IDAHO DEPARTMENT OF LANDS
DIRECTOR'S OFFICE
300 N 6th Street Suite 103
PO Box 83720
Boise ID 83720-0050
Phone (208) 334-0200
Fax (208) 334-5342

TOM SCHULTZ
SECRETARY TO THE COMMISSION

IDAHO OIL AND GAS
CONSERVATION COMMISSION
James Classen
Ken Smith
Margaret Chipman
Chris Beck
Sid Cellan

June 24, 2014

Ronda Louderman
Regulatory Coordinator
15021 Katy Frwy., Suite 400
Houston, TX 77094

SUBJECT: Permit to Drill API#11-075-20026, ML Investments 1-3

The Idaho Department of Lands has completed our review of this permit to drill for oil. Enclosed is a copy of the approved permit. This permit was approved with the following stipulations:

1. The permittee shall be required to submit an affidavit covering the initial BOP pressure test after installation signed by the operator or contractor attesting to the satisfactory pressure test.

2. The permittee shall ensure tanks are adequately sized, designed and constructed for the reception and confinement of mud and cuttings and to prevent contamination of streams and potable water.

3. Drilled holes cannot be used for any other purposes unless they are constructed according to the applicable well construction standards administered by the Idaho Department of Water Resources.

4. Applicant will obtain any needed water rights from Idaho Department of Water Resources if nearby wells will be used to supply water for the drilling operations.

5. All well log information required by IDAPA 20.07.02.091 will be submitted to IDL within 30 days of the logs being run.

6. Idaho Department of Lands inspectors shall have 24 hour, unencumbered access for compliance and regulatory purposes.

7. All cementing operations shall be in accordance with IDAPA 20.07.02.050. Cement will be returned to surface on all string via the

pump and plug method or other method as approved by the Department.

8. This permit does not grant the right for ingress or egress nor does this application grant the right to production from unleased lands

9. No production or drainage must occur until all circumstance in item 8 above has been met or the Commission has issued an order to satisfy item 8.

Please ensure that all operations are conducted in accordance with the requirements of IDAPA 20.07.02 (Rules Governing Conservation Of Crude Oil And Natural Gas In The State Of Idaho).

This permit will be administered by AJ Mondor in our Southwest Supervisory Area. He will be inspecting the drilling operation. Please contact him at 208-334-3488 if you have any questions.

Sincerely,

Robert R. Johnson P.G.
Oil & Gas Program Manager

cc: AJ Mondor, Resource Specialist, IDL Southwest Office
Chad Hersley, IDWR, PO Box 83720, Boise, Idaho 83720-0098

PPGMR LAW
PERRINS PEISERICH GREATHOUSE MORGAN RANKIN

101 MORGAN KEEGAN DRIVE, SUITE A | LITTLE ROCK, AR 72202
P.O. BOX 251618 | LITTLE ROCK, AR 72225-1618
TEL: (501) 603-9000 | FAX: (501) 603-0556 | PPGMRLAW.COM | PLLC

JOHN F. PEISERICH
JOHN@PPGMRLAW.COM

June 6, 2014

Mr. Bobby Johnson
Idaho Department of Lands
Idaho Oil and Gas Conservation Commission
300 N. 6th Street, Suite 103
Boise, ID 83702

RE: Direction Deviation Letter Application
Section 3, Township 8 North, Range 4 West
Willow Field, Payette County, Idaho

Mr. Johnson,

Please allow this letter to serve as Alta Mesa Services, LP's application for a deviation from vertical for its well proposed in Section 3, Township 8 North, Range 4 West in the Willow Field located in Payette County, Idaho. The well permit application is being transmitted concurrently for your consideration and Alta Mesa Services, LP ("Applicant") requests that this letter application be attached to the well permit as an additional submittal. The well permit application previously submitted includes the information regarding the surface and bottom hole locations along with the planned well path from the directional contractor.

The proposed deviation is requested due to the topographic conditions present at the surface immediately above the bottom hole location. The topography is extremely rugged, composed of a steep hillside that would require extensive excavation that, even with such excavation, may not provide a safe working environment. In additional to ensuring a safe working environment, the Applicant also seeks to minimize the surface impacts by reducing amount of excavating required.

It should be noted that AM Idaho, LLC is the only working interest owner in the offset sections and thus would be operator in each of those sections. As such, no notice to the offset operator is provided.

If you have any questions regarding this application for deviation from vertical, please contact me.

Sincerely,

John Peiserich

IDAHO OIL AND GAS CONSERVATION COMMISSION

Application For Permit to Drill, Deepen or Plug Back

2014 MAY 27 AM 9:04
BOISE, IDAHO
DEPT. OF LANDS

APPLICATION TO: Drill ($2,000) ☒ Deepen ($500) ☐ Plug Back ($500) ☐

NAME OF COMPANY OR OPERATOR: Alta Mesa Services, LP Date: 05-23-14

Address: 15021 Katy Frwy., Suite 400

City: Houston State: TX Zip Code: 77094 Telephone: 713-530-0991

Contact Name: Ronda Louderman Email Address: rlouderman@altamesa.net

DESCRIPTION OF WELL AND LEASE

Name of Lease: **ML Investments** Well Number: **1-3** Elevation (ground) **2,675 feet**

Well Location: Section: **3** Township: **8 North** Range: **4 West** (or block and survey)

(give footage from Section lines): **Surface Location - 1,625' from North Section line; 1,975' from West Section line. Bottom hole location – 1,934' from North Section line; 2,413' from West Section line**

Field and Reservoir (if wildcat, so state): **Willow** County: **Payette**

Distance, in miles, and direction from nearest town or post office: **6.68 miles East**

Nearest distance from proposed location to property or lease line: **Surface – 468' from North Lease line; Bottom – 178' from East Lease line** Distance from proposed location to nearest drilling, completed or applied for on the same lease: **N/A**

Proposed depth: **5,500'** Rotary or cable tools: **Rotary**

Planned logging tools: **Mud Logging only while drilling. After: Gamma Ray; Propagation Resistivity; Density, Neutron Porosity, Electron Capture Spectroscopy; Sonic; and Percussion sidewall cores will be completed by wireline.**

Approx date work will start: **June 20, 2014** Number of acres in lease(s): **640**

Number of wells on lease, including this well, completed in or drilling to this reservoir: **1**

If lease purchased with one or more wells drilled, complete the following information:

Purchased from (name) **N/A**

Address of above

Status of bond

Remarks: (If this is an application to deepen or plug back, briefly describe work to be done, giving present producing zone and expected new producing zone) **N/A**

CERTIFICATE: I, the undersigned, state that I am the **Regulatory Coordinator** of **Alta Mesa Services, LP** (company) and that I am authorized by said company to make this application and that this application was prepared under my supervision and direction and that the facts stated herein are true, correct and complete to the best of my knowledge.

Date: 5/23/14 Signature: Ronda Louderman

Permit Number: Approval Date: 6/24/14 Approved by:

API Number: 11-075-20026

REGISTERED PROFESSIONAL GEOLOGIST ROBERT R JOHNSON PGL-1476 STATE OF IDAHO

NOTICE: Before sending in this form, be sure that you have given all information requested. See instructions on back.

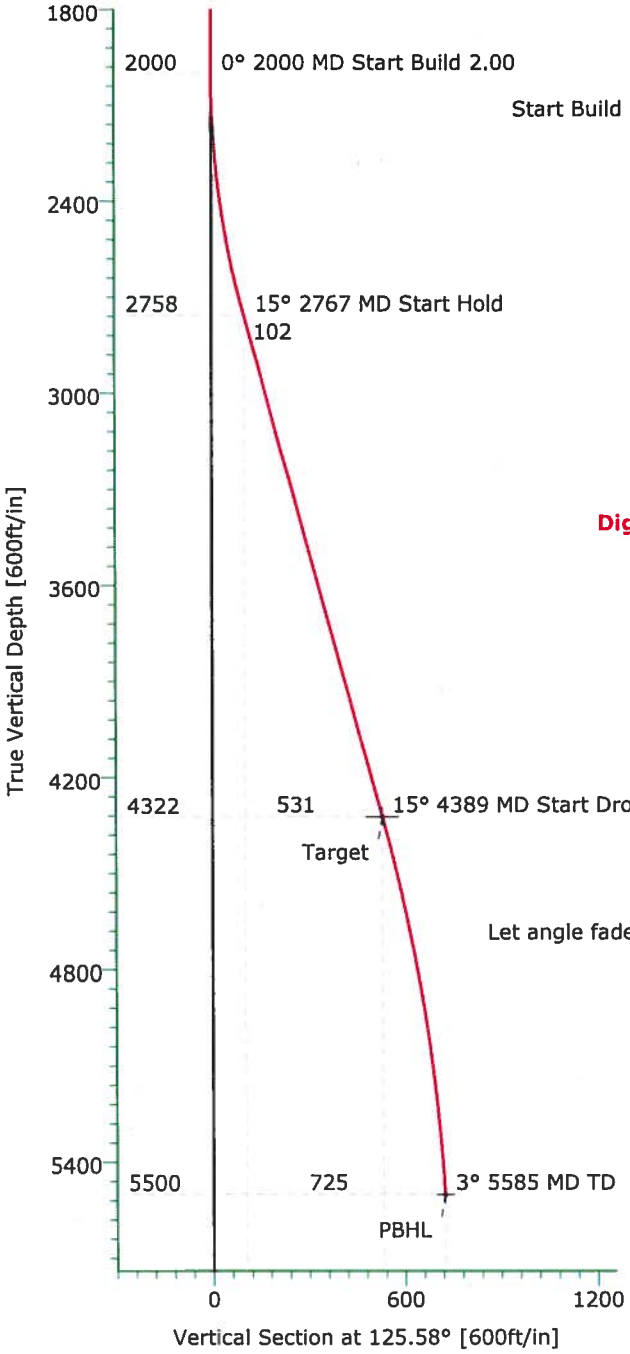
Rev. 05/31/12

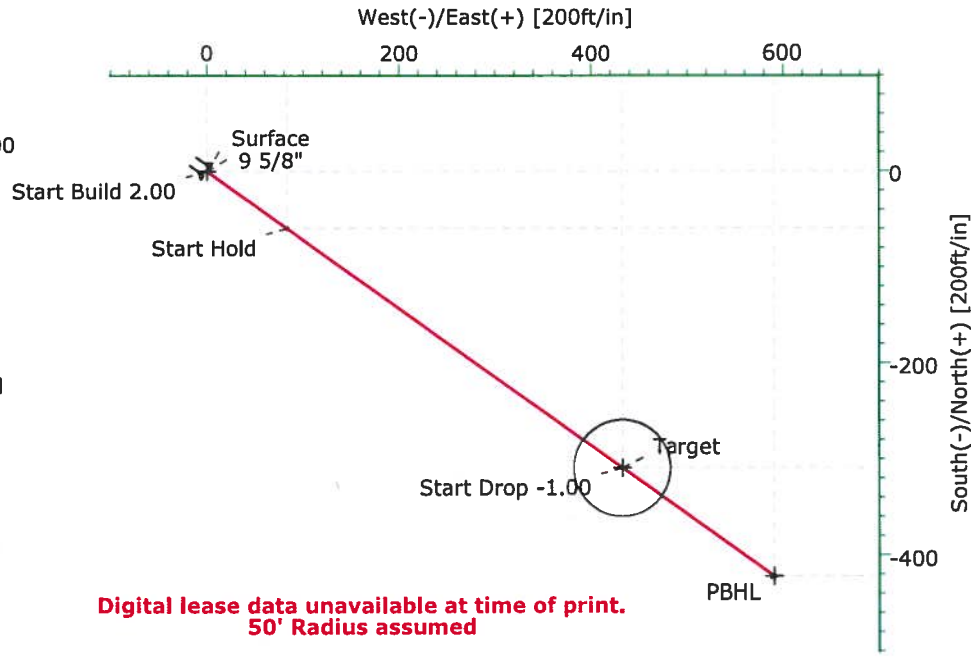
ALTA MESA

Field: Payette County, ID
Site: ML Investments 1-3
Well: #1-3
Wellpath: Original Hole
Plan: Plan #2

ALTA MESA

Precision Directional Services





Digital lease data unavailable at time of print.
50' Radius assumed

CASING DETAILS

No.	TVD	MD	Name	Size
1	1000.00	1000.00	9 5/8"	9.625

Azimuths to Grid North
True North: 0.73°
Magnetic North: 14.73°

Magnetic Field
Strength: 53129nT
Dip Angle: 67.58°
Date: 08/01/2014
Model: IGRF2010

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Surface	0.00	0.00	0.00	875115.00	223055.00	44°03'47.054N	116°48'12.976W	Point
Target	4322.00	-309.00	432.00	874806.00	223487.00	44°03'44.057N	116°48'07.006W	Circle (Radius: 50)
PBHL	5500.00	-421.96	589.92	874693.04	223644.92	44°03'42.962N	116°48'04.824W	Point

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	125.58	0.00	0.00	0.00	0.00	0.00	0.00	
2	2000.00	0.00	125.58	2000.00	0.00	0.00	0.00	0.00	0.00	
3	2767.00	15.34	125.58	2757.87	-59.38	83.01	2.00	125.58	102.06	
4	4388.91	15.34	125.58	4322.00	-309.00	432.00	0.00	0.00	531.14	Target
5	5584.98	3.38	125.58	5500.00	-421.96	589.92	1.00	180.00	725.30	PBHL

Precision Directional Services, Inc.
Planning Report

Company:	ALTA MESA	**Date:** 05/22/2014	**Time:** 11:38:59	**Page:**	1
Field:	Payette County, ID	**Co-ordinate(NE) Reference:**	Well: #1-3, Grid North		
Site:	ML Investments 1-3	**Vertical (TVD) Reference:**	2675'GL+12'KB 2687.0		
Well:	#1-3	**Section (VS) Reference:**	Well (0.00N,0.00E,125.58Azi)		
Wellpath:	Original Hole	**Plan:**	Plan #2		

Field: Payette County, ID

Map System: US State Plane Coordinate System 1927 — **Map Zone:** Idaho, Western Zone
Geo Datum: NAD27 (Clarke 1866) — **Coordinate System:** Well Centre
Sys Datum: Mean Sea Level — **Geomagnetic Model:** IGRF2010

Site: ML Investments 1-3

Section 3 T8N-R4W

Site Position:		**Northing:**	875115.00 ft	**Latitude:**	44	3	47.054	N
From:	Map	**Easting:**	223055.00 ft	**Longitude:**	116	48	12.976	W
Position Uncertainty:	0.00 ft			**North Reference:**			Grid	
Ground Level:	2596.00 ft			**Grid Convergence:**			-0.73 deg	

Well: #1-3 — **Slot Name:**

Well Position:	+N/-S 0.00 ft	**Northing:**	875115.00 ft	**Latitude:**	44	3	47.054	N
	+E/-W 0.00 ft	**Easting :**	223055.00 ft	**Longitude:**	116	48	12.976	W
Position Uncertainty:	0.00 ft							

Wellpath: Original Hole — **Drilled From:** Surface
Tie-on Depth: 0.00 ft

Current Datum: 2675'GL+12'KB — **Height** 2687.00 ft — **Above System Datum:** Mean Sea Level
Magnetic Data: 08/01/2014 — **Declination:** 14.00 deg
Field Strength: 53129 nT — **Mag Dip Angle:** 67.58 deg

Vertical Section: Depth From (TVD) ft	+N/-S ft	+E/-W ft	Direction deg
0.00	0.00	0.00	125.58

Plan: Plan #2 — **Date Composed:** 05/21/2014
p2 for datum conversion — **Version:** 1
Principal: No — **Tied-to:** From Surface

Plan Section Information

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg	Target
0.00	0.00	125.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2000.00	0.00	125.58	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2767.00	15.34	125.58	2757.87	-59.38	83.01	2.00	2.00	0.00	125.58	
4388.91	15.34	125.58	4322.00	-309.00	432.00	0.00	0.00	0.00	0.00	Target
5584.98	3.38	125.58	5500.00	-421.96	589.92	1.00	-1.00	0.00	180.00	PBHL

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
2000.00	0.00	125.58	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2100.00	2.00	125.58	2099.98	-1.02	1.42	1.75	2.00	2.00	0.00	
2200.00	4.00	125.58	2199.84	-4.06	5.68	6.98	2.00	2.00	0.00	
2300.00	6.00	125.58	2299.45	-9.13	12.76	15.69	2.00	2.00	0.00	
2400.00	8.00	125.58	2398.70	-16.22	22.68	27.88	2.00	2.00	0.00	
2500.00	10.00	125.58	2497.47	-25.32	35.40	43.52	2.00	2.00	0.00	
2600.00	12.00	125.58	2595.62	-36.42	50.92	62.60	2.00	2.00	0.00	
2700.00	14.00	125.58	2693.06	-49.51	69.21	85.10	2.00	2.00	0.00	
2767.00	15.34	125.58	2757.87	-59.38	83.01	102.06	2.00	2.00	0.00	
2800.00	15.34	125.58	2789.69	-64.46	90.11	110.79	0.00	0.00	0.00	
2900.00	15.34	125.58	2886.13	-79.85	111.63	137.25	0.00	0.00	0.00	
3000.00	15.34	125.58	2982.57	-95.24	133.15	163.70	0.00	0.00	0.00	
3100.00	15.34	125.58	3079.01	-110.63	154.67	190.16	0.00	0.00	0.00	
3200.00	15.34	125.58	3175.44	-126.02	176.18	216.61	0.00	0.00	0.00	
3300.00	15.34	125.58	3271.88	-141.41	197.70	243.07	0.00	0.00	0.00	
3400.00	15.34	125.58	3368.32	-156.80	219.22	269.52	0.00	0.00	0.00	

Precision Directional Services, Inc.
Planning Report

Company:	ALTA MESA	**Date:** 05/22/2014	**Time:** 11:38:59	**Page:**	2
Field:	Payette County, ID	**Co-ordinate(NE) Reference:**	Well: #1-3, Grid North		
Site:	ML Investments 1-3	**Vertical (TVD) Reference:**	2675'GL+12'KB 2687.0		
Well:	#1-3	**Section (VS) Reference:**	Well (0.00N,0.00E,125.58Azi)		
Wellpath:	Original Hole	**Plan:**	Plan #2		

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
3500.00	15.34	125.58	3464.75	-172.19	240.73	295.98	0.00	0.00	0.00	
3600.00	15.34	125.58	3561.19	-187.58	262.25	322.43	0.00	0.00	0.00	
3700.00	15.34	125.58	3657.63	-202.97	283.77	348.89	0.00	0.00	0.00	
3800.00	15.34	125.58	3754.07	-218.36	305.28	375.34	0.00	0.00	0.00	
3900.00	15.34	125.58	3850.50	-233.75	326.80	401.80	0.00	0.00	0.00	
4000.00	15.34	125.58	3946.94	-249.14	348.32	428.25	0.00	0.00	0.00	
4100.00	15.34	125.58	4043.38	-264.53	369.83	454.70	0.00	0.00	0.00	
4200.00	15.34	125.58	4139.82	-279.92	391.35	481.16	0.00	0.00	0.00	
4300.00	15.34	125.58	4236.25	-295.32	412.87	507.61	0.00	0.00	0.00	
4388.91	15.34	125.58	4322.00	-309.00	432.00	531.14	0.00	0.00	0.00	Target
4400.00	15.23	125.58	4332.69	-310.70	434.38	534.06	1.00	-1.00	0.00	
4500.00	14.23	125.58	4429.41	-325.49	455.06	559.48	1.00	-1.00	0.00	
4600.00	13.23	125.58	4526.55	-339.30	474.36	583.22	1.00	-1.00	0.00	
4700.00	12.23	125.58	4624.09	-352.12	492.28	605.25	1.00	-1.00	0.00	
4800.00	11.23	125.58	4722.00	-363.94	508.81	625.58	1.00	-1.00	0.00	
4900.00	10.23	125.58	4820.25	-374.77	523.96	644.19	1.00	-1.00	0.00	
5000.00	9.23	125.58	4918.81	-384.61	537.70	661.09	1.00	-1.00	0.00	
5100.00	8.23	125.58	5017.65	-393.43	550.04	676.27	1.00	-1.00	0.00	
5200.00	7.23	125.58	5116.74	-401.26	560.98	689.72	1.00	-1.00	0.00	
5300.00	6.23	125.58	5216.05	-408.08	570.51	701.44	1.00	-1.00	0.00	
5400.00	5.23	125.58	5315.55	-413.88	578.63	711.42	1.00	-1.00	0.00	
5500.00	4.23	125.58	5415.21	-418.68	585.34	719.66	1.00	-1.00	0.00	
5584.98	3.38	125.58	5500.00	-421.96	589.92	725.30	1.00	-1.00	0.00	PBHL

Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ----> Deg Min Sec	<--- Longitude ---> Deg Min Sec
Surface			0.00	0.00	0.00	875115.00	223055.00	44 3 47.054 N	116 48 12.976 W
Target -Circle (Radius: 50) -Plan hit target			4322.00	-309.00	432.00	874806.00	223487.00	44 3 44.057 N	116 48 7.006 W
PBHL -Plan hit target			5500.00	-421.96	589.92	874693.04	223644.92	44 3 42.962 N	116 48 4.824 W

Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
1000.00	1000.00	9.625	12.250	9 5/8"

MASS GRADING EXHIBIT MAP OF SECTION 3 NORTH

LOCATED IN A PORTION OF SECTION 3
TOWNSHIP 8 NORTH, RANGE 4 WEST, BOISE MERIDIAN
PAYETTE COUNTY, IDAHO
2014

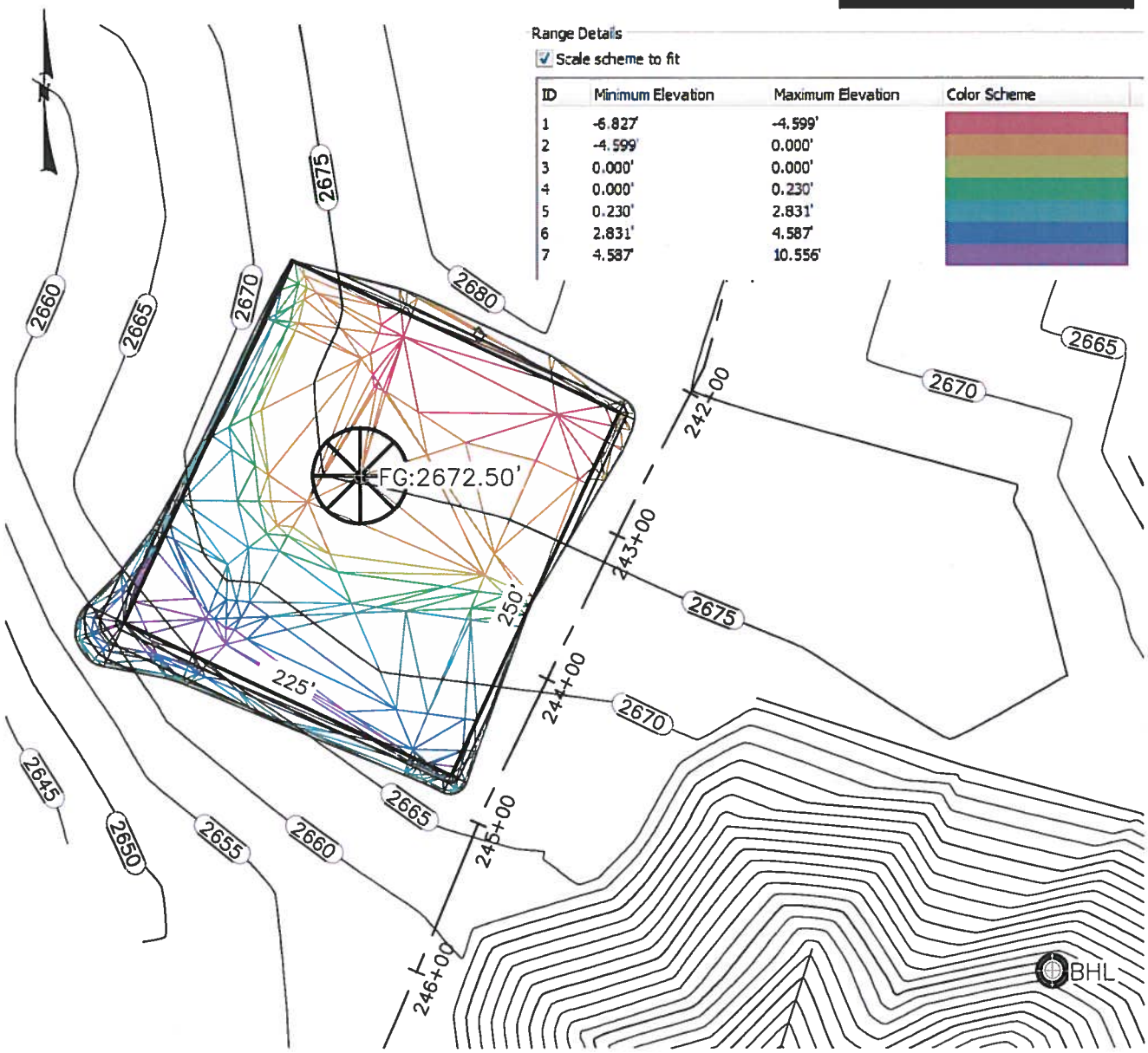
VOLUME TABLE

Volume Cut: 3,900 CY
Volume Fill: 3,400 CY

Range Details

☑ Scale scheme to fit

ID	Minimum Elevation	Maximum Elevation	Color Scheme
1	-6.827'	-4.599'	
2	-4.599'	0.000'	
3	0.000'	0.000'	
4	0.000'	0.230'	
5	0.230'	2.831'	
6	2.831'	4.587'	
7	4.587'	10.556'	



0 50 100 200 300

T-O ENGINEERS
9777 CHINDEN BOULEVARD
BOISE, IDAHO 83714-2008
PHONE: (208) 323-2288 FAX: (208) 323-2399

E-FILE:130216-C-SEC3NorthWellGrading.dwg DATE MAY 2014 JOB: 130216

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ALTA MESA

ALTA MESA SERVICES, LP

IDL Permit Supplement

ML Investments 1-3

Payette County, ID

May 22, 2014

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1 Background Information

Objective: The objective of this operation is to drill a vertical well to 5,500'TVD/5,585'MD.

AFE #:	TBD	**County:**	Payette
Well Type:	Vertical	**State:**	Idaho
Well Name:	ML Investments 1-3	**Section:**	3
Field:	Willow	**Township:**	8N
		Range:	4W

Mapping Reference:

System:	NAD83 / NAD27	**Mag Dec:**	14.15° (01-Jul-2013)
Zone:	UTM11	**Grid Conv.:**	-0.75113 °
SPCS:	Idaho West Zone 1103	**Total Corr.:**	14.90113°

Coordinates:

Surface Location:

NAD83

Lat.:	N 44° 03' 46.64988"
Long.:	W 116° 48' 16.52932"
SPCS:	2347469.7 ft. E
	875088.0 ft. N

NAD27

SPCS:	223055 ft. E
	875115 ft. N

Bottom Hole Location:

NAD83

Lat.:	44° 03' 43.65085"
Long.:	116° 48' 10.55714"
SPCS:	2347901.9 ft. E
	874778.7 W

NAD27

SPCS:	223487 ft. E
	874806 ft. N

Elevation:

GL:	2,675 ft.
RKB:	2,687 ft.

Planned TD:

MD:	5,585.0 ft.
TVD:	5,500.0 ft.

Contractor: Paul Graham Drilling **Rig:** #7

2 Geologic Prognosis

2.1 Prospect

The Ml Investments 1-3 Prospect is designed to test the Willow sand, which is found in the Bridge ML Investments 1-10 well at 4,088' TVD. It is estimated that the target sand will be encountered at +/- 4,322' TVD in the Prospect Well.

2.2 PROPOSED WELL:

The well is to be directionally drilled to a measured depth of 5,500' TVD/ 5,585'MD. The surface location is in Section 3-8N-4W (Payette County, Idaho).

2.3 Estimated Geological Formation Tops

		Est. Tops are +/-10'		
		Alta Mesa	Alta Mesa	Alta Mesa
		Sec. 3 North	Sec. 3 North	Sec. 3 North
Formation Tops	Comments	Est. MD	Est. TVD	Est. SS
Hamilton Sand		1,437	1,437	1,250
CS Marker 1		1,707	1,707	980
CS Marker 2 (LS Top)		2,390	2,389	298
CS Marker 3		2,927	2,913	-225
Pink Fault		/	/	/
MF		3,150	3,150	-540
Willow Sand	*TARGET*	4,389	4,322	-1,635
Top Basalt		/	/	/

3 Site Preparation

3.1 Access Roads

The proposed surface location is to be accessed by an existing farm road that supports heavy truck traffic, approximately 1.2 miles of improved road over an existing farm path, and 120' of new roadway.

3.2 Erosion Control

Appropriate grading, mechanical stabilization (rip-rap or hay bales), chemical stabilization (soil cement), and silt fencing will be used to prevent soil erosion. All cut and fill slopes are designed with a minimum 2:1 grade to minimize runoff erosion and ensure mechanical stability. See attached engineering drawings.

3.3 Cellars

An 8' deep round cellar box will be installed after the conductor is installed per the relevant section below.

3.4 Pit System

A closed-loop circulating system will be used for this well from spud. Zero discharge practices will be implemented, and all cuttings and waste fluid will be solidified and disposed of at an approved facility. A third party oilfield waste management contractor will provide waste management and tracking services.

3.5 Sump

The location will have a 2' deep trench on downhill sides where the spoil from that trench will be used to construct an earthen berm around the location. The trench will act as a sump to collect rain and wash water for controlled release or appropriate disposal as required.

4 Well Construction

4.1 Casing and Cementing Program

Well Interval	Bit Size	Casing Size, Grade and Weight	Casing Setting Depth	Top of Cement	Cement Type and Volume
Conductor	17-1/2"	13-3/8" 54 ppf K-55 LTC	120'	Surface	Class "A" ~140 sxs 100% excess
Surface	12-1/4"	9-5/8" 40 ppf K-55 LTC	1,000'	Surface	Lead: 100 sxs TCI Beaded Lite @ 10.4 ppg, 100% excess Tail: 50 sxs Class "H" @ 14.8 ppg
Production	8-3/4"	5-1/2" 17 ppf K-55 LTC	5,585'	Surface	Lead: 500 sxs TCI Lite @ 12.7 ppg Tail: 200 sxs Gas Seal @ 16.0 ppg

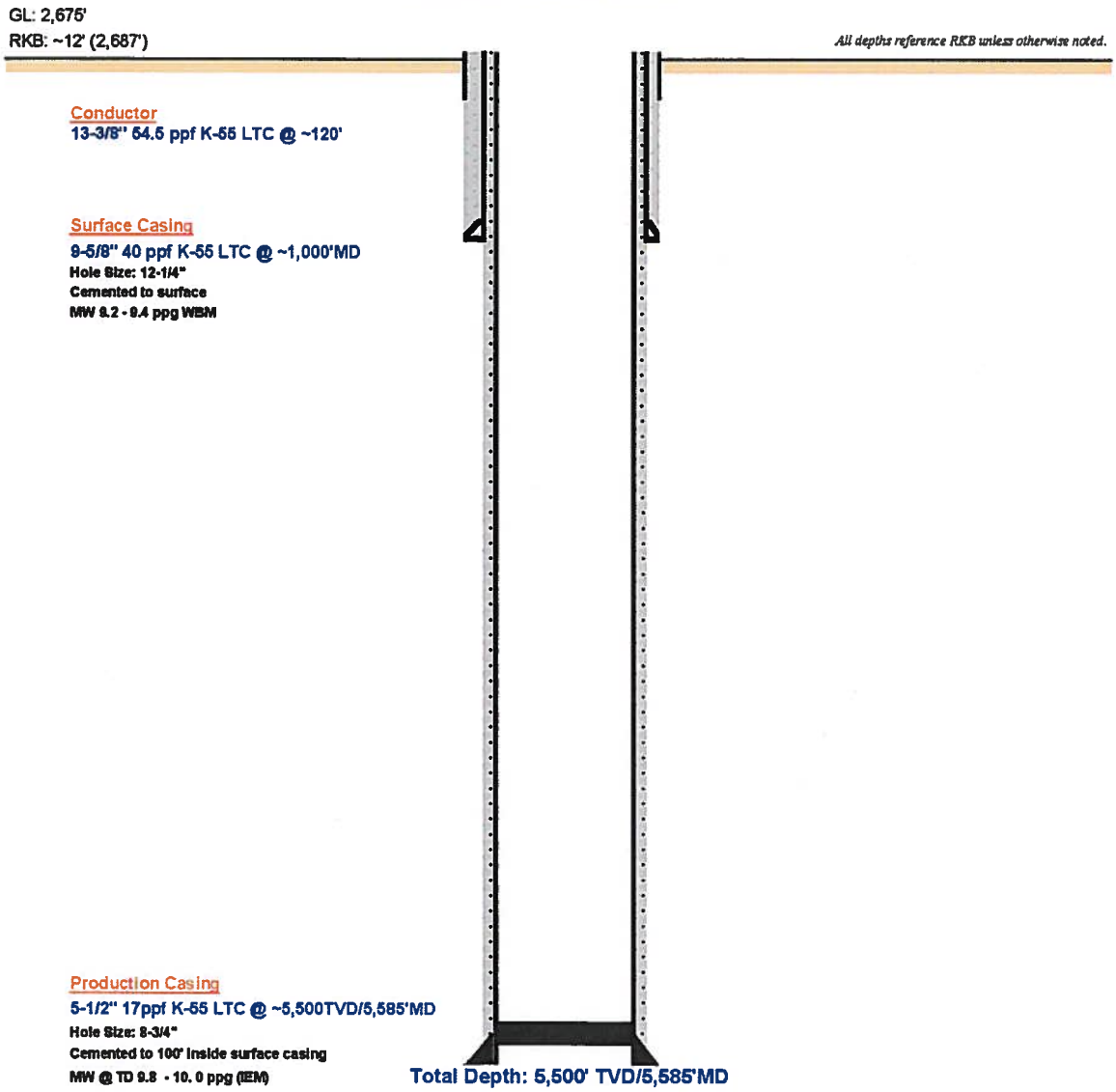
TCI Beaded Lite: An engineered light weight slurry with excellent compressive strength development the slurry exhibits low fluid loss, thixotropic behavior, and has zero free water.

TCI-Lite: A light weight gel extended slurry that develops excellent compressive strength within 24 hours.

Gas-Seal: A premium production casing slurry that has a gas migration control additive for providing an exceptional cement bond to formation and casing. The slurry also contains clay control with low fluid loss for added gas migration inhibition and slurry stability.

4.2 Proposed Wellbore Schematic

Alta Mesa
ML Investments 1-3
Payette Co., Idaho
Proposed Wellbore Schematic



Well Name & No.: ML Investments 1-3	Field: Wildcat
County or Parish: Payette	State: Idaho
Total Depth (MD): 5,585'	(TVD): 5,500'

4.3 Blow-Out Preventers

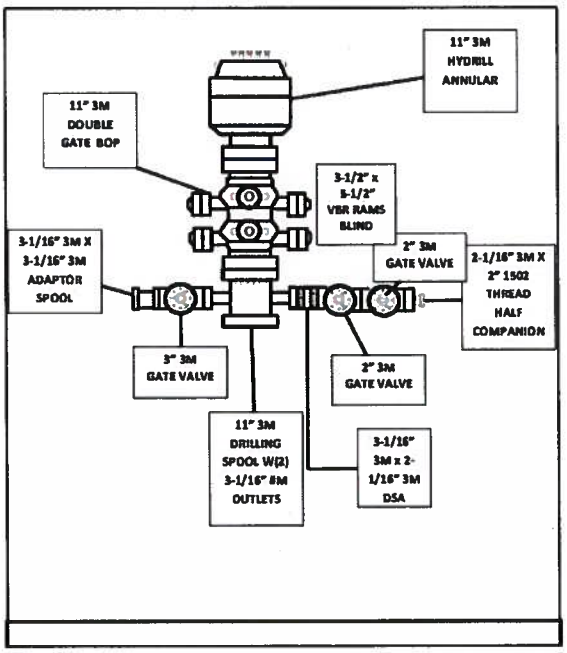
4.3.1 BOP Hardware Configuration

BOP Stack configuration includes an annular preventer and double ram preventers. The top most ram preventer will be fitted with variable ram blocks, the lower ram preventer will be fitted with blind ram blocks. A full-opening safety valve, inside BOP, and functioning wrench – *specific to the pipe in use and only those specific to the pipe in use* – are to be kept on the rig floor with easy access at all times.

4.3.2 BOP Testing

Test annular, rams, choke manifold, FOSV, and IBOP when BOP is first nippled up on casing head. Low-pressure test to 250psi and high-pressure test to 3,000psi (100% of 3M wellhead), except for annular. Test annular preventer to 2,100psi (70% of 3,000psi rating). Test the kelly hose and standpipe back to pump isolation valves to 200 psi above pop off setting or minimum of 3,000 psi. All tests must hold for five minutes. Retest specific component each time a seal is broken. Work BOP's and flush choke lines each trip. Tighten BOP and wellhead bolts every 3 days. Non-ported float valves to be used in BHA after surface casing set.

During drilling and completion operations, the ram-type blow-out preventer shall be function tested by closing on the drill pipe once every seven (7) days. Independently powered accumulators or accumulators and pumps shall maintain a pressure capacity reserve at all times to provide for repeated operation of hydraulic preventers. All tests may be conducted using a test plug. Tests shall be recorded by charts, if required by the Supervisor.



4.4 13-3/8" Conductor

4.4.1 Drilling

The conductor will be installed via auger and grout unless surface conditions dictate driving.

4.4.2 Casing

Set Depth (ft.)	Top (RTE)	Size	Weight (#/ft)	Grade	Burst	Collapse	Centralizers
120'	GL	13-3/8"	54.5	K-55	2,730 psi	1,130 psi	None

4.5 12-1/4" Surface Hole

4.5.1 Drilling

4.5.1.1 Directional Objective

The surface hole will be drilled vertically to 1,000' MD/TVD.

4.5.1.2 Mud System

The surface hole will be drilled using fresh water based mud. Additives will be included for inhibition and also to build high-viscosity sweeps as necessary.

Measured Depth, ft.	Mud Density, ppg	Funnel Viscosity, cP	Yield Point, lb/100ft^2	API Fluid Loss, ml	pH	LGS %
120 – 1,000'	8.6	25-36	8-12	N/C	7.0-8.0	4 - 7

4.5.2 Open Hole Evaluation

No open-hole evaluation will be conducted in this interval

4.5.3 Casing

The surface casing is to be set at a depth that isolates problematic formations and usable water strata.

Set Depth	Top (RTE)	Size	Weight (#/ft)	Grade	Conn	Internal Diameter	Burst	Collapse	Tension
1,000'	GL	9-5/8"	40.0	K-55	LTC	8.835"	3,950 psi	2,570 psi	561 kips

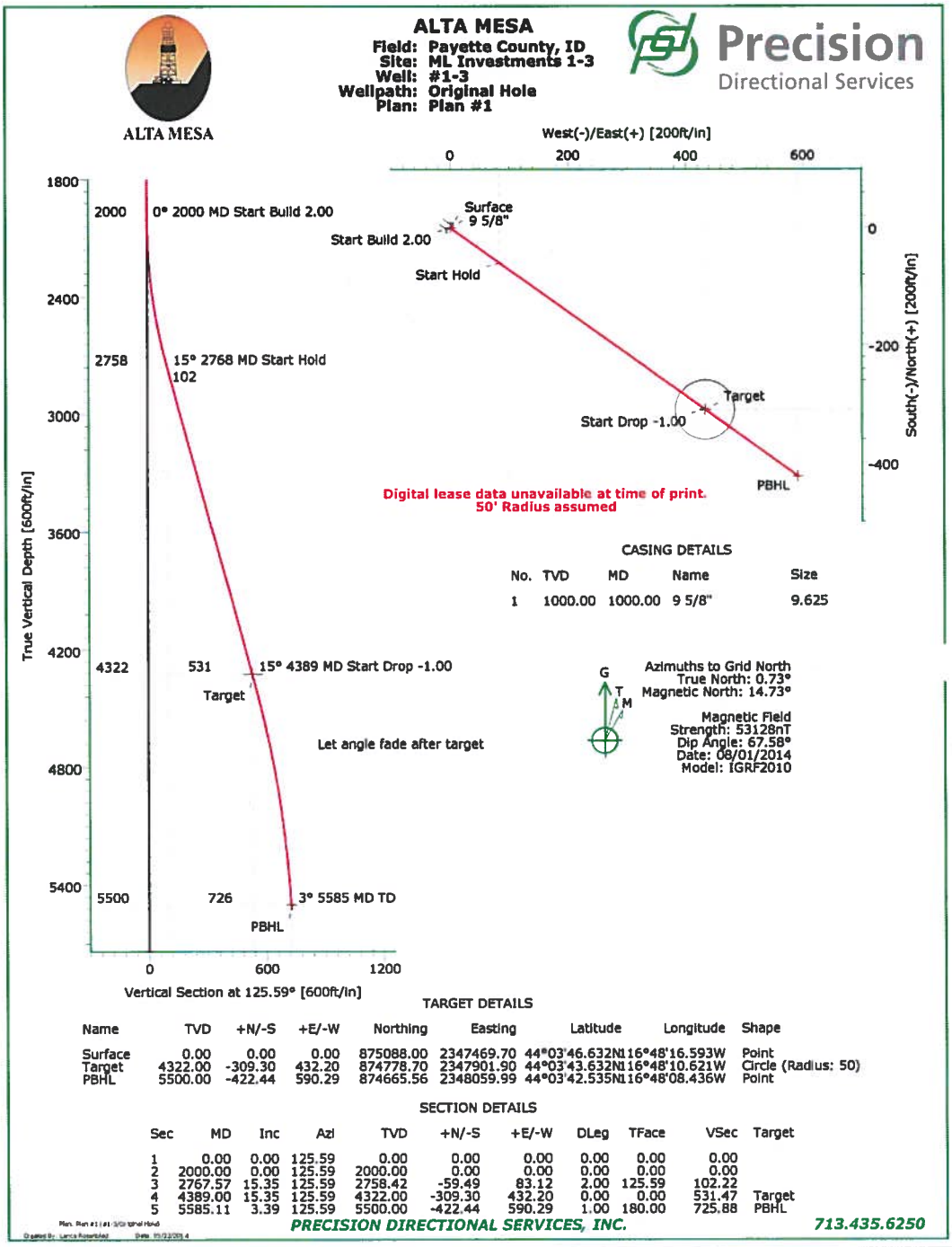
4.6 8-3/4" Production Hole

The 8-3/4" hole will be drilled directionally to ~5,500'TVD/5,585'MD. Kickoff point will be ~2,000' TVD/MD with a build rate of 2°/100 feet to an angle of 15°. At ~4,389'MD the well will be gradually dropped at 1°/100 feet to total depth. Angle at total depth will be ~3°.

4.6.1 Drilling

4.6.1.1 Directional Objective

The 8-3/4" production hole will be drilled directionally to 5,500' TVD/ 5,585'MD. Surveys will be obtained using a measurement while drilling (MWD) tool.



4.6.1.2 Mud System

The production hole interval will be drilled with an invert emulsion mud system.

Measured Depth, ft.	Mud Density, ppg	Funnel Viscosity, cP	Yield Point, lb/100ft^2	HTHP Fluid Loss, ml	ES	LGS %
1,000 – 5,585'	9.2 -9.8	36 - 45	6 - 10	<10.0	>600	< 5%

An invert emulsion drilling fluid will be used from below surface casing to total depth. The production casing will be cemented to surface thus, no drilling fluid will be left in the hole. Drill cuttings waste generated will be managed on location by a third party oilfield waste management company who will supervise the solidification, tracking and transportation to an approved waste disposal site of all oilfield waste generated while drilling. A zero-discharge closed loop sysem will be employed.

4.6.2 Logging Program

While Drilling: Mud logging only

Coring: None

Wireline: After reaching TD, and conditioning the hole, wireline evaluation will be conducted as follows:

- Gamma Ray
- Propagation Resistivity
- Density
- Neutron Porosity
- Electron Capture Spectroscopy
- Sonic
- Percussion sidewall cores

4.6.3 Production Casing

The production casing string is designed to be run to total depth and withstand the expected wellbore pressures.

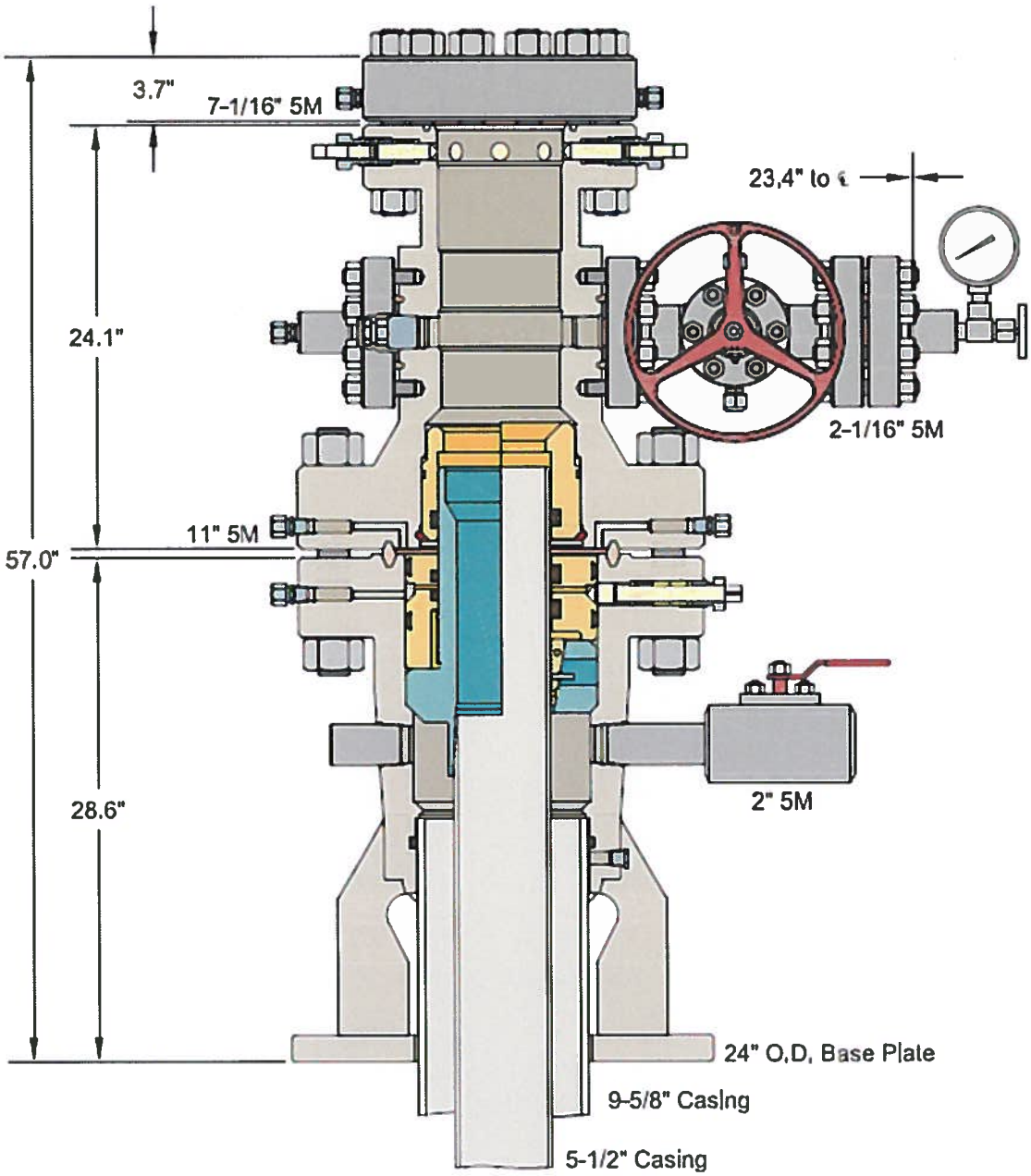
Set Depth ft.	Top (RTE)	Size	Weight (#/ft)	Grade	Conn.	Drift	Burst	Collapse	Tension
5,585'	GL	5-½"	17.0	K-55	LTC	4.892"	5,320 psi	4,910 psi	272 kips

5 Completion

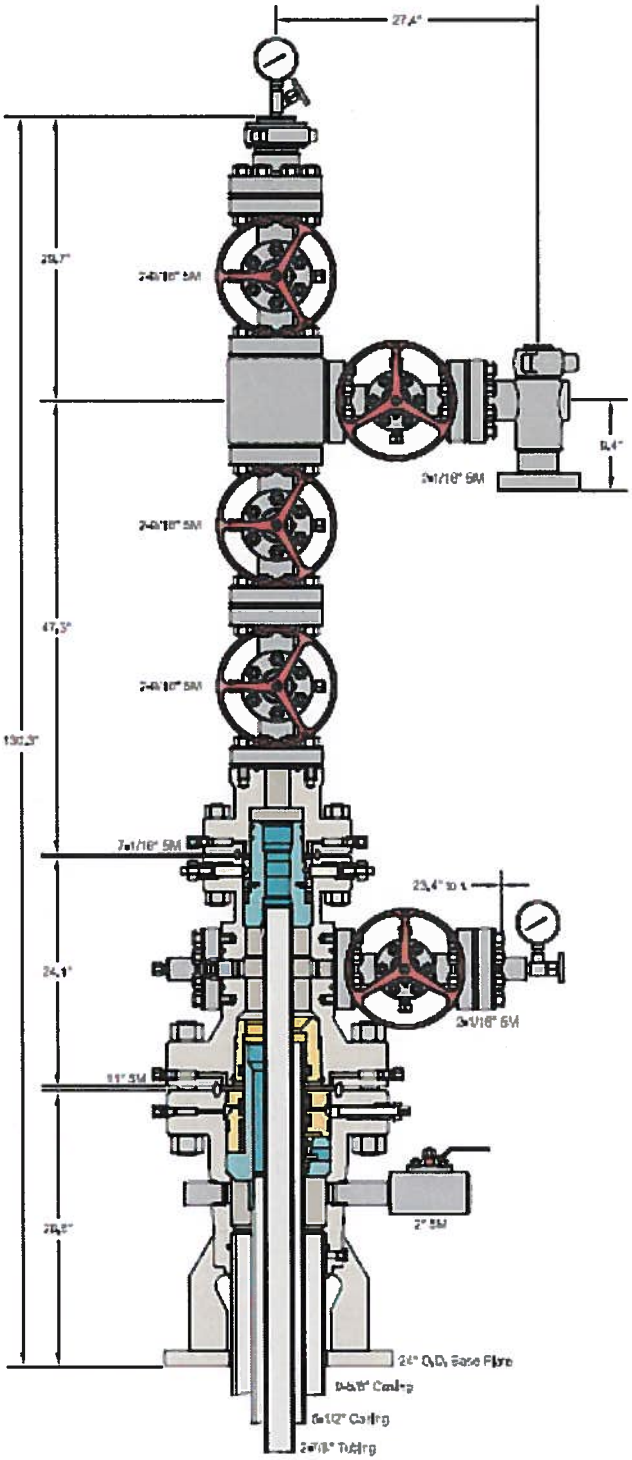
Method of completion will be determined subsequent to review of open-hole log data and cased hole cement bond logs (CBL).

6 Wellhead

6.1 Surface Wellhead System



6.2 Complete Wellhead System with Tree



7 Reclamation

Reclamation will be conducted in accordance with IDAPA 20.07.02.325. To achieve those requirements, Alta Mesa Services, L.P. proposes to address reclamation through a multistep process which is outlined below. As provided for in IDAPA 20.07.02.325.08, Alta Mesa Services, L.P. may enter into a Surface Use Agreement with the landowner the terms of which will ensure that the site is left in a stable, non-eroding condition as required.

1. Re-establish slope stability, surface stability, and desired topographic diversity.
    a. Reconstruct the landscape to the approximate original contour unless otherwise provided for in the Surface Use Agreement
    b. Maximize geomorphic stability and topographic diversity of the reclaimed topography.
    c. Eliminate high walls, cut slopes, and/or topographic depressions on site, unless otherwise approved.
    d. Minimize sheet and rill erosion on the reclaimed area. Eliminate mass wasting, head cutting, large rills or gullies, down cutting in drainages, or overall slope instability on the reclaimed area.
2. Maintain the integrity of the topsoil and subsoil (where appropriate and not otherwise dictated by the Surface Use Agreement)
    a. Identify salvaged topsoil and subsoil.
    b. Segregation of salvaged soils to protect those materials from erosion, degradation, and contamination.
    c. Incorporate stored soil material into the disturbed landscape to the extent practicable.
    d. Stockpiled soils to be stored beyond one growing season shall be stabilized with appropriate vegetation
    e. Record location and approximate volumes of stockpiles.
3. Prepare site for revegetation upon completion of well activities – plugging/abandonment.
    a. Redistribute soil materials in a manner similar to the original vertical profile.
    b. Reduce compaction to an appropriate depth (generally below the root zone) prior to redistribution of topsoil, to accommodate appropriate site-specific plant species.
    c. Provide suitable conditions to support the long term establishment and viability of the desired plant community.
    d. Protect seed and seedling establishment (e.g. erosion control matting, mulching, hydro-seeding, surface roughening, fencing, etc. to be determined based upon site specific conditions
4. Establish a desired self-perpetuating native plant community based upon region specific guidance available from NRCS
    a. Establish species composition, diversity, structure, and total ground cover appropriate for the desired plant community
    b. Select genetically appropriate and locally adapted native plant materials based on the site characteristics and setting.
        i. Seed mixtures shall be selected based on soil type, site conditions and intended final use
        ii. Seed shall not be used later than one year after the test date that appears on the label.
        iii. The bags of seed shall be clearly labeled indicating test date, weed percentage or % Pure Live Seed (PLS), viability or germination percentage, and inert material

c. Select non-native plants only as a short term and non-persistent alternative to native plant materials. Ensure the non-natives are designed to aid in the re-establishment of native plant communities. Revegetate in accordance with best practices described below:
    i. Re-spread topsoil to a minimum depth of 4 inches.
    ii. Prepare a friable but firm and weed free seedbed that is not compacted by prior construction work.
    iii. Appropriate firmness can be estimated when a person leaves about a ¼ inch deep footprint.
    iv. Remove rocks, twigs, concrete, foreign material and clods over 2 inches that can't be broken down.
    v. Soil moisture content shall be at least 30% soil capacity (estimated). Do not seed into undesirable moisture conditions (e.g. "dust" or "mud").
d. Plant communities shall be evaluated annually for two years to ensure revegetation success as determined by IDAPA 20.07.02.325
    i. Repair and reseed areas that have erosion damage as necessary.
    ii. If a stand has less than 70% ground cover after two years, re-evaluate the choice of plant materials, methods and available light and moisture. Re-establish the stand with modifications based on the evaluation

5. Reestablish initial visual composition
    a. Ensure the reclaimed landscape features conform to the prior conditions of the site.