5/05/2014 DATE IN	SUSPENSE	MAM ENGINEER	5/05/2014 LOGGED IN	NSL TYPE	DMAM1412540162 APP NO.

ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
- Engineering Bureau -
1220 South St. Francis Drive, Santa Fe, NM 87505

ADMINISTRATIVE APPLICATION CHECKLIST

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]
[DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
[PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
[WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

[1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]

- NSL
- Logos Operating, LLC
- 289408
- well
- Logos 702H
- 30-045-Pending

[A] Location - Spacing Unit - Simultaneous Dedication
☒ NSL ☐ NSP ☐ SD

Check One Only for [B] or [C]

[B] Commingling - Storage - Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
☐ WFX ☐ PMX ☐ SWD ☐ IPI ☐ EOR ☐ PPR

[D] Other: Specify _____

[2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or ■ Does Not Apply

[A] ☐ Working, Royalty or Overriding Royalty Interest Owners

[B] ☐ Offset Operators, Leaseholders or Surface Owner

p

[C] ☐ Application is One Which Requires Published Legal Notice

[D] ☒ Notification and/or Concurrent Approval by BLM or SLO
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office

[E] ☐ For all of the above, Proof of Notification or Publication is Attached, and/or,

[F] ☐ Waivers are Attached

[3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

John Austin Akers		VP of Land	5/5/2014
Print or Type Name	Signature	Title	Date

aakers@logosresourcesllc.com
e-mail Address

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) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

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	[2] Pool Code	[3] Pool Name
	98067	WC 22N5W7 WILDCAT GALLUP

[4] Property Code	[5] Property Name	[6] Well Number
311963	LOGOS	702H
[7] OGRID No.	[8] Operator Name	[9] Elevation
289408	LOGOS OPERATING, LLC	6961'

[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
D	8	22-N	5-W		440	NORTH	561	WEST	SANDOVAL

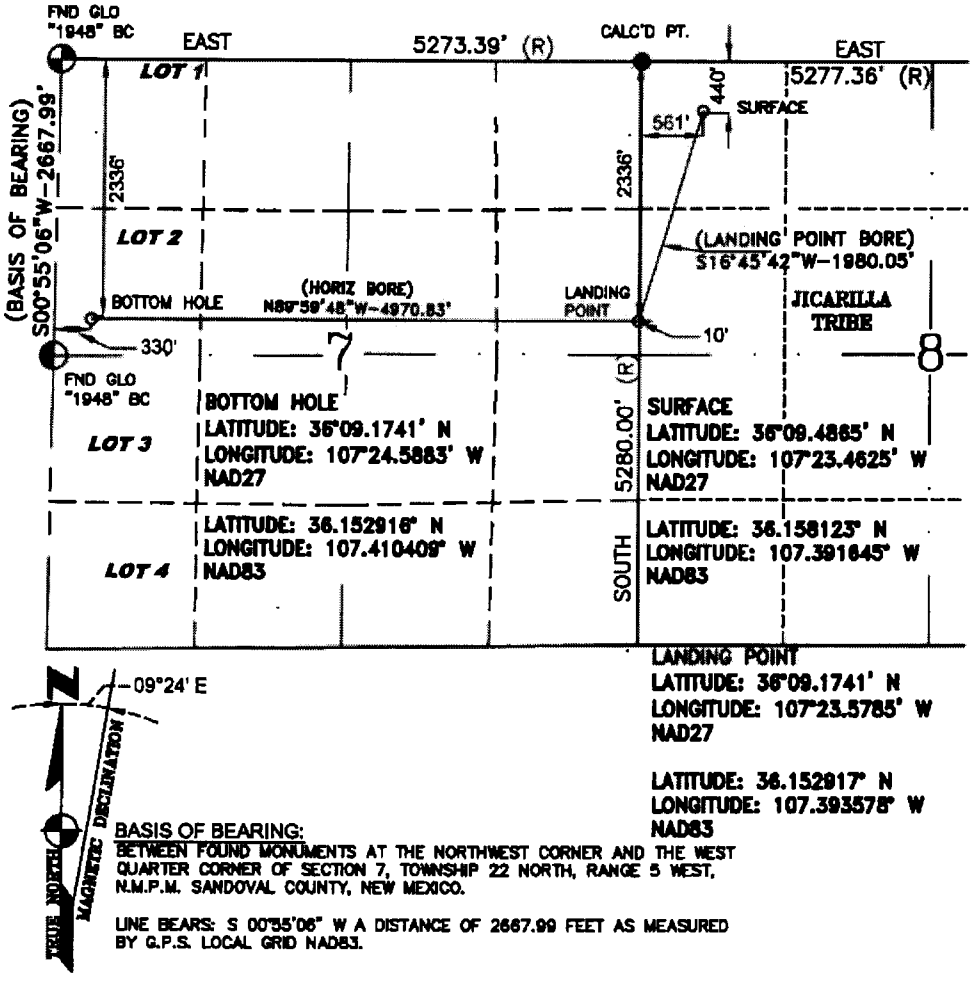
[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	7	22-N	5-W		2336	NORTH	330	WEST	SANDOVAL

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
159.78 acres S2/NE, SE/NW, Lot 2			

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]



BASIS OF BEARING:
BETWEEN FOUND MONUMENTS AT THE NORTHWEST CORNER AND THE WEST QUARTER CORNER OF SECTION 7, TOWNSHIP 22 NORTH, RANGE 5 WEST, N.M.P.M. SANDOVAL COUNTY, NEW MEXICO.

LINE BEARS: S 00°35'06" W A DISTANCE OF 2667.99 FEET AS MEASURED BY G.P.S. LOCAL GRID NAD83.

[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 unleased 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 a working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Tam Sessions 5/5/14
Signature Date

Tamra Sessions
Printed Name

tsessions@logosresourcesllc.com
E-mail Address

[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.

APRIL 8, 2014
Date of Survey

Signature and Seal of Professional Surveyor

GLEN W. RUSSELL NEW MEXICO 15703 LICENSED PROFESSIONAL SURVEYOR

GLEN W. RUSSELL
Certificate Number 15703

LOGOS
RESOURCES LLC

Main office: 4001 N. Butler Ave. Bldg 7101
Farmington, NM 87401
Phone: (505) 436-2626

Nashville office: 110 30th Ave. North, Suite 4
Nashville TN, 37203
Phone: (615) 523-2661

Ms. Jami Bailey, Director
New Mexico Oil Conservation Division
1220 S. St. Francis Dr.
Santa Fe, NM 87505

May 5, 2014
Sent Via Priority Mail

Re: Logos Operating, LLC
Request for Administrative Approval
Unorthodox Well Location
Wildcat Oil
LOGOS 702H
API No. – Not yet issued
Surface Location-440' FNL, 561' FWL
NW/4NW/4 Section 8, T22N, R5W

Dear Ms. Bailey:

On behalf of Logos Operating, LLC ("Logos") and pursuant to Division Rule 19.15.15.13 and 19.15.15.9 governing the spacing for wildcat oil wells, we request administrative approval an unorthodox well location for the LOGOS 702H to be located at an unorthodox location as follows:

702H:	Surface location:	440' FNL, 561' FWL	(NWNW Section 8)
	Initial Production Point:	1980' FNL, 10' FEL	(SENE Section 7)
	End Casing Point:	1980' FNL, 330' FWL	(SWNW Section 7)

The pool rules for Wildcat Oil Wells provide that wells shall be drilled not closer than 330' to any quarter-quarter section. The location proposed for this well is consequently unorthodox by approximately 320' to the East toward LOGOS Resources, LLC's continuation of Jicarilla Lease 424. LOGOS is the only affected operator, and therefore no notice is necessary.

The APD along with the C-102 plat showing the proposed location for the well are attached as Exhibits A and B.

Logos seeks an exception from the applicable well location rules for the following reasons: The efficient development of the resources underlying LOGOS Jicarilla Lease 424 requires the development of the Mancos interval within the 330' setbacks between sections 7 and 8 (as well as 5 and 6- though they are not affected by these well locations) of Township 22 North, Range 5 West. The attached map illustrates the resource that would be lost if this was not allowed.

Logos Resources LLC owns and operates all depths in Section 5-8 of 22N, R5W which is inclusive of all lands/depths toward which the well location encroaches.

The Division's Administrative Application Checklist is enclosed.

Thank you for your consideration of this request. Should more information be required, please do not hesitate to contact me at 615-523-2663.

Very truly yours,

John Austin Akers
Vice President of Land

Enclosures:
Lease Map
Exhibit A - APD
Exhibit B – C-102
Administrative Application Checklist

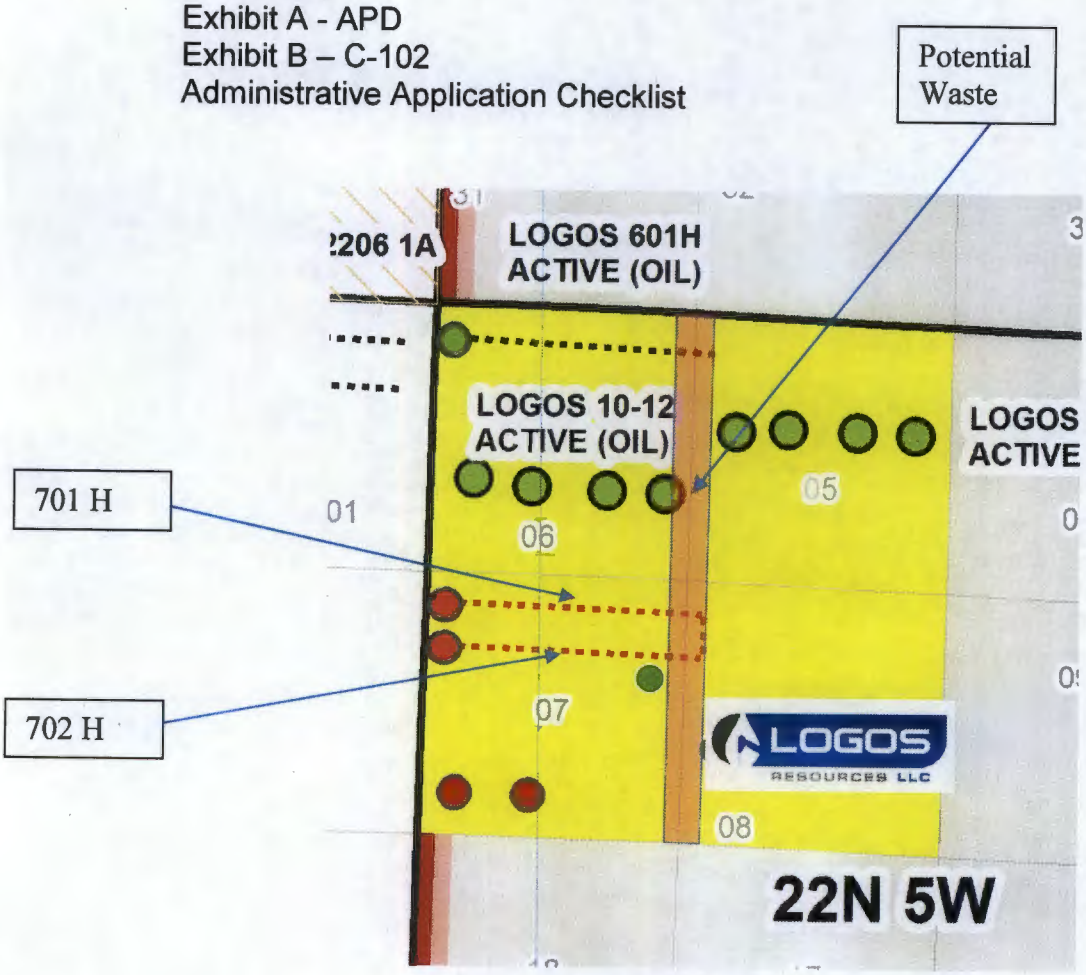


Exhibit "A"

Form 3160-3
(August 2007)

CONFIDENTIAL

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.	Jicarilla Apache Lease #424
6. If Indian, Allotee or Tribe Name	Jicarilla Apache Nation
7. If Unit or CA Agreement, Name and No.	
8. Lease Name and Well No.	Logos 702H
9. API Well No.	
10. Field and Pool, or Exploratory	Wildcat Gallup
11. Sec., T. R. M. or Blk. and Survey or Area	Sec 8, T22N, R5W, UL D (NW/NW) BHL: Sec 7, T22N, R5W, UL E SW/NW
12. County or Parish	Sandoval
13. State	NM

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone

2. Name of Operator: Logos Operating, LLC

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

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

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*

At surface: 440' FNL, 561' FWL

At proposed prod. zone: 2336' FNL, 330' FWL

14. Distance in miles and direction from nearest town or post office*: 4 miles SW of Counselors, NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drlg. unit line, if any): 440' FSL of Sec 5	16. No. of acres in lease: 2561.60 acres	17. Spacing Unit dedicated to this well: 160 acres S2N2 (Lot 2, UL F,G,H, Sec 7, T22N, R5W, NMPM)
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: 2026' from Jair 1	19. Proposed Depth: 5392'TVD / 10,583 TMD	20. BLM/BIA Bond No. on file: BIA 1062402
21. Elevations (Show whether DF, KDB, RT, GL, etc.): 6961' GL	22. Approximate date work will start*: 05/01/2014	23. Estimated duration: 45 days

24. Attachments

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

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

25. Signature	Name *(Printed Typed)*: Tamra Sessions	Date: 03/27/2014

Title: Operations Technician

Approved by *(Signature)*	Name *(Printed Typed)*	Date
Title	Office	

Application approval 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.
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.

(Continued on page 2)

*(Instructions on page 2)

LOGOS RESOURCES LLC

4001 N. Butler Blvd. Bldg 7101
Farmington, NM 87401
Phone: (505) 436-2627
Fax: (505) 832-3095

March 27, 2014

Bureau of Land Management
Farmington Field Office
6251 College Blvd. Suite A
Farmington, NM 87402

RE: APD Submittal- Logos No. 702H well – Jicarilla Apache Lease #424

To whom it may concern:

Logos Operating, LLC is submitting a permit to the BLM Farmington field office on this, March 27, 2014 for the proposed drilling and completion of the Logos No. 702H well located on Jicarilla Apache Lease #424 located in Section 8, Township 22 North, Range 5 West, NMPM, in Sandoval County, NM. The Environmental Assessment for the submitted APD will be forthcoming to the Farmington BLM. Please note the Logos 701H and Logos 702H will utilize the same surface location.

Should you have any land related questions, please do not hesitate to contact Austin Akers at 303-550-1877. If you have any operations related questions please do not hesitate to contact me at 505-330-9333.

Very truly yours,

Tamra Sessions
Operations Technician

LOGOS RESOURCES LLC

4001 N. Butler Ave
Farmington, NM 87401
Phone: (505) 436-2627
Fax: (505) 832-3095

Date: March 27, 2014

To: BLM

Re: Request for Confidential Status on Logos #702H (Sec. 8, T22N, R5W, UL D)

Dear BLM,

Logos Operating, LLC (289408) is requesting "Tight Hole/Confidential" status for the Logos #702H (Sec. 8, T22N, R5W, UL D) for the maximum allowable timeframe.

Regards,

Tamra Sessions
Operations Technician

Directions from the Intersection of Highway 550 and Highway 64 in Bloomfield, NM
to
LOGOS OPERATING, LLC
LOGOS #702H
440' FNL 561' FWL,
Section 8, T22N, R5W, N.M.P.M., SANDOVAL County, New Mexico
Latitude: 36° 09' 29.243" N
Longitude: 107° 23' 29.920" W
Nad 1983

From the Intersection of Highway 550 & Highway 64
Go South on Hwy 550 for 58.7 miles
turn right (southerly) for 2.4 miles,
to the beginning of new access
on the left (southeasterly) side of the field road, from which the new access continues southeasterly for 335.68' to the new location.

Attachment To Application For Permit To Drill.
Drilling program

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

LOGOS #702H
Horizontal Gallup Oil and Gas Well
Surface Location: 440' FNL – 561' FWL
Section 8, T22N, R5W
Ungraded GL Elev = 6961'
Estimate KB Elev =6975.5'
Lat. = 36.157958 deg N
Long. = 107.391869 deg W
NAD83
Sandoval County, New Mexico

Proposed Bottom Hole Location: 2336' FNL – 330' FWL
Section 7, T22N, R5W
Sandoval County, New Mexico

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

1. **ESTIMATED TOPS FOR IMPORTANT GEOLOGICAL FORMATIONS**

Formation Tops	Surface (TVD)
Ojo Alamo	1389
Kirtland	1538
Fruitland	1776
Pictured Cliff's	1907
Chacra	2320
Cliffs House	3424
Menefee	3437
Point Lookout	4146
Mancos	4338
Gallup	5231
T. Lower Gallup	5423
Landing Point	5440
Total Depth	5392

Drilling Plan

Drill 12 ¼" hole to 500' then set 9 5/8" casing. Drill 8 3/4" hole with fresh water mud from 500' MD to kick off point #1 600' MD and build 2 degrees per 100' to 41.58 degrees, 199.05 degrees azimuth and hold to approximately 5310'MD to bump well from surface location in section 8 to section 7. Begin dropping at 2 degrees per 100' to 0.0 (vertical) and drill to kick off point #2 at 5410'MD.

Trip out of hole and pick up 8 ¾" kick off assembly at 5410'MD. Build angle at 10 deg/100' to 85 degrees inclination and 270.00 degrees azimuth in the Gallup formation at 6260'MD/5436'TVD where 7" intermediate casing will be set.
7" casing will be set in a legal position 2336' FNL & 623' FEL in Section 7.
The 7" casing will be drilled out with a 6 1/8" drilling assembly building angle at 5 deg/100' to 90.65 degrees inclination and 270.00 degree azimuth to 6373'MD/5440'TVD. Hold 90.58 degrees, 270.00 degrees azimuth and drill to a total depth at 10583'MD/5392'TVD. Adjustments may be made to the directional program based on geology.
Total depth will be 10583'MD/5392'TVD- 90.58 degrees, 270.00 degrees Azimuth.
The Bottom hole location will be in a legal location at 10559' MD at 2336'FNL & 330' FWL of section 7.
A total of 4726' 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 5440' TVD at 7" casing point

See formation listings in #1 above for additional zones of interest.

3. MINIMUM SPECIFICATIONS FOR PRESSURE CONTROL EQUIPMENT

A. Wellhead Equipment 3,000 PSI System (See Exhibit A)

1. 9 5/8" slip-on / welded x 11" 3,000 psi casing head.
2. One 11" 3,000 psi WP double-ram preventer with one (1) set of blind rams on top & one (1) set of pipe rams on bottom complete with hand wheels and extension arms.
3. The choke and kill lines will be connected to outlets between the bottom and top rams, utilizing either the ram body outlet or a drilling spool with side outlets for 2" kill line and minimum 3" choke line
4. One 11" x 3,000 psi WP Hydril GK (or equivalent) annular preventer.
5. Accumulator - Four Station Koomey (or equivalent) 120 gallon closing unit with remote, backup. The accumulator shall have sufficient capacity to open the hydraulically-controlled gate valve and close all rams plus the annular preventer, with a 50% safety factor and retain a minimum of 200 psi above the precharge on the closing manifold without the use of the closing unit pumps. The reservoir capacity shall be double the usable accumulator capacity, and the fluid level shall be maintained at the manufacturer's recommendations.
6. The BOP system shall have two (2) independent power sources (electric and air) available for powering the closing unit pumps. Sufficient nitrogen bottles are suitable as a backup power source only, and shall be recharged when the pressure falls below manufacturer's specification.
7. A valve shall be installed in the closing line as close as possible to the annular preventer to act as a locking device. This valve shall be maintained in the open position and shall be closed only when the power source for the accumulator system is inoperative.

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" 3,000 psi WP casing head prior to drilling out from under surface casing. All ram preventers and related equipment will be tested to 3,000 psi for 10 minutes. Annular preventers will be tested to 50% of rated working pressure for 10 minutes. Surface casing will be tested to 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 500'
8 3/4" = 500' to 6260' = 7" Casing point
6-1/8" Lateral = 6260' MD to 10583' MD = Gallup Pay Zone Horizontal

B. Casing Program – all casing stings are new casing

Casing & Hole Size	Weight	Grade	Coupling	Setting Depth (MD)	Comments
9-5/8" (12 1/4")	36 ppf	K-55	LT&C	0' - 500'	New casing. Cement to surface.
7" (8 ¾")	23 ppf	J-55	LT&C	0' - 6260' MD	New Casing. Cement to surface with foam cement.
4 ½" (6 1/8")	11.6 ppf	P-110	LT&C	5600' - 10583' MD	New Casing - Horizontal Hole Cemented full length with foam cement - TOL at 15 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.

a) 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 – (0-500'):
Excess – 100% over gauge hole – 12-1/4" hole and 9-5/8" casing (0.3132ft3/ft)
Top of Cement - Surface
Primary Cement

HALCEM (TM) SYSTEM	Fluid Weight	15.80 lbm/gal
0.125 lbm/sk Poly-E-Flake (Lost Circulation Additive)	Slurry Yield:	1.15 ft³/sk
0.4 % Halad(R)-344 (Low Fluid Loss Control)	Total Mixing Fluid:	4.94 Gal/sk
	Top of Fluid:	0 ft
	Calculated Fill:	500 ft
	Volume:	55.8 bbl 313.2
	Calculated Sacks:	273 sks

Intermediate Casing – Single Stage Job (0-6260'MD):
Excess – 50% over gauge hole – 8-3/4" hole and 7" casing (0.1503 ft3/ft)
Top of Cement – Surface.
Foamed Lead Cement

ELASTISEAL (TM) SYSTEM	Fluid Weight	13 lbm/gal
0.2 % Versaset (Thixotropic Additive)	Slurry Yield:	1.43 ft³/sk
0.15 % HALAD-766 (Low Fluid Loss Control)	Total Mixing Fluid:	6.74 Gal/sk
1.5 % CHEM - FOAMER 760, TOTETANK (Foamer)	Top of Fluid:	0 ft
	Calculated Fill:	5760 ft
	Volume:	231 bbl
	Calculated Sacks:	908 sks

Tail Cement

HALCEM (TM) SYSTEM	Fluid Weight	13.50 lbm/gal
0.2 % Versaset (Thixotropic Additive)	Slurry Yield:	1.29 ft³/sk
0.15 % HALAD-766 (Low Fluid Loss Control)	Total Mixing Fluid:	5.70 Gal/sk
	Top of Fluid:	5760 ft
	Calculated Fill:	500 ft
	Volume:	20
	Calculated Sacks:	90 sks

Primary Cement – Cap Cement

HALCEM (TM) SYSTEM	Fluid Weight	15.80 lbm/gal
2 % Calcium Chloride (Accelerator)	Slurry Yield:	1.17 ft³/sk
	Total Mixing Fluid:	5.02 Gal/sk
	Calculated Fill:	500 ft
	Volume:	20.77 bbl
	Calculated Sacks:	100 sks

Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Estimated Avg Rate bbl/min	Downhole Volume
1	Spacer	Fresh Water Spacer	8.3		10 bbl
2	Spacer	CHEMICAL WASH	8.4		40 bbl
3	Spacer	Fresh Water Spacer	8.3		10 bbl
4	Cement	Foamed Lead Cement	13.0		908 sks
5	Cement	Tail Cement	13.5		90 sks
6	Spacer	Displacement	8.3		
7	Cement	Cap Cement	15.8		100 sks

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						
4	Foamed Lead Cement	200bbl	9.5	9.5	4.2	372.9

Foam Design Specifications:

Foam Calculation Method: Constant Density
Backpressure: 14 psig
Bottom Hole Circulating Temp: 105 degF
Mud Outlet Temperature: 85 degF

Calculated Gas = 23129.9 scf
Additional Gas = 50000 scf
Total Gas = 73129.9 scf

Cement volumes are minimums and may be adjusted based on caliper log results.

Production Casing – Single Stage Job (5600' - 10583'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.

Lead Cement - Cap Cement
ELASTISEAL (TM) SYSTEM
0.2 % Versaset (Thixotropic Additive)
0.15 % HALAD-766 (Low Fluid Loss Control)
0.2 % Halad(R)-344 (Low Fluid Loss Control)

Fluid Weight: 13 lbm/gal
Slurry Yield: 1.43 ft³/sk
Total Mixing Fluid: 6.75 Gal/sk
Top of Fluid: 5300 ft
Calculated Fill: 300 ft
Volume: 7.15 bbl
Calculated Sacks: 30 sks

Foamed Lead Cement
ELASTISEAL (TM) SYSTEM
0.2 % Versaset (Thixotropic Additive)
0.15 % HALAD-766 (Low Fluid Loss Control)
2.5 % CHEM - FOAMER 760, TOTETANK (Foamer)
0.2 % Halad(R)-344 (Low Fluid Loss Control)

Fluid Weight: 13 lbm/gal
Slurry Yield: 1.43 ft³/sk
Total Mixing Fluid: 6.75 Gal/sk
Top of Fluid: 5600 ft
Calculated Fill: 3914 ft
Volume: 99 bbl
Calculated Sacks: 387 sks

Tail Cement
ELASTISEAL (TM) SYSTEM
0.2 % Versaset (Thixotropic Additive)
0.15 % HALAD-766 (Low Fluid Loss Control)
0.05 % SA-1015 (Suspension Agent)

Fluid Weight: 13.50 lbm/gal
Slurry Yield: 1.28 ft³/sk
Total Mixing Fluid: 5.64 Gal/sk
Top of Fluid: 9514 ft
Calculated Fill: 1069 ft
Volume: 20.85 bbl
Calculated Sacks: 100 sks

Detailed Pumping Schedule

Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Estimated Avg Rate bbl/min	Downhole Volume
1	Spacer	Fresh Water Spacer	8.3		10 bbl
2	Spacer	CHEMICAL WASH	8.4		40 bbl
3	Spacer	Fresh Water Spacer	8.3		10 bbl
4	Cement	Cap Cement	13.0		30 sks
5	Cement	Foamed Lead Cement	13.0		387 sks
6	Cement	Tail Cement	13.5		100 sks
7	Spacer	MMCR Spacer	8.3		20 bbl
8	Spacer	Fresh Water Displacement	8.3		

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	50.98bbl	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"	0-500'	Fresh Water	8.4-8.6	60-70	NC
8 3/4"	500'-5410'	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"	5410' (KOP)-6260'	Fresh Water LSND	8.5-8.8	40-50	8-10
6 1/8"	6260' - 10563'	Synthetic Oil Based Mud	7.0-9.0	15-25	<1

c) 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.

d) 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

a) Drill Stem Testing - None anticipated
b) Coring - None anticipated.
c) Mud Logging – Mud loggers will be on location from intermediate casing point to TD.
d) Logging - See Below
e) 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 +/- 2537 psi based on a 9.0 ppg at 5420' TVD of the landing point of the horizontal. No abnormal pressure or temperatures are anticipated.

No hydrogen sulfide gas is anticipated, however, if H_2S 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 December 27, 2013. 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 45 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:

1. The closed-loop system will be signed in accordance with 19.15.17.11 NMAC.
2. 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.
3. Topsoil will be salvaged and stored for use in reclamation activities.
4. 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:

1. Fluid levels will be maintained to provide sufficient freeboard to prevent over-topping.
2. 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.
3. 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.
4. 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.

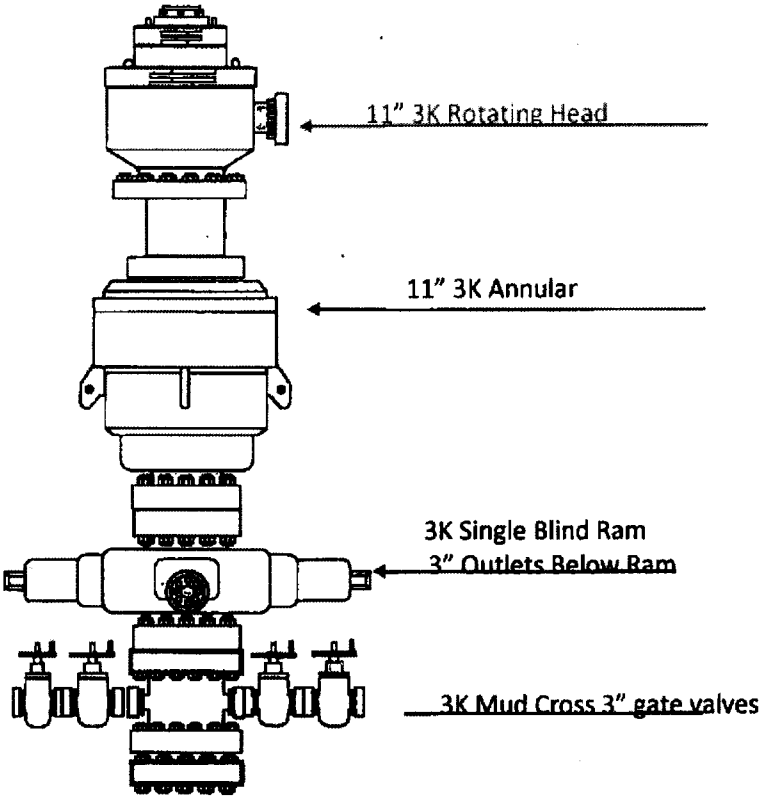
CLOSED-LOOP SYSTEM CLOSURE PLAN

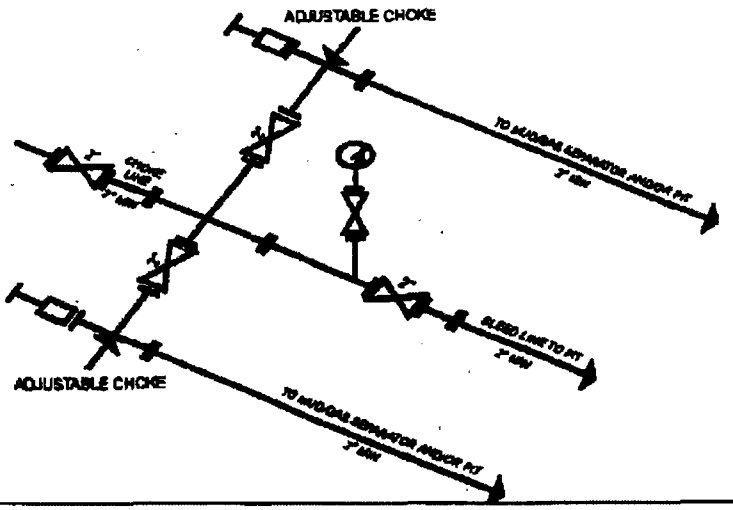
The closed-loop system will be closed in accordance with 19.15.17.13 NMAC.

Closure considerations include:

1. Drilling fluids will be recycled and transferred to other permitted closed-loop systems or returned to the vendor for reuse, as practical.
2. 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.
3. 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.
4. Storage tanks will be removed from the well location during the rig move.
5. The well pad will be reclaimed and seeded in accordance with subsections G, Hand I of 19.15.17.13 NMAC.

WELLHEAD BLOWOUT CONTROL SYSTEM





MULTI-POINT SURFACE USE PLAN
Logos #702H

1. Existing Roads:

All existing roads used to access the proposed location are shown on attached Plat #1 and shall be maintained in the same or better condition than presently found.

Directions: From the intersection of Highway 550 and Highway 64, go south on Highway 550 for 58.7 miles. Turn right (southerly) for 2.4 miles, to the beginning of new access road on the left (southeasterly) side of a field road. From there the new access begins and continues (southeasterly) for 335.68 feet to the new location.

2. Planned Access Roads:

Per the onsite inspection on 03/19/2014 the Logos 702H will use the same new access road built for the Logos 701H. No further new access will be required. The existing access road will be maintained in at least the current condition and will be upgraded where necessary to provide uninterrupted access to the proposed well.

3. Location of Existing Wells:

Attached map (Plat #2) shows existing wells within a one mile radius of the proposed well. There are nine permitted and producing wells and one plugged well within one mile. All producing wells and permitted wells are Logos Operating, LLC. The plugged well is operated by Pre-Ongard Well Operator.

4. Location of Production Facilities:

In the event of production, production facilities will be located on the drill pad. The actual placement of this equipment will be determined when the well's production characteristics can be evaluated after completion.

Upon completion of drilling, the location and surrounding area will be cleared of all debris.

5. Water Supply:

Water for drilling and completion operations will be hauled by truck from various permitted water sources within the area through the water haulers association.

6. Source of Construction Materials:

No additional construction materials will be required to build the proposed location.

7. Methods for Handling Waste Disposal:

a. The drill cuttings, fluids and completion fluids will be placed in the reserve pit. The reserve pit will be lined with a 20 mil liner and fenced prior to drilling. The reserve pit will be allowed to dry, and materials remaining in the reserve pit buried. The reserve pit will be backfilled, leveled and contoured so as to prevent any materials being carried into the watershed. Upon completion, the pad will be leveled, contoured and reseeded with the appropriate seed mixture.

b. All garbage and trash will be placed in a metal trash basket. It will be hauled off and dumped in an approved land fill upon completion of operations.

c. Portable toilets will be provided and maintained during drilling operations. See Plat #4 for location.

8. Ancillary Facilities:

Ancillary facilities are to be based on well productivity. The gas pipeline size and route is yet to be determined.

9. Well Site Layout:

A cross section of the drill pad with approximate cuts, fills, and pad orientation is attached as Plat #3. Location of drilling equipment, rig orientation, and access road approach is also attached as Plat #4.

As per the on-site the following will apply for location construction:

a. The pit will be "stepped-down" into the cut.
b. Standard BLM tree stipulations.
c. 24" culvert @ take off for access.
d. Divert water around pad with top soil.
e. Plan to use top soil for interim reclamation.

Please note "Conditions of Approval" for any additional stipulations.

10. Plans for Restoration of Surface:

When the well is abandoned, the location and access road will be cleaned and restored to the original topographical contours as much as possible. The area will be reseeded with the appropriate seed mixture.

If the well is productive, areas not used in production will be contoured and seeded with stipulated seed mixture. Production equipment will be painted the color designated by the surface managing agency.

11. Surface Ownership:

The surface ownership of the proposed well pad is Jicarilla Apache. An on-site inspection with a BIA representative was performed March 19, 2014.

12. Other Information:

Adkins Consulting, Inc. has prepared an EA and a T&E species survey for the access road and location. Western Cultural Resource Management, Inc. performed an archaeology survey. Copies of their reports have been sent directly to the BIA and BLM. No conflicts were discovered.

13. Lessee's or Operator's Representative:

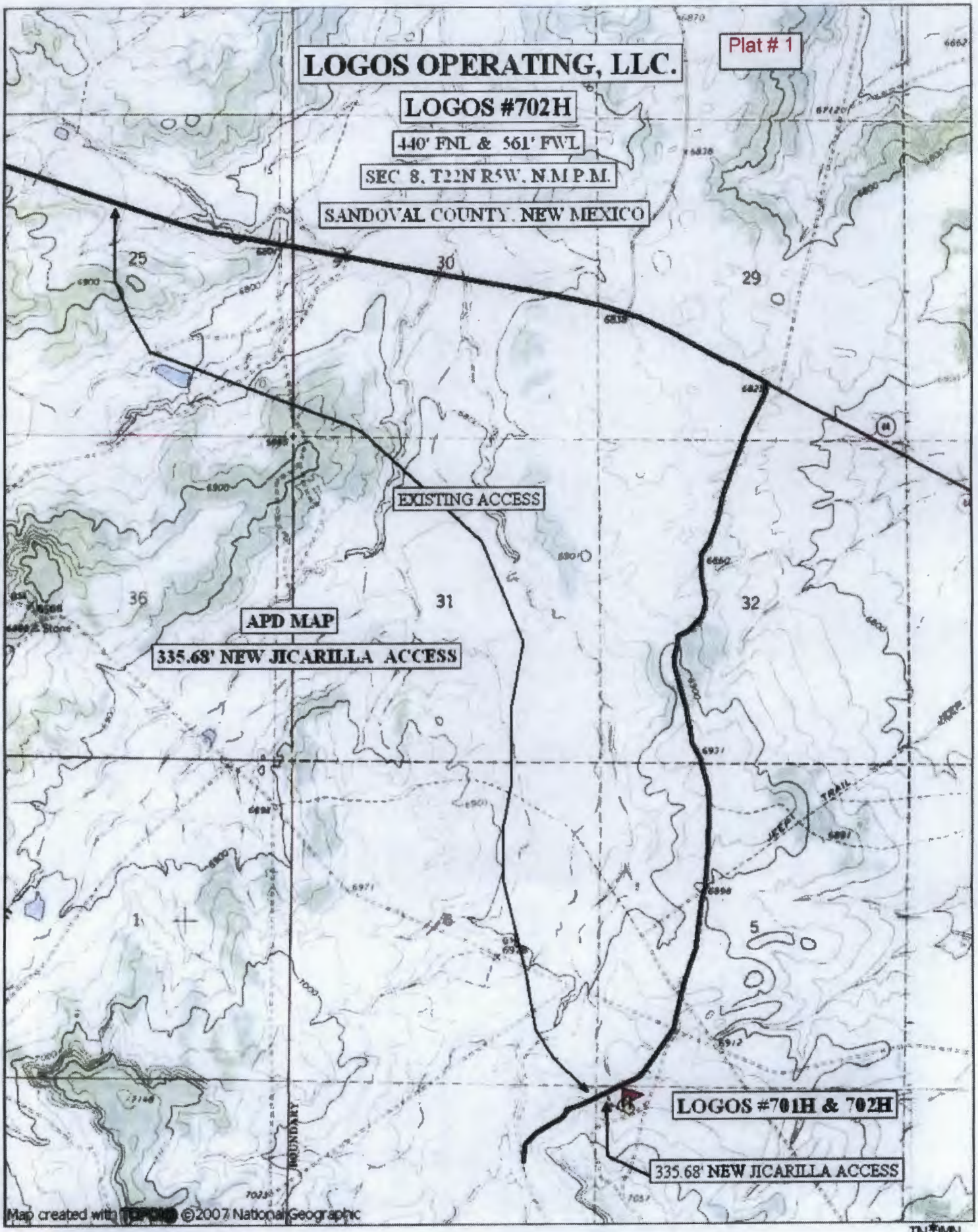
Tamra Sessions
Logos Operating, LLC
4001 North Butler Ave, Building 7101
Farmington, NM 87401
Phone: (505) 330-9333

14. Certification:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which presently exist; that I have full knowledge of state and federal laws applicable to this operation; that the statements made in this plan are, to the best of my knowledge, true and correct; and, that the work associated with the operations proposed herein will be performed by Logos Operating, LLC, and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to 18 U.S. Code 1001 for the filing of a false statement.

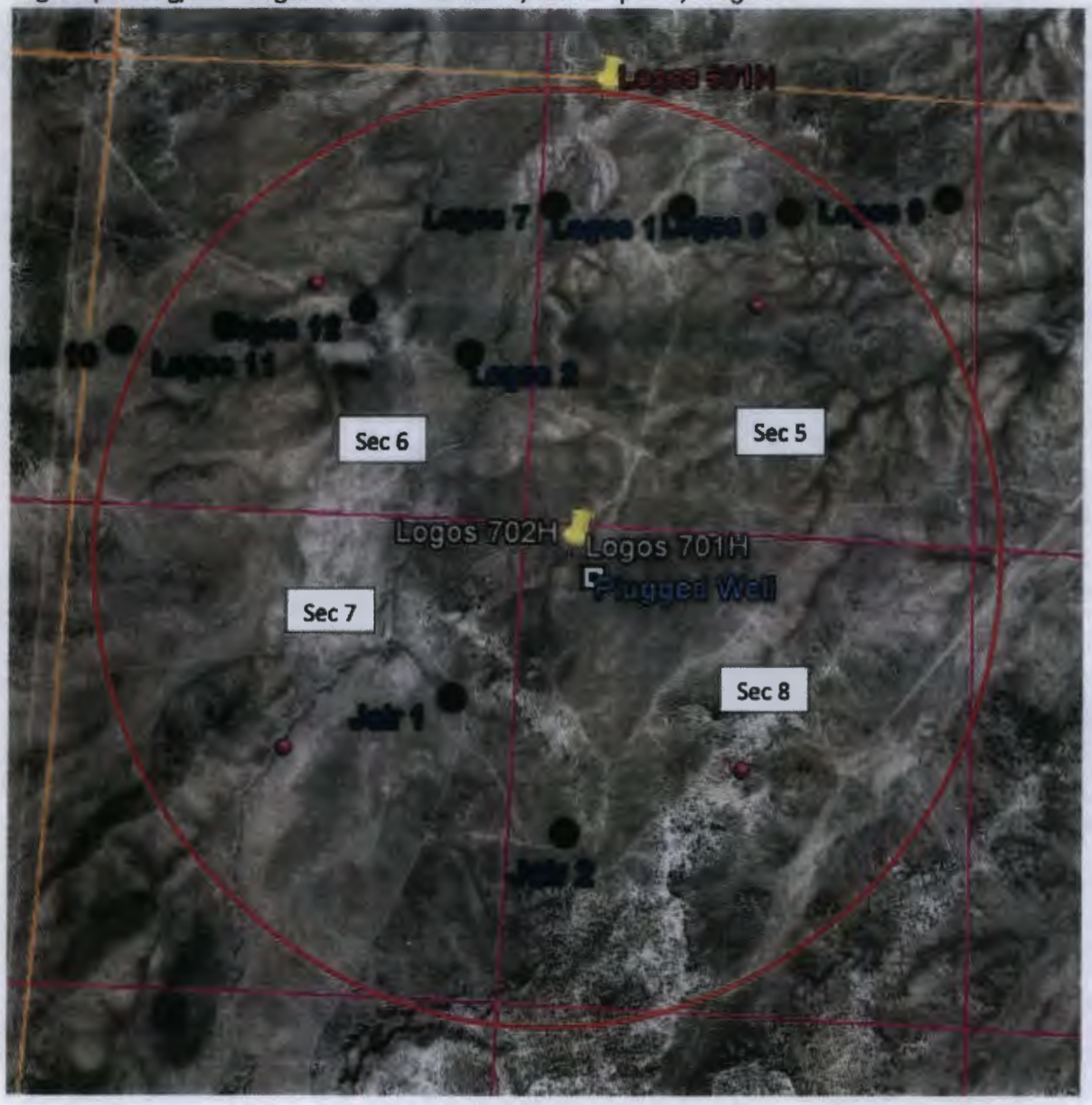
3/7/14
Date

Tamra Sessions
Operations Technician


LOGOS OPERATING, LLC.
Plat # 1
LOGOS #702H
440' FNL & 561' FWL
SEC 8, T22N R5W, N.M.P.M.
SANDOVAL COUNTY, NEW MEXICO
EXISTING ACCESS
APD MAP
335.68' NEW JICARILLA ACCESS
LOGOS #701H & 702H
335.68' NEW JICARILLA ACCESS
Map created with TOPO! © 2007 National Geographic
NATIONAL GEOGRAPHIC
0.0 0.5 1.0 miles
0.0 0.5 1.0 1.5 km
TN MN
9½°
03/18/14

Plat 2 - Adjacent Well Locations – 1mi radius

Logos Operating, LLC – Logos #702H Section 8, Township 22N, Range 5W

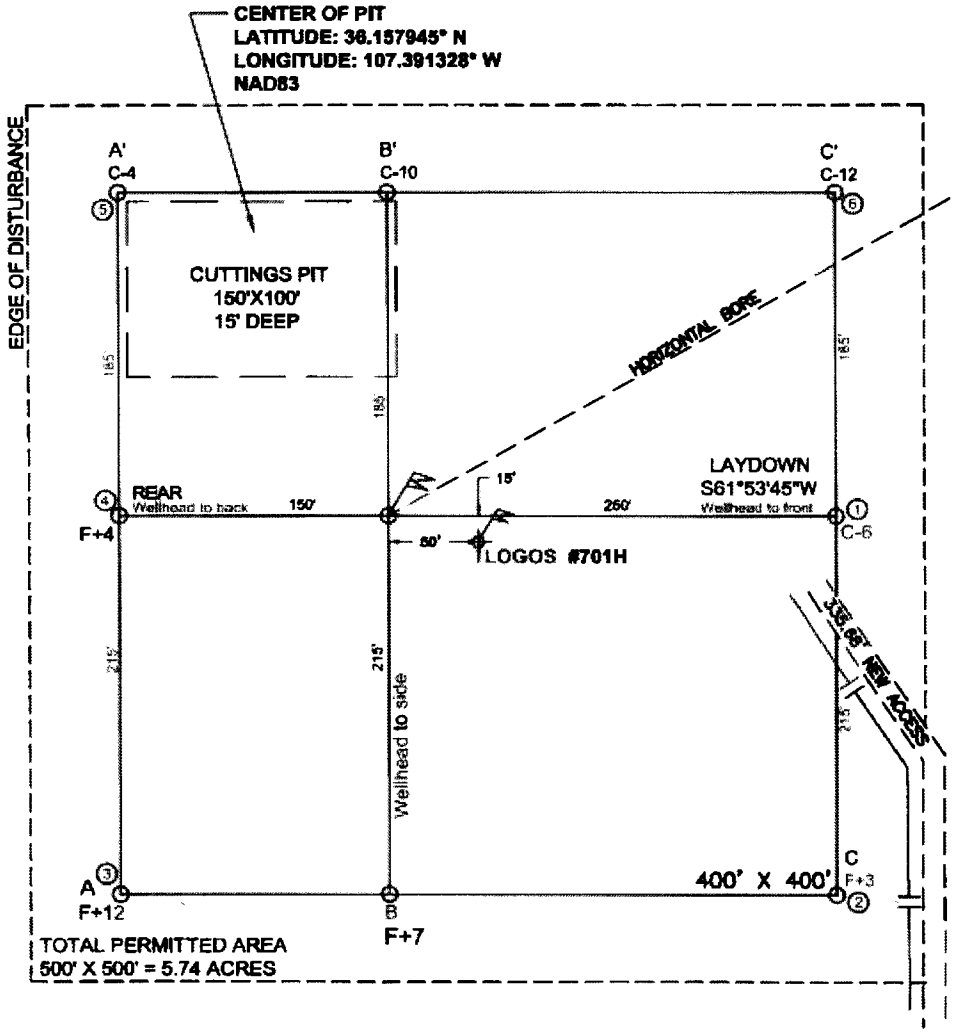


API	Well Name	#	Type	Status	UL	Sec	Twn	Rge	Current Operator
30-043-21119	LOGOS	#001	Oil	Active	F	5	22N	05W	[289408] LOGOS OPERATING, I
30-043-21155	LOGOS	#007	Oil	Active	E	5	22N	05W	[289408] LOGOS OPERATING, I
30-043-21156	LOGOS	#008	Oil	Active	G	5	22N	05W	[289408] LOGOS OPERATING, I
30-043-21157	LOGOS	#009	Oil	Active	H	5	22N	05W	[289408] LOGOS OPERATING, I
30-043-21182	LOGOS	#601H	Oil	Permitted	4	5	22N	05W	[289408] LOGOS OPERATING, I
30-043-21120	LOGOS	#002	Oil	Active	I	6	22N	05W	[289408] LOGOS OPERATING, I
30-043-21158	LOGOS	#010	Oil	Active	6	6	22N	05W	[289408] LOGOS OPERATING, I
30-043-21159	LOGOS	#011	Oil	Active	K	6	22N	05W	[289408] LOGOS OPERATING, I
30-043-21160	LOGOS	#012	Oil	Active	J	6	22N	05W	[289408] LOGOS OPERATING, I
30-043-20080	JAIR	#001	Oil	Active	H	7	22N	05W	[289408] LOGOS OPERATING, I
30-043-20085	JAIR	#002	Oil	Active	L	8	22N	05W	[289408] LOGOS OPERATING, I
30-043-20068	PRE-ONGARD WELL	#001	Oil	Plugged	D	8	22N	05W	[214263] PRE-ONGARD WELL OPERATOR

PLAT #3

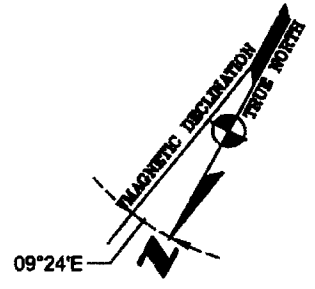
LOGOS OPERATING, LLC

LOGOS #702H, 440' FNL & 561' FWL
SECTION 8, T-22-N, R-5-W, NMPM, SANDOVAL COUNTY, NM
GROUND ELEVATION: 6961', DATE: MARCH 17, 2014



LATITUDE: 36°09.4865' N
LONGITUDE: 107°23.4625' W
NAD27

LATITUDE: 36.158123° N
LONGITUDE: 107.391645° W
NAD83



50' 0 50' 100'
Scale: 1" = 100'

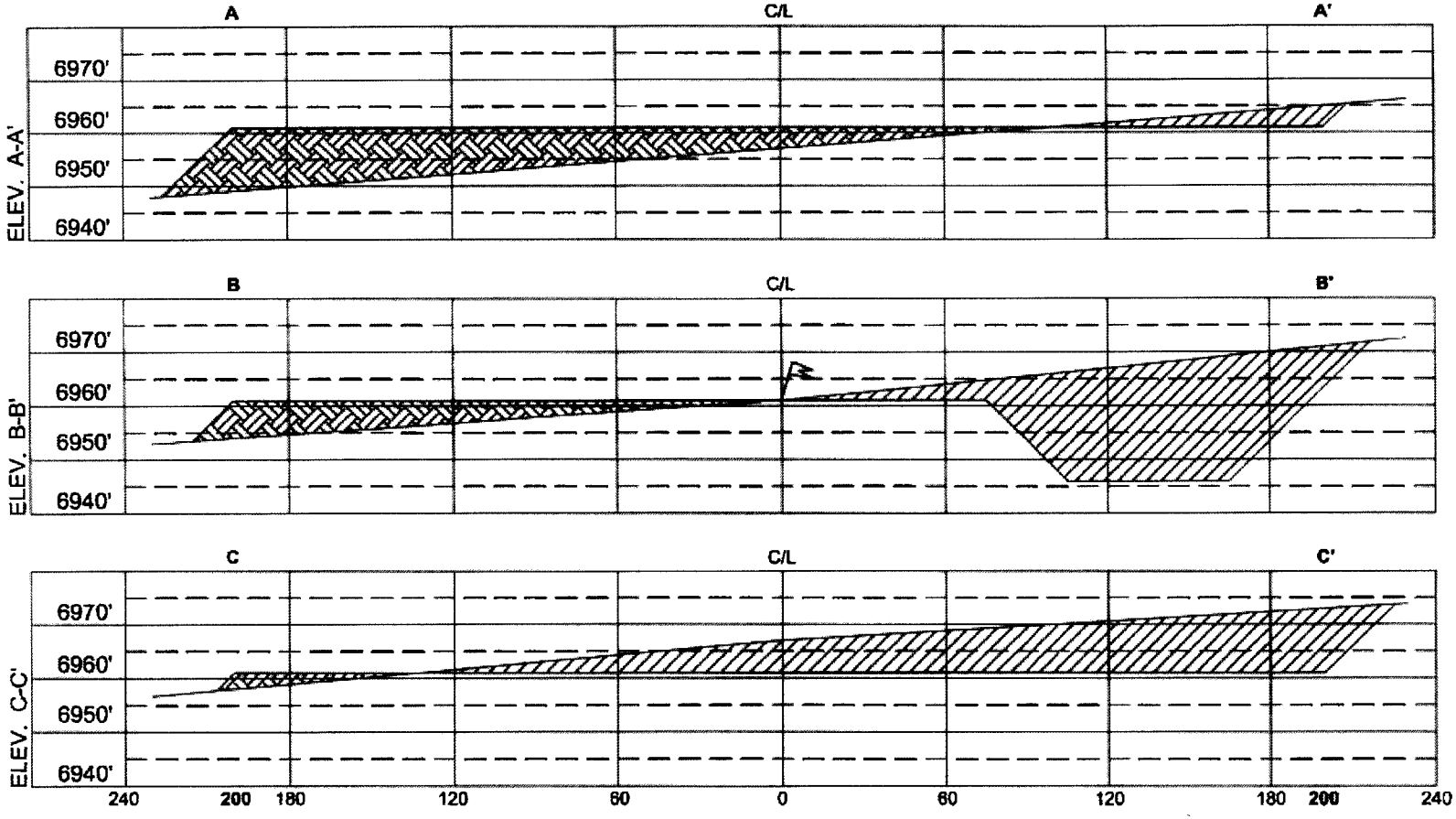
NOTES:

1. VECTOR SURVEYS IS NOT LIABLE FOR UNDERGROUND UTILITIES OR PIPELINES. CONTRACTOR SHOULD CALL ONE-CALL FOR LOCATION OF ANY MARKED OR UNMARKED BURIED PIPELINES OR CABLES ON WELL PAD AND OR ACCESS ROAD AT LEAST TWO (2) WORKING DAYS PRIOR TO CONSTRUCTION.
2. RESERVE PIT DIKE: TO BE 8' ABOVE DEEP SIDE (OVERFLOW - 3' WIDE AND 1' ABOVE SHALLOW SIDE).

PLAT #3

LOGOS OPERATING, LLC

LOGOS #702H, 440' FNL & 561' FWL
SECTION 8, T-22-N, R-5-W, NMPM, SANDOVAL COUNTY, NM
GROUND ELEVATION: 6961', DATE: MARCH 17, 2014



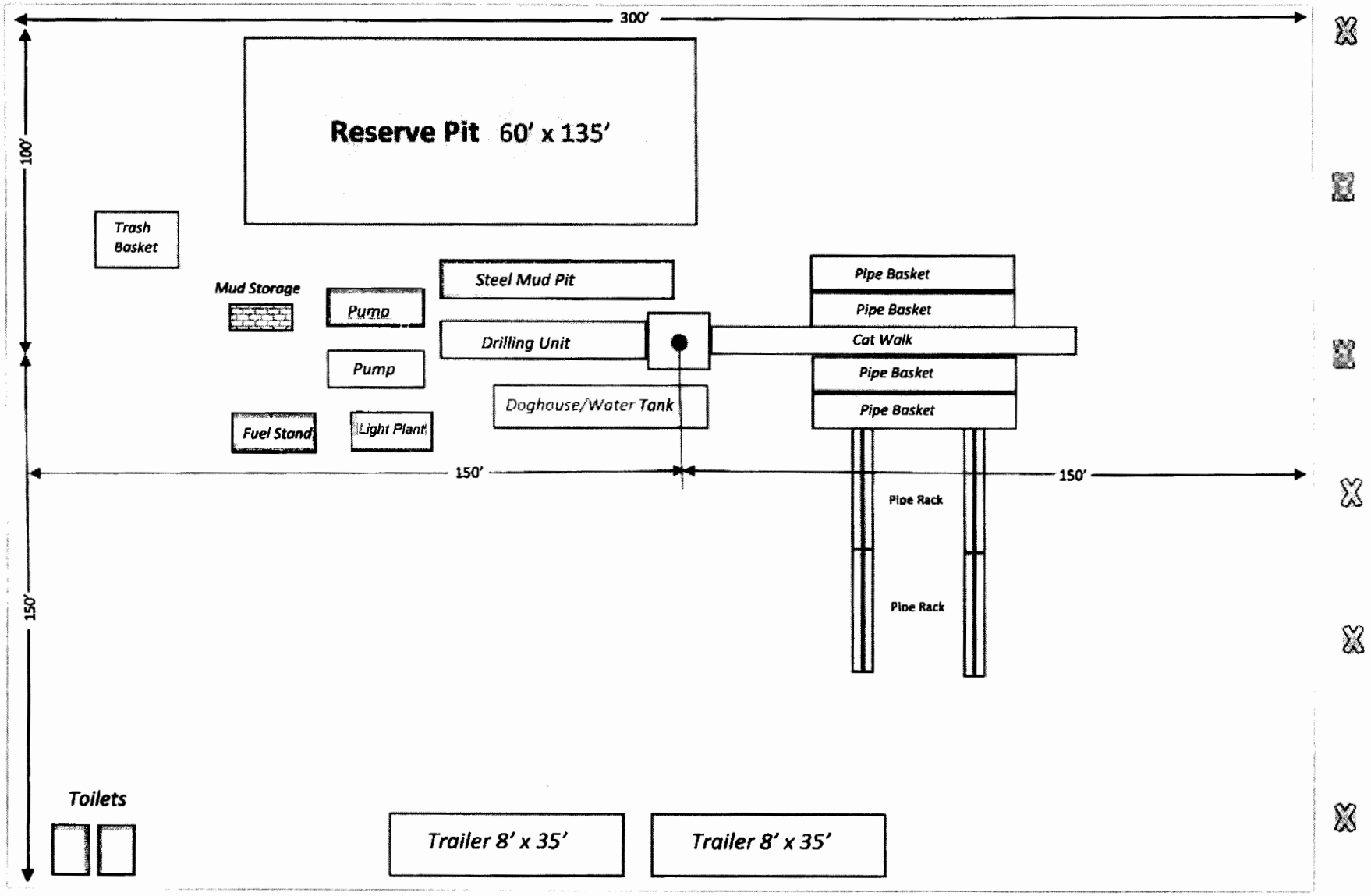
HORIZ. SCALE: 1" =60'
VERT. SCALE: 1" = 30'

NOTE:
VECTOR SURVEYS IS NOT LIABLE FOR UNDERGROUND UTILITIES OR PIPELINES. CONTRACTOR SHOULD CALL ONE-CALL FOR LOCATION OF ANY MARKED OR UNMARKED BURIED PIPELINES OR CABLES ON WELL PAD AND OR ACCESS ROAD AT LEAST TWO (2) WORKING DAYS PRIOR TO CONSTRUCTION.

PLAT #4

Drill Site Layout

Location Dimensions 300' x 250'



Topsoil is stock piled between pad and edge of disturbance.

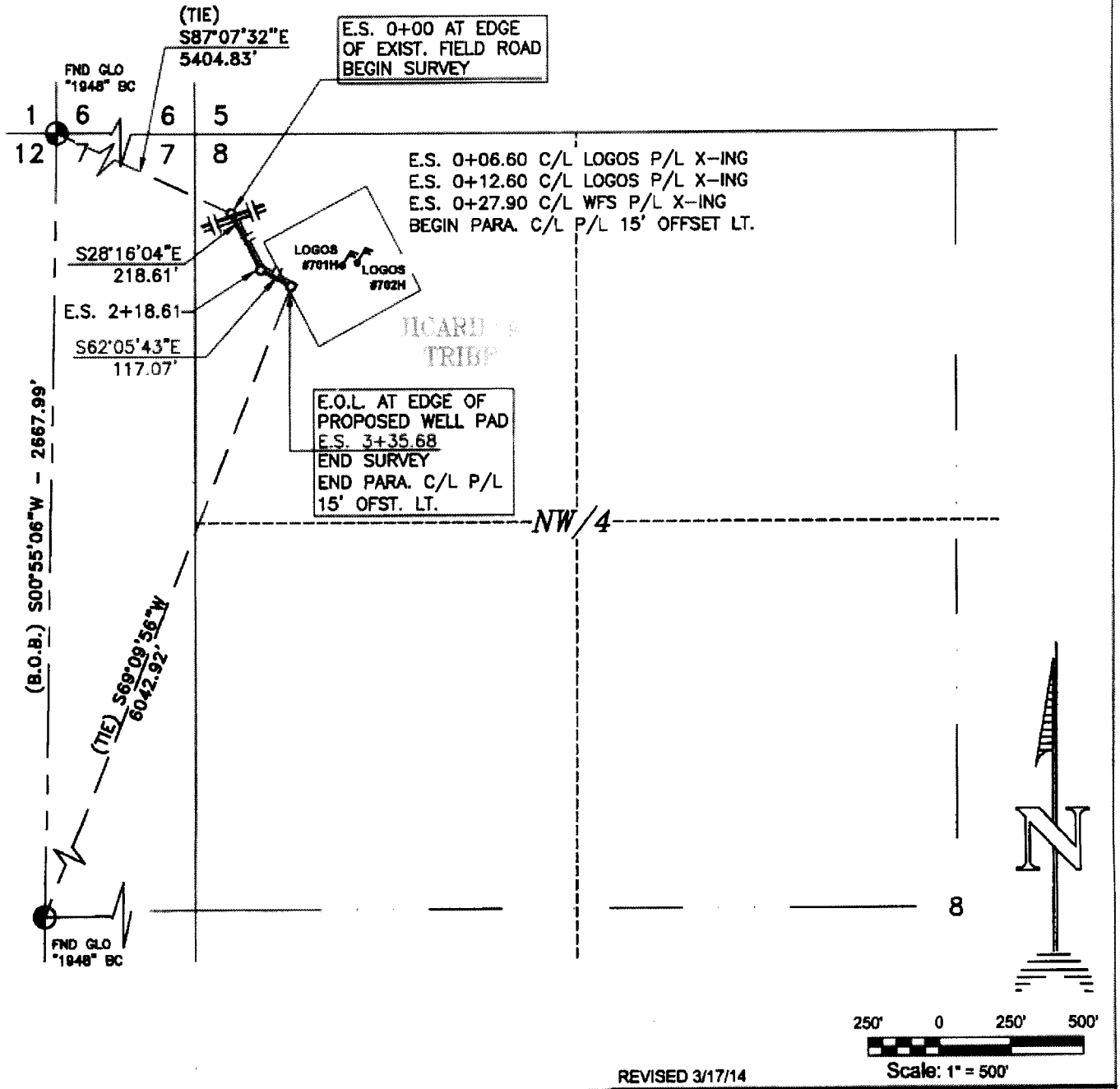
Typical Drilling Location Layout

LOGOS OPERATING, LLC
LOGOS #701H & 702H

335.68' PROPOSED ACCESS ROAD

LOCATED IN THE NW/4 OF SECTION 8, T-22-N, R-5-W, N.M.P.M.

SANDOVAL COUNTY, NEW MEXICO



REVISED 3/17/14

OWNERSHIP			
LOCATION	OWNER	STATION	FT./RODS
S8, T22N, R5W	JIC. TRIBE	E.S. 0+00 TO E.S. 3+35.68	335.68/20.34

BASIS OF BEARING: BETWEEN FOUND MONUMENTS AT THE NORTHWEST CORNER AND THE WEST QUARTER CORNER OF SECTION 7, TOWNSHIP 22 NORTH, RANGE 5 WEST, N.M.P.M. SANDOVAL COUNTY, NEW MEXICO.

LINE BEARS: S 00°55'06" W A DISTANCE OF 2667.99 FEET AS MEASURED BY G.P.S. LOCAL GRID NAD83.

SURVEY CREW	GWR	DRAWN BY	TD	CAD FILE
DATE OF SURVEY	12/2/13	DATE	10/23/13	LOGOS016

Vector Surveys, LLC

Professional Land Surveys, Mapping,
GPS Surveys & Oil Field Services
122 N Wall Avenue, Farmington, NM 87401
Phone (505) 564-3445 or 320-9595
E-Mail: vectorgr001@msn.com

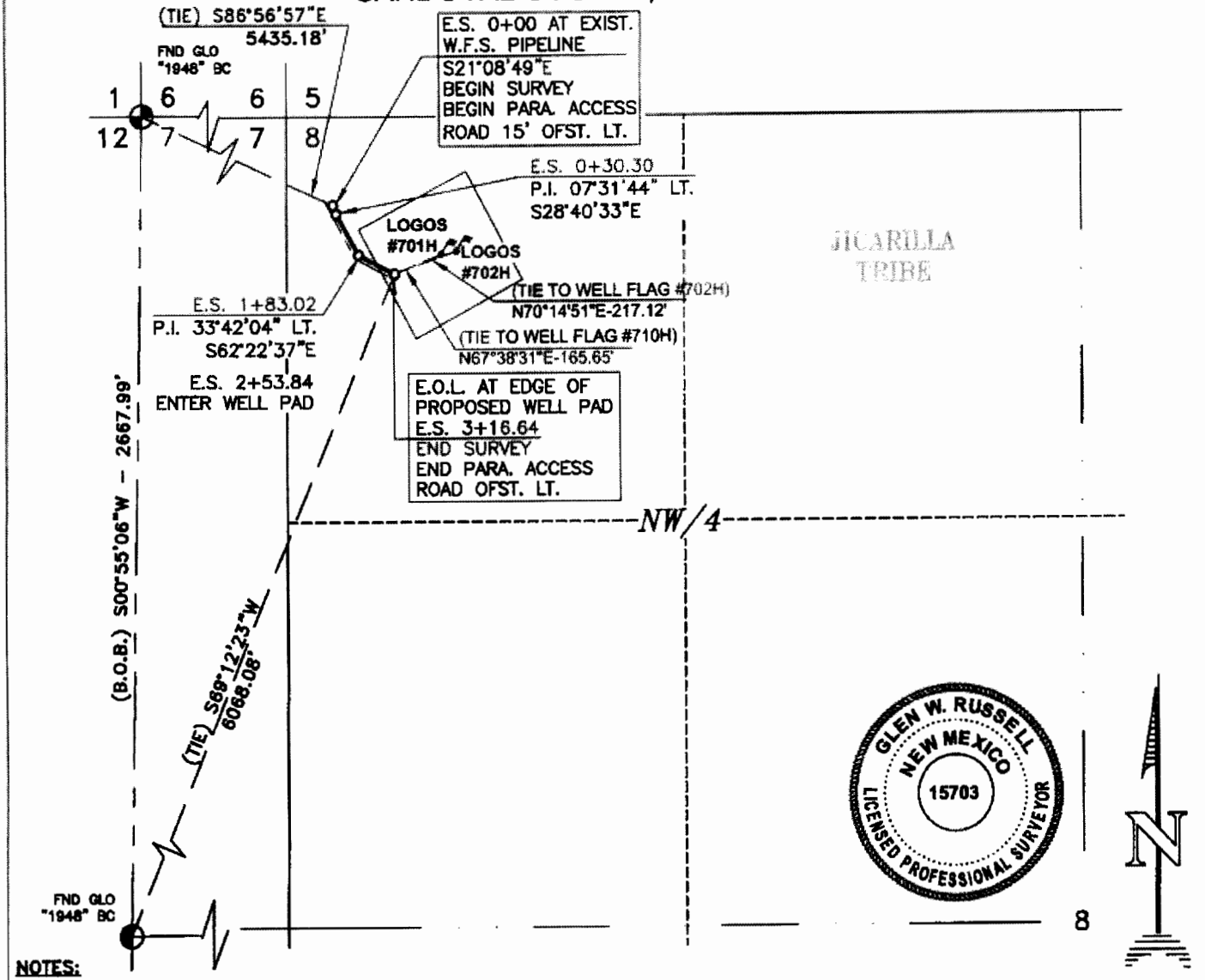
PIPELINE SURVEY FOR

LOGOS OPERATING, LLC

LOGOS #701H & 702H

LOCATED IN THE NW/4 OF SECTION 8, T-22-N, R-5-W, N.M.P.M.

SANDOVAL COUNTY, NEW MEXICO



NOTES:

1.) LOCATION OF UNDERGROUND UTILITIES DEPICTED ARE APPROXIMATE. PRIOR TO EXCAVATION UNDERGROUND UTILITIES SHOULD BE FIELD VERIFIED. ALL CONSTRUCTION ACTIVITIES SHOULD BE FIELD VERIFIED WITH NEW MEXICO ONE--CALL AUTHORITIES AT LEAST 2 WORKING DAYS PRIOR TO CONSTRUCTION.

2.) THIS IS NOT A BOUNDARY SURVEY.

250' 0 250' 500'

Scale: 1"=500'

OWNERSHIP

LOCATION	OWNER	STATION	FT./RODS
S8, T22N, R5W	JIC. TRIBE	E.S. 0+00 TO E.S. 3+16.64	316.64/19.19

BASIS OF BEARING: AS MEASURED BY GPS BETWEEN FOUND MONUMENTS AT THE NORTHWEST CORNER AND THE WEST QUARTER CORNER OF SECTION 7, TOWNSHIP 22 NORTH, RANGE 5 WEST, N.M.P.M., SANDOVAL COUNTY, NEW MEXICO. BEARS S00°55'06"W, A DISTANCE OF 2667.99' AS MEASURED BY G.P.S. LOCAL GRID NAD83.

DATE OF SURVEY:	GWR	DRAWN BY:	TD
SURVEY CREW:	12/2/13	DATE:	12/12/13
REV: 1	3/17/14		3/17/14
REV: 2			

I, GLEN W. RUSSELL, A NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR CERTIFY THAT I CONDUCTED AND AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS SURVEY AND PLAT MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO.

GLEN W. RUSSELL DATE MARCH 18, 2014

GLEN W. RUSSELL, PLS
NEW MEXICO L.S. #15703

VECTOR SURVEYS, LLC
Professional Land Surveys, Mapping,
GPS Surveys & Oil Field Services
122 N Wall Avenue, Farmington, NM 87401
Phone (505) 564-3445 or 320-9595
E-Mail: vectorgr001@msn.com

WORK ORDER NO.:	LOGOS016	CAD FILE:	LOGOS016

Typical BOP setup