Form 3160-5
(August 2007)

HOBBS OCD

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SEP 1 9 2016

RECEIVED

Carlsbad Field Office
OCD

FORM APPROVED
OMB No. 1004-0137
Expires: July 31, 2010

HOBBS

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.

SUBMIT IN TRIPLICATE – *Other instructions on page 2.*

5. Lease Serial No.
NM 0149950

6. If Indian, Allottee or Tribe Name
N/A

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

1. Type of Well
☐ Oil Well ☐ Gas Well ☑ Other Acid Gas Injection

8. Well Name and No.
Zia AGI #2D

2. Name of Operator
DCP Midstream, LP

9. API Well No.
3002542207

3a. Address
370 17th St., Suite 2500
Denver, CO 80202

3b. Phone No. *(include area code)*
(303) 595-3331

10. Field and Pool or Exploratory Area
Devonian Expl.

4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)*
1900' FSL, 950' FWL, Sec. 19, T19S, R32E

11. Country or Parish, State
Lea

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
	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Subsequent Report	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
☐ Final Abandonment Notice	☐ 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.)

DCP Midstream respectly requests the changes in the existing approved APD for this well, described in detail in the attached Sundry application.

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

14. I hereby certify that the foregoing is true and correct.
Name *(Printed/Typed)*
Alberto A. Gutierrez, R.G.

Title Consultant to DCP Midstream, LP

Signature

Date

APPROVED
SEP - 7 2016
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by
Teungku Muchlis Krueng

Title PETROLEUM ENGINEER

Date

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

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)

Form 3160-3
(August 2007)

FORM APPROVED
OMB No. 1004-0137
Expires July 31, 2010

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NM 0149956

6. If Indian, Allotee or Tribe Name
N/A

1a. Type of work: ☑ DRILL ☐ REENTER

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

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

8. Lease Name and Well No.
Zia AGI #2D

2. Name of Operator DCP Midstream, LP

9. API Well No.
3002542207

3a. Address 370 17th St., Suite 2500
Denver CO 80202

3b. Phone No. *(include area code)*
(303) 595-3331

10. Field and Pool, or Exploratory
Devonian Expl.

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface 1900' FSL, 950' FWL, Sec. 19, T19S, R32E
At proposed prod. zone Same

11. Sec., T. R. M. or Blk. and Survey or Area
Sec. 19, T119S, R32E

14. Distance in miles and direction from nearest town or post office*
15 Miles South of Maljamar, NM Post Office

12. County or Parish
Lea

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)
580' FSL, 950' FWL
NM 0149956

16. No. of acres in lease
N/A: Class II Disposal

17. Spacing Unit dedicated to this well
N/A

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
~200' South of Zia AGI #1 (3002542208)

19. Proposed Depth
~14,500'

20. BLM/BIA Bond No. on file
105982905 (BLM, Statewide)

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3550' GL

22. Approximate date work will start*
11/01/2016

23. Estimated duration
75 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)*	Date
	Alberto A. Gutierrez, RG	

Title
Consultant to DCP Midstream, LC

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)

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

DISTRICT II
811 S. First St., Artesia, NM 88210
Phone (575) 748-1283 Fax (575) 748-9720

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 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 and Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised August 1, 2011

Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
3002542207		SWD Devonian

Property Code	Property Name	Well Number
	ZIA AGI	2

OGRID No.	Operator Name	Elevation
36785	DCP MIDSTREAM	3547'

Surface Location

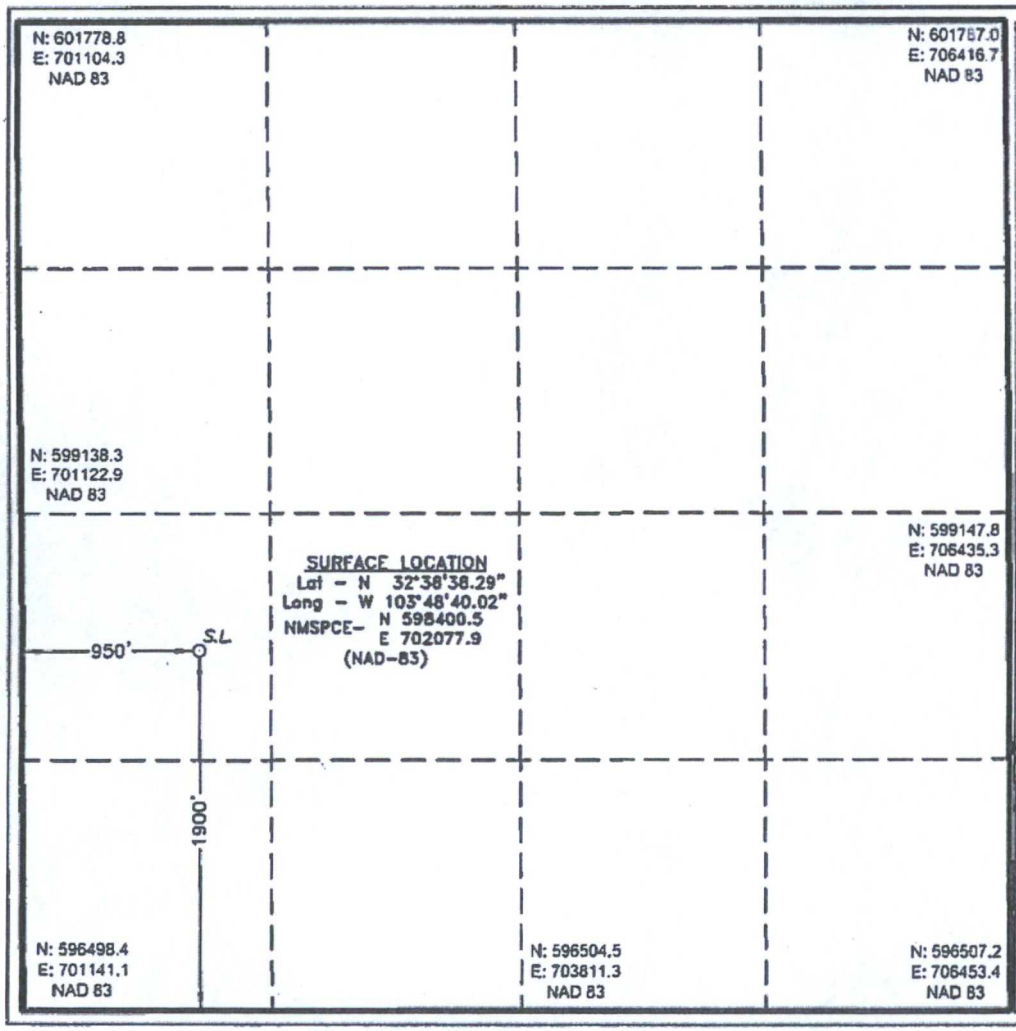
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	19	19 S	32 E		1900	SOUTH	950	WEST	LEA

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

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or 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 working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

8/29/16
Signature Date

Carlton D. Canfield
Printed Name

cdcanfield@dcpmidstream.com
Email Address

SURVEYOR CERTIFICATION

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

AUGUST 2, 2016
Date Surveyed

Signature & Seal of Professional Surveyor

Certificate Number Gary L. Jones 7977

BASIN SURVEYS

0' 500' 1000' 1500' 2000' N

SCALE: 1" = 1000'

WO Num.: 30775

TABLE OF CONTENTS

LIST OF TABLES (embedded in text)

LIST OF FIGURES

LIST OF ATTACHMENTS

Attachment 1: Active Oil and Gas Well Data; Permanently Plugged Oil and Gas Well Data
Attachment 2: Closed Loop Design Plan for Zia AGI #2D
Attachment 3: Twelve Point Surface Use Plan of Operation (SUPO)
Attachment 4: H_2S Contingency Plan

EXECUTIVE SUMMARY

On behalf of DCP Midstream LP (DCP), Geolex®, Inc. (Geolex) has prepared and is hereby submitting a completed a Sundry to modify the approved DCP Midstream Zia AGI #2 Application for Permit to Drill (APD) and Nine Point Drilling Plan for a an acid gas injection well (Zia AGI #2D) at the DCP Zia Gas Plant in Section 19, T19S, R32E approximately 35 miles west of Hobbs in Lea County, New Mexico (Figure 1). This vertical well will be drilled as an acid gas disposal well for the proposed plant. This is the 9-point drilling plan supporting the Sundry and also contains the SUPO, and all other required attachments.

NAME OF WELL: Zia AGI #2D (API # 3002542207)

LEGAL DESCRIPTION: Surface Location: 1900' FSL and 950' FWL of Section 19, T19S, R32E

LEASE LOCATION: 580' FSL and 950' FWL of BLM Lease NM-0149956

Figure 2 shows the specific location of the proposed well and adjacent leases. The proposed well will be drilled, cased, cemented and complete using appropriate methods and materials. The proposed injection zone will be the Devonian and upper Silurian Wristen and Fusselman Formations, at depths of approximately 13,800 to 14,500 feet. The well will be advanced vertically to approximately 14,750 feet, cased to approximately 13,755 feet and completed as an open hole configuration (13,755 to 14,750 feet).

Analysis of the reservoir characteristics of these units confirms that the well and reservoir will act as excellent closed-system reservoirs that will accommodate the future needs of DCP for disposal of acid gas and sequestration of CO_2 from the plant.

DCP needs to safely inject up to a total 15 million standard cubic feet (MMSCF) per day of treated acid gas (TAG) for 30 years. This propose well is designed to accept this volume of TAG for the 30 year period. The currently operating Zia AGI #1 well will be maintained in operating condition to allow for maintenance on the proposed AGI #2D well without shutting down the plant. The information on the current well (AGI #1) is described in a previously approved APD. The approved APD for Zia AGI #2is hereby requested to be modified per this Sundry.

Geologic studies conducted for the selection of this location demonstrate that the proposed injection zone is readily capable of accepting and containing the proposed acid gas and CO_2 injection volumes well within NMOCD's recommended maximum injection pressures and that no hydrocarbons are present in the proposed injection zone (see Section IX of this plan). In preparing this Drilling Plan Geolex conducted a detailed evaluation of the nine points that BLM's Onshore Oil and Gas Order #2 outlines as required for submission of such a plan. These include:

I.	Estimated Formation Tops
II.	Depth to Zones that Contain Water, Oil, Gas, and/or Mineral Bearing Formations
III.	Pressure Control
IV.	Casing
V.	Cement
VI.	Circulation Medium
VII.	Testing, Coring, Logging
VIII.	Pressures, Temperatures, LCZ's, H2S
IX.	Other Aspects of the Proposal

I. ESTIMATED FORMATION TOPS

The anticipated vertical depths to formations tops are shown on Table 1 below. Figure 3 shows the site area geology in more detail. Note that the proposed injection zone (shown in blue) is well separated from any active production zones. Figure 4 shows the locations of the cross-sections shown in Figures 5 and 6. These cross sections show in detail the continuous low-permeability beds that isolate the proposed injection zone from overlying and underlying strata.

Table 1: Estimated Formation Tops and Resources in Area of Interest

II. DEPTHS TO ZONES THAT CONTAIN OIL AND GAS, WATER AND/OR MINERAL BEARING FORMATIONS

Table 1 below summarizes the anticipated depths for the important water, oil, and/or gas producing zones.

Table 1: Depth to Formation Tops and Other Important and Relevant Depths

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	740	Water	
Top of Salt	889	Salt	
Tansil	1217	Evaporates	
Yates	2426	Sand/Anhydrite	
Capitan Reef	2760	Water	
Delaware	4718	Oil/Gas	
Bone Spring	7046	Oil/Gas	
Wolfcamp	10,270	Oil/Gas	
Strawn	11,120	Oil/Gas	
Atoka	11,549	Oil/Gas	
Morrow	12,075	Oil/Gas	
Mississippian	12,665	Limestone	
Woodford	13,615	Gas	
Devonian	13,740	Injection Zone	

Formations and/or zones producing economical hydrocarbons or useful water are identified in Table 1 above. As discussed in Section IV below, corrosion-resistant alloy (CRA) casing will be used in all casing penetrating through the injection zones.

Water Wells and Fresh Water Resources in the Vicinity

Based on the New Mexico Water Rights Database from the New Mexico Office of the State Engineer, there are four freshwater wells located within a one mile radius of the DCP Zia AGI #2; the closest water well is located 0.6 miles away (Figure 7; Table 2). All wells within the one mile radius are shallow, collecting water from about 250 to 350 feet depth, in the Triassic redbeds. These wells were drilled for exploratory purposes by Phillips Petroleum in 1982, and do not produce any consumed water. The shallow freshwater aquifer is protected by the surface and intermediate casing in the proposed DCP Zia AGI #2, which extend to 700 feet and 4,600 feet, respectively. The area surrounding the proposed injection wells is arid and there are no bodies of surface water within a five mile radius.

Table 2: Water Wells Identified by the New Mexico State Engineer's Files within One Mile of the Proposed Zia AGI Well #2

POD Number	Owner	Use	UTME	UTMN	Distance (m)	Depth Well (ft)	Depth Water (ft)
CP 00642 EXPL	PHILIP PETROLEUM COMPANY	Exploration	611025	3611657	973	250	na
CP 00640 EXPL	PHILIP PETROLEUM COMPANY	Exploration	612621	3613280	1342	260	102
CP 00639 EXPL	PHILIP PETROLEUM COMPANY	Exploration	613029	3612880	1540	350	345
CP 00563 EXPL	PHILIP PETROLEUM COMPANY	Exploration	612118	3613376	1064		na

Oil and Gas Resources in the AGI #2 Area of Review and Vicinity

A summary of potential oil and gas bearing resource zones in the area is included in Table 1. Attachment 1 contains a complete list based on NMOCD records of all active, temporarily abandoned, abandoned and plugged oil and gas wells within two miles (Attachment 1: Table A1, Figure A1).

A search of wells within two miles of the proposed Zia AGI #2D reveals a total of 192 recorded wells (78 plugged and abandoned or temporarily abandoned, 101 active, 2 temporarily plugged) , and 11 approved applications awaiting drilling. With the exception of the Lusk Deep Unit 002 noted above, none of these wells penetrate, or are permitted to penetrate, the proposed injection zone. None of the proposed applications approve drilling into the proposed injection zone.

Table 3: Summary of Well Status within Two Miles of Proposed Zia AGI Well #2

	Active	Plugged	Temp. Aband.	New (Not Drilled)	**TOTALS**
Deep (Penetrating Injection Zone)	0	1	0	0	**1**
Shallow (Above Injection Zone)	101	77	2	11	**191**
TOTALS	**101**	**78**	**2**	**11**	**192**

Status of Injection-Zone-Penetrating Wells within One-Half Mile

Within the one-half mile radius of interest, there are 20 wells, of which 12 are active and 7 are plugged and abandoned. The single pending well is the Zia AGI which has the approved APD for which the modifications described herein are requested. None of these wells penetrate the injection zone. Data on plugged wells and active well information is included in Appendix A, and these wells are shown in Figure A2.

Table 4: Wells within One Half Mile of the Proposed ZIA AGI #2D

API #	OPERATOR	PLUG DATE	SPUD DATE	TVD	STATUS	To AGI #2D (mi)
3002542007	DCP MIDSTREAM, LP AGI #2			Permitted, not drilled	New	0.0
3002542208	DCP MIDSTREAM, LP AGI #1		12/23/2014	6192	Active	0.04
3002500911	SIMMS & REESE OIL CO	12/30/1959	12/7/1959	2640	Plugged	0.09
3002500904	CARPER DRILLING CO	3/1/1943	12/19/1942	2862	Plugged	0.17
3002520247	EL PASO NATURAL GAS	10/25/1971	12/10/1963	11432	Plugged	0.24
3002535291	COG OPERATING LLC		4/24/2001	12718	Active	0.26
3001505790	PLAINS PROD CO	8/18/1947	1/20/1946	2876	Plugged	0.28
3002500902	WS OIL AND GAS OPERATING, LLC		10/12/1942	2634	Active	0.29
3002500909	TOM R CONE		8/31/1958	2490	Active	0.29
3001542914	COG OPERATING LLC		2/2/2015	9210	Active	0.31
3002542750	COG OPERATING LLC	9/25/2015	9/1/2015	4370	Plugged	0.32
3002542858	COG OPERATING LLC		10/22/2015	9241	Active	0.32
3002534573	COG OPERATING LLC		12/17/1999	12540	Active	0.34
3002520876	TOM R CONE		11/6/1964	11223	Active	0.35
3002500910	TOM R CONE		8/3/1961	2500	Active	0.36
3002500907	KELLY G STOUT	3/24/1958	10/1/1957	2552	Plugged	0.37
3001510382	PHILLIPS PETROLEUM CO	10/17/1994	4/26/1964	11540	Plugged	0.40
3002520122	COG OPERATING LLC		4/16/1963	12554	Active	0.42
3001505785	WS OIL AND GAS OPERATING, LLC		10/8/1941	2470	Active	0.43
3002500906	TOM R CONE		1/2/1957	2715	Active	0.50

As part of the work performed to support this application, a detailed investigation of the structure, stratigraphy, and hydrogeology of the area surrounding the proposed Zia AGI #2D injection well has been performed. The investigation included the analysis of available geologic data and hydrogeologic data from wells and literature identified in Sections 3, 4 and 5 of the C-108 application including related appendices. Based on this investigation and analysis of these data, it is clear that there are no open fractures, faults or other structures which could potentially result in the communication of proposed injection zone with any known sources of drinking water in the vicinity as described above. The proposed injection zone is a closed system and over 12,000 vertical feet from fresh water-bearing zones.

Our analysis of the reservoir shows that the fluids in the permeable zones (see Figures 3, 5 and 6) are saline water and there are no indications of economical hydrocarbons. Available records for the wells shown in these Figures did not report any shows of oil or gas in the proposed injection zone.

Geolex's analysis of the impact of injection of TAG from the proposed AGI #2D into the Devonian and upper Silurian Wristen and Fusselman Formations would not negatively impact the production of any economic hydrocarbons within a 1-mile radius of the AGI #2D injection zone. This opinion is based upon test and production results, seismic identification of porosity zone limits, experience with the depositional systems of the lower Permian rocks, and local structure. Any injected fluid would be confined to an area significantly less than a 1-mile radius away from the well, and could not break through to any producing wells in the vicinity of the proposed AGI well.

III. PRESSURE CONTROL

Pressure control equipment, specifications, and testing procedures are summarized in Table 5 below. Figure 8 shows a schematic of the BOP/BOPE and ancillary equipment.

Table 5: Pressure Control Equipment

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
17-1/2"	20"	2M	Annular	x	2000 psi
			Blind Ram		2M
			Pipe Ram		
			Double Ram		
			Other*		
12-1/4"	13-5/8"	2M	Annular	x	2000 psi
			Blind Ram		2M
			Pipe Ram		
			Double Ram		
			Other*		
8-3/4"	13-5/8"	10M	Annular	X	5~~10~~,000 psi
			Blind Ram	X	10M
			Pipe Ram		
			Double Ram	x	
			Other*		

The BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but

still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See Figure 8.

Formation integrity tests will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. All casing and cement jobs will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.

A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.

A multibowl wellhead will be used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system will be re-tested.

IV. CASING PROGRAM

The casing program is summarized in Table 6 below. Also included are the calculated safety factors for each casing element. Figure 9 shows a schematic of the proposed well.

Table 6: Casing Program and Safety Factors

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn	SF Collapse	SF Burst	SF Tension
26"	0	800'	20"	94	J55	STC	1.25	1.62	10.41
17.5"	0	2600'	13.375"	61	J55	LTC	1.14	1.48	3.9
12.25"	0	4500'	9.625"	40	J55	LTC	1.27	0.95	2.7
8-3/4"	0	300'	7-5/8"	33.7	P110	LTC	45.9	69.6	1.7
8-3/4"	300	5000'	7"	29	HCP110	LTC	3.4	2.24	1.99
8-3/4"	5000'	6350'	7'	**32**	28CR110	LTC	2.34	2.24	1.99
8-3/4"	6350'	13,455'	7"	29	HCP110	LTC	1.26	2.24	1.99
8-3/4"	13,455'	13,755'	7"	**32**	**28CR110**	LTC	1.1	2.24	1.99
6-1/8"	13,755'	14,750'	Open Hole Injection Zone						
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet

Casing will be kept at least 1/3 full while running casing to mitigate collapse. The 9-5/8" burst calculation is based on a half evacuated hole with a gas gradient of 0.1 psi/ft. using the frac gradient of 0.75 psi/ft and a casing burst rating / Casing depth > 0.75: 3950 psi/ 4500'= 0.88 psi/ft > 0.75 psi/ft. All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

V. CEMENT PROGRAM

The cement program is summarized in Table 7 below. All cement for each casing string will be circulated to the surface, using the calculated excesses shown in Table 8 below.

After cement curing, each casing string will be pressure tested before drilling out the diverters and shoes, and a formation pressure test will be conducted and approved prior to deeper drilling.

All cement jobs for all casing strings will be verified using 360° cement bond logging and analyses.

Table 7: Cement Program and Design Specifications

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H_20 gal/sk	500# Comp. Strength (hours)	Slurry Description
20"	1000	13.5	1.75	9	12	Lead: Class C + 4% Gel
	250	14.8	1.34	6.34	8	Tail: Class C + 1% CaCl2
13-3/8	1500	13.5	1.75	9	12	Lead: Class C + 4% Gel
	250	14.8	1.34	6.34	8	Tail: Class C + 1% CaCl2
9-5/8" 1st stg	450	12.7	1.98	10.6	16	Lead: Econocem HLC 65:35:6 Blend
	250	14.8	1.34	6.34	8	Tail: Class C + 1% CaCl
9-5/8" 2nd stg	600	13.5	1.75	9	12	Lead: Class C + 4% Gel
	100	14.8	1.34	6.34	8	Tail: Class C + 1% CaCl2
7" 1st stg	700	12.7	1.98	10.6	16	Lead: Econocem HLH 65:35:6 Blend
	250	16.4	1.1	5.4	8	Tail: Class H
7" 2nd stg	300	11.9	2.5	19.1	24	Lead: 50:50:10 C Blend
	350	14.8	1.34	6.34	8	Tail: Class C

The DVT/ECP for the 9-5/8" intermediate casing will be set @ 2650'. This setting depth for the DVT/ECP will ensure we get a proper seal above the initial losses of the reef and ensure a good cement job for the 9-5/8" casing. Setting the 13-3/8" casing at 2600' will case the salt and the top of the Yates.

The DVT for the 7" casing will be set @ 6,350'.

Volumes are subject to change from hole observations and/or fluid calipers.

Lab reports with the 500 psi comp strength time for the cement will be onsite for review.

After drilling the open hole disposal interval and before installing disposal head operator will install a composite bridge plug inside the 7" casing.

Table 8: Cement Excess for Casing Strings

Casing String	TOC	% Excess
20"	0'	50%
13-3/8"	0'	50%
9-5/8"	0'	50%
7"	~~2600'~~ 0'	35% OH

VI. CIRCULATING MEDIUM (MUD PROGRAM)

Table 9 below summarizes the mud program for the proposed well.

Table 9: Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	20" Shoe	FW Gel	8.6-8.8	28-34	N/C
20" csg	13-3/8" Int shoe	Saturated Brine	10.0-10.2	28-34	N/C
13-3/8"	9-5/8" csg pt	Fresh water	8.4-8.6	28-34	N/C
9-5/8" csg	7" shoe	WBM	9.0 -11.0	28-36	8cc – N/C
7" csg	6-1/8" TD	Fresh water	8.4 – 9.0	28-34	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times. Water loss will be tightened before entering the Woodford shale. PVT/Pason and visual monitoring will be used to monitor mud losses or gains.

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times. Mud weights, additives and lost circulation materials may be adjusted to minimize fluid losses in the Capitan Aquifer zone. Water loss will be tightened before entering the Woodford shale.

While drilling through the Capitan Aquifer zone, daily fluid balances will be maintained and provided to the BLM Carlsbad office by 0700 each morning, or on other schedules approved by BLM.

VII. TESTING, CORING, LOGGING

Mud logging will commence at approximately 4,500 feet after drilling out the 9 5/8" casing. The proposed open hole logging suite is summarized in Table 9 below. Approximately 80 rotary sidewall cores (in two 40-core runs) will be collected from the cap rock and reservoir zones, based on field analysis of the open-hole logs.

A 360° cement bond log will be run to ascertain the quality of the cement bond of each casing. It is important that a good bond be established around the injection interval as well as below the corrosion resistant joint to assure that acid gas mixed with formation water does not travel up the outside of the casing and negatively impact the integrity of the casing job.

A comprehensive injection and step rate testing program will be conducted after the logging and coring are complete and the production casing is cemented and pressure-tested.

Table 10: Logging and Testing Program

Logging, Coring and Testing.	
Y	Will run GR/CNL from TD to surface. Stated logs run will be in the Completion Report and submitted to the BLM.
Y	No Logs are planned based on well control or offset log information.
N	Drill stem test? If yes, explain
Y	Coring? If yes, explain: SWC's in Woodford shale. Cap rock.

Additional logs planned		**Interval**
Y	Resistivity	All but surface
Y	Density	All but surface
Y	CBL	7" casing if cmt not circ
Y	Mud log	4500' – 14,750'
Y	PEX	All but surface

VIII. PRESSURES, TEMPERATURES, LOST CIRCULATION ZONES, H_2S

The conditions in the reservoir are anticipated to be a reservoir pressure of approximately 5,800 to 6,400 psi with a bottom hole temperature of approximately 180 ° to 190 ° F. No abnormal temperatures or pressures are anticipated.

Circulation losses are anticipated in the Capitan Reef zone (approximately 2,780 to 4,400 feet). Control measures include close monitoring of mud properties and daily evaluation of mud losses. The primary purpose of the second intermediate casing string is to isolate the Capitan Reef, preventing additional losses after the base of the Reef is reached.

Minor H_2S may occur in the Goat Seep, Queen and Cherry Canyon zones, but during the continuous mud logging of the adjacent Zia AGI #1, no levels of H_2S above 6 ppm were encountered at any depths.

In addition to the operating H_2S Contingency Plan (Attachment 5), the DCP Midstream Zia Natural Gas Plant sited immediately adjacent to the well location has a current NMOCD-approved Rule 11 H_2S Contingency Plan that governs all operations surrounding the well.

X. OTHER ASPECTS OF THE PROPOSAL

Additional information relative to the proposed completion of the proposed Zia AGI #2 which relates to its proposed use as an acid gas injection and CO_2 sequestration well is included in the C-108 application that was submitted to the NMOCD and BLM. Some of this information has been summarized and included in this section of the 9-point drilling plan for easy reference.

The full C-108 will be the subject of a NMOCC Hearing to be held in August 2016. A copy of the approved NMOCC Order will be provided to BLM when received from NMOCC (expected in September 2016).

Additional Completion Information

Once the integrity of the cement job of the production string has been verified, a temporary string of removable packer and tubing will be run, and injection tests (step tests) will be performed to determine the final injection pressures and volumes. Once the reservoirs have been tested, the final tubing string including a permanent packer, approximately 13,700 feet of 3 $^1/_2$ inch, 9.3 ppf, L80 Hydril Fiber Glass Lined tubing, and an SSV will be run into the well. A ¼ inch Inconel steel line will connect the SSV to a hydraulic panel at the surface.

The National Association of Corrosion Engineers (NACE) issues guidelines for metals exposed to various corrosive gases like the ones in this well. For a H_2S/CO_2 stream of acid gas that is de-watered at the surface through successive stages of compression, downhole components such as the SSV and packer need to be constructed of Inconel 625, 925, or equivalent. The corrosion resistant joint will be constructed of a similar alloy from a manufacturer such as 28CR110. The gates, bonnets and valve stems within the Christmas tree will be nickel coated as well.

The rest of the Christmas tree will be made of standard carbon steel components and outfitted with annular pressure gauges that report operating pressure conditions in real time to a gas control center located remotely from the wellhead. In the case of abnormal pressures or any other situation requiring immediate action, the acid gas injection process can be stopped at the compressor and the wellhead shut-in using a hydraulically operated wing valve on the Christmas tree. The SSV provides a redundant safety feature to shut in the well in case the wing valve does not close properly.

After the AGI well is drilled and tested to assure that it will be able to accept the volume of injection fluid (without using acid gas), it will be completed with the approved injection equipment for the acid gas stream. The current Rule 11 Plan will be updated when the compression facility design and well connection design is complete and will be submitted for NMOCD review and approval prior to commencement of TAG injection into the Zia AGI well.

Calculated Areas of Fluid Injection

The range of injection areas for the anticipated ranges of injection volume over an estimated 30-year life of the AGI well are calculated based on the geology, anticipated range of injection volumes, and the injection pressures and temperatures in the reservoir. These calculations are shown in Table 9, and the results of the calculations are plotted on Figure 10.

Although the entire open-hole interval is 950 feet (13,755' to 14,750') our analyses of available logs indicates that approximately 600 feet of that interval exhibits 7% or more porosity. Therefore we have used 600 feet as a conservative value in our plume size calculations.

TABLE 11: Calculations for Area of Injection at Estimated Rate of 15 MMSCFD

PROPOSED INJECTION STREAM CHARACTERISTICS

TAG Gas vol MMSCFD	H_2S conc. mol %	CO_2 conc. mol %	H_2S inject rate lb/day	CO_2 inject rate lb/day	TAG inject rate lb/day
15	10	90	142384	1654780	1797164

CONDITIONS AT WELL HEAD

Well Head Conditions		TAG							
Temp F	Pressure psi	Gas vol MMSCFD	Comp CO_2:H_2S	Inject Rate lb/day	Density[1] kg/m^3	SG[2]	density lb/gal	volume ft^3	volume bbl
100	1700	15	90:10	1797164	472.00	0.472	3.94	60962	10858

CONDITIONS AT BOTTOM OF WELL

Injection Zone Conditions					TAG				
Temp F	Pressure[3] psi	$Depth_{top}$ ft	$Depth_{bottom}$ ft	Thickness[4] ft	Density[1] kg/m^3	SG[2]	density lb/gal	volume ft^3	volume bbl
185	6000	13800	14400	600	849.00	0.849	7.09	33892	6036

CONDITIONS IN RESERVOIR AT EQUILIBRIUM

Injection Reservoir Conditions					TAG				
Temp[5] F	Pressure[3] psi	Ave. Porosity[6] %	Swr	Porosity ft	Density[1] kg/m^3	SG[2]	density lb/gal	volume ft^3	volume bbl
185	6000	11.5	0.21	54.51	849.00	0.849	7.09	33892	6036

CONSTANTS

	SCF/mol	
Molar volume at STD	0.7915	
	g/mol	lb/mol
Molar weight of H_2S	34.0809	0.0751
Molar weight of CO_2	44.0096	0.0970
Molar weight of H_2O	18.015	0.0397

[1] Density calculated using AQUAlibrium software

[2] Specific gravity calculated assuming a constant density for water

[3] PP is extrapolated using successful Drill Stem Tests at nearby wells

[4] Thickness is the average total thickness of coarse sand units in the reservoir zone

[5] Reservoir temp. is extrapolated from bottomhole temp. measured at nearby wells

[6] Porosity is estimated using geophysical logs from nearby wells

CALCULATION OF MAXIMUM INJECTION PRESSURE LIMITATION

SG_{TAG}	0.6605
$PG = 0.2 + 0.433\,(1.04\text{-}SG_{TAG})$	0.364 psi/ft
$IP_{max} = PG * Depth$	5028 psi

Where: SG_{TAG} is specific gravity of TAG; PG is calculated pressure gradient; and IP_{max} is calculated maximum injection pressure.

CALCULATION OF 30 YEAR AREA OF INJECTION

Cubic Feet/day (5.6146 ft^3/bbl)	33892 ft^3/day
Cubic Feet/30 years	371,367,202 ft^3/30 years
Area = V/Net Porosity (ft)	6812827 ft^2/30 years
Area = V/Net Porosity (ft) (43560 ft^2/acre	156.4 acres/30 years
Radius =	1473 ft
Radius =	0.28 miles

At the anticipated generation rate of TAG of 15 standard million cubic feet per day (MMSCFD) at the surface, this volume will be compressed to approximately 6,036 cubic feet of supercritical fluid at reservoir pressures and temperature. Hence, a 30-year lifetime of injection will result in 372 million cubic feet in the reservoir per MMSCFD of TAG (Figure10, Table 9).

As shown in Figure 10, the proposed maximum injection rate of 15.0 MMSCFD will generate a "footprint" with an area of approximately 156 acres in the reservoir after considering the effect of irreducible water. This footprint will not impact any of the wells in this footprint since none of these wells penetrates the injection zone.

Figure 9 also shows, to demonstrate a 100% safety factor, the injection footprint that would result if the injection rate was 30 MMSCFD. This area would encompass approximately 313 acres, but again, there are no wells penetrating the injection zone in or adjacent to the area of influence.

Figure 11 is based on a porosity "fairway" identified in the proposed injection zone using 3D seismic data which Geolex and DCP were allowed to view and analyze by Devon Energy. This fairway is defined by a

porosity of 7% or higher, and will likely define the geometry of the injection plume. Figure 11 also shows the calculated areas of injection for 15 and 30 MMSCFD after 30 years of operation (156 and 313 acres) superimposed in the outline of the fairway. This figure shows that even at the 100% safety factor of 30 MMSCFD, all of the TAG will be safely contained within the fairway.

Formation Fluid Chemistry

A review of formation waters from the U.S. Geological Survey National Produced Waters Geochemical Database v2.1 (10/16/2014) identified 10 wells with analyses from drill stem test fluids collected from the Devonian, Silurian-Devonian or Fusselman Formations, in wells within approximately 12 miles of the proposed Zia AGI #2D (Townships 18 to 20 South and Ranges 30 to 33 East).

These analyses showed Total Dissolved Solids ranging from 20,669 to 40,731 milligrams per liter (mg/l) with an average of 28,942 mg/l. The primary anion is chloride, and the concentrations range from 11,176 to 23,530 mg/l with an average of 16,170 mg/l.

An attempt will be made to sample formation fluids during drilling or completion of the well to provide more site-specific fluid properties.

FIGURES

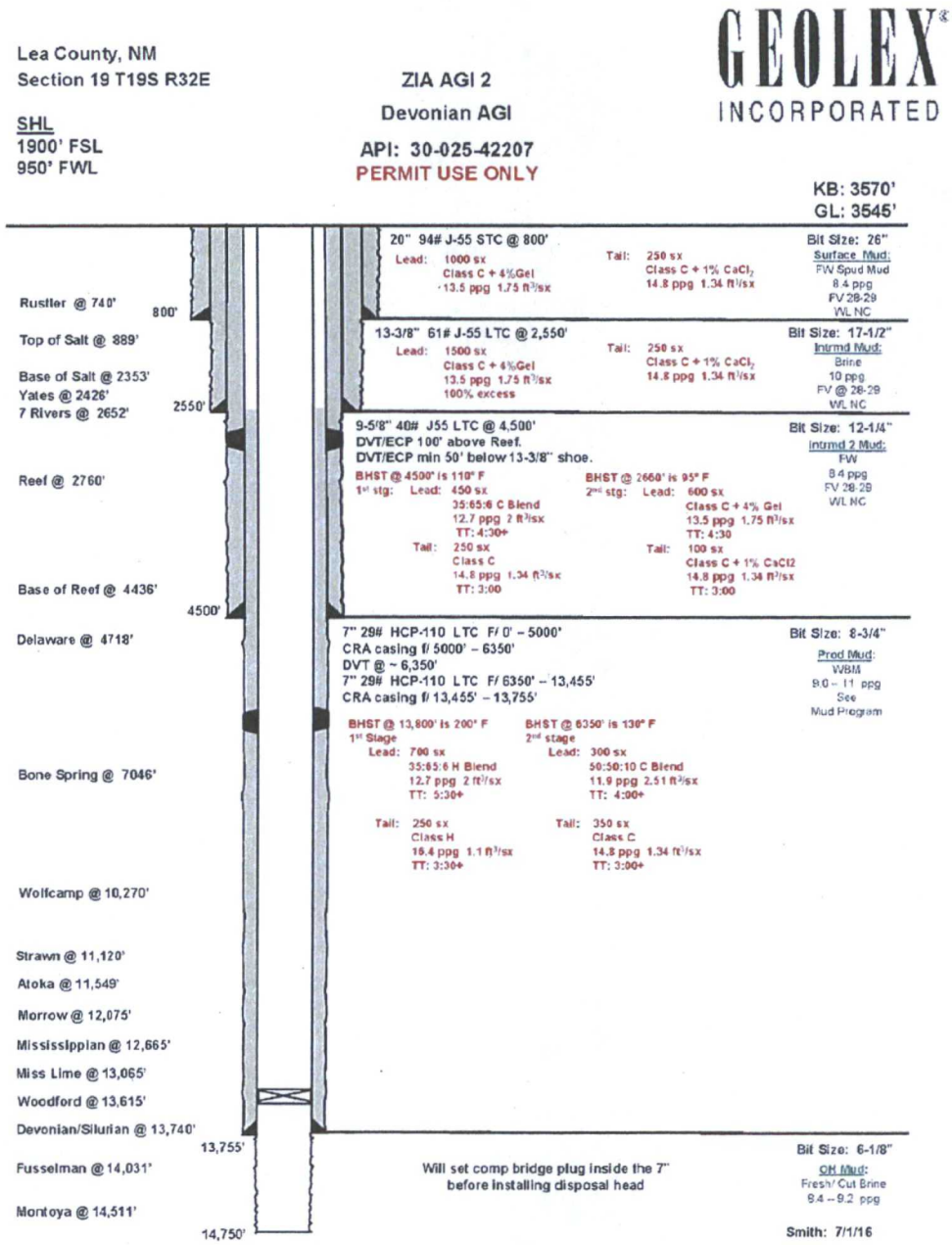


Figure 9: Schematic of Proposed Zia AGI #2D Well Design

Krueng, Teungku Muchlis <tkrueng@blm.gov>

Corrected 10M BOP diagram and clarification of table

Alberto A.Gutierrez, RG {Geolex} <aag@geolex.com> 6 September 2016 at 15:24
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To: "Krueng, Teungku Muchlis" <tkrueng@blm.gov>
Cc: "Canfield, Carlton D" <cdcanfield@dcpmidstream.com>, "James C. Hunter {GeoLex}" <JCH@geolex.com>

The annular will be rated to 10K and tested to 5K

Alberto A. Gutiérrez, RG

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Issued on: 30 Aug. 2016

Connection Data Sheet

OD	Weight	Wall Th.	Grade	Alt.Drift	Connection
7 in.	32.00 lb/ft	0.453 in.	VM 110 SS	6.000 in.	VAM® TOP Casing

PIPE PROPERTIES

Nominal OD	7.000	in.
Nominal ID	6.094	in.
Nominal Cross Section Area	9.317	sqin.
Grade Type	Sour Service	
Min. Yield Strength	110	ksi
Max. Yield Strength	120	ksi
Min. Ultimate Tensile Strength	115	ksi

CONNECTION PROPERTIES

Connection Type	Premium T&C	
Connection OD (nom)	7.717	in.
Connection ID (nom)	6.242	in.
Make-up Loss	4.776	in.
Coupling Length	11.54	in.
Critical Cross Section	9.317	sqin.
Tension Efficiency	100	% of pipe
Compression Efficiency	60	% of pipe
Internal Pressure Efficiency	100	% of pipe
External Pressure Efficiency	100	% of pipe

CONNECTION PERFORMANCES

Tensile Yield Strength	1025	klb
Compression Resistance	615	klb
Internal Yield Pressure	12460	psi
External Pressure Resistance	10780	psi
Max. Bending	26	°/100 ft
Max. Load on Coupling Face	583	klb

Assume same for body

FIELD TORQUE VALUES

Min. Make-up torque	12450 ft.lb
Opti. Make-up torque	13750 ft.lb
Max. Make-up torque	15050 ft.lb

SM2035-110 7 in. OD x 32 lb/ft

SM2035 is a Trademark of Nippon Steel and Sumitomo Metals Corporation

COMPOSITION (UNS N08135)

Chromium 20.5 to 23.5 %	Nickel 33.0 to 38.0 %	Molybdenum 4.0 to 5.0 %
Copper 0.70 maximum	Tungsten 0.2 to 0.8 %	Iron balance

CORROSION RESISTANCE

SM2035 (UNS N08135) is a cold worked nickel-based alloy meeting the severe challenges of wells containing high chlorides, H_2S and temperature. It is classified in MR0175/ISO15156 as a type 4d alloy, with no restrictions to partial pressure of H_2S below 270F and resistant to 100 psi H_2S at 425°F. SM2035 tube is available in accordance with API Specification 5CRA/ ISO 13680, Group 3, Category 22-35-4.

GRADE 110 MECHANICAL PROPERTIES

Yield Strength min. (ksi)	Yield Strength max. (ksi)	Tensile Strength min. (ksi)	Elongation min. (%)
110	140	115	11

7 in. OD x 32 lb./ft. GRADE 110 PIPE PERFORMANCE PROPERTIES

Yield Strength (kips)	Internal Yield (psi)	Collapse (psi)
1025	12,460	10780

Krueng, Teungku Muchlis <tkrueng@blm.gov>

Corrected 10M BOP diagram and clarification of table

Alberto A.Gutierrez, RG {Geolex} <aag@geolex.com> 6 September 2016 at 20:10
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Cc: "Canfield, Carlton D" <cdcanfield@dcpmidstream.com>, "James C. Hunter {GeoLex}" <JCH@geolex.com>

Seven

We will not be using a multibowl wellhead.

Thanks

Alberto

Alberto A. Gutiérrez, RG

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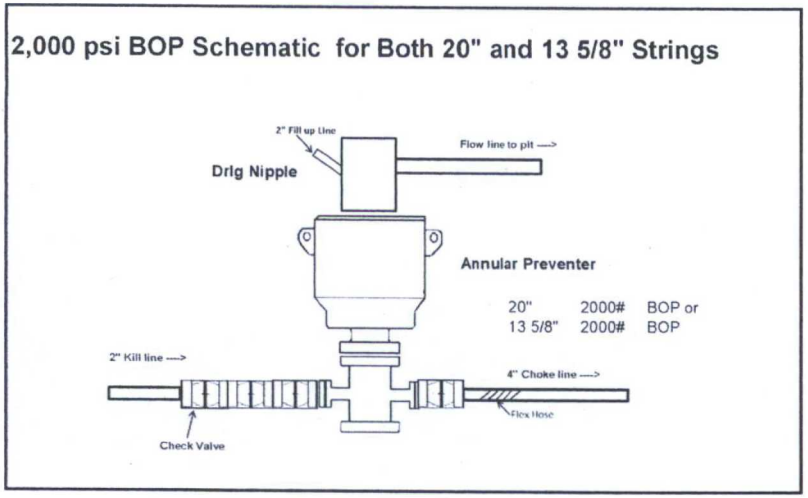

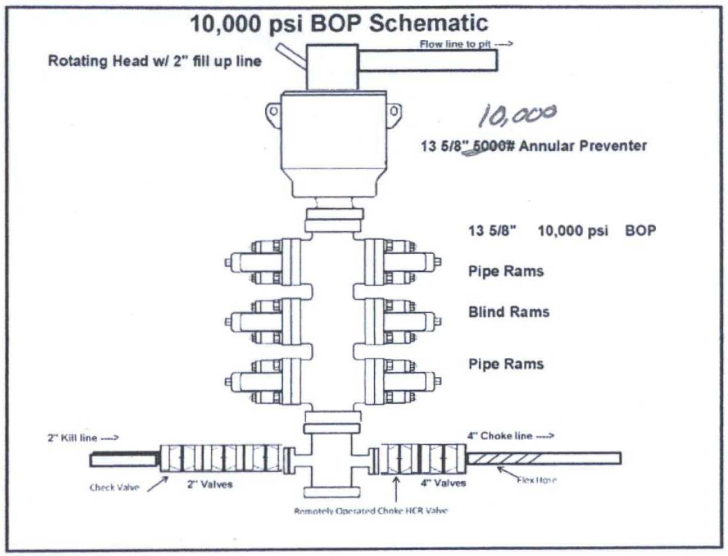

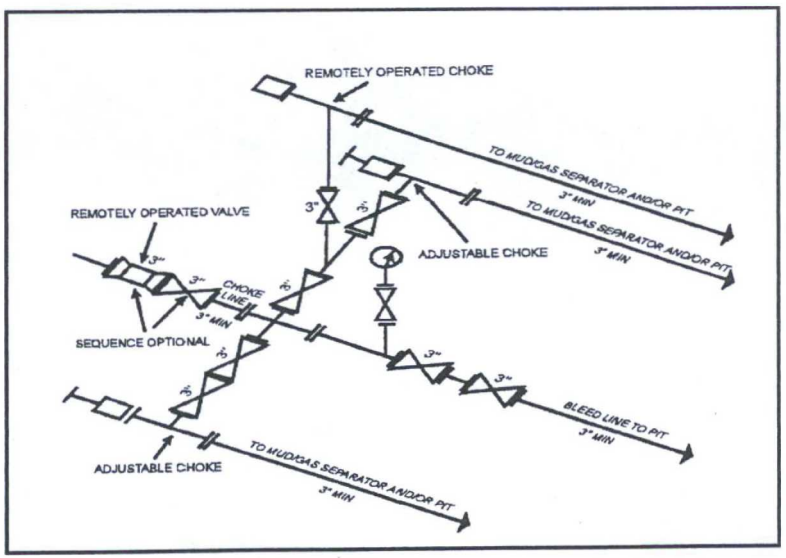

Figure 8: Schematic of BOP/BOPE And Ancillary Equipment