

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

David R. Catanach Division Director
Oil Conservation Division



New Mexico Oil Conservation Division approval and conditions listed below are made in accordance with OCD Rule 19.15.7.11 and are in addition to the actions approved by BLM on the following 3160-3 APD form.

Operator Signature Date: 9-29-15

Well information;

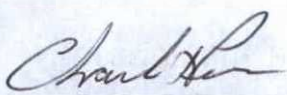
Operator BP, Well Name and Number AL Elliot D 10 #1H lat 2

API# 30-045-35721, Section 11, Township 29 N/S, Range 9 E/W

Conditions of Approval:

(See the below checked and handwritten conditions)

- ☒ Notify Aztec OCD 24hrs prior to casing & cement.
- ☒ Hold C-104 for directional survey & "As Drilled" Plat
- ☒ Hold C-104 for NSL, NSP, DHC
- ☐ Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- ☐ Regarding the use of a pit, closed loop system or below grade tank, the operator must comply with the following as applicable:
 - A pit requires a complete C-144 be submitted and approved prior to the construction or use of the pit, pursuant to 19.15.17.8.A
 - A closed loop system requires notification prior to use, pursuant to 19.15.17.9.A
 - A below grade tank requires a registration be filed prior to the construction or use of the below grade tank, pursuant to 19.15.17.8.C
- ☐ Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string
- ☒ Regarding Hydraulic Fracturing, review EPA Underground Injection Control Guidance 84
- ☒ Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.
- ☒ Well-bore communication is regulated under 19.15.29 NMAC. This requires well-bore Communication to be reported in accordance with 19.15.29.8.


NMOCD Approved by Signature

12-17-2015
Date

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

DEC 04 2015

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: ☒ DRILL ☐ REENTER		CONFIDENTIAL	
1b. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		5. Lease Serial No. NMSF078132	
2. Name of Operator BP AMERICA PRODUCTION COMPANY Contact: TOYA COLVIN Toya.Colvin@bp.com		6. If Indian, Allottee or Tribe Name	
3a. Address 737 NORTH ELDRIDGE PARKWAY 12.181A HOUSTON, TX 77079		7. If Unit or CA Agreement, Name and No.	
3b. Phone No. (include area code) Ph: 281-366-7148		8. Lease Name and Well No. A L ELLIOTT D 10 1H	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface SESE 985FSL 55FEL 36.735063 N Lat, 107.739625 W Lon At proposed prod. zone SESW 1276FSL 710FWL 36.735586 N Lat, 107.741468 W Lon		9. API Well No. 30-045-35721	
14. Distance in miles and direction from nearest town or post office* WELL IS 14.1 MILES NORTHEAST OF BLOOMFIELD, NM.		10. Field and Pool, or Exploratory BASIN FRUITLAND COAL	
15. Distance from proposed location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) WELL IS 595 FEET FROM THE NEAREST UNIT/LEASE LINE.		11. Sec., T., R., M., or Blk. and Survey or Area Sec 11 T29N R09W Mer	
16. No. of Acres in Lease 259.80		12. County or Parish SAN JUAN	
17. Spacing Unit dedicated to this well 320.00		13. State NM	
18. Distance from proposed location to nearest well, drilling, completed, applied for, on this lease, ft. WELL IS 297 FT FROM THE NEAREST WELL ELLIOTT (WD) 2584 TVD		20. BLM/BIA Bond No. on file WY2924	
21. Elevations (Show whether DF, KB, RT, GL, etc.) 5998 GL		22. Approximate date work will start 12/01/2015	
23. Estimated duration 15 DAYS			

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

- | | |
|---|--|
| 1. Well plat certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature (Electronic Submission)	Name (Printed/Typed) TOYA COLVIN Ph: 281-366-7148	Date 09/29/2015
Title REGULATORY ANALYST		
Approved by (Signature) <i>[Signature]</i>	Name (Printed/Typed)	Date 12/2/15
Title AFM	Office FFO	

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

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

Additional Operator Remarks (see next page)

ENTERED AFMSS OCT - 1 2015 BY
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Electronic Submission #318034 verified by the BLM Well Information System
For BP AMERICA PRODUCTION COMPANY, sent to the FarmingtonDRILLING OPERATIONS AUTHORIZED
ARE SUBJECT TO COMPLIANCE WITH
ATTACHED "GENERAL REQUIREMENTS"This action is subject to
technical and procedural review
pursuant to 43 CFR 3165.3 and
appeal pursuant to 43 CFR 3165.4

** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED **

NMOCD

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (505) 393-6161 Fax: (505) 393-0720
District II
911 S. First St., Artesia, NM 88210
Phone: (505) 746-1281 Fax: (505) 746-9720
District III
1000 Rio Rancho Road, Aztec, NM 87410
Phone: (505) 354-6176 Fax: (505) 354-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office
☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-04535721		² Foot Code 71629		³ Foot Name Basin Fruitland Coal	
⁴ Property Code 000462-315719		⁵ Property Name AL Elliot D 10		⁶ Well Number 1H Lat 1	
⁷ OGRID No. 000778		⁸ Operator Name BP America Production Company		⁹ Elevation 5998	

" Surface Location

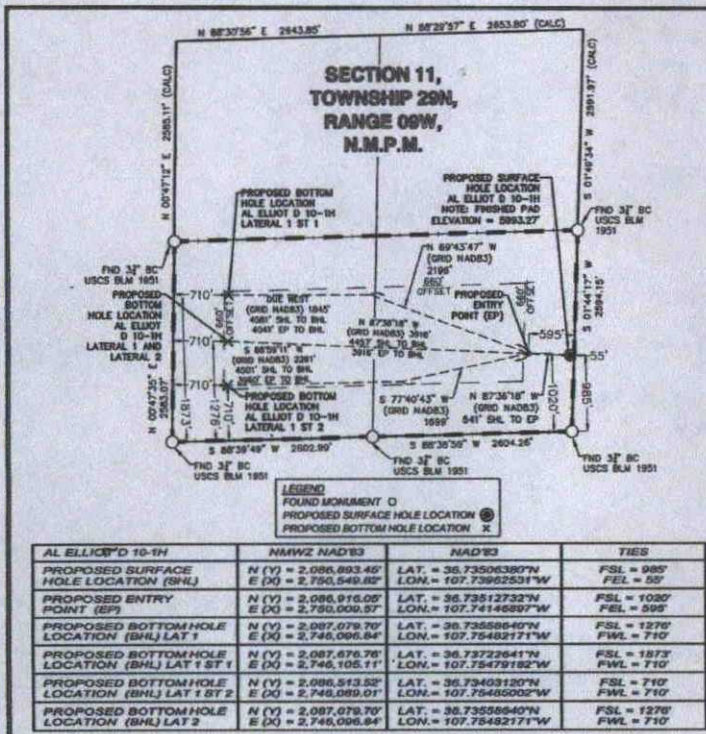
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	11	29N	09W		985	South	55	East	San Juan

" Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	11	29N	09W		1276	South	710	West	San Juan

¹² Dedicated Acres 320	¹³ Joint or Indiv 	¹⁴ Consolidation Code 	¹⁵ Order No.
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No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



" OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or undivided mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order. *Intervenor created by the division.*

Toya Colvin 8/25/15
Signature Date

Toya Colvin

Printed Name

Toya.Colvin@bp.com

Email Address

"SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

7-9-15
Date of Survey

Signature and Seal



17078
Certificate Number

OIL CONS. DIV DIST. 3

DEC 04 2015

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (505) 397-6161 Fax: (505) 397-0720
District II
811 E. First St., Artesia, NM 88210
Phone: (505) 748-1283 Fax: (505) 748-9720
District III
1000 Rio Blanco Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1720 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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¹ API Number 30-045-35721		² Pool Code 71629	³ Pool Name Basin Fruitland Coal
⁴ Property Code 000462	⁵ Property Name AL Elliott D 10		⁶ Well Number 1H Lat 1 ST 1
⁷ OGRID No. 000778	⁸ Operator Name BP America Production Company		⁹ Elevation 5998

Surface Location

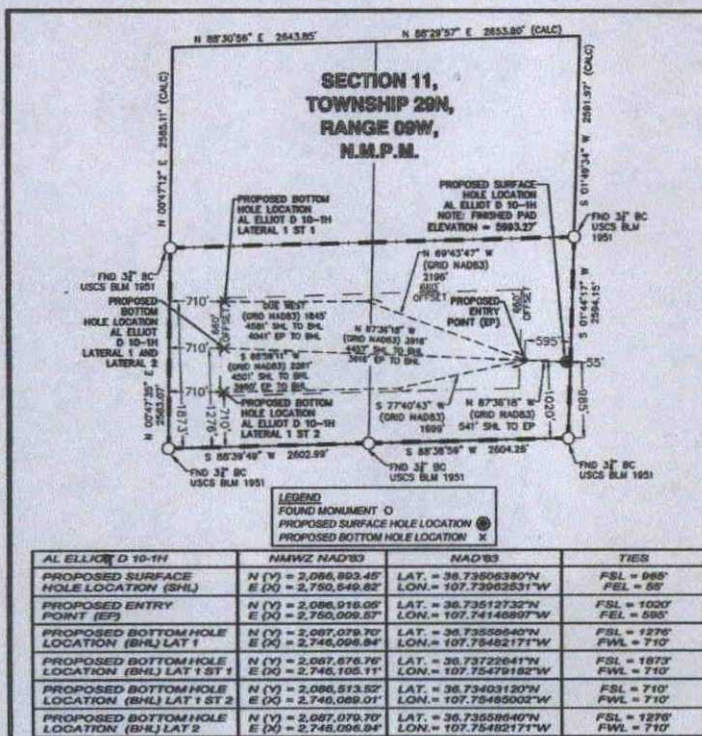
UL or lot no.	Section	Township	Range	Lot 1st	Feet from the	North/South line	Feet from the	East/West line	County
P	11	29N	09W		985	South	55	East	San Juan

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot 1st	Feet from the	North/South line	Feet from the	East/West line	County
L	11	29N	09W		1873	South	710	West	San Juan

¹⁰ Dedicated Acres	¹¹ Joint or Infill	¹² Consolidation Code	¹³ Order No.
320			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or released mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore approved for the division.

Toya Colvin 8/25/15
Signature Date

Toya Colvin

Printed Name

Toya.Colvin@bp.com

E-mail Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

7-9-15
Date of Survey

Signature and Seal of Professional Surveyor

17078
Certificate Number



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WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30045735721		² Post Code 71629		³ Pool Name Basin Fruitland Coal	
⁴ Property Code 000462 315 719		⁵ Property Name AL Elliott D 10		⁶ Well Number 1H Lat 1 ST 2	
⁷ GRID No. 000778		⁸ Operator Name BP America Production Company		⁹ Elevation 5998	

" Surface Location

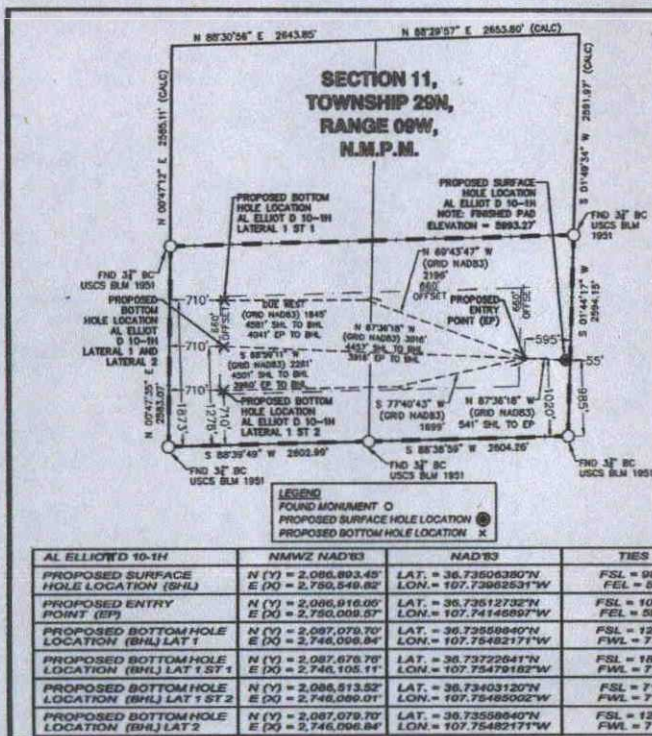
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UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	11	29N	09W		710	South	710	West	San Juan

¹² Dedicated Acres	¹³ Joint or Intell	¹⁴ Consolidation Code	¹⁵ Order No.
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" OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or undivided mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature: *Toya Colvin* Date: 8/25/15

Toya Colvin
Printed Name

Toya.Colvin@bp.com
E-mail Address

" SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

7-9-15
Date of Survey

Signature and Seal of Professional Surveyor

17078
Certificate Number



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¹⁰ Surface Location

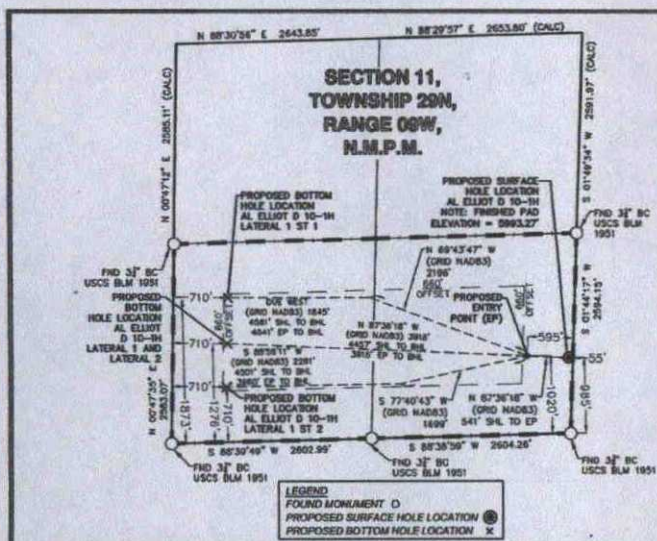
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M	11	29N	09W		1276	South	710	West	San Juan

¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
320			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



	NW/2 NAD83	NAD83	TIES
AL ELLIOTT D 10-1H			
PROPOSED SURFACE HOLE LOCATION (SHL)	N (Y) = 2,088,893.45' E (X) = 2,760,648.82'	LAT. = 36.73506380°N LON. = 107.73962531°W	FSL = 988' FWL = 55'
PROPOSED ENTRY POINT (EP)	N (Y) = 2,088,918.05' E (X) = 2,750,000.07'	LAT. = 36.73512732°N LON. = 107.74148897°W	FSL = 1020' FWL = 500'
PROPOSED BOTTOM HOLE LOCATION (BHL) LAT 1	N (Y) = 2,087,079.70' E (X) = 2,746,086.84'	LAT. = 36.7358840°N LON. = 107.7482171°W	FSL = 1278' FWL = 710'
PROPOSED BOTTOM HOLE LOCATION (BHL) LAT 1 ST 1	N (Y) = 2,087,079.78' E (X) = 2,746,106.11'	LAT. = 36.73722641°N LON. = 107.75478182°W	FSL = 1873' FWL = 710'
PROPOSED BOTTOM HOLE LOCATION (BHL) LAT 1 ST 2	N (Y) = 2,088,513.52' E (X) = 2,746,089.01'	LAT. = 36.73403120°N LON. = 107.75485002°W	FSL = 710' FWL = 710'
PROPOSED BOTTOM HOLE LOCATION (BHL) LAT 2	N (Y) = 2,087,079.70' E (X) = 2,746,086.84'	LAT. = 36.7358840°N LON. = 107.7482171°W	FSL = 1278' FWL = 710'

¹⁶ OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or undivided mineral interest in the land including the proposed bottom hole location or has a right to drill the well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling interest of record entered by the division.

Tova Colvin 8/25/15
Signature Date

Tova Colvin

Printed Name

Tova.Colvin@bp.com

E-mail Address

¹⁷ SURVEYOR CERTIFICATION

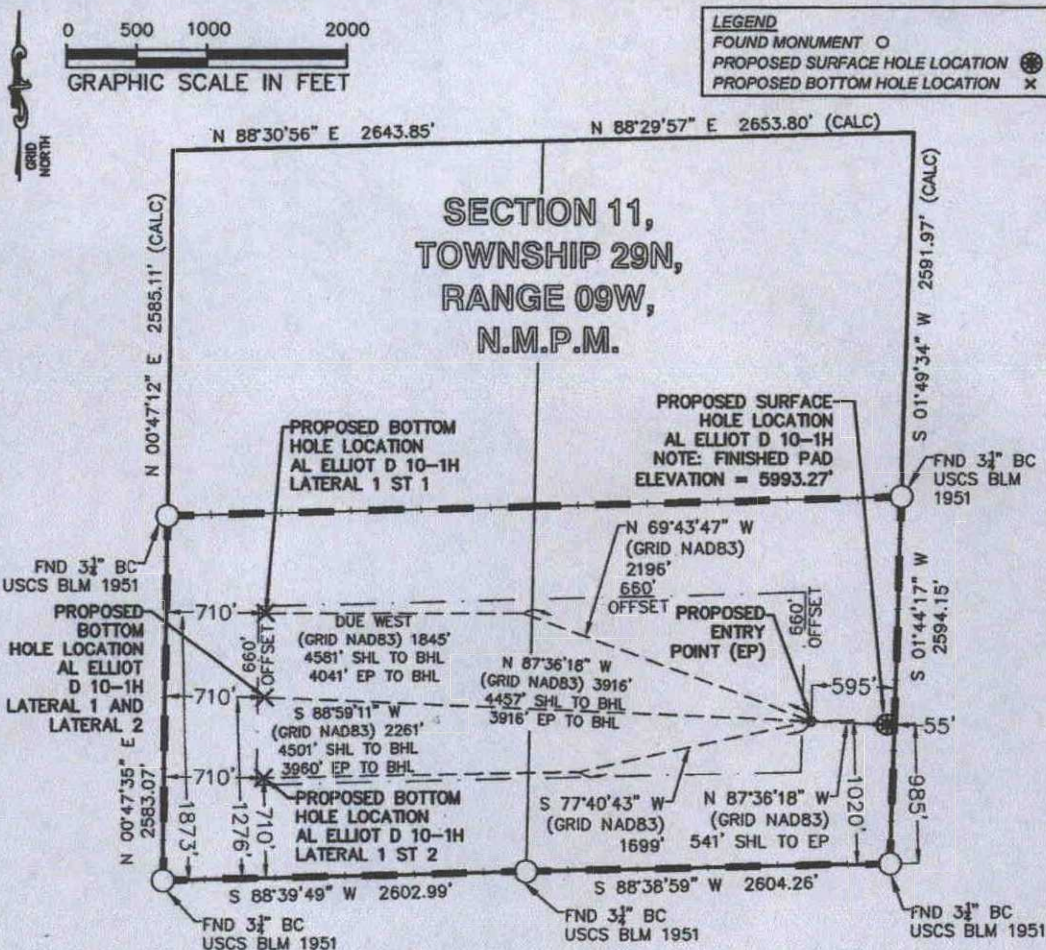
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

7-9-15
Date of Survey

Signature and Seal of *Marshall W. Lindeen*



17078
Certificate Number



AL ELLIOT D 10-1H	NAD83	NAD83	TIES
PROPOSED SURFACE HOLE LOCATION (SHL)	N (Y) = 2,086,893.49 E (X) = 2,750,549.82	LAT. = 36.73506380°N LON. = 107.73962531°W	FSL = 885 FEL = 55
PROPOSED ENTRY POINT (EP)	N (Y) = 2,086,916.09 E (X) = 2,750,609.57	LAT. = 36.73512732°N LON. = 107.74140897°W	FSL = 1020 FEL = 595
PROPOSED BOTTOM HOLE LOCATION (BHL) LAT 1	N (Y) = 2,087,079.70 E (X) = 2,746,086.84	LAT. = 36.73558640°N LON. = 107.75482171°W	FSL = 1276 FWL = 710
PROPOSED BOTTOM HOLE LOCATION (BHL) LAT 1 ST 1	N (Y) = 2,087,676.79 E (X) = 2,746,105.11	LAT. = 36.73722641°N LON. = 107.75479162°W	FSL = 1673 FWL = 710
PROPOSED BOTTOM HOLE LOCATION (BHL) LAT 1 ST 2	N (Y) = 2,088,513.52 E (X) = 2,746,089.01	LAT. = 36.73403120°N LON. = 107.75485002°W	FSL = 710 FWL = 710
PROPOSED BOTTOM HOLE LOCATION (BHL) LAT 2	N (Y) = 2,087,079.70 E (X) = 2,746,086.84	LAT. = 36.73558640°N LON. = 107.75482171°W	FSL = 1276 FWL = 710

SURVEYOR'S CERTIFICATE
I, MARSHALL LINDEEN, A PROFESSIONAL LAND SURVEYOR IN THE STATE OF NEW MEXICO, DO HEREBY CERTIFY THAT THE WELL LOCATION SHOWN ON THIS PLAT WAS PLOTTED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER MY SUPERVISION AND THAT THE SAME IS TRUE AND CORRECT TO THE BEST OF MY BELIEF.

SURVEY NOTES

- BEARING BASIS FOR THIS SURVEY IS BASED ON THE NORTH AMERICAN DATUM OF 1983, NEW MEXICO STATE PLANE COORDINATE SYSTEM, NEW MEXICO WEST, ZONE 3003.
- ELEVATION BASIS FOR THIS SURVEY IS BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID12A).
- SURVEYED IN THE FIELD ON 07/09/2015.
- BEARINGS AND DISTANCE SHOWN ARE MEASURED IN THE FIELD UNLESS OTHERWISE NOTED. ALL MEASURED DISTANCES SHOWN ARE GRID USING A COMBINED SCALE FACTOR 0.99963876.



BP AMERICA
PRODUCTION COMPANY
US LOWER 48 ONSHORE

WELL LOCATION PLAT

AL ELLIOT D 10-1H
PART OF
SECTION 11, TOWNSHIP 29N, RANGE 09W,
N.M.P.M.
SAN JUAN COUNTY, NEW MEXICO

DRAWN BY CFW/RLM	CHECKED BY MWL	SCALE 1"=1000'	DATE 08/24/2015	SHEET 1 OF 1	REVISION
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**Application for Permit to Drill
Drilling Plan
09/27/2015**

BP AMERICA PRODUCTION COMPANY

AL ELLIOTT D 10 1H

Surface Location: 985' FSL & 55' FEL
Section 11, T29N, R9W
Proposed GL Elev = 5993'
Lat. = 36.73506380° N
Long. = 107.73962531° W
NAD 83
San Juan County, New Mexico

Proposed Top of Production Location: 1020' FSL – 595' FEL
Proposed Bottom Hole Location (LAT 1): 1276' FSL – 710' FWL
Proposed Bottom Hole Location (LAT 1 ST 1): 1873' FSL – 710' FWL
Proposed Bottom Hole Location (LAT 1 ST 2): 710' FSL – 710' FWL
Proposed Bottom Hole Location (LAT 2): 1276' FSL – 710' FWL
Section 11, T29N, R9W
San Juan County, New Mexico

Drilling program written in compliance with onshore Oil and Gas Order No. 1
(III.D.3, effective May 2007) and Onshore Order No. 2 Dated November 18, 1988

A. Names and estimated tops of all geologic groups, formations, members or zones.

Depths referenced to GL of 5,993' & RKB 11' @ 6,004'			
Marker	Sub Sea	TVD	MD
Nacimiento	5,993	11	11
Ojo Alamo	4,525	1,479	1,479
Kirtland Sh	4,367	1,637	1,637
Farmington Ss	4,094	1,910	1,910
Lwr. Kirtland Sh	3,878	2,126	2,127
Fruitland Coal	3,685	2,319	2,335
Fruitland Sand	3,615	2,389	2,422
Ignacio Seam	3,580	2,424	2,470
Cottonwood Seam	3,520	2,484	2,564
Cahn Seam	3,425	2,579	2,809
TOTAL DEPTH (LAT 1):	3,430	2,574 (Cahn)	6,800
TOTAL DEPTH (LAT 1 ST 1):	3,425	2,579 (Cahn)	6,981
TOTAL DEPTH (LAT 1 ST 2):	3,420	2,584 (Cahn)	6,865
TOTAL DEPTH (LAT 2):	3,509	2,495 (Cottonwood)	6,725

B. Estimated depth and thickness of formations, members or zones potentially containing useable water, oil, gas or prospectively valuable deposits of other minerals that the operator expects to encounter, and the operator's plans for protecting such resources.

Depths referenced to GL of 5,993' & RKB 11' @ 6,004'					
Marker	Sub Sea	TVD	Thickness	MD	
Nacimiento	5,993	11	1,468	11	Usable Water
Ojo Alamo	4,525	1,479	158	1,479	Water
Kirtland Sh	4,367	1,637	273	1,637	Water
Farmington Ss	4,094	1,910	216	1,910	Gas & Water
Lwr. Kirtland Sh	3,878	2,126	193	2,127	Gas & Water
Fruitland Coal	3,685	2,319	278	2,335	Gas, Water
Fruitland Sand	3,615	2,389	18	2,422	Gas
Ignacio Seam	3,580	2,424	20	2,470	Gas
Cottonwood Seam	3,520	2,484	40	2,564	Gas
Cahn Seam	3,425	2,579	19	2,809	Gas
TOTAL DEPTH (LAT 1):	3,430	2,574 (Cahn)		6,800	
TOTAL DEPTH (LAT 1 ST 1):	3,425	2,579 (Cahn)		6,981	
TOTAL DEPTH (LAT 1 ST 2):	3,420	2,584 (Cahn)		6,865	
TOTAL DEPTH (LAT 2):	3,509	2,495 (Cottonwood)		6,725	

Conductor: No conductor casing is necessary

Surface Casing: Protection shall be accomplished by setting surface casing 50' below known fresh water sources and cemented to surface with 9 5/8" surface casing.

Possible Aquifers: Nacimiento @ 250' TVD

Oil Shale: None Expected.

Oil & Gas: Primary objective is the Cottonwood Coal @ 2,484' TVD & Cahn Coal @ 2579' TVD.

Protection of oil, gas, water, or other mineral bearing formations: Protection shall be accomplished by setting surface casing below base of possible aquifer and cementing surface casing to surface.

Production Casing will be set at 2998'MD / 2589'TVD and cemented to surface.

C. The operator's minimum specifications for blowout prevention equipment and diverter systems to be used, including size, pressure rating, configuration and the testing procedure and frequency. Blowout prevention equipment must meet the minimum standards outlined in Order 2.

BOP equipment and accessories will meet or exceed BLM requirements outlined in 43 CFR Part 3160.

The working pressure of all BOPE shall exceed the anticipated surface pressure to which it may be subjected, assuming a partially evacuated hole with a pressure gradient of 0.22 psi/ft.

Expected Maximum Bottom Hole pressure = 1137 psi (ppg EMW), which is less than 2,000 psi working pressure. Therefore, a Class 2, 2000 psi, BOPE system is required that consists of the following:

- Annular preventer, or double ram, or two rams with one being blind and one being a pipe ram.
- Kill line (2" minimum)
- 1 Kill line valve (2" minimum)
- 1 choke line valve
- 2 chokes (refer to diagram in Attachment 1)
- Upper Kelly cock valve with handle available
- Safety valve and subs to fit all drill strings in use
- Pressure gauge on choke manifold
- 2" minimum choke manifold
- Fill-up line above the uppermost preventer

Refer to the attached diagram for the proposed BOP systems. The Class 2 BOP stack will be nipped-up on the 11" 3,000 psi top flange of the wellhead A section. The BOP stack will be hydraulically operated.

All ram preventers and related equipment will be tested to 2,000 psi for 10 minutes. Annular preventers will be tested to 50% of rated working pressure for 10 minutes. Surface casing will be tested to 1500 psi. All preventers and surface casing will be tested before drilling out of surface casing. BOP equipment will be tested when initially installed, whenever any seal subject to test pressure is broken, following related repairs and at least once every 30 days. Annular preventers will be functionally operated at least once per week. Rams preventers will be activated each trip, not to exceed once per day.

- D. The operator's proposed casing program, including size, grade, weight, type of thread and coupling, the setting depth of each string, and it's condition. The operator must include the minimum design criteria, including casing loading assumptions and corresponding safety factors for burst, collapse, and tensions (body yield and joint strength). The operator must also include the lengths and setting depth of each casing when a tapered casing string is proposed. The hole size for each wellbore section of hole drilled must be included. Special casing designs such as the use of coil tubing or expandable casing may necessitate additional information.**

Name	Casing & Hole Size	Grade	Weight	Coupling	Setting Depth (MD)	Comments
Surface	9-5/8" (12-1/4")	J-55	36 ppf	LT&C	0' - 300'	New casing. Cement to surface. *May be preset
Production	7" (8-3/4")	J-55	23 ppf	LT&C	0' - 2998'	New casing. Cement to surface in 1 stage.
Liner (LAT 1)	4-1/2" (6-1/8")	J-55	10.5 ppf	ST&C	3200' - 6800'	Used casing. Pre-perforated. Uncemented.
Liner (LAT 1 ST 1)	4-1/2" (6-1/8")	J-55	10.5 ppf	ST&C	3118' - 6981'	Used casing. Pre-perforated. Uncemented.
Liner (LAT 1 ST 2)	4-1/2" (6-1/8")	J-55	10.5 ppf	ST&C	2998' - 6865'	Used casing. Pre-perforated. Uncemented.
Liner (LAT 2)	4-1/2" (6-1/8")	N-80	11.6 ppf	LT&C	2000' - 6725'	New Casing. Open hole packer and frac sleeves. Top of the liner will be set 20' outside the 7" casing window in openhole. hydraulic fracture stimulated through a tieback string.

Surface, production and LAT 2 production liner casing strings will be tested to .22 psi per foot of the casing string length or 1500 psi, whichever is greater, but not to exceed 70% of the minimum internal yield.

Minimum casing design factors used:

Collapse -	1.0
Burst -	1.1
Tension -	1.4

Surface casing shall have a minimum of 1 centralizer per joint on the bottom three (3) joints, starting with the shoe joint. Surface casing maybe preset with a preset rig.

The 7" production casing will be centralized using 1 centralizer the first 6 jts and spaced appropriately through the curve section of the well-bore and then spaced +/- 1 centralizer / 4 jts through the remainder of the cement column, using approximately 30 centralizers.

The pre-perforated production liners run in LAT 1, LAT 1 ST 1 and LAT 1 ST 2 laterals will be dropped off in open hole and are un-cemented. The pre-perforated production liners are used to guard against formation sloughing and collapse and are not intended to contain pressure. The production liner in LAT 2 will be set 20' outside the 7" window and is un-cemented. It will be installed with open hole packers and frac sleeves and hydraulic fracture stimulated through a tieback string.

Surface Casing Design - Evacuation/Casing Test (collapse & burst), 100k overpull (tension)

					Collapse	Burst	Tension		
Min Safety Factors					1.000	1.100	1.400		
	Size	Weight	Grade	Conn	Collapse	Burst	Tension (Pipe Body)	Tension (Connection)	Notes
Surface	9.625	36	J55	LTC	2,020	3,520	564,000	453,000	0' - 300' MD
					80% of Burst = 2,816				
24 ppf J55 STC									
	Casing Depth	MW in	MW out	Pres in	Pres out	SF			
Collapse	300	0	15.80	0	246	8.20	Full evacuation with 15.8ppg cement in the annulus		
Burst	300	9.0	0	1500	0	2.35	1500psi casing test		
		Mud Wt	Air Wt	Bouy Wt	BW +100k				
Tension (Pipe Body)	300	9.0	10,800	9,316	109,316	5.16	100k over pull		
Tension (Connection)	300	9.0	10,800	9,316	109,316	4.14			
BF= 1 - (MW)/65.5 = 0.8626									

Production Casing Design - Evacuation/Casing Test (collapse & burst), 100k overpull (tension)

					Collapse	Burst	Tension		
Min Safety Factors					1.000	1.100	1.400		
	Size	Weight	Grade	Conn	Collapse	Burst	Tension (Pipe Body)	Tension (Connection)	Notes
Production	7	23	J55	LTC	3,270	4,360	366,000	313,000	0' - 2998 MD'
					80% of Burst =		3,488		
23 ppf J55 LTC									
	Casing TVD	MW in	MW out	Pres in	Pres out	SF			
Collapse	2589	0	15.80	0	2127	1.54	Full evacuation with 15.8ppg cement in the annulus		
Burst	2589	9.0	0	1500	0	2.91	1500psi casing test		
		Mud Wt	Air Wt	Bouy Wt	BW +100k				
Tension (Pipe Body)	2589	9.0	59,547	51,365	151,365	2.42	100k over pull		
Tension (Connection)	2589	9.0	59,547	51,365	151,365	2.07			
BF = 1 - (MW)/65.5 = 0.8626									

Liner Casing Design - Evacuation/Casing Test (collapse & burst), 100k overpull (tension)

					Collapse	Burst	Tension		
Min Safety Factors					1.000	1.100	1.400		
	Size	Weight	Grade	Conn	Collapse	Burst	Tension (Pipe Body)	Tension (Connection)	Notes
Liner	4.5	11.6	N80/L80	LTC	6,350	7,780	267,000	223,000	1961' - 6725' MD
					80% of Burst =		6,224		
24 ppf J55 LTC									
	Casing TVD	MW in	MW out	Pres in	Pres out	SF			
Collapse	2514	0	9.00	0	1177	5.40	Full evacuation with 9ppg brine in the annulus		
Burst	2514	9.0	0	4900	0	1.59	4800psi casing test		
		Mud Wt	Air Wt	Bouy Wt	BW +100k				
Tension (Pipe Body)	2514	9.0	29,162	25,155	125,155	2.13	100k over pull		
Tension (Connection)	2514	9.0	29,162	25,155	125,155	1.78			
BF = 1 - (MW)/65.5 = 0.8626									

- E. The estimated amount and type(s) of cement expected to be used in the setting of each casing string. If stage cementing will be used, provide the setting depth of the stage tool(s) and the amount and type of cement including additives, to be used for each stage. Provide the yield of each cement slurry and the expected top of cement, with excess, for each cemented string or stage.

The proposed cementing program has been designed to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. All indications of useable water shall be reported.

The 9-5/8" surface casing shall be cemented back to surface. In the event cement does not circulate to surface, remedial cementing shall be done to cement the casing back to surface. If returns are lost and/or cement is not brought to surface, a cement bond log (CBL) will be required to determine the quality of the job prior to drilling ahead (see OO2).

Top plugs shall be used to reduce contamination of cement by displacement fluid. A fluid spacer will be pumped to help isolate the cement from contamination by the mud fluid being displaced ahead of the cement slurry.

The 7" production casing will be cemented to surface. Tail cement for the production cement job is designed to cover from the casing shoe to the curve KOP, lead cement is designed to circulate to surface. Planned excess is 50% in the open hole.

Surface Casing Single Stage Job – (0-300' MD):

Excess – 100% over gauge hole – 12-1/4" hole and 9-5/8" casing (0.3132 ft³/ft)

Top of Lead Cement - Surface

Lead Slurry - (0' – 168'): 43 sx – 12.3 ppg, conventional cement containing:

HALCEM™ SYSTEM – Cement – 94 lbs/sx

Yield – 2.45 ft³/sx

Water requirement – 13.77 gal/sx.

Top of Tail Cement - 168'

Tail Slurry - (168' – 300' MD): 45 sx – 13.5 ppg, conventional cement containing:

HALCEM™ CEMENT – Cement – 94 lbs/sx

Yield – 1.842 ft³/sx

Water requirement – 9.31 gal/sx.

Total sacks of cement pumped on surface job = 88 sx

Production Casing Single Stage Job – (0-2998' MD/ 2589' TVD):

Excess – 50% over gauge hole – 8-3/4" hole and 7" casing (0.1503 ft³/ft)

Excess - 0% inside surface casing – 8.921" surf csg ID and 7" casing (0.1668 ft³/ft)

Top of Lead Cement - Surface

Lead Slurry - (0' – 1700' MD): 149 sx – 12.3 ppg, conventional cement containing:

VARICEM™ CEMENT – Cement – 94 lbs/sx

Yield – 2.454 ft³/sx

Water requirement – 13.78 gal/sx.

Top of Tail Cement - 1700' MD

Tail Slurry - (1700' – 2998'): 158 sx – 13.5 ppg, conventional cement containing:

VARICEM™ CEMENT – Cement – 94 lbs/sx

Yield – 1.849 ft³/sx

Water requirement – 9.33 gal/sx.

Total sacks of cement pumped on intermediate job = 307 sx

Actual volumes will be calculated and determined by conditions onsite. All cement slurries will meet or exceed minimum BLM requirements. Slurries used will be the slurries listed above or equivalent slurries depending on service provider selected. Cement yields may change depending on selected slurries.

All waiting on cement times shall be a minimum of 8 hours or adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

- F. Type and characteristics of the proposed circulating medium or mediums proposed for the drilling of each well bore section, the quantities and types of mud and weighting material to be maintained, and the monitoring equipment to be used on the circulating system. The operator must submit the detailed information when air or gas drill is proposed.**

Interval (MD)	Hole Section	Hole Size	Type	MW (ppg)	VIS (s/qt)	FL (mL/30 min)	PV (cP)	YP (lbs/100ft ²)	Max Salinity (mg/L)	pH
0'-300'	Surface	12-1/4"	FW/Gel	8.4-8.8	~100	NC	16-22	18-24	2500	8-8.5
300'-2998'	Production	8-3/4"	LSND	8.8-9.5	35-44	<6	8-15	6-12	5000	8-8.5

2998'-6800'	LAT 1	6-1/8"	Brine	8.4-8.8	35-45	<10	6-15	4-12	50000	8-8.5
3100'-6981'	LAT 1 ST 1	6-1/8"	Brine	8.4-8.8	35-45	<10	6-15	4-12	50000	8-8.5
3018'-6865'	LAT 1 ST 2	6-1/8"	Brine	8.4-8.8	35-45	<10	6-15	4-12	50000	8-8.5
1941'-6725'	LAT 2	6-1/8"	Brine	8.4-8.8	35-45	<10	6-15	4-12	50000	8-8.5

Sufficient weighting material will be on hand to weight mud up 1 PPG, if required.

The formula for weight up with barite is listed below:

Sacks of Barite per 100 bbl of mud = $1470 \times (W2 - W1) \div (35 - W2)$

Where; W1 = current mud weight, W2 = new mud weight

Sacks = $1470 \times (10.5 - 9.5) \div (35 - 10.5) = 60 \text{ sx} \times 5 (500\text{bbls minimum}) = 300\text{sx}$

Mud Product	Estimated Quantity on Location
Baroid 41	300 sx
Aquagel Gold Seal	250 sx
Lime	4 sx
Caustic Soda	8 sx
EZ-Mud	20 buckets
Barazan D Plus	20 sx
Pac R	20 sx
Filter-Chek	30 sx
LCM	120 sx

Pit Volume Totalizer (PVT) equipment (or equivalent) will be on each pit to monitor pit levels. A trip tank equipped with a PVT sensor will be used to monitor trip volumes. Possible lost circulation in the Fruitland Coal. Lost circulation has been successfully mitigated with lost circulation materials.

There will not be a reserve pit for this well. A closed-loop system will be used to recover drilling fluid and dry cuttings in both phases of the well and on all hole intervals. Above-ground tanks will be utilized to hold cuttings and fluids for rig operations. A frac tank will be on location to store fresh water.

G. The testing, logging, and coring procedures proposed, including drill stem testing procedures, equipment, and safety measures.

Testing: None planned

Open Hole Logging: LWD open hole logs will be utilized to geosteer the laterals within the Cottonwood (2484' TVD) and Cahn (2579' TVD) coal seams.

Mud Logging: None planned

Coring: None planned

Cased Hole Logging: If cement is not brought to surface on the surface casing string, then a cement bond log (CBL) will be run to determine the quality of the job prior to drilling ahead. A Cement Bond Log (CBL) will be run after the drilling of the well has been completed and as the start of the completion process. The CBL will confirm the quality of the cement bond and the actual TOC.

H. The expected bottom-hole pressure and any anticipated abnormal pressures, temperatures, or potential hazards that the operator expects to encounter, such as lost circulation and hydrogen sulfide. A description or the operator's plans for mitigating such hazards must be included.

Normal to subnormal pressure gradient to TD.

Maximum expected BHP @ Cottonwood Coal target at 2484' TVD (0.44 psi/ft): 1093 psi

Maximum expected BHP @ Cahn Coal target at 2579' TVD (0.44 psi/ft): 1135 psi

Maximum expected BHP @ TD at 6865' MD/2584' TVD: 1137 psi

Maximum expected BHT @ 2584' TVD: ~100° F

The maximum anticipated bottom hole pressure will be controlled with mud weight and BOP equipment.

No hydrogen sulfide gas is anticipated, however, if H₂S is encountered, the guidelines in Onshore Order No. 6 will be followed.



Company: B.P.
Project: San Juan County, NM NAD83
Site: AL Elliot
Well: AL Elliot D 10-1H
Wellbore: Lateral 1 ST2
Design: Plan #1

PROJECT DETAILS: San Juan County, NM NAD83

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Western Zone
System Datum: Mean Sea Level
Local North: Grid



Azimuths to Grid North
True North: -0.06°
Magnetic North: 9.39°

Magnetic Field
Strength: 50240.8nT
Dip Angle: 63.36°
Date: 7/27/2015
Model: IGRF2015

WELL DETAILS: AL Elliot D 10-1H

GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
+N/-S +E/-W Northing Easting Latitude Longitude
0.00 0.00 2086893.45 2750549.82 36.7350638 -107.7396253

Plan: Plan #1 (AL Elliot D 10-1H/Lateral 1 ST2)

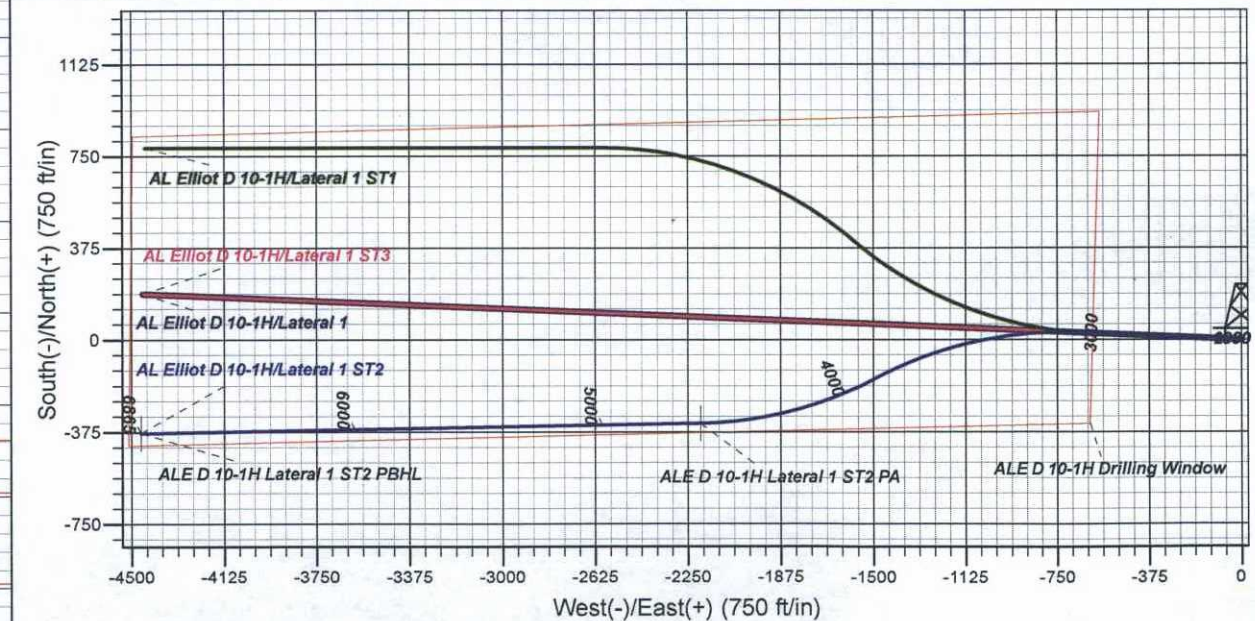
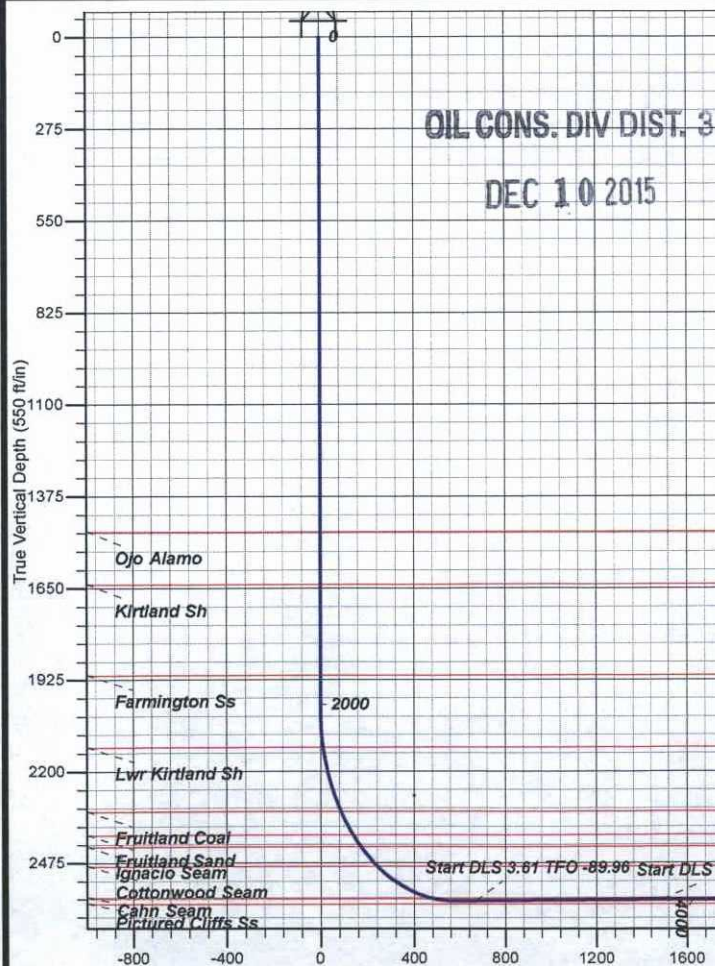
Created By: Janie Collins Date: 10:01, August 12 2015

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
ALE D 10-1H Lateral 1 ST2 PA	2584.00	-339.93	-2200.00	2086553.52	2748349.82	36.7341357	-107.7471344
ALE D 10-1H Lateral 1 ST2 PBHL	2584.00	-379.93	-4460.82	2086513.52	2746089.01	36.7340312	-107.7548500

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target	Annotation
3018.26	90.22	272.40	2588.62	28.21	-674.58	0.00	0.00	669.75		
3858.42	90.21	242.07	2585.39	-155.28	-1484.44	3.61	-89.96	1492.26		
4604.27	90.00	268.99	2584.00	-339.93	-2200.00	3.61	90.41	2270.00	ALE D 10-1H Lateral 1 ST2 PA	
6865.44	90.00	268.98	2584.00	-379.93	-4460.82	0.00	-90.00		ALE D 10-1H Lateral 1 ST2 PBHL	



Vertical Section at 265.13° (800 ft/in)

Start DLS 3.61 TFO -89.96 Start DLS 3.61 TFO 90.41 Start DLS 0.00 TFO -90.00

ALE D 10-1H TD at 6865.44

ALE D 10-1H Lateral 1 ST2 PA

ALE D 10-1H Lateral 1 ST2 PBHL



B.P.

San Juan County, NM NAD83

AL Elliot

AL Elliot D 10-1H

Lateral 1 ST2

Plan: Plan #1

Standard Planning Report

12 August, 2015

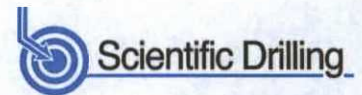


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DEC 10 2015

Planning Report



Database:	Grand Junction District	Local Co-ordinate Reference:	Well AL Elliot D 10-1H
Company:	B.P.	TVD Reference:	GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
Project:	San Juan County, NM NAD83	MD Reference:	GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
Site:	AL Elliot	North Reference:	Grid
Well:	AL Elliot D 10-1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1 ST2		
Design:	Plan #1		

Project	San Juan County, NM NAD83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Western Zone		

Site	AL Elliot		
Site Position:		Northing:	2,086,968.49 usft
From:	Map	Easting:	2,745,086.37 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	36.7352831
		Longitude:	-107.7582706
		Grid Convergence:	0.04 °

Well	AL Elliot D 10-1H		
Well Position	+N/-S	-75.04 ft	Northing:
	+E/-W	5,463.46 ft	Easting:
Position Uncertainty	0.00 ft	Wellhead Elevation:	0.00 ft
		Latitude:	36.7350638
		Longitude:	-107.7396253
		Ground Level:	5,993.00 ft

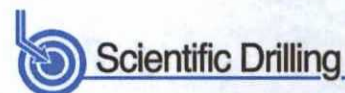
Wellbore	Lateral 1 ST2		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2015	7/27/2015	9.44
			Dip Angle (°)
			63.36
			Field Strength (nT)
			50,241

Design	Plan #1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			3,018.26
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.00	0.00	0.00
			Direction (°)
			265.13

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth (ft)	(°)	(°)	Depth (ft)	(ft)	(ft)	Rate (°/100ft)	Rate (°/100ft)	Rate (°/100ft)	(°)	
3,018.26	90.22	272.40	2,588.62	28.21	-674.58	0.00	0.00	0.00	0.00	
3,858.42	90.21	242.07	2,585.39	-155.28	-1,484.44	3.61	0.00	-3.61	-89.96	
4,604.27	90.00	268.99	2,584.00	-339.93	-2,200.00	3.61	-0.03	3.61	90.41	ALE D 10-1H Lateral
6,865.44	90.00	268.98	2,584.00	-379.93	-4,460.82	0.00	0.00	0.00	-90.00	ALE D 10-1H Lateral



Planning Report



Database: Grand Junction District
 Company: B.P.
 Project: San Juan County, NM NAD83
 Site: AL Elliot
 Well: AL Elliot D 10-1H
 Wellbore: Lateral 1 ST2
 Design: Plan #1

Local Co-ordinate Reference: Well AL Elliot D 10-1H
 TVD Reference: GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
 MD Reference: GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
3,018.26	90.22	272.40	2,588.62	28.21	-674.58	669.75	0.00	0.00	0.00
3,100.01	90.22	269.44	2,588.30	29.53	-756.30	751.07	3.61	0.00	-3.61
3,200.01	90.22	265.84	2,587.91	25.41	-856.20	850.96	3.61	0.00	-3.61
3,300.01	90.22	262.23	2,587.52	15.01	-955.64	950.92	3.61	0.00	-3.61
3,400.01	90.22	258.62	2,587.13	-1.62	-1,054.23	1,050.57	3.61	0.00	-3.61
3,500.01	90.22	255.01	2,586.74	-24.43	-1,151.58	1,149.50	3.61	0.00	-3.61
3,600.01	90.22	251.40	2,586.35	-53.33	-1,247.29	1,247.32	3.61	0.00	-3.61
3,700.01	90.22	247.79	2,585.97	-88.19	-1,341.00	1,343.65	3.61	0.00	-3.61
3,800.01	90.21	244.18	2,585.60	-128.88	-1,432.33	1,438.10	3.61	0.00	-3.61
3,858.42	90.21	242.07	2,585.39	-155.28	-1,484.44	1,492.26	3.61	0.00	-3.61
3,900.01	90.20	243.57	2,585.24	-174.28	-1,521.43	1,530.73	3.61	-0.03	3.61
4,000.01	90.17	247.18	2,584.92	-215.93	-1,612.32	1,624.83	3.61	-0.03	3.61
4,100.01	90.14	250.79	2,584.64	-251.79	-1,705.65	1,720.87	3.61	-0.03	3.61
4,200.01	90.12	254.40	2,584.41	-281.69	-1,801.06	1,818.47	3.61	-0.03	3.61
4,300.01	90.09	258.01	2,584.23	-305.54	-1,898.16	1,917.24	3.61	-0.03	3.61
4,400.01	90.06	261.62	2,584.11	-323.22	-1,996.56	2,016.79	3.61	-0.03	3.61
4,500.01	90.03	265.23	2,584.03	-334.67	-2,095.89	2,116.73	3.61	-0.03	3.61
4,600.01	90.00	268.84	2,584.00	-339.85	-2,195.74	2,216.66	3.61	-0.03	3.61
4,604.27	90.00	268.99	2,584.00	-339.93	-2,200.00	2,220.91	3.61	-0.03	3.61
ALE D 10-1H Lateral 1 ST2 PA									
4,700.01	90.00	268.99	2,584.00	-341.62	-2,295.72	2,316.43	0.00	0.00	0.00
4,800.01	90.00	268.99	2,584.00	-343.38	-2,395.71	2,416.21	0.00	0.00	0.00
4,900.01	90.00	268.99	2,584.00	-345.15	-2,495.69	2,515.98	0.00	0.00	0.00
5,000.01	90.00	268.99	2,584.00	-346.91	-2,595.68	2,615.75	0.00	0.00	0.00
5,100.01	90.00	268.99	2,584.00	-348.68	-2,695.66	2,715.53	0.00	0.00	0.00
5,200.01	90.00	268.99	2,584.00	-350.44	-2,795.65	2,815.30	0.00	0.00	0.00
5,300.01	90.00	268.99	2,584.00	-352.21	-2,895.63	2,915.08	0.00	0.00	0.00
5,400.01	90.00	268.99	2,584.00	-353.97	-2,995.62	3,014.85	0.00	0.00	0.00
5,500.01	90.00	268.99	2,584.00	-355.74	-3,095.60	3,114.62	0.00	0.00	0.00
5,600.01	90.00	268.99	2,584.00	-357.51	-3,195.59	3,214.40	0.00	0.00	0.00
5,700.01	90.00	268.99	2,584.00	-359.28	-3,295.57	3,314.17	0.00	0.00	0.00
5,800.01	90.00	268.99	2,584.00	-361.05	-3,395.56	3,413.95	0.00	0.00	0.00
5,900.01	90.00	268.99	2,584.00	-362.82	-3,495.54	3,513.72	0.00	0.00	0.00
6,000.01	90.00	268.99	2,584.00	-364.59	-3,595.52	3,613.49	0.00	0.00	0.00
6,100.01	90.00	268.99	2,584.00	-366.36	-3,695.51	3,713.27	0.00	0.00	0.00
6,200.01	90.00	268.98	2,584.00	-368.13	-3,795.49	3,813.04	0.00	0.00	0.00
6,300.01	90.00	268.98	2,584.00	-369.90	-3,895.48	3,912.82	0.00	0.00	0.00
6,400.01	90.00	268.98	2,584.00	-371.67	-3,995.46	4,012.59	0.00	0.00	0.00
6,500.01	90.00	268.98	2,584.00	-373.45	-4,095.45	4,112.36	0.00	0.00	0.00
6,600.01	90.00	268.98	2,584.00	-375.22	-4,195.43	4,212.14	0.00	0.00	0.00
6,700.01	90.00	268.98	2,584.00	-376.99	-4,295.42	4,311.91	0.00	0.00	0.00
6,800.01	90.00	268.98	2,584.00	-378.77	-4,395.40	4,411.69	0.00	0.00	0.00
6,865.44	90.00	268.98	2,584.00	-379.93	-4,460.82	4,476.97	0.00	0.00	0.00
ALE D 10-1H Lateral 1 ST2 PBHL									



Planning Report



Database:	Grand Junction District	Local Co-ordinate Reference:	Well AL Elliot D 10-1H
Company:	B.P.	TVD Reference:	GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
Project:	San Juan County, NM NAD83	MD Reference:	GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
Site:	AL Elliot	North Reference:	Grid
Well:	AL Elliot D 10-1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1 ST2		
Design:	Plan #1		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
ALE D 10-1H Lateral 1 ε - plan hits target center - Point	0.00	0.00	2,584.00	-379.93	-4,460.82	2,086,513.52	2,746,089.01	36.7340312	-107.7548501
ALE D 10-1H Lateral 1 ε - plan hits target center - Point	0.00	0.00	2,584.00	-339.93	-2,200.00	2,086,553.52	2,748,349.83	36.7341357	-107.7471344

Formations

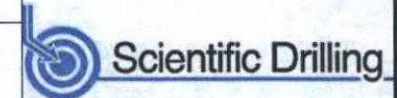
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,479.00	1,479.00	Ojo Alamo		0.00	0.00
1,637.00	1,637.00	Kirtland Sh		0.00	0.00
1,910.00	1,910.00	Farmington Ss		0.00	0.00
2,126.69	2,126.00	Lwr Kirtland Sh		0.00	0.00
2,335.26	2,319.00	Fruitland Coal		0.00	0.00
2,422.16	2,389.00	Fruitland Sand		0.00	0.00
2,470.03	2,424.00	Ignacio Seam		0.00	0.00
2,563.63	2,484.00	Cottonwood Seam		0.00	0.00
2,808.80	2,579.00	Cahn Seam		0.00	0.00



Company: B.P.
Project: San Juan County, NM NAD83
Site: AL Elliot
Well: AL Elliot D 10-1H
Wellbore: Lateral 1
Design: Plan #1

PROJECT DETAILS: San Juan County, NM NAD83

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Western Zone
System Datum: Mean Sea Level
Local North: Grid



Azimuths to Grid North
True North: -0.05°
Magnetic North: 9.21°

Magnetic Field
Strength: 50162.4nT
Dip Angle: 63.37°
Date: 7/23/2015
Model: HDGM

WELL DETAILS: AL Elliot D 10-1H

GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
+N/-S +E/-W Northing Easting Latitude Longitude
0.00 0.00 2086893.45 2750549.82 36.7350638 -107.7396253

Plan: Plan #1 (AL Elliot D 10-1H/Lateral 1)

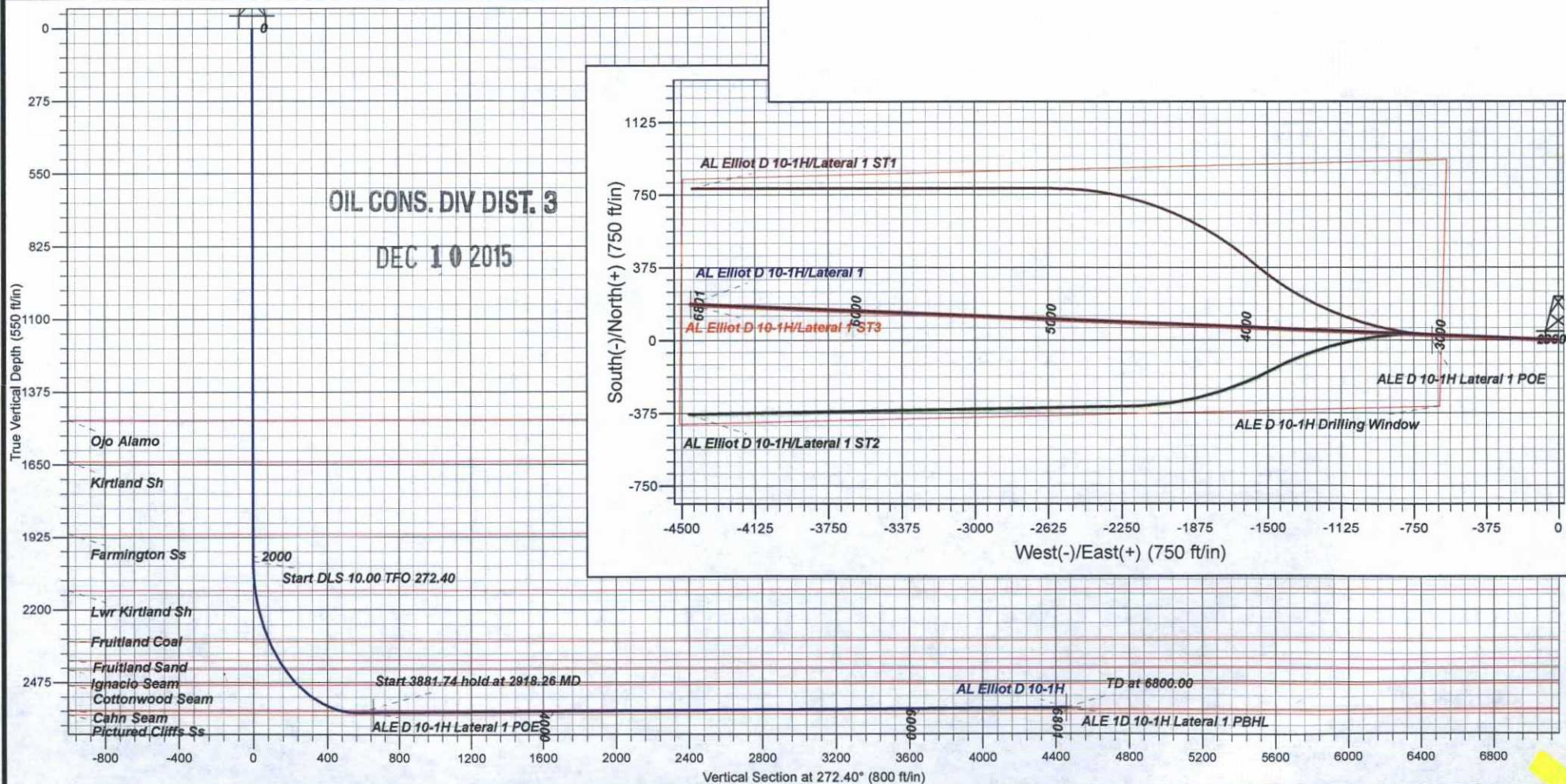
Created By: Janie Collins Date: 10:19, August 17 2015

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
ALE 1D 10-1H Lateral 1 PBHL	2574.00	186.25	-4452.99	2087079.70	2746096.84	36.7355864	-107.7548217
ALE D 10-1H Lateral 1 POE	2589.00	0.00	-655.57	2086893.45	2749894.25	36.7350655	-107.7418626

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2016.05	0.00	0.00	2016.05	0.00	0.00	0.00	0.00	0.00		
2918.26	90.22	272.40	2589.00	24.04	-574.67	10.00	272.40	575.17		
6800.00	90.22	272.40	2574.00	186.25	-4452.99	0.00	0.00	4456.00	ALE 1D 10-1H Lateral 1 PBHL	





B.P.

San Juan County, NM NAD83

AL Elliot

AL Elliot D 10-1H

Lateral 1

Plan: Plan #1

Standard Planning Report

28 July, 2015



Scientific Drilling

www.scientificdrilling.com



DEC 10 2015

Planning Report



Database:	Grand Junction District	Local Co-ordinate Reference:	Well AL Elliot D 10-1H
Company:	B.P.	TVD Reference:	GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
Project:	San Juan County, NM NAD83	MD Reference:	GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
Site:	AL Elliot	North Reference:	Grid
Well:	AL Elliot D 10-1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1		
Design:	Plan #1		

Project	San Juan County, NM NAD83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Western Zone		

Site	AL Elliot		
Site Position:		Northing:	2,086,968.49 usft
From:	Map	Easting:	2,745,086.37 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	36.7352831
		Longitude:	-107.7582706
		Grid Convergence:	0.04 °

Well	AL Elliot D 10-1H		
Well Position	+N/-S	-75.04 ft	Northing:
	+E/-W	5,463.46 ft	Easting:
Position Uncertainty	0.00 ft	Wellhead Elevation:	0.00 ft
		Latitude:	36.7350638
		Longitude:	-107.7396253
		Ground Level:	5,993.00 ft

Wellbore	Lateral 1		
Magnetics	Model Name	Sample Date	Declination (°)
	HDGM	7/23/2015	9.27
			Dip Angle (°)
			63.37
			Field Strength (nT)
			50,162

Design	Plan #1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.00	0.00	0.00
			Direction (°)
			272.40

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,016.05	0.00	0.00	2,016.05	0.00	0.00	0.00	0.00	0.00	0.00	
2,918.26	90.22	272.40	2,589.00	24.04	-574.67	10.00	10.00	-9.71	272.40	
6,800.00	90.22	272.40	2,574.00	186.25	-4,452.99	0.00	0.00	0.00	0.00	ALE 1D 10-1H Latera



Planning Report



Database: Grand Junction District
 Company: B.P.
 Project: San Juan County, NM NAD83
 Site: AL Elliot
 Well: AL Elliot D 10-1H
 Wellbore: Lateral 1
 Design: Plan #1

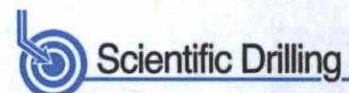
Local Co-ordinate Reference: Well AL Elliot D 10-1H
 TVD Reference: GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
 MD Reference: GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,479.00	0.00	0.00	1,479.00	0.00	0.00	0.00	0.00	0.00	0.00
Ojo Alamo									
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,637.00	0.00	0.00	1,637.00	0.00	0.00	0.00	0.00	0.00	0.00
Kirtland Sh									
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,910.00	0.00	0.00	1,910.00	0.00	0.00	0.00	0.00	0.00	0.00
Farmington Ss									
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,016.05	0.00	0.00	2,016.05	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	8.40	272.40	2,099.70	0.26	-6.13	6.14	10.00	10.00	0.00
2,126.69	11.06	272.40	2,126.00	0.44	-10.64	10.65	10.00	10.00	0.00
Lwr Kirtland Sh									
2,200.00	18.40	272.40	2,196.86	1.22	-29.25	29.28	10.00	10.00	0.00
2,300.00	28.40	272.40	2,288.52	2.88	-68.87	68.93	10.00	10.00	0.00
2,335.26	31.92	272.40	2,319.00	3.62	-86.57	86.64	10.00	10.00	0.00
Fruitland Coal									
2,400.00	38.40	272.40	2,371.91	5.18	-123.80	123.91	10.00	10.00	0.00
2,422.16	40.61	272.40	2,389.00	5.77	-137.88	138.00	10.00	10.00	0.00
Fruitland Sand									
2,470.03	45.40	272.40	2,424.00	7.13	-170.49	170.64	10.00	10.00	0.00
Ignacio Seam									
2,500.01	48.40	272.40	2,444.48	8.05	-192.35	192.52	10.00	10.00	0.00
2,563.63	54.76	272.40	2,484.00	10.13	-242.14	242.35	10.00	10.00	0.00
Cottonwood Seam									
2,600.01	58.40	272.40	2,504.03	11.40	-272.46	272.70	10.00	10.00	0.00
2,700.01	68.40	272.40	2,548.76	15.13	-361.68	362.00	10.00	10.00	0.00
2,800.01	78.40	272.40	2,577.30	19.13	-457.31	457.71	10.00	10.00	0.00
2,808.80	79.28	272.40	2,579.00	19.49	-465.93	466.34	10.01	10.01	0.00
Cahn Seam									
2,900.01	88.40	272.40	2,588.78	23.27	-556.43	556.92	10.00	10.00	0.00
2,918.26	90.22	272.40	2,589.00	24.04	-574.67	575.17	10.00	10.00	0.00
2,998.09	90.22	272.40	2,588.70	27.37	-654.43	655.00	0.00	0.00	0.00
ALE D 10-1H Lateral 1 POE									
3,000.01	90.22	272.40	2,588.69	27.45	-656.34	656.91	0.00	0.00	0.00



Planning Report



Database: Grand Junction District
 Company: B.P.
 Project: San Juan County, NM NAD83
 Site: AL Elliot
 Well: AL Elliot D 10-1H
 Wellbore: Lateral 1
 Design: Plan #1

Local Co-ordinate Reference: Well AL Elliot D 10-1H
 TVD Reference: GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
 MD Reference: GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
3,100.01	90.22	272.40	2,588.30	31.63	-756.25	756.91	0.00	0.00	0.00
3,200.01	90.22	272.40	2,587.91	35.81	-856.16	856.91	0.00	0.00	0.00
3,300.01	90.22	272.40	2,587.53	39.99	-956.08	956.91	0.00	0.00	0.00
3,400.01	90.22	272.40	2,587.14	44.17	-1,055.99	1,056.91	0.00	0.00	0.00
3,500.01	90.22	272.40	2,586.76	48.35	-1,155.90	1,156.91	0.00	0.00	0.00
3,600.01	90.22	272.40	2,586.37	52.53	-1,255.81	1,256.91	0.00	0.00	0.00
3,700.01	90.22	272.40	2,585.98	56.70	-1,355.72	1,356.91	0.00	0.00	0.00
3,800.01	90.22	272.40	2,585.60	60.88	-1,455.64	1,456.91	0.00	0.00	0.00
3,900.01	90.22	272.40	2,585.21	65.06	-1,555.55	1,556.91	0.00	0.00	0.00
4,000.01	90.22	272.40	2,584.82	69.24	-1,655.46	1,656.91	0.00	0.00	0.00
4,100.01	90.22	272.40	2,584.44	73.42	-1,755.37	1,756.91	0.00	0.00	0.00
4,200.01	90.22	272.40	2,584.05	77.60	-1,855.28	1,856.91	0.00	0.00	0.00
4,300.01	90.22	272.40	2,583.66	81.78	-1,955.20	1,956.91	0.00	0.00	0.00
4,400.01	90.22	272.40	2,583.28	85.96	-2,055.11	2,056.91	0.00	0.00	0.00
4,500.01	90.22	272.40	2,582.89	90.14	-2,155.02	2,156.91	0.00	0.00	0.00
4,600.01	90.22	272.40	2,582.50	94.31	-2,254.93	2,256.90	0.00	0.00	0.00
4,700.01	90.22	272.40	2,582.12	98.49	-2,354.85	2,356.90	0.00	0.00	0.00
4,800.01	90.22	272.40	2,581.73	102.67	-2,454.76	2,456.90	0.00	0.00	0.00
4,900.01	90.22	272.40	2,581.34	106.85	-2,554.67	2,556.90	0.00	0.00	0.00
5,000.01	90.22	272.40	2,580.96	111.03	-2,654.58	2,656.90	0.00	0.00	0.00
5,100.01	90.22	272.40	2,580.57	115.21	-2,754.49	2,756.90	0.00	0.00	0.00
5,200.01	90.22	272.40	2,580.18	119.39	-2,854.41	2,856.90	0.00	0.00	0.00
5,300.01	90.22	272.40	2,579.80	123.57	-2,954.32	2,956.90	0.00	0.00	0.00
5,400.01	90.22	272.40	2,579.41	127.75	-3,054.23	3,056.90	0.00	0.00	0.00
5,500.01	90.22	272.40	2,579.02	131.92	-3,154.14	3,156.90	0.00	0.00	0.00
5,600.01	90.22	272.40	2,578.64	136.10	-3,254.05	3,256.90	0.00	0.00	0.00
5,700.01	90.22	272.40	2,578.25	140.28	-3,353.97	3,356.90	0.00	0.00	0.00
5,800.01	90.22	272.40	2,577.87	144.46	-3,453.88	3,456.90	0.00	0.00	0.00
5,900.01	90.22	272.40	2,577.48	148.64	-3,553.79	3,556.90	0.00	0.00	0.00
6,000.01	90.22	272.40	2,577.09	152.82	-3,653.70	3,656.90	0.00	0.00	0.00
6,100.01	90.22	272.40	2,576.71	157.00	-3,753.61	3,756.90	0.00	0.00	0.00
6,200.01	90.22	272.40	2,576.32	161.18	-3,853.53	3,856.90	0.00	0.00	0.00
6,300.01	90.22	272.40	2,575.93	165.36	-3,953.44	3,956.90	0.00	0.00	0.00
6,400.01	90.22	272.40	2,575.55	169.54	-4,053.35	4,056.89	0.00	0.00	0.00
6,500.01	90.22	272.40	2,575.16	173.71	-4,153.26	4,156.89	0.00	0.00	0.00
6,600.01	90.22	272.40	2,574.77	177.89	-4,253.17	4,256.89	0.00	0.00	0.00
6,700.01	90.22	272.40	2,574.39	182.07	-4,353.09	4,356.89	0.00	0.00	0.00
6,784.13	90.22	272.40	2,574.06	185.59	-4,437.13	4,441.01	0.00	0.00	0.00
ALE D 10-1H Lateral 1 ST2 PBHL									
6,800.00	90.22	272.40	2,574.00	186.25	-4,452.99	4,456.88	0.00	0.00	0.00
ALE D 10-1H Lateral 1 ST3 PBHL - ALE D 10-1H Lateral 1 ST1 PBHL - ALE 1D 10-1H Lateral 1 PBHL									



Planning Report



Database:	Grand Junction District	Local Co-ordinate Reference:	Well AL Elliot D 10-1H
Company:	B.P.	TVD Reference:	GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
Project:	San Juan County, NM NAD83	MD Reference:	GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
Site:	AL Elliot	North Reference:	Grid
Well:	AL Elliot D 10-1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1		
Design:	Plan #1		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
ALE D 10-1H Lateral 1 S - plan misses target center by 79.00ft at 6800.00ft MD (2574.00 TVD, 186.25 N, -4452.99 E) - Point	0.00	0.00	2,495.00	186.25	-4,452.99	2,087,079.70	2,746,096.84	36.7355864	-107.7548218
ALE 1D 10-1H Lateral 1 - plan hits target center - Point	0.00	0.00	2,574.00	186.25	-4,452.99	2,087,079.70	2,746,096.84	36.7355864	-107.7548218
ALE D 10-1H Lateral 1 S - plan misses target center by 597.14ft at 6800.00ft MD (2574.00 TVD, 186.25 N, -4452.99 E) - Point	0.00	0.00	2,579.00	783.31	-4,444.72	2,087,676.76	2,746,105.11	36.7372264	-107.7547919
ALE D 10-1H Lateral 1 S - plan misses target center by 566.10ft at 6784.13ft MD (2574.06 TVD, 185.59 N, -4437.13 E) - Point	0.00	0.00	2,584.00	-379.93	-4,460.82	2,086,513.52	2,746,089.01	36.7340312	-107.7548501
ALE D 10-1H Lateral 1 F - plan misses target center by 27.40ft at 2998.09ft MD (2588.69 TVD, 27.37 N, -654.43 E) - Point	0.00	0.00	2,589.00	0.00	-655.57	2,086,893.45	2,749,894.25	36.7350655	-107.7418626

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,479.00	1,479.00	Ojo Alamo		0.00	0.00
1,637.00	1,637.00	Kirtland Sh		0.00	0.00
1,910.00	1,910.00	Farmington Ss		0.00	0.00
2,126.69	2,126.00	Lwr Kirtland Sh		0.00	0.00
2,335.26	2,319.00	Fruitland Coal		0.00	0.00
2,422.16	2,389.00	Fruitland Sand		0.00	0.00
2,470.03	2,424.00	Ignacio Seam		0.00	0.00
2,563.63	2,484.00	Cottonwood Seam		0.00	0.00
2,808.80	2,579.00	Cahn Seam		0.00	0.00



Company: B.P.
Project: San Juan County, NM NAD83
Site: AL Elliot
Well: AL Elliot D 10-1H
Wellbore: Lateral 1 ST1
Design: Plan #1

WELL DETAILS: AL Elliot D 10-1H

GL 5983 & RKB 11' @ 6004.00ft (Aztec 507)
+N/S +E/W Northing Easting
0.00 0.00 2086893.45 2750549.82 36.7350638 -107.7396253

DESIGN TARGET DETAILS

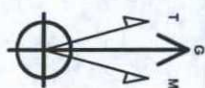
Name	TVD	+N/S	+E/W	Northing	Easting	Latitude	Longitude
ALE D 10-1H Lateral 1 ST1 PA	2579.00	783.31	-2600.00	2087676.76	2747948.83	36.7372221	-107.7484961
ALE D 10-1H Lateral 1 ST1 PBH-579.00		783.31	-4444.72	2087676.76	2746105.11	36.7372264	-107.7547918

PROJECT DETAILS: San Juan County, NM NAD83

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Western Zone
System Datum: Mean Sea Level
Local North: Grid

Plan: Plan #1 (AL Elliot D 10-1H/Lateral 1 ST1)

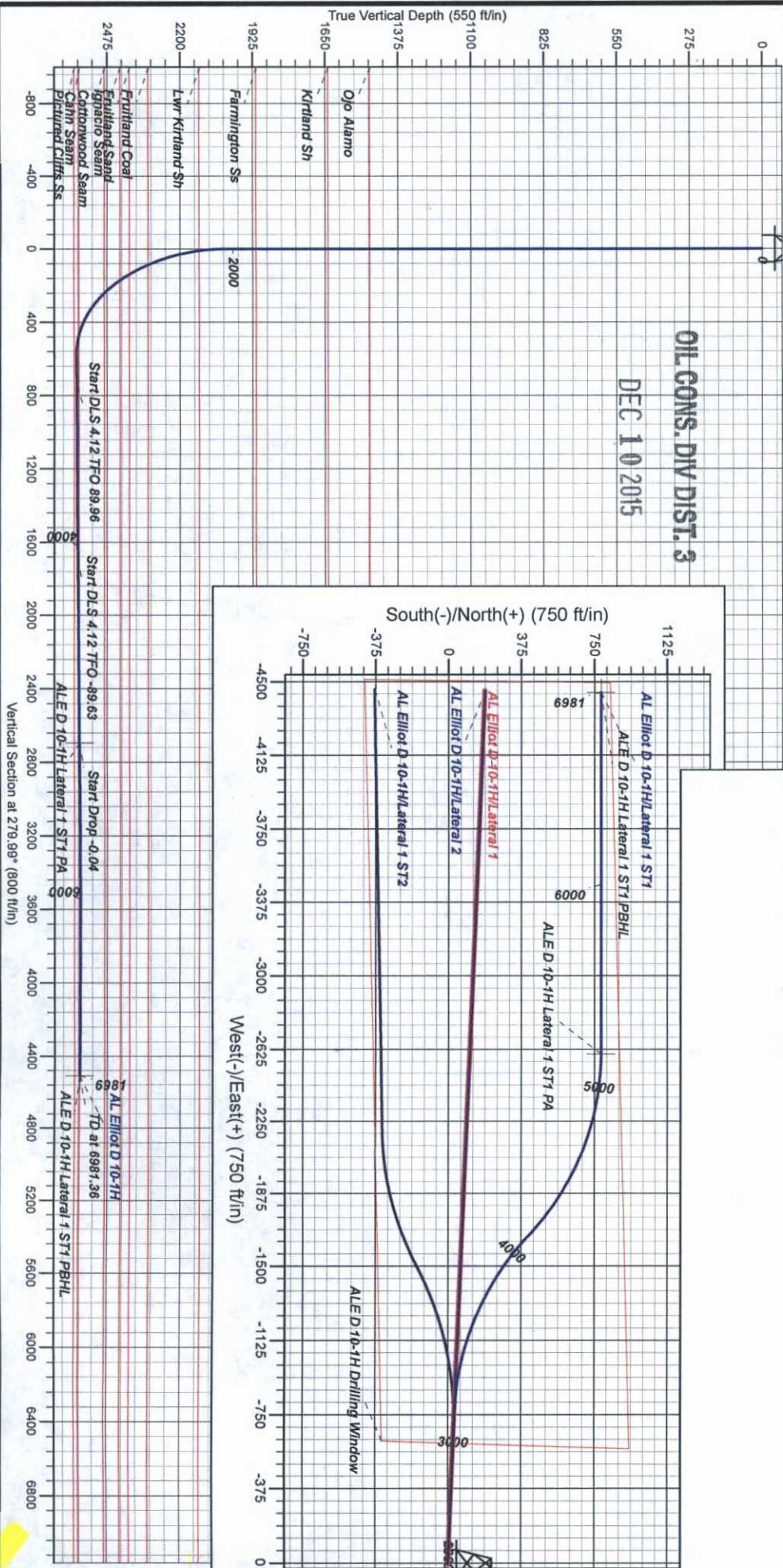
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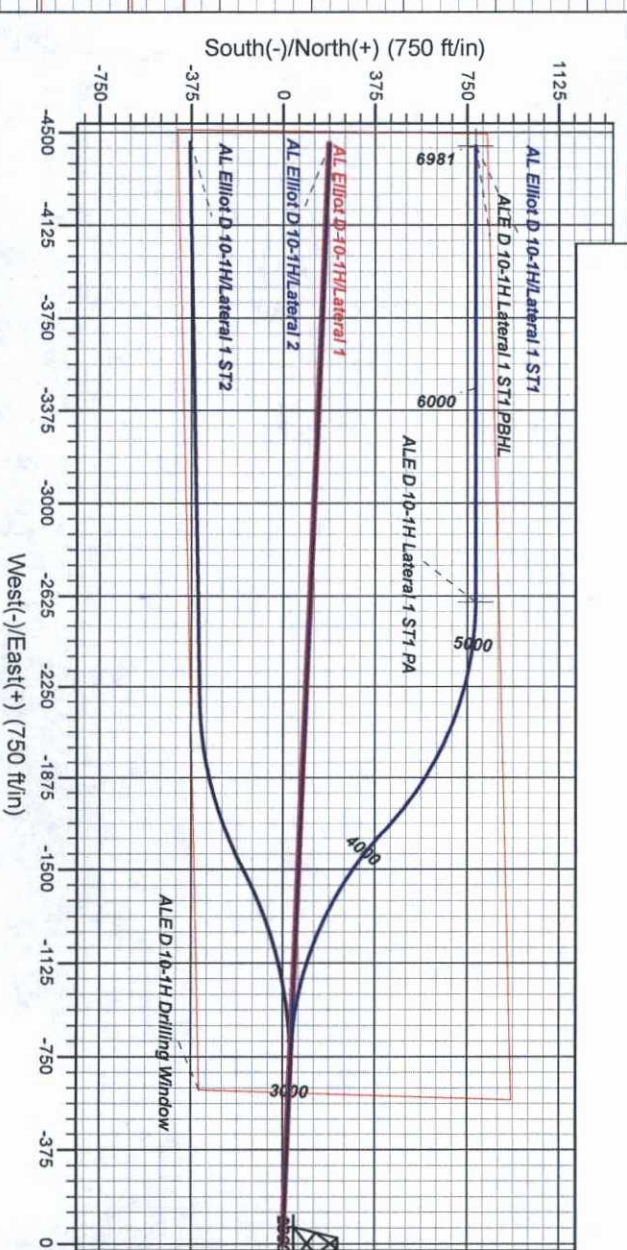
Azimuths to Grid North
True North: -0.05°
Magnetic North: 9.39°
Magnetic Field
Strength: 50240.8nT
Dip Angle: 63.35°
Date: 7/27/2015
Model: IGRF-2015

OIL CONS. DIV DIST.3

DEC 10 2015



South(-)/North(+) (750 ft/in)



SECTION DETAILS

MD	Inc	Azi	TVD	+N/S	+E/W	Dip	Trace	VSect	Target	Annotation
3100.00	90.22	272.40	2588.30	31.63	-756.25	0.00	0.00	750.26		
4089.27	90.19	313.20	2594.58	406.86	-1648.10	4.12	89.96	1694.69		
5136.82	90.39	270.00	2579.00	783.31	-2600.00	4.12	-89.63	2896.48	ALE D 10-1H Lateral 1 ST1 PA	
6981.36	89.81	270.00	2579.00	783.31	-4444.72	0.04	180.00	4513.82	ALE D 10-1H Lateral 1 ST1 PBH	



B.P.

San Juan County, NM NAD83

AL Elliot

AL Elliot D 10-1H

Lateral 1 ST1

Plan: Plan #1

Standard Planning Report

17 August, 2015

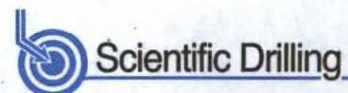


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Planning Report



Database:	Grand Junction District	Local Co-ordinate Reference:	Well AL Elliot D 10-1H
Company:	B.P.	TVD Reference:	GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
Project:	San Juan County, NM NAD83	MD Reference:	GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
Site:	AL Elliot	North Reference:	Grid
Well:	AL Elliot D 10-1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 1 ST1		
Design:	Plan #1		

Project	San Juan County, NM NAD83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Western Zone		

Site	AL Elliot			
Site Position:		Northing:	2,086,968.49 usft	Latitude: 36.7352831
From: Map		Easting:	2,745,086.37 usft	Longitude: -107.7582706
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence: 0.04 °

Well	AL Elliot D 10-1H			
Well Position	+N/-S	-75.04 ft	Northing:	2,086,893.45 usft
	+E/-W	5,463.46 ft	Easting:	2,750,549.82 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft
			Ground Level:	5,993.00 ft

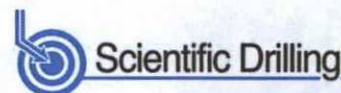
Wellbore	Lateral 1 ST1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/27/2015	9.44	63.36	50,241

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	3,100.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	279.99

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
3,100.00	90.22	272.40	2,588.30	31.63	-756.25	0.00	0.00	0.00	0.00	
4,089.27	90.19	313.20	2,584.58	406.86	-1,649.10	4.12	0.00	4.12	89.96	
5,136.62	90.39	270.00	2,579.00	783.31	-2,600.00	4.12	0.02	-4.12	-89.63	ALE D 10-1H Lateral
6,981.36	89.61	270.00	2,579.00	783.31	-4,444.72	0.04	-0.04	0.00	180.00	ALE D 10-1H Lateral



Planning Report



Database: Grand Junction District
 Company: B.P.
 Project: San Juan County, NM NAD83
 Site: AL Elliot
 Well: AL Elliot D 10-1H
 Wellbore: Lateral 1 ST1
 Design: Plan #1

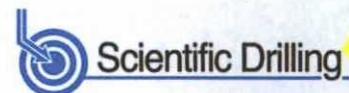
Local Co-ordinate Reference: Well AL Elliot D 10-1H
 TVD Reference: GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
 MD Reference: GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
3,100.00	90.22	272.40	2,588.30	31.63	-756.25	750.26	0.00	0.00	0.00
3,200.00	90.22	276.52	2,587.91	39.40	-855.92	849.77	4.12	0.00	4.12
3,300.00	90.22	280.64	2,587.52	54.32	-954.78	949.72	4.12	0.00	4.12
3,400.00	90.22	284.77	2,587.13	76.31	-1,052.31	1,049.58	4.12	0.00	4.12
3,500.00	90.22	288.89	2,586.74	105.25	-1,148.00	1,148.85	4.12	0.00	4.12
3,600.00	90.22	293.02	2,586.35	141.01	-1,241.37	1,247.00	4.12	0.00	4.12
3,700.00	90.22	297.14	2,585.97	183.39	-1,331.92	1,343.54	4.12	0.00	4.12
3,800.00	90.21	301.26	2,585.60	232.17	-1,419.19	1,437.95	4.12	0.00	4.12
3,900.00	90.21	305.39	2,585.24	287.09	-1,502.73	1,529.75	4.12	-0.01	4.12
4,000.00	90.20	309.51	2,584.88	347.89	-1,582.10	1,618.47	4.12	-0.01	4.12
4,089.27	90.19	313.20	2,584.58	406.86	-1,649.10	1,694.69	4.12	-0.01	4.12
4,100.00	90.19	312.75	2,584.54	414.18	-1,656.95	1,703.68	4.12	0.03	-4.12
4,200.00	90.22	308.63	2,584.18	479.36	-1,732.75	1,789.65	4.12	0.03	-4.12
4,300.00	90.24	304.50	2,583.78	538.92	-1,813.05	1,879.07	4.12	0.02	-4.12
4,400.00	90.27	300.38	2,583.33	592.55	-1,897.43	1,971.47	4.12	0.02	-4.12
4,500.00	90.29	296.26	2,582.84	639.98	-1,985.44	2,066.38	4.12	0.02	-4.12
4,600.00	90.31	292.13	2,582.32	680.95	-2,076.63	2,163.30	4.12	0.02	-4.12
4,700.00	90.33	288.01	2,581.76	715.26	-2,170.54	2,261.74	4.12	0.02	-4.12
4,800.00	90.35	283.88	2,581.17	742.73	-2,266.67	2,361.18	4.12	0.02	-4.12
4,900.00	90.36	279.76	2,580.56	763.21	-2,364.53	2,461.10	4.12	0.02	-4.12
5,000.00	90.37	275.63	2,579.91	776.60	-2,463.60	2,561.00	4.12	0.01	-4.12
5,100.00	90.39	271.51	2,579.25	782.83	-2,563.38	2,660.35	4.12	0.01	-4.12
5,136.62	90.39	270.00	2,579.00	783.31	-2,600.00	2,696.49	4.12	0.01	-4.12
ALE D 10-1H Lateral 1 ST1 PA									
5,200.00	90.36	270.00	2,578.58	783.31	-2,663.38	2,758.91	0.04	-0.04	0.00
5,300.00	90.32	270.00	2,577.99	783.31	-2,763.37	2,857.39	0.04	-0.04	0.00
5,400.00	90.28	270.00	2,577.46	783.31	-2,863.37	2,955.87	0.04	-0.04	0.00
5,500.00	90.24	270.00	2,577.01	783.31	-2,963.37	3,054.35	0.04	-0.04	0.00
5,600.00	90.19	270.00	2,576.64	783.31	-3,063.37	3,152.83	0.04	-0.04	0.00
5,700.00	90.15	270.00	2,576.34	783.31	-3,163.37	3,251.31	0.04	-0.04	0.00
5,800.00	90.11	270.00	2,576.11	783.31	-3,263.37	3,349.80	0.04	-0.04	0.00
5,900.00	90.07	270.00	2,575.95	783.31	-3,363.37	3,448.28	0.04	-0.04	0.00
6,000.00	90.02	270.00	2,575.87	783.31	-3,463.37	3,546.76	0.04	-0.04	0.00
6,100.00	89.98	270.00	2,575.87	783.31	-3,563.37	3,645.24	0.04	-0.04	0.00
6,200.00	89.94	270.00	2,575.93	783.31	-3,663.37	3,743.72	0.04	-0.04	0.00
6,300.00	89.90	270.00	2,576.08	783.31	-3,763.37	3,842.21	0.04	-0.04	0.00
6,400.00	89.86	270.00	2,576.29	783.31	-3,863.37	3,940.69	0.04	-0.04	0.00
6,500.00	89.81	270.00	2,576.58	783.31	-3,963.37	4,039.17	0.04	-0.04	0.00
6,600.00	89.77	270.00	2,576.94	783.31	-4,063.37	4,137.65	0.04	-0.04	0.00
6,700.00	89.73	270.00	2,577.38	783.31	-4,163.37	4,236.13	0.04	-0.04	0.00
6,800.00	89.69	270.00	2,577.89	783.31	-4,263.37	4,334.61	0.04	-0.04	0.00
6,900.00	89.64	270.00	2,578.47	783.31	-4,363.37	4,433.10	0.04	-0.04	0.00
6,981.36	89.61	270.00	2,579.00	783.31	-4,444.72	4,513.21	0.04	-0.04	0.00
ALE D 10-1H Lateral 1 ST1 PBHL									



Planning Report



Database: Grand Junction District
Company: B.P.
Project: San Juan County, NM NAD83
Site: AL Elliot
Well: AL Elliot D 10-1H
Wellbore: Lateral 1 ST1
Design: Plan #1

Local Co-ordinate Reference: Well AL Elliot D 10-1H
TVD Reference: GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
MD Reference: GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
ALE D 10-1H Lateral 1 S - plan hits target center - Point	0.00	0.00	2,579.00	783.31	-4,444.72	2,087,676.76	2,746,105.11	36.7372264	-107.7547919
ALE D 10-1H Lateral 1 S - plan hits target center - Point	0.00	0.01	2,579.00	783.31	-2,600.00	2,087,676.76	2,747,949.83	36.7372221	-107.7484961

Formations

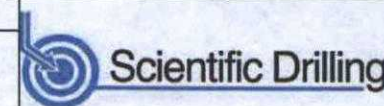
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,479.00	1,479.00	Ojo Alamo		0.00	0.00
1,637.00	1,637.00	Kirtland Sh		0.00	0.00
1,910.00	1,910.00	Farmington Ss		0.00	0.00
2,126.69	2,126.00	Lwr Kirtland Sh		0.00	0.00
2,335.26	2,319.00	Fruitland Coal		0.00	0.00
2,422.16	2,389.00	Fruitland Sand		0.00	0.00
2,470.03	2,424.00	Ignacio Seam		0.00	0.00
2,563.63	2,484.00	Cottonwood Seam		0.00	0.00
2,808.80	2,579.00	Cahn Seam		0.00	0.00



Company: B.P.
Project: San Juan County, NM NAD83
Site: AL Elliot
Well: AL Elliot D 10-1H
Wellbore: Lateral 2
Design: Plan #1

PROJECT DETAILS: San Juan County, NM NAD83

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Western Zone
System Datum: Mean Sea Level
Local North: Grid



Azimuths to Grid North
True North: -0.05°
Magnetic North: 9.39°

Magnetic Field
Strength: 50240.8nT
Dip Angle: 63.36°
Date: 7/27/2015
Model: IGRF2015

WELL DETAILS: AL Elliot D 10-1H

GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
+N/-S +E/-W Northing Easting Latitude Longitude
0.00 0.00 2086893.45 2750549.82 36.7350638 -107.7396253

Plan: Plan #1 (AL Elliot D 10-1H/Lateral 2)

Created By: Janie Collins Date: 17:21, August 17 2015

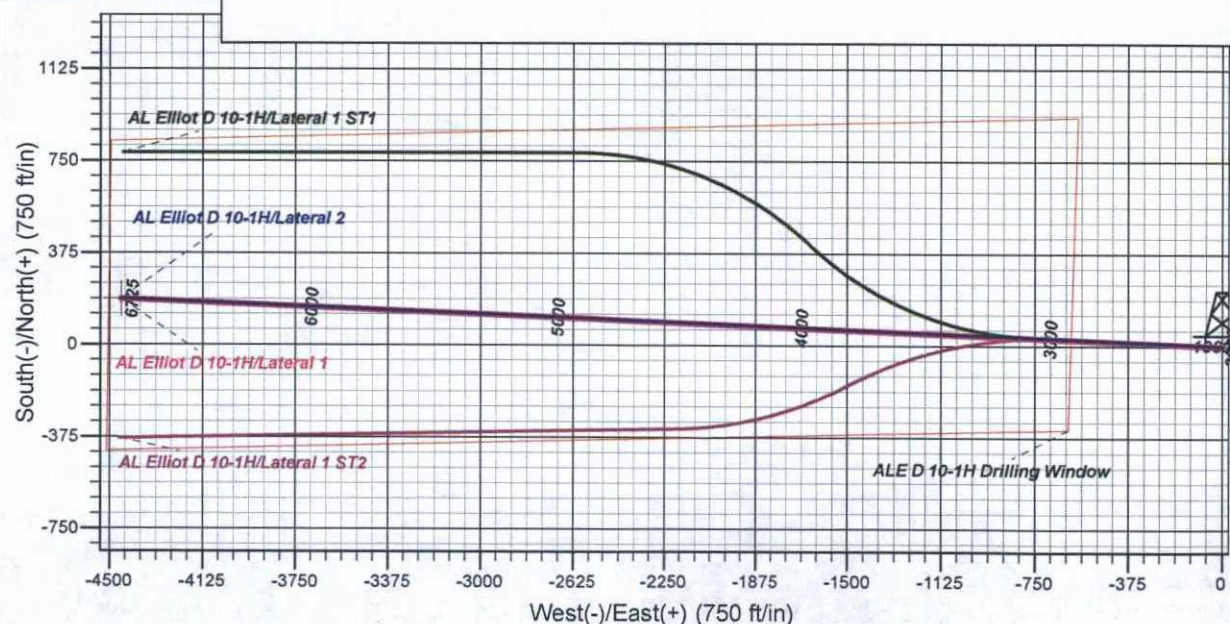
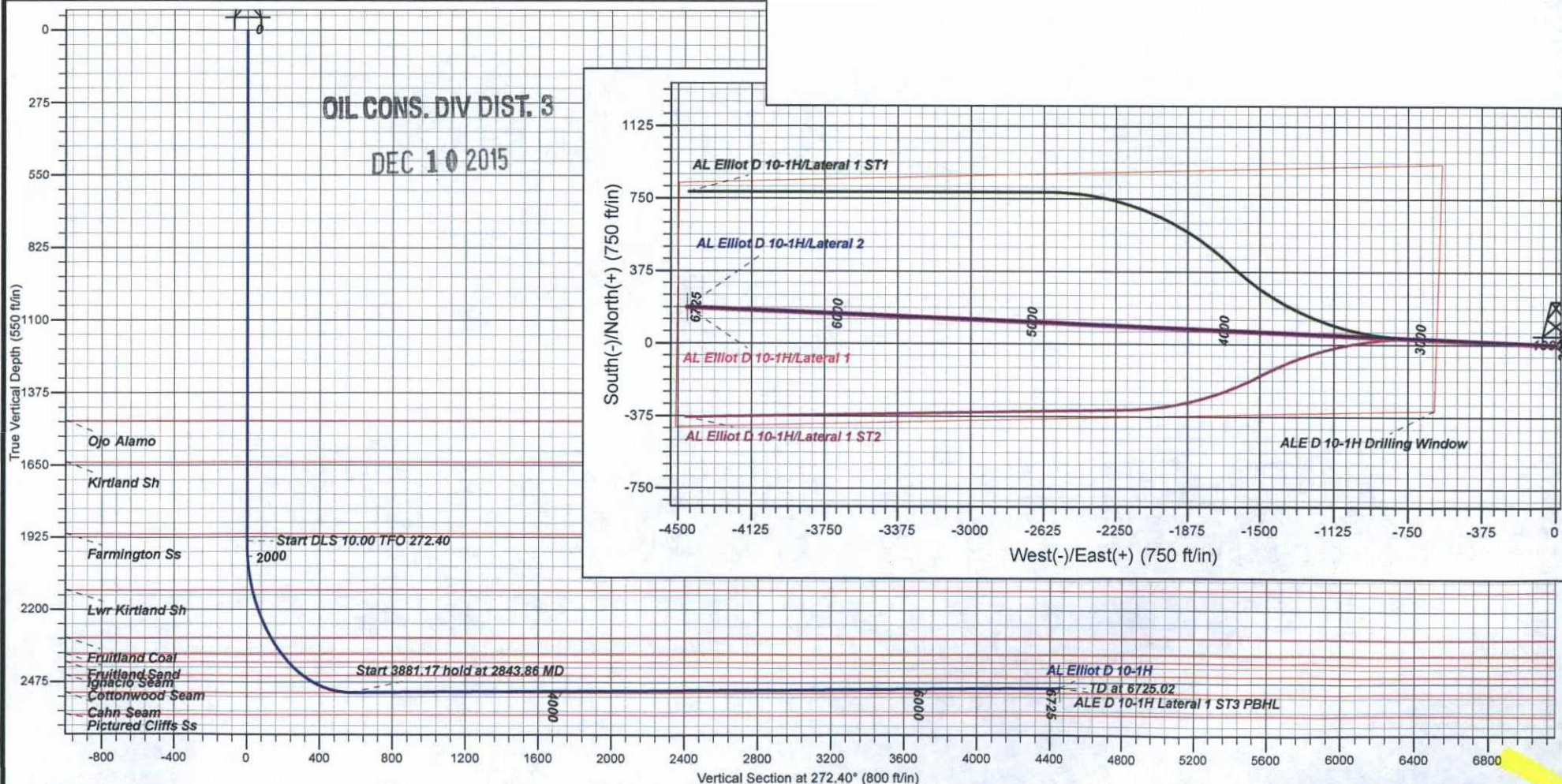
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
AL E D 10-1H Lateral 1 ST3 PBHL	2495.00	186.25	-4452.99	2087079.70	2746096.84	36.7355864	-107.7548217

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target	Annotation
1941.05	0.00	0.00	1941.05	0.00	0.00	0.00	0.00	0.00		
2843.86	90.28	272.40	2514.00	24.06	-575.26	10.00	272.40	575.76		
6725.02	90.28	272.40	2495.00	186.25	-4452.99	0.00	0.00	4456.88	AL E D 10-1H Lateral 1 ST3 PBHL	

OIL CONS. DIV DIST. 3
DEC 10 2015





B.P.

San Juan County, NM NAD83

AL Elliot

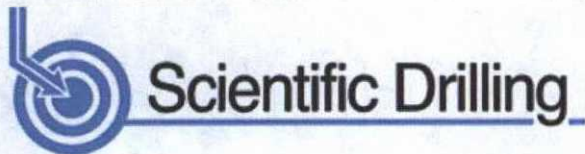
AL Elliot D 10-1H

Lateral 2

Plan: Plan #1

Standard Planning Report

17 August, 2015

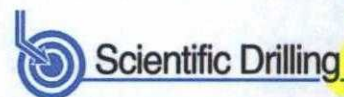


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Planning Report



Database:	Grand Junction District	Local Co-ordinate Reference:	Well AL Elliot D 10-1H
Company:	B.P.	TVD Reference:	GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
Project:	San Juan County, NM NAD83	MD Reference:	GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
Site:	AL Elliot	North Reference:	Grid
Well:	AL Elliot D 10-1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 2		
Design:	Plan #1		

Project	San Juan County, NM NAD83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Western Zone		

Site	AL Elliot				
Site Position:		Northing:	2,086,968.49 usft	Latitude:	36.7352831
From:	Map	Easting:	2,745,086.37 usft	Longitude:	-107.7582706
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.04 °

Well	AL Elliot D 10-1H					
Well Position	+N/-S	-75.04 ft	Northing:	2,086,893.45 usft	Latitude:	36.7350638
	+E/-W	5,463.46 ft	Easting:	2,750,549.82 usft	Longitude:	-107.7396253
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	5,993.00 ft

Wellbore	Lateral 2				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/27/2015	9.44	63.36	50,241

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	1,941.05
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	272.40

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
1,941.05	0.00	0.00	1,941.05	0.00	0.00	0.00	0.00	0.00	0.00	
2,843.86	90.28	272.40	2,514.00	24.06	-575.26	10.00	10.00	-9.70	272.40	
6,725.02	90.28	272.40	2,495.00	186.25	-4,452.99	0.00	0.00	0.00	0.00	ALE D 10-1H Lateral



Planning Report



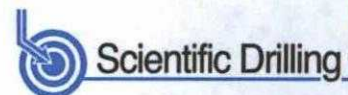
Database:	Grand Junction District	Local Co-ordinate Reference:	Well AL Elliot D 10-1H
Company:	B.P.	TVD Reference:	GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
Project:	San Juan County, NM NAD83	MD Reference:	GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
Site:	AL Elliot	North Reference:	Grid
Well:	AL Elliot D 10-1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral 2		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,941.05	0.00	0.00	1,941.05	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	5.90	272.40	1,999.90	0.13	-3.03	3.03	10.00	10.00	0.00
2,100.00	15.90	272.40	2,097.97	0.92	-21.89	21.91	10.00	10.00	0.00
2,126.69	18.56	272.40	2,123.46	1.25	-29.79	29.81	10.00	10.00	0.00
Lwr Kirtland Sh									
2,200.00	25.90	272.40	2,191.27	2.40	-57.48	57.53	10.00	10.00	0.00
2,300.00	35.90	272.40	2,276.98	4.55	-108.71	108.81	10.00	10.00	0.00
2,335.26	39.42	272.40	2,304.89	5.45	-130.23	130.35	10.00	10.00	0.00
Fruitland Coal									
2,400.00	45.90	272.40	2,352.47	7.28	-174.04	174.19	10.00	10.00	0.00
2,422.16	48.11	272.40	2,367.58	7.96	-190.23	190.40	10.00	10.00	0.00
Fruitland Sand									
2,470.03	52.90	272.40	2,398.02	9.50	-227.13	227.33	10.00	10.00	0.00
Ignacio Seam									
2,500.00	55.90	272.40	2,415.47	10.52	-251.47	251.69	10.00	10.00	0.00
2,563.63	62.26	272.40	2,448.15	12.80	-305.98	306.25	10.00	10.00	0.00
Cottonwood Seam									
2,600.00	65.90	272.40	2,464.05	14.16	-338.66	338.96	10.00	10.00	0.00
2,700.00	75.90	272.40	2,496.73	18.11	-432.95	433.33	10.00	10.00	0.00
2,800.00	85.90	272.40	2,512.54	22.23	-531.48	531.94	10.00	10.00	0.00
2,808.80	86.78	272.40	2,513.10	22.60	-540.25	540.72	10.00	10.00	0.00
Cahn Seam									
2,843.86	90.28	272.40	2,514.00	24.06	-575.26	575.76	10.00	10.00	0.00
2,900.00	90.28	272.40	2,513.73	26.41	-631.36	631.91	0.00	0.00	0.00
3,000.00	90.28	272.40	2,513.24	30.59	-731.27	731.91	0.00	0.00	0.00
3,100.00	90.28	272.40	2,512.75	34.76	-831.18	831.90	0.00	0.00	0.00
3,200.00	90.28	272.40	2,512.26	38.94	-931.09	931.90	0.00	0.00	0.00
3,300.00	90.28	272.40	2,511.77	43.12	-1,031.00	1,031.90	0.00	0.00	0.00
3,400.00	90.28	272.40	2,511.28	47.30	-1,130.91	1,131.90	0.00	0.00	0.00
3,500.00	90.28	272.40	2,510.79	51.48	-1,230.82	1,231.90	0.00	0.00	0.00
3,600.00	90.28	272.40	2,510.30	55.66	-1,330.74	1,331.90	0.00	0.00	0.00
3,700.00	90.28	272.40	2,509.81	59.84	-1,430.65	1,431.90	0.00	0.00	0.00
3,800.00	90.28	272.40	2,509.32	64.02	-1,530.56	1,531.90	0.00	0.00	0.00
3,900.00	90.28	272.40	2,508.83	68.20	-1,630.47	1,631.90	0.00	0.00	0.00
4,000.00	90.28	272.40	2,508.34	72.37	-1,730.38	1,731.89	0.00	0.00	0.00
4,100.00	90.28	272.40	2,507.85	76.55	-1,830.29	1,831.89	0.00	0.00	0.00
4,200.00	90.28	272.40	2,507.36	80.73	-1,930.20	1,931.89	0.00	0.00	0.00
4,300.00	90.28	272.40	2,506.87	84.91	-2,030.12	2,031.89	0.00	0.00	0.00
4,400.00	90.28	272.40	2,506.38	89.09	-2,130.03	2,131.89	0.00	0.00	0.00
4,500.00	90.28	272.40	2,505.89	93.27	-2,229.94	2,231.89	0.00	0.00	0.00
4,600.00	90.28	272.40	2,505.40	97.45	-2,329.85	2,331.89	0.00	0.00	0.00
4,700.00	90.28	272.40	2,504.91	101.63	-2,429.76	2,431.89	0.00	0.00	0.00
4,800.00	90.28	272.40	2,504.42	105.81	-2,529.67	2,531.88	0.00	0.00	0.00
4,900.00	90.28	272.40	2,503.93	109.98	-2,629.58	2,631.88	0.00	0.00	0.00
5,000.00	90.28	272.40	2,503.45	114.16	-2,729.50	2,731.88	0.00	0.00	0.00
5,100.00	90.28	272.40	2,502.96	118.34	-2,829.41	2,831.88	0.00	0.00	0.00
5,200.00	90.28	272.40	2,502.47	122.52	-2,929.32	2,931.88	0.00	0.00	0.00
5,300.00	90.28	272.40	2,501.98	126.70	-3,029.23	3,031.88	0.00	0.00	0.00
5,400.00	90.28	272.40	2,501.49	130.88	-3,129.14	3,131.88	0.00	0.00	0.00
5,500.00	90.28	272.40	2,501.00	135.06	-3,229.05	3,231.88	0.00	0.00	0.00
5,600.00	90.28	272.40	2,500.51	139.24	-3,328.96	3,331.87	0.00	0.00	0.00
5,700.00	90.28	272.40	2,500.02	143.42	-3,428.88	3,431.87	0.00	0.00	0.00
5,800.00	90.28	272.40	2,499.53	147.59	-3,528.79	3,531.87	0.00	0.00	0.00



Planning Report



Database: Grand Junction District
 Company: B.P.
 Project: San Juan County, NM NAD83
 Site: AL Elliot
 Well: AL Elliot D 10-1H
 Wellbore: Lateral 2
 Design: Plan #1

Local Co-ordinate Reference: Well AL Elliot D 10-1H
 TVD Reference: GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
 MD Reference: GL 5993 & RKB 11' @ 6004.00ft (Aztec 507)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,900.00	90.28	272.40	2,499.04	151.77	-3,628.70	3,631.87	0.00	0.00	0.00
6,000.00	90.28	272.40	2,498.55	155.95	-3,728.61	3,731.87	0.00	0.00	0.00
6,100.00	90.28	272.40	2,498.06	160.13	-3,828.52	3,831.87	0.00	0.00	0.00
6,200.00	90.28	272.40	2,497.57	164.31	-3,928.43	3,931.87	0.00	0.00	0.00
6,300.00	90.28	272.40	2,497.08	168.49	-4,028.34	4,031.87	0.00	0.00	0.00
6,400.00	90.28	272.40	2,496.59	172.67	-4,128.26	4,131.87	0.00	0.00	0.00
6,500.00	90.28	272.40	2,496.10	176.85	-4,228.17	4,231.86	0.00	0.00	0.00
6,600.00	90.28	272.40	2,495.61	181.03	-4,328.08	4,331.86	0.00	0.00	0.00
6,700.00	90.28	272.40	2,495.12	185.20	-4,427.99	4,431.86	0.00	0.00	0.00
6,725.02	90.28	272.40	2,495.00	186.25	-4,452.99	4,456.88	0.00	0.00	0.00

ALE D 10-1H Lateral 1 ST3 PBHL

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
ALE D 10-1H Lateral 1 S - plan hits target center - Point	0.00	0.00	2,495.00	186.25	-4,452.99	2,087,079.70	2,746,096.84	36.7355864	-107.7548218

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,479.00	1,479.00	Ojo Alamo		0.00	0.00
1,637.00	1,637.00	Kirtland Sh		0.00	0.00
1,910.00	1,910.00	Farmington Ss		0.00	0.00
2,126.69	2,123.46	Lwr Kirtland Sh		0.00	0.00
2,335.26	2,304.89	Fruitland Coal		0.00	0.00
2,422.16	2,367.58	Fruitland Sand		0.00	0.00
2,470.03	2,398.02	Ignacio Seam		0.00	0.00
2,563.63	2,448.15	Cottonwood Seam		0.00	0.00
2,808.80	2,513.10	Cahn Seam		0.00	0.00

9. The operator has proposed a closed-loop system. No drilling pits will be used for the proposed project.
10. Construction of the well pad will take approximately two weeks.

G. Methods for Handling Waste

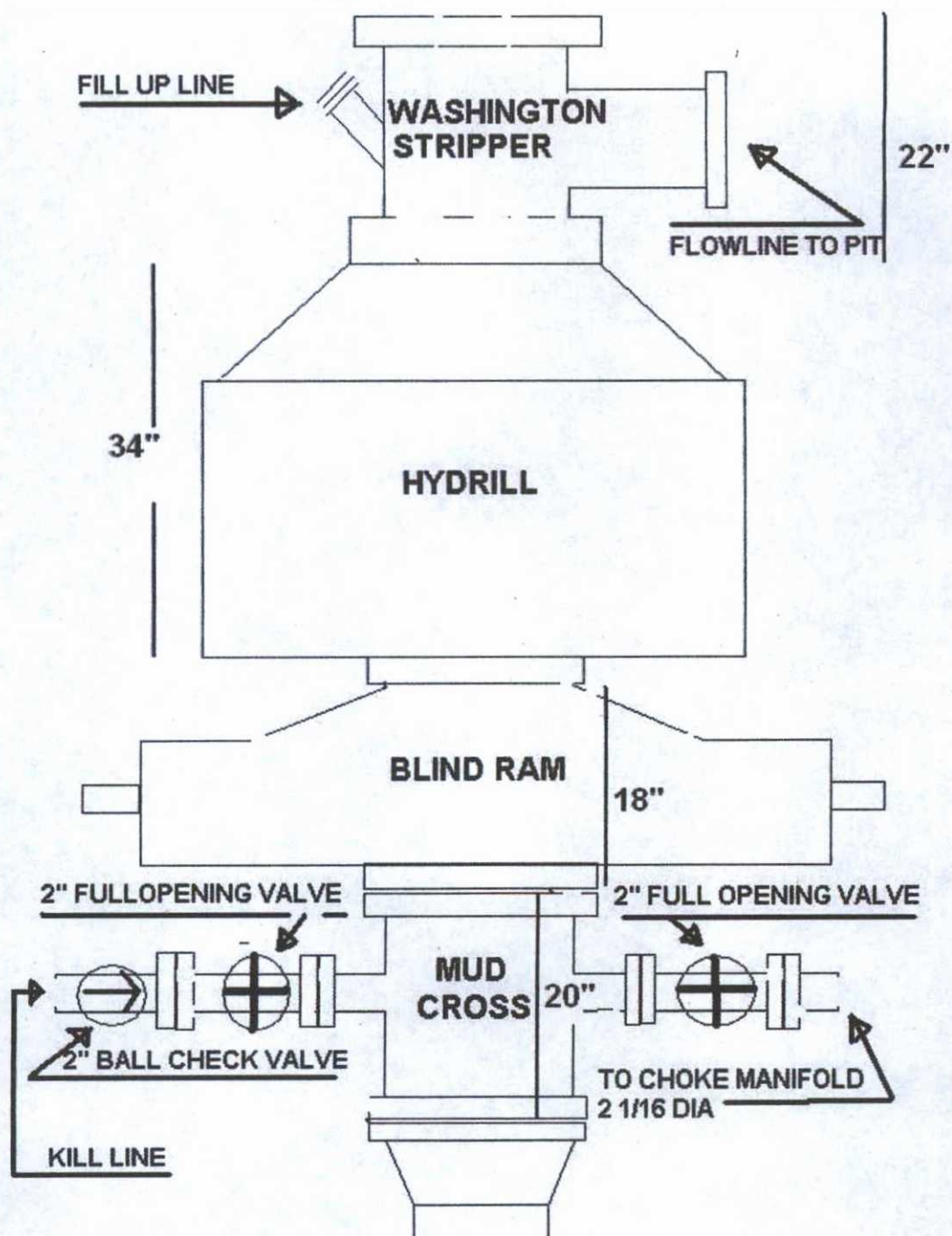
- ✓ 1. Cuttings - Drilling operations will utilize a closed-loop system with water based mud. All cuttings will be placed in roll-off bins and hauled to a commercial disposal facility or land farm. BP America will follow Onshore Oil and Gas Order No. 1 regarding the placement, operation and removal of the closed-loop systems. No blow pit will be used. Closed-loop tanks will be adequately sized for containment of all fluids.
2. Drilling Fluids
 - a. Drilling fluids will be stored onsite in above-ground storage tanks (ASTs). Upon termination of drilling operations, the drilling fluids will be recycled and transferred to other permitted locations or returned to the vendor for re-use, as practical. Residual fluids will be vacuumed from the storage tanks and disposed of at an appropriate waste disposal facility.
 - b. Drilling fluid storage tanks will be adequately sized to ensure confinement of all fluids and will provide sufficient freeboard to prevent uncontrolled releases.
 - c. The ASTs will be located on the well pad. A berm will be constructed along the perimeter of the well pad, providing secondary containment.
3. Flowback Water
 - a. The water-based solution that flows back to the surface during and after completion operations will be placed in storage tanks on location.
 - b. Flowback water will be confined to ASTs for a period not to exceed 90 days after initial production and will be disposed of in an approved disposal facility, or recycled.
 - c. The ASTs will be located on the well pad. A berm will be constructed along the perimeter of the well pad, providing secondary containment.
4. Spills – any spills of non-freshwater fluids will be immediately cleaned up and removed to an approved disposal site. Spills less than 10 barrels do not require reporting. Spills and releases in excess of 10 barrels will be reported according to NMOCD and BLM requirements.
5. Sewage – self-contained, chemical toilets will be provided for human waste disposal. The toilet holding tanks will be pumped by a 3rd party vendor, as needed, and the contents thereof disposed of in an approved sewage disposal facility. The toilets will be onsite during all operations.

Garbage and other waste material – garbage, trash, and other waste materials will be collected in a portable, self-contained and fully-enclosed trash container during drilling and completion operations. The accumulated trash will be removed, as needed, and will be disposed of at an approved landfill. No trash will be buried or burned on location. Immediately after removal of the drilling rig, all debris and other waste materials not contained in the trash container will be cleaned up and removed from the well location.

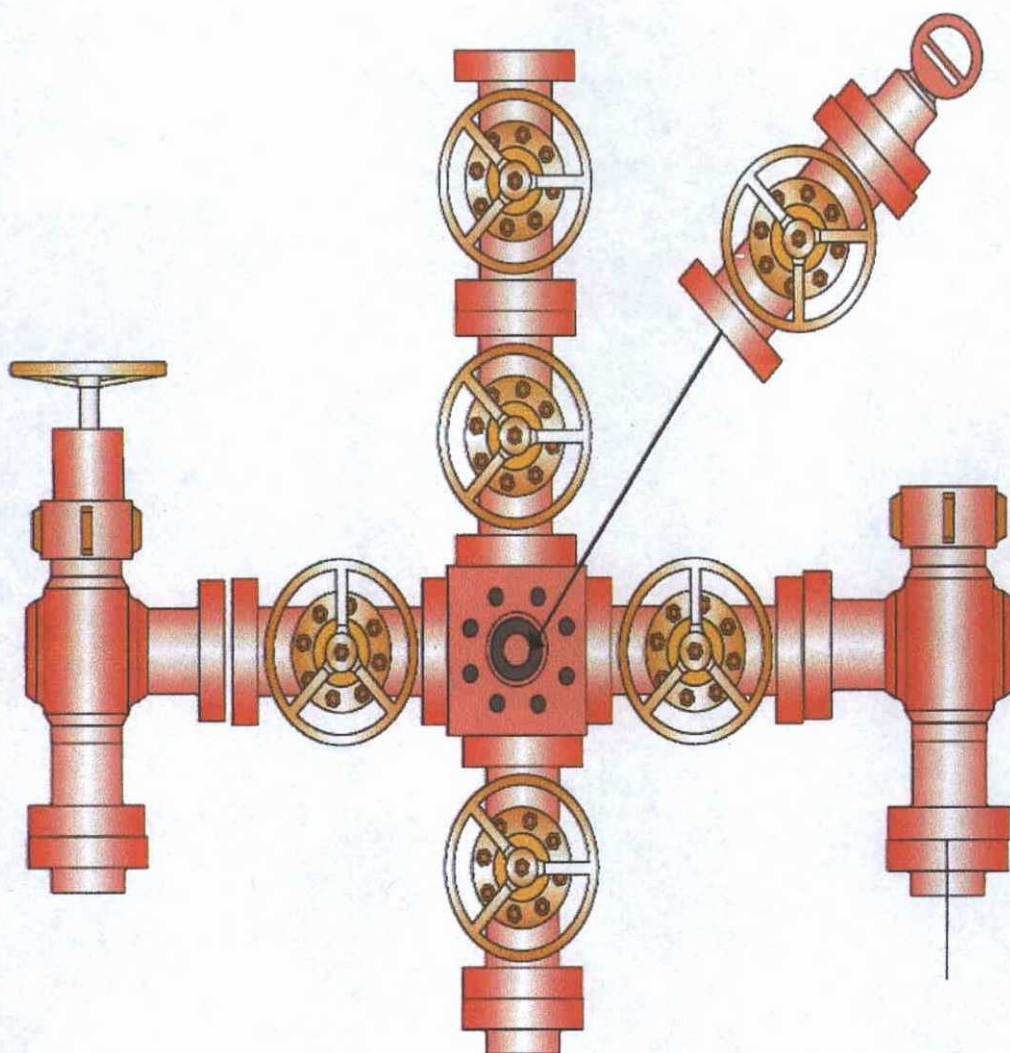
6. Hazardous waste-
 - a. No chemicals subject to reporting under the Superfund Amendments and Reauthorization Act (SARA) Title III in an amount equal to or greater than 10,000 pounds will be used, produced,



92" overall height



Proposed 2,000 psi BOP Stack



(Minimum 2")

Proposed 2,000 psi Choke Manifold Stack