

**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> Sage Flat Federal 4-1
<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 <input checked="" type="checkbox"/> Coalbed Methane Well: NO <input type="checkbox"/>		<b>5. UNIT or COMMUNITIZATION AGREEMENT NAME</b>
<b>6. NAME OF OPERATOR</b> HORIZON ENERGY LLC		<b>7. OPERATOR PHONE</b> 435 201-3327
<b>8. ADDRESS OF OPERATOR</b> P.O. Box 10, Mayfield, UT, 84643		<b>9. OPERATOR E-MAIL</b> ciron@wolvgas.com
<b>10. MINERAL LEASE NUMBER (FEDERAL, INDIAN, OR STATE)</b> UTU-73528	<b>11. MINERAL 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>12. SURFACE OWNERSHIP</b> FEDERAL <input checked="" type="checkbox"/> INDIAN <input type="checkbox"/> STATE <input type="checkbox"/> FEE <input type="checkbox"/>
<b>15. ADDRESS OF SURFACE OWNER (if box 12 = 'fee')</b>		<b>14. SURFACE OWNER PHONE (if box 12 = 'fee')</b>
<b>17. INDIAN ALLOTTEE OR TRIBE NAME (if box 12 = 'INDIAN')</b>		<b>16. SURFACE OWNER E-MAIL (if box 12 = 'fee')</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"/>

20. LOCATION OF WELL	FOOTAGES	QTR-QTR	SECTION	TOWNSHIP	RANGE	MERIDIAN
LOCATION AT SURFACE	1604 FNL 1180 FEL	SENE	5	23.0 S	1.0 W	S
Top of Uppermost Producing Zone	1896 FNL 678 FWL	SWNW	4	23.0 S	1.0 W	S
At Total Depth	1896 FNL 678 FWL	SWNW	4	23.0 S	1.0 W	S

<b>21. COUNTY</b> SEVIER	<b>22. DISTANCE TO NEAREST LEASE LINE (Feet)</b> 1490	<b>23. NUMBER OF ACRES IN DRILLING UNIT</b> 40
<b>27. ELEVATION - GROUND LEVEL</b> 5665	<b>25. DISTANCE TO NEAREST WELL IN SAME POOL (Applied For Drilling or Completion)</b> 0	<b>26. PROPOSED DEPTH</b> MD: 8600 TVD: 8350
	<b>28. BOND NUMBER</b> Rachel Medina	<b>29. SOURCE OF DRILLING WATER / WATER RIGHTS APPROVAL NUMBER IF APPLICABLE</b> Town of Sigurd culinary

Hole, Casing, and Cement Information											
String	Hole Size	Casing Size	Length	Weight	Grade & Thread	Max Mud Wt.	Cement		Sacks	Yield	Weight
Surf	12.25	9.625	0 - 2000	36.0	J-55 ST&C	9.2	Halliburton Light , Type Unknown		235	3.0	12.0
							Halliburton Premium , Type Unknown		200	1.29	14.4
Prod	8.75	7	0 - 5300	26.0	L-80 LT&C	10.6	Halliburton Light , Type Unknown		200	3.0	12.0
							Halliburton Premium , Type Unknown		75	1.29	14.4
P2	8.75		0 - 8600	26.0	HCP-110 LT&C	10.6	Halliburton Light , Type Unknown		175	3.0	12.0
							Halliburton Premium , Type Unknown		125	1.29	14.4

ATTACHMENTS	
VERIFY THE FOLLOWING ARE ATTACHED IN ACCORDANCE WITH THE UTAH OIL AND GAS CONSERVATION GENERAL RULES	
<input checked="" type="checkbox"/> WELL PLAT OR MAP PREPARED BY LICENSED SURVEYOR OR ENGINEER	<input checked="" type="checkbox"/> COMPLETE DRILLING PLAN
<input type="checkbox"/> AFFIDAVIT OF STATUS OF SURFACE OWNER AGREEMENT (IF FEE SURFACE)	<input checked="" type="checkbox"/> FORM 5. IF OPERATOR IS OTHER THAN THE LEASE OWNER
<input checked="" type="checkbox"/> DIRECTIONAL SURVEY PLAN (IF DIRECTIONALLY OR HORIZONTALLY DRILLED)	<input checked="" type="checkbox"/> TOPOGRAPHICAL MAP

<b>NAME</b> Charlie Irons	<b>TITLE</b> Agent	<b>PHONE</b> 435 201-3327
<b>SIGNATURE</b>	<b>DATE</b> 10/02/2012	<b>EMAIL</b> ciron@wolvgas.com
<b>API NUMBER ASSIGNED</b> 43041500090000		<b>APPROVAL</b>

# HORIZON ENERGY, LLC

## DRILLING PLAN

### Sage Flat Federal # 4-1

SHL: SE/4 NE/4 Sec 5, T23S-R1W, SLB&M

BHL: SW/4 NW/4 Sec 4, T23S, R1W, SLB&M

Sevier County, Utah

#### 1. Drilling Plan Overview

The operator intends to drill this exploratory "S curve" configuration directional well due to surface topography constraints according to the enclosed directional drilling plan. The well will be drilled to a total depth of 8600' MD (8350' TVD) to encounter the Twin Creek and Navajo formations. Well path deviation caused by subsurface geologic irregularities is expected to be the primary drilling concern coupled with loss of circulation of drilling fluids. No abnormal pressure or hydrogen sulfide gas is expected.

The projected surface and bottom hole locations are as follows:

Surface Location: 1604' FNL & 1180' FEL Sec 5 T23S – R01W SLB&M

BHL @ total depth 1896' FNL & 678' FWL Sec 4 T23S – R01W SLB&M

Conductor casing will be set at approximately 80-120 ft and cemented to surface. A 12-1/4" hole will then be deviated at 500' KOP at a rate of 2 degrees per 100 feet to approximately 15 degrees at +/- 1250' MD (+/- 1242' TVD) and then a tangent continued at 15 degrees to surface casing point at 2000' MD (+/- 1965' TVD). 9-5/8" surface casing will be set from surface to 12-1/4" TD of 2000' MD and cemented to surface with a single stage of cement. An 8-3/4" hole will then be drilled at 15 degrees returning to near vertical by +/- 8300' MD (8080' TVD). Total depth will be +/- 8600' MD (8350' TVD). 7" production casing will be run from TD back to surface & cemented to approximately 500' into the 9-5/8" surface casing in two cement stages. A contingent 5-1/2" production casing string may be utilized in lieu of 7". If so, proper advanced notification to the BLM will be made.

Drilling activity will commence as soon as a drilling rig is available

## 2. General Information

Surface Location 1604' FNL & 1180' FEL  
 SE/4 NE/4 Sec 5 T23S – R01W SLB&M  
 Sevier County, Utah

BHL @ total depth 1896' FNL & 678' FWL  
 SW/4 NW/4 Sec 4 T23S – R01W SLB&M  
 Sevier County, Utah

Elevations (estimated) 5665' Grade 5665' GL (est) 5685' KB (est)

Projected Total Depth 8600' MD (8350' TVD)

Directions to Location from I-70, take exit #48 and go south to Sigurd, Utah on SR 24, continue southerly on SR 24 approximately 2 miles to Sevier County Landfill road on the left side of road. Turn left on landfill road for several hundred feet then turn left again (north) and continue about 3 miles due north and northeasterly on lease gravel road to location.

## 3. Geology

Formation	Interval (TVD)	Interval (MD)	Contents	Pressure gradient
Arapien	Surf – 7501'	Surf – 7750'		
TwinCreek1	7501' - 7831'	7750' – 8075'	Oil & water	.44 psi/ft
Navajo 1	7831' - 8350'	8075' – 8600'	Oil & water	.44 psi/ft
Total Depth	<b>8350'</b>	<b>8600'</b>		

## 4. Casing Design & Cementing

### Hole Size and Casing Program

Hole Size	Casing Size	Wt./Ft.	Grade	Connection	Coupling Diameter	Setting Depth
30"	20"	conductor		PE welded	NA	80-120'
12-1/4"	9-5/8"	36	J-55	STC	10.625"	0'-2000'
8-3/4"	7"	26	L-80	LTC	7.656"	0'-5300'
8-3/4"	7"	26	HCP-110	LTC	7.656"	5300'-8600'

Casing Design

	Surface	Production	Production (contingency)
Casing O. D. (in)	9.625	7.000	5.500
Casing Grade	J-55	L-80 & HCP-110	N-80 & HCP-110
Weight of Pipe (lbs/ft)	36.0	26	17
Connection	STC	LTC	LTC
Top Setting Depth - MD (ft)	0	0	0
Top Setting Depth - TVD (ft)	0	0	0
Bottom Setting Depth - MD (ft)	2000	8600 *	8600 *
Bottom Setting Depth - TVD (ft)	1965	8350	8350
Maximum Mud Weight - Inside (ppg)	9.2	10.6	10.6
Maximum Mud Weight - Outside (ppg)	9.2	10.6	10.6
Design Cement Top - MD (ft)	0	1520	1520
Design Cement Top - TVD (ft)	0	1500	1500
Max. Hydrostatic Inside w/ Dry Outside (psi)	940	4961	4961
Casing Burst Rating (psi)	7520	7240	7740
<b>Burst Safety Factor (1.10 Minimum)</b>	<b>3.74</b>	<b>1.46</b>	<b>1.56</b>
Max. Hydrostatic Outside w/ Dry Inside (psi)	940	4961	4961
Collapse Rating	2020	8090	8580
<b>Collapse Safety Factor (1.125 Minimum)</b>	<b>2.15</b>	<b>1.63</b>	<b>1.73</b>
Casing Weight in Air (kips)	72.0	241.8	158.1
Body Yield (kips)	564.0	830.0	546.0
Joint Strength (kips)	453.0	693.0	445.0
<b>Tension Safety Factor (1.80 Minimum)</b>	<b>6.29</b>	<b>2.87</b>	<b>2.81</b>

Note: \* denotes casing designed for maximum 9300' MD (9000' TVD) in the event this well is subsequently authorized for deepening.

Cement Program:

Casing x Hole Size	Cement Slurry	Quantity (sx)	Density (ppg)	Yield (cfps)
9-5/8" x 12-1/4"	Lead:	235	12	3
	Tail:	200	14.4	1.29
7" x 8-3/4"	Lead Stg 1	175	12	3
	Tail Stg 1	125	14.4	1.29
	Lead Stg 2	200	12	3
	Tail Stg 2	75	14.4	1.29

9-5/8" Surface Casing will be cemented from the setting depth of 2000' MD to surface in a single stage using the cement slurry(s) outlined above which include 50% excess. Casing hardware will include a guide shoe, float collar, top wiper plug and a minimum of one centralizer per joint on the bottom three (3) casing joints. Displacement will be with water.

7" Production Casing will be cemented in two (2) stages from the setting depth of 8600' MD to 1500' MD or 500' inside the Surface Casing shoe at 2000' MD using the cement slurry(s) outlined above which include 25% excess. A cement stage tool will be located at approximately 5300' MD. Cement volumes will be adjusted based on open-hole log caliper results. Casing hardware will include a float shoe, two shoe joints, float collar, top wiper plug and a minimum of one centralizer per joint from TD to the stage tool. Displacement will be with water. Bottom hole temperature is expected to be near 200 deg. F.

Comments:

- a) The BLM will be notified at least twenty-four hours prior to running and cementing the surface and production casing strings.
- b) The casing size, weight, grade, connection, no. of joints and footage of all casing run as well as the amount and type of all cement will be recorded in the driller's log.
- c) Adequate time will be allowed for the cement at the casing shoe to achieve a minimum 500 psi compressive strength before drilling out.
- d) All casing strings will be tested to 1500 psi, but not exceeding 80% of burst, before drilling out and if pressure declines by more than 10 percent in 30 minutes, corrective action will be taken.
- e) Before drilling more than 20 feet of new hole below each casing string, a formation 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 total depth of the well.

## 5. Well Control

A 5M BOP system will be installed and tested prior to drilling out the surface casing shoe. A representative schematic is attached. The BOP equipment will consist of the following:

### Wellhead Equipment (5M Min.):

BOPE Item	Flange Size and Rating
Annular Preventer	11" 2500 psi WP
Double Rams (5" Pipe - top, Blind - bottom)	11" 5M psi WP
Drilling Spool w/ 2 side outlets (3" Choke, 2-1/16" Kill)	11" 5M x 11' 5M
Casing Head (9-5/8" SOW w/ two 2-1/16" SSO's)	11" 5M

### Auxiliary Equipment (5M Min.):

BOPE Item
Choke Line with 2 valves (3" minimum)
Kill Line with 2 valves and one check valve (2-1/16" 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

### Comments:

- a) A 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.
- b) 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.

- c) 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.
- d) 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.
- e) 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.
- f) 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.
- g) 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.
- h) 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.
- i) 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.
- j) 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.

## 6. Mud Program Summary

Depth	Mud Weight (ppg)	Mud Type	Viscosity	Fluid Loss
0 – 2000'	8.7	Fresh Water	26 - 50	N/C to 12cc
2000 –8600'	10.6	Salt Mud	36-50	<8cc

- a. A mud check will be performed every 24 hours after mudding up to determine the density, viscosity, yield point, gel strength, filtrate and pH of the fluid
- b. Slow pump rates will be taken and recorded in the driller's log
- c. Visual mud monitoring equipment will be in place to detect mud system volume changes indicating gain or loss of circulating fluid volume
- d. The use of a trip tank is not anticipated
- e. A pit volume totalizer (PVT), stroke counter & flow sensor will be employed
- f. Gas detection equipment will be installed in the mud return system and hydrocarbon gas shall be monitored for pore pressure changes
- g. The need to flare gas is not expected. If needed, a flare system designed to agther and burn all gas will be available. The flare line discharge will be located more than 100 feet from the wellhead 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 of ignition
- h. Abnormal pressure is not expected. If abnormal pressure is to be anticipated, a mud-gas separator will be installed and operable beginning at a point at least 500 feet before any anticipated hydrocarbon zone of interest

## 7. Evaluation Program

- a. Mud Log – a mud log unit will be employed from 100' to TD. Samples of drill cuttings will be collected and identified as required
- b. Drill Stem Tests – no DST is planned
- c. Coring – No whole cores are planned. Sidewall cores via wireline may be taken
- d. Wireline Logs; Wireline logs will be run as conditions allow from total depth to surface casing shoe. The logging tools will include, as a minimum, resistivity, gamma ray, neutron/density and caliper.

## 8. Expected Bottom-Hole Pressure and Abnormal Conditions

- a. Pressure: No abnormally pressure zones are anticipated in this well. The pressure gradient for the target productive zones is expected to be approximately 0.44 psi/ft.
- b. Temperature: Bottom-hole temperature is expected to be about 200 deg. F
- c. Hydrogen Sulfide: The presence of Hydrogen Sulfide is not expected in this well.

(end)

# PRESSURE CONTROL SYSTEM SCHEMATIC

By  
EXACT Engineering, Inc  
Tulsa, OK (918) 599-9400

Operator:  
Horizon Energy, LLC

Well name and number  
Sage Flat Federal 4-1

Max. anticipated surface pressure 3000 psi

Annular B.O.P. 11 " , 2500 W.P.

B.O.P. Pipe Rams 11 " , 5000 W.P.  
(Pipe/Blind)

Check Valve 2-1/16 " , 5000 W.P.

Valve 2-1/16 " , 5000 W.P.

Valve 2-1/16 " , 5000 W.P.

Spool 11 " , 5000 W.P.

Kill Line Manifold

B.O.P. Blind Rams 11 " , 5000 W.P.  
(Pipe/Blind)

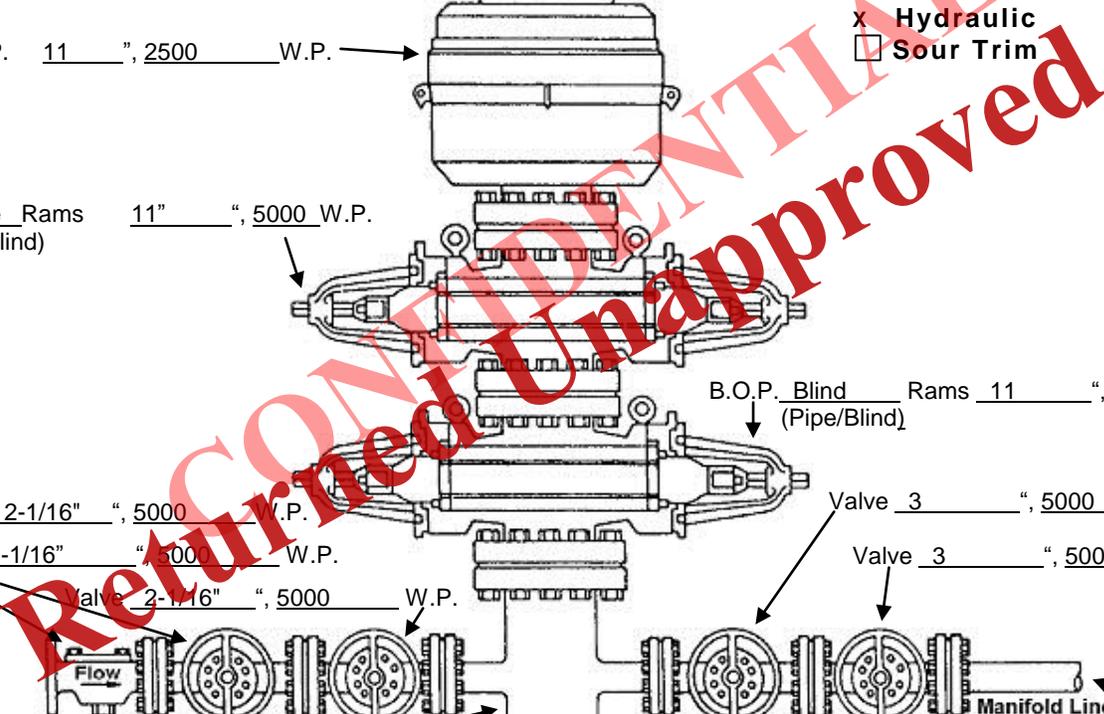
Valve 3 " , 5000 W.P.

Valve 3 " , 5000 W.P.

Line 3 " , 5000 W.P.

Wellhead 11 5M x 9-5/8" SOW

- B.O.P.**
- Manual
  - Hydraulic
  - Sour Trim



# Horizon Energy

Location Utah Installation Sevier County  
Field Sec 5 - 23S - 1W Well Sage Flat Federal 4-1

## Installation Data

Name	Latitude	Longitude	Northing	Easting		
Sevier County	N38 50 4.63	W111 55 38.74	6744549.43	1518650.83		
Coordinate System NAD83 Based Utah State Planes, Central Zone, US Survey Feet						
Slot Data						
Name	North [ft]	East [ft]	Latitude	Longitude	Northing	Easting
Sage Flat Federal 4-1	0.00 N	-0.00 E	N38 50 4.63	W111 55 38.74	6744549.43	1518650.83
Elevation Data						
Slot - Mean Sea Level [ft]	Mean Sea Level - Mudline/Ground level [ft]		Slot - Mudline/Ground level [ft]			
-0.00	0.00		0.00			

## WELL PROFILE DATA

Point	MD	Inc	Azi	TVD	North	East	deg/100ft	V. Sect
Tie on	0.00	0.00	99.07	0.00	0.00	0.00	0.00	0.00
KOP	500.00	0.00	99.07	500.00	0.00	0.00	0.00	0.00
End of Build	1250.31	15.01	99.07	1241.76	-15.41	96.47	2.00	97.69
End of Hold	7821.89	15.01	99.07	7589.24	-283.74	1776.71	0.00	1799.23
T.D. & Target Sage Flat	8572.20	-0.00	99.07	8331.00	-299.14	1873.19	2.00	1896.92

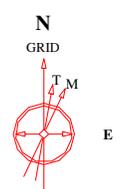
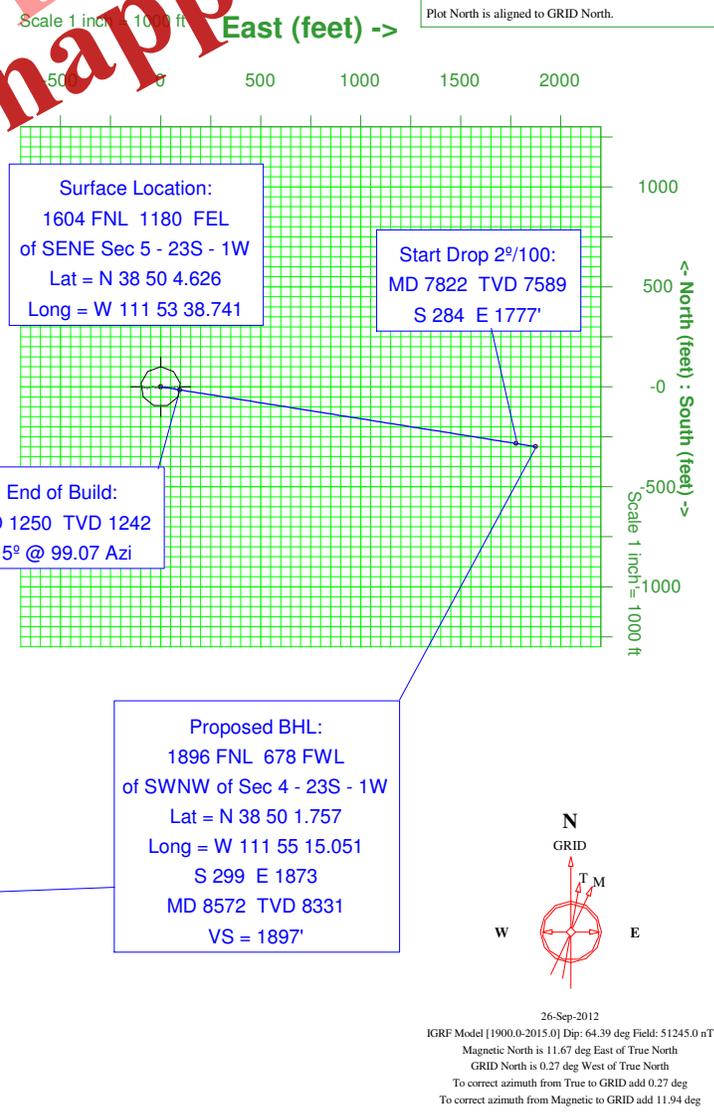
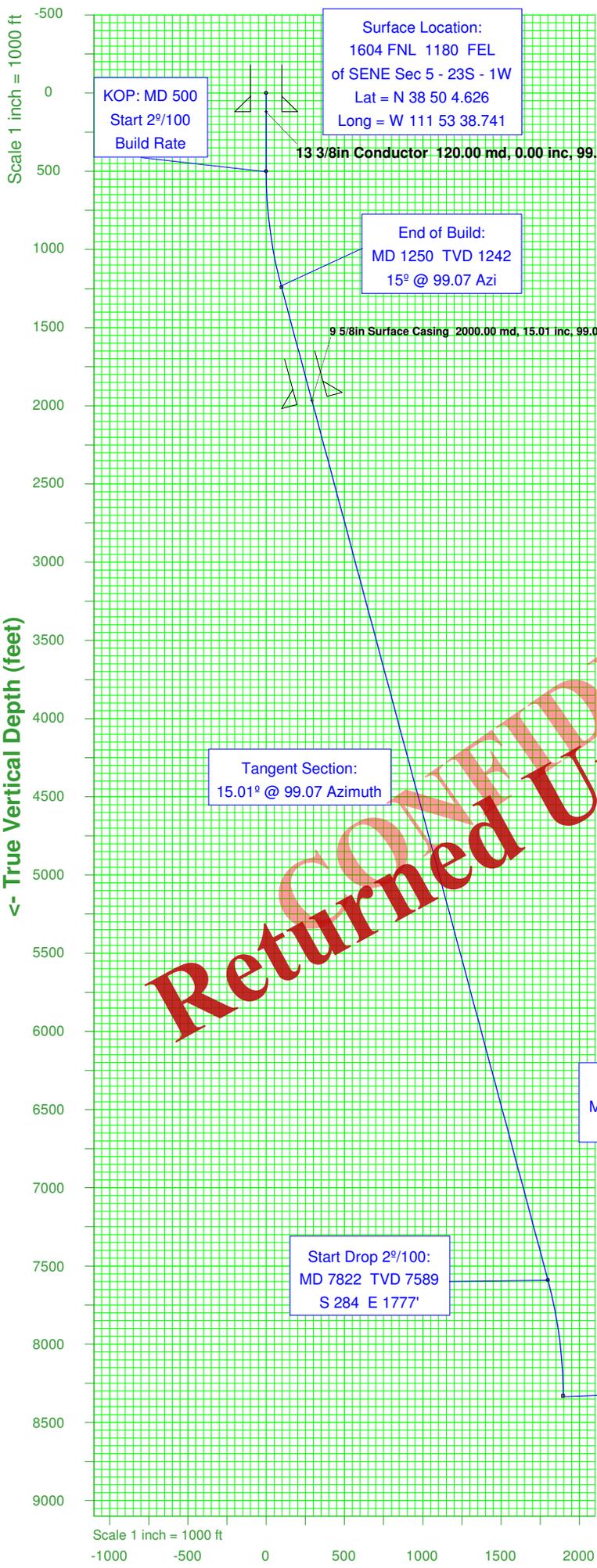
## TARGET DATA

MD	Inc	Azi	TVD	North	East	Name	Position
8572.20	-0.00	99.07	8331.00	-299.14	1873.19	Sage Flat Federal 4-1 BHL	1520524.10 East : 6744250.28 North



9630 Pole Rd.  
Oklahoma City, OK 73160  
Tel: (405) 604-2960

Created by admin  
Date plotted 26-Sep-2012  
Plot reference is Sage Flat Federal 4-1 (Plan).  
Ref wellpath is Sage Flat Federal 4-1 (PWP#1).  
Coordinates are in feet reference Sage Flat Federal 4-1.  
True Vertical Depths are reference Sage Flat Federal 4-1.  
Measured Depths are reference Slot.  
Plot North is aligned to GRID North.



26-Sep-2012  
IGRF Model [1900.0-2015.0] Dip: 64.39 deg Field: 51245.0 nT  
Magnetic North is 11.67 deg East of True North  
GRID North is 0.27 deg West of True North  
To correct azimuth from True to GRID add 0.27 deg  
To correct azimuth from Magnetic to GRID add 11.94 deg

Returned Unapproved

Received: October 02, 2012

Horizon Energy  
 Sec 5 - 23S - 1W, Utah  
 Sevier County  
 Wellbore: Sage Flat Federal 4-1 (Plan)

Wellhead Details						
Name	Northing	Easting	Latitude	Longitude	North	East
Sage Flat Federal 4-1	6744549.4344	1518650.8295	N38 50 4.6260	W111 55 38.7408	0.00N	0.00E

Installation				
Name	Northing	Easting	Coord System Name	North Alignment
Sevier County	6744549.4343	1518650.8295	UT83-CF on NORTH AMERICAN DATUM 1983 datum	Grid

Declination				
Model Name	Declination Date	Declination	Dip Angle	Field Strength
IGRF Model [1900.0-2015.0]	26-Sep-2012	11.67	64.39	51245.01
IGRF Model [1900.0-2015.0]	26-Sep-2012	11.67	64.39	51245.01

Summary Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Northing	Easting
500.00	0.00	99.070	500.00	0.00N	0.00E		0.00	6744549.43	1518650.83
1250.31	15.01	99.070	1241.76	15.41S	96.47E	2.00	97.69	6744534.03	1518747.31
7821.89	15.01	99.070	7589.24	283.74S	1776.71E	==>	1799.23	6744265.68	1520427.63
8572.20	0.00	99.070	8331.00	299.14S	1873.19E	2.00	1896.92	6744250.28	1520524.10

Interpolated Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Northing	Easting
500.00	0.00	99.070	500.00	0.00N	0.00E		0.00	6744549.43	1518650.83
600.00	2.00	99.070	599.98	0.28S	1.72E	2.00	1.75	6744549.16	1518652.55
700.00	4.00	99.070	699.84	1.10S	6.89E	2.00	6.98	6744548.33	1518657.72
800.00	6.00	99.070	799.45	2.47S	15.50E	2.00	15.69	6744546.96	1518666.33
900.00	8.00	99.070	898.70	4.40S	27.53E	2.00	27.88	6744545.04	1518678.36
1000.00	10.00	99.070	997.47	6.86S	42.98E	2.00	43.52	6744542.57	1518693.81
1100.00	12.00	99.070	1095.62	9.87S	61.82E	2.00	62.60	6744539.56	1518712.65
1200.00	14.00	99.070	1193.06	13.42S	84.09E	2.00	85.10	6744536.01	1518734.87
1250.31	15.01	99.070	1241.76	15.41S	96.47E	2.00	97.69	6744534.03	1518747.31
1300.00	15.01	99.070	1289.76	17.44S	109.18E	==>	110.56	6744532.00	1518760.01
1400.00	15.01	99.070	1386.35	21.62S	134.75E	==>	136.45	6744527.91	1518785.58
1500.00	15.01	99.070	1482.94	25.80S	160.31E	==>	162.35	6744523.83	1518811.15
1600.00	15.01	99.070	1579.53	29.69S	185.88E	==>	188.24	6744519.75	1518836.72
1700.00	15.01	99.070	1676.12	33.77S	211.45E	==>	214.13	6744515.66	1518862.29
1800.00	15.01	99.070	1772.71	37.85S	237.02E	==>	240.02	6744511.58	1518887.86
1900.00	15.01	99.070	1869.30	41.93S	262.59E	==>	265.91	6744507.50	1518913.43
2000.00	15.01	99.070	1965.89	46.02S	288.16E	==>	291.81	6744503.41	1518939.00
2100.00	15.01	99.070	2062.48	50.10S	313.72E	==>	317.70	6744499.33	1518964.57
2200.00	15.01	99.070	2159.07	54.18S	339.29E	==>	343.59	6744495.25	1518990.14
2300.00	15.01	99.070	2255.65	58.27S	364.86E	==>	369.48	6744491.16	1519015.71
2400.00	15.01	99.070	2352.24	62.35S	390.43E	==>	395.38	6744487.08	1519041.28
2500.00	15.01	99.070	2448.83	66.43S	416.00E	==>	421.27	6744483.00	1519066.85
2600.00	15.01	99.070	2545.42	70.52S	441.57E	==>	447.16	6744478.91	1519092.42
2700.00	15.01	99.070	2642.01	74.60S	467.13E	==>	473.05	6744474.83	1519117.99
2800.00	15.01	99.070	2738.60	78.68S	492.70E	==>	498.95	6744470.75	1519143.56
2900.00	15.01	99.070	2835.19	82.77S	518.27E	==>	524.84	6744466.66	1519169.12
3000.00	15.01	99.070	2931.78	86.85S	543.84E	==>	550.73	6744462.58	1519194.69
3100.00	15.01	99.070	3028.37	90.93S	569.41E	==>	576.62	6744458.50	1519220.26
3200.00	15.01	99.070	3124.96	95.02S	594.98E	==>	602.51	6744454.41	1519245.83
3300.00	15.01	99.070	3221.55	99.10S	620.54E	==>	628.41	6744450.33	1519271.40
3400.00	15.01	99.070	3318.14	103.18S	646.11E	==>	654.30	6744446.25	1519296.97
3500.00	15.01	99.070	3414.73	107.27S	671.68E	==>	680.19	6744442.16	1519322.54
3600.00	15.01	99.070	3511.32	111.35S	697.25E	==>	706.08	6744438.08	1519348.11
3700.00	15.01	99.070	3607.91	115.43S	722.82E	==>	731.98	6744434.00	1519373.68
3800.00	15.01	99.070	3704.50	119.52S	748.38E	==>	757.87	6744429.91	1519399.25
3900.00	15.01	99.070	3801.09	123.60S	773.95E	==>	783.76	6744425.83	1519424.82
4000.00	15.01	99.070	3897.68	127.68S	799.52E	==>	809.65	6744421.75	1519450.39
4100.00	15.01	99.070	3994.27	131.77S	825.09E	==>	835.54	6744417.66	1519475.96
4200.00	15.01	99.070	4090.86	135.85S	850.66E	==>	861.44	6744413.58	1519501.53
4300.00	15.01	99.070	4187.45	139.93S	876.23E	==>	887.33	6744409.50	1519527.10
4400.00	15.01	99.070	4284.04	144.01S	901.79E	==>	913.22	6744405.41	1519552.67
4500.00	15.01	99.070	4380.63	148.10S	927.36E	==>	939.11	6744401.33	1519578.24
4600.00	15.01	99.070	4477.22	152.18S	952.93E	==>	965.01	6744397.25	1519603.81
4700.00	15.01	99.070	4573.81	156.26S	978.50E	==>	990.90	6744393.16	1519629.38
4800.00	15.01	99.070	4670.40	160.35S	1004.07E	==>	1016.79	6744389.08	1519654.94
4900.00	15.01	99.070	4766.99	164.43S	1029.64E	==>	1042.68	6744385.00	1519680.51
5000.00	15.01	99.070	4863.58	168.51S	1055.20E	==>	1068.57	6744380.91	1519706.08
5100.00	15.01	99.070	4960.17	172.60S	1080.77E	==>	1094.47	6744376.83	1519731.65
5200.00	15.01	99.070	5056.76	176.68S	1106.34E	==>	1120.36	6744372.75	1519757.22

All data is in Feet unless otherwise stated  
 Coordinates are from Slot MD's are from Slot and TVD's are from Slot ( Sage Flat Federal 4-1 0.00ft above Mean Sea Level )  
 Vertical Section is from 0.00N 0.00E on azimuth 99.070 degrees  
 Bottom hole distance is 1896.92 Feet on azimuth 99.07 degrees from Wellhead  
 Calculation method uses Minimum Curvature method  
 Prepared by  
 Date Printed: 26-Sep-2012

**Received: October 02, 2012**

Horizon Energy  
 Sec 5 - 23S - 1W, Utah  
 Sevier County  
 Wellbore: Sage Flat Federal 4-1 (Plan)

Interpolated Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Northing	Easting
5300.00	15.01	99.070	5153.35	180.76S	1131.91E	==>	1146.25	6744368.66	1519782.79
5400.00	15.01	99.070	5249.94	184.85S	1157.48E	==>	1172.14	6744364.58	1519808.36
5500.00	15.01	99.070	5346.53	188.93S	1183.05E	==>	1198.04	6744360.50	1519833.93
5600.00	15.01	99.070	5443.12	193.01S	1208.61E	==>	1223.93	6744356.41	1519859.50
5700.00	15.01	99.070	5539.71	197.10S	1234.18E	==>	1249.82	6744352.33	1519885.07
5800.00	15.01	99.070	5636.30	201.18S	1259.75E	==>	1275.71	6744348.25	1519910.64
5900.00	15.01	99.070	5732.89	205.26S	1285.32E	==>	1301.61	6744344.16	1519936.21
6000.00	15.01	99.070	5829.48	209.35S	1310.89E	==>	1327.50	6744340.08	1519961.78
6100.00	15.01	99.070	5926.07	213.43S	1336.45E	==>	1353.39	6744335.99	1519987.35
6200.00	15.01	99.070	6022.66	217.51S	1362.02E	==>	1379.28	6744331.91	1520012.92
6300.00	15.01	99.070	6119.25	221.60S	1387.59E	==>	1405.17	6744327.83	1520038.49
6400.00	15.01	99.070	6215.84	225.68S	1413.16E	==>	1431.07	6744323.74	1520064.06
6500.00	15.01	99.070	6312.43	229.76S	1438.73E	==>	1456.96	6744319.66	1520089.63
6600.00	15.01	99.070	6409.02	233.85S	1464.30E	==>	1482.85	6744315.58	1520115.20
6700.00	15.01	99.070	6505.61	237.93S	1489.86E	==>	1508.74	6744311.49	1520140.77
6800.00	15.01	99.070	6602.20	242.01S	1515.43E	==>	1534.64	6744307.41	1520166.33
6900.00	15.01	99.070	6698.79	246.09S	1541.00E	==>	1560.53	6744303.33	1520191.90
7000.00	15.01	99.070	6795.38	250.18S	1566.57E	==>	1586.42	6744299.24	1520217.47
7100.00	15.01	99.070	6891.97	254.26S	1592.14E	==>	1612.31	6744295.16	1520243.04
7200.00	15.01	99.070	6988.56	258.34S	1617.71E	==>	1638.20	6744291.08	1520268.61
7300.00	15.01	99.070	7085.15	262.43S	1643.27E	==>	1664.10	6744286.99	1520294.18
7400.00	15.01	99.070	7181.74	266.51S	1668.84E	==>	1689.99	6744282.91	1520319.75
7500.00	15.01	99.070	7278.32	270.59S	1694.41E	==>	1715.88	6744278.83	1520345.32
7600.00	15.01	99.070	7374.91	274.68S	1719.98E	==>	1741.77	6744274.74	1520370.89
7700.00	15.01	99.070	7471.50	278.76S	1745.55E	==>	1767.67	6744270.66	1520396.46
7800.00	15.01	99.070	7568.09	282.84S	1771.12E	==>	1793.56	6744266.58	1520422.03
7821.89	15.01	99.070	7589.24	283.74S	1776.71E	==>	1799.43	6744266.68	1520427.63
7921.89	13.01	99.070	7686.26	287.55S	1800.61E	2.00	1823.43	6744261.87	1520451.53
8021.89	11.01	99.070	7784.07	290.83S	1821.15E	2.00	1844.23	6744258.59	1520472.07
8121.89	9.01	99.070	7882.55	293.57S	1838.31E	2.00	1861.60	6744255.85	1520489.23
8221.89	7.01	99.070	7981.57	295.77S	1852.06E	2.00	1875.53	6744253.65	1520502.98
8321.89	5.01	99.070	8081.01	297.42S	1862.39E	2.00	1885.99	6744252.00	1520513.31
8421.89	3.01	99.070	8180.76	298.52S	1869.23E	2.00	1892.98	6744250.90	1520520.21
8521.89	1.01	99.070	8280.70	299.07S	1872.75E	2.00	1896.48	6744250.35	1520523.67
8572.20	0.00	99.070	8331.00	299.14S	1873.43E	2.00	1896.92	6744250.28	1520524.10

CONFIDENTIAL  
 Returned Unapproved

All data is in Feet unless otherwise stated  
 Coordinates are from Slot MD's are from Slot and TVD's are from Slot ( Sage Flat Federal 4-1 0.00ft above Mean Sea Level )  
 Vertical Section is from 0.00N 0.00E on azimuth 99.070 degrees  
 Bottom hole distance is 1896.92 Feet on azimuth 99.07 degrees from Wellhead  
 Calculation method uses Minimum Curvature method  
 Prepared by  
 Date Printed: 26-Sep-2012

Horizon Energy  
 Sec 5 - 23S - 1W, Utah  
 Sevier County  
 Wellbore: Sage Flat Federal 4-1 (Plan)

Hole Sections									
Diameter [in]	Start MD[ft]	Start TVD[ft]	Start North[ft]	Start East[ft]	End MD[ft]	End TVD[ft]	End North[ft]	End East[ft]	Wellbore
17 1/2	0.00	0.00	0.00N	0.00E	120.00	120.00	0.00N	0.00E	Sage Flat Federal 4-1 (Plan)
12 1/4	120.00	120.00	0.00N	0.00E	2000.00	1965.89	46.02S	288.16E	Sage Flat Federal 4-1 (Plan)
8 3/4	2000.00	1965.89	46.02S	288.16E	8572.20	8331.00	299.14S	1873.19E	Sage Flat Federal 4-1 (Plan)

Casings									
Name	Top MD[ft]	Top TVD[ft]	Top North[ft]	Top East[ft]	Shoe MD[ft]	Shoe TVD[ft]	Shoe North[ft]	Shoe East[ft]	Wellbore
13 3/8in Conductor	0.00	0.00	0.00N	0.00E	120.00	120.00	0.00N	0.00E	Sage Flat Federal 4-1 (Plan)
9 5/8in Surface Casing	0.00	0.00	0.00N	0.00E	2000.00	1965.89	46.02S	288.16E	Sage Flat Federal 4-1 (Plan)

Targets									
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting		
Sage Flat Federal 4-1 BHL	299.14S	1873.19E	8331.00	N38 50 1.7570	W111 55 15.0510	6744260.28	1520524.10		

Survey Tool Program						
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model	
268423	Planned	8572.20	8331.00	WdW Magnetic	Good Magnetic	

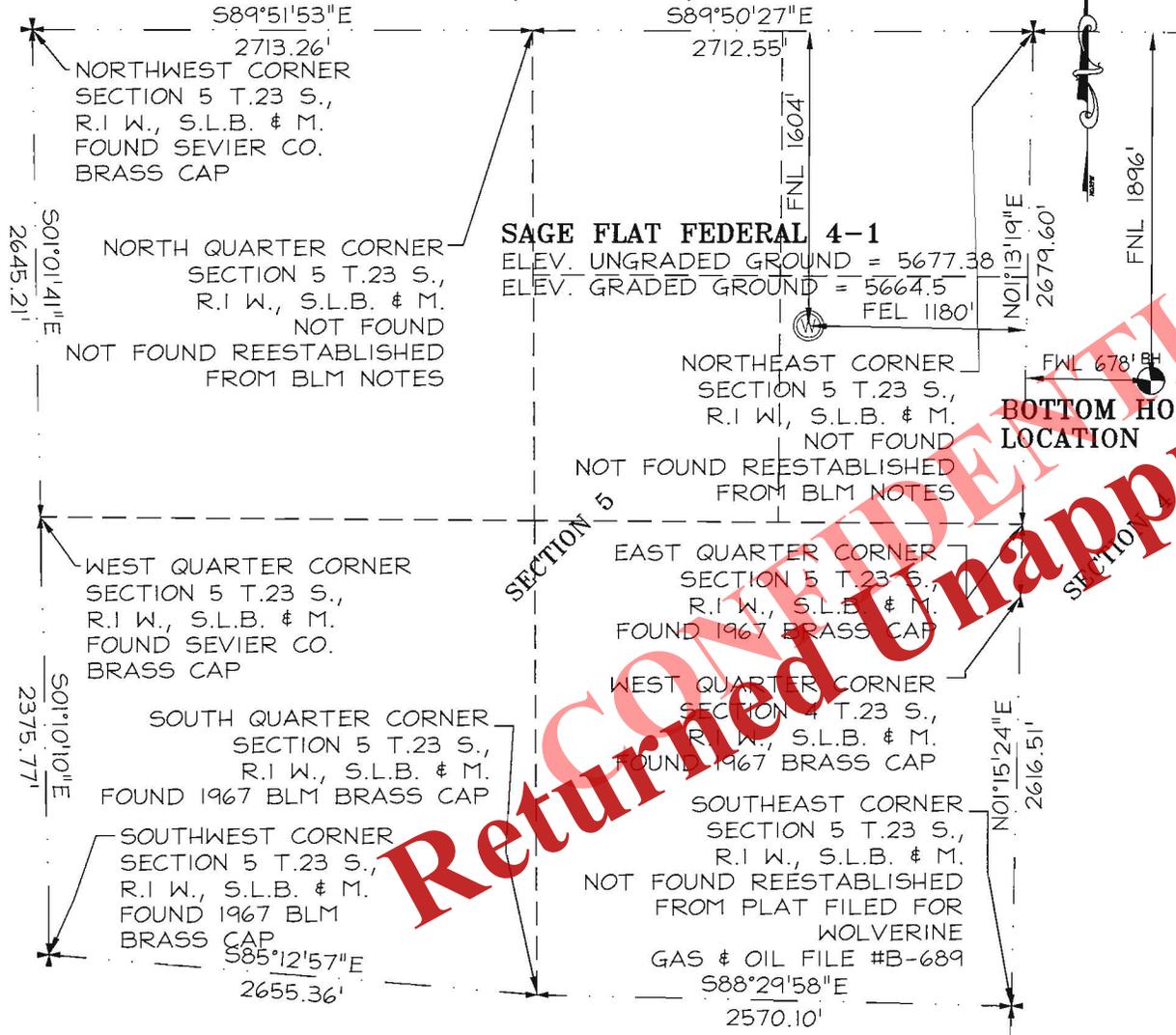
Notes

CONFIDENTIAL  
 Returned Unapproved

All data is in Feet unless otherwise stated  
 Coordinates are from Slot MD's are from Slot and TVD's are from Slot ( Sage Flat Federal 4-1 0.00ft above Mean Sea Level )  
 Vertical Section is from 0.00N 0.00E on azimuth 99.070 degrees  
 Bottom hole distance is 1896.92 Feet on azimuth 99.07 degrees from Wellhead  
 Calculation method uses Minimum Curvature method  
 Prepared by  
 Date Printed: 26-Sep-2012

Received: October 02, 2012

# SECTION 5 T.23 S., R.1 W., S.L.B. & M.



PROJECT  
**HORIZON ENERGY LLC**  
 WELL LOCATION, LOCATED AS SHOWN  
 IN THE SE 1/4 OF THE NE 1/4 OF  
 SECTION 5 T.23 S., R.1 W., S.L.B. & M.  
 SEVIER COUNTY, UTAH

**LEGEND**  
 + SECTION CORNER AS NOTED  
 (W) QUARTER CORNER AS NOTED  
 (W) PROPOSED WELL LOCATION

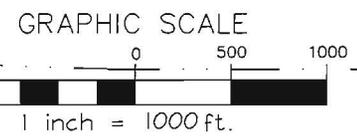
NOTE: THE PURPOSE OF THIS SURVEY WAS TO PLAT  
 SAGE FLAT FEDERAL 4-1  
 LOCATED IN THE SE 1/4 OF THE NE 1/4 OF  
 SECTION 5 T.23 S., R.1 W., S.L.B. & M.  
 SEVIER COUNTY, UTAH.

**BASIS OF ELEVATION**  
 ELEVATION BASED OPUS SOLUTION IN THE SE 1/4 OF THE  
 NE 1/4 OF SECTION 5 T.23 S., R.1 W., S.L.B. & M.  
 ELEVATION USED 5739.79

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



9/7/12  
 DATE



**BASIS OF BEARING**

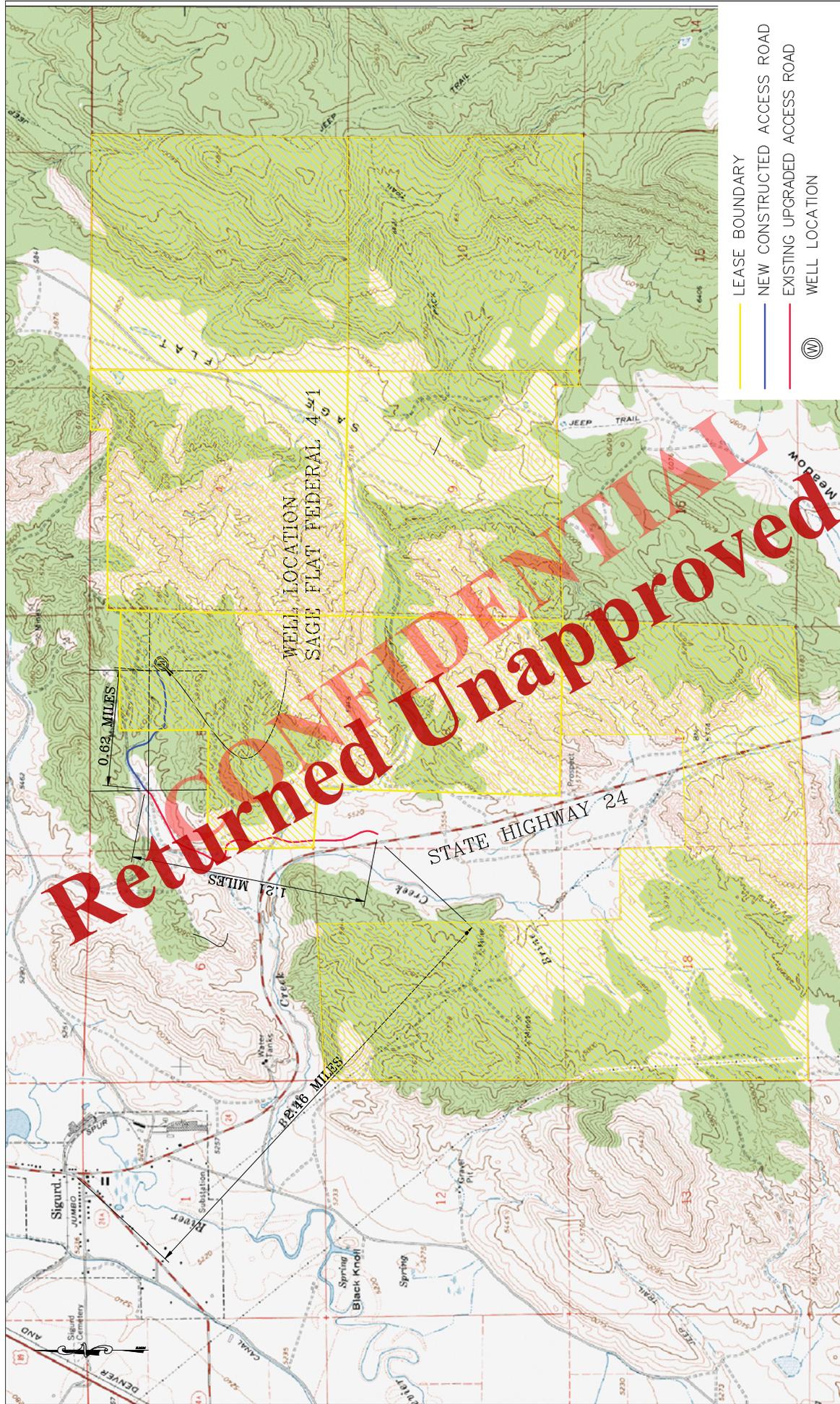
BASIS OF BEARING USED WAS S01°01'41\"/>

WELL LOCATION COORDINATE DATUM NAD 83  
 WELL LATITUDE: 38°50'04.626\"/>

BOTTOM HOLE LOCATION COORDINATE DATUM NAD 83  
 WELL LATITUDE: 38°50'01.757\"/>

Savage Surveying, Inc.  
 1925 South Industrial Park Rd.  
 Richfield, UT 84701  
 Office: 435-968-6335  
 Fax: 435-834-0220

SAGE FLAT FEDERAL 4-1					
HORIZON ENERGY LLC					
DWG NAME	SCALE	DATE	PROJECT NUMBER	SHEET NUMBER	
LOCATION	1" = 1000'	8/30/12	1208-001S	1	
SURVEY BY:	CHECKED BY:	DRAWN BY:			
---	C.R.L.	R.W.S.	D.G.		



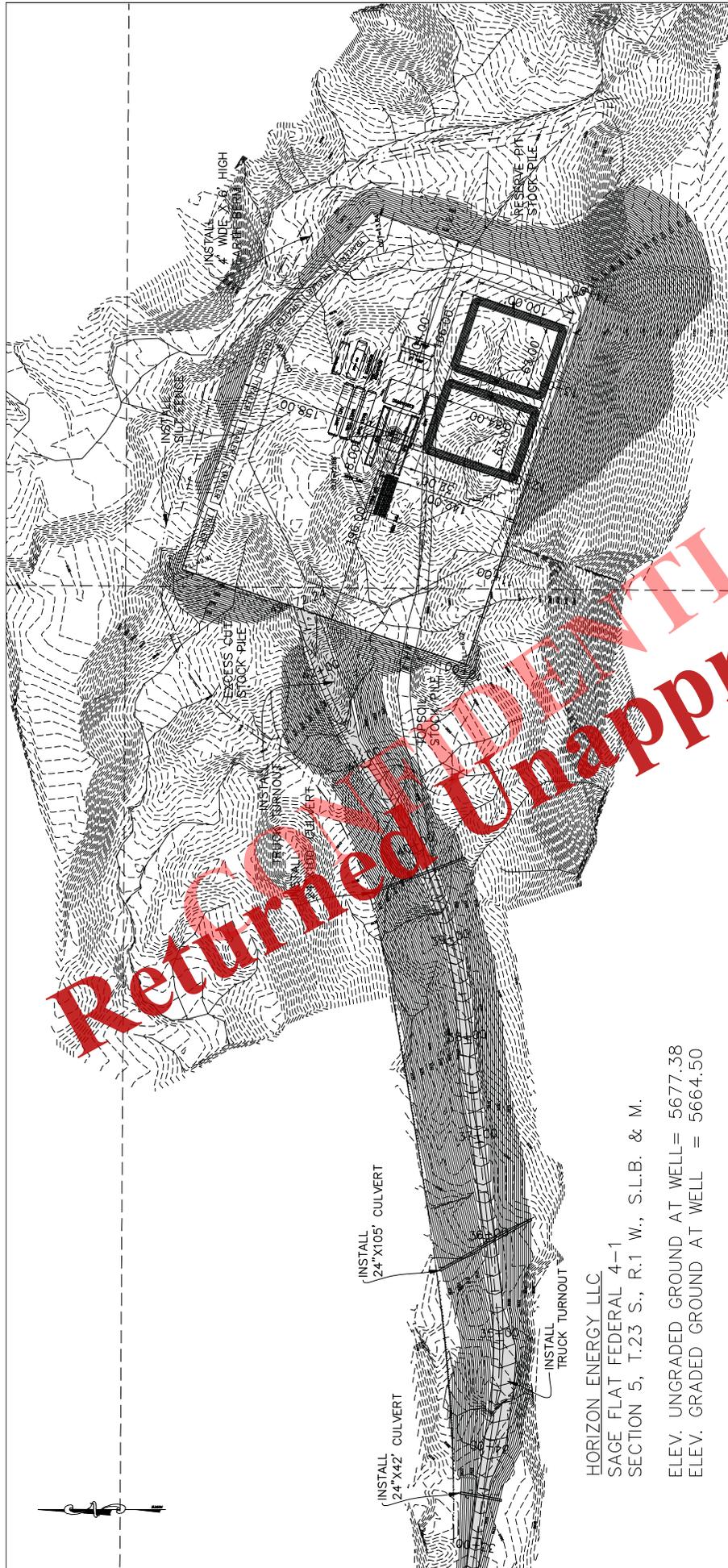
- LEASE BOUNDARY
- NEW CONSTRUCTED ACCESS ROAD
- EXISTING UPGRADED ACCESS ROAD
- ⊙ WELL LOCATION

ENGINEER	—	SCALE	1" = 2000'	SHEET NO.	
CHECKED	R.W.S.	PROJ. NO.	1004-0016		
DRAWN	D.G.	DATE	08/30/12		LEASE

SAGE FLAT FEDERAL 4-1  
HORIZON ENERGY LLC

Savage Surveying, Inc.

1655 South Wadsworth Street, Suite 100  
Denver, CO 80202  
Phone: 303-755-8888



Returned Unapproved

HORIZON ENERGY LLC  
 SAGE FLAT FEDERAL 4-1  
 SECTION 5, T.23 S., R.1 W., S.L.B. & M.

ELEV. UNGRADED GROUND AT WELL = 5677.38  
 ELEV. GRADED GROUND AT WELL = 5664.50

PAD APPROXIMATE YARDAGE  
 (6") UPPER TOPSOIL STRIPPING = 2,222 CU. YDS.  
 REMAINING LOCATION = 58,362 CU. YDS.  
 TOTAL CUT = 60,584 CU. YDS.  
 TOTAL FILL = 8,306 CU. YDS.  
 \*FILL IS UNADJUSTED

TOTAL PIT CAPACITY WITH 2' FREEBOARD = 16,288 bbls  
 TOTAL PIT VOLUME = 3,870 CU. YDS.

ACCESS ROAD APPROXIMATE YARDAGE  
 TOTAL CUT = 1,047 CU. YDS.  
 TOTAL FILL = 35,720 CU. YDS.  
 \*FILL IS UNADJUSTED

UPGRADED ACCESS ROAD APPROXIMATE YARDAGE  
 TOTAL CUT = 300 CU. YDS.  
 TOTAL FILL = 28 CU. YDS.  
 \*FILL IS UNADJUSTED



**SAGE FLAT FEDERAL 4-1**  
**HORIZON ENERGY LLC**

ENGINEER	—	SCALE	1" = 100'	SHEET NO.	<b>1 OF 18</b>	
CHECKED	R.W.S.	PROJ. NO.	1004-0016	DWG. NO.		1004-0016
DRAWN	D.G.	DATE	08/30/12			

# Horizon Energy LLC

PO Box 10 – Mayfield, UT 84643 – 435-528-3651 – richard.bjerregaard@gmail.com

October 2, 2012

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 #6931)  
Horizon Energy LLC  
**Sage Flat Federal 4-1**  
**Directional Drilling Letter**

Dear Mrs. Mason:

Horizon Energy LLC (Horizon) hereby submits this letter with attached plat, as part of the *Application for Permit to Drill (APD)* for the referenced well:

-R649-3-11 Directional Drilling Application Plat showing proposed surface and BHL.

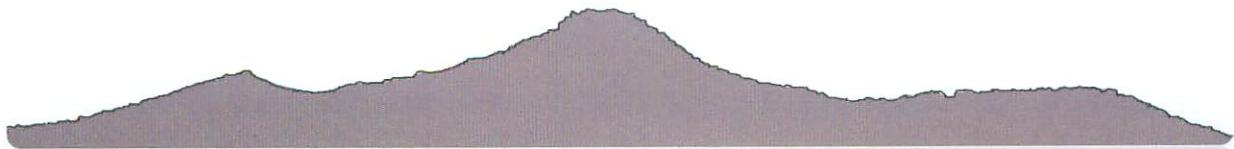
The Town of Sigurd culinary will be the source for water during drilling and completion operations on the proposed well. Both the surface and bottom hole at the planned drill site are Federal ownership, administered by the Bureau of Land Management.

This letter and the accompanying plat are intended to serve as an application for directionally drilling the well per R649-3-11. Horizon 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: Horizon Energy LLC, under Farmout Agreement from Wolverine Gas and Oil Corporation

Address: P.O. Box 10  
Mayfield, Utah 84643

Well: Sage Flat Federal 4-1



**Received: October 02, 2012**

# Horizon Energy LLC

Field: NA (Wildcat)

Reservoir: NA (Wildcat)

County: Sevier

Reason: Restrictive topography and to minimize surface impact

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

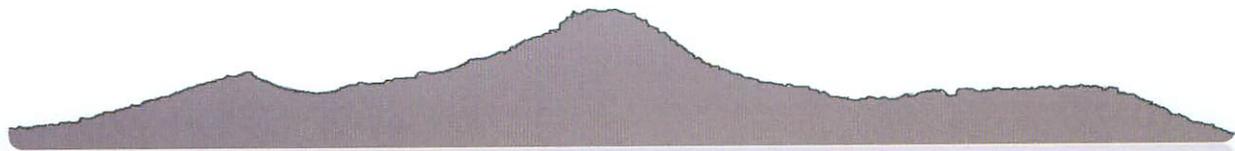
Thank you for consideration of this application. Please feel free to contact me if you have any questions or need additional information.

Sincerely,



Charlie Irons, Agent for Horizon Energy LLC  
435-201-3327

[cirons@wvenergy.com](mailto:cirons@wvenergy.com)



**Received: October 02, 2012**



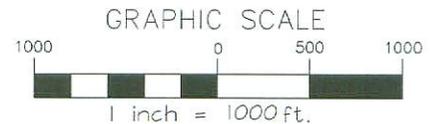
Returned Unapproved CONFIDENTIAL

## Sage Flat Federal 4-1 Well Location

**SHL: 1604' FNL, 1180' FEL, SE/4 NE/4, Sec. 5, T23 S., R.1 W., Sevier Co., UT.**  
**BHL: 1896' FNL, 678' FWL, SW/4 NW/4, Sec. 4, T23 S., R.1 W., Sevier Co., UT.**

Horizon Energy Lease under Wolverine Farmout

- Proposed SHL
- Proposed BHL



**Savage Surveying, LLC**  
 Ryan W. Savage, PLS  
 PO Box 892  
 279 S 300 W  
 Richfield, UT 84701  
 Home: 435-888-8835  
 Fax: 435-888-8835  
 Cell: 435-201-1345

**Horizon Energy, LLC**  
 PO Box 10  
 Mayfield, UT 84643  
 (435) 528-3851

DIRECTIONAL DRILLING APPLICATION PLAT  
 (R649-3-11)

DATE: 10/02/12

DATA SOURCE: LOCATION PLAT DRAWING

## SURFACE USE PLAN OF OPERATIONS

*For inclusion with Application for Permit to Drill*

**Name of Operator:** Horizon Energy, LLC  
**Address:** 50 S 200 E  
P.O. Box 10  
Mayfield, Utah 84643

### **Sage Flat Federal 4-1**

**Well Location:** **At Bottom Hole:** 1896' FNL & 678' FWL, being in Lot 13 (SW/4 NW/4) Section 4, T23S, R1W, SLM  
**At Surface:** 1604' FNL & 1180' FEL, being in SE/4 NE/4 Section 5, T23S, R1W, SLM  
Sevier County, Utah

**Access Road Location:** Primary access road is to be an improvement to an existing road that leaves Sevier County Landfill road in the NW/4 NW/4 of Section 8; across fee land owned by Kings Meadow Ranches a distance of about 1425 feet, then northerly onto BLM land on lease at the south line of the SW4SW4 of Section 5 a distance of about 2098 feet, continuing westerly into Section 6 (on lease) a distance of about 1036 feet, then easterly back into Section 5 on fee land owned by American Gypsum Trust a distance of about 3560 feet, then easterly onto BLM (back on lease) where an old road bed will be re-constructed a distance of about 1470 feet to the surface location. Most of this road is part of a system of roads used by the gypsum mining companies, built for the purpose of access to mines throughout the area. The operator will obtain rights-of-way from the above fee owners prior to construction. The operator is concurrently applying to BLM realty for a Title V right-of-way to improve that portion of the road that is off lease in Section 6. An encroachment permit will be obtained from Sevier County Road Department for the small portion of County Landfill road used.

**State surface use is not required for construction and drilling of the referenced well. BLM is the surface owner at the drill pad site, the bottom hole location and a portion of the access road. Federal surface use is being requested with the associated Application for Permit to Drill (APD) through the BLM – Richfield Field Office.**

**The dirt contractor will be provided with an approved copy of the surface use plan of operations and conditions of approval before initiating construction.**

A Federal onsite inspection was conducted on September 11, 2012, with the following individuals present:

Charlie Irons and Richard Bjerregaard – Horizon Energy  
Ryan Savage – Savage Surveying  
Mark Rickenbach – Sevier County Road Supervisor  
Glen Nebeker – Jones and DeMille Engineering - NEPA Specialist  
Stan Andersen – BLM Supervisory Natural Resource Specialist  
Burke Williams – BLM Range Manager  
Noelle Bovio – BLM Recreation Specialist  
Wayne Wetzel – BLM Associate Field Office Manager  
Larry Greenwood – BLM Wildlife Conservationist  
Chris Colton – BLM Supervisor Natural Resource Specialist

**Existing Roads:**

The vicinity map in the APD packet shows the proposed well location and its proximity to the town of Sigurd, Utah (being about 2.2 miles east southeast of same).

**Driving directions:** From center of Sigurd, go south on Highway 24 East approximately 2.5 miles to the County Landfill Road turnoff. Go east 200 feet on Landfill Road, then turn north on the dirt road. Follow dirt road northerly, then easterly a distance of about 1.5 miles to the lease road. Follow lease road easterly about .3 mile to well surface location.

**Access Roads to be Constructed and Reconstructed:**

The surface condition of portions of the dirt road will need considerable improvement to be suitable for all-weather oilfield traffic. These improvements will consist of the installation of culverts and water bars for drainage control, low-water crossings, installation of truck turnouts, widening in some places, surfacing with gravel road base, and will be conditions of the right-of-way agreements with the fee and BLM owners.

The proposed primary access road will require the construction of a new driveway ramp off the county landfill road, and the re-construction of an old roadbed from American Gypsum Trust land onto and across BLM land to the drill pad. The road will have a travel surface of about 24' in width. No secondary access road is planned. Emergency egress (foot travel only) would be to the northwest or to the southwest.

See attached drawing sheets for road location and improvements. See Typical Section sheet for road design.

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

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

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

**Location of Existing Wells within a one-mile radius :**

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

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

(a) *On well pad* – A temporary testing facility may be constructed on this location in the event drilling is successful, consisting of water/separator, tanks and related components. The facility would be surrounded by a dike of sufficient capacity to contain the storage capacity of the largest tank. All loading lines and valves would be located inside the berm surrounding the tank battery.

(b) *Off well pad* – It is not possible to know whether an off-well pad production facility would be necessary in the event of a discovery. The Operator will submit this information for approval at such time as production requirements are known.

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

The Operator intends to purchase water from the Town of Sigurd. Source of water is the town springs near Kings Meadow Reservoir. Water will be trucked to the reserve pit from a fire hydrant on the south end of town, as directed by the Town of Sigurd. Should additional water sources be pursued they will be properly permitted through the State of Utah – Division of Water Rights. The BLM will be notified of any changes in water supply.

**Construction Materials:**

Natural earth materials used for fill on the well pad will be taken from cuts made in construction of the pad. Imported granular borrow from an approved source will be applied to the surface of the well pad and access road where deemed necessary. No construction materials will be removed from federal lands.

**Methods for Handling Waste Disposal:**

The reserve pit will be used for the disposal of waste mud and drill cuttings. All borehole fluids and salts will be

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

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

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

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

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

***Ancillary Facilities:***

No ancillary facilities are anticipated at this time.

***Well Site Layout:***

Pad Location and Layout Drawings in the revised APD packet show the proposed well site layout including location of the reserve pit and access road onto the pad, turnaround areas, parking areas, living facilities, soil material stockpiles, and the orientation of the rig with respect to the pad and other facilities. Cross section sheets in said packet show cuts and fills required for construction, and their relationship to topography. As detailed above under Methods for Handling Waste Disposal, the reserve pit will be lined and appropriate measures as described above will be taken to prevent leakage. The pit will be fenced on three sides during drilling operations and then the fourth side will be immediately fenced when the rig is moved off location.

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

A pre-construction meeting with responsible company representative and contractors will be conducted at the project site prior to commencement of surface-disturbing activities. The pad and road will be construction-staked (centerline and exterior boundaries) prior to this meeting.

All surface disturbing activities will be supervised by a qualified, responsible company representative who is aware of the terms and conditions of approval from the BLM under the APD.

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

The stockpiled topsoil (first 8 inches or maximum available) will be isolated in a berm by around the well pad. Topsoil will be stockpiled for reclamation in such a way as to prevent soil loss and contamination.

Water spraying may be implemented if necessary to minimize dust.

***Plans for Reclamation of the Surface:***

**(For further specifications see Addendum to Surface Plan of Operations, attached hereto)**

Edges of the access road and stockpiled topsoil will be seeded the first fall.

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

**Final Reclamation:** In the event the well is a dry hole, or at such time that all production ceases and the well has been plugged and abandoned, the Operator will perform final reclamation of the site. Final reclamation will consist of reclamation of the reserve pit, the well pad and the new-construction portion of the lease road as it crosses BLM land.

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

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

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

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

***Surface Ownership:***

The surface of the proposed well site, the new-built lease road and portions of the access road are federally owned and are administered by the Bureau of Land Management, United States Department of Interior. Portions of the access road are privately owned, by American Gypsum Trust and Kings Meadow Ranches, LLC.

***Other Information:***

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

All equipment and vehicles will be confined to the access road, lease road and well pad.

Bighorn Archaeological Consultants, LLC, has conducted a Cultural Resource Inventory and will submit the report to the appropriate agencies.

Megan Robinson of Rocky Mountain Environmental research has conducted a Sensitive Plant Study and will submit a report to BLM Wildlife Conservationist Larry Greenwood.

In the event vertebrate fossils are encountered during construction activities the BLM will be notified immediately

to determine the appropriate course of action.

Glen Nebeker, NEPA Specialist, Jones & DeMille Engineering, will prepare an EA for the proposed operations.

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

All permanent structures, including pumping units, constructed or installed will be painted a flat, non-reflective "covert green" color as provided on the BLM Standard Environmental ColorChart.CC-001 (June 2008). Permanent structures are defined as being on location for six months or longer. Facilities required to comply with Occupational Safety and Health Act (OSHA) shall be excluded.

Fire suppression equipment will be available to suppress any wildfires caused by construction or related activities. In the event of a wildfire the Richfield Interagency Fire Center (435) 896-8404 will be notified.

**CONFIDENTIAL**  
**Returned Unapproved**

**Operator Certification**

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

Executed this 26<sup>th</sup> day of September, 2012.

Signature: Richard S. Bjerregaard  
Richard S. Bjerregaard

Position Title: Field Manager  
Horizon Energy, LLC

Address: P.O. Box 10  
Mayfield, Utah 84049

Telephone: 435-262-0953

Field representative: Charlie Irons  
Charlie Irons, Agent

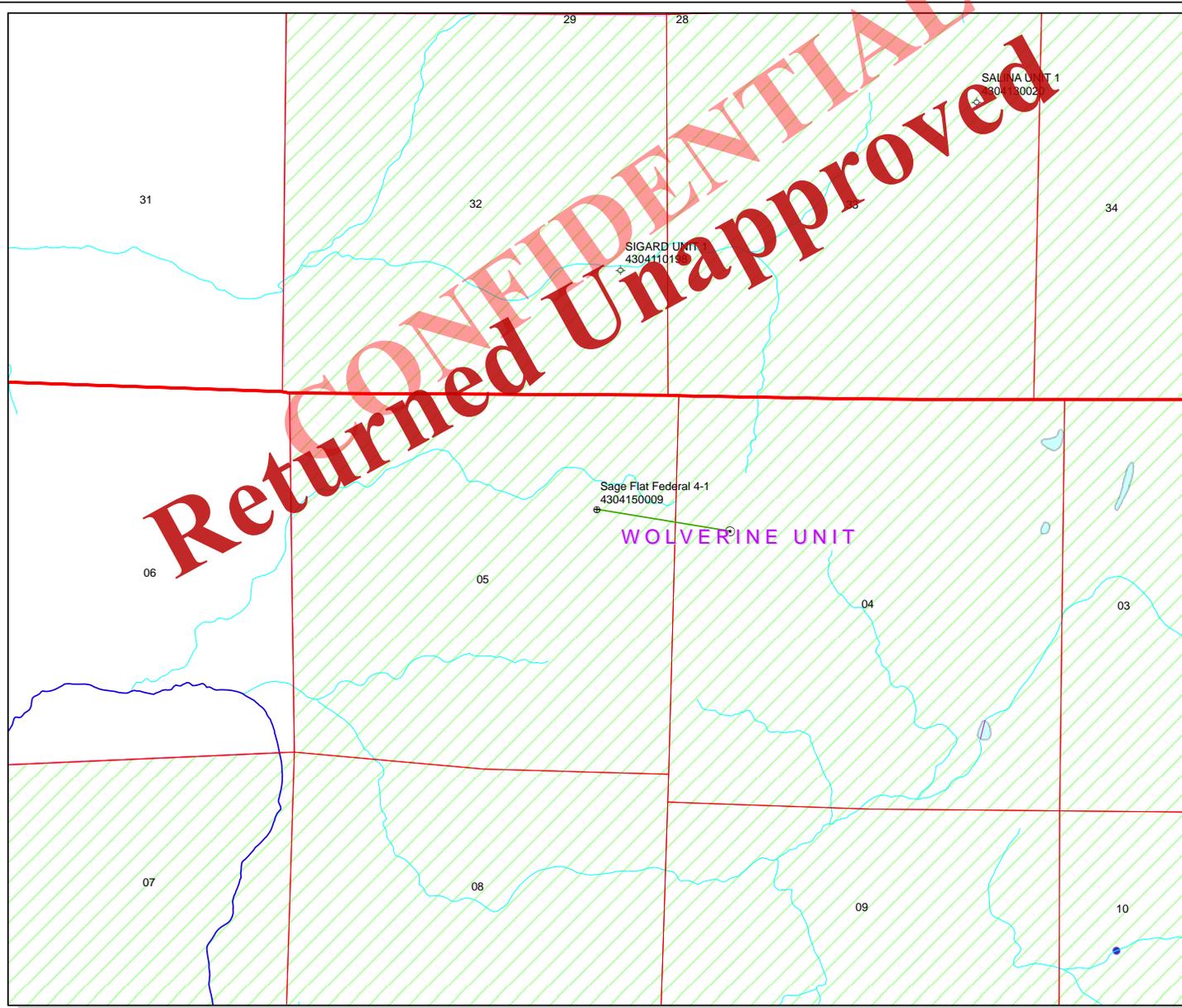
Address: 5 West Constitution Way, Suite 1140  
Richfield, Utah 84701

Telephone: 435-201-3327

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

**CONFIDENTIAL**  
**Returned Unapproved**

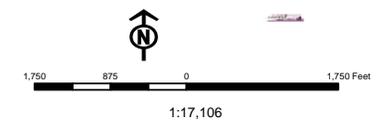
CONFIDENTIAL  
 Returned Unapproved



**API Number: 4304150009**  
**Well Name: Sage Flat Federal 4-1**  
**Township T23.0S Range R01.0W Section 05**  
**Meridian: SLBM**  
**Operator: HORIZON ENERGY LLC**

Map Prepared:  
 Map Produced by Diana Mason

Units	Wells Query
<b>STATUS</b>	<b>STATUS</b>
ACTIVE	APD - Approved Permit
EXPLORATORY	DRL - Spudded (Drilling Commenced)
GAS STORAGE	GIW - Gas Injection
NF PP OIL	GS - Gas Storage
NF SECONDARY	LOC - New Location
PI OIL	OPS - Operation Suspended
PP GAS	PA - Plugged Abandoned
PP GEOTHERML	PGW - Producing Gas Well
PP OIL	POW - Producing Oil Well
SECONDARY	SGW - Shut-in Gas Well
TERMINATED	SOW - Shut-in Oil Well
<b>Fields</b>	TA - Temp. Abandoned
Unknown	TW - Test Well
ABANDONED	WDW - Water Disposal
ACTIVE	WW - Water Injection Well
COMBINED	WSW - Water Supply Well
INACTIVE	Bottom Hole Location - Oil/Gas/Dls
STORAGE	
TERMINATED	





GARY R. HERBERT  
*Governor*

GREGORY S. BELL  
*Lieutenant Governor*

# State of Utah

## DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
*Executive Director*

### Division of Oil, Gas and Mining

JOHN R. BAZA  
*Division Director*

December 11, 2012

HORIZON ENERGY LLC  
P.O. Box 10  
Mayfield, UT 84643

Re: Application for Permit to Drill - SEVIER County, Utah

Ladies and Gentlemen:

The Application for Permit to Drill (APD) for the Sage Flat Federal 4-1 well, API 43041500090000 that was submitted October 02, 2012 is being returned unapproved. If you plan on drilling this well in the future, you must first submit a new application.

Should you have any questions regarding this matter, please call me at (801) 538-5312.

Sincerely,

Diana Mason  
Environmental Scientist

Enclosure

cc: Bureau of Land Management, Vernal, Utah