

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, DIRECTOR
SECRETARY TO THE COMMISSION

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

December 3, 2015

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

SUBJECT: Permit to Drill #11-075-20030, State 1-16 (Big Willow Properties LLLC)

The Idaho Department of Lands has completed our review of this permit to drill for gas. 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 information required by IDAPA 20.07.02.340 and 341 will be submitted to IDL within 30 days of the well completion or the logs being run.
6. Well Log information shall be submitted in paper and electronic formats.
7. A Caliper Log will be run in addition to the logs listed on Page 10 of the Permit Supplement.
8. Idaho Department of Lands inspectors shall have 24 hour, unencumbered access for compliance and regulatory purposes.
9. All cementing operations shall be in accordance with IDAPA 20.07.02.310. Cement will be returned to surface on all well casings via the pump and plug method or other method as approved by the Department.
10. This permit does not grant the right for ingress or egress nor does this application grant the right to production from unleased lands.

Ronda Louderman
December 3, 2015
Page 2

11. No production or drainage may occur until item 9 above has been met or the Commission has issued an order to satisfy item 9.

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

This permit will be administered by myself and a contractor hired by IDL. We will be inspecting the drilling operation. Please contact me at 208-334-0261 if you have any questions.

Sincerely,



Eric Wilson
Resource Protection and Assistance Bureau Chief

cc: AJ Mondor, Resource Specialist, IDL Southwest Office
Chad Hersley, IDWR, PO Box 83720, Boise, Idaho 83720-0098
Patti Nitz, Payette County, 1130 3rd Ave. N., Payette, ID 83661



ALTA MESA SERVICES, LP

15021 Katy Freeway, Suite 400
Houston, Texas 77094
(281) 530-0991
(281) 530-5278 FAX

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DEPT. OF LANDS
2015 NOV 12 PM 2:56
BOISE, IDAHO

November 10, 2015

Dear Idaho Department of Lands,

Alta Mesa Services, LP (AMS) is submitting to you, required plans, procedures and projected well drilling information. It is AMS's request that you protect these documents from disclosure. The submitted documents do contain security sensitive information (SSI) regarding critical energy infrastructure controlled under 49 CFR §1520.5, accordingly, preservation of confidential treatment, and withholding these documents from any relevant FOIA request is requested.

SSI contained in the submitted documents includes but is not limited to the following:

- Project specifications and procedures
- Identification of wells, flowlines and high consequence areas (HCA's)
- Employee and personnel private information

In accordance with the Freedom of Information Act and 49 CFR Part 15, you are obligated to withhold any information requested under FOIA that meets the criteria of Exemption 3.

Exemption 3 allows the withholding of information prohibited from disclosure by another federal statute provided that one of two disjunctive requirements are met: the statute either "(A) requires that the matters be withheld from the public in such a manner as to leave no discretion on the issue, or (B) establishes particular criteria for withholding or refers to particular types of matters to be withheld." Records and information determined to be SSI under 49 CFR Part 15 are specifically exempt from public disclosure under FOIA pursuant to 5 U.S.C. 552(b)(3).

The applicability of Exemption 3 does not depend upon the contents of the documents, because it is the nature of the documents, not their content that makes them exempt. The agency need only show that the documents are within the category of documents specifically exempt from disclosure by the statute. (See *O'Connor v. U.S. Dept. of Treasury*, 570 F.Supp.2d 749, 755 (2008))

49 CFR Part 15 provides for disclosure of non-SSI information that may be contained in a record containing SSI only if such non-SSI information is not otherwise exempt. Alta Mesa Services asserts that any information contained in the submitted documents that is determined not to meet the criteria of SSI under Part 15 squarely falls under FOIA Exemption 4.

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Exemption 4 prohibits the disclosure of trade secrets and commercial or financial information obtained from a person and privileged or confidential. In the engineering plan and subsequent report, AMS voluntarily provides Idaho Department of Lands with detailed information about its operations and staffing that it would not customarily release to the public. These documents will contain confidential business information including but not limited to the following:

- Operations and staffing
- Well drilling prognosis
- Construction and location identification
- Design specifications
- Surveys and mapping
- Detailed well and drilling data
- Emergency response activities

Release of this proprietary information would substantially harm AMS competitive position because its competitors could use this information to their advantage in adjusting their techniques and operations – the type of affirmative use of proprietary information against which Exemption 4 is meant to guard. (See *United Technologies Corp. v. U.S. Dept. of Defense*, 601 F.3d 557, 390 (D.C. Cir. 2010) acknowledging information contained in quality control reports could be used by competitors to gain valuable insights from which to gain advantage.)

Additionally, AMS strongly feels that all information contained in this drilling application meets exemptions from public information disclosure through Idaho code sections 74-107 and 74-108. This applies especially to any and all documents containing geologic data.

If you have any questions or would like to discuss this matter, please feel free to contact me at (361) 960-5671.

Sincerely,

ALTA MESA SERVICES, LP



Ronda Louderman
Senior Regulatory Specialist

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IDAHO OIL AND GAS CONSERVATION COMMISSION

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Application For Permit to Drill, Deepen or Plug Back

APPLICATION TO: Drill (\$2,000) [X] Deepen (\$500) [] Plug Back (\$500) []

NAME OF OPERATOR: Alta Mesa Services, LP Date: 11/10/2015

Address: 15021 Katy Freeway, Suite 400

City: Houston State: TX Zip Code: 77094 Telephone: 281-530-0991

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

Emergency Contact Name/Phone: Wade Moore, 832-248-9390

DESCRIPTION OF WELL AND LEASE

Name of Lease: State Well Number: 1-16 Elevation (ground): GL 2,323'

Well Location: Section: 16 Township: 8N Range: 3W (or block and survey)

(Give footage from Section lines): 524'

Latitude/Longitude (Dec Degrees): 44 02'16.157" /116 41'35.706" Datum:

WGS84 NAD83 [X] NAD27

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

Distance, in miles, and direction from nearest town or post office: 12.36 miles Southeast of Payette City Hall

Nearest distance from proposed location to property or lease line: 524 feet

Distance from proposed location to nearest drilling, completed or applied for on the same lease: 23,726 feet

Proposed depth: 5,000 Approx date work will start: 12/1/2015 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:

Bond Type and Number:

Surface Rights Owner (At proposed surface location): Name Big Willow Properties, LLLP

Phone: 208-739-1939

Does the drilling unit contain state leases? 1 If yes, check all that apply:

IDL [X] IDFG [] IDT [] Public Trust [] Other []

Does this application include the following actions? If yes, check all that apply:

Well Treatment [] Pit construction [] Directional or Horizontal Drilling []

Applications that include well treatments, pit construction, and directional drilling must provide attachments with the information required from the respective sections of IDAPA 20.07.02. If these activities are not included in this application, then a separate application and approval will be required prior to commencement of any of these activities.

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)

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IDAHO OIL AND GAS CONSERVATION COMMISSION

Application For Permit to Drill, Deepen or Plug Back

Applicant(s) should be familiar with and adhere to IDAPA 20.07.02, Rules Governing Conservation of Crude Oil and Natural Gas in the State of Idaho.

Please check the boxes below to indicate that you have supplied the required information.

Maps Required

- Attach a survey plat or map, preferably on a scale of one (1) inch equals one thousand (1,000) feet, prepared by a licensed surveyor or engineer.
- The plat must show:
 - The proposed well location. For directional wells, both surface and bottomhole locations should be marked.
 - The location of the well with reference to the nearest lines of an established public survey.
 - All leased tracts held by the applicant within the drilling unit. Distances of the proposed well from the two nearest unit boundary lines, if applicable, and from the nearest oil or gas wells on the same unit completed in or being drilled to the same reservoir. If the well location requested is not in conformance with the applicable well-spacing rules, show all off-setting wells to the proposed well, and the names and addresses of all adjoining lease or property owners.
 - The location of the nearest structure with a water supply, or the nearest water well as shown on the IDWR registry of water rights or well log database.

Other Required Information

- Estimated depth to the top of the important geologic markers
- Estimated depth to the top of the target formations.
- Information on the type of tools to be used.
- Proposed logging program.
- Proposed casing program, including size and weight of casing and the depth at which each casing type is to be set.
- Type and amount of cement to be used, and the intervals cemented.
- Information on the drilling plan (drill pad and rig set up, etc).
- Schematic diagram of the BOP and well head assemblies, including the minimum size and pressure rating of all components of the BOP and well head assemblies.
- Best management practices to be used for erosion and sediment control.
- Plan for interim reclamation of the drill site after the well is completed, and a plan for final reclamation of the drill site following plugging and abandonment of the well. These plans must contain the information needed to implement reclamation as described in IDAPA 20.07.02 subsection 310.16 and section 510.

CERTIFICATION: I, Ronda Louderman the undersigned, state that I am the Sr. Regulatory Specialist 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: 11/10/2015 Signature: Ronda Louderman

NOTICE: Before submitting this form, be sure that you have given all information requested.

IDL Office Use Only:

Approval Stamp

Approval Date: 12/3/15

Approved by:

Signature and Title

Resource Protection & Assistance Bureau Chief

US Well Number: 11-075-20030

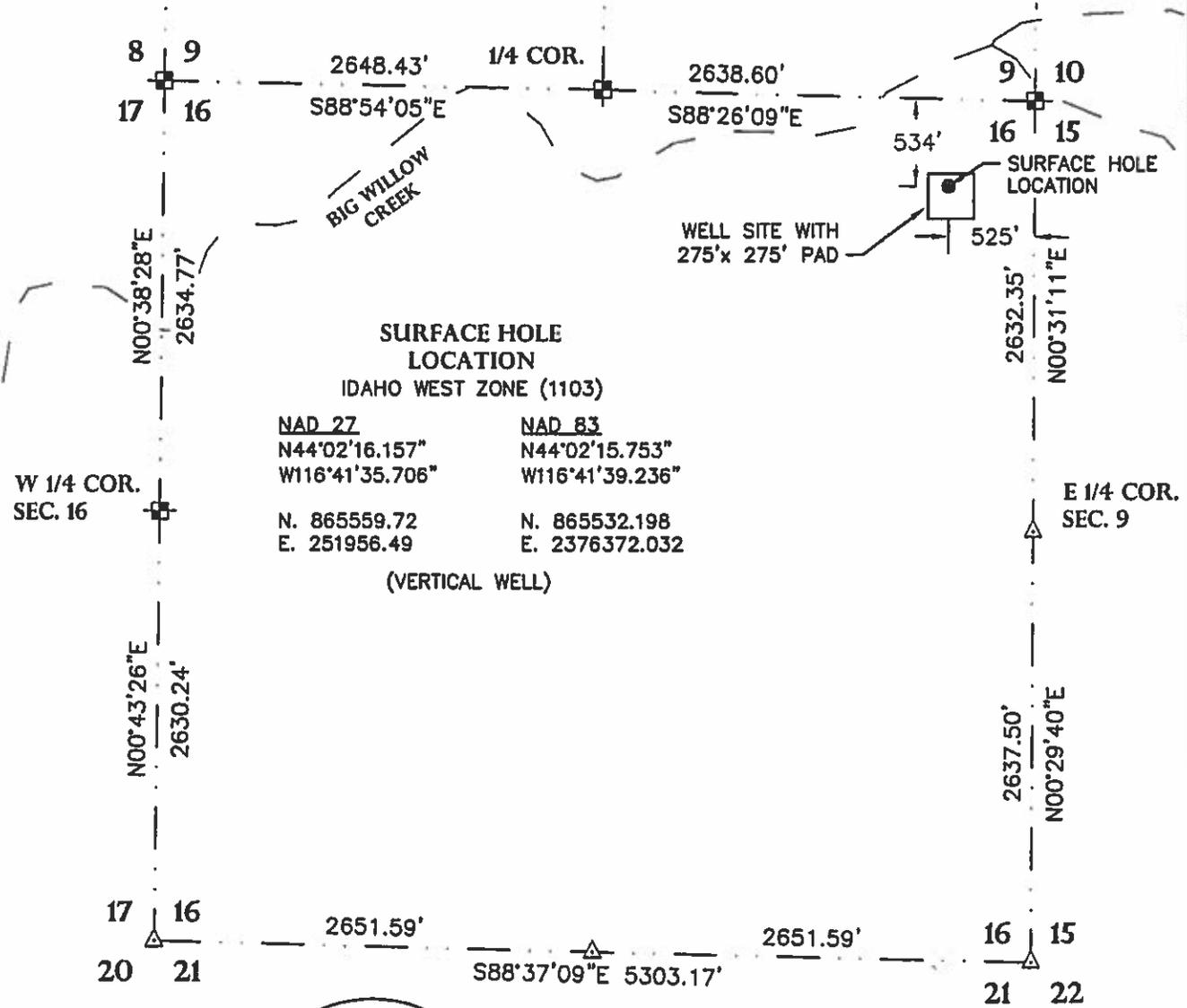
Operator Number (if known): _____

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LOCATION EXHIBIT MAP OF SECTION 16 WELL SITE

LOCATED IN A PORTION OF SECTION 16
TOWNSHIP 08 NORTH, RANGE 03 WEST
PAYETTE COUNTY, IDAHO
2015



SURFACE HOLE LOCATION
IDAHO WEST ZONE (1103)

NAD 27	NAD 83
N44°02'16.157"	N44°02'15.753"
W116°41'35.706"	W116°41'39.236"
N. 865559.72	N. 865532.198
E. 251956.49	E. 2376372.032

(VERTICAL WELL)



LEGEND

- SECTION LINE
- ⊕ FOUND ALUMINUM CAP MONUMENT
- △ CALCULATED POINT



T-O ENGINEERS

332 N. BROADMORE WAY
NAMPA, IDAHO 83687-5123

PHONE: (208) 442-6300

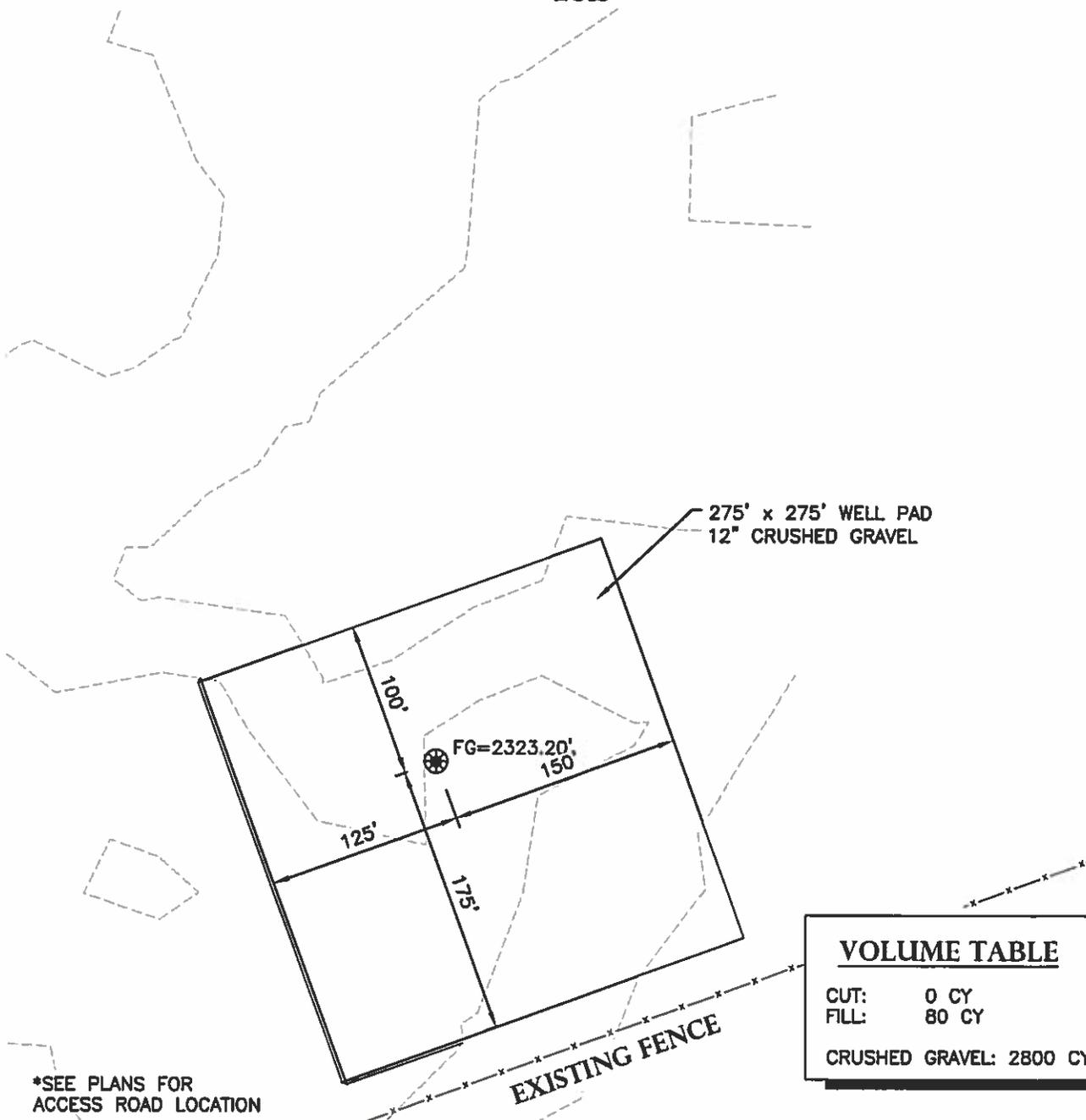
FAX: (208) 466-0944

E-FILE: 130216-V-1-16 WELLSITE EXHIBIT.DWG DATE: OCT. 15, 2015 JOB: 130216

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GRADING EXHIBIT FOR 1-16 WELL SITE

LOCATED IN SECTION 16
TOWNSHIP 08 NORTH, RANGE 03 WEST
PAYETTE COUNTY, IDAHO
2015



VOLUME TABLE	
CUT:	0 CY
FILL:	80 CY
CRUSHED GRAVEL: 2800 CY	

*SEE PLANS FOR
ACCESS ROAD LOCATION



T-O ENGINEERS

332 N. BROADMORE WAY
NAMPA, IDAHO 83687-5123

PHONE: (208) 442-6300 FAX: (208) 466-0944

E-FILE: 130216-C-2-3_1-16 GRADING.dwg DATE: 10/23/2015 JOB: 130216

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08N03W160000

08N03W160000A

08N03W163600

08N03W162700

16

Payette

08N03W164800

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Alta Mesa Services, LP
State 1-16 Location Map to nearest water well from IDWR database

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Close

IDAHO DEPARTMENT OF WATER RESOURCES
Water Right Report

11/10/2015

WATER RIGHT NO. 65-5566

<u>Owner Type</u>	<u>Name and Address</u>
Current Owner	BIG WILLOW RANCH LLC 1 DIXIE LN PAYETTE, ID 83661 (208) 739-1939
Original Owner	THOMAS F PENCE JR 5433 BIG WILLOW RD PAYETTE, ID 83661 (208)278-5472

Priority Date: 01/02/1936
Basis: Decreed
Status: Active

<u>Source</u>	<u>Tributary</u>
GROUND WATER	

<u>Beneficial Use</u>	<u>From</u>	<u>To</u>	<u>Diversion Rate</u>	<u>Volume</u>
STOCKWATER	1/01	12/31	0.09 CFS	5.4 AFA
DOMESTIC	1/01	12/31	0.04 CFS	1.2 AFA
Total Diversion			0.09 CFS	

Location of Point(s) of Diversion:

GROUND WATER|SWSE|Sec. 18|Township 08N|Range 03W|PAYETTE County

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Place(s) of use:

Place of Use Legal Description: STOCKWATER same as

Place of Use Legal Description: DOMESTIC PAYETTE County

Township	Range	Section	Lot	Tract	Acres									
08N	03W	18		SWSE										

Conditions of Approval:

1. N13 THE QUANTITY OF WATER UNDER THIS RIGHT SHALL NOT EXCEED 13,000 GALLONS PER DAY.
2. N11 THE QUANTITY OF WATER DECREED FOR THIS WATER RIGHT IS NOT A DETERMINATION OF HISTORICAL BENEFICIAL USE.

Dates:

Licensed Date:

Decreed Date: 09/04/1998

Enlargement Use Priority Date:

Enlargement Statute Priority Date:

Water Supply Bank Enrollment Date Accepted:

Water Supply Bank Enrollment Date Removed:

Application Received Date:

Protest Deadline Date:

Number of Protests: 0

Other Information:

State or Federal: S

Owner Name Connector:

Water District Number: 65

Generic Max Rate per Acre:

Generic Max Volume per Acre:

Civil Case Number:

Old Case Number:

Decree Plaintiff:

Decree Defendant:

Swan Falls Trust or Nontrust:

Swan Falls Dismissed:

DLE Act Number:

Cary Act Number:

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Mitigation Plan: False

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Payette, ID 83661 to 6901-7513 Big Willow Rd, Payette, ID 83661 Drive 16.7 miles, 33 min

Direction from Payette, ID to State #1-16

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2015 NOV 16 AM 10:30
BOISE, IDAHO



Map data ©2015 Google 2 mi

Payette, ID

- ↑ 1. Head east on 3rd Ave N toward N 9th St 66 ft
- ↗ 2. Turn right at the 1st cross street onto N 9th St 0.4 mi
- ↶ 3. Turn left onto 2nd Ave S 0.6 mi
- ↑ 4. Continue onto ID-52 E/S 18th St 8.9 mi
 ⓘ Continue to follow ID-52 E
- ↶ 5. Turn left onto Big Willow Rd 6.9 mi

6901-7513 Big Willow Rd

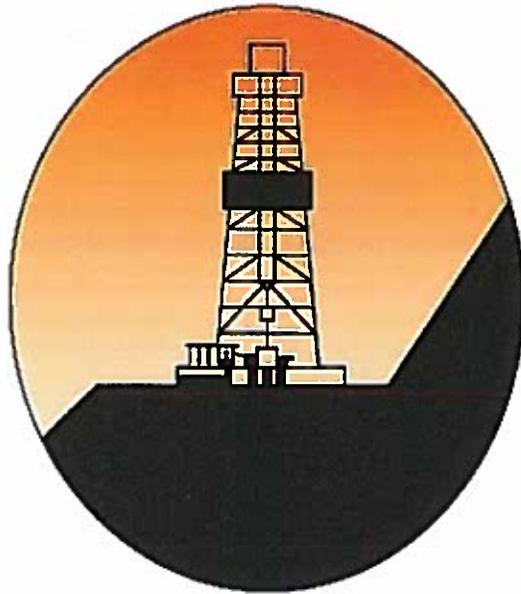
Payette, ID 83661

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

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1-16 Road Access Map



DEPT. OF LANDS
2015 NOV 16 AM 10:29
BOISE, IDAHO

ALTA MESA

ALTA MESA SERVICES, LP

IDL Permit Supplement

State Permit 1-16

Payette County, ID

November 5, 2015

1	Background Information.....	3
2	Geologic Prognosis	4
2.1	Prospect	4
2.2	PROPOSED WELL:	4
2.3	Estimated Geological Formation Tops:.....	4
3	Site Preparation.....	5
3.1	Access Roads.....	5
3.2	Erosion Control	5
3.3	Cellars.....	5
3.4	Pit System.....	5
3.5	Sump.....	5
4	Well Construction.....	6
4.1	Casing and Cementing Program.....	6
4.2	Proposed Wellbore Schematic	7
4.3	Blow-Out Preventers	8
4.4	13-3/8” Conductor.....	9
4.5	12-1/4” Surface Hole.....	9
4.6	8-3/4” Production Hole	10
5	Completion.....	11
6	Wellhead	12
6.1	Surface Wellhead System.....	12
6.2	Complete Wellhead System with Tree.....	13
7	Reclamation	14

1 Background Information

Objective: The objective of this operation is to drill a Vertical well to 5,000'TVD/MD.

AFE #:	TBD	County:	Payette
Well Type:	Straight	State:	Idaho
Well Name:	State Permit 1-16	Section:	16
Field:	Wildcat	Township:	8N
		Range:	3W

Mapping Reference:

System:	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:

NAD27
Lat.: N 44° 02' 16.157"
Long.: W 116° 41' 35.706"
SPCS: 251956.49 ft. E
865559.72 ft. N

Bottom Hole Location:

NAD27
Lat.: Same
Long.: Same
SPCS: Same

Elevation:

GL: 2,323 ft.
RKB: 2,335 ft.

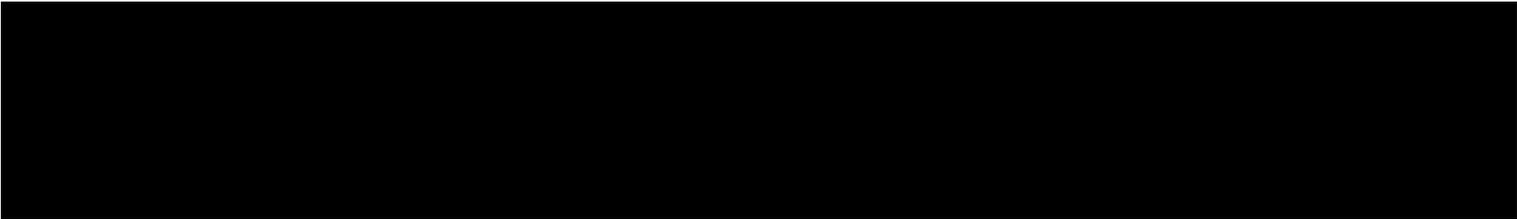
Planned TD:

MD: 5,000.0 ft.
TVD: 5,000.0 ft.

Contractor: Paul Graham Drilling

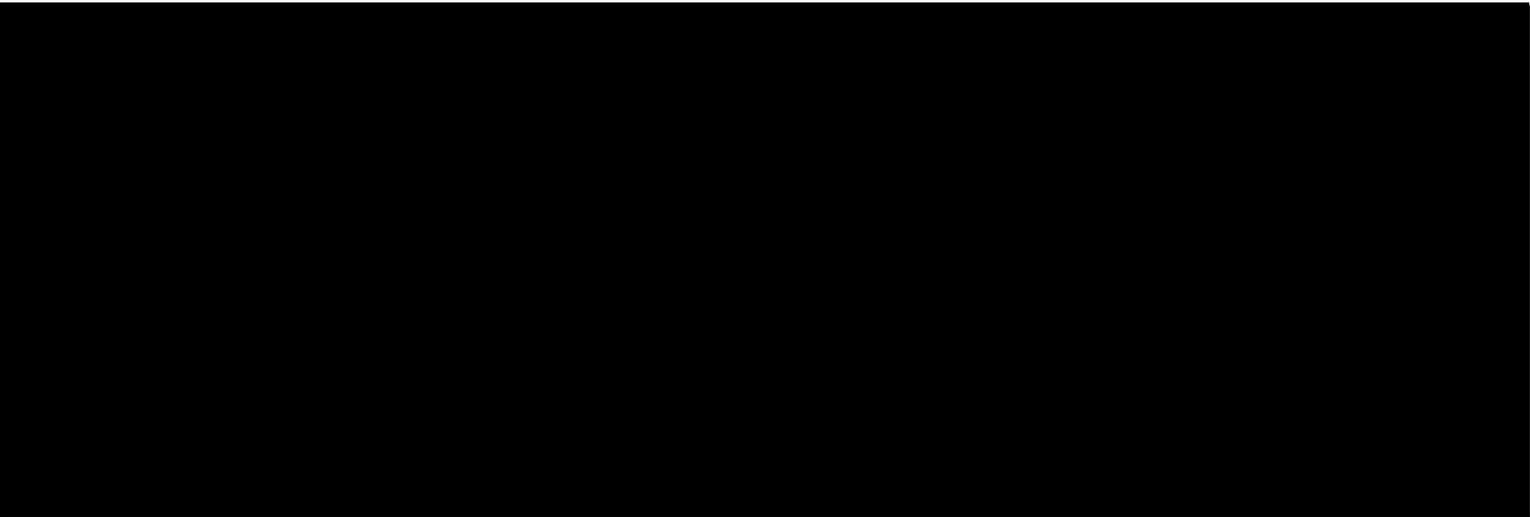
Rig: #4

2 Geologic Prognosis



2.2 PROPOSED WELL:

The well is to be a straight hole drilled to total depth of 5,000' MD/TVD. The surface and bottom hole location being in Section 16-8N-3W (Payette County, Idaho).



3 Site Preparation

3.1 Access Roads

AMS plans to use approximately 4,320' of existing gravel road off of Gulch Road owned by Lone Pine Farms Canyon County LLC to access Big Willow Properties. The existing gravel road will be improved by adding 12" of gravel to top of road. We will then construct approximately 12,450' of road consisting of a 12" thick gravel base on and across lands owned by Big Willow Properties LLLC to access the well site.

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: 200 sxs EconoLite @ 11.0 ppg, 100% excess Tail: 70 sxs Class "H" @ 14.8 ppg
Production	8-3/4"	5-1/2" 17 ppf K-55 LTC	5,000'	Surface	Lead: 385 sxs Gasbond @ 13.0 ppg Tail: 390 sxs Gasbond 14.2 ppg

EconoLite: A light density slurry with excellent compressive strength development the slurry exhibits low fluid loss and has low free water (<2%).

GasBond: 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
State Permit 1-16
Payette Co., Idaho
Proposed Wellbore Schematic**

GL: 2,323'

RKB: ~12' (2,335')

All depths reference RKB unless otherwise noted.

Conductor

13-3/8" 54.5 ppf K-55 LTC @ ~120'

Surface Casing

9-5/8" 40 ppf K-55 LTC @ ~1,000' MD

Hole Size: 12-1/4"

Cemented to surface

MW 9.2 - 9.4 ppg WBM

Production Casing

5-1/2" 17ppf K-55 LTC @ ~5,000TVD/MD

Hole Size: 8-3/4"

Cemented to 100' inside surface casing

MW @ TD 9.8 - 10.0 ppg (WBM)

Total Depth: 5,000' TVD/MD

Well Name & No.: State Permit 1-16	Field: Wildcat
County or Parish: Payette	State: Idaho
Total Depth (MD): 5,000'	(TVD): 5,000'

4.3 Blow-Out Preventers

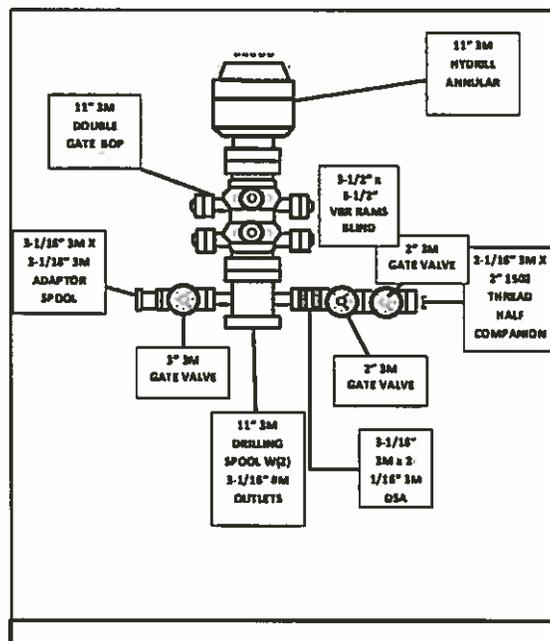
4.3.1 BOP Hardware Configuration

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 nipped 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

4.6.1 Drilling

4.6.1.1 *Directional Objective*

The 8-3/4" hole will be drilled vertically to ~5,000'TVD/MD.

4.6.1.2 *Mud System*

The production hole interval will be drilled with a fresh water based mud system.

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

A fresh water based 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 system 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
- Electric Log
- 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.

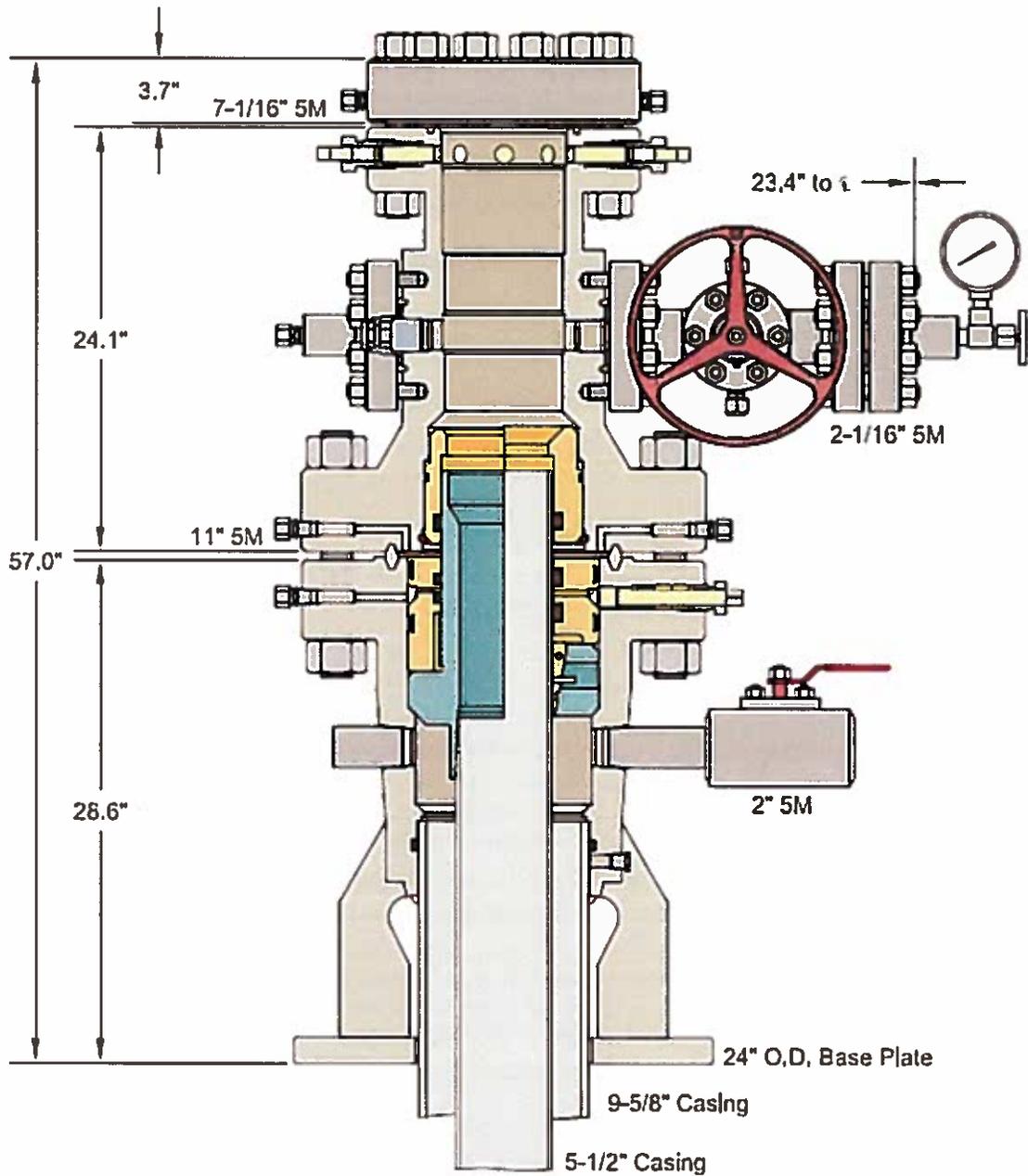
Set Depth ft.	Top (RTE)	Size	Weight (#/ft)	Grade	Conn.	Drift	Burst	Collapse	Tension
5,000'	GL	5-1/2"	17.0	K-55	LTC	4.892"	5,320 psi	4,910 psi	272 kips

5 Completion

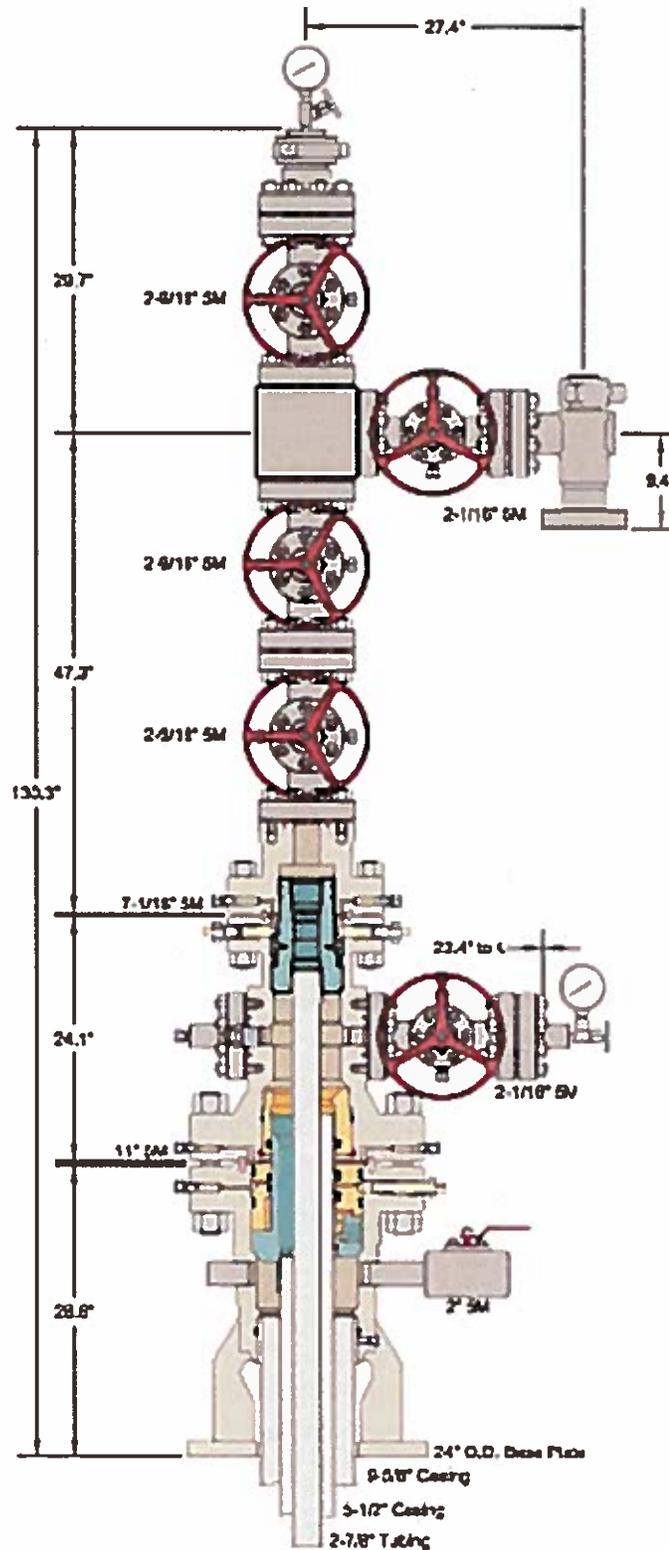
Method of completion will be determined subsequent to review of open-hole log data and cased hole cement bond logs (CBL).

6 Wellhead

6.1 Surface Wellhead System



6.2 Complete Wellhead System with Tree



ALL DIMENSIONS ARE APPROXIMATE

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

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- 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.