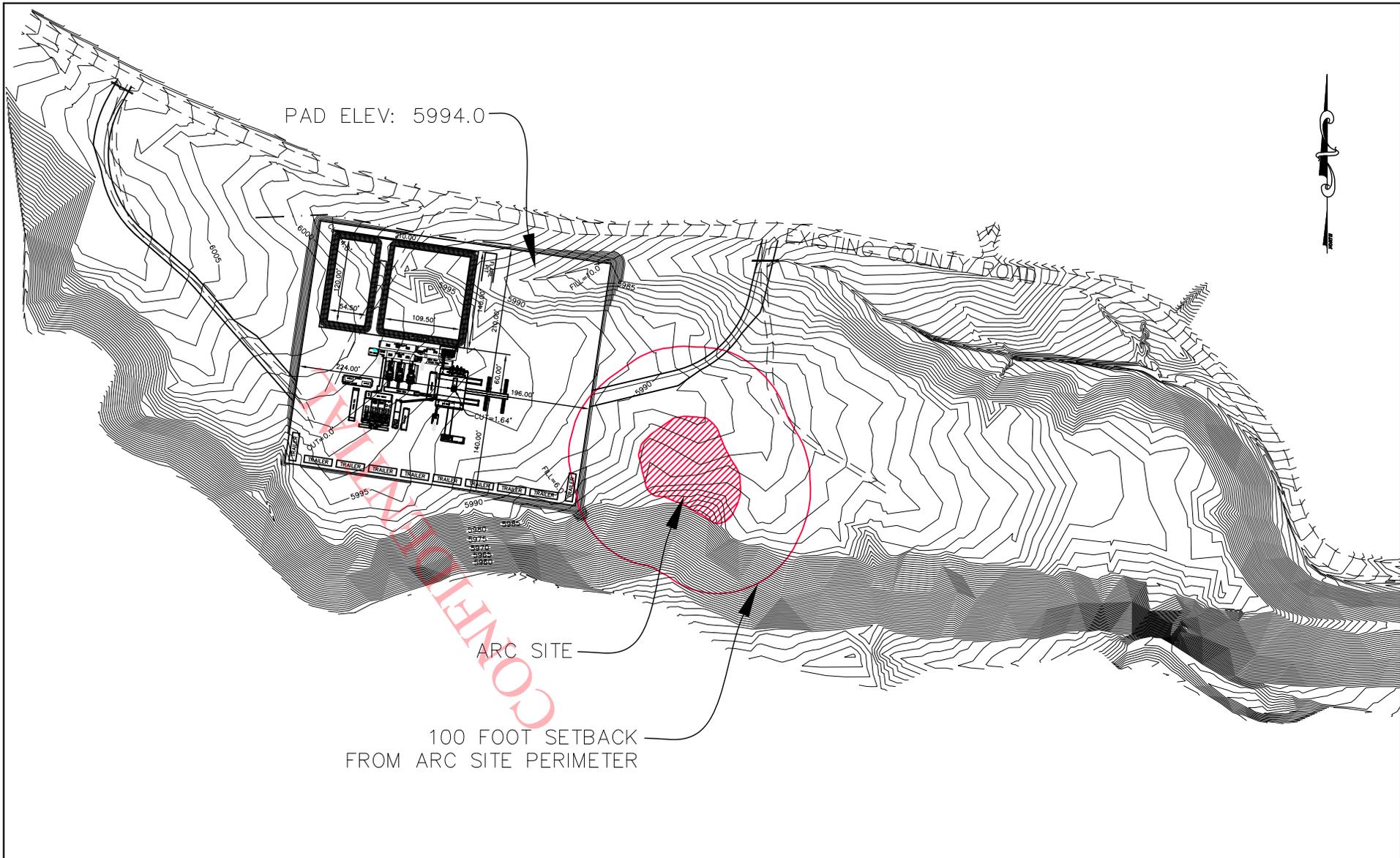


DENMARK WASH FEDERAL 15-1A

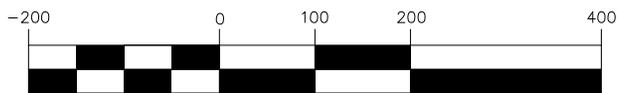
WOLVERINE OPERATING COMPANY OF UTAH, LLC.

DESIGNED BY:	SURVEYED BY:	CHECKED BY:	DRAWN BY:	PROJECT NUMBER	SHEET NUMBER
R.W.S.	E.G.	R.W.S.	A.S.A.	0808-007S	2 OF 4

'APIWellNo:43041500010000'



GRAPHIC SCALE



( IN FEET )  
1 inch = 200 ft.

**EXHIBIT "A"**

Savage Surveying, Inc.

1925 South Industrial Park Rd.  
Richfield, UT 84701  
Office: 435-896-8635  
Fax: 435-896-0220

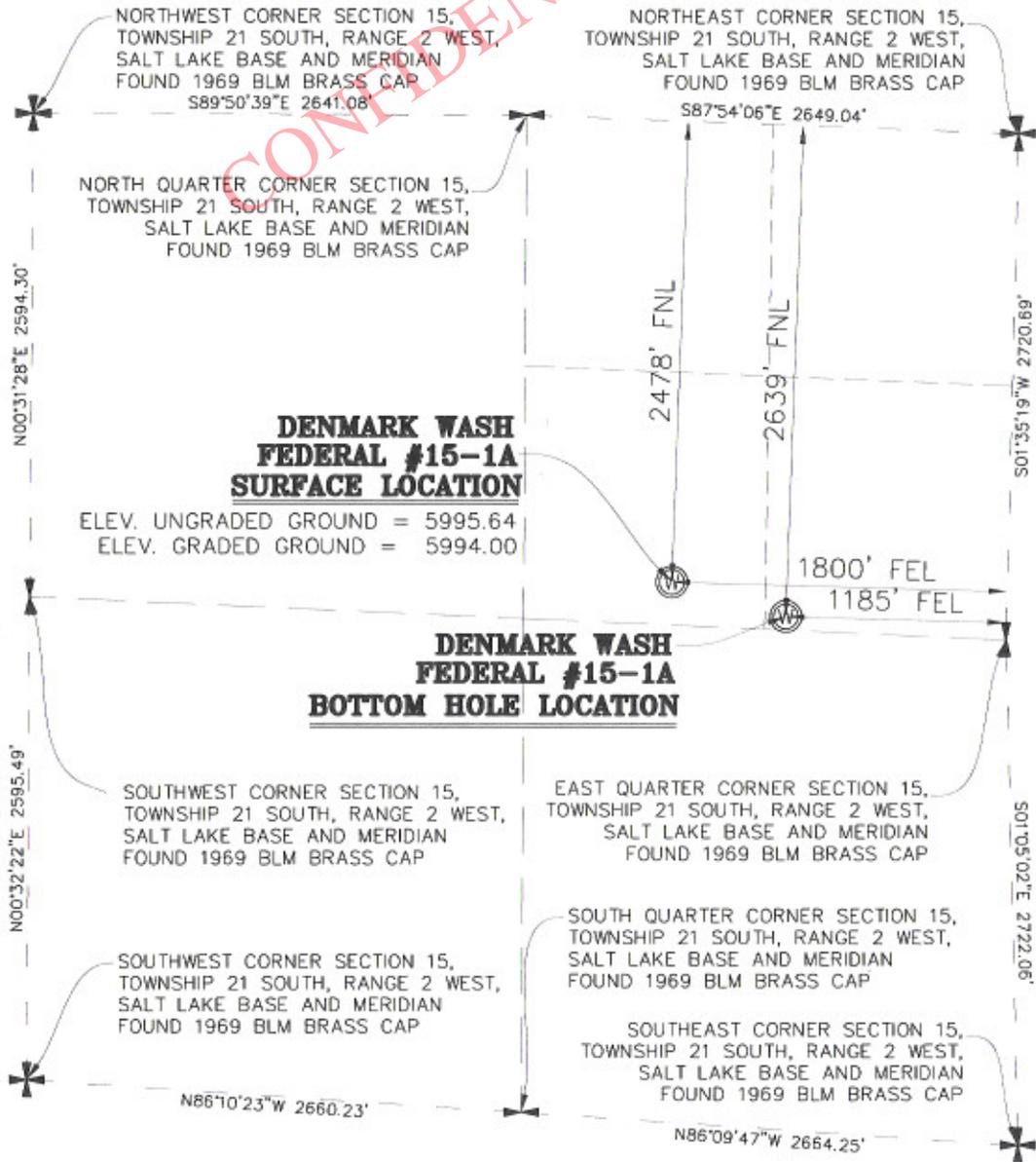


DENMARK WASH FEDERAL 15-1A

WOLVERINE OPERATING COMPANY OF UTAH, LLC.

DESIGNED BY:	SURVEYED BY:	CHECKED BY:	DRAWN BY:	PROJECT NUMBER	SHEET NUMBER
R.W.S.	E.G.	R.W.S.	A.S.A.	0808-007S	EX-A

# SECTION 15, T.21 S., R.2 W., S.L.B. & M.



PROJECT  
**WOLVERINE OPERATING COMPANY OF UTAH, LLC.**  
 WELL LOCATION, LOCATED AS SHOWN  
 IN THE SW 1/4 OF THE NE 1/4 OF  
 SECTION 15, T.21 S., R.2 W., S.L.B. & M.  
 SEVIER COUNTY, UTAH

### LEGEND

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

NOTE: THE PURPOSE OF THIS SURVEY WAS TO PLAT DENMARK WASH FEDERAL 15-1A WELL LOCATED IN THE SW 1/4 OF THE NE 1/4 OF SECTION 32, T.21 S., R.2 W., S.L.B. & M. SEVIER COUNTY, UTAH.

### BASIS OF ELEVATION

ELEVATION BASED ON USGS BENCH MARK #50 LOCATED IN THE SE 1/4 OF SECTION 14 T.21 S., R.2 W., S.L.B. & M. ELEVATION USED 5809.00

### NAD 27 CENTRAL ZONE (4302) UTAH STATE PLANE SURFACE LOCATION

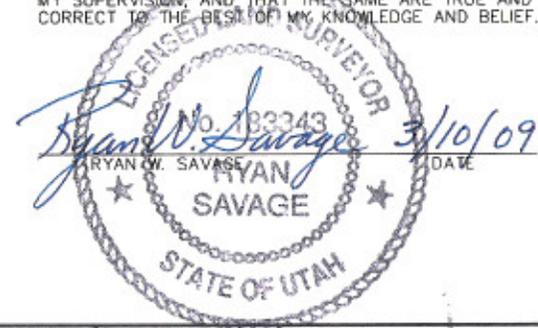
GRID NORTHING: 236642.060  
 GRID EASTING: 1856111.010  
 LATITUDE: 38°58'54.878" OR 38.98191056  
 LONGITUDE: -112°00'22.101" OR -112.00613917

### BOTTOM HOLE LOCATION

GRID NORTHING: 236458.000  
 GRID EASTING: 1856722.000  
 LATITUDE: 38°58'53.092" OR 38.98141444  
 LONGITUDE: -112°00'14.351" OR -112.00398639

### CERTIFICATE

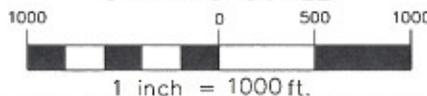
THIS IS TO CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME UNDER MY SUPERVISION, AND THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.



### BASIS OF BEARING

BASIS OF BEARING USED WAS SOUTH 01°35'19" WEST BETWEEN THE NORTHEAST CORNER AND THE EAST QUARTER CORNERS OF SECTION 15, T.21 S., R.2 W., S.L.B. & M.

### GRAPHIC SCALE



Savage Surveying, Inc.

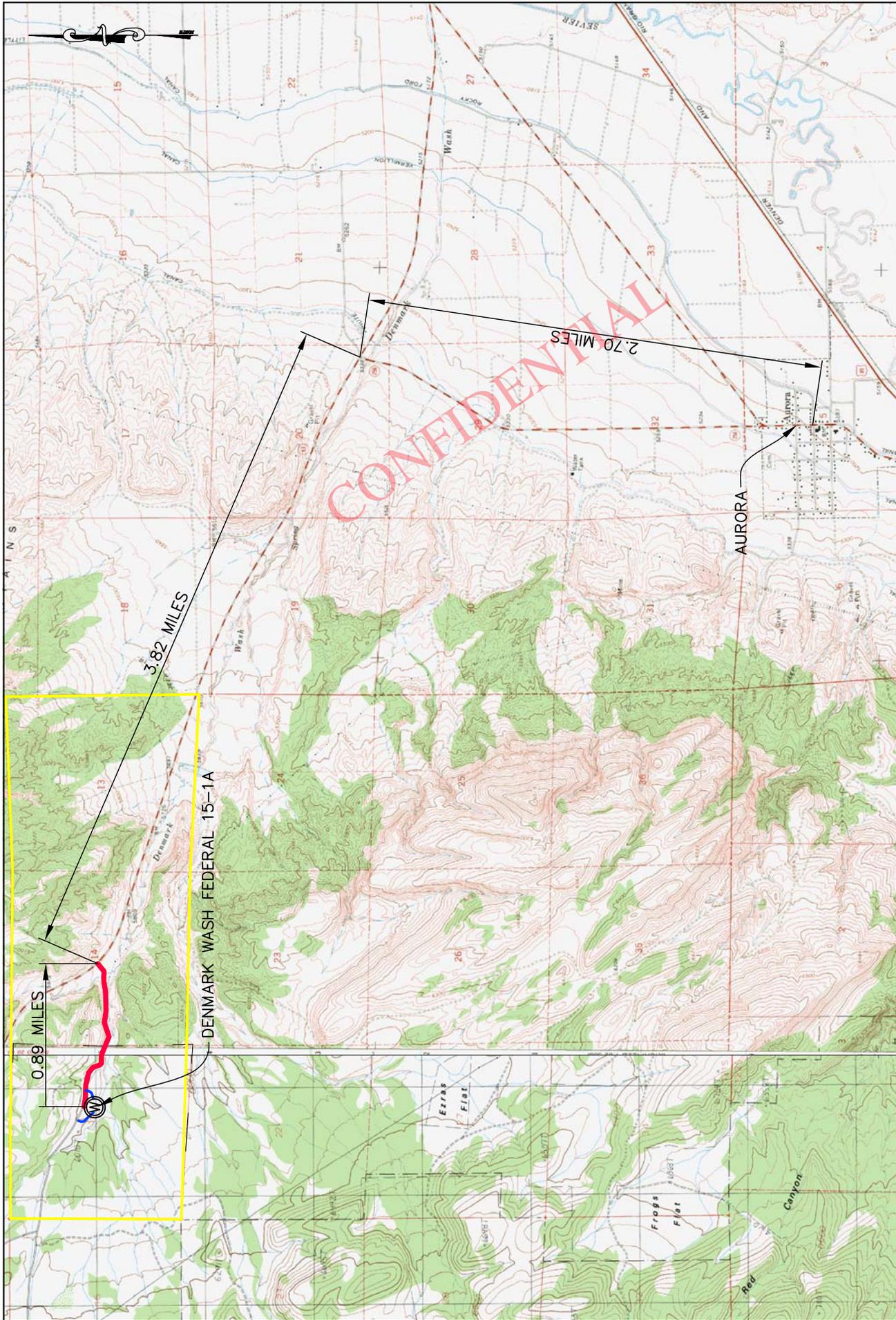
1925 South Industrial Park Rd.  
 Richfield, UT 84701  
 Office: 435-880-8835  
 Fax: 435-880-0300



### LOCATION PLAT

WOLVERINE OPERATING COMPANY OF UTAH, LLC.

DESIGNED BY	SURVISED BY	SCALE	DATE	PROJECT NUMBER	SHEET NUMBER
---	E.G.	1" = 1000'	03/10/09	0808-007S	1 OF 1



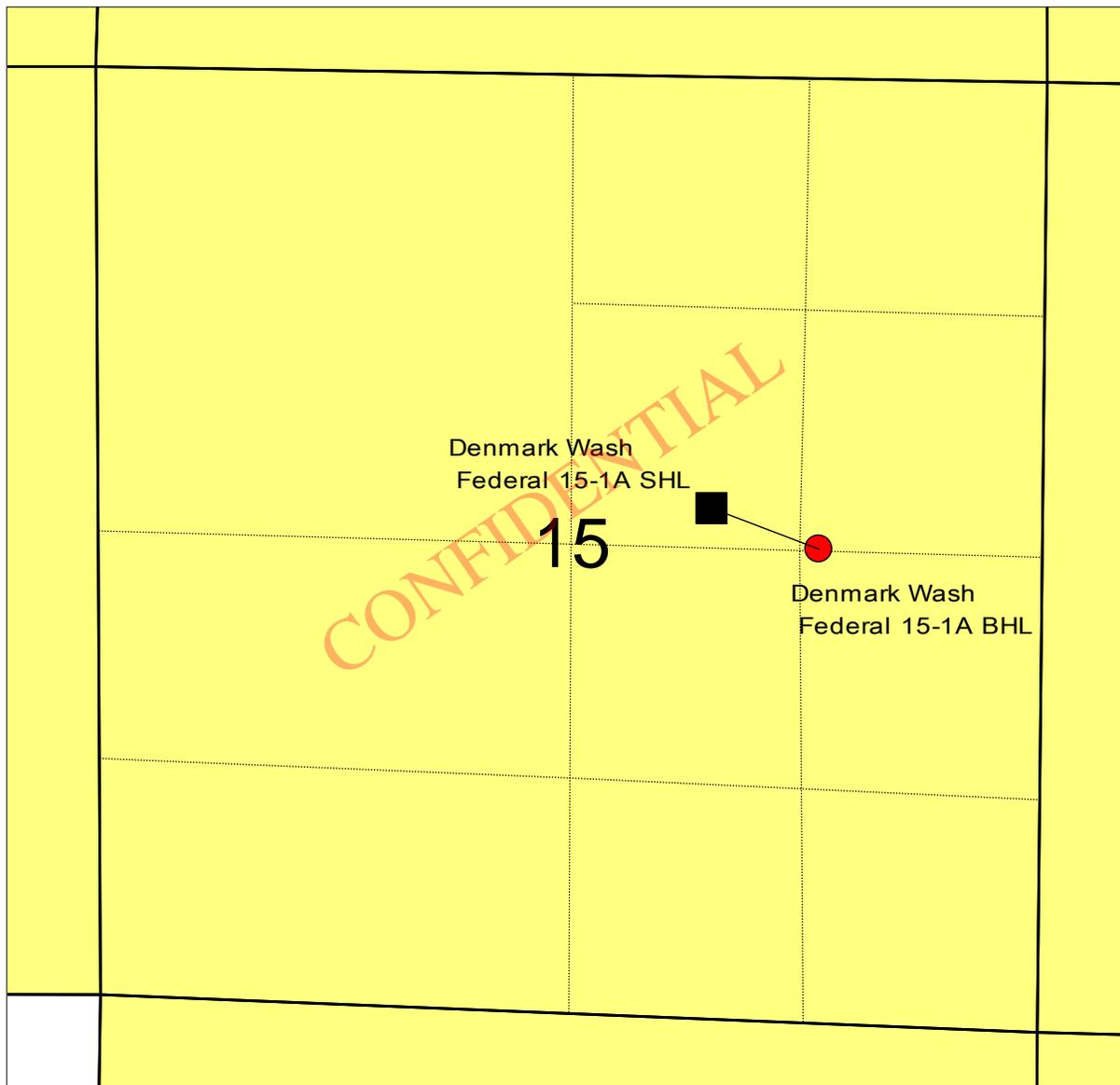
— UTU#81397 LEASE BOUNDARY  
— NEW CONSTRUCTED ACCESS ROAD  
— EXISTING ACCESS ROAD  
W PROPOSED WELL LOCATION

**Savage Surveying, Inc.**  
 1925 South Industrial Park Rd.  
 Richfield, UT 84701  
 Office: 465-890-6635  
 Fax: 465-890-0200

CONFIDENTIAL

DENMARK WASH FEDERAL 15-1A  
 WOLVERINE OPERATING COMPANY OF UTAH, LLC.

DRAWING NAME	SCALE	DATE	SHEET NUMBER
0808-0075	1"=100'	04/27/2009	COVER
DESIGNED BY:	SURVEYED BY:	CHECKED BY:	DRAWN BY:
R.W.S.	E.G.	R.W.S.	A.S.A.
			PROJECT NUMBER
			0808-0075



## Denmark Wash Federal 15-1A Well Location

SHL: 2478' FNL, 1800' FEL, SW/4 NE/4, Sec. 15, T21S, R2W, Sevier Co., UT

BHL: 2639' FNL, 1185' FEL, SE/4 NE/4, Sec. 15, T21S, R2W, Sevier Co., UT

 Wolverine Lease

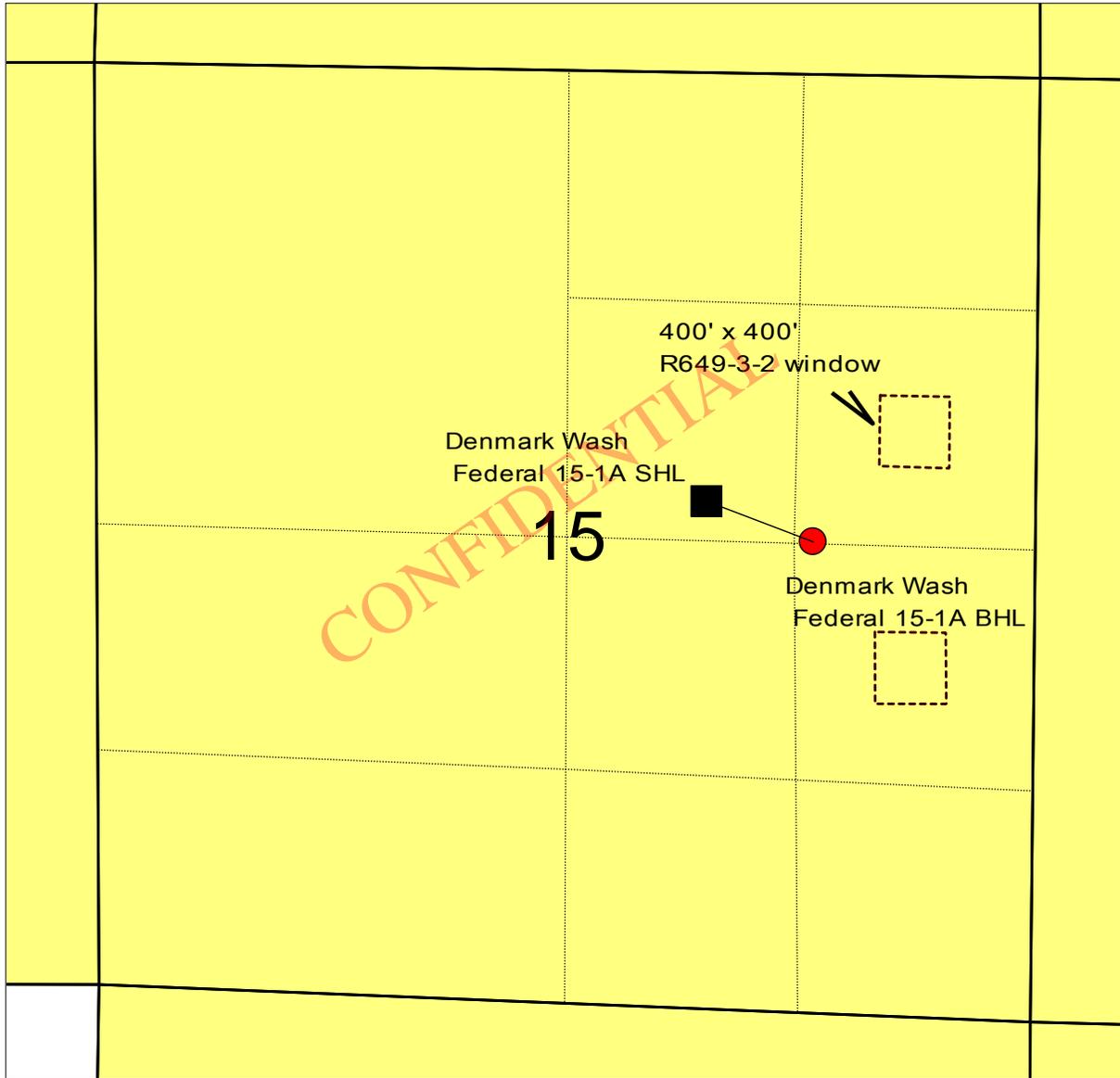
 Proposed SHL

 Proposed BHL

1:12000



	<p><b>WOLVERINE GAS &amp; OIL</b> Company of Utah, LLC (Operator) <i>Energy Exploration in Partnership with the Environment</i></p> <p>ONE RIVERFRONT PLAZA 55 CAMP AU, N.W. GRAND RAPIDS, MI 49503-2616 (616) 458-1150</p>
<p>Directional Drilling Application Plat (R649-3-11)</p>	
<p>Date: 5/1/2009</p>	<p>Author: Mark Lutz Filename: Document in Denmark Wash directional plat.gmp</p>



### Denmark Wash Federal 15-1A Well Location

SHL: 2478' FNL, 1800' FEL, SW/4 NE/4, Sec. 15, T21S, R2W, Sevier Co., UT

BHL: 2639' FNL, 1185' FEL, SE/4 NE/4, Sec. 15, T21S, R2W, Sevier Co., UT

 Wolverine Lease

 Proposed SHL

 Proposed BHL

1:12000



	<p><b>WOLVERINE GAS &amp; OIL Company of Utah, LLC</b> (Operator) <i>Energy Exploration in Partnership with the Environment</i> ONE RIVERFRONT PLAZA 55 CAMP AVE, N.W. GRAND RAPIDS, MI 49503-2616 (616) 458-1150</p>
<p>Exception Location and Ownership Plat (R649-3-2)</p>	
<p>Date: 5/1/2009</p>	<p>Author: Mark Lutz Filename: Document in Denmark Wash directional plat.gmp</p>

## WOLVERINE OPERATING COMPANY OF UTAH, LLC

Energy Exploration in Partnership with the Environment



May 14, 2009

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 #1557)  
Wolverine Operating Company of Utah, LLC  
**Denmark Wash Federal 15-1A**  
**Exception location letter**

Dear Mrs. Mason:

Wolverine Operating Company of Utah, LLC (Wolverine) hereby submits this letter in addition to the previously submitted 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 City of Salina (Water System 21014) 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 the Bureau of Land Management.

Please note that this proposed well is named similar to but different than a well named the Wolverine Federal Denmark Wash 15-1 (API 43-041-30043) for which a State permit was granted in April, 2006. The previously permitted well has not been drilled and the permit has expired. This proposed well is to be named the Denmark Wash Federal 15-1A.

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.

Wolverine Operating Company of Utah, LLC  
1140 N Centennial Park Drive, Richfield, Utah 84701. Phone: 435-896-1943, Fax: 435-893-2134

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: Denmark Wash Federal 15-1A

Field: NA (Wildcat)

Reservoir: NA (Wildcat)

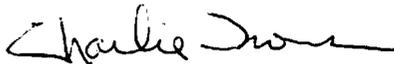
County: Sevier

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



### Denmark Wash Federal 15-1A Well Location

SHL: 2478' FNL, 1800' FEL, SW/4 NE/4, Sec. 15, T21S, R2W, Sevier Co., UT

BHL: 2639' FNL, 1185' FEL, SE/4 NE/4, Sec. 15, T21S, R2W, Sevier Co., UT

 Wolverine Lease

 Proposed SHL

 Proposed BHL



	<b>WOLVERINE GAS &amp; OIL Company of Utah, LLC</b> (Operator) <i>Energy Exploration &amp; Partnership with the Environment</i> ONE RIVERFRONT PLAZA 35 CAMPBELL WAY GRAND RAPIDS, MI 49503-2616 (616) 459-1150
	Exception Location and Ownership Plat (R649-3-2)
Date: 5/1/2009	Author: Mark Lutz Filename: Document in Denmark Wash directional plat.gmp



### Denmark Wash Federal 15-1A Well Location

SHL: 2478' FNL, 1800' FEL, SW/4 NE/4, Sec. 15, T21S, R2W, Sevier Co., UT

BHL: 2639' FNL, 1185' FEL, SE/4 NE/4, Sec. 15, T21S, R2W, Sevier Co., UT

 Wolverine Lease

 Proposed SHL

 Proposed BHL

1:12000



	<b>WOLVERINE GAS &amp; OIL</b> Company of Utah, LLC (Operator) <i>Energy Exploration in Partnership with the Environment</i> ONE RIVERFRONT PLAZA 55 CAMPALU, N.W. GRAND RAPIDS, MI 49503-2616 (616) 455-1150
Directional Drilling Application Plat (R649-3-11)	
Date: 5/1/2009	Author: Mark Lutz Filename: Document in Denmark Wash directional plat.gmp

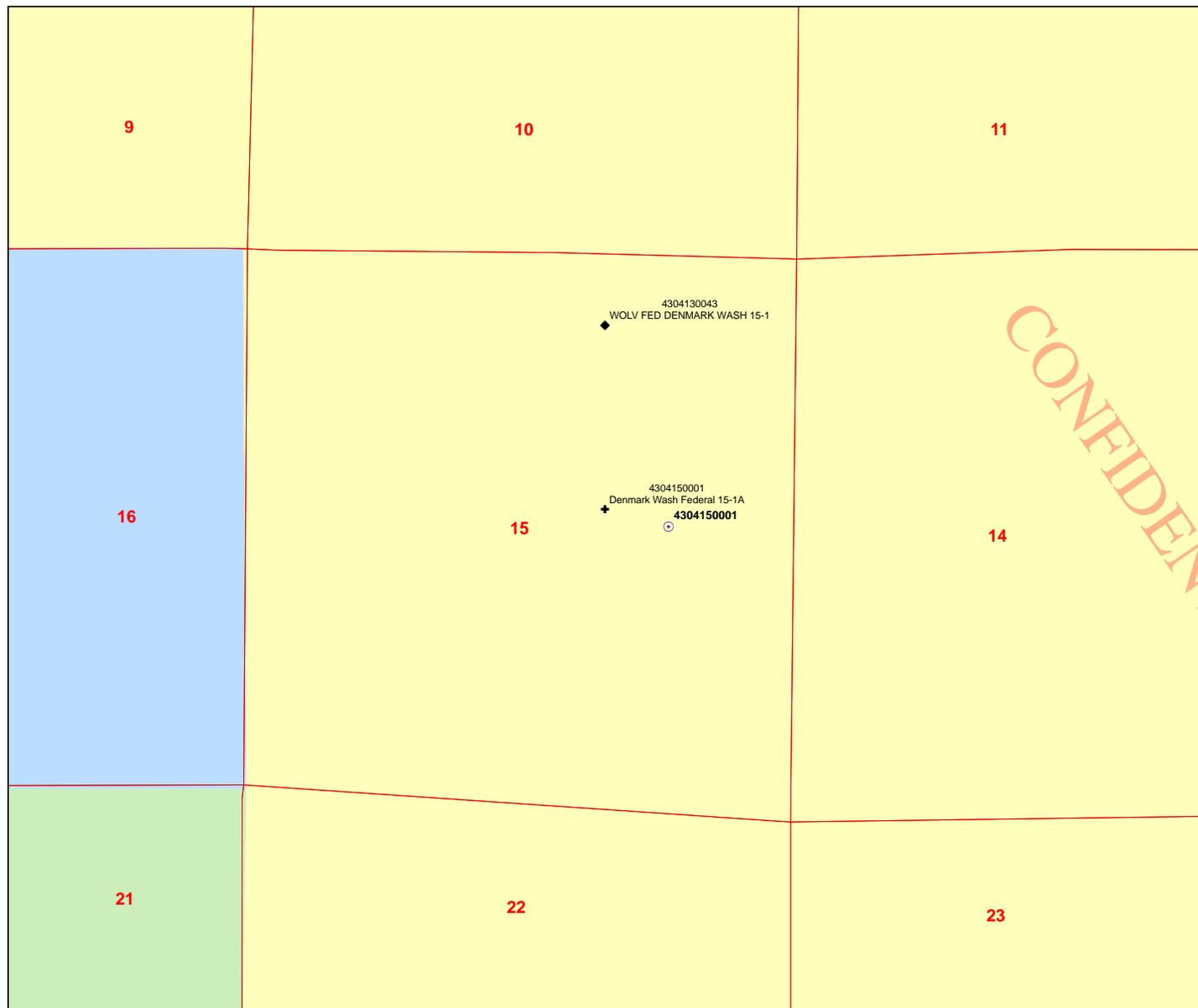
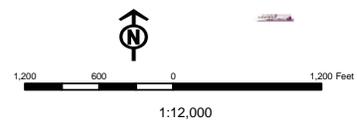
API Number: 4304150001  
Well Name: Denmark Wash Federal 15-1A  
Township 21.0 S Range 02.0 W Section 15

Meridian: SLBM

Operator: WOLVERINE OPERATING COMPANY OF UTAH, LLC

Map Prepared:  
Map Produced by Diana Mason

<b>Units</b>	<b>Wells Query Events</b>
<b>STATUS</b>	<b>GIS_STAT_TYPE</b>
ACTIVE	<all other values>
EXPLORATORY	<Null>
GAS STORAGE	APD
NF PP OIL	DRL
NF SECONDARY	GI
PI OIL	GS
PP GAS	LA
PP GEOTHERM	NEW
PP OIL	OPS
SECONDARY	PA
TERMINATED	PGW
<b>Fields</b>	POW
<b>STATUS</b>	RET
ACTIVE	SGW
COMBINED	SOW
Sections	TA
	TW
	WD
	WI
	WS



CONFIDENTIAL

**WORKSHEET  
APPLICATION FOR PERMIT TO DRILL**

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**APD RECEIVED:** 5/13/2009

**API NO. ASSIGNED:** 43041500010000

**WELL NAME:** Denmark Wash Federal 15-1A

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

**PHONE NUMBER:** 435 896-1943

**CONTACT:** Charles Irons

**PROPOSED LOCATION:** SWNE 15 210S 020W

**Permit Tech Review:**

**SURFACE:** 2478 FNL 1800 FEL

**Engineering Review:**

**BOTTOM:** 2639 FNL 1185 FEL

**Geology Review:**

**COUNTY:** SEVIER

**LATITUDE:** 38.98193

**LONGITUDE:** -112.00604

**UTM SURF EASTINGS:** 412860.00

**NORTHINGS:** 4315045.00

**FIELD NAME:** WILDCAT

**LEASE TYPE:** 1 - Federal

**LEASE NUMBER:** UTU 81397

**PROPOSED PRODUCING FORMATION(S):** WHITE RIM

**SURFACE OWNER:** 1 - Federal

**COALBED METHANE:** NO

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**RECEIVED AND/OR REVIEWED:**

- PLAT**
- Bond:** FEDERAL - WYB000616
- Potash**
- Oil Shale 190-5**
- Oil Shale 190-3**
- Oil Shale 190-13**
- Water Permit:** Salina City
- 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:** 4 - Federal Approval - dmason  
15 - Directional - dmason



JON M. HUNTSMAN, JR.  
*Governor*

GARY R. HERBERT  
*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:** Denmark Wash Federal 15-1A  
**API Well Number:** 43041500010000  
**Lease Number:** UTU 81397  
**Surface Owner:** FEDERAL  
**Approval Date:** 5/18/2009

**Issued to:**

WOLVERINE OPERATING COMPANY OF UTAH, LLC , One Riverfront Plaza, Grand Rapids, MI 49503

**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 WHITE RIM 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

**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.

**Notification Requirements:**

Notify the Division with 24 hours of spudding the well.

- Contact Carol Daniels at (801) 538-5284.

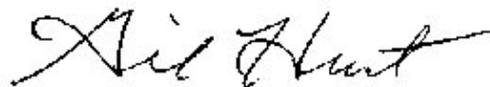
Notify the Division prior to commencing operations to plug and abandon the well.

- Contact Dustin Doucet at (801) 538-5281 office (801) 733-0983 home

**Reporting Requirements:**

All required reports, forms and submittals will be promptly filed with the Division, including but not limited to the Entity Action Form (Form 6), Report of Water Encountered During Drilling (Form 7), Weekly Progress Reports for drilling and completion operations, and Sundry Notices and Reports on Wells requesting approval of change of plans or other operational actions.

**Approved By:**

A handwritten signature in black ink, appearing to read "Gil Hunt". The signature is written in a cursive style with a long horizontal stroke extending to the right.

Gil Hunt  
Associate Director, Oil & Gas

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING	<b>FORM 9</b>  <b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> UTU 81397
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>  Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.	<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>  <b>7. UNIT or CA AGREEMENT NAME:</b>
<b>1. TYPE OF WELL</b> Oil Well	<b>8. WELL NAME and NUMBER:</b> Denmark Wash Federal 15-1A
<b>2. NAME OF OPERATOR:</b> WOLVERINE OPERATING COMPANY OF UTAH, LLC	<b>9. API NUMBER:</b> 43041500010000
<b>3. ADDRESS OF OPERATOR:</b> 1140 N. Centennial Park Dr. , Richfield, UT, 84701	<b>PHONE NUMBER:</b> 435 896-1943 Ext
<b>4. LOCATION OF WELL FOOTAGES AT SURFACE:</b> 2478 FNL 1800 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: SWNE Section: 15 Township: 21.0S Range: 02.0W Meridian: S	<b>9. FIELD and POOL or WILDCAT:</b> WILDCAT  <b>COUNTY:</b> SEVIER  <b>STATE:</b> UTAH

**11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start: 8/1/2010	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> CASING REPAIR
<input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> CHANGE WELL NAME
<input type="checkbox"/> <b>SPUD REPORT</b> Date of Spud:	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> CONVERT WELL TYPE
<input type="checkbox"/> <b>DRILLING REPORT</b> Report Date:	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> NEW CONSTRUCTION
	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> PLUG BACK
	<input type="checkbox"/> PRODUCTION START OR RESUME	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION
	<input type="checkbox"/> REPERFORATE CURRENT FORMATION	<input type="checkbox"/> SIDETRACK TO REPAIR WELL	<input type="checkbox"/> TEMPORARY ABANDON
	<input type="checkbox"/> TUBING REPAIR	<input type="checkbox"/> VENT OR FLARE	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> WATER SHUTOFF	<input type="checkbox"/> SI TA STATUS EXTENSION	<input checked="" type="checkbox"/> APD EXTENSION
	<input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> OTHER	OTHER: _____

**12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.**

Operator is requesting a one-year extension to APD that is expiring 05/18/2010; extending to 05/18/2011.

**Approved by the Utah Division of Oil, Gas and Mining**

**Date:** March 09, 2010

**By:**

<b>NAME (PLEASE PRINT)</b> Charles Irons	<b>PHONE NUMBER</b> 435 896-1943	<b>TITLE</b> Senior Landman
<b>SIGNATURE</b> N/A		<b>DATE</b> 3/8/2010



**The Utah Division of Oil, Gas, and Mining**

- State of Utah  
- Department of Natural Resources

Electronic Permitting System - Sundry Notices

**Request for Permit Extension Validation Well Number 43041500010000**

**API:** 43041500010000

**Well Name:** Denmark Wash Federal 15-1A

**Location:** 2478 FNL 1800 FEL QTR SWNE SEC 15 TWP 210S RNG 020W MER S

**Company Permit Issued to:** WOLVERINE OPERATING COMPANY OF UTAH, LLC

**Date Original Permit Issued:** 5/18/2009

The undersigned as owner with legal rights to drill on the property as permitted above, hereby verifies that the information as submitted in the previously approved application to drill, remains valid and does not require revision. Following is a checklist of some items related to the application, which should be verified.

- If located on private land, has the ownership changed, if so, has the surface agreement been updated?  Yes  No
- Have any wells been drilled in the vicinity of the proposed well which would affect the spacing or siting requirements for this location?  Yes  No
- Has there been any unit or other agreements put in place that could affect the permitting or operation of this proposed well?  Yes  No
- Have there been any changes to the access route including ownership, or rightof- way, which could affect the proposed location?  Yes  No
- Has the approved source of water for drilling changed?  Yes  No
- Have there been any physical changes to the surface location or access route which will require a change in plans from what was discussed at the onsite evaluation?  Yes  No
- Is bonding still in place, which covers this proposed well?  Yes  No

**Approved by the  
Utah Division of  
Oil, Gas and Mining**

**Signature:** Charles Irons

**Date:** 3/8/2010

**Title:** Senior Landman **Representing:** WOLVERINE OPERATING COMPANY OF UTAH, LLC

**Date:** March 09, 2010

**By:** 

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING	<b>FORM 9</b>  <b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> UTU 81397
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>  Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.	<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>  <b>7. UNIT or CA AGREEMENT NAME:</b>
<b>1. TYPE OF WELL</b> Oil Well	<b>8. WELL NAME and NUMBER:</b> Denmark Wash Federal 15-1A
<b>2. NAME OF OPERATOR:</b> WOLVERINE OPERATING COMPANY OF UTAH, LLC	<b>9. API NUMBER:</b> 43041500010000
<b>3. ADDRESS OF OPERATOR:</b> 1140 N. Centennial Park Dr. , Richfield, UT, 84701	<b>PHONE NUMBER:</b> 435 896-1943 Ext
<b>4. LOCATION OF WELL FOOTAGES AT SURFACE:</b> 2478 FNL 1800 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: SWNE Section: 15 Township: 21.0S Range: 02.0W Meridian: S	<b>9. FIELD and POOL or WILDCAT:</b> WILDCAT  <b>COUNTY:</b> SEVIER  <b>STATE:</b> UTAH

**11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start: 8/1/2010	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> CASING REPAIR
<input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> CHANGE WELL NAME
<input type="checkbox"/> <b>SPUD REPORT</b> Date of Spud:	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> CONVERT WELL TYPE
<input type="checkbox"/> <b>DRILLING REPORT</b> Report Date:	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> NEW CONSTRUCTION
	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> PLUG BACK
	<input type="checkbox"/> PRODUCTION START OR RESUME	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION
	<input type="checkbox"/> REPERFORATE CURRENT FORMATION	<input type="checkbox"/> SIDETRACK TO REPAIR WELL	<input type="checkbox"/> TEMPORARY ABANDON
	<input type="checkbox"/> TUBING REPAIR	<input type="checkbox"/> VENT OR FLARE	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> WATER SHUTOFF	<input type="checkbox"/> SI TA STATUS EXTENSION	<input checked="" type="checkbox"/> APD EXTENSION
	<input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> OTHER	OTHER: _____

**12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.**

Operator is requesting a one-year extension to APD that is expiring 05/18/2010; extending to 05/18/2011.

**Approved by the Utah Division of Oil, Gas and Mining**

**Date:** March 09, 2010

**By:**

<b>NAME (PLEASE PRINT)</b> Charles Irons	<b>PHONE NUMBER</b> 435 896-1943	<b>TITLE</b> Senior Landman
<b>SIGNATURE</b> N/A		<b>DATE</b> 3/8/2010



**The Utah Division of Oil, Gas, and Mining**

- State of Utah  
- Department of Natural Resources

Electronic Permitting System - Sundry Notices

**Request for Permit Extension Validation Well Number 43041500010000**

**API:** 43041500010000

**Well Name:** Denmark Wash Federal 15-1A

**Location:** 2478 FNL 1800 FEL QTR SWNE SEC 15 TWP 210S RNG 020W MER S

**Company Permit Issued to:** WOLVERINE OPERATING COMPANY OF UTAH, LLC

**Date Original Permit Issued:** 5/18/2009

The undersigned as owner with legal rights to drill on the property as permitted above, hereby verifies that the information as submitted in the previously approved application to drill, remains valid and does not require revision. Following is a checklist of some items related to the application, which should be verified.

- If located on private land, has the ownership changed, if so, has the surface agreement been updated?  Yes  No
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- Has there been any unit or other agreements put in place that could affect the permitting or operation of this proposed well?  Yes  No
- Have there been any changes to the access route including ownership, or rightof- way, which could affect the proposed location?  Yes  No
- Has the approved source of water for drilling changed?  Yes  No
- Have there been any physical changes to the surface location or access route which will require a change in plans from what was discussed at the onsite evaluation?  Yes  No
- Is bonding still in place, which covers this proposed well?  Yes  No

**Approved by the  
Utah Division of  
Oil, Gas and Mining**

**Signature:** Charles Irons

**Date:** 3/8/2010

**Title:** Senior Landman **Representing:** WOLVERINE OPERATING COMPANY OF UTAH, LLC

**Date:** March 09, 2010

**By:** 

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING	<b>FORM 9</b>  <b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> UTU 81397
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>  Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.	<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>  <b>7. UNIT or CA AGREEMENT NAME:</b>
<b>1. TYPE OF WELL</b> Oil Well	<b>8. WELL NAME and NUMBER:</b> DENMARK WASH FED 15-1A
<b>2. NAME OF OPERATOR:</b> WOLVERINE OPERATING COMPANY OF UTAH, LLC	<b>9. API NUMBER:</b> 43041500010000
<b>3. ADDRESS OF OPERATOR:</b> 1140 N. Centennial Park Dr. , Richfield, UT, 84701	<b>PHONE NUMBER:</b> 435 896-1943 Ext
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 2478 FNL 1800 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: SWNE Section: 15 Township: 21.0S Range: 02.0W Meridian: S	<b>9. FIELD and POOL or WILDCAT:</b> WILDCAT  <b>COUNTY:</b> SEVIER  <b>STATE:</b> UTAH

11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start: 2/10/2011	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> CASING REPAIR
<input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> CHANGE TUBING	<input checked="" type="checkbox"/> CHANGE WELL NAME
<input type="checkbox"/> <b>SPUD REPORT</b> Date of Spud:	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> CONVERT WELL TYPE
<input type="checkbox"/> <b>DRILLING REPORT</b> Report Date:	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> NEW CONSTRUCTION
	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> PLUG BACK
	<input type="checkbox"/> PRODUCTION START OR RESUME	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION
	<input type="checkbox"/> REPERFORATE CURRENT FORMATION	<input type="checkbox"/> SIDETRACK TO REPAIR WELL	<input type="checkbox"/> TEMPORARY ABANDON
	<input type="checkbox"/> TUBING REPAIR	<input type="checkbox"/> VENT OR FLARE	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> WATER SHUTOFF	<input type="checkbox"/> SI TA STATUS EXTENSION	<input type="checkbox"/> APD EXTENSION
	<input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> OTHER	OTHER: <input style="width: 100px;" type="text"/>

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.

Wolverine hereby requests to change the name of the well from the Denmark Wash Federal 15-1A to the Denmark Wash Federal 15-2.

**Accepted by the**  
**Utah Division of**  
**Oil, Gas and Mining**  
**FOR RECORD ONLY**

<b>NAME (PLEASE PRINT)</b> Charles Irons	<b>PHONE NUMBER</b> 435 896-1943	<b>TITLE</b> Senior Landman
<b>SIGNATURE</b> N/A	<b>DATE</b> 2/10/2011	

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB No. 1004-0137  
Expires: July 31, 2010

**SUNDRY NOTICES AND REPORTS ON WELLS**  
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.*

5. Lease Serial No.  
UTU-81397

6. If Indian, Allottee or Tribe Name  
N/A

**SUBMIT IN TRIPLICATE - Other instructions on page 2.**

1. Type of Well  
 Oil Well     Gas Well     Other

7. If Unit of CA/Agreement, Name and/or No.  
N/A

8. Well Name and No.  
Denmark Wash Federal 15-2

2. Name of Operator  
Wolverine Operating Company of Utah, LLC

9. API Well No.  
43-041-50001

3a. Address  
1140 N Centennial Park Drive, Richfield, Utah 84701

3b. Phone No. (include area code)  
435-896-1943

10. Field and Pool or Exploratory Area  
Wildcat

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
At surface: 2442' FNL, 1023' FEL, Section 15 (SW4NE4), T21S, R2W, SLM  
At bottom hole: same

11. Country or Parish, State  
Sevier, Utah

**12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input type="checkbox"/> Other _____
	<input checked="" type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplate horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

The attached revised APD Drilling Plan changes the changes made to the originally submitted and approved APD Drilling Plan. The changes reflect changing to a vertical well, changes to the hole size/casing plan, and the mud system, with the addition of OBM for part of the hole, because of lessons learned from recent exploration drilling in this region, especially with the troublesome drilling of Tertiary and Cretaceous formations. Further, this plan anticipates a Navajo test only, so the proposed TD is now 12,500'.

See attached revised APD Drig Plan.

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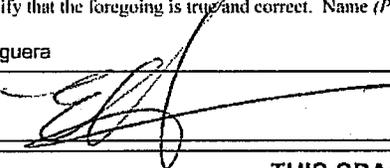
MAR 28 2011

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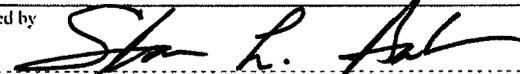
DIV. OF OIL, GAS & MINING

**Richfield BLM Field Office**

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)  
Edward Higuera      Title Manager-Development

Signature       Date 03/24/2011

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by       Title **SNRS**      Date **4-13-2011**

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.      Office **RICHFIELD FIELD OFFICE**

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

*Sundry # 11SLA00385*

**Conditions of Approval Attached**

**RECEIVED**

MAR 28 2011

**Richfield BLM Field Office**

**WOLVERINE OPERATING COMPANY OF UTAH, LLC**

**DRILLING PLAN**

**Denmark Wash Federal 15-2  
SHL/BHL: 2442' FNL & 1823' FEL Section 15, T21S-R02W  
Sevier County, Utah**

Note: This revised plan covers the changes made to the originally submitted and approved APD Drilling Plan. The changes reflect modifications to the hole size/casing plan, and the mud system, because of lessons learned from recent exploration drilling in this region, especially with the troublesome drilling of Tertiary and Cretaceous formations. Further, this plan anticipates a Navajo test only.

**Plan Summary:**

This plan covers the drilling of an exploratory well to test the Navajo. This well will be vertically drilled from a pad on a Federal lease to a projected total depth of 12,500' MD to test the Jurassic Navajo. Well bore issues caused by subsurface geologic irregularities, plastic salts, faults, 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: 2442' FNL, & 1823' FWL, Section 15, T21S, R2W, S.L.B. & M.

Bottom Hole Location @ total depth same as SHL

A Boart rig, using the reverse circulation method, will drill the upper section of the hole: 32.75 inch conductor will be set to approximately 80' GL in a 38" inch hole and cemented to surface. 27.75 inch conductor will be set to approximately 1400' in a 31" hole and cemented to surface. A twenty-six inch hole will be drilled to the North Horn, at approximately 2500 feet, and 20" surface casing will be set and cemented to surface. Because of the difficulty and uncertainty in knowing the exact depth of the North Horn, we have planned/designed for casing to be set as deep as 3500' should it become necessary. After setting the 20" surface casing, the Boart rig will be rigged down and a conventional rig will be moved in to finish drilling the rest of the hole. We are planning to use Patterson Rig #304 for the rest of the well.

A 17.5" hole will be drilled conventionally with a fresh water mud to 6000', where we have planned to set 13-3/8" contingency string if needed to address any wellbore issues. If run, this casing would be cemented back into the 20" surface casing. From 6000' +/-, a 12.25" hole will be drilled until reaching the Arapien, which could be as deep as ~8000'. The 9-5/8" casing will be run to the Arapien and the bottom 500 feet will be cemented. If needed, the fresh water mud will be aerated to maintain circulation through the conglomerates. An 8.5" bit will be used to drill out from the 9-5/8" casing, using an oil-based mud, to the Twin Creek, where the well will be logged before running and cementing a 7-5/8" liner. If hole conditions warrant, consideration will be given to foregoing the liner and drilling the Navajo section with the OBM. At this time, however, we are planning to drill the Navajo with low-chloride mud to TD using a 6.5" bit. The well will be logged and if sufficient porosity and hydrocarbons are encountered, then a 4.5" liner with a tie-back assembly will be set and cemented in place.

The well has an approved permit. Construction of the pad will commence shortly and drilling with the Boart rig is expected to start by mid-to-late April 2011.

**Well Name:** Denmark Wash Federal 15-2

**Surface Location:** 2442' FNL, & 1823' FWL, Section 15, T21S, R2W, S.L.B. & M  
 SW/4 of the NE/4 Section 15, T21S, R2W, S.L.B. & M.  
 Sevier County, Utah

**TD Bottom-Hole Location:** Same as Surface hole

**Elevations:** 5996' GL (graded), 5918' DF (est.)

**I. Geology:**

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

<b>Formation</b>	<b>TVD Interval (KB)</b>	<b>MD Interval (DF)</b>	<b>Contents</b>	<b>Pressure Gradient</b>
Green River	80	80		
Flagstaff	633	633		
North Horn	2508	2508		
Indianola Group	4290	4290		
Cedar Mountain	7618	7618		
Twist Gulch	7693	7693		
Arapien	7943	7943		
Twin Creek	10980	10980	O,G,W	0.44 psi/ft
Navajo	11450	11450	O,G,W	0.44 psi/ft
Proposed TD	12,500	12,500		

**II. Well Control:**

The contracted drilling rig will have a minimum 5M BOP system. BOPE will be placed on the 20" surface casing and tested as a 5M system prior to drilling out the surface casing shoe. See attached schematic of BOPE.

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

Wellhead Equipment (5M Min.):

<b>BOPE Item</b>	<b>Flange Size and Rating</b>
Annular Preventer	13-5/8" 2.5M
Double Rams (5" Pipe - top, Blind - bottom)	13-5/8" 5M
Drilling Spool w/ 2 side outlets (4" Choke Line, 4" Kill Line)	13-5/8" 5M x 13-5/8" 5M
Single Ram (Pipe)	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.):

<b>BOPE Item</b>
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.
- 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):

Hole Size	Casing Size	Weight	Grade	Connection	Coupling Diameter	Setting Depth
38"	32.75"	126.6	Line Pipe	PE	NA	0' - 80' GL
31"	28"	147	A53B ERW	PE	NA	0'-1200' GF
26"	20"	106.5/ 133	J-55/N-80	BTC	21	0' - 3500' DF
17.5"	13-3/8"	68	J-55	BTC	14.375	0' - 6,000' DF
12.25"	9-5/8"	53.5	L-80/P-110	LTC	10.625	0' - 8000' DF
8.5"	7-5/8"	33.7	P-110	FJ	7.625	7800'-11,200 DF
6.5"	4.5"	11.6	N-80	LTC	5.0	11,000- 12,500 DF

#### **32.75-inch (3/8" wall) conductor-set at 80 GL (102' DF to Patterson rig)**

The conductor will be set by Boart. No design is conducted on this pipe. It will be cemented with Class G neat cement, using a tremie pipe, placed in stages in the 32" x 38" annulus.

#### **28-inch (1/2" wall) conductor-set at 1200 GL (1222' DF to Patterson rig)**

The conductor will be set by Boart. The collapse rating of this pipe is 396 psi; burst strength is 2150 psi. The main concern is collapse load should the fluid level drop in the well. With a collapse rating of 396, this section could tolerate a drop in fluid level to 830' below grade and still have a design factor above 1.1. After cementing, its collapse tolerance should increase. It will be cemented conventionally with Class G neat cement, followed by topping off using a tremie pipe, placed in stages in the 27" x 31" annulus. Approximate cement needed, assuming 50% excess, is 2000 cubic feet, or 1740 sacks of Class G, mixed at 15.8 ppg, 1.15 cf/sk yield.

#### **20, 106.5 & 133 #/ft, J-55/N-80 BTC casing set to 3500' MD (or into the North Horn)**

The 20" casing will be set into the North Horn, which is projected at 2500'. For planning and design purposes, it was assumed that the North Horn could run as deep as 3500', consisting of ~1350' of 106.5 #/ft J-55 (on top) plus 2150' of 133 #/ft N-80 BTC. This string will be cemented to surface conventionally. The casing design parameters are as follows:

**Burst:** Worst case burst load occurs, while drilling the 17.5" hole section, if the well experiences an influx of gas from ~ 6000 feet TVD/MD. Assume the casing is 90% filled with gas. This assumption is a very conservative assumption in that the Arapien is generally interpreted as unproductive. In this case, assuming a fresh water pore pressure gradient to 6000 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:  $P = 0.433 \times 6000 - 0.1 \times 6000 \times 0.052 \times 9 - 0.1 \times 0.9 \times 6000 = 1777$  psi. The selected casing, 20" 106.5#/ft, J-55 BTC, has burst strength of 2410 psi. The burst design factor is  $DF_b = 2410/1777 = 1.35$  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 Indianola, Arapien or Navajo in this region. The Indianola has supported a static fluid level of approximately 1200' below ground level in the two most recent wells drilled by Wolverine. Therefore, even with a 3000 foot drop of the fluid level, this casing would have a collapse load, assuming a pore pressure of 0.44 psi/ft, of  $P_c = 0.44 \text{ psi/ft} \times 3000' = 1320 \text{ psi at } 3000'$ . The selected casing (133

#/ft N-80 has collapse strength of 1600 psi. The collapse design factor is:  $DF_c = 1600/1320 = 1.21$ , which is  $> 1.126$ , therefore OK.

Tension: String weight in air is:  $T = 106.5 \times 1350 + 133 \times 2150 = 429,725$  lbs. For 106.5 #/ft J-55 casing, tube strength is 1685 kips; joint strength (BTC) is 1596 kips. The tension design factor in air is:  $DF_t = 1596000/429725 = 3.71$ , which is  $> 1.8$ , therefore OK.

#### **Cementing Program -20":**

The 20" casing will be cemented from setting depth (3500' MD DF) to surface in a single stage using the following mix. If cement is not brought to surface, it will be topped off with tremie pipe. Hardware will include a guide shoe, shoe joint, float collar, wiper plugs, 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 50% excess in the openhole, 3000 feet of 11.5 ppg lead cement from surface to surface to 3000' and 500 feet 15.6 ppg tail cement from 3000 to 3500 feet.

Cement: Lead: 1780 sacks Rockies LT, 11.5 ppg, 3.49 cf/sx Yield

Tail: 1105 sacks Premium, 15.6 ppg, 1.16 cf/sx Yield

#### **13-3/8", 68#/ft, J-55 BTC casing set to 6000' MD DF**

The 17.5" hole/13-3/8" casing section will be drilled with a conventional drilling rig into 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 ~ 8000 feet TVD (8000' MD). Assume the casing is 90% filled with gas. In that case, assuming a fresh water pore pressure gradient to 8000 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:  $P = 0.44 \times 8000 - 0.1 \times 8000 \times 0.052 \times 9 - 0.1 \times 0.9 \times 8000 = 2425$  psi. The selected casing, 13-3/8" 68# J-55 STC, has burst strength of 3450 psi. The burst design factor is  $DF_b = 3450/2425 = 1.42$  which is  $> 1.1$ , therefore OK.

Collapse: Worst case collapse load occurs if the fluid level in this casing falls during drilling (i.e., loss circulation event). Assuming a fluid level drop of 3000', this casing would have a collapse load, assuming a pore pressure of 0.44 psi/ft, of  $P_c = 0.44 \text{ psi/ft} \times 3000' = 1320 \text{ psi}$ . The selected casing has collapse strength of 1950 psi. The collapse design factor is:  $DF_c = 1950/1320 = 1.47$ , which is  $> 1.126$ , therefore OK.

Tension: String weight in air is:  $T = 68 \times 6000 = 408000$  lbs. Tube strength is 1069 kips; joint strength (BTC) is 1140 kips. The tension design factor in air is:  $DF_t = 1140/408 = 2.79$ , which is  $> 1.8$ , therefore OK.

#### **Cementing Program -13-3/8":**

13-3/8" casing will be cemented from setting depth (6000' MD DF) to 3000' (500' inside 20" casing) in a single stage using the following mix. Hardware will include a guide shoe, shoe joint, float collar, wiper plugs, 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 50% excess in the openhole, 2500 feet of 11.5 ppg lead cement from 3000 to 5500' and 500 feet 15.6 ppg tail cement from 5500 to 6000 feet.

Cement: Lead: 731 sacks Rockies LT, 11.5 ppg, 3.49 cf/sx Yield

Tail: 500 sacks Premium, 15.6 ppg, 1.16 cf/sx Yield

**9-5/8", 53.5 #/ft L-80 casing set at 8000' MD DF (~8000' TVD)**

The 12-1/4" hole/9-5/8" casing section will be drilled with Patterson Rig 304 to the top of the Arapien, 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 during drilling occurs if the well experiences an influx of gas from 12,500 feet TVD. Assume the casing is filled with gas. In that case, assuming a fresh water pore pressure gradient to 12,500 ft TVD and a gas gradient equal to 0.1 psi/ft, maximum burst differential pressure would occur at the surface:

$P = 0.433 \times 12,500 - 0.1 \times 12,500 = 4163$  psi. The selected casing, 9-5/8" 53.5 #/ft L-80 LTC, has burst strength of 7930 psi. The burst design factor is  $DFc = 7930/4163 = 1.90$ , 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:  $P = 0.433 \times 8000' = 3464$  psi. The selected casing has collapse strength of 6620 psi. The collapse design factor is  $DFc = 6620/3464 = 1.91$ , 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 8000' to 10980' TVD. Because this string will be set into the top of the Arapien, it could encounter a salt zone at the bottom of this casing string.

**Maximum salt induced pressure applied to the 53.5# L-80 casing occurs at 8000' TVD (at top of Arapien):**  
 $P = 8000 - 0.433 \times 8000 = 4536$  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:  $DFc = 6620/4536 = 1.45$ , which is greater than 1.0, therefore OK.

**Tension:** String weight in air is:  $T = 53.5 \times 8000' = 428,000$  lbs. Joint strength (LTC) is 1047 kips; tube strength is 1244 kips. The tension design factor in air is:  $DFt = 1047000/428,000 = 2.45$ , which is  $> 1.8$ , therefore OK.

**Cementing Program- 9-5/8":**

9-5/8" casing will be cemented from setting depth 8000 to 7500' (minimum 500 feet) in a single stages 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 one per joint through the pay zone. 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, 500 feet of cement from 7500' - 8000' as follows:

Cement: Lead: 200 sacks Premium, 15.6 ppg, 1.16 cu. Ft/sacks Yield

**7-5/8", 33.7 #/ft, P-110 FJ liner set from 7800 to 11,200' MD DF**

The 8.5" hole/7-5/8" liner section will be drilled with Patterson Rig 304 to the top of the Twin Creek (~11,200'), and then the liner will be run and cemented, if necessary. Consideration will be given to foregoing this liner, if the hole is stable, and drill to TD with the OBM system. The liner design parameters are detailed below:

**Burst:** Worst case burst occurs at 11,000' MD (just above the 4.5" liner top, assuming no tie-back) with a tubing leak at surface and a packer set at 11,000. Assuming a fresh water pore pressure gradient, the well is producing

from perforations at 12,200 TVD, the tubing is filled with gas and the packer fluid has a gradient of 0.465 psi.  $P = 0.433 \times 12200 \text{ TVD} - 0.1 \times 12200 + 0.465 \times 12100 - 0.433 \times 12100 = 4450$  psi. The 7-5/8, 33.7# N-80 liner has burst strength of 10860 psi. The burst design factor is:  $DF_b = 10860/4450 = 2.44$ , which is  $> 1.1$ , therefore OK.

Collapse: Worst case collapse, from fluid, occurs if the casing is evacuated (albeit unlikely). Collapse pressure attributed to fresh water pore pressure gradient is:  $P = 0.433 \times 11200 \text{ TVD} = 4850$  psi. The selected casing has collapse strength of 7850 psi. The collapse design factor is  $DF_c = 7850/4850 = 1.62$ , 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 8000' to 10980' TVD (top of Twin Creek).

Maximum salt induced pressure applied to the 33.7# P-110 casing occurs at 10898' TVD (base of Arapien):  $P = 10980 - 0.433 \times 10980 = 6225$  psi. 7-5/8" 33.7 #/ft P-110 has collapse strength of 7850 psi. The collapse design factor across the salts in the P-110 casing is:  $DF_c = 7850/6225 = 1.26$ , which is greater than 1.0, therefore OK.

Tension: String weight in air is:  $T = 33.7 \times (11200 - 7800) = 114580$  lbs. Joint strength is 547,100 (Ultra FJ); body strength is 1,069,000 lbs. The tension design factor in air is:  $DF_t = 547100/114580 = 4.77$ , which is  $> 1.8$ , therefore OK.

#### **Cementing Program – 7-5/8" liner:**

The 7-5/8" liner will be cemented from 7800' MD (200' overlap) to 11,200' 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 (~ 3400 feet of length from 7800' to 11,200' MD). Hardware will include a guide shoe, shoe joint, float collar, plug, and a minimum of one centralizer per casing joint. Water or other pre-flush fluid pumped ahead of the slurry will separate cement from the drilling fluids. Cement volumes are based on 15% excess in the openhole, 3400 of cement from 7800 to 11,200 feet.

Cement: 220 sacks Bondcem, 14.5 ppg, 1.45 cf/sx Yield

#### **4.5", 11.6 #/ft, N-80 LTC set from 11,000' to 12500' MD**

The 6.5" hole/5" liner section will be drilled with Patterson Rig 304 through the target Navajo, where the formations will be logged and evaluated. If warranted a 4.5" liner with a tie-back option would be set across the prospective pay zone and cemented to inside the 7-5/8" liner. The casing design parameters are detailed below:

Burst: Worst case burst load occurs at 12,100 ft TVD, just above a packer set in the 4.5" liner, with a tubing leak at surface. Assume a fresh water pore pressure gradient, the well is producing from perforations at 12,200' TVD, the tubing is filled with gas and the packer fluid has a gradient of 0.465 psi/ft.  
 $P = 0.433 \times 12200 - 0.1 \times 12200 + 0.465 \times 12100 - 0.433 \times 12100 = 4450$  psi. The selected casing, 4.5" 11.6#/ft N-80 has burst strength of 7780 psi. The burst design factor is:  $DF_b = 7780/4450 = 1.74$ , which is  $> 1.1$ , therefore OK.

Collapse: Worst case collapse load occurs if the casing is evacuated. Assume the fluid level is lowered during the well's productive life to 11500' (abandonment pressure of 300 psi). Collapse pressure attributed to fresh

water pore pressure gradient is:  $P = 0.433 \times 11500 = 4980$  psi. The selected casing has collapse strength of 6350 psi. The collapse design factor is  $DF_c = 6350/4980 = 1.28$ , which is  $> 1.125$ , therefore OK.

Tension: String weight in air is:  $T = 11.6 \times (12500 - 11000) = 17400$ . Joint strength (LTC) is 223,000 lbs; body strength is 267,000 lbs. The tension design factor in air is:  $DF_t = 223,000/17400 = 12.8$ , which is  $> 1.8$ , therefore OK.

**Cementing Program-4.5" liner:**

This is a liner cement job. 6.5" hole will be drilled from 11,200' to 12,500'MD. The liner will be suspended from drill pipe and a liner hanger. The 4.5" liner will be cemented over its entire length (~ 1500 feet of length from 11,000' to 12,500'MD) in a single stage using the following mix. Hardware will include a guide shoe, shoe joint, float collar, top plug, and a minimum of one centralizer per joint. Water or other preflush fluid pumped ahead of the slurry will separate cement from the drilling fluids.

Cement: 145 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>PV/YP</u>	<u>Fluid Loss</u>
0 – 8000'	8.6	Fresh Water mud	8/15	NC
8000'- 11200'	9	OBM	25/25	<2 cc
11200-12500'	9	LSND Water Mud (could drill this section w/OBM if liner not required)	12/18	6 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 casing to TD. A mud logging unit will be in operation from a depth of approximately 1200 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 (H<sub>2</sub>S) gas is possible and appropriate safety procedures are to be in place before penetrating the Twin Creek Formation.
- 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 250 °F.

end

# BLM Price Field Office

## Conditions of Approval

### Wolverine Gas & Oil

#### Sundry Notice of Intent Dated 3/24/2011

#### Changes to the Drilling Plan in the Original APD

**Well:** Wolverine Denmark Wash Federal 15-2  
**Location:** SW NE Section 15, T21S, R2W  
**Lease:** UTU-81397  
**County:** Sevier

Wolverine's sundry request to modify the drilling plan approved in the original Application for Permit to Drill (APD) is approved. Your request to use oil-based drilling mud in the intermediate to deep sections of the hole is also approved. The following conditions of approval (COAs) shall apply to this sundry:

---

1. The COAs pertaining to the original APD continue to apply, as are applicable.
2. For the 9 5/8" casing string, cement shall be brought up from 8000' to a minimum of 5800' to provide 200' overlap above the 13 3/8" casing shoe.
3. The rig's drilling mud system (including circulating tanks, shaker system and temporary cuttings storage tanks, as applicable) shall be equipped underneath with a plastic liner, with appropriate drip pans and catchments placed under probable leak sources to prevent the oil-based drilling mud and cuttings from reaching the ground surface of the drill pad. External tanks that are used to store oil-based mud must have a liner beneath it and a berm constructed around it.
4. Any drill cuttings dropped or mud spilled shall be immediately cleaned up and placed in an approved containment device or in the oil-based section of the reserve pit. All spills in excess of one barrel outside of any containment devices will be reported to the BLM within eight hours. On location disposal sites designed to hold oil contaminated soils or drilling mud shall be lined with a 12 mil (or stronger) liner compatible with the oil being used.
5. All BPO equipment, and all elastomers and o-rings that are used which are part of the mud system shall be compatible with the oil-based mud.
6. The reserve pit shall be secured to prevent birds and other wildlife from getting into the oil-based mud and drill cuttings.
7. Prior to skidding or moving the drill rig to another well pad, the pumps, pump lines and tanks shall be cleaned to ensure that no oil-based mud is left in the system.
8. Following the drilling operation the pit used for the oil based material will be treated using the SOLI-BOND Solidification/Stabilization Process. The treated material will then be removed from the pit and hauled to an approved landfill.

If you have any questions regarding the conditions supporting this approval, please call Marvin Hendricks in the BLM Price Field Office at 435-636-3661 or Stan Andersen in the BLM Richfield Field Office at 435-896-1532.

**Carol Daniels - Wolverine Gas & Oil Denmark Wash Federal 15-2**

T 215 R 02W S-15 43-041-50001

**From:** George Rooney  
**To:** "Hendricks, Marvin" , "Knight, Randy" , , "Willis, Walton Home" , "Daniels, Carol" ,  
"Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 5/6/2011 10:32 AM  
**Subject:** Wolverine Gas & Oil Denmark Wash Federal 15-2  
**CC:** Jack Magill

Current operations: Rigging up Boart Longyear drilling rig. Anticipate spud on or about Wed. May 11.

George Rooney  
Drilling Supervisor  
Wolverine Gas & Oil  
303-619-1908

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DIV. OF OIL, GAS & MINING

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**Date:** 5/10/2011 9:04 AM  
**Subject:** Wolverine Gas & Oil: Denmark Wash Federal 15-2 Spud  
**CC:** Jack Magill , Edward Higuera , Jerry Treybig

Persuant to my previous telephone communications to the Richfield, UT BLM office and the State of Utah Oil & Gas Commission, please be advised Wolverine Gas & Oil anticipates spudding the Denmark Wash Federal 15-2 well on Teusday afternoon, May 10 2011. Please call if there are questions.

Thanks,  
 George Rooney  
 Drilling Supervisor  
 Wolverine Gas & Oil  
 Denmark Wash Federal 15-2  
 Boart Longyear Rig LK-41  
 970-812-0022 (Supervisor Trailer)  
 303-619-1908 (Cell)  
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[gbrooneyiv@yahoo.com](mailto:gbrooneyiv@yahoo.com)

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**Subject:** Wolverine Gas & Oil: Denmark Wash Federal 15-2 Spud Info/Update  
**CC:** Jack Magill , Edward Higuera , Jerry Treybig

The Denmark Wash Federal 15-2 well spud @ 2:00pm MST Tuesday May 10, 2011. Well depth @ 1:45 pm Wed. is 107' KB (KB=23') and we have drilled 24" of the Green River formation. We are conditioning the well bore in preparation to run & cement the 32 3/4" conductor string. Anticipate cementing operations to commence between 10:00 am & 2:00 pm Thursday.

George Rooney  
Drilling Supervisor  
Wolverine Gas & Oil  
Denmark Wash Federal 15-2  
Boart Longyear Rig LK-41  
970-812-0022 (Supervisor Trailer)  
303-619-1908 (Cell)  
970-812-0580 (Rig Pusher Tailer)  
[gbrooneyiv@yahoo.com](mailto:gbrooneyiv@yahoo.com)

RECEIVED

MAY 16 2011

DIV. OF OIL, GAS &amp; MINING

**Carol Daniels - Wolverine Gas & Oil: Denmark Wash Federal 15-2 Spud & Set 32 3/4" 129.7 #/ft csg**

*T 213 R 02W 5-15 43-041-50001*

**From:** George Rooney  
**To:** George Rooney , "Hendricks, Marvin" , "Knight, Randy" , , "Willis, Walton Home" , "Daniels, Carol" , "Doucet, Dustin" , "Jarvis, Dan" , "Jones, Mark"  
**Date:** 5/12/2011 8:57 PM  
**Subject:** Wolverine Gas & Oil: Denmark Wash Federal 15-2 Spud & Set 32 3/4" 129.7 #/ft csg  
**CC:** Jack Magill , Edward Higuera , Jerry Treybig , Boart Longyear

The Denmark Wash Federal 15-2 spud @ 2:00 pm May 10, 2011. TD for the first conductor string occurred @ 11:45 am May 11, 2011. 101 feet of 32 3/4" 129.7#/ft casing was set @ 107' DF (DF-23'). The casing was cemented with 1 super sk (21.1 sks) of "hot" neat/w 4% calcium cmt, & 7 super sks (149 sks) of neat/w 2% calcium cmt to 31' DF (8' below GL @ BOC). The casing was cut off @ 19' DF (4' above GL) and drilling will commence at approximately 5:00 am Friday May 13, 2010, after the cmt cures for 12 hrs.

Regards,  
George Rooney  
Drilling Supervisor  
Wolverine Gas & Oil  
Denmark Wash Federal 15-2  
Boart Longyear Rig LK-41  
970-812-0022 (Supervisor Trailer)  
303-619-1908 (Cell)  
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[gbrooneyiv@yahoo.com](mailto:gbrooneyiv@yahoo.com)

RECEIVED

MAY 16 2011

DIV. OF OIL, GAS & MINING

**STATE OF UTAH**  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

FORM 6

**ENTITY ACTION FORM**

Operator: Wolverine Operating Company of Utah, LLC  
Address: One Riverfront Plaza, 55 Campau NW  
city Grand Rapids  
state MI zip 49503

Operator Account Number: N-1655 3035  
Phone Number: (616) 458-1150

**Well 1**

API Number	Well Name		QQ	Sec	Twp	Rng	County
4304150001	Denmark Wash Federal 15-2		SWNE	15	21S	2W	Sevier
Action Code	Current Entity Number	New Entity Number	Spud Date		Entity Assignment Effective Date		
A	99999	18053	5/10/2011		5/31/11		
Comments: Planned BHL: Sec 15, T21S, R2W <i>SENE</i> Planned target: NVJO <i>not White Rim</i>							<b>CONFIDENTIAL</b>

**Well 2**

API Number	Well Name		QQ	Sec	Twp	Rng	County
Action Code	Current Entity Number	New Entity Number	Spud Date		Entity Assignment Effective Date		
Comments:							

**Well 3**

API Number	Well Name		QQ	Sec	Twp	Rng	County
Action Code	Current Entity Number	New Entity Number	Spud Date		Entity Assignment Effective Date		
Comments:							

**ACTION CODES:**

- A - Establish new entity for new well (single well only)
- B - Add new well to existing entity (group or unit well)
- C - Re-assign well from one existing entity to another existing entity
- D - Re-assign well from one existing entity to a new entity
- E - Other (Explain in 'comments' section)

Helene Bardolph

Name (Please Print)

*Helene Bardolph*

Signature

Engineering assistant

Title

5/27/2011

Date

**RECEIVED**

**MAY 31 2011**

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>
		<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> UTU 81397
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>		<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>
Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		<b>7. UNIT or CA AGREEMENT NAME:</b>
<b>1. TYPE OF WELL</b> Oil Well		<b>8. WELL NAME and NUMBER:</b> DENMARK WASH FED 15-2
<b>2. NAME OF OPERATOR:</b> WOLVERINE OPERATING COMPANY OF UTAH, LLC		<b>9. API NUMBER:</b> 43041500010000
<b>3. ADDRESS OF OPERATOR:</b> One Riverfront Plaza 55 Campau NW, Grand Rapids, MI, 49503	<b>PHONE NUMBER:</b> 616 458-1150 Ext	<b>9. FIELD and POOL or WILDCAT:</b> WILDCAT
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 2478 FNL 1800 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: SWNE Section: 15 Township: 21.0S Range: 02.0W Meridian: S		<b>COUNTY:</b> SEVIER
		<b>STATE:</b> UTAH
11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA		
<b>TYPE OF SUBMISSION</b>	<b>TYPE OF ACTION</b>	
<input type="checkbox"/> NOTICE OF INTENT Approximate date work will start:	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> ALTER CASING
<input type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion:	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> CHANGE TUBING
<input type="checkbox"/> SPUD REPORT Date of Spud:	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS
<input checked="" type="checkbox"/> DRILLING REPORT Report Date: 5/31/2011	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> FRACTURE TREAT
	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> PLUG AND ABANDON
	<input type="checkbox"/> PRODUCTION START OR RESUME	<input type="checkbox"/> RECLAMATION OF WELL SITE
	<input type="checkbox"/> REPERFORATE CURRENT FORMATION	<input type="checkbox"/> SIDETRACK TO REPAIR WELL
	<input type="checkbox"/> TUBING REPAIR	<input type="checkbox"/> VENT OR FLARE
	<input type="checkbox"/> WATER SHUTOFF	<input type="checkbox"/> SI TA STATUS EXTENSION
	<input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> OTHER: <input type="text"/>
		<input type="checkbox"/> CASING REPAIR
		<input type="checkbox"/> CHANGE WELL NAME
		<input type="checkbox"/> CONVERT WELL TYPE
		<input type="checkbox"/> NEW CONSTRUCTION
		<input type="checkbox"/> PLUG BACK
		<input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION
		<input type="checkbox"/> TEMPORARY ABANDON
		<input type="checkbox"/> WATER DISPOSAL
		<input type="checkbox"/> APD EXTENSION
12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc. Please see attached document for May 2011 drilling details.		
<b>Accepted by the Utah Division of Oil, Gas and Mining FOR RECORD ONLY</b>		
<b>NAME (PLEASE PRINT)</b> Helene Bardolph	<b>PHONE NUMBER</b> 616 458-1150	<b>TITLE</b> Engineering Administrative Assistant
<b>SIGNATURE</b> N/A		<b>DATE</b> 6/7/2011

Wolverine Operating Company of Utah, LLC  
Denmark Wash Federal 15-2  
SW¼ NE¼ Sec 15-T21S-R2W  
Sevier County, Utah

## May Drilling Update

### 10 May 2011

Depth 31' DF, 8' cellar ring @ 31' DF (8' GL). MIRURT. MW – none, Vis. – none, FL – none. Surveys: none.

### 11 May 2011

Depth 57' DF, 8' cellar ring @ 31' DF (8' GL). PU BHA, spud at 2:00 p.m., 5/10/11, drill to 77' DF. MW – 8.33, Vis. – not reported, FL – not reported. Surveys: none.

### 12 May 2011

Depth 107' DF, 32¾" @ 107' DF. Drill to 107', C&C, POOH, LD BHA, run 32¾" 167 #/ft PE casing to 107' DF, cement w/ 1 super sack of cement (24 cf mixed at 15.8 ppg) through 2" tremmie pipe, WOC. MW – 8.33, Vis. – not reported, FL – not reported. Surveys: none.

### 13 May 2011

Depth 107' DF, 32¾" @ 107' DF. WOC, tag 1st pour of cement, lifted 6 ft, mix 5 super sacks of cement (121 cf mixed at 15.8 ppg) through 2" tremmie pipe, WOC, tag cement at 53' DF, mix 2 super sacks of cement (48 cf mixed at 15.8 ppg), cement at base of cellar, WOC, PU BHA & GIH. MW – 8.33, Vis. – not reported, FL – not reported. Surveys: none.

### 14 May 2011

Depth 123' DF, 32¾" @ 107' DF. C&C, stabilizer hanging up on casing, POOH, LD stabilizer, drill & survey, POOH, change BHA, GIH, drill. MW – 9.2, Vis. – 50, FL – 10.8. Surveys: 1° @ 90'.

### 15 May 2011

Depth 202' DF, 32¾" @ 107' DF. Drill & survey, POOH, change BHA. MW – 9.2, Vis. – 54, FL – 12.4. Surveys: ¾° @ 125', 1° @ 160' & ¾° @ 190'.

### 16 May 2011

Depth 285' DF, 32¾" @ 107' DF. RU to run air pipe, GIH, wash & ream to bottom, drill & survey. MW – 9.5, Vis. – 54, FL – 10.4. Surveys: 1° @ 220'.

### 17 May 2011

Depth 387' DF, 32¾" @ 107' DF. Drill & survey. MW – 9.8, Vis. – 45, FL – 8.6. Surveys: 1° @ 301' & ¼° @ 367'.

### 18 May 2011

Depth 412' DF, 32¾" @ 107' DF. Drill C&C, rig repair. MW – 10, Vis. – 47, FL – 8. Surveys: none.

19 May 2011

Depth 440' DF, 32¾" @ 107' DF. Rig repair, POOH, GIH, rig repair, GIH, drill. MW – 9.5, Vis. – 44, FL – 6.4. Surveys: none.

20 May 2011

Depth 542' DF, 32¾" @ 107' DF. Drill & survey. MW –9.5, Vis. – 46, FL – 8.8. Surveys: ½° @ 467'.

21 May 2011

Depth 608' DF, 32¾" @ 107' DF. Drill & survey, TFNB, drill. MW –9.5, Vis. – 43, FL – 9.8. Surveys: ¾° @ 567'.

22 May 2011

Depth 729' DF, 32¾" @ 107' DF. Drill & survey. MW – 9.4, Vis. – 44, FL – 10. Surveys: ¾° @ 667'

23 May 2011

Depth 836' DF, 32¾" @ 107' DF. Drill & survey. MW – 9.8, Vis. – 44, FL – 10. Surveys: ¾° @ 766'.

24 May 2011

Depth 884' DF, 32¾" @ 107' DF. TFNB, drill & survey. MW – 9.8, Vis. – 42, FL – 9. Surveys: ¾° @ 866'.

25 May 2011

Depth 956' DF, 32¾" @ 107' DF. Drill. MW – 9.8, Vis. – 42, FL – 8.8. Surveys: none.

26 May 2011

Depth 1021' DF, 32¾" @ 107' DF. Drill & survey. MW –10, Vis. – 53, FL – 10.8. Surveys: ½° @ 467'.

27 May 2011

Depth 1083' DF, 32¾" @ 107' DF. Drill & survey. MW –9.8, Vis. – 39, FL – 9.8. Surveys: 1° @ 1057'.

28 May 2011

Depth 1103' DF, 32¾" @ 107' DF. Drill, TFNB, drill. MW – 9.5, Vis. – 42, FL – 9.8. Surveys: none.

29 May 2011

Depth 1193' DF, 32¾" @ 107' DF. Drill & survey. MW – 9.4, Vis. – 38, FL –8.8. Surveys: 1° @ 1155'.

30 May 2011

Depth 1320' DF, 32¾" @ 107' DF. Drill & survey. MW – 9.7, Vis. – 40, FL – 10.4. Surveys: 1¼° @ 1290

31 May 2011

Depth 1389' DF, 32¾" @ 107' DF. Drill. MW – 9.6, Vis. – 38, FL – 10.2. Surveys: 1¼° @ 1290'

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>		<b>5. LEASE DESIGNATION AND SERIAL NUMBER:</b> UTU 81397
Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.		<b>6. IF INDIAN, ALLOTTEE OR TRIBE NAME:</b>
		<b>7. UNIT or CA AGREEMENT NAME:</b>
<b>1. TYPE OF WELL</b> Oil Well	<b>8. WELL NAME and NUMBER:</b> DENMARK WASH FED 15-2	
<b>2. NAME OF OPERATOR:</b> WOLVERINE OPERATING COMPANY OF UTAH, LLC	<b>9. API NUMBER:</b> 43041500010000	
<b>3. ADDRESS OF OPERATOR:</b> One Riverfront Plaza 55 Campau NW, Grand Rapids, MI, 49503	<b>PHONE NUMBER:</b> 616 458-1150 Ext	<b>9. FIELD and POOL or WILDCAT:</b> WILDCAT
<b>4. LOCATION OF WELL</b> <b>FOOTAGES AT SURFACE:</b> 2478 FNL 1800 FEL <b>QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN:</b> Qtr/Qtr: SWNE Section: 15 Township: 21.0S Range: 02.0W Meridian: S	<b>COUNTY:</b> SEVIER	
		<b>STATE:</b> UTAH
11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA		
<b>TYPE OF SUBMISSION</b>	<b>TYPE OF ACTION</b>	
<input type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start:  <input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:  <input type="checkbox"/> <b>SPUD REPORT</b> Date of Spud:  <input checked="" type="checkbox"/> <b>DRILLING REPORT</b> Report Date: 6/30/2011	<input type="checkbox"/> <b>ACIDIZE</b> <input type="checkbox"/> <b>ALTER CASING</b> <input type="checkbox"/> <b>CASING REPAIR</b> <input type="checkbox"/> <b>CHANGE TO PREVIOUS PLANS</b> <input type="checkbox"/> <b>CHANGE TUBING</b> <input type="checkbox"/> <b>CHANGE WELL NAME</b> <input type="checkbox"/> <b>CHANGE WELL STATUS</b> <input type="checkbox"/> <b>COMMINGLE PRODUCING FORMATIONS</b> <input type="checkbox"/> <b>CONVERT WELL TYPE</b> <input type="checkbox"/> <b>DEEPEN</b> <input type="checkbox"/> <b>FRACTURE TREAT</b> <input type="checkbox"/> <b>NEW CONSTRUCTION</b> <input type="checkbox"/> <b>OPERATOR CHANGE</b> <input type="checkbox"/> <b>PLUG AND ABANDON</b> <input type="checkbox"/> <b>PLUG BACK</b> <input type="checkbox"/> <b>PRODUCTION START OR RESUME</b> <input type="checkbox"/> <b>RECLAMATION OF WELL SITE</b> <input type="checkbox"/> <b>RECOMPLETE DIFFERENT FORMATION</b> <input type="checkbox"/> <b>REPERFORATE CURRENT FORMATION</b> <input type="checkbox"/> <b>SIDETRACK TO REPAIR WELL</b> <input type="checkbox"/> <b>TEMPORARY ABANDON</b> <input type="checkbox"/> <b>TUBING REPAIR</b> <input type="checkbox"/> <b>VENT OR FLARE</b> <input type="checkbox"/> <b>WATER DISPOSAL</b> <input type="checkbox"/> <b>WATER SHUTOFF</b> <input type="checkbox"/> <b>SI TA STATUS EXTENSION</b> <input type="checkbox"/> <b>WILDCAT WELL DETERMINATION</b> <input type="checkbox"/> <b>OTHER</b>	
12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc. Please see attached drilling update for details		
<b>Accepted by the Utah Division of Oil, Gas and Mining FOR RECORD ONLY</b>		
<b>NAME (PLEASE PRINT)</b> Helene Bardolph	<b>PHONE NUMBER</b> 616 458-1150	<b>TITLE</b> Engineering Administrative Assistant
<b>SIGNATURE</b> N/A	<b>DATE</b> 7/7/2011	

Subject: Wolverine Operating Company of Utah, LLC  
Denmark Wash Federal 15-2  
SW¼ NE¼ Sec 15-T21S-R2W  
Sevier County, Utah.

**31 May 2011**

Depth 1389' DF, 32¾" @ 107' DF. Drill. MW - 9.6, Vis. - 38, FL - 10.2. Surveys: 1¼° @ 1290'.

**1 June 2011**

Depth 1444' DF, 32¾" @ 107' DF. Drill. MW - 9.6, Vis. - 38, FL - 10.2. Surveys: none.

**2 June 2011**

Depth 1474' DF, 32¾" @ 107' DF. Drill & survey, TFNB, drill. MW - 9.6, Vis. - 52, FL - 10. Surveys: ½° @ 1385'.

**3 June 2011**

Depth 1526' DF, 32¾" @ 107' DF. Drill. MW -9.5, Vis. - 52, FL - 9.5. Surveys: none.

**4 June 2011**

Depth 1572' DF, 32¾" @ 107' DF. C&C, TFNB, drill. MW -9.3, Vis. - 51, FL - 6.8. Surveys: none.

**5 June 2011**

Depth 1653' DF, 32¾" @ 107' DF. Drill & survey. MW - 9.2, Vis. - 47, FL - 7. Surveys: 1¼° @ 1559'.

**6 June 2011**

Depth 1720' DF, 32¾" @ 107' DF. Drill & survey. MW - 8.9, Vis. - 47, FL - 9. Surveys: ¾° @ 1625' & 1° @ 1656'.

**7 June 2011**

Depth 1774' DF, 32¾" @ 107' DF. Drill & survey. MW - 9.1, Vis. - 55, FL - 9. Surveys: 2° @ 1680'.

**8 June 2011**

Depth 1805' DF, 32¾" @ 107' DF. Drill & survey, drill, C&C, TFNB, change BHA. MW - 8.9, Vis. - 48, FL - 15. Surveys: 2° @ 1730'.

**9 June 2011**

Depth 1805' DF, 32¾" @ 107' DF. TFNB, rig repair. MW - 9, Vis. - 55, FL - 14. Surveys: none.

**10 June 2011**

Depth 1830' DF, 32¾" @ 107' DF. Rig repair, GIH, drill. MW -8.8, Vis. - 55, FL - 13.5. Surveys: none.

**11 June 2011**

Depth 1889' DF, 32¾" @ 107' DF. Drill & survey. MW -9, Vis. - 52, FL - 9.6. Surveys: 1° @ 1800' & 1° @ 1840'.

**12 June 2011**

Depth 1932' DF, 32¾" @ 107' DF. Drill & survey. MW - 8.9, Vis. - 52, FL - 9.6. Surveys: 1° @ 1870'.

**13 June 2011**

Depth 2024' DF, 32¾" @ 107' DF. Drill & survey. MW - 9, Vis. - 55, FL - 10. Surveys: 1½° @ 1940'.

**14 June 2011**

Depth 2084' DF, 32¾" @ 107' DF. Drill & survey. MW - 9, Vis. - 55, FL - 10.4. Surveys: 1½° @ 2000'.

**15 June 2011**

Depth 2132' DF, 32¾" @ 107' DF. Drill & survey. MW -9, Vis. - 55, FL - 10.4. Surveys: 1½° @ 2060'.

**16 June 2011**

Depth 2150' DF, 32¾" @ 107' DF. Drill & survey, TFNB. MW - 9, Vis. - 55, FL - 10.4. Surveys: ¾° @ 2110'.

**17 June 2011**

Depth 2161' DF, 32¾" @ 107' DF. TFNB, drill. MW -9, Vis. - 55, FL - 8. Surveys: none.

**18 June 2011**

Depth 2192' DF, 32¾" @ 107' DF. Drill. MW -9, Vis. - 55, FL - 8. Surveys: none.

**19 June 2011**

Depth 2233' DF, 32¾" @ 107' DF. Drill. MW -9, Vis. - 55, FL - 11. Surveys: none.

**20 June 2011**

Depth 2249' DF, 32¾" @ 107' DF. Drill & survey, TFNB, drill. MW - 9, Vis. - 55, FL - 11. Surveys: misrun @ 2176'.

**21 June 2011**

Depth 2302' DF, 32¾" @ 107' DF. Drill & survey. MW - 9.1, Vis. - 55, FL - 11. Surveys: 1° @ 2240'.

**22 June 2011**

Depth 2353' DF, 32¾" @ 107' DF. Drill & survey. MW - 9.2, Vis. - 55, FL - 11. Surveys: 2½° @ 2275', ¾° @ 2305'.

**23 June 2011**

Depth 2404' DF, 32¾" @ 107' DF. Drill. MW - 9.2, Vis. - 58, FL - 9.2. Surveys: none.

**24 June 2011**

Depth 2445' DF, 32¾" @ 107' DF. Drill & survey, TFNB. MW - 9.3, Vis. - 55, FL - 9.6. Surveys: 1½° @ 2416'.

**25 June 2011**

Depth 2483' DF, 32¾" @ 107' DF. TFNB, drill. MW -9.2, Vis. - 62, FL - 8.4. Surveys: none.

**26 June 2011**

Depth 2500' DF, 32¾" @ 107' DF. Drill & survey, POOH, LD BHA, RU to run casing. MW - 9.2, Vis. - 56, FL - 9. Surveys: none.

**27 June 2011**

Depth 2500' DF, 32¾" @ 107' DF. Run 33 jts 20" csg, wait on cementers, fill water tanks. MW -9.2, Vis. - 56, FL - 9. Surveys: none.

**28 June 2011**

Depth 2500' DF, 20" @ 2482' DF. Fill water tanks, pump w/ Schlumberger 20 bbl CW-7 spacer, lead w/ 1071 sx cement + 2% extender + 0.2% antifoam + ¼ lb/sk cellophane flake + 1.5% retarder mixed @ 12.5 ppg, tail w/ 288sx cement + 1% extender + ¼ lb/sk cellophane flake + 1% retarder mixed at 14 ppg, displace w/ 830 bbl water, bump plug w/ 730 psi, float held, rd cementers, WOC, GIH annulus w/ tremmie pipe, possible tag cement at 1120'. MW - 9.2, Vis. - 56, FL - 9. Surveys: none.

**29 June 2011**

Depth 2500' DF, 20" @ 2482' DF. Circulate tremmie pipe, WOC, pump 760 sx cement + 1% CaCl<sub>2</sub> mixed at 15.5 ppg, pull out of cement, WOC, tag cement at 840', pump 640 sx cement mixed at 15.5 ppg, POOH w/ tremmie pipe, WOC. MW -9.2, Vis. - 56, FL - 9. Surveys: none.

**30 June 2011**

Depth 2500' DF, 20" @ 2482' DF. WOC, GIH w/ tremmie pipe, tag cement at 510', pump 640 sx cement mixed at 15.5 ppg, POOH w/ tremmie pipe, WOC, GIH, tag cmt at 160', pump 480 sx cement mixed at 15.5 ppg, circulate cement to surface, POOH, WOC, LD drilling tools. MW - 9.2, Vis. - 56, FL - 9. Surveys: none.

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING		<b>FORM 9</b>
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11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA		
<b>TYPE OF SUBMISSION</b>	<b>TYPE OF ACTION</b>	
<input type="checkbox"/> <b>NOTICE OF INTENT</b> Approximate date work will start:  <input type="checkbox"/> <b>SUBSEQUENT REPORT</b> Date of Work Completion:  <input type="checkbox"/> <b>SPUD REPORT</b> Date of Spud:  <input checked="" type="checkbox"/> <b>DRILLING REPORT</b> Report Date: 7/31/2011	<input type="checkbox"/> <b>ACIDIZE</b> <input type="checkbox"/> <b>ALTER CASING</b> <input type="checkbox"/> <b>CASING REPAIR</b> <input type="checkbox"/> <b>CHANGE TO PREVIOUS PLANS</b> <input type="checkbox"/> <b>CHANGE TUBING</b> <input type="checkbox"/> <b>CHANGE WELL NAME</b> <input type="checkbox"/> <b>CHANGE WELL STATUS</b> <input type="checkbox"/> <b>COMMINGLE PRODUCING FORMATIONS</b> <input type="checkbox"/> <b>CONVERT WELL TYPE</b> <input type="checkbox"/> <b>DEEPEN</b> <input type="checkbox"/> <b>FRACTURE TREAT</b> <input type="checkbox"/> <b>NEW CONSTRUCTION</b> <input type="checkbox"/> <b>OPERATOR CHANGE</b> <input type="checkbox"/> <b>PLUG AND ABANDON</b> <input type="checkbox"/> <b>PLUG BACK</b> <input type="checkbox"/> <b>PRODUCTION START OR RESUME</b> <input type="checkbox"/> <b>RECLAMATION OF WELL SITE</b> <input type="checkbox"/> <b>RECOMPLETE DIFFERENT FORMATION</b> <input type="checkbox"/> <b>REPERFORATE CURRENT FORMATION</b> <input type="checkbox"/> <b>SIDETRACK TO REPAIR WELL</b> <input type="checkbox"/> <b>TEMPORARY ABANDON</b> <input type="checkbox"/> <b>TUBING REPAIR</b> <input type="checkbox"/> <b>VENT OR FLARE</b> <input type="checkbox"/> <b>WATER DISPOSAL</b> <input type="checkbox"/> <b>WATER SHUTOFF</b> <input type="checkbox"/> <b>SI TA STATUS EXTENSION</b> <input type="checkbox"/> <b>WILDCAT WELL DETERMINATION</b> <input type="checkbox"/> <b>OTHER:</b> <input type="text"/>	
12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc. Please see attached file for drilling details.		
<b>Accepted by the Utah Division of Oil, Gas and Mining FOR RECORD ONLY</b>		
<b>NAME (PLEASE PRINT)</b> Helene Bardolph	<b>PHONE NUMBER</b> 616 458-1150	<b>TITLE</b> Engineering Administrative Assistant
<b>SIGNATURE</b> N/A	<b>DATE</b> 8/17/2011	

Subject: Wolverine Operating Company of Utah, LLC  
Denmark Wash Federal 15-2  
SW $\frac{1}{4}$  NE $\frac{1}{4}$  Sec 15-T21S-R2W  
Sevier County, Utah.

1 July 2011

Depth 2500' DF, 20" @ 2482' DF. Cut off casing, weld on wellhead, NU annular preventer, PU drlg tools. MW -9.2, Vis. - 56, FL - 9. Surveys: none.

2 July 2011

Depth 2500' DF, 20" @ 2482' DF. PU 17 $\frac{1}{2}$  bit & BHA, GIH, drill cmt 2421 to 2441'. MW -8.6, Vis. - 45, FL - 9. Surveys: none.

3 July 2011

Depth 2606' DF, 20" @ 2482' DF. Drill cement, drill. MW -8.8, Vis. - 42, FL - 10. Surveys: none.

4 July 2011

Depth 2732' MD, 20" @ 2478' MD. Drill. MW - 9.2, Vis. - 42, FL - 7.2. Surveys: none.

5 July 2011

Depth 2873' MD, 20" @ 2478' MD, ,Drill & survey. MW -9.3, Vis. - 45, FL - 7. Surveys: 1 $\frac{1}{4}$ ° @ 2725'.

6 July 2011

Depth 2968' MD, 20" @ 2478' MD. Drill & survey. MW - 9.1, Vis. - 40, FL - 8.4. Surveys:  $\frac{3}{4}$ ° @ 2825'.

7 July 2011

Depth 3063' MD, 20" @ 2478' MD. Drill & survey. MW -9.1, Vis. - 49, FL - 6.8. Surveys: 1 $\frac{1}{4}$ ° @ 2925'.

8 July 2011

Depth 3067' MD, 20" @ 2478' MD. Drill & survey, TFNB. MW - 9.1, Vis. - 49, FL - 6.8. Surveys:  $\frac{3}{4}$ ° @ 3000'.

9 July 2011

Depth 3108' MD, 20" @ 2478' MD. TFNB, drill. MW - 9.1, Vis. - 49, FL - 6.8. Surveys: none.

10 July 2011

Depth 3177' MD, 20" @ 2478' MD. Drill & survey. MW - 9.1, Vis. - 49, FL - 6.8. Surveys: 1° @ 3100'.

11 July 2011

Depth 3240' MD, 20" @ 2478' MD, ,Drill, TFNB. MW -9.2, Vis. - 49, FL - 6.8. Surveys: none.

12 July 2011

Depth 3269' MD, 20" @ 2478' MD. TFNB, drill. MW – 8.9, Vis. – 45, FL – 6.8. Surveys: none'.

13 July 2011

Depth 3345' MD, 20" @ 2478' MD. Drill & survey. MW –9, Vis. – 53, FL – 8.4. Surveys:  $\frac{3}{4}^{\circ}$  @ 3250'.

14 July 2011

Depth 3415' MD, 20" @ 2478' MD. Drill & survey. MW – 8.6, Vis. – 53, FL – 9.5. Surveys:  $2^{\circ}$  @ 3350'.

15 July 2011

Depth 3500' MD, 20" @ 2478' MD. Drill. MW – 8.8, Vis. – 55, FL – 8.4. Surveys: none.

16 July 2011

Depth 3557' MD, 20" @ 2478' MD. Survey, short trip, drill. MW – 9.0, Vis. – 55, FL – 8.5. Surveys:  $2^{\circ}$  @ 3450'.

17 July 2011

Depth 3598' MD, 20" @ 2478' MD. Drill. MW – 9.1, Vis. – 55, FL – 11.4. Surveys: none.

18 July 2011

Depth 3657' MD, 20" @ 2478' MD. Drill. MW –9.1, Vis. – 55, FL – 10.8. Surveys: none.

19 July 2011

Depth 3694' MD, 20" @ 2478' MD. Drill, survey, TFNB. MW – 9.1, Vis. – 59, FL – 10.8. Surveys:  $\frac{3}{4}^{\circ}$  @ 3600'.

20 July 2011

Depth 3721' MD, 20" @ 2478' MD. TFNB, drill. MW –9.1, Vis. – 59, FL – 10.8. Surveys: none.

21 July 2011

Depth 3819' MD, 20" @ 2478' MD. Drill. MW – 9, Vis. – 59, FL – 10.8. Surveys: none.

22 July 2011

Depth 3924' MD, 20" @ 2478' MD. Drill. MW – 9.1, Vis. – 59, FL – 10.6. Surveys: none.

23 July 2011

Depth 3982' MD, 20" @ 2478' MD. Drill, survey, trip for broken survey cable, drill. MW – 9.2, Vis. – 57, FL – 8.4. Surveys:  $1\frac{1}{2}^{\circ}$  @ 3900'.

24 July 2011

Depth 4080' MD, 20" @ 2478' MD. Drill. MW – 9.1, Vis. – 56, FL – 8.8. Surveys: none.

25 July 2011

Depth 4179' MD, 20" @ 2478' MD. Drill. MW – 9.1, Vis. – 55, FL – 9.6. Surveys: none.

26 July 2011

Depth 4225' MD, 20" @ 2478' MD. Drill. MW – 9.1, Vis. – 58, FL – 8.6. Surveys: none.

27 July 2011

Depth 4233' MD, 20" @ 2478' MD. Drill, TFNB. MW –9.1, Vis. – 56, FL – 9.6. Surveys: none.

28 July 2011

Depth 4287' MD, 20" @ 2478' MD. TFNB, drill. MW – 9.0, Vis. – 52, FL – 9.6. Surveys: none.

29 July 2011

Depth 4324' MD, 20" @ 2478' MD. Drill, trip for leaking air pipe, drill. MW –9.1, Vis. – 52, FL – 8.4. Surveys: none.

30 July 2011

Depth 4400' MD, 20" @ 2478' MD. Drill. MW – 9.1, Vis. – 54, FL – 8.8. Surveys: none.

31 July 2011

Depth 4486' MD, 20" @ 2478' MD. Drill & survey. MW – 9.2, Vis. – 57, FL – 8. Surveys: 1° @ 4400'.



**Subject: Wolverine Operating Company of Utah, LLC  
Denmark Wash Federal 15-2  
SW<sup>1</sup>/<sub>4</sub> NE<sup>1</sup>/<sub>4</sub> Sec 15-T21S-R2W  
Sevier County, Utah.**

**August 2011 Drilling Update**

1 August 2011

Depth 4565' MD, 20" @ 2478' MD. Drill. MW – 9.2, Vis. – 57, FL – 8.4. Surveys: none.

2 August 2011

Depth 4640' MD, 20" @ 2478' MD. Drill. MW – 9.1, Vis. – 56, FL – 7.4. Surveys: none.

3 August 2011

Depth 4655' MD, 20" @ 2478' MD. Drill, TFNB. MW –9.2, Vis. – 58, FL – 8. Surveys: 2° @ 4575'.

4 August 2011

Depth 4729' MD, 20" @ 2478' MD. TFNB, drill. MW – 9.2, Vis. – 63, FL – 8.2. Surveys: none.

5 August 2011

Depth 4820' MD, 20" @ 2478' MD. Drill. MW –9.3, Vis. – 59, FL – 8. Surveys: none.

6 August 2011

Depth 4900' MD, 20" @ 2478' MD. Drill. MW – 9.3, Vis. – 58, FL – 8. Surveys: none.

7 August 2011

Depth 5029' MD, 20" @ 2478' MD. Drill. MW – 9.3, Vis. – 55, FL – 7.2. Surveys: none.

8 August 2011

Depth 5117' MD, 20" @ 2478' MD. Drill. MW – 9.4, Vis. – 56, FL – 7.2. Surveys: ¾° @ 5117'.

9 August 2011

Depth 5159' MD, 20" @ 2478' MD. Drill, TFNB. MW – 9.4, Vis. – 56, FL – 8.2. Surveys: none.

10 August 2011

Depth 5199' MD, 20" @ 2478' MD. TFNB, drill. MW –9.3, Vis. – 56, FL – 9. Surveys: none.

11 August 2011

Depth 5263' MD, 20" @ 2478' MD. Drill. MW – 9.3, Vis. – 56, FL – 9.8. Surveys: none.

12 August 2011

Depth 5330' MD, 20" @ 2478' MD. Drill, C&C. MW –9.3, Vis. – 56, FL – 9.8. Surveys: 1° @ 5200'.

13 August 2011

Depth 5300' MD, 20" @ 2478' MD. Short trip, C&C, POOH, LD BHA, ND Hydril annular preventer, set out, LDDP. MW – 9.3, Vis. – 56, FL – 9.8. Surveys: none.

14 August 2011

Depth 5330' MD, 20" @ 2478' MD. LDDP, rig up casers, run 13-3/8" casing. MW – 9.3, Vis. – 56, FL – 9.8. Surveys: none.

15 August 2011

Depth 5330' MD, 13<sup>3</sup>/<sub>8</sub>" @ 5330' MD. Run 13-3/8 68# J55 BTC casing, wait on Schlumberger, run last 2 jts of casing, casing shoe at 5330', weather delay, fill casing, RU cementing head and lines. MW – 9.3, Vis. – 56, FL – 9.8. Surveys: none.

16 August 2011

Depth 5330' MD, 13<sup>3</sup>/<sub>8</sub>" @ 5330' MD. Cement casing w/ 2480 sx of light cement mixed at 12.5 ppg (yield = 1.87 cf/sk), tail w/ 478 sx on neat cement mixed at 15.8 ppg (yield = 1.16 cf/sk), circulated 82 bbl cement to pit, WOC, hang csg in hanger, cut off casing, install "B" section wellhead, GIH w/ DP, prep to LD DP. MW – 9.3, Vis. – 56, FL – 9.8. Surveys: none.

17 August 2011

Depth 5330' MD, 13<sup>3</sup>/<sub>8</sub>" @ 5330' MD. LDDP, rig released 2:00 P.M., 8/16/11, RDMORT. MW – none, Vis. – none, FL – none. Surveys: none.

18 -23 August 2011

Depth 5330' MD, 13<sup>3</sup>/<sub>8</sub>" @ 5330' MD. RDMORT, suspend weekly reports until Patterson 304 rigs up on location to continue operations. MW – none, Vis. – none, FL – none. Surveys: none.



**Wolverine Operating Company of Utah, LLC Denmark Wash Federal 15-2 SW¼  
NE¼ Sec 15-T21S-R2W Sevier County, Utah.**

17 -26 December 2011

Depth 5330' MD, 13<sup>3</sup>/<sub>8</sub>" @ 5330' MD. MIRU Patterson drilling rig 304,. MW – not reported, Vis. – not reported, FL – not reported. Surveys: none.

27 December 2011

Depth 5330' DF, 13<sup>3</sup>/<sub>8</sub>" @ 5330' MD. MIRU Patterson drilling rig 304. MW – not reported, Vis. – not reported, FL – not reported. Surveys: none.

28 December 2011

Depth 5330' DF, 13<sup>3</sup>/<sub>8</sub>" @ 5330' MD. Test BOP's, PU BHA & GIH. MW – 8.4, Vis. – 36, FL – 14. Surveys: none.

29 December 2011

Depth 5332' DF, 13<sup>3</sup>/<sub>8</sub>" @ 5330' MD. PU BHA & GIH, PU DP & GIH, tag cmt at 5189', C&C, drill cmt, break into new hole at 05:00 hrs, 12/29/11, drill new hole. MW – 8.5, Vis. – 39, FL – 8. Surveys: none.

30 December 2011

Depth 5688' DF, 13<sup>3</sup>/<sub>8</sub>" @ 5330' MD. Drill, moderate loss of circulation. MW – 8.5, Vis. – 61, FL – 10. Surveys: none.

31 December 2011

Depth 5777' DF, 13<sup>3</sup>/<sub>8</sub>" @ 5330' MD. Drill to 5765', spot LCM pill, POOH, PU survey tool, GIH w/ BHA, slip drlg line, rig repair, drill. MW – 8.5, Vis. – 50, FL – 7. Surveys: none.

1 January 2012

Depth 6022' DF, 13<sup>3</sup>/<sub>8</sub>" @ 5330' MD. Drill, lost pump pressure, POOH looking for washout in drill string. MW – 8.6, Vis. – 50, FL – 6.2. Surveys: 0.7° @ 5765' DF, 0.7° @ 5830' DF, 0.88° @ 5892' DF & 1.41° @ 5988' DF.

2 January 2012

Depth 6022' DF, 13<sup>3</sup>/<sub>8</sub>" @ 5330' MD. POOH, left BHA fish in hole, wait on fisherman, GIH w/ grapple, latch fish, POOH w/ fish, shock sub parted, GIH w/ new BHA. MW – 8.6, Vis. – 50, FL – 6.2. Surveys: none.

**CONFIDENTIAL****Carol Daniels - Denmark Wash Federal 15-2 Update***Tails ROW S-15 43-041-50001*

**From:** "Wolverine Exploration Rig" <wolvexpl@drillmail.net>  
**To:** "Daniels, Carol" <caroldaniels@utah.gov>, "Doucet, Dustin" <dustindouc...>  
**Date:** 1/25/2012 3:51 AM  
**Subject:** Denmark Wash Federal 15-2 Update

---

Hello,

The Denmark Wash Federal 15-2 required BLM permits and approvals.

This purpose of this e-mail is to update you on our current operation. 9 5/8" casing is being run to 8,340' and cementers have just been called out. Cementing operations should commence about 6:00 PM, Wednesday 01/25/2012.

Thank you,

**Bill Donovan**  
**Drilling Supervisor**  
**Wolverine Operating Company of Utah, LLC**  
**Denmark Wash Federal 15-2, AFE 164**  
**API 43-041-50001, Sevier County, UT**  
**Rig (970) 361-3276**  
**Cell (720) 351-7470**  
**wolvexpl@drillmail.net**

**RECEIVED****JAN 24 2012****DIV. OF OIL, GAS & MINING**

<b>STATE OF UTAH</b> DEPARTMENT OF NATURAL RESOURCES DIVISION OF OIL, GAS, AND MINING	<b>FORM 9</b>
<b>SUNDRY NOTICES AND REPORTS ON WELLS</b>  Do not use this form for proposals to drill new wells, significantly deepen existing wells below current bottom-hole depth, reenter plugged wells, or to drill horizontal laterals. Use APPLICATION FOR PERMIT TO DRILL form for such proposals.	5. LEASE DESIGNATION AND SERIAL NUMBER: UTU 81397
1. TYPE OF WELL Oil Well	6. IF INDIAN, ALLOTTEE OR TRIBE NAME:  7. UNIT or CA AGREEMENT NAME:
2. NAME OF OPERATOR: WOLVERINE OPERATING COMPANY OF UTAH, LLC	8. WELL NAME and NUMBER: DENMARK WASH FED 15-2
3. ADDRESS OF OPERATOR: One Riverfront Plaza 55 Campau NW, Grand Rapids, MI, 49503	9. API NUMBER: 43041500010000
4. LOCATION OF WELL FOOTAGES AT SURFACE: 2478 FNL 1800 FEL QTR/QTR, SECTION, TOWNSHIP, RANGE, MERIDIAN: Qtr/Qtr: SWNE Section: 15 Township: 21.0S Range: 02.0W Meridian: S	9. FIELD and POOL or WILDCAT: WILDCAT  COUNTY: SEVIER  STATE: UTAH
11. CHECK APPROPRIATE BOXES TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA	

TYPE OF SUBMISSION	TYPE OF ACTION		
<input type="checkbox"/> NOTICE OF INTENT Approximate date work will start:	<input type="checkbox"/> ACIDIZE	<input type="checkbox"/> ALTER CASING	<input type="checkbox"/> CASING REPAIR
<input type="checkbox"/> SUBSEQUENT REPORT Date of Work Completion:	<input type="checkbox"/> CHANGE TO PREVIOUS PLANS	<input type="checkbox"/> CHANGE TUBING	<input type="checkbox"/> CHANGE WELL NAME
<input type="checkbox"/> SPUD REPORT Date of Spud:	<input type="checkbox"/> CHANGE WELL STATUS	<input type="checkbox"/> COMMINGLE PRODUCING FORMATIONS	<input type="checkbox"/> CONVERT WELL TYPE
<input checked="" type="checkbox"/> DRILLING REPORT Report Date: 1/31/2011	<input type="checkbox"/> DEEPEN	<input type="checkbox"/> FRACTURE TREAT	<input type="checkbox"/> NEW CONSTRUCTION
	<input type="checkbox"/> OPERATOR CHANGE	<input type="checkbox"/> PLUG AND ABANDON	<input type="checkbox"/> PLUG BACK
	<input type="checkbox"/> PRODUCTION START OR RESUME	<input type="checkbox"/> RECLAMATION OF WELL SITE	<input type="checkbox"/> RECOMPLETE DIFFERENT FORMATION
	<input type="checkbox"/> REPERFORATE CURRENT FORMATION	<input type="checkbox"/> SIDETRACK TO REPAIR WELL	<input type="checkbox"/> TEMPORARY ABANDON
	<input type="checkbox"/> TUBING REPAIR	<input type="checkbox"/> VENT OR FLARE	<input type="checkbox"/> WATER DISPOSAL
	<input type="checkbox"/> WATER SHUTOFF	<input type="checkbox"/> SI TA STATUS EXTENSION	<input type="checkbox"/> APD EXTENSION
	<input type="checkbox"/> WILDCAT WELL DETERMINATION	<input type="checkbox"/> OTHER	OTHER: <input style="width: 100px;" type="text"/>

12. DESCRIBE PROPOSED OR COMPLETED OPERATIONS. Clearly show all pertinent details including dates, depths, volumes, etc.  
 Please see attached document for drilling details.

**Accepted by the  
 Utah Division of  
 Oil, Gas and Mining  
 FOR RECORD ONLY  
 February 08, 2012**

<b>NAME (PLEASE PRINT)</b> Helene Bardolph	<b>PHONE NUMBER</b> 616 458-1150	<b>TITLE</b> Engineering Administrative Assistant
<b>SIGNATURE</b> N/A	<b>DATE</b> 2/7/2012	

Subject: Wolverine Operating Company of Utah, LLC  
Denmark Wash Federal 15-2  
SW¼ NE¼ Sec 15-T21S-R2W  
Sevier County, Utah  
API - 43041500010000

1 January 2012

Depth 6022' DF, 13¾" @ 5330' MD. Drill, lost pump pressure, POOH looking for washout in drill string. MW – 8.6, Vis. – 50, FL – 6.2. Surveys: 0.7° @ 5765' DF, 0.7° @ 5830' DF, 0.88° @ 5892' DF & 1.41° @ 5988' DF.

2 January 2012

Depth 6022' DF, 13¾" @ 5330' MD. POOH, left BHA fish in hole, wait on fisherman, GIH w/ grapple, latch fish, POOH w/ fish, shock sub parted, GIH w/ new BHA. MW – 8.6, Vis. – 50, FL – 6.2. Surveys: none.

3 January 2012

Depth 6266' DF, 13¾" @ 5330' MD. GIH, drill. MW – 8.6, Vis. – 41, FL – 7.6. Surveys: 1.41° @ 6010', 1.1° @ 6107' & 1/1° @ 6172'.

4 January 2012

Depth 6465' DF, 13¾" @ 5330' MD. Drill, C&C, TFNB. MW – 8.9, Vis. – 55, FL – 6.8. Surveys: 1.2° @ 6264', 1° @ 6360' & 0.8° @ 6426'.

5 January 2012

Depth 6553' DF, 13¾" @ 5330' MD. POOH, work BHA, GIH, drill. MW – 9, Vis. – 58, FL – 6.2. Surveys: 0.9° @ 6451'.

6 January 2012

Depth 6810' DF, 13¾" @ 5330' MD. Drill. MW – 9, Vis. – 54, FL – 6.8. Surveys: 0.9° @ 6546', 1° @ 6639' & 1.2° @ 6733'.

7 January 2012

Depth 6850' DF, 13¾" @ 5330' MD. Drill, twist off in SWDP, POOH, PU grapple, GIH, latch fish, C&C. MW – 8.8, Vis. – 58, FL – 7. Surveys: none.

8 January 2012

Depth 6904' DF, 13¾" @ 5330' MD. C&C, POOH, LD fish, GIH, drill. MW – 9.1, Vis. – 58, FL – 6.4. Surveys: 1.3° @ 6832' DF.

9 January 2012

Depth 7117' DF, 13¾" @ 5330' MD. Drill. MW – 9, Vis. – 70, FL – 7. Surveys: 1.3° @ 6928' & 1.4° @ 7022'.

10 January 2012

Depth 7223' DF, 13¾" @ 5330' MD. Drill, TFNB, drill. MW – 9.8, Vis. – 58, FL – 7.2. Surveys: 1.6° @ 7117'.

11 January 2012

Depth 7242' DF, 13 $\frac{3}{8}$ " @ 5330' MD. Drill, trip for hole in drill pipe, change out suspect pipe, drill. MW – 9.2, Vis. – 60, FL – 6.6. Surveys: none.

12 January 2012

Depth 7422' DF, 13 $\frac{3}{8}$ " @ 5330' MD. Drill. MW – 9, Vis. – 62, FL – 6.2. Surveys: 2.1° @ 7200' & 2.4° @ 7293'.

13 January 2012

Depth 7575' DF, 13 $\frac{3}{8}$ " @ 5330' MD. Drill. MW – 9.1, Vis. – 67, FL – 6.9. Surveys: 2.5° @ 7388' & 2.9° @ 7482'.

14 January 2012

Depth 7675' DF, 13 $\frac{3}{8}$ " @ 5330' MD. Drill. MW – 9.1, Vis. – 68, FL – 7.1. Surveys: 3° @ 7578'.

15 January 2012

Depth 7729' DF, 13 $\frac{3}{8}$ " @ 5330' MD. Drill, TFNB. MW – 9.2, Vis. – 65, FL – 7.9. Surveys: 3° @ 7641' & 2.9° @ 7674'.

16 January 2012

Depth 7796' DF, 13 $\frac{3}{8}$ " @ 5330' MD. TFNB, drill. MW – 9.1, Vis. – 64, FL – 8.2. Surveys: 2.9° @ 7738".

17 January 2012

Depth 7920' DF, 13 $\frac{3}{8}$ " @ 5330' MD. Drill. MW – 9, Vis. – 49, FL – 8.1. Surveys: 2.8° @ 7769' & 2.5° @ 7864'.

18 January 2012

Depth 7927' DF, 13 $\frac{3}{8}$ " @ 5330' MD. Drill, twist off in BHA, POOH, PU fishing tools, GIH. MW – 9.1, Vis. – 59, FL – 8. Surveys: none.

19 January 2012

Depth 7927' DF, 13 $\frac{3}{8}$ " @ 5330' MD. GIH, latch fish, POOH, LD fish, GIH w/ bit. MW – 9.1, Vis. – 67, FL – 6.5. Surveys: none.

20 January 2012

Depth 7983' DF, 13 $\frac{3}{8}$ " @ 5330' MD. GIH, wash to bottom, drill. MW – 9, Vis. – 52, FL – 7.9. Surveys: 2.6° @ 7924'.

21 January 2012

Depth 8147' DF, 13 $\frac{3}{8}$ " @ 5330' MD. Drill. MW – 8.8, Vis. – 73, FL – 8.5. Surveys: 2.5° @ 8016' & 2.5° @ 8073'.

22 January 2012

Depth 8304' DF, 13 $\frac{3}{8}$ " @ 5330' MD. Drill. MW – 8.9, Vis. – 92, FL – 8.3. Surveys: 2.5° @ 8112', 2.6° @ 8191', 2.6° @ 8207' & 2.7° @ 8240'.

23 January 2012

Depth 8340' DF, 13 $\frac{3}{8}$ " @ 5330' MD. Drill, slip drlg line, drill, C&C, POOH. MW – 8.9, Vis. – 70, FL – 8.8. Surveys: 2.8° @ 8270' & 2.9° @ 8294'.

24 January 2012

Depth 8340' DF, 13 $\frac{3}{8}$ " @ 5330' MD. POOH, LD BHA, RU Halliburton loggers, log w/ Halliburton, GIH w/ bit, C&C, POOH. MW – 8.9, Vis. – 64, FL – 8.2. Surveys: none.

25 January 2012

Depth 8340' DF, 13 $\frac{3}{8}$ " @ 5330' MD. POOH, LD BHA, RU casing crew, run 9-5/8 casing. MW – 8.9, Vis. – 84, FL – 8.2. Surveys: none.

26 January 2012

Depth 8340' DF, 9 $\frac{5}{8}$ " @ 8340' MD. Run 9-5/8 casing to TD, RU cementers, cement w/ 1825 sx (412 bbl) cmt mixed at 13.5 ppg, tail w/ 400 sx (83 bbl) cmt mixed at 15.8 ppg, bump plug to 2100 psi, floats held, good circulation throughout job, plug down at 04:00 hrs 01/26-12, WOC. MW – 8.9, Vis. – 45, FL – 7.8. Surveys: none.

27 January 2012

Depth 8340' DF, 9 $\frac{5}{8}$ " @ 8340' MD. Set casing hanger, RD casing crew, lift stack, cut casing, NU "C" section wellhead, NU BOP's, test BOP stack. MW – 8.9, Vis. – 47, FL – 8. Surveys: none.

28 January 2012

Depth 8340' DF, 9 $\frac{5}{8}$ " @ 8340' MD. BOP test, pull test plug, insert wear bushing, PU BHA, shallow test tools, GIH, test csg to 1850 psi, drill shoe track. MW – 8.8, Vis. – 57, FL – 8.4. Surveys: none.

29 January 2012

Depth 8688' DF, 9 $\frac{5}{8}$ " @ 8340' MD. Drill shoe track, drill, FIT to 11.5 ppg EMW, drill. MW – 8.9, Vis. – 75, FL – 8. Surveys: 2.2° @ 8360', 0.03° @ 8454' & 0.13° @ 8548'.

30 January 2012

Depth 9139' DF, 9 $\frac{5}{8}$ " @ 8340' MD. Drill. MW – 9, Vis. – 75, FL – 8.2. Surveys: 0.47° @ 8643', 0.03° @ 8738', 0.07° @ 8833', 0.33° @ 8929' & 0.22° @ 9023'.

31 January 2012

Depth 9373' DF, 9 $\frac{5}{8}$ " @ 8340' MD. Drill. MW – 8.8, Vis. – 45, FL – 8.2. Surveys: 0.15° @ 9118', 0.26° @ 9212' & 0.19° @ 9306'.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

**SUNDRY NOTICES AND REPORTS ON WELLS**  
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.*

**SUBMIT IN TRIPLICATE - Other instructions on reverse side**

1. Type of Well  
 Oil Well    Gas Well    Other

2. Name of Operator  
 Wolverine Operating Company of Utah, LLC

3a. Address  
 55 Campau NW, Grand Rapids, MI 49503

3b. Phone No. (include area code)  
 616-458-1150

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
 2478' FNL, 1800' FEL, SWNE, Sec. 15, T21S, R2W

5. Lease Serial No.  
 UTU 83197

6. If Indian, Allottee or Tribe Name  
 N/A

7. If Unit or CA/Agreement, Name and/or No.  
 N/A

8. Well Name and No.  
 Denmark Wash Federal 15-2

9. API Well No.  
 43041500010000

10. Field and Pool, or Exploratory Area  
 Exploratory

11. County or Parish, State  
 Sevier County, UT

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input type="checkbox"/> Other _____
	<input type="checkbox"/> Change Plans	<input checked="" type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

The Denmark Wash 15-2 was plugged and abandoned on February 20, 2012.

Plug #1: 9374' - 8924' with 162 sacks 15.8 ppg 1.16 cu.ft./sk G cement  
 Plug #2: 8428'-8015' with 148 sacks 15.8 ppg 1.16 cu.ft./sk G cement  
 Plug #3: Set 8.25" CICR at 2900', 100' above perforations at 4686' - 4688', 4270'-4272', 3750'-3752', 3000'-3002' and squeezed below retainer with 145 sacks 15.8 ppg 1.16 cu.ft./sk G cement. Left 50' cement on top of retainer  
 Plug #4: Set CIBP at 170'

RECEIVED

AUG 22 2012

RECEIVED

JUL 3 2012

DIV. OF OIL, GAS & MINING

Richfield BLM Field Office

14. I hereby certify that the foregoing is true and correct

Name (Printed/Typed)      Title  
 Matthew Rivers      Production Engineer

Signature       Date 06/27/2012

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by \_\_\_\_\_ Title \_\_\_\_\_ Date \_\_\_\_\_

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office \_\_\_\_\_

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on reverse)

Accepted For Record Purposes

CONFIDENTIAL

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

FORM APPROVED  
OMB NO. 1004-0137  
Expires: March 31, 2007

1a. Type of Well  Oil Well  Gas Well  Dry  Other  
 b. Type of Completion:  New Well  Work Over  Deepen  Plug Back  Diff. Resvr.,  
 Other \_\_\_\_\_

2. Name of Operator **Wolverine Operating company of Utah, LLC**

3. Address **55 Campau NW, Grand Rapids, MI 49503**

3a. Phone No. (include area code)  
**616-458-1150**

4. Location of Well (Report location clearly and in accordance with Federal requirements)\*

At surface **2442' FNL, 1823' FEL, SWNE, Sec 15, T21S, R2W**

At top prod. interval reported below

At total depth **2427' FNL, 1894' FEL, SWNE, Sec 15, T21S, R2W**

14. Date Spudded  
**05/10/2011**

15. Date T.D. Reached  
**02/03/2012**

16. Date Completed  
 D & A  Ready to Prod.

17. Elevations (DF, RKB, RT, GL)\*  
**6018 KB**

18. Total Depth: MD **10,220**  
TVD **10,218**

19. Plug Back T.D.: MD  
TVD

20. Depth Bridge Plug Set: MD  
TVD

21. Type Electric & Other Mechanical Logs Run (Submit copy of each)

**BHV,BCS,DDL,ERMI,SD-DSN, Insite Caliper**

22. Was well cored?  No  Yes (Submit analysis)  
 Was DST run?  No  Yes (Submit report)  
 Directional Survey?  No  Yes (Submit copy)

23. Casing and Liner Record (Report all strings set in well)

Hole Size	Size/Grade	Wt. (#/ft.)	Top (MD)	Bottom (MD)	Stage Cementer Depth	No. of Sks. & Type of Cement	Slurry Vol. (BBL)	Cement Top*	Amount Pulled
38"	32 3/4	167#	surface	107'		21.1 neat		8'	
26"	20 N-80	133#							
	20 J-55	106.5#	surface	2482'		3879 G/neat	881 bbl	surface	
17.5"	13-3/8	68#	surface	5330'		2480 D907			
						478 class G	925 bbl	surface	
12 1/4"	9 5/8 L80	47-53 1/2	surface	8310'		2225 class G	495 bbl	surface	

24. Tubing Record

Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)
N/A								

25. Producing Intervals

Formation	Top	Bottom	Perforated Interval	Size	No. Holes	Perf. Status
A) NVJO	9384	TD				
B)						
C)						
D)						

27. Acid, Fracture, Treatment, Cement Squeeze, etc.

Depth Interval	Amount and Type of Material
NA	

28. Production - Interval A

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	
			→						

28a. Production - Interval B

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	
			→						

\*(See instructions and spaces for additional data on page 2)

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28b. Production - Interval C

Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	

28c. Production - Interval D

Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	

29. Disposition of Gas (Sold, used for fuel, vented, etc.)

N/A

30. Summary of Porous Zones (Include Aquifers):

Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

31. Formation (Log) Markers

Navajo

Formation	Top	Bottom	Descriptions, Contents, etc.	Name	Top
					Meas. Depth
Navajo	9384	TD		GRRV CLTN FLGF NRHR NVJO	83 1300 1780 3860 9384

32. Additional remarks (include plugging procedure):

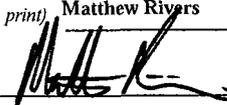
33. Indicate which items have been attached by placing a check in the appropriate boxes:

- Electrical/Mechanical Logs (1 full set req'd.)    
  Geologic Report    
  DST Report    
  Directional Survey  
 Sundry Notice for plugging and cement verification    
  Core Analysis    
  Other:

34. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions)\*

Name (please print) Matthew Rivers

Title Production Engineer

Signature 

Date 06/27/2012

Title 18 U.S.C Section 1001 and Title 43 U.S.C Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Form 3160-4, page 2)  
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Field Vertic Mean Sea Level  
 PATTERSON 6019.00ft  
 PATTERSON 6019.00ft  
 PATTERSON Sec.15)) 6019.00ft  
 Section Ori 0.00ft  
 Section Ori 0.00ft  
 Section Azi 0.00°

WELLPATH DATA Wellbore: Denmark Wash Federal 15-2 AWB Wellpath: Denmark Wash Federal 15-2 AWP † = interpolated/extrapolated station

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	DLS
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[°/100ft]
8293.58	2.9	298.15	8291.89	13.53	13.53	-67.78	0
8360	2.2	291.54	8358.24	14.79	14.79	-70.45	1.14
8454	0.03	352.29	8452.22	15.48	15.48	-72.13	2.32
8548	0.13	36.97	8546.22	15.59	15.59	-72.07	0.12
8643	0.47	152.58	8641.22	15.33	15.33	-71.82	0.57
8738	0.03	329.9	8736.22	15	15	-71.66	0.53
8833	0.07	188.76	8831.22	14.97	14.97	-71.68	0.1
8929	0.33	351.5	8927.22	15.18	15.18	-71.73	0.41
9023	0.22	202.14	9021.22	15.28	15.28	-71.84	0.57
9118	0.15	28.99	9116.22	15.22	15.22	-71.84	0.39
9212	0.26	121.55	9210.22	15.22	15.22	-71.6	0.33
9306	0.19	36.38	9304.22	15.23	15.23	-71.33	0.33
9401	0.09	235.42	9399.22	15.32	15.32	-71.3	0.29
9495	0.22	56.36	9493.22	15.38	15.38	-71.21	0.33
9590	0.19	326.13	9588.22	15.61	15.61	-71.14	0.31
9684	0.22	306.35	9682.22	15.84	15.84	-71.38	0.08
9778	0.28	195.51	9776.21	15.73	15.73	-71.58	0.44
9873	0.18	274.79	9871.21	15.52	15.52	-71.79	0.32
9968	0.14	29.15	9966.21	15.63	15.63	-71.89	0.28
10062	0.59	133.85	10060.21	15.4	15.4	-71.48	0.68
10156	0.04	302.85	10154.21	15.08	15.08	-71.16	0.67
10169	0.37	49.77	10167.21	15.11	15.11	-71.13	2.95
10220	0.37	49.77	10218.21	15.32	15.32	-70.88	0

Tied on to Extreme Engineering's survey file

0 Bit Projection

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TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape	Comment
Denmark Wash Federa		12500		0	0	1354264	14157643	38°58'55.0"	112°00'25."	point

WELLPATH COMPOSITION Ref Wellbore: Denmark Wash Federal 15-2 AWB Ref Wellpath: Denmark Wash Federal 15-2 AWP

Log Name/	Start MD [ft]	End MD [ft]	Pos	Unc	Model
8 1/2" Hole	8293.58	10169	NaviTrak		(Standard)
Projection	10169	10220	Blind Drilling		(std)

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UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

FORM APPROVED  
OMB NO. 1004-0137  
Expires: March 31, 2007

1a. Type of Well  Oil Well  Gas Well  Dry  Other  
 b. Type of Completion:  New Well  Work Over  Deepen  Plug Back  Diff. Resvr.,  
 Other \_\_\_\_\_

2. Name of Operator **Wolverine Operating company of Utah, LLC**

3. Address **55 Campau NW, Grand Rapids, MI 49503** 3a. Phone No. (include area code) **616-458-1150**

4. Location of Well (Report location clearly and in accordance with Federal requirements)\*  
 At surface **2442' FNL, 1823' FEL, SWNE, Sec 15, T21S, R2W**  
 At top prod. interval reported below **2478' 1800'**  
 At total depth **2463' 1871'** **BHL by HSM**  
**2427' FNL, 1804' FEL, SWNE, Sec 15, T21S, R2W**

5. Lease Serial No. **UTU-83197**

6. If Indian, Allottee or Tribe Name **N/A**

7. Unit or CA Agreement Name and No. **N/A**

8. Lease Name and Well No. **Denmark Wash Federal 15-2** ✓

9. AFI Well No. **43041500010000**

10. Field and Pool, or Exploratory **Wildcat**

11. Sec., T., R., M., on Block and Survey or Area **15,21S, 2W, S**

12. County or Parish **Sevier** 13. State **UT**

14. Date Spudded **05/10/2011** 15. Date T.D. Reached **02/03/2012** 16. Date Completed **2/20/2012**  
 D & A  Ready to Prod.

17. Elevations (DF, RKB, RT, GL)\* **6018 KB**

18. Total Depth: MD **10,220** 19. Plug Back T.D.: MD **MD**  
 TVD **10,218** TVD **TVD**

20. Depth Bridge Plug Set: MD **MD**  
 TVD **TVD**

21. Type Electric & Other Mechanical Logs Run (Submit copy of each) **BHV,BCS,DLL,ERMI, SD-DSN, Insite Caliper**

22. Was well cored?  No  Yes (Submit analysis)  
 Was DST run?  No  Yes (Submit report)  
 Directional Survey?  No  Yes (Submit copy)

23. Casing and Liner Record (Report all strings set in well)

Hole Size	Size/Grade	Wt. (#/ft.)	Top (MD)	Bottom (MD)	Stage Cementer Depth	No. of Sks. & Type of Cement	Slurry Vol. (BBL)	Cement Top*	Amount Pulled
38"	32 3/4	167#	surface	107'		21.1 neat		8'	
26"	20 N-80	133#							
	20 J-55	106.5#	surface	2482'		3879 G/neat	881 bbl	surface	
17.5"	13-3/8	68#	surface	5330'		2480 D907			
						478 class G	925 bbl	surface	
12 1/4"	9 5/8 L80	47-53 1/2	surface	8310'		2225 class G	495 bbl	surface	

24. Tubing Record

Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)
N/A								

25. Producing Intervals

Formation	Top	Bottom	Perforated Interval	Size	No. Holes	Perf. Status
A) NVJO	9384	TD				
B)						
C)						
D)						

26. Perforation Record

Formation	Top	Bottom	Perforated Interval	Size	No. Holes	Perf. Status
A) NVJO	9384	TD				
B)						
C)						
D)						

27. Acid, Fracture, Treatment, Cement Squeeze, etc.

Depth Interval	Amount and Type of Material
NA	

28. Production - Interval A

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	
			→						

28a. Production - Interval B

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	
			→						

\*(See instructions and spaces for additional data on page 2)

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28b. Production - Interval C									
Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	

28c. Production - Interval D									
Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	

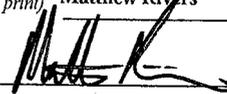
29. Disposition of Gas (Sold, used for fuel, vented, etc.)  
N/A

30. Summary of Porous Zones (Include Aquifers): Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.				31. Formation (Log) Markers	
Formation	Top	Bottom	Descriptions, Contents, etc.	Name	Top Meas. Depth
Navajo	9384	TD		GRRV CLTN FLGF NRHR NVJO	83 1300 1780 3860 9384

32. Additional remarks (include plugging procedure):

33. Indicate which items have been attached by placing a check in the appropriate boxes:  
 Electrical/Mechanical Logs (1 full set req'd.)     Geologic Report     DST Report     Directional Survey  
 Sundry Notice for plugging and cement verification     Core Analysis     Other:

34. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions)\*

Name (please print) Matthew Rivers Title Production Engineer  
 Signature  Date 06/27/2012

Title 18 U.S.C Section 1001 and Title 43 U.S.C Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB No. 1004-0135  
Expires January 31, 2004

**SUNDRY NOTICES AND REPORTS ON WELLS**  
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.*

**SUBMIT IN TRIPLICATE - Other instructions on reverse side**

1. Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		5. Lease Serial No. UTU 83197
2. Name of Operator Wolverine Operating Company of Utah, LLC		6. If Indian, Allottee or Tribe Name N/A
3a. Address 55 Campau NW, Grand Rapids, MI 49503	3b. Phone No. (include area code) 616-458-1150	7. If Unit or CA/Agreement, Name and/or No. N/A
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) 2478' FNL, 1800' FEL, SWNE, Sec. 15, T21S, R2W		8. Well Name and No. Denmark Wash Federal 15-2
		9. API Well No. 43041500010000
		10. Field and Pool, or Exploratory Area Exploratory
		11. County or Parish, State Sevier County, UT

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input type="checkbox"/> Other _____
	<input type="checkbox"/> Change Plans	<input checked="" type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

The Denmark Wash 15-2 was plugged and abandoned on February 20, 2012.

Plug #1: 9374' - 8924' with 162 sacks 15.8 ppg 1.16 cu.ft./sk G cement

Plug #2: 8428'-8015' with 148 sacks 15.8 ppg 1.16 cu.ft./sk G cement

Plug #3: Set 8.25" CICR at 2900', 100' above perforations at 4686' - 4688', 4270'-4272', 3750'-3752', 3000'-3002' and squeezed below retainer with 145 sacks 15.8 ppg 1.16 cu.ft./sk G cement. Left 50' cement on top of retainer

Plug #4: Set CIBP at 170'

**RECEIVED**

**JUL 05 2012**

**DIV. OF OIL, GAS & MINING**

14. I hereby certify that the foregoing is true and correct	
Name (Printed/Typed) Matthew Rivers	Title Production Engineer
Signature 	Date 06/27/2012

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by	Title	Date
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.	Office	

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on reverse)

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Field Vertic Mean Sea Level  
 PATTERSON 6019.00ft  
 PATTERSON 6019.00ft  
 PATTERSON Sec.15)) 6019.00ft  
 Section Ori 0.00ft  
 Section Ori 0.00ft  
 Section Azi 0.00°

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WELLPATH DATA Wellbore: Denmark Wash Federal 15-2 AWB Wellpath: Denmark Wash Federal 15-2 AWP † = interpolated/extrapolated station

	MD	Inclination	Azimuth	TVD	Vert Sect	North	East	DLS	
	[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[°/100ft]	
	8293.58	2.9	298.15	8291.89	13.53	13.53	-67.78	0	Tied on to Extreme Engineering's survey file
	8360	2.2	291.54	8358.24	14.79	14.79	-70.45	1.14	
	8454	0.03	352.29	8452.22	15.48	15.48	-72.13	2.32	
	8548	0.13	36.97	8546.22	15.59	15.59	-72.07	0.12	
	8643	0.47	152.58	8641.22	15.33	15.33	-71.82	0.57	
	8738	0.03	329.9	8736.22	15	15	-71.66	0.53	
	8833	0.07	188.76	8831.22	14.97	14.97	-71.68	0.1	
	8929	0.33	351.5	8927.22	15.18	15.18	-71.73	0.41	
	9023	0.22	202.14	9021.22	15.28	15.28	-71.84	0.57	
	9118	0.15	28.99	9116.22	15.22	15.22	-71.84	0.39	
	9212	0.26	121.55	9210.22	15.22	15.22	-71.6	0.33	
	9306	0.19	36.38	9304.22	15.23	15.23	-71.33	0.33	
	9401	0.09	235.42	9399.22	15.32	15.32	-71.3	0.29	
	9495	0.22	56.36	9493.22	15.38	15.38	-71.21	0.33	
	9590	0.19	326.13	9588.22	15.61	15.61	-71.14	0.31	
	9684	0.22	306.35	9682.22	15.84	15.84	-71.38	0.08	
	9778	0.28	195.51	9776.21	15.73	15.73	-71.58	0.44	
	9873	0.18	274.79	9871.21	15.52	15.52	-71.79	0.32	
	9968	0.14	29.15	9966.21	15.63	15.63	-71.89	0.28	
	10062	0.59	133.85	10060.21	15.4	15.4	-71.48	0.68	
	10156	0.04	302.85	10154.21	15.08	15.08	-71.16	0.67	
	10169	0.37	49.77	10167.21	15.11	15.11	-71.13	2.95	
	10220	0.37	49.77	10218.21	15.32	15.32	-70.88	0	Bit Projection

**RECEIVED**  
**JUL 05 2012**  
**DIV. OF OIL, GAS & MINING**

T A R G E T S

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape	Comment
Denmark Wash Federa		12500		0	0 1354264	14157643	38°58'55.0"	112°00'25.0"	point	

WELLPATH COMPOSITION Ref Wellbore: Denmark Wash Federal 15-2 AWB Ref Wellpath: Denmark Wash Federal 15-2 AWP

Log Name/	Start MD [ft]	End MD [ft]	Pos Unc	Model
8 1/2" Hole	8293.58	10169		NaviTrak (Standard)
Projection	10169	10220		Blind Drilling (std)

ACTUAL WELLPATH REPORT (CSV version)

Prepared by Baker Hughes

Software System: WellArchitect®3.0.0

REFERENCE WELLPATH IDENTIFICATION

Operator WOLVERINE GAS & OIL COMPANY

Area UTAH

Field SEVIER COUNTY UTM Zone

Facility SEC.15-T21N-R2W

Slot Slot #01 Denmark Wash Federal 15-2 (2442' FNL & 1823'FEL, Sec.15)

Well Denmark Wash Federal 15-2

Wellbore Denmark Wash Federal 15-2 AWB

Wellpath Denmark Wash Federal 15-2 AWP

Sidetrack (none)

CONFIDENTIAL

REPORT SETUP INFORMATION

Projection : NAD83 / UTM Zone 12 North, US feet

North Refe TRUE

Scale 0.999694

Convergen: 0.63° West

Software S WellArchitect®

User Balldoun

Report Ger 2/5/2012 at 5:53:40 AM

DataBase/WellArchitectDB/ev89.xml

	WELLPATH	Local North	Local East	Grid East	Grid North	Latitude	Longitude
		[ft]	[ft]	[ft]	[ft]		
Slot Locatic		0	0	1354264	14157643	38°58'55.0"	112°00'25.137"W
Facility Ref				1354264	14157643	38°58'55.0"	112°00'25.137"W
Field Refer				1368929	14088610	38°47'34.1"	111°57'10.250"W

WELLPATH DATUM

Calculation Minimum curvature

Horizontal Slot

Vertical Ref PATTERSON 304 (RKB)

MD Refere PATTERSON 304 (RKB)

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Field Vertic Mean Sea Level  
 PATTERSON 6019.00ft  
 PATTERSON 6019.00ft  
 PATTERSON Sec.15)) 6019.00ft  
 Section Ori 0.00ft  
 Section Ori 0.00ft  
 Section Azi 0.00°

WELLPATH DATA Wellbore: Denmark Wash Federal 15-2.AWB Wellpath: Denmark Wash Federal 15-2.AWP † = interpolated/extrapolated station

	MD	Inclination	Azimuth	TVD	Vert Sect	North	East	DLS
	[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[°/100ft]
	8293.58	2.9	298.15	8291.89	13.53	13.53	-67.78	0
	8360	2.2	291.54	8358.24	14.79	14.79	-70.45	1.14
	8454	0.03	352.29	8452.22	15.48	15.48	-72.13	2.32
	8548	0.13	36.97	8546.22	15.59	15.59	-72.07	0.12
	8643	0.47	152.58	8641.22	15.33	15.33	-71.82	0.57
	8738	0.03	329.9	8736.22	15	15	-71.66	0.53
	8833	0.07	188.76	8831.22	14.97	14.97	-71.68	0.1
	8929	0.33	351.5	8927.22	15.18	15.18	-71.73	0.41
	9023	0.22	202.14	9021.22	15.28	15.28	-71.84	0.57
	9118	0.15	28.99	9116.22	15.22	15.22	-71.84	0.39
	9212	0.26	121.55	9210.22	15.22	15.22	-71.6	0.33
	9306	0.19	36.38	9304.22	15.23	15.23	-71.33	0.33
	9401	0.09	235.42	9399.22	15.32	15.32	-71.3	0.29
	9495	0.22	56.36	9493.22	15.38	15.38	-71.21	0.33
	9590	0.19	326.13	9588.22	15.61	15.61	-71.14	0.31
	9684	0.22	306.35	9682.22	15.84	15.84	-71.38	0.08
	9778	0.28	195.51	9776.21	15.73	15.73	-71.58	0.44
	9873	0.18	274.79	9871.21	15.52	15.52	-71.79	0.32
	9968	0.14	29.15	9966.21	15.63	15.63	-71.89	0.28
	10062	0.59	133.85	10060.21	15.4	15.4	-71.48	0.68
	10156	0.04	302.85	10154.21	15.08	15.08	-71.16	0.67
	10169	0.37	49.77	10167.21	15.11	15.11	-71.13	2.95
	10220	0.37	49.77	10218.21	15.32	15.32	-70.88	0

Tied on to Extreme Engineering's survey file

0 Bit Projection

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape	Comment
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Projection	10169	10220		Blind Drilling (std)