

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

Jami Bailey, 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 3160-4 or 3160-5 form.

Operator Signature Date: 8/8/14

Well information:

API WELL #	Well Name	Well #	Operator Name	Type	Stat	County	Surf. Owner	UL	Sec	Twp	N/S	Rng	W/E
30-043-21227-00-00	AZTEC OIL SYNDICATE	002H	LOGOS OPERATING, LLC	O	N	Sandoval	F	A	5	22	N	6	W

Application Type:

☐ P&A ☒ Drilling/Casing Change ☐ Recomplete/DHC
☒ Location Change ☐ Other:

Conditions of Approval:

Notify NMOCD 24hrs prior to beginning operations

Hold C-104 for directional survey and as drilled plat

Depending on location of perforations a NSL may be required

NMOCD Approved by Signature

8-12-14
Date

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2014

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

5. Lease Serial No.
NM 109387

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 2

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator
Logos Operating, LLC

3a. Address
4001 North Butler Avenue, Building 7101
Farmington, NM 87401

3b. Phone No. (include area code)
505-330-9333

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
889 FNL 341' FEL (NE/NE) BHL: 2310' FNL & 2335' FEL (SW/NE)
Section 5, T22N, R5W, UL A Section 6, T22N, R6W, UL G

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

8. Well Name and No.
Aztec Oil Syndicate 2H

9. API Well No.
30-043-21227

10. Field and Pool or Exploratory Area
Lybrook Gallup

11. County or Parish, State
Sandoval County, NM

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

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

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

Logos proposes to change the landing point and TD for the Aztec Oil Syndicate 1H. The reason for the change is to minimize the drilling risk with reduced tangent and directional build for reservoir optimization. The intermediate cement job will be changed from a two stage to a one stage cement job and cement will be adjusted accordingly. Please see below:

Original Well Information:

LP in Sec 5, 1650' FNL & 1007' FEL (6111' MD/5442' TVD)

BHL in Sec 6, 1650' FNL & 2340' FEL (12,685' MD/5397' TVD)

New Well Information:

7" in Sec 5, 2310' FNL & 1080' FEL (6697' MD/5463' TVD)

LP in Sec 5, 2310' FNL & 1189' FEL (6805' MD/5467' TVD)

BHL in Sec 6, 2310' FNL & 2335' FEL (13,193' MD/5422' TVD)

CONDITIONS OF APPROVAL

Adhere to previously issued stipulations

BLM'S APPROVAL OR ACCEPTANCE OF THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

Based on additional mapping from the Aztec Oil Syndicate 1H, Logos has slightly adjusted the formation tops.

08/08/14 Received verbal approval from BLM (William Tambekou & Troy Salyers) and OCD (Bill Hoppe) to proceed with new plans.

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)

Tamra Sessions

Title Operations Technician

Signature

Date 08/08/2014

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

William Tambekou

Petroleum Engineer

Date

8/8/2014

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

Office FFD

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

(Instructions on page 2)

NMOCDA

DISTRICT I
1625 N. French Dr., Hobbs, N.M. 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
811 S. First St., Artesia, N.M. 88210
Phone: (575) 740-1283 Fax: (575) 748-9720

DISTRICT III
1000 Rio Bravos Rd., Aztec, N.M. 87410
Phone: (505) 334-6176 Fax: (505) 334-6170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, N.M. 87506
Phone: (505) 476-3480 Fax: (505) 476-3482

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, N.M. 87505

Form C-132

Revised August 1, 2011

Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-043-21227		*Pool Code 42289	*Pool Name Lybrook Gallup
*Property Code 31337	*Property Name AZTEC OIL SYNDICATE		*Well Number 2H
*OGRD No. 289408	*Operator Name LOGOS OPERATING, LLC		*Elevation 7126

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	5	22 N	6 W	LOT 1	989	NORTH	341	EAST	SANDOVAL

¹¹ 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
G	6	22 N	6 W		2310	NORTH	2335	EAST	SANDOVAL

¹² Dedicated Acres ¹³ Joint or Infill ¹⁴ Consolidation Code ¹⁵ Order No.
240 acres, Sec 5 S2N2,
Sec 6 S2NE

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

¹⁶ BOTTOM HOLE 2310' FNL 2335' FEL	¹⁶ LANDING POINT 2310' FNL 1189' FEL	¹⁶ SURFACE LAT: 36.1724632° N LONG: 107.4832700° W NAD 83 LAT: 36°10.34692' N LONG: 107°28.95992' W NAD 27	¹⁷ 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: <u>Tamra Sessions</u> Date: <u>8-8-14</u> Printed Name: <u>Tamra Sessions</u> E-mail Address: <u>tsessions@logosresourcesllc.com</u>
Section 6: LOT 4, LOT 3, LOT 2, LOT 1, LOT 5, LOT 8, LOT 7. Section 5: LOT 4, LOT 3, LOT 2, LOT 1. Bearings and Distances: N 87°55'01" W 2602.56' N 88°07'22" W 2621.00' N 88°09'54" W 2619.89' N 88°03'44" W N 87°43'57" W 2616.09' N 1°14'18" E 2666.31' N 1°14'27" E 2692.78' 2310', 2335', 1189', 989', 341'			¹⁸ 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. Date of Survey: <u>03/04/14</u> Signature and Seal: <u>Marshall W. Lindeen</u> Certificate Number: <u>17078</u> United Field Services, Inc.

LEGEND:

- = SURFACE LOCATION
- = BOTTOM HOLE LOCATION
- ⊙ = FOUND 1948 USGLO BRASS CAP
- ⊙ = FOUND 1948 BLM BRASS CAP
- ⊙ = FOUND 1/2 REBAR
- Δ = LANDING POINT

BEARINGS & DISTANCES SHOWN
ARE REFERENCED TO THE
NEW MEXICO COORDINATE
SYSTEM, CENTRAL ZONE, NAD 83,
UNLESS OTHERWISE NOTED.

**Attachment To Application For Permit To Drill.
Drilling program**

LOGOS OPERATING, LLC
4001 N. Butler, Bldg. 7101
Farmington, NM 87401
U.S.A

AZTEC OIL SYNDICATE 2H
Horizontal Gallup Oil and Gas Well
Surface Location: 989' FNL – 341' FEL
Section 5, T22N, R6W
Ungraded GL Elev = 7,126'
Estimate KB Elev = 7,141' (14.5' KB)
Lat. = 36.1724632 deg N
Long. = 107.4832700 deg W
NAD83
Sandoval County, New Mexico

Proposed Bottom Hole Location: 2310' FNL – 2,335' FEL
Section 6, T22N, R6W
Sandoval 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

1. ESTIMATED TOPS FOR IMPORTANT GEOLOGICAL FORMATIONS

<u>Formation Tops</u>	<u>Surface (TVD)</u>
Ojo Alamo	1367
Kirtland	1485
Fruitland	1753
Pictured Cliffs	1924
Chacra	2324
Cliffs House	3396
Menefee	3429
Point Lookout	4200
Mancos	4363
Gallup	5268
Lower Gallup	5452
Landing Point	5467
Total Depth	5422

Drilling Plan

Drill 12 ¼" hole to 320' then set 9 5/8" casing. Drill 8 3/4" hole with fresh water mud from 320' MD to kick off point 4,500' MD

Trip out of hole and pick up 8 ¾" kick off assembly at 4,500' MD. Build angle at 7.62 deg/100' to 85 degrees inclination and 271.21 degrees azimuth in the Gallup formation at 5,669' MD/ 5,268' TVD where 7" intermediate casing will be set at 6697' MD / 5463' TVD.

7" casing will be set in a legal position 2310' FNL & 1080' FEL in Section 5.

The 7" casing will be drilled out with a 6 1/8" drilling assembly building angle at 5 deg/100' to 90.40 degrees inclination and 271.21 degree azimuth to 6,805' MD/ 5,467' TVD. Hold 90.40 degrees, 271.21 degrees azimuth and drill to a total depth at 13,193' MD/ 5,422' TVD. Adjustments may be made to the directional program based on geology. Total depth will be 13,193' MD/ 5,422' TVD - 90.40 degrees, 271.21 degrees Azimuth.

The Bottom hole location will be in a legal location at 13,193' MD at 2310' FNL & 2335' FEL of section 6.

A total of 6,496' of horizontal hole will be drilled.

2. ANTICIPATED DEPTHS OF PROSPECTIVE OIL GAS AND OTHER HYDROCARBONS

Primary objective is the Gallup formation encountered first at 5,268' TVD See formation listings in #1 above for additional zones of interest.

3. MINIMUM SPECIFICATIONS FOR PRESSURE CONTROL EQUIPMENT

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

A 2000 psig double ram hydraulic BOP will be used (see attached diagram). Since maximum anticipated formation pressure is 1989 psig (0.364 psi/ft @ 5467' TVD), accessories to the BOP will meet BLM requirements for a 2000 psig system. In accordance with Onshore Order #2 (111.A well requirements) the anticipated surface pressure assuming a partially evacuated hole with normal pressure gradient of 0.22 psi/ft will be 1202 psi (5467' TVD x 0.22 psi/ft).

The accumulator system capacity will be sufficient to close all BOPE with a 50% safety factor. Fill line, kill line and line to the choke manifold will be 2".

BOPs will be function tested every 24 hours and will be recorded on an IADC log. Accessories to the BOPE will include upper and lower Kelly cocks with handles with a stabbing valve to fit drill pipe on the floor at all times, string float at bit, 2000 psig choke manifold with 2" adjustable and 2" positive chokes, and pressure gauge.

All BOP equipment will be hydraulically operated with controls accessible both on the rig floor.

The wellhead BOP equipment will be nipped-up on the 9-5/8" x 11" 2000 psi WP casing head prior to drilling out from under surface casing. All ram preventers and related equipment will be tested to 2000 psi for 10 minutes. Annular preventers will be tested to 50% of rated working pressure for 10 minutes. Surface casing will be tested to 70% of internal yield pressure. All preventers and surface casing will be tested before drilling out of surface casing. BOP equipment will be tested every 14 days, after any repairs are made to the BOP equipment, and after the BOP equipment is subjected to pressure. Annular preventers will be functionally operated at least once per week. Pipe rams will be activated daily and blind rams shall be activated each trip or at least weekly. The New Mexico Oil & Gas Conservation Commission and the BLM will be notified 24 hours in advance of testing of BOPE.

4. PROPOSED BIT AND CASING PROGRAM

A. Bit Program

12-1/4" Surface Hole = Surface to 320'

8-3/4" = 320' to 6697' = 7" Casing point @ 85 degrees

8-3/4" Landing point = 6,805' @ 90.40 degrees

6-1/8" Lateral = 6,805' MD to 13,193' MD = Gallup Pay Zone Horizontal

B. Casing Program – all casing strings are new casing

Casing & Hole Size	Weight	Grade	Coupling	Setting Depth (MD)	Comments
9-5/8" (12-1/4")	36 ppf	J or K-55	LT&C	0' - 320'	New casing. Cement to surface.
7" (8-3/4")	23 ppf	J or K-55	LT&C	0' – 6,697' MD	New Casing. Cement to surface with one stage
4-1/2" (6-1/8")	11.6 ppf	P-110	LT&C	5,300' – 13,193' MD	New Casing - Horizontal Hole Cemented full length with foam cement - TOL at 60 degrees.

Casing strings below the conductor casing will be tested to .22 psi per foot of 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 -	1.125
	Burst -	1.0
	Jt. Strength -	1.60

Surface casing shall have a minimum of 1 centralizer per joint on the bottom three (3) joints, starting with the shoe joint for a total of (4) minimum centralizers. Centralizers will be placed 10' above the shoe on the shoe joint, on the 1st, 2nd and 3rd casing collars.

The intermediate 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 40 centralizers.

5. PROPOSED CEMENTING PROGRAM

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. Any isolating medium other than cement shall receive approval prior to use. The casing setting depth shall be calculated to position the casing seat opposite a competent formation which will contain the maximum pressure to which it will be exposed during normal drilling operations. All indications of useable water shall be reported.

- The proposed cementing program is as follows:

Top plugs shall be used to reduce contamination of cement by displacement fluid. A bottom plug or other acceptable technique, such as a pre-flush fluid, inner string cement method, etc. shall be utilized to help isolate the cement from contamination by the mud fluid being displaced ahead of the cement slurry.

Surface Casing Single Stage Job – (0-320'):

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

Top of Cement – Surface

Stage 1

Fluid 1: Water Spacer

Fresh Water

Fluid Density: 8.33 lbm/gal

Volume : 10 bbl

Fluid 2: Lead Slurry

HALCEM (TM) SYSTEM

Fluid Weight: 15.8 lbm/gal

94 lbm Premium Cement

Volume: 35.7 bbl

0.1250 lbm Poly-E-Flake

Slurry Yield: 1.174 ft3/sack

5.13 Gal FRESH WATER

Total Mixing Fluid: 5.13 Gal/sack

Top Of Fluid: 0 ft

Calculated Fill: 320 ft

Calculated sack: 170.73 sack

Proposed sack: 175 sack

Fluid 3: Water Based Spacer

Displacement

Fluid Density: 8.33 lbm/gal

Volume : 24.7 bbl

Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Estimated Avg Rate	Downhole Volume
1	SPACER	Fresh Water	8.33		10 bbl
2	CEMENT	HalCem Primary	15.8		175 sack
3	SPACER	Displacement	8.33		24.7 bbl

Intermediate Casing – One Stage Job (0- 6,697' MD):**Excess – 50% over gauge hole – 8-3/4" hole and 7" casing (0.1503 ft3/ft)****Top of Cement – Surface****Stage 1****Fluid 1: Water Spacer****Fresh Water****Fluid Density: 8.33 lbm/gal
Volume : 10 bbl****Fluid 2: Reactive Spacer****Chemical Wash,****1000 gal/Mgal FRESH WATER****Fluid Density: 8.4 lbm/gal
Volume : 40 bbl****Fluid 3: Water Spacer****Fresh Water****Fluid Density: 8.33 lbm/gal
Volume : 10 bbl****Fluid 4: Foamed****ELASTISEAL (TM) SYSTEM****1.50 % CHEM - FOAMER 760, TOTETANK****6.73 Gal FRESH WATER****Fluid Weight: 13 lbm/gal
Volume: 226.1 bbl
Slurry Yield: 1.438 ft3/sack
Total Mixing Fluid: 6.83 Gal/sack
Top Of Fluid: 0 ft
Calculated Fill: 6097 ft
Calculated sack: 630.08 sack
Proposed sack: 640 sack****Fluid 5: Tail Slurry****HALCEM (TM) SYSTEM****5.70 Gal FRESH WATER****Fluid Weight: 13.5 lbm/gal
Volume: 22.5 bbl
Slurry Yield: 1.291 ft3/sack
Total Mixing Fluid: 5.7 Gal/sack
Top Of Fluid: 6097 ft
Calculated Fill: 600 ft
Calculated sack: 97.85 sack
Proposed sack: 100 sack****Fluid 6: Water Based Spacer****Displacement****Fluid Density: 8.4 lbm/gal
Volume : 263.6 bbl****Fluid 7: Top Off Annulus****HALCEM (TM) SYSTEM****2 % Calcium Chloride****5.15 Gal FRESH WATER****Fluid Weight: 15.8 lbm/gal
Volume: 20.9 bbl
Slurry Yield: 1.174 ft3/sack
Total Mixing Fluid: 5.15 Gal/sack
Calculated sack: 0 sack
Proposed sack: 100 sack**

Stage 1

Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Estimated Avg Rate	Downhole Volume
1	SPACER	Fresh Water	8.33		10 bbl
2	SPACER	Chemical Wash	8.4		40 bbl
3	SPACER	Fresh Water	8.33		10 bbl
4	CEMENT	Foamed Lead Cement	13		640 sack
5	CEMENT	Unfoamed Tail	13.5		100 sack
6	SPACER	Displacement	8.4		263.6 bbl
7	CEMENT	Cap Cement	15.8		100 sack

Production Casing – Single Stage Job (5,300' – 13,193' MD):
Excess – 50% over gauge hole – 6-1/8" hole and 4-1/2" casing (0.0942 ft3/ft)
Top of Cement – Top of Liner.

Stage 1

Fluid 1: Water Based Spacer

KCL Spacer

Fluid Density: 8.4 lbm/gal
Volume : 40 bbl

Fluid 2: Water Spacer

Fresh Water

Fluid Density: 8.33 lbm/gal
Volume : 10 bbl

Fluid 3: Rheologically Enhanced Spacer

9 lb/gal Tuned Spacer III

38.32 gal/bbl FRESH WATER

1 gal/bbl SEM-7

1 gal/bbl Musol(R) A

45 gal/bbl BAROID 41 - 50 LB BAG

Fluid Density: 9 lbm/gal
Volume : 40 bbl

Fluid 4: Water Spacer

Fresh Water

Fluid Density: 8.33 lbm/gal
Volume : 10 bbl

Fluid 5: Lead Slurry

ELASTISEAL (TM) SYSTEM

6.91 Gal FRESH WATER

Fluid Weight: 13 lbm/gal
Volume: 11.9 bbl
Slurry Yield: 1.457 ft3/sack
Total Mixing Fluid: 6.91 Gal/sack
Top Of Fluid: 4800 ft
Calculated Fill: 500 ft
Calculated sack: 45.86 sack
Proposed sack: 50 sack

Fluid 6: Foamed

ELASTISEAL (TM) SYSTEM

1.50 % CHEM - FOAMER 760, TOTETANK

6.81 Gal FRESH WATER

Fluid Weight: 13 lbm/gal
Volume: 130.6 bbl
Slurry Yield: 1.458 ft3/sack
Total Mixing Fluid: 6.92 Gal/sack
Top Of Fluid: 5300 ft
Calculated Fill: 6743 ft
Calculated sack: 363.76 sack
Proposed sack: 410 sack

Fluid 7: Tail Slurry

ELASTISEAL (TM) SYSTEM
5.72 Gal FRESH WATER

Fluid Weight: 13.5 lbm/gal
Volume: 22.2 bbl
Slurry Yield: 1.285 ft³/sack
Total Mixing Fluid: 5.72 Gal/sack
Top Of Fluid: 12043 ft
Calculated Fill: 1150 ft
Calculated sack: 97 sack
Proposed sack: 100 sack

Fluid 8: Water Based Spacer
MMCR Displacement
0.25 gal/bbl Micro Matrix Retarder

Fluid Density: 8.4 lbm/gal
Volume : 49 bbl

Fluid 9: Water Based Spacer
KCL Displacement

Fluid Density: 8.4 lbm/gal
Volume : 40 bbl

Fluid 10: Water Spacer
Fresh Water Displacement

Fluid Density: 8.3 lbm/gal
Volume : 30 bbl

Fluid 11: Water Based Spacer
KCL Displacement

Fluid Density: 8.4 lbm/gal
Volume : 61.1 bbl

Stage 1

Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Estimated Avg Rate	Downhole Volume
1	SPACER	KCL Spacer	8.4		40 bbl
2	SPACER	Fresh Water	8.33		10 bbl
3	SPACER	9 lb/gal Tuned Spacer III	9		40 bbl
4	SPACER	Fresh Water	8.33		10 bbl
5	CEMENT	Unfoamed Lead	13		50 sack
6	CEMENT	Foamed Cement	13		410 sack
7	CEMENT	Unfoamed Tail	13.5		100 sack
8	SPACER	MMCR Displacement	8.4		49 bbl
9	SPACER	KCL Displacement	8.4		40 bbl
10	SPACER	Fresh Water Displacement	8.3		30 bbl
11	SPACER	KCL Displacement	8.4		61.1 bbl

Foam Output Parameter Summary:

Fluid #	Fluid Name	Unfoamed Liquid Volume	Beginning Density lbm/gal	Ending Density lbm/gal	Beginning Rate scf/bbl	Ending Rate scf/bbl
Stage 1						
5	Foamed Lead Cement	99.40 bbl	10.0	10.0	303.8	509.4

Foam Design Specifications:

Foam Calculation Method: Constant Density
Backpressure: 14 psig
Bottom Hole Circulating Temp: 158 degF
Mud Outlet Temperature: 100 degF
Calculated Gas = 20792.1 scf
Additional Gas = 50000 scf
Total Gas = 70792.1 scf
Production liner clarification: Utilizing foam cement for zonal isolation in the production liner.

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

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.

6. PROPOSED DRILLING FLUIDS PROGRAM

A. Vertical Portion:

Hole Size (in)	TVD (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
12-1/4"	0-320'	Fresh Water	8.4-8.6	60-70	NC
8-3/4"	320'-4,500'	Fresh Water LSND	8.5-8.8	40-50	8-10

B. Kick off to Horizontal Lateral:

Hole Size (in)	TVD/MD (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (CC)
8-3/4"	4,500' - 6,777'	Fresh Water LSND	8.5-8.8	40-50	8-10
6-1/8"	6,777' - 13,193'	Synthetic Oil Based Mud	7.0-9.0	15-25	<1

- There will be sufficient mud on location to control a blowout should one occur. Mud flow and volume will be monitored both visually and with electronic pit volume totalizers. Mud tests shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.
- 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, including fresh water and oil-based operations. 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. Waste will be disposed of properly at an EPA-approved hazardous waste facility. Fresh water cuttings will be disposed of at Basin Disposal, Inc. and/or Industrial Ecosystems, Inc. The location will be lined in accordance with the Surface Use Plan of Operations.

7. TESTING, CORING and LOGGING

- Drill Stem Testing - None anticipated
- Coring - None anticipated.
- Mud Logging - Mud loggers will be on location from intermediate casing point to TD.
- Logging - See Below
- Gamma Ray from surface casing point to TD

Cased Hole:

CBL/CCL/GRNDL will be run as needed for perforating control

8. ABNORMAL PRESSURES & HYDROGEN SULFIDE

The anticipated bottom hole pressure is +/- 2559 psi based on a 9.0 ppg at 5467' TVD of the landing point of the horizontal. No abnormal pressure or temperatures are anticipated.

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

9. ANTICIPATED START DATE AND DURATION OF OPERATIONS

Drilling is estimated to commence on August 12, 2014. It is anticipated that completion operations will begin within 30 days after the well has been drilled depending on fracture treatment schedules with various pumping service companies. It is anticipated that the drilling of this well will take approximately 25 days.

CLOSED-LOOP SYSTEM DESIGN PLAN

The closed-loop system will consist of a series of temporary above-ground storage tanks and/or haul-off bins suitable for holding the cuttings and fluids from drilling operations. The closed-loop system will not entail temporary pits, below-grade storage tanks, below-grade sumps, or drying pads.

Design considerations include:

- The closed-loop system will be signed in accordance with 19.15.17.11 NMAC.
- The closed-loop system storage tanks will be of adequate volume to ensure confinement of all fluids and provide sufficient freeboard to prevent uncontrolled releases.
- Topsoil will be salvaged and stored for use in reclamation activities.
- The closed-loop system storage tanks will be placed in bermed secondary containment sized to contain a minimum of 110 percent of the volume of the largest storage tank.

CLOSED-LOOP SYSTEM OPERATING & MAINTENANCE PLAN

The closed-loop system will be operated and maintained to contain liquids and solids; minimize the amount of drilling fluids and cuttings that require disposal; maximize the amount of drilling fluid recycled and reused in the drilling process; isolate drilling wastes from the environment; prevent contamination of fresh water; and protect public health and the environment.

Operation and maintenance considerations include:

- Fluid levels will be maintained to provide sufficient freeboard to prevent over-topping.
- Visual inspections will be conducted on a daily basis to identify any potential leaks and to ensure that the closed-loop system storage tanks have sufficient freeboard to prevent over-topping.
- Only drilling fluids or cuttings intrinsic to, used by, or generated from, drilling operations will be stored in the closed-loop system storage tanks. Hazardous waste, miscellaneous solid waste, and/or debris will not be stored in the storage tanks.
- The OCD District Office will be notified within 48 hours of discovery of a leak in the closed-loop drilling system. If a leak is discovered, all liquid will be removed within 48 hours and the damage repaired.

CLOSED-LOOP SYSTEM CLOSURE PLAN

The closed-loop system will be closed in accordance with 19.15.17.13 NMAC. Closure

considerations include:

- Drilling fluids will be recycled and transferred to other permitted closed-loop systems or returned to the vendor for reuse, as practical.
- Residual fluids will be pulled from the storage tanks, mixed with saw dust or similar absorbent material, and disposed of at Industrial Ecosystem, Inc. waste disposal facilities.
- Remaining cuttings or sludges will be vacuumed from the storage tanks and disposed of at the Envirotech, Inc. and/or Industrial Ecosystem, Inc. waste disposal facilities.
- Storage tanks will be removed from the well location during the rig move.
- The well pad will be reclaimed and seeded in accordance with subsections G, H and I of 19.15.17.13 NMAC.



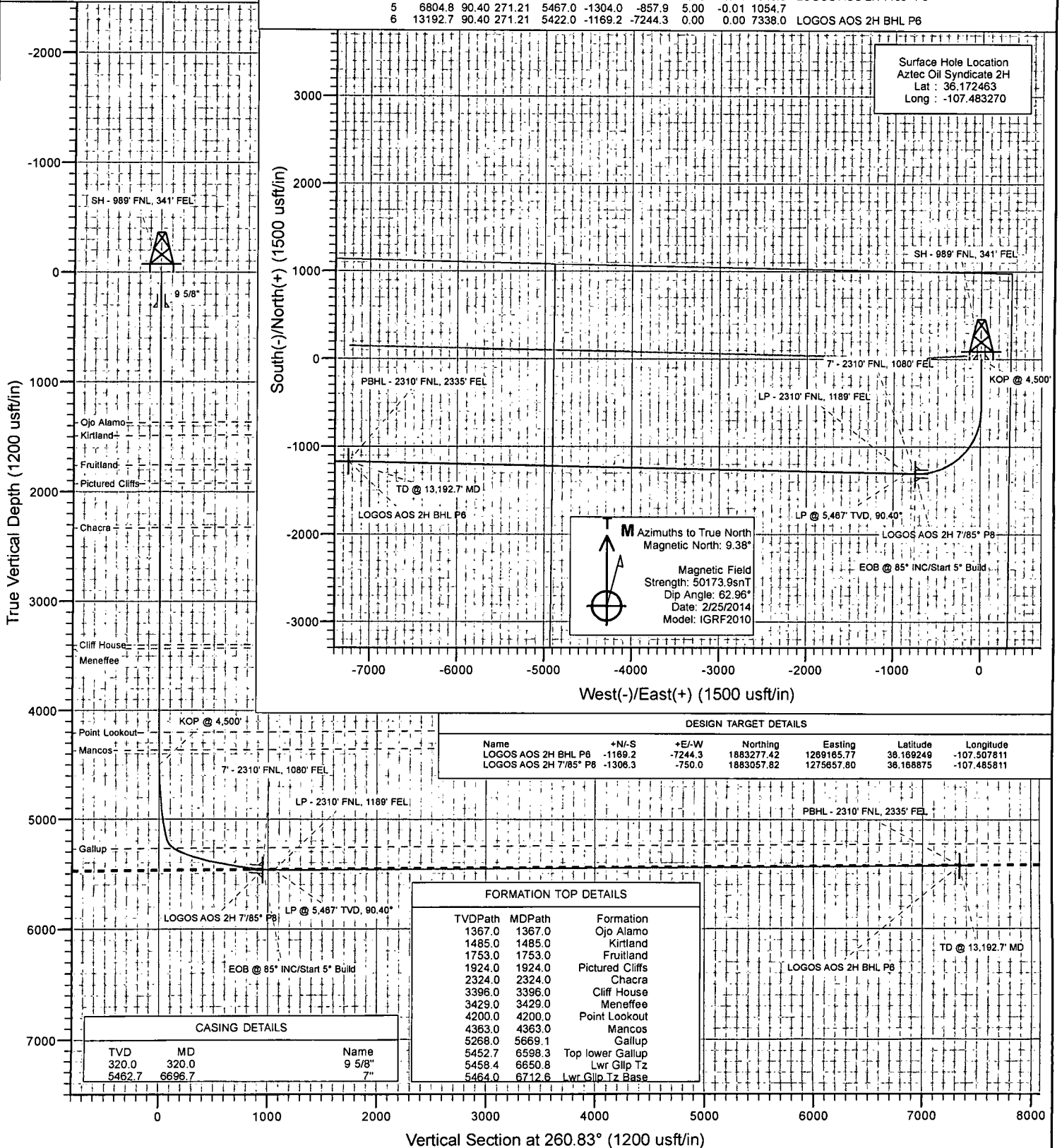
Project: Sandoval County, NM
Site: S5-T22N-R6W
Well: Aztec Oil Syndicate 2H
Wellbore: HZ
Design: Plan #8



Plan #8
Aztec Oil Syndicate 2H
145XXX; SC
KB=15' @ 7141.0usft (Aztec #222)
Ground Elevation @ 7126.0
North American Datum 1983
Well Aztec Oil Syndicate 2H, True North

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	4500.0	0.00	0.00	4500.0	0.0	0.0	0.00	0.00	0.0	
3	5515.6	77.43	180.04	5233.5	-588.0	-0.4	7.62	180.04	94.1	
4	6696.7	85.00	271.21	5462.7	-1306.3	-750.0	7.62	95.14	948.6	LOGOS AOS 2H 7/85° P8
5	6804.8	90.40	271.21	5467.0	-1304.0	-857.9	5.00	-0.01	1054.7	
6	13192.7	90.40	271.21	5422.0	-1169.2	-7244.3	0.00	0.00	7338.0	LOGOS AOS 2H BHL P6



Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Aztec Oil Syndicate 2H
Company:	LOGOS Operating LLC	TVD Reference:	KB=15' @ 7141.0usft (Aztec #222)
Project:	Sandoval County, NM	MD Reference:	KB=15' @ 7141.0usft (Aztec #222)
Site:	S5-T22N-R6W	North Reference:	True
Well:	Aztec Oil Syndicate 2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #8		

Project	Sandoval County, NM		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Central Zone		

Site	S5-T22N-R6W				
Site Position:		Northing:	1,883,183.57 usft	Latitude:	36.169247
From:	Lat/Long	Easting:	1,276,424.49 usft	Longitude:	-107.483219
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	-0.73 °

Well	Aztec Oil Syndicate 2H					
Well Position	+N/-S	0.0 usft	Northing:	1,884,354.48 usft	Latitude:	36.172463
	+E/-W	0.0 usft	Easting:	1,276,424.34 usft	Longitude:	-107.483270
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	7,126.0 usft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/25/2014	9.38	62.96	50,174

Design	Plan #8			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	260.83

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,515.6	77.43	180.04	5,233.5	-588.0	-0.4	7.62	7.62	0.00	180.04	
6,696.7	85.00	271.21	5,462.7	-1,306.3	-750.0	7.62	0.64	7.72	95.14	LOGOS AOS 2H 7/8"
6,804.8	90.40	271.21	5,467.0	-1,304.0	-857.9	5.00	5.00	0.00	-0.01	
13,192.7	90.40	271.21	5,422.0	-1,169.2	-7,244.3	0.00	0.00	0.00	0.00	LOGOS AOS 2H BHL

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: LOGOS Operating LLC
 Project: Sandoval County, NM
 Site: S5-T22N-R6W
 Well: Aztec Oil Syndicate 2H
 Wellbore: HZ
 Design: Plan #8

Local Co-ordinate Reference: Well Aztec Oil Syndicate 2H
 TVD Reference: KB=15' @ 7141.0usft (Aztec #222)
 MD Reference: KB=15' @ 7141.0usft (Aztec #222)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
0.5	0.00	0.00	0.5	0.0	0.0	0.0	0.00	0.00	SH - 989' FNL, 341' FEL
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	9 5/8"
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,367.0	0.00	0.00	1,367.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,485.0	0.00	0.00	1,485.0	0.0	0.0	0.0	0.00	0.00	Kirtland
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	
1,753.0	0.00	0.00	1,753.0	0.0	0.0	0.0	0.00	0.00	Fruitland
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	
1,924.0	0.00	0.00	1,924.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	
2,324.0	0.00	0.00	2,324.0	0.0	0.0	0.0	0.00	0.00	Chacra
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	
3,396.0	0.00	0.00	3,396.0	0.0	0.0	0.0	0.00	0.00	Cliff House
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	
3,429.0	0.00	0.00	3,429.0	0.0	0.0	0.0	0.00	0.00	Meneffee
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	Point Lookout

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Aztec Oil Syndicate 2H
Company:	LOGOS Operating LLC	TVD Reference:	KB=15' @ 7141.0usft (Aztec #222)
Project:	Sandoval County, NM	MD Reference:	KB=15' @ 7141.0usft (Aztec #222)
Site:	S5-T22N-R6W	North Reference:	True
Well:	Aztec Oil Syndicate 2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #8:		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	
4,363.0	0.00	0.00	4,363.0	0.0	0.0	0.0	0.00	0.00	Mancos
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	KOP @ 4,500'
4,550.0	3.81	180.04	4,550.0	-1.7	0.0	0.3	7.62	7.62	
4,600.0	7.62	180.04	4,599.7	-6.6	0.0	1.1	7.62	7.62	
4,650.0	11.44	180.04	4,649.0	-14.9	0.0	2.4	7.62	7.62	
4,700.0	15.25	180.04	4,697.6	-26.5	0.0	4.2	7.62	7.62	
4,750.0	19.06	180.04	4,745.4	-41.2	0.0	6.6	7.62	7.62	
4,800.0	22.87	180.04	4,792.1	-59.1	0.0	9.5	7.62	7.62	
4,850.0	26.69	180.04	4,837.5	-80.0	-0.1	12.8	7.62	7.62	
4,900.0	30.50	180.04	4,881.4	-104.0	-0.1	16.6	7.62	7.62	
4,950.0	34.31	180.04	4,923.6	-130.8	-0.1	20.9	7.62	7.62	
5,000.0	38.12	180.04	4,963.9	-160.3	-0.1	25.6	7.62	7.62	
5,050.0	41.93	180.04	5,002.2	-192.4	-0.1	30.8	7.62	7.62	
5,100.0	45.75	180.04	5,038.3	-227.1	-0.1	36.3	7.62	7.62	
5,150.0	49.56	180.04	5,071.9	-264.0	-0.2	42.2	7.62	7.62	
5,200.0	53.37	180.04	5,103.1	-303.1	-0.2	48.5	7.62	7.62	
5,250.0	57.18	180.04	5,131.5	-344.2	-0.2	55.1	7.62	7.62	
5,300.0	61.00	180.04	5,157.2	-387.1	-0.2	61.9	7.62	7.62	
5,350.0	64.81	180.04	5,180.0	-431.6	-0.3	69.0	7.62	7.62	
5,400.0	68.62	180.04	5,199.8	-477.5	-0.3	76.4	7.62	7.62	
5,450.0	72.43	180.04	5,216.4	-524.7	-0.3	83.9	7.62	7.62	
5,500.0	76.24	180.04	5,229.9	-572.8	-0.4	91.6	7.62	7.62	
5,515.6	77.43	180.04	5,233.5	-588.0	-0.4	94.1	7.62	7.62	
5,550.0	77.21	182.72	5,241.0	-621.5	-1.2	100.2	7.62	-0.64	
5,600.0	76.94	186.62	5,252.2	-670.1	-5.1	111.8	7.62	-0.55	
5,650.0	76.72	190.53	5,263.6	-718.2	-12.4	126.7	7.62	-0.43	
5,669.1	76.66	192.02	5,268.0	-736.4	-16.0	133.2	7.62	-0.35	Gallup
5,700.0	76.57	194.44	5,275.2	-765.7	-22.9	144.6	7.62	-0.29	
5,750.0	76.47	198.36	5,286.8	-812.3	-36.6	165.6	7.62	-0.19	
5,800.0	76.44	202.28	5,298.5	-857.9	-53.5	189.5	7.62	-0.07	
5,850.0	76.47	206.20	5,310.3	-902.2	-73.5	216.3	7.62	0.06	
5,900.0	76.56	210.12	5,321.9	-945.1	-96.4	245.8	7.62	0.18	
5,950.0	76.70	214.04	5,333.5	-986.3	-122.2	277.8	7.62	0.30	
6,000.0	76.91	217.95	5,344.9	-1,025.7	-150.8	312.3	7.62	0.42	
6,050.0	77.18	221.85	5,356.1	-1,063.0	-182.1	349.2	7.62	0.54	
6,100.0	77.51	225.74	5,367.1	-1,098.2	-215.9	388.1	7.62	0.65	
6,150.0	77.89	229.63	5,377.7	-1,131.1	-252.0	429.0	7.62	0.76	
6,200.0	78.32	233.50	5,388.0	-1,161.5	-290.3	471.7	7.62	0.87	
6,250.0	78.81	237.35	5,398.0	-1,189.3	-330.6	515.9	7.62	0.97	
6,300.0	79.34	241.20	5,407.4	-1,214.4	-372.8	561.6	7.62	1.07	
6,350.0	79.92	245.03	5,416.4	-1,236.7	-416.7	608.4	7.62	1.16	
6,400.0	80.55	248.84	5,424.9	-1,255.9	-462.0	656.2	7.62	1.25	
6,450.0	81.22	252.65	5,432.8	-1,272.2	-508.6	704.8	7.62	1.33	
6,500.0	81.92	256.43	5,440.2	-1,285.4	-556.3	754.0	7.62	1.41	
6,550.0	82.66	260.21	5,446.9	-1,295.4	-604.8	803.5	7.62	1.48	
6,598.3	83.41	263.84	5,452.7	-1,302.1	-652.3	851.4	7.62	1.54	Top lower Gallup
6,600.0	83.43	263.97	5,452.9	-1,302.3	-653.9	853.1	7.62	1.57	
6,650.0	84.23	267.72	5,458.3	-1,305.9	-703.5	902.6	7.62	1.60	
6,650.8	84.24	267.78	5,458.4	-1,305.9	-704.3	903.4	7.62	1.62	Lwr Gllp Tz
6,696.7	85.00	271.21	5,462.7	-1,306.3	-750.0	948.6	7.62	1.65	EOB @ 85° INC/Start 5° Build - 7' - 2310' FNL.

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: LOGOS Operating LLC
 Project: Sandoval County, NM
 Site: S5-T22N-R6W
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 Wellbore: HZ
 Design: Plan #8

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 MD Reference: KB=15' @ 7141.0usft (Aztec #222)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
6,700.0	85.16	271.21	5,463.0	-1,306.2	-753.3	951.8	4.99	4.99	
6,712.6	85.80	271.21	5,464.0	-1,306.0	-765.8	964.1	5.00	5.00	Lwr Glip Tz Base
6,804.8	90.40	271.21	5,467.0	-1,304.0	-857.9	1,054.8	5.00	5.00	LP - 2310' FNL, 1189' FEL - LP @ 5,467' TVD, 1
6,900.0	90.40	271.21	5,466.4	-1,302.0	-953.1	1,148.4	0.00	0.00	
7,000.0	90.40	271.21	5,465.7	-1,299.9	-1,053.1	1,246.8	0.00	0.00	
7,100.0	90.40	271.21	5,465.0	-1,297.8	-1,153.1	1,345.1	0.00	0.00	
7,200.0	90.40	271.21	5,464.2	-1,295.7	-1,253.0	1,443.5	0.00	0.00	
7,300.0	90.40	271.21	5,463.5	-1,293.6	-1,353.0	1,541.8	0.00	0.00	
7,400.0	90.40	271.21	5,462.8	-1,291.5	-1,453.0	1,640.2	0.00	0.00	
7,500.0	90.40	271.21	5,462.1	-1,289.3	-1,553.0	1,738.6	0.00	0.00	
7,600.0	90.40	271.21	5,461.4	-1,287.2	-1,652.9	1,836.9	0.00	0.00	
7,700.0	90.40	271.21	5,460.7	-1,285.1	-1,752.9	1,935.3	0.00	0.00	
7,800.0	90.40	271.21	5,460.0	-1,283.0	-1,852.9	2,033.7	0.00	0.00	
7,900.0	90.40	271.21	5,459.3	-1,280.9	-1,952.9	2,132.0	0.00	0.00	
8,000.0	90.40	271.21	5,458.6	-1,278.8	-2,052.8	2,230.4	0.00	0.00	
8,100.0	90.40	271.21	5,457.9	-1,276.7	-2,152.8	2,328.7	0.00	0.00	
8,200.0	90.40	271.21	5,457.2	-1,274.6	-2,252.8	2,427.1	0.00	0.00	
8,300.0	90.40	271.21	5,456.5	-1,272.5	-2,352.8	2,525.5	0.00	0.00	
8,400.0	90.40	271.21	5,455.8	-1,270.4	-2,452.7	2,623.8	0.00	0.00	
8,500.0	90.40	271.21	5,455.1	-1,268.2	-2,552.7	2,722.2	0.00	0.00	
8,600.0	90.40	271.21	5,454.4	-1,266.1	-2,652.7	2,820.5	0.00	0.00	
8,700.0	90.40	271.21	5,453.7	-1,264.0	-2,752.7	2,918.9	0.00	0.00	
8,800.0	90.40	271.21	5,453.0	-1,261.9	-2,852.6	3,017.3	0.00	0.00	
8,900.0	90.40	271.21	5,452.3	-1,259.8	-2,952.6	3,115.6	0.00	0.00	
9,000.0	90.40	271.21	5,451.6	-1,257.7	-3,052.6	3,214.0	0.00	0.00	
9,100.0	90.40	271.21	5,450.9	-1,255.6	-3,152.6	3,312.4	0.00	0.00	
9,200.0	90.40	271.21	5,450.1	-1,253.5	-3,252.5	3,410.7	0.00	0.00	
9,300.0	90.40	271.21	5,449.4	-1,251.4	-3,352.5	3,509.1	0.00	0.00	
9,400.0	90.40	271.21	5,448.7	-1,249.2	-3,452.5	3,607.4	0.00	0.00	
9,500.0	90.40	271.21	5,448.0	-1,247.1	-3,552.5	3,705.8	0.00	0.00	
9,600.0	90.40	271.21	5,447.3	-1,245.0	-3,652.5	3,804.2	0.00	0.00	
9,700.0	90.40	271.21	5,446.6	-1,242.9	-3,752.4	3,902.5	0.00	0.00	
9,800.0	90.40	271.21	5,445.9	-1,240.8	-3,852.4	4,000.9	0.00	0.00	
9,900.0	90.40	271.21	5,445.2	-1,238.7	-3,952.4	4,099.2	0.00	0.00	
10,000.0	90.40	271.21	5,444.5	-1,236.6	-4,052.4	4,197.6	0.00	0.00	
10,100.0	90.40	271.21	5,443.8	-1,234.5	-4,152.3	4,296.0	0.00	0.00	
10,200.0	90.40	271.21	5,443.1	-1,232.4	-4,252.3	4,394.3	0.00	0.00	
10,300.0	90.40	271.21	5,442.4	-1,230.3	-4,352.3	4,492.7	0.00	0.00	
10,400.0	90.40	271.21	5,441.7	-1,228.1	-4,452.3	4,591.1	0.00	0.00	
10,500.0	90.40	271.21	5,441.0	-1,226.0	-4,552.2	4,689.4	0.00	0.00	
10,600.0	90.40	271.21	5,440.3	-1,223.9	-4,652.2	4,787.8	0.00	0.00	
10,700.0	90.40	271.21	5,439.6	-1,221.8	-4,752.2	4,886.1	0.00	0.00	
10,800.0	90.40	271.21	5,438.9	-1,219.7	-4,852.2	4,984.5	0.00	0.00	
10,900.0	90.40	271.21	5,438.2	-1,217.6	-4,952.1	5,082.9	0.00	0.00	
11,000.0	90.40	271.21	5,437.5	-1,215.5	-5,052.1	5,181.2	0.00	0.00	
11,100.0	90.40	271.21	5,436.8	-1,213.4	-5,152.1	5,279.6	0.00	0.00	
11,200.0	90.40	271.21	5,436.0	-1,211.3	-5,252.1	5,378.0	0.00	0.00	
11,300.0	90.40	271.21	5,435.3	-1,209.1	-5,352.0	5,476.3	0.00	0.00	
11,400.0	90.40	271.21	5,434.6	-1,207.0	-5,452.0	5,574.7	0.00	0.00	
11,500.0	90.40	271.21	5,433.9	-1,204.9	-5,552.0	5,673.0	0.00	0.00	
11,600.0	90.40	271.21	5,433.2	-1,202.8	-5,652.0	5,771.4	0.00	0.00	
11,700.0	90.40	271.21	5,432.5	-1,200.7	-5,751.9	5,869.8	0.00	0.00	

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: LOGOS Operating LLC
 Project: Sandoval County, NM
 Site: S5-T22N-R6W
 Well: Aztec Oil Syndicate 2H
 Wellbore: HZ
 Design: Plan #8

Local Co-ordinate Reference: Well Aztec Oil Syndicate 2H
 TVD Reference: KB=15' @ 7141.0usft (Aztec #222)
 MD Reference: KB=15' @ 7141.0usft (Aztec #222)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
11,800.0	90.40	271.21	5,431.8	-1,198.6	-5,851.9	5,968.1	0.00	0.00	
11,900.0	90.40	271.21	5,431.1	-1,196.5	-5,951.9	6,066.5	0.00	0.00	
12,000.0	90.40	271.21	5,430.4	-1,194.4	-6,051.9	6,164.8	0.00	0.00	
12,100.0	90.40	271.21	5,429.7	-1,192.3	-6,151.8	6,263.2	0.00	0.00	
12,200.0	90.40	271.21	5,429.0	-1,190.2	-6,251.8	6,361.6	0.00	0.00	
12,300.0	90.40	271.21	5,428.3	-1,188.0	-6,351.8	6,459.9	0.00	0.00	
12,400.0	90.40	271.21	5,427.6	-1,185.9	-6,451.8	6,558.3	0.00	0.00	
12,500.0	90.40	271.21	5,426.9	-1,183.8	-6,551.7	6,656.7	0.00	0.00	
12,600.0	90.40	271.21	5,426.2	-1,181.7	-6,651.7	6,755.0	0.00	0.00	
12,700.0	90.40	271.21	5,425.5	-1,179.6	-6,751.7	6,853.4	0.00	0.00	
12,800.0	90.40	271.21	5,424.8	-1,177.5	-6,851.7	6,951.7	0.00	0.00	
12,900.0	90.40	271.21	5,424.1	-1,175.4	-6,951.6	7,050.1	0.00	0.00	
13,000.0	90.40	271.21	5,423.4	-1,173.3	-7,051.6	7,148.5	0.00	0.00	
13,100.0	90.40	271.21	5,422.7	-1,171.2	-7,151.6	7,246.8	0.00	0.00	
13,192.7	90.40	271.21	5,422.0	-1,169.2	-7,244.3	7,338.0	0.00	0.00	TD @ 13,192.7' MD - PBHL - 2310' FNL, 2335'

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: LOGOS Operating LLC
 Project: Sandoval County, NM
 Site: S5-T22N-R6W
 Well: Aztec Oil Syndicate 2H
 Wellbore: HZ
 Design: Plan #8

Local Co-ordinate Reference: Well Aztec Oil Syndicate 2H
 TVD Reference: KB=15' @ 7141.0usft (Aztec #222)
 MD Reference: KB=15' @ 7141.0usft (Aztec #222)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
LOGOS AOS 2H 7'/85° I - hit/miss target - Shape - Point	0.00	0.00	5,462.7	-650.2	-564.5	1,883,711.49	1,275,851.63	36.170677	-107.485182
- plan misses target center by 570.3usft at 5931.4usft MD (5329.2 TVD, -971.1 N, -112.3 E)									
LOGOS AOS 2H BHL Pt - plan misses target center - Point	0.00	0.00	5,422.0	-1,169.2	-7,244.3	1,883,277.42	1,269,165.77	36.169249	-107.507811
LOGOS AOS 2H 7'/85° I - plan misses target center by 30.3usft at 6516.0usft MD (5442.4 TVD, -1289.0 N, -571.7 E) - Point	0.00	0.00	5,462.7	-1,310.2	-564.5	1,883,051.56	1,275,843.25	36.168864	-107.485182
LOGOS AOS 2H BHL P: - plan misses target center by 660.5usft at 13192.7usft MD (5422.0 TVD, -1169.2 N, -7244.3 E) - Point	0.00	0.00	5,397.0	-509.2	-7,244.3	1,883,937.42	1,269,174.16	36.171062	-107.507811
LOGOS AOS 2H 7'/85° I - plan misses target center by 64.9usft at 6419.6usft MD (5428.1 TVD, -1262.7 N, -480.2 E) - Point	0.00	0.00	5,462.7	-1,312.5	-456.9	1,883,047.89	1,275,950.80	36.168858	-107.484818
LOGOS AOS 2H BHL P: - plan misses target center by 660.0usft at 13192.7usft MD (5422.0 TVD, -1169.2 N, -7244.3 E) - Point	0.00	0.00	5,422.0	-509.2	-7,244.3	1,883,937.42	1,269,174.16	36.171062	-107.507811
LOGOS AOS 2H 7'/85° - plan misses target center by 565.0usft at 5925.6usft MD (5327.9 TVD, -966.4 N, -109.3 E) - Point	0.00	0.00	5,437.7	-650.2	-564.5	1,883,711.49	1,275,851.63	36.170677	-107.485182
Logos #702H BHL - plan misses target center by 156.6usft at 13100.0usft MD (5422.7 TVD, -1171.2 N, -7151.6 E) - Point	0.00	0.00	5,402.0	-1,019.7	-7,185.7	1,883,426.17	1,269,226.25	36.169660	-107.507612
LOGOS AOS 2H 7'/85° I - plan hits target center - Point	0.00	0.00	5,462.7	-1,306.3	-750.0	1,883,057.82	1,275,657.80	36.168875	-107.485811
Logos #702H VP - plan misses target center by 550.8usft at 5832.5usft MD (5306.2 TVD, -886.9 N, -66.2 E) - Point	0.00	0.00	4,771.9	-1,019.7	-85.0	1,883,335.95	1,276,326.42	36.169662	-107.483558
	320.0	320.0	9 5/8"					0	0
	6,696.7	5,462.7	7"					0	0

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Aztec Oil Syndicate 2H
Company:	LOGOS Operating LLC	TVD Reference:	KB=15' @ 7141.0usft (Aztec #222)
Project:	Sandoval County, NM	MD Reference:	KB=15' @ 7141.0usft (Aztec #222)
Site:	S5-T22N-R6W	North Reference:	True
Well:	Aztec Oil Syndicate 2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #8		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,367.0	1,367.0	Ojo Alamo		-0.39	271.21
1,485.0	1,485.0	Kirtland		-0.39	271.21
1,753.0	1,753.0	Fruitland		-0.39	271.21
1,924.0	1,924.0	Pictured Cliffs		-0.39	271.21
2,324.0	2,324.0	Chacra		-0.39	271.21
3,396.0	3,396.0	Cliff House		-0.39	271.21
3,429.0	3,429.0	Meneffee		-0.39	271.21
4,200.0	4,200.0	Point Lookout		-0.39	271.21
4,363.0	4,363.0	Mancos		-0.39	271.21
5,669.1	5,268.0	Gallup		-0.39	271.21
6,598.3	5,457.0	Top lower Gallup		-0.39	271.21
6,650.8	5,463.0	Lwr Gllp Tz		-0.39	271.21
6,712.6	5,469.0	Lwr Gllp Tz Base		-0.39	271.21

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.5	0.5	0.0	0.0	SH - 989' FNL, 341' FEL
4,500.0	4,500.0	0.0	0.0	KOP @ 4,500'
6,696.7	5,462.7	-1,306.3	-750.0	EOB @ 85° INC/Start 5° Build
6,696.7	5,462.7	-1,306.3	-750.0	7' - 2310' FNL, 1080' FEL
6,804.8	5,467.0	-1,304.0	-857.9	LP - 2310' FNL, 1189' FEL
6,804.8	5,467.0	-1,304.0	-857.9	LP @ 5,467' TVD, 90.40°
13,192.7	5,422.0	-1,169.2	-7,244.3	TD @ 13,192.7' MD
13,192.7	5,422.0	-1,169.2	-7,244.3	PBHL - 2310' FNL, 2335' FEL

LOGOS Operating LLC

Sandoval County, NM

S5-T22N-R6W

Aztec Oil Syndicate 2H

HZ

Plan #8

Anticollision Report

29 July, 2014

Anticollision Report

Company:	LOGOS Operating LLC	Local Co-ordinate Reference:	Well Aztec Oil Syndicate 2H
Project:	Sandoval County, NM	TVD Reference:	KB=15' @ 7141.0usft (Aztec #222)
Reference Site:	S5-T22N-R6W	MD Reference:	KB=15' @ 7141.0usft (Aztec #222)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Aztec Oil Syndicate 2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #8	Offset TVD Reference:	Offset Datum

Reference	Plan #8		
Filter type:	GLOBAL FILTER APPLIED: All wellpaths within 200'+ 100/1000 of reference		
Interpolation Method:	MD Interval 100.0usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 500.0usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 7/29/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	13,192.7	Plan #8 (HZ)	Geolink MWD	Geolink MWD

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S5-T22N-R6W						
Aztec Oil Syndicate 1H - HZ - Plan #7	4,500.0	4,500.0	52.2	36.5	3.334	CC, ES, SF

Anticollision Report

Company:	LOGOS Operating LLC	Local Co-ordinate Reference:	Well Aztec Oil Syndicate 2H
Project:	Sandoval County, NM	TVD Reference:	KB=15' @ 7141.0usft (Aztec #222)
Reference Site:	S5-T22N-R6W	MD Reference:	KB=15' @ 7141.0usft (Aztec #222)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Aztec Oil Syndicate 2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #8	Offset TVD Reference:	Offset Datum

Offset Design S5-T22N-R6W - Aztec Oil Syndicate 1H - HZ - Plan #7													Offset Site Error:	0.0 usft
Survey Program: 0-Geolink MWD													Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis		Distance		Total		Separation		Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-17.27	49.8	-15.5	52.2					
100.0	100.0	100.0	100.0	0.1	0.1	-17.27	49.8	-15.5	52.2	51.9	0.30	175.913		
200.0	200.0	200.0	200.0	0.3	0.3	-17.27	49.8	-15.5	52.2	51.5	0.65	80.825		
300.0	300.0	300.0	300.0	0.5	0.5	-17.27	49.8	-15.5	52.2	51.2	0.99	52.465		
400.0	400.0	400.0	400.0	0.7	0.7	-17.27	49.8	-15.5	52.2	50.9	1.34	38.838		
500.0	500.0	500.0	500.0	0.8	0.8	-17.27	49.8	-15.5	52.2	50.5	1.69	30.830		
600.0	600.0	600.0	600.0	1.0	1.0	-17.27	49.8	-15.5	52.2	50.2	2.04	25.560		
700.0	700.0	700.0	700.0	1.2	1.2	-17.27	49.8	-15.5	52.2	49.8	2.39	21.829		
800.0	800.0	800.0	800.0	1.4	1.4	-17.27	49.8	-15.5	52.2	49.5	2.74	19.048		
900.0	900.0	900.0	900.0	1.5	1.5	-17.27	49.8	-15.5	52.2	49.1	3.09	16.896		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	-17.27	49.8	-15.5	52.2	48.8	3.44	15.180		
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	-17.27	49.8	-15.5	52.2	48.4	3.79	13.781		
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	-17.27	49.8	-15.5	52.2	48.1	4.14	12.618		
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	-17.27	49.8	-15.5	52.2	47.7	4.49	11.636		
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	-17.27	49.8	-15.5	52.2	47.4	4.83	10.796		
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	-17.27	49.8	-15.5	52.2	47.0	5.18	10.069		
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	-17.27	49.8	-15.5	52.2	46.7	5.53	9.434		
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	-17.27	49.8	-15.5	52.2	46.3	5.88	8.874		
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	-17.27	49.8	-15.5	52.2	46.0	6.23	8.377		
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	-17.27	49.8	-15.5	52.2	45.6	6.58	7.932		
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	-17.27	49.8	-15.5	52.2	45.3	6.93	7.533		
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	-17.27	49.8	-15.5	52.2	44.9	7.28	7.172		
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	-17.27	49.8	-15.5	52.2	44.6	7.63	6.843		
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	-17.27	49.8	-15.5	52.2	44.2	7.98	6.544		
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	-17.27	49.8	-15.5	52.2	43.9	8.33	6.269		
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	-17.27	49.8	-15.5	52.2	43.5	8.67	6.017		
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	-17.27	49.8	-15.5	52.2	43.2	9.02	5.784		
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	-17.27	49.8	-15.5	52.2	42.8	9.37	5.569		
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	-17.27	49.8	-15.5	52.2	42.5	9.72	5.369		
2,900.0	2,900.0	2,900.0	2,900.0	5.0	5.0	-17.27	49.8	-15.5	52.2	42.1	10.07	5.183		
3,000.0	3,000.0	3,000.0	3,000.0	5.2	5.2	-17.27	49.8	-15.5	52.2	41.8	10.42	5.009		
3,100.0	3,100.0	3,100.0	3,100.0	5.4	5.4	-17.27	49.8	-15.5	52.2	41.4	10.77	4.847		
3,200.0	3,200.0	3,200.0	3,200.0	5.6	5.6	-17.27	49.8	-15.5	52.2	41.1	11.12	4.695		
3,300.0	3,300.0	3,300.0	3,300.0	5.7	5.7	-17.27	49.8	-15.5	52.2	40.7	11.47	4.552		
3,400.0	3,400.0	3,400.0	3,400.0	5.9	5.9	-17.27	49.8	-15.5	52.2	40.4	11.82	4.417		
3,500.0	3,500.0	3,500.0	3,500.0	6.1	6.1	-17.27	49.8	-15.5	52.2	40.0	12.16	4.291		
3,600.0	3,600.0	3,600.0	3,600.0	6.3	6.3	-17.27	49.8	-15.5	52.2	39.7	12.51	4.171		
3,700.0	3,700.0	3,700.0	3,700.0	6.4	6.4	-17.27	49.8	-15.5	52.2	39.3	12.86	4.058		
3,800.0	3,800.0	3,800.0	3,800.0	6.6	6.6	-17.27	49.8	-15.5	52.2	39.0	13.21	3.950		
3,900.0	3,900.0	3,900.0	3,900.0	6.8	6.8	-17.27	49.8	-15.5	52.2	38.6	13.56	3.849		
4,000.0	4,000.0	4,000.0	4,000.0	7.0	7.0	-17.27	49.8	-15.5	52.2	38.3	13.91	3.752		
4,100.0	4,100.0	4,100.0	4,100.0	7.1	7.1	-17.27	49.8	-15.5	52.2	37.9	14.26	3.660		
4,200.0	4,200.0	4,200.0	4,200.0	7.3	7.3	-17.27	49.8	-15.5	52.2	37.6	14.61	3.573		
4,300.0	4,300.0	4,300.0	4,300.0	7.5	7.5	-17.27	49.8	-15.5	52.2	37.2	14.96	3.490		
4,400.0	4,400.0	4,400.0	4,400.0	7.7	7.7	-17.27	49.8	-15.5	52.2	36.9	15.31	3.410		
4,500.0	4,500.0	4,500.0	4,500.0	7.8	7.8	-17.27	49.8	-15.5	52.2	36.5	15.66	3.334 CC, ES, SF		
4,600.0	4,599.7	4,599.7	4,599.7	8.0	8.0	164.49	49.8	-15.5	58.6	42.7	15.92	3.680		
4,700.0	4,697.6	4,697.3	4,697.3	8.2	8.2	167.83	49.8	-15.8	77.9	61.9	15.99	4.872		
4,800.0	4,792.1	4,789.9	4,789.5	8.4	8.3	166.43	49.4	-23.8	111.1	95.2	15.90	6.986		
4,900.0	4,881.4	4,875.3	4,873.1	8.8	8.5	162.20	48.4	-40.8	157.9	142.2	15.71	10.051		
5,000.0	4,963.9	4,950.0	4,944.5	9.2	8.7	157.39	47.1	-62.9	217.5	202.0	15.52	14.014		
5,100.0	5,038.3	5,015.7	5,005.2	9.9	8.9	152.18	45.6	-87.9	288.3	272.8	15.49	18.617		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	LOGOS Operating LLC	Local Co-ordinate Reference:	Well Aztec Oil Syndicate 2H
Project:	Sandoval County, NM	TVD Reference:	KB=15' @ 7141.0usft (Aztec #222)
Reference Site:	S5-T22N-R6W	MD Reference:	KB=15' @ 7141.0usft (Aztec #222)
Site Error:	0.0usft	North Reference:	True
Reference Well:	Aztec Oil Syndicate 2H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0usft	Output errors are at	2.00 sigma
Reference Wellbore	HZ	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #8	Offset TVD Reference:	Offset Datum

Offset Design S5-T22N-R6W - Aztec Oil Syndicate 1H - HZ - Plan #7												Offset Site Error:	0.0 usft
Survey Program: 0-Geolink MWD												Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Total Uncertainty	Separation Factor	Warning	
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	+N/-S (usft)	+E/-W (usft)	(usft)	(usft)	Axis		
5,200.0	5,103.1	5,069.4	5,053.2	10.7	9.0	146.18	44.2	-112.0	368.2	352.4	15.81	23.297	
5,300.0	5,157.2	5,112.5	5,090.4	11.7	9.2	138.31	42.9	-133.6	455.1	438.3	16.82	27.060	

Anticollision Report

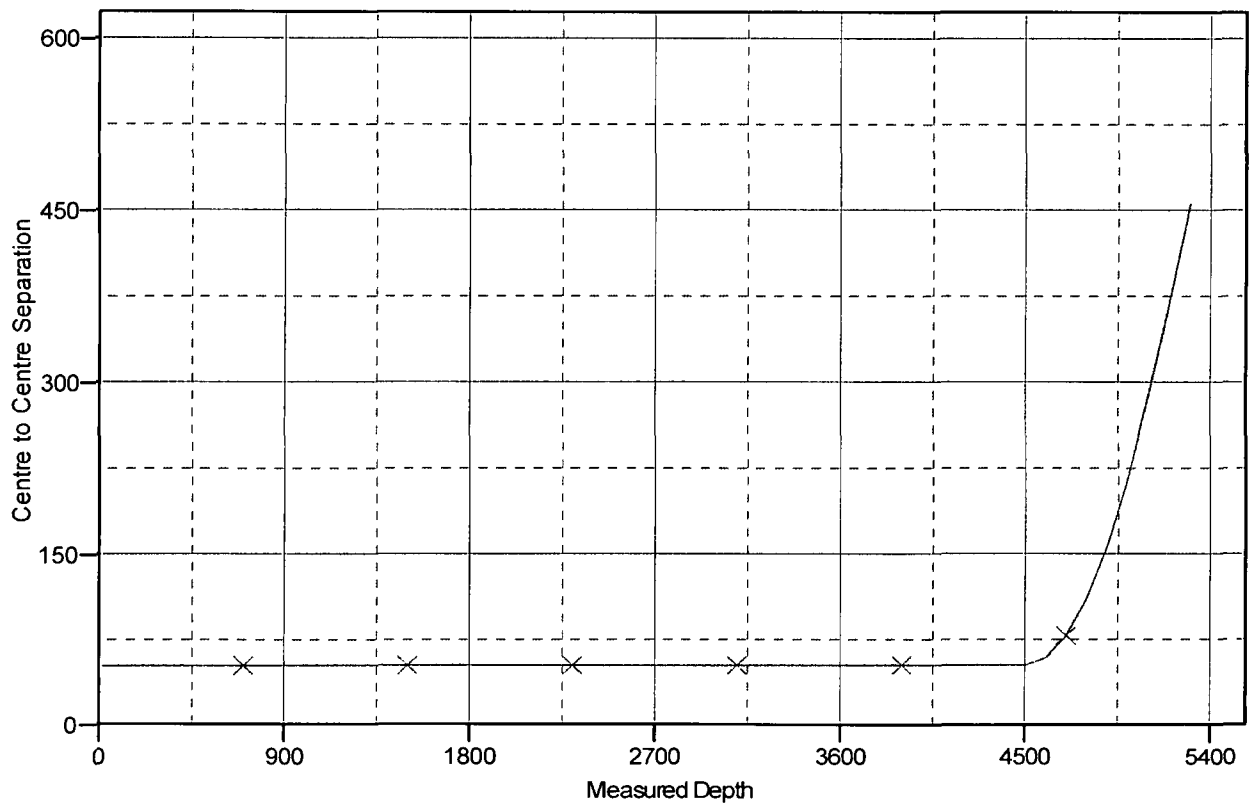
Company: LOGOS Operating LLC
Project: Sandoval County, NM
Reference Site: S5-T22N-R6W
Site Error: 0.0usft
Reference Well: Aztec Oil Syndicate 2H
Well Error: 0.0usft
Reference Wellbore: HZ
Reference Design: Plan #8

Local Co-ordinate Reference: Well Aztec Oil Syndicate 2H
TVD Reference: KB=15' @ 7141.0usft (Aztec #222)
MD Reference: KB=15' @ 7141.0usft (Aztec #222)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Reference Depths are relative to KB=15' @ 7141.0usft (Aztec #222)
Offset Depths are relative to Offset Datum
Central Meridian is -106.250000 °

Coordinates are relative to: Aztec Oil Syndicate 2H
Coordinate System is US State Plane 1983, New Mexico Central Zone
Grid Convergence at Surface is: -0.73°

Ladder Plot



LEGEND

→x Aztec Oil Syndicate 1H, HZ, Plan #7 V0

Well Control Equipment Schematic for 2M Service

Attachment to Drilling Technical Program

Exhibit #1 Typical BOP setup

Location: San Juan Basin, New Mexico

Date: August 24, 2004

By: John Thompson (Walsh E&P)

