Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

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 reverse side.

5. Lease Serial No.
NMLC029509A

6. If Indian, Allottee or Tribe Name

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

1. Type of Well
☐ Oil Well ☐ Gas Well ☒ Other: INJECTION

8. Well Name and No.
MALJAMAR AGI 2

2. Name of Operator
FRONTIER FIELD SERVICES LLC
Contact: JULIE DOSSEY
E-Mail: jdossey@akaenergy.com

9. API Well No.
30-254-42628

3a. Address
65 MERCADO STREET, SUITE 250
DURANGO, CO 81301

3b. Phone No. (include area code)
Ph: 970-759-7110
Fx: 970-375-2216

10. Field and Pool, or Exploratory
WOLFCAMP

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 21 T17S R32E Mer NMP SWSE 400FSL 2100FEL
32.813967 N Lat, 103.769748 W Lon

11. County or Parish, and State
LEA COUNTY COUNTY, NM

12. CHECK 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 to Original A PD
	☐ 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 shall 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 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

The casing design on the Maljamar AGI #2 was improved, from the approved APD, to incorporate the use of an additional string of casing. Due to casing design changes other aspects of the drilling design have been altered and therefore the 9 Point Drilling Plan has been revised to reflect the changes. Changes are included in the following driling components:

1. Pressure control has been amended to adequately fit the different casing sizes.

2.Casing design has been changed to include the additional string of casing. Therefore all casing strings prior to the injection will be increased in size to fit the additional string. It was determined that this additional string is needed to provide a more durable metallurgy for acid gas injection. New safety factors have also been given to the casing design.

14. I hereby certify that the foregoing is true and correct.
Electronic Submission #319769 verified by the BLM Well Information System
For FRONTIER FIELD SERVICES LLC, sent to the Hobbs

Name*(Printed/Typed)* JULIE DOSSEY — Title PERMITTING AND LAND

Signature (Electronic Submission) — Date 10/13/2015

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By _____ Title _____ 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.

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

Additional data for EC transaction #319769 that would not fit on the form

32. Additional remarks, continued

3. Cement program has been amended to reflect the additional casing. A ThermaLock and CorrosaCem cement slurry is now included through the injection zone of the casing.

4. Circulating Medium (Drilling mud program) has been amended to reflect the additional casing.

Please see the attached revised documents:-
a)9 Point Drilling Plan, b)Wellbore schematic, c)Wellhead design and diagram,
d) Directional drilling plan and profile, e)Drilling Fluids program, f) Revised Cement, g)Solids and Drilling Waste Management

Please contact Marvin Seale, Petroleum Engineer, at:- office-(970)563-5167 cell-(970)442-1003 with any questions.

Frontier Field Services, LLC
Maljamar AGI #2

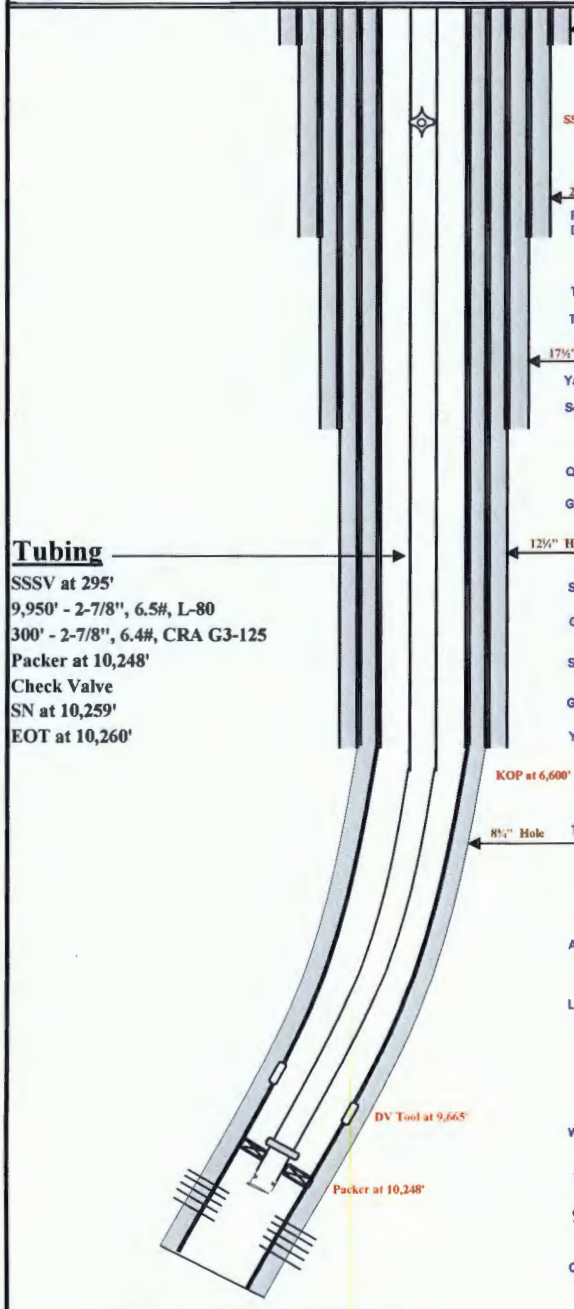
SHL: 400 FSL, 2,100' FEL Section 21, T17S, R32E
BHL: 350' FSL, 650' FWL Section 21, T17S, R32E
COUNTY: Lea, New Mexico
API#: 30-025-42628

TARGET: Exp. Wolfcamp Injection
G.L.: 4,019'
RKB: 18'
SPUD DATE: January 10, 2016

Red Willow Production Co.
Southern Ute Indian Tribe

PROPOSED WELLBORE SCHEMATIC

Frontier field services, llc



Conductor
30", 99#
Set at 40' MD
36" Hole
Cemented to Surface

Surface Casing
20", 94#, J-55, BTC
Set at 890' MD
26" Hole
Cemented to Surface (1,450 sx. Class C)

1st Intermediate Casing
13-3/8", 61#, J-55, BTC
Set at 2,550' MD
17-1/2" Hole
Cemented to Surface (1,860 sx. Class C)

2nd Intermediate Casing
9-5/8", 40#, HCL-80 LTC
Set at 6,500' MD
12-1/4' Hole
Cemented to Surface (1,750 sx. Class C)

Tubing
SSSV at 295'
9,950' - 2-7/8", 6.5#, L-80
300' - 2-7/8", 6.4#, CRA G3-125
Packer at 10,248'
Check Valve
SN at 10,259'
EOT at 10,260'

Production Casing
7", 29#, L-80 LTC (0-9,896' & 10,327'-11,129')
7", 32#, CRA G3-110, VAM TOP Con. (9,896'-10,327')
8-3/4" Hole
Start Build at 6,600', Build at 5°/100'
Cemented to Surface w/ DV Tool at 9,665'
Stage 1: (400 sx. ThermaLock)
Stage 2 Lead: (650 sx. EconoCem)
Stage 2 Tail: (100 sx. CorrosaCem Class H)

Wolfcamp Injection Target
9,745' - 10,230'

Well TD @ 11,129' MD
10,300' TVD
Inclination 37°

Frontier Energy Services

HALLIBURTON | Sperry Drilling

Project: Lea County, NM (NAD 27)
Site: Maljamar
Well: Maljamar AGI 2
Wellbore: Wellbore #1
Plan: Plan #2
Rig: TBD

SURFACE LOCATION

US State Plane 1927 (Exact solution)
New Mexico East 3001
Elevation: GL 4019.0' + 17.0' @ 4036.00usft (TBD)

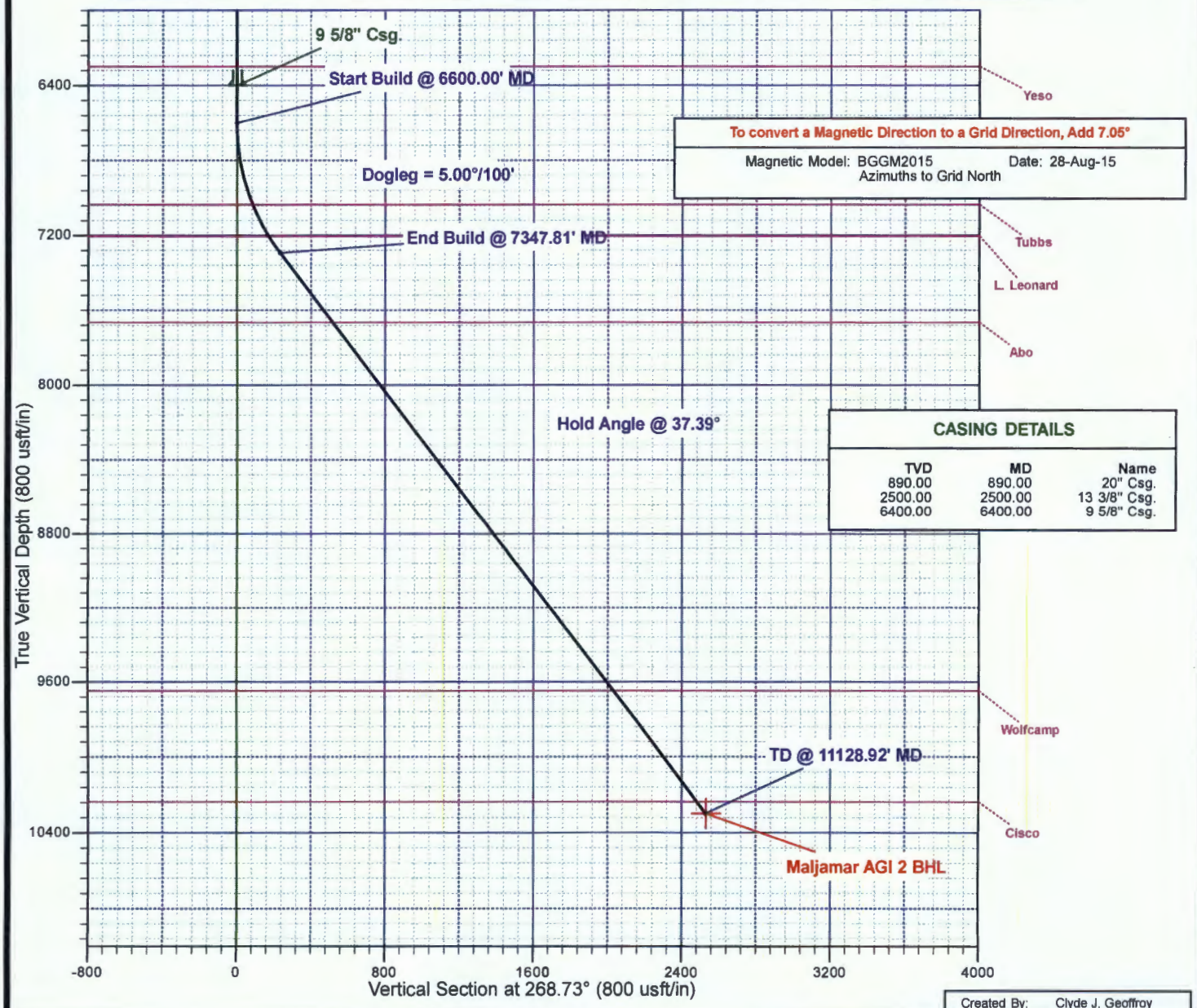
Northing	Easting	Latitude	Longitude
660255.80	673327.90	32° 48' 49.896 N	103° 46' 8.995 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6600.00	0.00	0.00	6600.00	0.00	0.00	0.00	0.00	0.00	Start Build
7347.81	37.39	268.73	7295.85	-5.20	-235.41	5.00	268.73	235.47	End Build
11128.92	37.39	268.73	10300.00	-55.90	-2530.90	0.00	0.00	2531.52	TD

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Maljamar AGI 2 BHL	10300.00	-55.90	-2530.90	660199.90	670797.00	32° 48' 49.476 N	103° 46' 38.654 W



To convert a Magnetic Direction to a Grid Direction, Add 7.05°

Magnetic Model: BGGM2015 Date: 28-Aug-15
Azimuths to Grid North

CASING DETAILS

TVD	MD	Name
890.00	890.00	20" Csg.
2500.00	2500.00	13 3/8" Csg.
6400.00	6400.00	9 5/8" Csg.

Created By: Clyde J. Geoffroy

Frontier Energy Services

HALLIBURTON
Sperry Drilling

CASING DETAILS

TVD	MD	Name
890.00	890.00	20" Csg.
2500.00	2500.00	13 3/8" Csg.
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Project: Lea County, NM (NAD 27)
Site: Maljamar
Well: Maljamar AGI 2
Wellbore: Wellbore #1
Design: Plan #2
Rig: TBD

SURFACE LOCATION

US State Plane 1927 (Exact solution)
New Mexico East 3001
Elevation: GL 4019.0' + 17.0' @ 4036.00usft (TBD)

Northing	Easting	Latitude	Longitude
660255.80	673327.90	32° 48' 49.896 N	103° 46' 8.995 W

To convert a Magnetic Direction to a Grid Direction, Add 7.05°

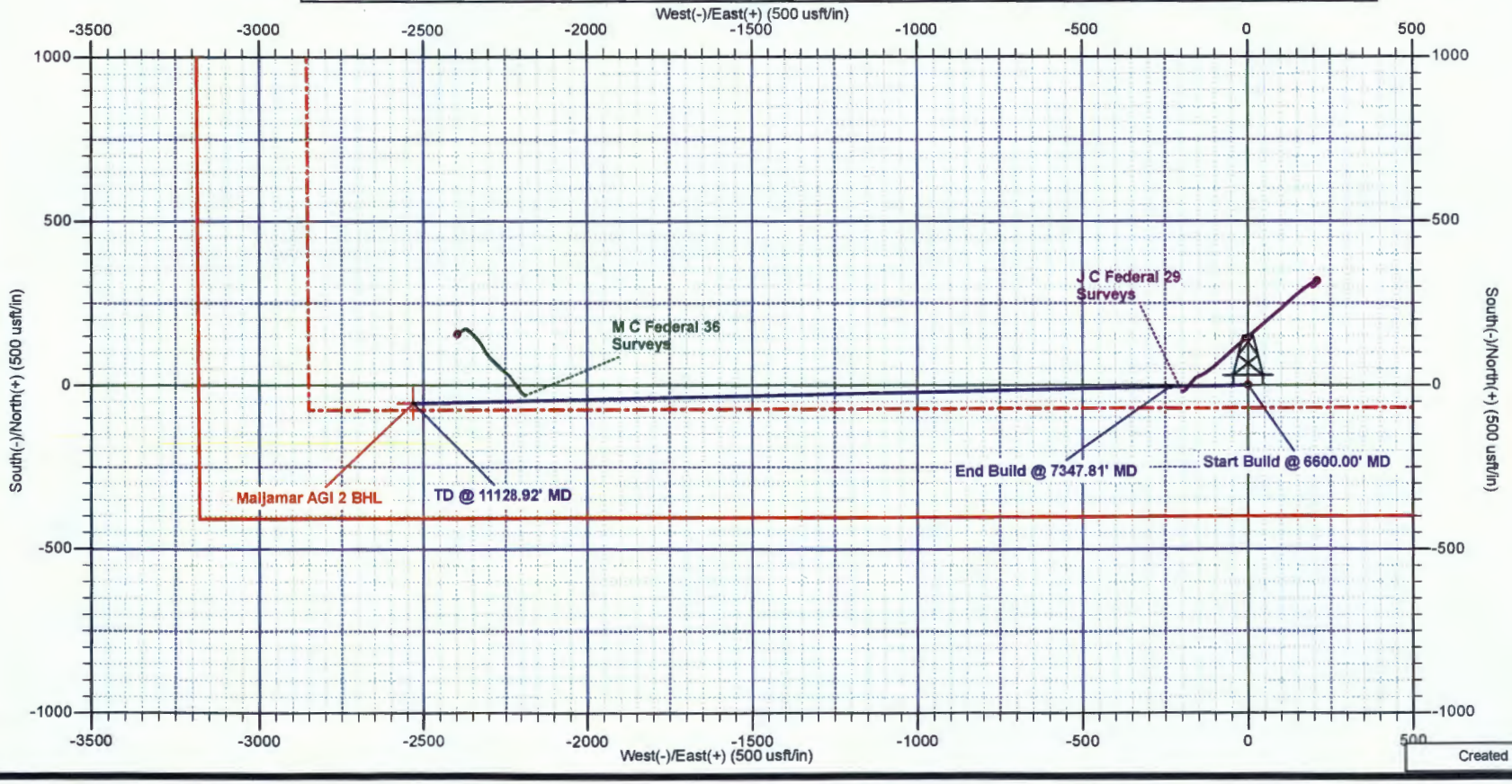
Magnetic Model: BGGM2015 Date: 28-Aug-15
Azimuths to Grid North

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6600.00	0.00	0.00	6600.00	0.00	0.00	0.00	0.00	0.00	Start Build
7347.81	37.39	268.73	7295.85	-5.20	-235.41	5.00	268.73	235.47	End Build
11128.92	37.39	268.73	10300.00	-55.90	-2530.90	0.00	0.00	2531.52	TD

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Maljamar AGI 2 BHL	10300.00	-55.90	-2530.90	660199.90	670797.00	32° 48' 49.476 N	103° 46' 38.654 W



Created By: Clyde J. Geoffroy

FRONTIER FIELD SERVICES LLC
MALJAMAR AGI #2 - API#30-025-42628
REVISED NINE POINT DRILLING PLAN

TABLE OF CONTENTS

LIST OF TABLES (embedded in text)

LIST OF FIGURES (*all but Figures 4 & 7 are not included because they have not been revised*)

LIST OF ATTACHMENTS (*these are not included because they have not been revised*)

MALJAMAR AGI #2 NINE POINT DRILLING PLAN FOR BLM APD

EXECUTIVE SUMMARY

On behalf of Frontier Field Services, LLC (Frontier), Geolex®, Inc. (Geolex) and Red Willow Production Company have prepared and is hereby submitting a completed Application for Permit to Drill (APD) and Nine Point Drilling Plan for a combined acid gas injection and CO_2 sequestration well (Maljamar AGI #2) 215' to the east of the office building of the Frontier Gas Plant and 90' east northeast of the flare fence. Both AGI #1 and AGI #2 wells are located on approximately 19 acres near Maljamar in Lea County, New Mexico (Figure 1 & Figure 5). This well is being drilled as a redundant backup well for Maljamar AGI #1. This is the 9-point drilling plan supporting the APD which also contains the 12-Point Surface Use Plan of Operation (SUPO), and all other required attachments.

NAME OF WELL: Maljamar AGI #2

LEGAL DESCRIPTION: Surface Location: 400' FSL, 2100' FEL, Section 21, T17S, R32E, Bottom Hole Location: 350' FSL, 650' FWL, Sec 21, T17S, R32E, NMPM, Lea County, New Mexico.

The Maljamar AGI #2 is planned as a directional well with a total measured depth (TMD) of approximately 11,129' and a total vertical depth (TVD) of 10,300'; and completed in the Wolfcamp series along the northern margin of the Delaware Basin (Permian). The primary proposed injection zone will be within a porous debris and algal mound carbonate facies in the Wolfcamp. These injection zones are between approximately 9745' TVD (10,430' TMD) and 10,230' TVD (11,041' TMD) from the surface. Analysis of the reservoir characteristics of these units confirms that these act as excellent closed-system reservoirs that should easily accommodate the future needs of Frontier for disposal of acid gas and sequestration of CO_2 from the plant. Frontier needs to safely inject up to 3.5 million standard cubic feet (MMSCF) per day of treated acid gas (TAG) for 30 years and cannot rely on one well to operate continuously for the 30 year period, therefore, a second AGI well is being drilled to allow for maintenance on Maljamar AGI #1 without impairing plant operations. Geologic studies conducted for the selection of this location demonstrate that the proposed injection zone is 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 a detailed evaluation was conducted of the nine points that BLM's Onshore Oil and Gas Order #1 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

Formation	Anticipated Vertical Depth to Top (ft)
Alluvium/Ogallala	0
Dockum/Rustler	200
Yates	2,067
Seven Rivers	2,207
Queen	3,176
Grayburg	3,537
San Andres	3,931
Glorieta	5,571
Yeso	6,300
Tubbs	7,036
Abo	7,667
Lower Leonard	9,206
Wolfcamp	9,648
Cisco	10,238

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

In the area of the Frontier Gas Plant, the surficial deposits are relatively thin layers of aeolian sands and both active and stabilized dunes. These materials are described in the *Soil Survey-Lea County, New Mexico* (United States Department of Agriculture, 1974) as the Kermit Dune Lands and the Maljamar Fine Sands. Under these sandy deposits lie the "redbeds" of the Triassic Dockum Group, in which groundwater locally occurs in sandier beds of the mudrocks characterizing the Dockum. Local depth to groundwater in the Dockum is reported to be approximately 200'. The only significant aquifer in the area is the Pliocene Ogallala Formation, which crops out in the Mescalero Ridge, a prominent landform seen near Maljamar, approximately 3.25 miles northeast of the Plant (Nicholson and Clebsh, 1961).

The anticipated vertical and measured depths to formations tops and kick-off point (KOP) are shown on Table 1. Depths are shown as vertical depths and as measured depths since AGI #2 will be drilled vertically to a kick-off point depth at approximately 6600'. Starting at approximately 6,600', the borehole angle will be built to approximately 37.4° for a total vertical section of approximately 2,532' and a total measured depth (TMD) of 11,129' with a total vertical depth (TVD) of 10,300' (Table 1). All depths are estimated depths and are subject to change based on geological information obtained at the time of drilling.

TABLE 1
Depths to Formation Tops
and Other Important and Relevant Depths

Formation	Vertical Depth to Top (ft)	Measured Depth to Top (ft)	Horizontal Distance From SPUD Location (ft)	Resource
Alluvium/Ogallala	0	0	0	Fresh Water
Dockum/Rustler	200	200	0	Freshwater
Yates	2,067	2,067	0	None
Seven Rivers	2,207	2,207	0	Oil/Gas
Queen	3,176	3,176	0	Oil/Gas
Grayburg	3,537	3,537	0	Oil/Gas
San Andres	3,931	3,931	0	Oil/Gas
Glorieta	5,571	5,571	0	Oil/Gas
Yeso	6,300	6,300	0	Oil/Gas
Kick-Off Point	***6,600***	***6,600***	0	NA
Tubbs	7,036	7,047	86	Oil/Gas
Abo	7,667	7,815	519	Oil/Gas
Center of Cement Diverter Tool	**9,137**	**9,665**	**1,643**	**NA**
Lower Leonard	9,206	9,752	1,695	Barren
Top of CRA	**9,400**	**9,896**	**1,800**	**NA**
Packer Set Depth	**9,600**	**10,248**	**1,997**	**NA**
Top of Wolfcamp	9,648	10,308	2033	Locally Barren
Bottom of CRA	**9,662**	**10,327**	**2044**	**NA**
Top Perf	**9,745**	**10,430**	**2,107**	**NA**
Bottom Perf	**10,230**	**11,041**	**2,478**	**NA**
Cisco	10,238	11,051	2,484	Locally Barren
PBTD	**10,260**	**11,079**	**2,501**	**NA**
Total Depth	**10,300**	**11,129**	**2,532**	**NA**

Water Wells and Fresh Water Resources in the Vicinity

The only significant aquifer in the area is the Pliocene Ogallala Formation, which crops out in the Mescalero Ridge, a prominent landform seen near Maljamar, approximately 3.25 miles northeast of the Plant.

One water well is reported within one mile of the Plant, with a total depth of 158' (Figure 2). The nearest well for which groundwater analysis exists is in Section 3, T17S, R32E, approximately 3 miles north of the plant. This well is completed in the Ogallala Formation, and has a Total Dissolved Solids of approximately 500 mg/L. There are no reported natural bodies of surface water within 5 miles of the Plant; however, there is an artificial pond built by the BLM that uses groundwater to fill the pond for nature preservation and recreation that is located approximately one mile to the east of the plant.

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

A summary of potential oil and gas bearing 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 ½-mile and two miles (Figures 8 & 9 and Attachment 1). There are 805 recorded wells within two miles of the Plant, of which 288 are active and 163 are listed as plugged and abandoned, and 185 are listed as not completed and there are two wells that do not have a status. There are 56 wells that are within ½-mile of the injection interval surface location, of which 36 are active and 7 are plugged and abandoned. These wells are shown in Figure 8, Attachment 1, and Table 2.

A review of the available NMOCD data regarding the wells within ½- mile of the proposed AGI well shows that of the 56 total wells, only 2 intersect and/or penetrate the proposed injection zone in the Wolfcamp (Table 2). All reported depths are vertical depths. Of the total 56 wells, 32 are less than 6,000' deep. These wells are or were targeted into the Grayburg/San Andres formations. An additional 24 wells are drilled between 6,000' and 8,000', targeting the Yeso formations. All of these wells' total depths are well above the Wolfcamp, which lies from 9,650' to 10,240' TVD in this area. Zones which contain potentially economic minerals or oil and gas in the area of review include: San Andres, Grayburg, Glorieta/Paddock and Abo Formations above the targeted injection zone and the Cisco, Strawn, Morrow and Devonian below the targeted injection zone.

Maljamar AGI #2 is to be completed in the same formation as Maljamar AGI #1 and the Cimarex Energy Company "Pearsall Federal SWD #1" water disposal well (SW / NW 28 – 17S – 32E). There were no indications of recoverable oil and gas observed during geological evaluations conducted during drilling, mud logging, e-logging, or testing Maljamar AGI #1 or the Pearsall well, both of which are just outside ½ mile from the Maljamar AGI #2 injection zone. The formation fluid sample results for the sample collected from Maljamar AGI #1 did not indicate the presence of recoverable hydrocarbons (Attachment 6). The geology and hydrocarbon content is anticipated to be the same for Maljamar AGI #2 as it is for the nearby evaluated offset wells; however, the Wolfcamp shall be proved to be non-productive or non-commercial prior to completing this well for injection.

Status of Wolfcamp-Penetrating Wells Within One-Mile

As shown in Table 2 in red, there is only one (1) well penetrating the Wolfcamp "deep wells" in the ½ mile radius area of review. Information on the one well in the ½-mile area of review includes total depth, production or injection interval and current status and is found in Attachment 1. Maljamar AGI #1 is not

included on the list of penetrating wells because the Maljamar AGI #1 injection zone is over ½-mile away from Maljamar AGI #2 injection zone location. Maljamar AGI #2 is to be drilled directionally at an angle of 37.4° that places its injection zone approximately ½ mile west of the Maljamar AGI #1 injection location.

A review of the available data on Queen B 036 (also known as MCA Unit #133) is shown in Table 2 and in Attachment 1. **Queen B 036 well was plugged.** Plugging reports for Queen B 036/MCA Unit #133 are included in Attachment 3.

TABLE 2
Wells Within the ½ Mile Radius Area of Review
That Penetrate the AGI #2 Injection Depths

Map ID	API	OPERATOR	Well Name	Status	Well Type	Production Formation	TD	Miles
7	30-025-00751	CONOCOPHILLIPS COMPANY	QUEEN B 036	Plugged	Oil	P&A	10005	0.17

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 Maljamar AGI #2 injection well has been performed. The investigation included the analysis of available geologic data and hydrogeological 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 8,000 vertical feet from fresh water-bearing zones.

Geolex's analysis of the impact of injection of TAG from the proposed Maljamar AGI #2 completed in the Wolfcamp porosity zones would not negatively impact the production of any economic hydrocarbons within a one-mile radius of the Maljamar AGI #2 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 Wolfcamp structure. Any injected fluid would be confined to an area significantly less than a one-mile radius away from the Maljamar AGI #2, and would be unlikely to break through to any producing wells updip of the site.

III. PRESSURE CONTROL

A 2,000 psi annular preventer with 5,000 psi HCR valve will be installed on the 20" surface casing for drilling the 17½", 1st intermediate hole. The BOP for the 12¼", 2nd intermediate hole will consist of a 13⅝" x 5,000 psi dual ram BOPE with mud cross, choke manifold, chokes and hydril per Figure 3 (5,000 psi WP). The BOPE when installed on the 13⅝" intermediate casing spool will consist of a 13⅝" x 5,000 psi annular, pipe and blind rams with choke manifold and chokes as in Figure 3 and will be tested to 300 psig and 3,000 psig. These tests will be performed upon installation, after any component changes and as required by well conditions. The BOPE will be tested to 300 psi and 5,000 psi upon installation to the 9⅝" intermediate casing; the BOPE will be retested within 500' of the top of the Wolfcamp formation if the time between setting the 9⅝" intermediate casing and reaching this depth exceeds 20 days. A function test to insure that the preventers are operating correctly will be performed on each trip.

IV. CASING

The casing specifications for Maljamar AGI #2 were specially developed to be more resistant to the anticipated TAG stream. There are two lines of defense against TAG corrosion. The first line of defense is provided by approximately 430'of corrosion resistant alloy (CRA) casing surrounded with TAG resistant cement (Thermalock) (Tables 3, 4, and 5)(Figure 4). The second line of defense against corrosion is the 300' of CRA (G3-110 or equivalent) 2⅞" tubing placed directly above the packer. Both of these material upgrades will assist in reducing corrosion, improve the reliability of operations and increase the life of the wellbore.

TABLE 3
Casing Design Specifications

TYPE	COLLAR TYPE	INTERVAL (MD)	HOLE SIZE	PURPOSE	CONDITION
30", 99#/ft	Welded	0' – 40'	36"	Conductor	Contractor Discretion
20", 94#/ft, J-55	BTC	0' – 890'	26"	Surface	New
13⅜", 61#/ft, J-55	BTC	0' – 2,550'	17½"	1st Intermediate	New
9⅝", 40#/ft, HCL-80	LTC	0' – 6,500'	12¼"	2nd Intermediate	New
7", 29#/ft, L-80	LTC	0' – 9,896' 10,327' – 11,129'	8¾"	Production	New
7", 32#/ft, CRA G3-110 or equivalent	Premium Connection	9,896' – 10,327'	8¾"	Production	New

The design criteria and casing loading assumptions are shown in Table 4 and discussed below for each casing string.

TABLE 4
Casing Design Safety Factors

TYPE	TENSION	COLLAPSE	BURST
20", 94#/ft, J-55	9.36	1.20	1.92
13⅜", 61#/ft, J-55	3.83	1.14	1.31
9⅝", 40#/ft, HCL-80	3.32	1.42	1.46
7", 29#/ft, L-80	1.97	1.41	2.07

The surface casing design criteria and assumptions are as follows:

SURFACE CASING – (20")

Tension A 1.8 design factor calculating the weight of the casing in air.

Collapse A 1.125 design factor with full internal evacuation and a collapse force in the annulus equal to the mud gradient in which the casing will be run (0.49 psi/ft).

Burst A 1.1 design factor with a surface pressure equal to the fracture gradient at setting depth. Internal burst force at the shoe will be cement hydrostatic pressure at that depth. The effects of tension on burst will not be utilized.

The design criteria and casing load assumptions for the intermediate string are as follows:

1st INTERMEDIATE CASING – (13⅜")

Tension A 1.8 design factor calculating the weight of the casing in air.

Collapse A 1.125 design factor with full internal evacuation and a collapse force in the annulus equal to the mud gradient in which the casing will be run (0.53 psi/ft).

Burst A 1.1 design factor with a surface pressure equal to the fracture gradient at setting depth. Internal burst force at the shoe will be cement hydrostatic pressure at that depth. The effects of tension on burst will not be utilized.

The design criteria and casing load assumptions for the intermediate string are as follows:

2nd INTERMEDIATE CASING – (9⅝")

Tension A 1.8 design factor calculating the weight of the casing in air.

Collapse A 1.125 design factor with full internal evacuation and a collapse force equal to the mud gradient in which the casing will be run (0.47 psi/ft).

Burst A 1.1 design factor with a surface pressure equal to the fracture gradient at setting depth. Internal burst force at the shoe will be cement hydrostatic pressure at that depth. The effects of tension on burst will not be utilized.

The design criteria and casing load assumptions for the production casing are as follows:

PRODUCTION CASING – (7") (Even though section from 9,925' – 10,226' is G3-110, 32#/ft or equivalent CRA with higher strength, the entire string is assumed to be L-80 29#/ft)

Tension A 1.8 design factor calculating the weight of the casing in air.

Collapse A 1.125 design factor with full internal evacuation and a collapse force equal to the mud gradient in which the casing will be run (0.48 psi/ft).

Burst A 1.1 design factor with a surface pressure equal to the fracture gradient at setting depth. Internal burst force at the shoe will be cement hydrostatic pressure at that depth. The effects of tension on burst will not be utilized.

The Well Design Schematic for AGI #2 is included as Figure 4.

V. CEMENT

The borehole for the surface casing will be drilled with a 26" bit to a depth of approximately 890', and 20", 94.0 ppf, J-55, BTC casing will be installed and cemented to the surface with approximately 1,730 sacks of cement (or amount adequate to circulate the cement to the surface). The borehole for the 1st intermediate casing will be drilled with a 17½" bit to a depth of approximately 2,550', and 13⅜", 61.0 ppf, J-55, BTC casing will be installed and cemented to the surface with approximately 1,800 sacks of cement (or amount adequate to circulate the cement to the surface). The 2nd intermediate hole will be drilled with a 12¼" bit to a depth of approximately 6,500' and 9⅝", 40.0 ppf, HCL-80, LTC casing string will be run and cemented to surface with approximately 1,000 sacks of cement or the amount adequate to circulate the cement to the surface (Table 5). Visual inspections of cement returns to the surface will be noted in each casing job. Casing and cement integrity will be demonstrated by pressure-testing after each cement job.

The cementing of the production string will be accomplished in two stages (Table 5). The first stage will seal the annular space from total depth (~11,129') to a level about 200' above the upper most Corrosion Resistant Alloy joint where the cement diverter tool is located at 9,665' (MD). This stage will employ acid-resistant cement (Thermalock™ or equivalent). For the second stage, a DV Tool previously inserted in the casing (at ~9,665') will be used to pump the lead cement to the surface. The lead cement (EconoCem™ - H or equivalent) will be followed with Class H tail cement (CorrosaCem™ or equivalent). To help achieve good cement bonding and filling the pipe-hole annulus throughout the inclined wellbore section, at least one centralizer suitable for horizontal wells will be placed on each joint of casing in the inclined section.

TABLE 5
Cement Program Design Specifications

INTERVAL	AMOUNT (sx)	FEET	EXCESS	TYPE	ADDITIVES	GALS/SX	PPG	FT³/SX
Surface	825	590	100%		Poly-E-Flake	9.83	12.9	1.83
	625	890	100%	Class C (Tail)	1% CaCl	6.39	14.8	1.34
1st Intermediate	1,385	890	100%	Class C (Lead)	5% Salt	10.52	12.7	1.94
	475	2,550	100%	Class C (Tail)		6.34	14.8	1.33
2nd Intermediate	1,350	2,500	50%	Class C (Lead)		13.93	11.9	2.44
	400	6,400	50%	Class C (Tail)		5.4	14.4	1.22
Production (Stage 1)	400	850	25%	ThermaLock (Tail)		3.32	15.5	0.87
Production (Stage 2)	650	9,265	25%	EconoCem (Lead) Class H	Poly-E-Flake	14.39	11.8	2.53
Production (Stage 2)	100	1,000	25%	CorrosaCem (Tail) Class H		4.78	14.8	1.14

VI. CIRCULATING MEDIUM (MUD PROGRAM)

A closed loop system for the handling of drilling fluids and cuttings will be utilized in the drilling of this well (Figure 6). The C-144 describing this system is included as Attachment 2 to this drilling plan.

The viscosity may be increased for logging and hole conditioning purposes. However, lessons learned from the installation of Maljamar AGI # 1 indicate the mud weight should be monitored carefully once deeper than 5,000' due to differential pressures that can cause the drill stem to stick at mud weights above 9 ppg (Table 6).

TABLE 6
Mud Program Specifications

DEPTH (TMD)	MUD TYPE	WEIGHT	FV	PV	YP	FL	pH
0' – 890'	FW Spud Mud	8.4 – 8.6	30-32	1-6	1-6	NC	8.8-9.4
890' – 2,550'	Brine	10.0	29-30	1-3	1-3	NC	9.0-10.5
2,550'– 6,500'	FW/ Cut Brine	8.6 – 9.4	29-30	1-3	1-3	NC	9.0-10.5
6,500'–11,129'	FW/ Cut Brine	8.8 – 9.4	38-42	10-20	10-20	NC	9.0-10.5

VII. TESTING, CORING, LOGGING

Mud logging will commence at approximately 4,000'. The proposed open hole logging suite for the TD run consists of a Dual Induction, Density-Neutron-Gamma Ray Porosity and Fracture Matrix Identification (FMI) log in the lower Leonard and the Wolfcamp and a portion of the caprock and basal seal formations. Conventional coring and rotary sidewall coring will not be performed since cores from Maljamar AGI #1 have provided the necessary information to evaluate the caprock and proposed injection zone intervals.

A 360° cement bond log will be run to ascertain the quality of the cement bond of each casing string. It is important that a good bond be established around the injection interval as well as below the corrosion resistant casing to assure that acid gas mixed with formation water does not travel up the outside of the casing and negatively impact its integrity. Prior to perforating the injection intervals a casing evaluation log of the 7" production casing will be run to provide a baseline of its mechanical condition.

A comprehensive injection and step rate testing program will be conducted after perforation in order to establish the injection parameters for final design of the surface facilities. A separate NOI will be submitted to and approved by the BLM prior to performing this testing program.

VIII. PRESSURES, TEMPERATURES, LOST CIRCULATION ZONES, H_2S

The conditions in the reservoir are anticipated to be a reservoir pressure of approximately 4,800 psi with a bottom hole temperature of approximately 132 ° F. There are no anticipated lost circulations zones or H_2S bearing formations in the area to the total proposed depth. However, H_2S alarms were triggered

numerous times while drilling AGI #1 at depths deeper than 5,000' and similar encounters should be expected and planned for with AGI #2 (Attachment 5: H2S Contingency Plan).

IX. OTHER ASPECTS OF THE PROPOSAL

Additional information relative to the proposed completion of the proposed Maljamar 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. No interim remediation is required and is discussed in Attachment 4, 12-Point SUPO.

Additional Completion Information

A NOI sundry providing the procedure to complete this well in compliance with BLM and NMOCD requirements will be submitted and approved prior to commencing completion work.

Once the integrity of the cement job has been determined, the selected injection intervals will be perforated with approximately six shots per foot. At this location, a total up to 650' of target areas may be perforated. 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 10,250' (MD) of 2⅞", 6.5 ppf, L80 premium thread tubing with corrosion resistant alloy (G3) at bottom 300' and SSSV will be run into the well. A ¼" Inconel steel line will connect the SSSV to a hydraulic control panel at the surface.

The National Association of Corrosion Engineers (NACE) issues guidelines for metals exposed to various corrosive gases like those to be introduced into 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 SSSV and packer need to be constructed of Inconel 625, 925 or equivalent. The casing installed across the injection packer setting depth will be made of a CRA meeting or exceeding this NACE recommendation.

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 Rule 11 Plan will be finalized 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 Maljamar AGI #2 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 7, and the results of the calculations are plotted on Figure 7.

TABLE 7
Calculations for Area of Injection at Estimated Rate of 2.0 MMSCFD
(Anticipated Normal Injection Rate)

PROPOSED INJECTION STREAM CHARACTERISTICS

TAG	H_2S	CO_2	H_2S	CO_2	TAG
Gas vol MMSCFD	conc. mol %	conc. mol %	inject rate lb/day	inject rate lb/day	inject rate lb/day
3.5	30.00	70.00	99669	300312	399981

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	2800	3.5	70:30	399981	839.00	0.79	7.01	7633	1359

CONDITIONS AT BOTTOM OF WELL

Injection Zone Conditions					TAG				
Temp F	Pressure[3] psi	$Depth_{top}$ ft	$Depth_{bottom}$ ft	Ave. Thick. ft	Density[1] kg/m^3	SG[2]	density lb/gal	volume ft^3	volume bbl
132	5620	9745	10230	137	903.00	0.93	7.54	7092	1263

CONDITIONS IN RESERVOIR AT EQUILIBRIUM

Injection Reservoir Conditions					TAG				
Temp[5] F	Pressure[3] psi	Ave. Por. %	Swr	Porosity[6] ft	Density[1] kg/m^3	SG[2]	density lb/gal	volume ft^3	volume bbl
132	4800	10.3	0.45	7.76	868.00	0.89	7.25	7378	1314

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

CALCULATION OF MAXIMUM INJECTION PRESSURE LIMITATION

SG_{TAG}	0.86
$PG = 0.2 + 0.433\ (1.04\text{-}SG_{TAG})$	0.278 psi/ft
$IP_{max} = PG * Depth$	2709 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)	7378 ft^3/day
Cubic Feet/30 years	70064003 ft^3/30 years
Area = V/Net Porosity (ft)	9028866 ft^2/30 years
Area = V/Net Porosity (ft) (43560 ft^2/ac	207.3 acres/30 years
Radius =	1695 ft
	0.32 miles

[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 ave. 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

Each standard million cubic feet (MMSCF) of TAG at the surface will be compressed to approximately 1,488 barrels of supercritical fluid at reservoir pressures and temperature. Hence, a 30-year lifetime of injection will result in 15.8 million barrels in the reservoir per MMSCFD of TAG. As shown in the Table 7, the Wolfcamp alone is capable of holding up to 1.5 times the anticipated injection rate for 30 years.

As shown in Figure 7, the proposed maximum injection rate of 3.5 MMSCFD will generate a "footprint" with an area of approximately 207 acres after considering the effect of irreducible water. This footprint will not impact any of the nearby active wells.

TABLE 8
Calculated Volumes and Areas of TAG in Wolfcamp Reservoir

Daily TAG Injection Volume (MMSCF)	Daily Volume of TAG in Reservoir (BBLS/D)	Total TAG Volume in Reservoir after 30 Years (BBLS)	Calculated Reservoir Volume in Wolfcamp (BBLS)	Percentage of Reservoir Occupied	Calculated Radii of Affected Area of Reservoir (Miles)	Affected Area of Reservoir (Acres)
3.5	1,488	15.8 Million	24 Million	66 %	0.32	207

Formation Fluid Chemistry

Formation fluid chemistry for the Wolfcamp is available from two nearby wells: Baish A 012 (API # 3002520568) located in Sec. 21, T17S, R32E, approximately 1 mile southwest of the Frontier gas plant, Baish B 001 (API# 3002500637) located in Sec. 22, T17S, R32E, approximately 1.25 miles northeast of the Frontier gas plant, and the recent Maljamar AGI #1, located on the plant. Analyses show that the formation waters are sodium/chloride brines.

TABLE 9
Formation Fluid Chemistry for Nearby Offset Wells

Parameter	BAISH A 012	BAISH B 001	Maljamar AGI #1
Mg^{++}	972	680	401
Na^{+}	52,298	34,704	84,400
$CO_3^{=}$	ND	ND	ND
$HCO_3^{=}$	1,220	481	195
$SO_4^{=}$	4,400	3,900	3340
Cl^{-}	50,000	33,000	132,000
Fe (free)	11	14	ND
pH	7.6	7.4	7.70
$CaCO_3$	1.4	0.9	ND

Analyses show that the formation waters are sodium/chloride brines.

Frontier Energy Services

Lea County, NM (NAD 27)
Maljamar
Maljamar AGI 2

Wellbore #1

Plan: Plan #2

Sperry Drilling Services

Proposal Report

01 September, 2015

Well Coordinates: 660,255.80 N, 673,327.90 E (32° 48' 49.90" N, 103° 46' 09.00" W)
Ground Level: 4,019.00 usft

Local Coordinate Origin:	Centered on Well Maljamar AGI 2
Viewing Datum:	GL 4019.0' + 17.0' @ 4036.00usft (TBD)
TVDs to System:	N
North Reference:	Grid
Unit System:	API - US Survey Feet

Version: 5000.1 Build: 76

HALLIBURTON

Plan Report for Maljamar AGI 2 - Plan #2

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
860.00	0.00	0.00	860.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler										
890.00	0.00	0.00	890.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20" Csg.										
985.00	0.00	0.00	985.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T/Salt										
1,989.00	0.00	0.00	1,989.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tansil										
2,067.00	0.00	0.00	2,067.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yates										
2,207.00	0.00	0.00	2,207.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7R										
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13 3/8" Csg.										
3,176.00	0.00	0.00	3,176.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Queen										
3,537.00	0.00	0.00	3,537.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grayburg										
3,931.00	0.00	0.00	3,931.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
San Andres										
5,571.00	0.00	0.00	5,571.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Glorietta										
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yeso										
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8" Csg.										
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build @ 6600.00' MD - Dogleg = 5.00°/100'										
6,700.00	5.00	268.73	6,699.87	-0.10	-4.36	4.36	5.00	5.00	0.00	268.73
6,800.00	10.00	268.73	6,798.99	-0.38	-17.40	17.41	5.00	5.00	0.00	0.00
6,900.00	15.00	268.73	6,896.58	-0.86	-39.04	39.05	5.00	5.00	0.00	0.00
7,000.00	20.00	268.73	6,991.93	-1.53	-69.09	69.11	5.00	5.00	0.00	0.00
7,047.27	22.36	268.73	7,036.00	-1.90	-86.17	86.19	5.00	5.00	0.00	0.00
Tubbs										
7,100.00	25.00	268.73	7,084.28	-2.37	-107.34	107.36	5.00	5.00	0.00	0.00
7,200.00	30.00	268.73	7,172.96	-3.39	-153.49	153.52	5.00	5.00	0.00	0.00
7,238.54	31.93	268.73	7,206.00	-3.83	-173.31	173.35	5.00	5.00	0.00	0.00
L. Leonard										
7,300.00	35.00	268.73	7,257.27	-4.58	-207.19	207.24	5.00	5.00	0.00	0.00
7,347.81	37.39	268.73	7,295.85	-5.20	-235.41	235.47	5.00	5.00	0.00	0.00
End Build @ 7347.81' MD - Hold Angle @ 37.39°										
7,400.00	37.39	268.73	7,337.32	-5.90	-267.09	267.16	0.00	0.00	0.00	0.00
7,500.00	37.39	268.73	7,416.77	-7.24	-327.80	327.88	0.00	0.00	0.00	0.00
7,600.00	37.39	268.73	7,496.22	-8.58	-388.51	388.61	0.00	0.00	0.00	0.00
7,700.00	37.39	268.73	7,575.67	-9.92	-449.22	449.33	0.00	0.00	0.00	0.00
7,800.00	37.39	268.73	7,655.12	-11.26	-509.93	510.06	0.00	0.00	0.00	0.00
7,814.95	37.39	268.73	7,667.00	-11.46	-519.01	519.13	0.00	0.00	0.00	0.00
Abo										
7,900.00	37.39	268.73	7,734.57	-12.60	-570.64	570.78	0.00	0.00	0.00	0.00
8,000.00	37.39	268.73	7,814.03	-13.94	-631.35	631.51	0.00	0.00	0.00	0.00
8,100.00	37.39	268.73	7,893.48	-15.29	-692.06	692.23	0.00	0.00	0.00	0.00
8,200.00	37.39	268.73	7,972.93	-16.63	-752.77	752.95	0.00	0.00	0.00	0.00
8,300.00	37.39	268.73	8,052.38	-17.97	-813.48	813.68	0.00	0.00	0.00	0.00
8,400.00	37.39	268.73	8,131.83	-19.31	-874.19	874.40	0.00	0.00	0.00	0.00
8,500.00	37.39	268.73	8,211.28	-20.65	-934.90	935.13	0.00	0.00	0.00	0.00

Plan Report for Maljamar AGI 2 - Plan #2

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
8,600.00	37.39	268.73	8,290.74	-21.99	-995.61	995.85	0.00	0.00	0.00	0.00
8,700.00	37.39	268.73	8,370.19	-23.33	-1,056.32	1,056.58	0.00	0.00	0.00	0.00
8,800.00	37.39	268.73	8,449.64	-24.67	-1,117.03	1,117.30	0.00	0.00	0.00	0.00
8,900.00	37.39	268.73	8,529.09	-26.01	-1,177.74	1,178.02	0.00	0.00	0.00	0.00
9,000.00	37.39	268.73	8,608.54	-27.35	-1,238.45	1,238.75	0.00	0.00	0.00	0.00
9,100.00	37.39	268.73	8,687.99	-28.69	-1,299.16	1,299.47	0.00	0.00	0.00	0.00
9,200.00	37.39	268.73	8,767.45	-30.04	-1,359.87	1,360.20	0.00	0.00	0.00	0.00
9,300.00	37.39	268.73	8,846.90	-31.38	-1,420.58	1,420.92	0.00	0.00	0.00	0.00
9,400.00	37.39	268.73	8,926.35	-32.72	-1,481.28	1,481.65	0.00	0.00	0.00	0.00
9,500.00	37.39	268.73	9,005.80	-34.06	-1,541.99	1,542.37	0.00	0.00	0.00	0.00
9,600.00	37.39	268.73	9,085.25	-35.40	-1,602.70	1,603.09	0.00	0.00	0.00	0.00
9,700.00	37.39	268.73	9,164.70	-36.74	-1,663.41	1,663.82	0.00	0.00	0.00	0.00
9,800.00	37.39	268.73	9,244.16	-38.08	-1,724.12	1,724.54	0.00	0.00	0.00	0.00
9,900.00	37.39	268.73	9,323.61	-39.42	-1,784.83	1,785.27	0.00	0.00	0.00	0.00
10,000.00	37.39	268.73	9,403.06	-40.76	-1,845.54	1,845.99	0.00	0.00	0.00	0.00
10,100.00	37.39	268.73	9,482.51	-42.10	-1,906.25	1,906.72	0.00	0.00	0.00	0.00
10,200.00	37.39	268.73	9,561.96	-43.44	-1,966.96	1,967.44	0.00	0.00	0.00	0.00
10,300.00	37.39	268.73	9,641.41	-44.79	-2,027.67	2,028.16	0.00	0.00	0.00	0.00
10,308.29	37.39	268.73	9,648.00	-44.90	-2,032.70	2,033.20	0.00	0.00	0.00	0.00
Wolfcamp										
10,400.00	37.39	268.73	9,720.87	-46.13	-2,088.38	2,088.89	0.00	0.00	0.00	0.00
10,500.00	37.39	268.73	9,800.32	-47.47	-2,149.09	2,149.61	0.00	0.00	0.00	0.00
10,600.00	37.39	268.73	9,879.77	-48.81	-2,209.80	2,210.34	0.00	0.00	0.00	0.00
10,700.00	37.39	268.73	9,959.22	-50.15	-2,270.51	2,271.06	0.00	0.00	0.00	0.00
10,800.00	37.39	268.73	10,038.67	-51.49	-2,331.22	2,331.79	0.00	0.00	0.00	0.00
10,900.00	37.39	268.73	10,118.12	-52.83	-2,391.93	2,392.51	0.00	0.00	0.00	0.00
11,000.00	37.39	268.73	10,197.57	-54.17	-2,452.64	2,453.23	0.00	0.00	0.00	0.00
11,050.88	37.39	268.73	10,238.00	-54.85	-2,483.53	2,484.13	0.00	0.00	0.00	0.00
Cisco										
11,100.00	37.39	268.73	10,277.03	-55.51	-2,513.35	2,513.96	0.00	0.00	0.00	0.00
11,128.92	37.39	268.73	10,300.00	-55.90	-2,530.90	2,531.52	0.00	0.00	0.00	0.00
TD @ 11128.92' MD - Maljamar AGI 2 BHL										

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
6,600.00	6,600.00	0.00	0.00	Start Build @ 6600.00' MD
6,600.00	6,600.00	0.00	0.00	Dogleg = 5.00°/100'
7,347.81	7,295.85	-5.20	-235.41	End Build @ 7347.81' MD
7,347.81	7,295.85	-5.20	-235.41	Hold Angle @ 37.39°
11,128.92	10,300.00	-55.90	-2,530.90	TD @ 11128.92' MD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (usft)	Origin +E/-W (usft)	Start TVD (usft)
TD	No Target (Freehand)	268.73	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	11,128.92	Plan #2	MWD

Plan Report for Maljamar AGI 2 - Plan #2

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
890.00	890.00	20" Csg.	20	26
2,500.00	2,500.00	13 3/8" Csg.	13-3/8	17-1/2
6,400.00	6,400.00	9 5/8" Csg.	9-5/8	12-1/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
860.00	860.00	Rustler		0.00	268.66
985.00	985.00	T/Salt		0.00	268.66
1,989.00	1,989.00	Tansil		0.00	268.66
2,067.00	2,067.00	Yates		0.00	268.66
2,207.00	2,207.00	7R		0.00	268.66
3,176.00	3,176.00	Queen		0.00	268.66
3,537.00	3,537.00	Grayburg		0.00	268.66
3,931.00	3,931.00	San Andres		0.00	268.66
5,571.00	5,571.00	Glorietta		0.00	268.66
6,300.00	6,300.00	Yeso		0.00	268.66
7,047.27	7,036.00	Tubbs		0.00	268.66
7,238.54	7,206.00	L. Leonard		0.00	268.66
7,814.95	7,667.00	Abo		0.00	268.66
10,308.29	9,648.00	Wolfcamp		0.00	268.66
11,050.88	10,238.00	Cisco		0.00	268.66

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
Maljamar AGI 2 BHL	10,300.00	-55.90	-2,530.90	Point

North Reference Sheet for Maljamar - Maljamar AGI 2 - Wellbore #1

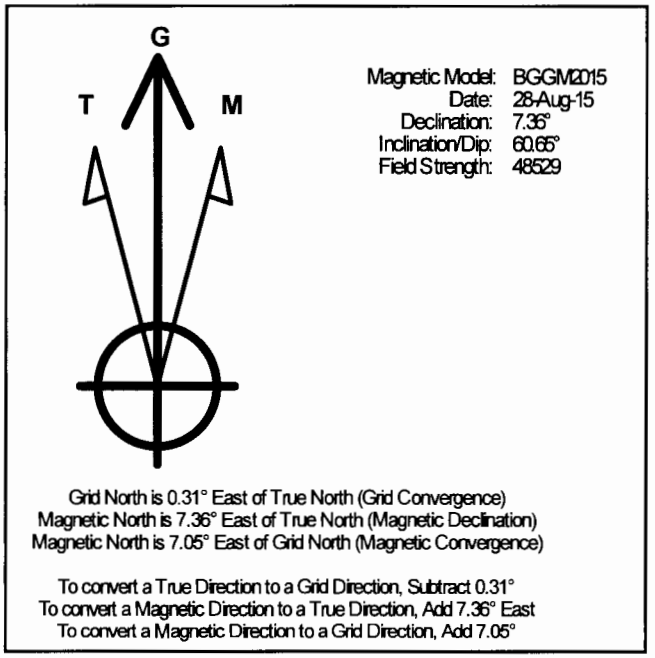
All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.
Vertical Depths are relative to GL 4019.0' + 17.0' @ 4036.00usft (TBD). Northing and Easting are relative to Maljamar AGI 2
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 3001 using datum NAD 1927 (NADCON CONUS), ellipsoid Clarke 1866

Projection method is Transverse Mercator (Gauss-Kruger)
Central Meridian is -104.33°, Longitude Origin:0° 0' 0.000 E°, Latitude Origin:0° 0' 0.000 N°
False Easting: 500,000.00usft, False Northing: 0.00usft, Scale Reduction: 0.99994349

Grid Coordinates of Well: 660,255.80 usft N, 673,327.90 usft E
Geographical Coordinates of Well: 32° 48' 49.90" N, 103° 46' 09.00" W
Grid Convergence at Surface is: 0.31°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,128.92usft
the Bottom Hole Displacement is 2,531.52usft in the Direction of 268.73° (Grid).

Magnetic Convergence at surface is: -7.05° (28 August 2015, , BGGM2015)



CAMERON

QUOTATION

Surface System
Cameron Intl Corp
CAM SURFACE SYS HQ - HOUSTON HQ
CAMERON
3505 W SAM HOUSTON PKWY NORTH
HOUSTON TX 77043
USA

Document number : **US10/HT11/1293839-C**
Page 1 of 11
Date Issued : OCT 02 2015
Payment Terms : Net 30 Days
Terms and conditions : As Attached/Included
Freight Terms : FOB Ship Pt-PPD/Add-No Pro
EX-WORKS - ODESSA, TX.

Sold to : 21005905
RED WILLOW PROD CO
P.O. Box 369
IGNACIO CO 81137
USA

Ship To : 21005905
RED WILLOW PROD CO
14933 HWY 172
IGNACIO CO 81137
USA

Inside Sales Contact: Chelsea Irwin/713-469-7297 Email: Chelsea.Irwin@c-a-m.com
Outside Sales Contact: Christopher Knott/903-235-9239 Email: Christopher.Knott@c-a-m.com

Customer Reference : Maljamar Gas Plant AGI #2
Valid From : OCT 02 2015
Valid To : NOV 02 2015

WE APPRECIATE THE OPPORTUNITY OF SUBMITTING THIS QUOTATION FOR YOUR REQUIREMENT. SHOULD YOU REQUIRE ANY ADDITIONAL INFORMATION, PLEASE DO NOT HESITATE TO CONTACT US.

CASING PROGRAM:
(30") X (20") X 13-3/8" X 9-5/8" X 7" X 2-7/8"
HH TRIM TREE

Item	Material Number Description	Extended Weight	Qty	UM	Unit Net Price USD	Extended Price USD
	Section A - Casing Head Assy					
10	2064839-01-01 ASSY; CSG HD, L/M 'IC-2' 20-3/4 API 3K FLG TOP X CIW 20" CSG SOW BTM PREP W/ TWO 2" LPO; API 6A 20TH ED; W/ 32" BASE PLATE & EIGHT 2" THK GUSSETS W/ FULL PENETRATION WELDS; API 6A 20TH ED;TEMP CL. U; MATL CL. DD-NL,EE-NL; PSL-1; (MAX LOAD: 1,250,000 LBS)	2,100 lb	1	EA	12,719.27	12,719.27
20	2168084-10-31 VALVE, BALL, FLOATING, 2 IN (50 MM) X 1-1/2 IN (40 MM), B136-CS-43-CS FIGURE NUMBER, THREADED END (FXF), WKM, 310C5, 3000 PSI (206 BAR) MOP, 2719 PSI (187 BAR) MOP AT MAX TEMP, CARBON STEEL BODY, CARBON STEEL/CHR PLATED BALL, CARBON STEEL/ZINC PLATED STEM, ACETAL PLASTIC SEAT, WRENCH WITH LOCK DEVICE LESS LOCK, API 607, B16.34, -20 F (-29 C) - +220 F (+104 C), ADJUSTABLE STEM PACKING	13 lb	1	EA	76.56	76.56
30	021013-12	4 lb	1	EA	18.09	18.09

Item	Material Number Description	Extended Weight	Qty	UM	Unit Net Price USD	Extended Price USD
	NIPPLE, API 2 IN LP, 6.00 IN LG SEAMLESS 5L GR B, 9.03 LB					
40	007481-01 BULL PLUG, 2" LP, TAPPED 1/2" NPT, 3.75" LONG.	3 lb	1	EA	20.85	20.85
50	2738068-02 FITTING, VENT STRAIGHT 1/2 NPT SAFTY VENT, 4140 NACE / ZN PL TUNGSTEN CARBIDE BALL, 10,000 PSI MAX	0 kg	1	EA	10.88	10.88
	Total Section A - Casing Head Assy					**12,845.65**
	Section B - Casing Spool Assy					
60	2162267-01-01 ASSY. CSG SPOOL, IC-2, 20-3/4" 3K X 13-5/8 5K W/TWO 2-1/16" 5K S.S.O., 'X' BTM PREP. ; API 6A 20TH ED.; TEMP CL. P,U ; MAT'L CL. AA, BB, DD-NL, EE-NL ; PSL-1 ; PR-2	2,450 lb	1	EA	12,113.68	12,113.68
70	Y17706-02300021 SECONDARY SEAL R-2 20" X 13-3/8"	32 lb	1	EA	2,934.19	2,934.19
80	2148451-31-22 GATE VALVE ASSEMBLY, MANUAL, MODEL M POW-R-SEAL, 2-1/16 BORE, 5,000 PSI PSI, 2-1/16 API FLANGE X FLANGE, API 6A 20TH EDITION, TEMPERATURE CLASS P+U, MATERIAL CLASS AA, PSL-1, PR-1	176 lb	1	EA	822.57	822.57
90	2222164-02-01 VALVE REMOVAL PLUG, 2-1/16" 10K MAX WP, W/1-1/2" VEE TUBING THD, API 6A 20TH ED/ISO 10423, MATL CLASS DD-NL	0 kg	1	EA	73.71	73.71
100	142362-01-03-02 FLANGE, COMPANION, 2-1/16"	24 kg	2	EA	59.97	119.94

Item	Material Number Description	Extended Weight	Qty	UM	Unit Net Price USD	Extended Price USD
	API 5000 X 2" API LP THREAD, API 6A 20TH EDITION, T/C: U, M/C: DD-NL, PSL 2					
110	007481-01 BULL PLUG, 2" LP, TAPPED 1/2" NPT, 3.75" LONG.	6 lb	2	EA	20.85	41.70
120	2738068-02 FITTING, VENT STRAIGHT 1/2 NPT SAFTY VENT, 4140 NACE / ZN PL TUNGSTEN CARBIDE BALL, 10,000 PSI MAX	0 kg	2	EA	10.88	21.76
130	702002-02-42 RING GASKET, API TYPE RX-24, LOW C STL, PLATED, API 6A PSL 4, API MONOGRAM	4 lb	3	EA	5.75	17.25
140	Y51201-20220301 STUD W/TWO NUTS, 7/8" X 6" LG, B7/2H, PLATED	12 lb	8	EA	3.53	28.24
150	Y15001-23300101 CASING HANGER, 1C-2, 20" X 13-3/8"; API 6A 20TH ED; T/C S; M/C AA,DD-NL; PSL-3; PR2; GR3 (-20F TO 150F MAX) (CARBOXYLATED NITRILE 70/80 DURO)	432 lb	1	EA	7,356.05	7,356.05
160	702002-07-42 RING GASKET, API TYPE RX-74 LOW C STL PLATED /API 6A PSL 4 API MONOGRAM	21 lb	1	EA	125.47	125.47
170	621650-18 ASSY: STUD & NUTS, 2.000 X 14.500" LONG (B7 & 2H), ZN PL YEL CHROMATE	360 lb	20	EA	98.29	1,965.80
	Total Section B - Casing Spool Assy					**25,620.36**

Section C - Casing Spool Assy

Item	Material Number Description	Extended Weight	Qty	UM	Unit Net Price USD	Extended Price USD
180	2162248-03-01 ASSY, SPOOL, TYPE 'IC-2-BP', 13-5/8 API 5K BX-160 X 11 API 5K R-54, W/TWO 2-1/16 API 5K R-24 V.R. THD STUDDED OUTLETS, W/ NX BUSHING PREP. API 6A 20TH ED; T/C: P+U; M/C: DD-NL, EE-NL; PSL-1	1,690 lb	1	EA	8,037.16	8,037.16
190	640518-10 'NX' BUSHING, 13-5/8 NOM X 9-5/8 OD CSG, STD OR NACE SERVICE	16 lb	1	EA	851.48	851.48
200	2148451-31-02 GATE VALVE ASSEMBLY, MANUAL, MODEL M POW-R-SEAL, 2-1/16 BORE, 5,000 PSI PSI, 2-1/16 API FLANGE X FLANGE, API 6A 20TH EDITION, TEMPERATURE CLASS L+U, MATERIAL CLASS DD-NL, PSL-2, PR-2	176 lb	1	EA	1,115.07	1,115.07
210	2222164-02-01 VALVE REMOVAL PLUG, 2-1/16" 10K MAX WP, W/1-1/2" VEE TUBING THD, API 6A 20TH ED/ISO 10423, MATL CLASS DD-NL	0 kg	1	EA	73.71	73.71
220	142362-01-03-02 FLANGE, COMPANION, 2-1/16" API 5000 X 2" API LP THREAD, API 6A 20TH EDITION, T/C: U, M/C: DD-NL, PSL 2	24 kg	2	EA	59.97	119.94
230	007481-01 BULL PLUG, 2" LP, TAPPED 1/2" NPT, 3.75" LONG.	6 lb	2	EA	20.85	41.70
240	2738068-02 FITTING, VENT STRAIGHT 1/2 NPT SAFTY VENT, 4140 NACE / ZN PL TUNGSTEN CARBIDE BALL, 10,000 PSI MAX	0 kg	2	EA	10.88	21.76
250	702002-02-42 RING GASKET, API TYPE RX-24, LOW C STL, PLATED, API 6A PSL 4, API	4 lb	3	EA	5.75	17.25

Item	Material Number Description	Extended Weight	Qty	UM	Unit Net Price USD	Extended Price USD
	MONOGRAM					
260	Y51201-20220301 STUD W/TWO NUTS, 7/8" X 6" LG, B7/2H, PLATED	12 lb	8	EA	3.53	28.24
270	Y15000-23300001 CASING HANGER, IC-2, 13-5/8" X 9-5/8", API 6A 20TH ED., TEMP CLASS S, MATL CLASS AA,DD-NL, PSL 3, PR 2, GROUP 3. (-20F TO 150F MAX) (CARBOXYLATED NITRILE 70/80 DURO)	44 kg	1	EA	3,228.15	3,228.15
280	702003-16-02 RING GASKET, API TYPE BX-160, LOW C STL, PLATED, API 6A PSL 4, API MONOGRAM.	6 lb	1	EA	34.11	34.11
290	621650-11 ASSY, STUDS & NUTS, 1.625 X 12.750" LONG (B7 & 2H)	224 lb	16	EA	17.77	284.32
	Total Section C - Casing Spool Assy					**13,852.89**
	Section D - Tubing Spool Assy					
300	2310133-01-01 ASSY, SPOOL; TYPE 'C'; 11 API 5K FLG BTM X 7-1/16 API 5K FLG TOP W/TWO 2-1/16 API 5K STUD'D OUTLETS W/ 2-1/16 API VR; W/ NX BTM PREP; API 6A 20TH EDITION; T/C: U; M/C: DD-NL; PSL-1; PR2 (1040 MATERIAL).	1,056 lb	1	EA	3,064.83	3,064.83
310	2161829-01-01 ASSY. 'NX' BUSHING NOM 11" X 7" OD CSG W/ INTEGRAL BIT GUIDE --STD OR NACE SERVICE--	32 lb	1	EA	331.44	331.44
320	2148451-31-02 GATE VALVE ASSEMBLY, MANUAL, MODEL M	176 lb	1	EA	1,115.07	1,115.07

Item	Material Number Description	Extended Weight	Qty	UM	Unit Net Price USD	Extended Price USD
	POW-R-SEAL, 2-1/16 BORE, 5,000 PSI PSI, 2-1/16 API FLANGE X FLANGE, API 6A 20TH EDITION, TEMPERATURE CLASS L+U, MATERIAL CLASS DD-NL, PSL-2, PR-2					
330	2222164-02-01 VALVE REMOVAL PLUG, 2-1/16" 10K MAX WP, W/1-1/2" VEE TUBING THD, API 6A 20TH ED/ISO 10423, MATL CLASS DD-NL	0 kg	1	EA	73.71	73.71
340	142362-01-03-02 FLANGE, COMPANION, 2-1/16" API 5000 X 2" API LP THREAD, API 6A 20TH EDITION, T/C: U, M/C: DD-NL, PSL 2	24 kg	2	EA	59.97	119.94
350	007481-01 BULL PLUG, 2" LP, TAPPED 1/2" NPT, 3.75" LONG.	6 lb	2	EA	20.85	41.70
360	2738068-02 FITTING, VENT STRAIGHT 1/2 NPT SAFTY VENT, 4140 NACE / ZN PL TUNGSTEN CARBIDE BALL, 10,000 PSI MAX	0 kg	2	EA	10.88	21.76
370	702002-02-42 RING GASKET, API TYPE RX-24, LOW C STL, PLATED, API 6A PSL 4, API MONOGRAM	4 lb	3	EA	5.75	17.25
380	Y51201-20220301 STUD W/TWO NUTS, 7/8" X 6" LG, B7/2H, PLATED	12 lb	8	EA	3.53	28.24
390	Y15001-21303801 CASING HANGER, IC-2, 11" X 7", API 6A 20TH ED., TEMP CLASS S, MATL CLASS AA,DD-NL, PSL 3, PR 2, GROUP 3. (-20F TO 150F MAX) (70 DURO SEAL)	33 kg	1	EA	835.25	835.25

Item	Material Number Description	Extended Weight	Qty	UM	Unit Net Price USD	Extended Price USD
400	702002-05-42 RING GASKET, API TYPE RX-54, LOW C, STL, PLATED, API 6A PSL 4, API MONOGRAM.	7 lb	1	EA	35.89	35.89
410	621650-14 ASSY, STUD & NUTS, 1.875 X 14.750" LONG (B7 & 2H)	180 lb	12	EA	27.93	335.16
	Total Section D - Tubing Spool Assy					**6,020.24**
	Section E - Acid Gas Injection Tree					
420	ASSY, DBL STD'D FLANGE ADAPTER, T-40-CL, 7-1/16 API 5K BTM X 2-9/16 API 5K TOP, W/ (6) 1/4 CONTROL LINES, ALLOY W/ 625 INLAY IN SEAL AREA, AND R-27 RING GROOVE AREA, API 6A 20TH ED, T/C: P+U; M/C: HH-NL; PSL-3, PR-2;	0 kg	1	EA	12,940.77	12,940.77
430	141552-31-03-03 ASSEMBLY, FLS MANUAL GATE VALVE, 2-9/16 API 5,000 FLG, 6A 20TH EDITION, TEMP CLASS K, MATERIALS CLASS HH-NL, PSL 3, PR2, 718 GATE WITH TUNGSTEN CARBIDE HARDFACE, 718 BOROFUSED STEM, STELLITE SEATS, 718 BONNET & 4130 BODY WITH 625 WELD CLAD	0 lb	3	EA	27,911.25	83,733.75
440	PARTSETUP 2218105-38-01 ASSY, STUDDED TEE, 2-9/16 API 5K R-27 STD'D RUN W/ 2-1/16 API 5K R-24 STD'D OUTLET, API 6A 20 TH ED, T/C: L+U, M/C: HH-NL, PSL 2, PR-2	0 kg	1	EA	12,650.80	12,650.80
450	PARTSETUP 156497-02-08-02 ASSY; FLANGE, BLIND 2-9/16 API 5K, W/ 1/2 NPT; API 6A; 20TH EDITION; T/C; L+U, M/C; HH-NL PSL-2	0 kg	1	EA	4,241.08	4,241.08

Item	Material Number Description	Extended Weight	Qty	UM	Unit Net Price USD	Extended Price USD
460	Y52100-00300551 PRESSURE GAUGE 0-5M 4-1/2" FACE SS TUBE & SOCKET NACE	1 lb	1	EA	102.11	102.11
470	007482-56 VALVE, NEEDLE, 1/2" NPT M/F, 10,000 PSI, SST, FOR HYD/AIR, FOR H2S SERVICE	2 lb	1	EA	144.21	144.21
480	702002-02-75 RING GASKET, API TYPE RX-27, OCTAGONAL, NICKEL ALLOY 825, UNS N08825, SILVER PLATED .0005 INCHES MAX THICKNESS, MAXIMUM HARDNESS 92 HRB, API 6A/ISO 10423, API MONOGRAM REQUIRED, MARKING AND PACKAGING REQUIREMENTS PER THE PURCHASE SPECIFICATION	8 lb	5	EA	174.40	872.00
490	Y51201-20321101 STUD W/TWO NUTS 1" X 6-1/2" LG B7/2 H BLACK	38 lb	16	EA	6.24	99.84
500	PARTSETUP 141551-31-01-03 GATE VALVE ASSEMBLY, MANUAL, MODEL FLS, 2-1/16, 5KSI, FLANGE X FLANGE, TEMPERATURE CLASS P+U, MATERIAL CLASS HH-NL, API 6A 20TH EDITION, PSL- 3, PR-2	0 kg	1	EA	21,102.29	21,102.29
510	ASSEMBLY, GATE VALVE WITH PNEUMATIC DIAPHRAGM ACTUATOR, 2-1/16 API 5,000 FLG, API 6A 20TH EDITION T/C: P+U, M/C: HH-NL, PSL 3, PR 1	0 kg	1	EA	30,618.67	30,618.67
530	PARTSETUP 702002-02-45 RING GASKET, API TYPE RX-24, OCTAGONAL, NICKEL ALLOY 825, UNS N08825, SILVER PLATED .0005 INCHES MAX THICKNESS, MAXIMUM HARDNESS 92 HRB, API 6A/ISO 10423, API MONOGRAM REQUIRED, MARKING AND PACKAGING REQUIREMENTS PER THE PURCHASE SPECIFICATION	0 kg	2	EA	91.87	183.74

Item	Material Number Description	Extended Weight	Qty	UM	Unit Net Price USD	Extended Price USD
540	Y51201-20220301 STUD W/TWO NUTS, 7/8" X 6" LG, B7/2H, PLATED	12 lb	8	EA	3.53	28.24
550	ASSY, TBG HGR, T-40-CL, 7-1/16 NOM 5K W/ 2-7/8 6.5 LB/FT PREMIUM THD BTM X TOP; W/ 2.485 OD TYPE 'H' BPV & (6) 1/4" CONTROL LINE PREPS; API 6A 20TH ED, T/C: P+U; MC: HH; PSL-3, PR-2 (718 INCONEL; 105 YIELD)	0 kg	1	EA	26,048.26	26,048.26
560	702002-04-65 RING GASKET, API TYPE RX-46 825 (UNS NO8825), SILVER PLATED .0005 MINIMUM THICKNESS /API 6A PSL 4 API MONOGRM	3 lb	1	EA	282.64	282.64
	Total Section E - Acid Gas Injection Tree					**193,048.40**

Section Summary:

Total	Section A - Casing Head Assy	12,845.65
Total	Section B - Casing Spool Assy	25,620.36
Total	Section C - Casing Spool Assy	13,852.89
Total	Section D - Tubing Spool Assy	6,020.24
Total	Section E - Acid Gas Injection Tree	193,048.40

Price Summary :

Total Price : 251,387.54 USD
Total Quotation Price : 251,387.54 USD

****
ESTIMATED DELIVERY: 14 to 16 WEEKS ARO
EX-WORKS CAMERON ODESSA, TX
AFTER RECEIPT OF ORDER; SUBJECT TO PRIOR SALE
****

CAMERON DIVISION RESERVES THE RIGHT TO ISSUE A REVISED QUOTATION SHOULD THERE BE ANY DEVIATION OR ADDITIONS TO THIS QUOTATION.

DELIVERIES OFFERED HEREIN ARE BASED UPON MATERIAL AVAILABILITY AND MANUFACTURING CAPACITY AT TIME OF QUOTATION.

CAMERON DIVISION'S TERMS AND CONDITIONS OF SALE FORM A PART OF THIS QUOTATION AND SHALL APPLY TO ANY CONTRACT OF SALE.

PRICES QUOTED HEREIN ARE FIRM THROUGH DELIVERY IF ORDER IS PLACED WITHIN THE VALIDITY PERIOD OF THIS QUOTATION.

QUALIFICATION OF CAMERON WELD PROCEDURES INCLUDES HARDNESS TESTING OF THE WELD, BASE METAL AND HEAT-AFFECTED ZONE (HAZ) USING THE ROCKWELL B AND C SCALES. THIS IS CONSISTENT WITH OUR LONG ESTABLISHED AND SUCCESSFUL PAST PRACTICE. IT IS ALSO CONSISTENT WITH PREVIOUS EDITIONS OF NACE MR0175 AND WITH THE LATEST EDITION PROVIDED THAT THIS TESTING METHOD IS ACCEPTED BY THE BUYER.

CAMERON WILL CONTINUE TO USE ROCKWELL B AND C SCALES IN LIEU OF OTHER METHODS NOW LISTED IN NACE MR0175 / ISO 15156. BY ITS PURCHASE OF THESE PRODUCTS, THE BUYER ACKNOWLEDGES THE FOREGOING AND GIVES ITS CONSENT TO THE USE OF ROCKWELL B AND C HARDNESS TESTING FOR QUALIFICATION OF WELD PROCEDURES.

TERMS AND CONDITIONS

1. CONTRACT ACCEPTANCE: Any written or oral purchase order received from Buyer by Seller shall be construed as a written acceptance of Seller's offer to sell and shall be filled in accordance with the terms and conditions of sale set forth herein. SELLER'S ACCEPTANCE OF THIS ORDER IS EXPRESSLY CONDITIONED ON BUYER'S ASSENT TO THE TERMS CONTAINED HEREIN. The terms and conditions of Seller's proposal (if any) and acknowledgement shall prevail over any conflicting or different terms in Buyer's order unless Buyer notifies Seller in writing of its objections thereto within fifteen (15) days from receipt of Seller's acknowledgement. Buyer's standard terms of purchase will not be considered a counteroffer to Seller's terms and conditions of sale. The failure of Seller to object to any provision in conflict herewith whether contained on Buyer's purchase order or otherwise shall not be construed as a waiver of the provisions hereof nor as an acceptance thereof.

2. QUOTATIONS AND PRICES: Any product, service capability or manufacturing capability which may be available at the time a quotation is made is subject to prior sale. Prices quoted are subject to change without notice. The price in effect at the time of shipment including any escalation formula will apply, unless a valid quotation or written agreement to the contrary exists between Buyer and Seller. All prices shown are in U.S. dollars and are F.O.B. Seller's shipping point. Seller reserves the right to place a service charge on past due accounts at the highest rate permitted by law. Any documentation pertaining to traceability requirements for raw materials or products or documentation required for any routine or special processes must be identified by the Buyer at the time of quotation (if any) or at the time of order placement.

3. TAXES: Any tax or other charge imposed by law on the sale or production of goods or the performance of services shall be paid by the Buyer, unless the law specifically provides that such payment must be made by Seller, in which case Buyer shall reimburse Seller for such payment as part of the purchase price. Custom duties, consular fees, insurance charges and other comparable charges will be borne by Buyer.

4. SHIPPING SCHEDULE AND DELIVERY: Shipment schedules are given as accurately as conditions permit and every effort will be made to make shipments as scheduled. Seller will not be responsible for deviations in meeting shipping schedules nor for any losses or damages to Buyer (or any third party) occasioned by deviations in the shipping schedule, whether due to Acts of God, orders bearing priority ratings established pursuant to law, differences with workmen, local labor shortages, fire, flood, shortages or failure of raw materials, supplies, fuel, power or transportation, breakdown of equipment or any other causes beyond Seller's reasonable control, whether of similar or dissimilar nature than those enumerated. Seller shall have additional time within which to perform as may be reasonably necessary under the circumstances and shall have the right to apportion its production among its customers in such a manner as it may consider to be equitable. Seller reserves the right to furnish commercially equivalent or better substitutes for materials or to subcontract the Buyer's order or portions thereof as Seller deems necessary. In no event shall Seller be liable for any consequential damages resulting from failure or delay in shipment. If Buyer requires drawings, procedures, standards or similar material for approval, shipping schedules will be calculated from the time such approvals are received by Seller, since shipping schedules are based on Seller having all required information and a firm order from Buyer which is enterable into production. Any hold points, witness points or the need for inspection by Buyer's representatives must be identified by Buyer at the time of quotation (if any) and/or order placement in order that the effect on the prices or shipping schedules (if any) can be taken into account. Additional inspection or testing required by Buyer which affects normal production sequence will be considered as extending the shipping dates accordingly.

5. TERMS OF PAYMENT: Terms of payment are 30 days from date of invoice unless otherwise stated in the quotation or Seller's order acknowledgment.

6. CANCELLATIONS AND RETURNS: Purchase orders once placed by Buyer and accepted by Seller can be canceled only with Seller's written consent and upon terms which will save Seller from loss. No products may be returned for credit or adjustment without written permission from Seller's office authorized to issue such permission.

7. WARRANTIES: Contractor warrants that goods of its manufacture shall be free from defects in materials and workmanship for a period of one (1) year after being placed in service or eighteen (18) months from delivery, whichever is earlier, when all such goods are used in the service and within the pressure range for which the goods were manufactured. In the case of products or parts not wholly of Contractor's manufacture, Contractor's liability shall be limited to the extent of its recovery from the manufacturer of such products or parts under its liability to Contractor. Parts subject to regular replacement due to operational wear are not covered by this warranty. In the event that Company discovers a defect in the manufactured goods within the warranty period specified above, Company shall notify Contractor of such defect and if in Contractor's sole judgment the product or repair does not conform or is found to be defective in material or workmanship, then, Company shall, at Contractor's request, return the part or product F.O.B. to Contractor's designated plant or service location. Contractor, at its option and expense, shall repair or replace the defective part or product, or repay to Company the full price paid by Company for such defective part, repair or product. Any repayment of purchase price shall be without interest. Company shall be responsible for any costs related to removal, transportation and re-installation of the defective part or goods. Contractor shall not be liable for any damages, claims, losses or expenses of Company resulting from such defects, recovery under general tort law or strict liability or for damages resulting from delays, loss of use, or other direct, indirect, incidental or consequential damages of any kind. Contractor will not be responsible for (i) failures of products which have been in any way tampered with or altered by anyone other than an authorized representative of Contractor, (ii) failures due to lack of compliance with recommended maintenance procedures, (iii) products which have been repaired or altered in such a way (in Contractor's judgment) as to affect the products adversely, or (iv) products requiring replacement due to normal wear and tear. EXCEPT FOR THE WARRANTIES EXPRESSLY STATED ABOVE, THERE ARE NO OTHER WARRANTIES AND NONE SHALL BE IMPLIED BY LAW INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

8.ENGINEERING AND SERVICE: Upon request, Seller will provide engineering and/or technical information regarding its products and their uses and, if feasible, will provide personnel to assist Buyer in effecting field installations and/or field service. Any such information, service or assistance so provided, whether with or without charge, shall be advisory only.

9. LABOR STANDARDS: Seller hereby certifies that these products were produced in accordance with all applicable requirements of Section 6, 7 and 12 of the Fair Labor Standards Act as amended and of regulations and orders of the United States Department of Labor issued under Section 14 thereof.

10. INSPECTION: Unless otherwise agreed in writing, final inspection and acceptance of products must be made at Seller's plant or other shipping or receiving point designated by Seller and shall be conclusive except as regards latent defects. Buyer's representatives may inspect at the Seller's plant or shipping point during working hours prior to shipment in such manner as will not interfere with operations.

11. DELIVERY AND ACCEPTANCE: Delivery shall be in accordance with the requirements in the Purchase Contract, provided, in the event Buyer is unable to accept delivery upon completion of the manufacture of the Goods in accordance with such requirements, Buyer agrees that (i) title and risk of ownership shall pass to Buyer on date of Seller's invoice, and (ii) Buyer will make payments within thirty days after date of such invoice. Seller shall retain custodial risk of loss until delivery is made in accordance with such requirements.

12. EXPORT COMPLIANCE: The Buyer shall provide the Seller with relevant end-use, end-user and country of end-use information with respect to the goods, services, software or technology to be supplied hereunder (collectively, "Items"). Based on and in reliance on such information, the Seller will supply such Items in compliance with applicable trade and customs laws including that of the United States of America. The Seller cautions and the Buyer acknowledges that any change in end-use, end-user or country of end-use (including a shipment between countries other than the U.S.) may be restricted or prohibited by applicable trade and customs law, whether it be of the U.S. or other country. The Parties shall comply with all trade and customs laws (including U.S. Export Controls) except for any such laws which conflict with or are otherwise penalized under the laws of the U.S., which in the event of such conflict, Seller shall notify Buyer. The Buyer agrees in particular that it shall not use and shall not permit any third party to use such items in connection with the design, production, use, or storage of chemical, biological or nuclear weapons or missiles of any kind.

13. TRANSPORTATION CHARGES, ALLOWANCES, CLAIMS: All prices are F.O.B. Seller's plant or other designated shipping point. No freight is allowed unless stated in Seller's quotation (if any) or in a written contract which may exist between Seller and Buyer at the time of shipment. If Seller's quotation or a written contract states that all or a portion of freight is allowed, all prices are F.O.B. Seller's plant or other designated shipping point, with most economical surface transportation allowed. If the quoted or contractual price includes transportation, Seller reserves the right to designate the common carrier and to ship in the manner it deems most economical. Added costs due to special routing requested by the Buyer are chargeable to the Buyer. Under no circumstances is any freight allowance which is absorbed by Seller to be deducted from the selling price. If the quoted price or contract includes transportation, no deduction will be made in lieu thereof whether Buyer accepts shipment at plant, warehouse, freight station, or otherwise supplies its own transportation. When sales are made from the Seller's warehouse, Seller reserves the right to charge either actual or pro-rated freight from Seller's principle point of manufacture to Seller's warehouse. Buyer assumes risk of loss upon delivery to the carrier, regardless of who pays shipping costs. Seller endeavors to pack or prepare all shipments so that they will not break, rust or deteriorate in transit, but does not guarantee against such damage. Unless requested in writing by the Buyer, no shipments are insured by Seller against damage or loss in transit. Seller will place insurance as nearly as possible in accordance with Buyer's written instructions but in such case Seller acts only as agent between the insurance company and the Buyer and assumes no liability whatsoever. Any claims for shipping loss, breakage or damage (obvious or concealed) are Buyer's responsibility and should be made to the carrier. All claims regarding shortages must be made within thirty (30) days from receipt of shipment and must be accompanied by the packing list(s) covering the shipment. 14. INDEMNIFICATION AND LIMITATION OF LIABILITY:

A. INDEMNIFICATION: Buyer Group means: Buyer, its parent (if any), subsidiaries, affiliates, co-owners, co-venturers, partners and any entity with whom Buyer has an economic interest with respect to the Work including Buyer's customer and its and their respective employees, personnel, directors, officers, borrowed servants, representatives, agents, contractors and subcontractors (respectively and of any tier or level and who are not included within the Seller Group). Seller Group means: Seller, its parent (if any), subsidiaries, affiliates, co-owners and its and their respective employees, personnel, directors, officers, borrowed servants, representatives, agents, contractors and subcontractors (respectively and of any tier or level and who are not included within the Buyer Group). "Negligence" means: sole, joint or concurrent, active, passive, gross or willful misconduct.

(1) Seller shall release, defend, save, indemnify (collectively "Indemnify") and hold Buyer Group Harmless from and against all claims, demands, losses, damages and causes of action of whatever kind or nature (collectively "Claims"), for loss of or damage to the property of the members of the Seller Group even if such Claims arise from or attributable to the Negligence of the members of Buyer Group.

(2) Seller shall Indemnify and hold Buyer Group harmless from and against all Claims for the death(s) of or personal injury(ies) to members of the Seller Group even if such Claims arise from or attributable to the Negligence of the members of Buyer Group.

(3) Buyer shall Indemnify and hold Seller Group harmless from and against all Claims for loss of or damage to the property (including the Work) of the members of the Buyer Group even if such Claims arise from or attributable to the Negligence of the members of Seller Group.

(4) Buyer shall Indemnify and hold Seller Group harmless from and against all Claims for the death(s) of or personal injury(ies) to members of the Buyer Group even if such Claims arise from or attributable to the Negligence of the members of Seller Group.

(5) Buyer (on its own behalf and on behalf of Buyer Group) and Seller (on its own behalf and on behalf of Seller Group) shall Indemnify and hold each other harmless from and against any and all Claims asserted against them by or on behalf of any third party for the death(s) of or personal injury (ies) to such a third party, as well as loss (es) of or damage(s) to the property of such a third party. A third party is a person or entity not included in Buyer Group or Seller Group. It is agreed by Buyer and Seller that their respective duty of indemnity to each other with respect to Claims asserted against them by a third party pursuant to this Article 14 (A) (5) shall be limited to their respective degree of Negligence.

(6) Notwithstanding any other provision contained in this Agreement, Buyer shall Indemnify and hold the members of Seller Group harmless from and against all Claims (including clean-up costs and loss (es) of oil, gas or hydrocarbons) arising from pollution, contamination, dumping or spilling of any substance and even if arising out of or attributable to the Negligence of the members of the Seller Group.

B. INDEMNITY FOR CONSEQUENTIAL DAMAGES: UNDER NO CIRCUMSTANCES SHALL SELLER BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, EXEMPLARY OR PUNITIVE DAMAGES (collectively "CONSEQUENTIAL"), AS DEFINED BY THE LAWS GOVERNING THIS PURCHASE ORDER, NOR FOR ANY LOSS OF ANTICIPATED PROFITS, LOSS OF BUSINESS OPPORTUNITY, LOSS OF USE OF EQUIPMENT OR OF ANY INSTALLATION, SYSTEM OR FACILITY INTO WHICH SELLER'S EQUIPMENT MAY BE LOCATED OR AT WHICH MEMBERS OF THE SELLER GROUP MAY BE PERFORMING WORK AND BUYER AGREES TO INDEMNIFY, AND HOLD SELLER GROUP HARMLESS FROM AND AGAINST ANY CLAIMS, FOR SUCH CONSEQUENTIAL DAMAGES EVEN IF ARISING OUT OF OR ATTRIBUTABLE TO THE NEGLIGENCE OF THE MEMBERS OF THE SELLER GROUP.

C. LIMITATION OF LIABILITY: EXCEPT AS OTHERWISE EXPRESSLY LIMITED IN THIS AGREEMENT IT IS THE EXPRESS INTENTION OF THE PARTIES HERETO THAT ALL INDEMNITY OBLIGATIONS AND/OR LIABILITIES HEREBY ASSUMED BY THE PARTIES SHALL BE: (i) SUPPORTED BY INSURANCE; (ii) WITHOUT LIMIT; (iii) AND WITHOUT REGARD TO THE CAUSE OR CAUSES THEREOF, INCLUDING, BUT NOT LIMITED TO, PREEXISTING CONDITIONS (WHETHER SUCH CONDITIONS BE PATENT OR LATENT), THE UNSEAWORTHINESS OF ANY VESSEL OR VESSELS (WHETHER OR NOT PREEXISTING); THE UNAIRWORTHINESS OF ANY AIRCRAFT; BREACH OF REPRESENTATION OR WARRANTY (EXPRESS OR IMPLIED); BREACH OF CONTRACT; BREACH OF DUTY (STATUTORY, CONTRACTUAL, COMMON LAW OR OTHERWISE); STRICT LIABILITY; CONDITION OF RUIN OR DEFECTIVE PREMISES, EQUIPMENT, FACILITIES, OR APPURTENANCES OF ANY PARTY UNDER ANY CODE, LAW OR (WHETHER OR NOT SAID CONDITION IS PREEXISTING AND/OR LATENT, PATENT OR OTHERWISE); THE LOADING OR UNLOADING OF PERSONS OR CARGO; TORT; OR THE NEGLIGENCE OR FAULT OF ANY PARTY (AS DEFINED AT THE BEGINNING OF THIS ARTICLE 14; OR ANY OTHER THEORY OF LEGAL LIABILITY. Seller's total responsibility for any claims, damages, losses or liability arising out of or related to its performance of this contract or the products or services covered hereunder shall not exceed the purchase price.

15. MODIFICATION, RESCISSION & WAIVER: The terms herein may not be modified or rescinded nor any of its provisions waived unless such modification, rescission or waiver is in writing and signed by an authorized employee of Seller at its office in Houston, Texas. Failure of Seller to insist in any one or more instances upon the performance of any of the terms and conditions of the contract or the failure of Seller to exercise any of its rights hereunder shall not be construed as a waiver or relinquishment of any such term, condition, or right hereunder and shall not affect Seller's right to insist upon strict performance and compliance with regard to any unexecuted portions of this contract or future performance of these terms and conditions. All orders must be accepted by an authorized employee of Seller. The rights and duties of the parties and construction and effect of all provisions hereof shall be governed by and construed according to the internal laws of the State of Texas. Any disputes which arise under this agreement shall be venued in the District Court of Harris County, Texas or in the Southern District of Texas.

REV08/06

Red Willow Production Company
AKA Energy – Frontier Field Services

DRILLING FLUIDS PROGRAM

Well Name: Maljamar AGI #2
Project: Lea County Project
County: Lea County, New Mexico
Region: Southern US

Version #1

September 9, 2015

Prepared for:
Sierra Hamilton

Prepared by:
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Operations Leader
Halliburton Energy Services
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1.0 Program Briefing

1.0.1 Well Data

Operator	RFP
Well No.	Maljamar AGI #2
Field/Block	Section 21, T17S, R32E
Location	Lea County, New Mexico
Well Type	Development
Max. Well Deviation	37.9 deg
Maximum Expected Mud Density	10.0 ppg
Estimated Days	24 Days
Estimated Total Project Cost	$57,900.01
Anticipated BHST at Total Depth of well	160°F

1.0.2 Reservoir Data

Primary Target #1	Cisco
Primary Target #1 Depth	10,300' TVD
Estimated Mud Weight for Target #1	9.4 ppg

1.0.3 Deviation Data

9-5/8" casing will be set at 6,400'MD/TVD. Drill 8-3/4" hole to KOP at 6,600'. Build angle @ 5°/100'. Drill 8-3/4" production interval to TD of 11,129' MD / 10,300' TVD.

1.0.4 Potential Hazards

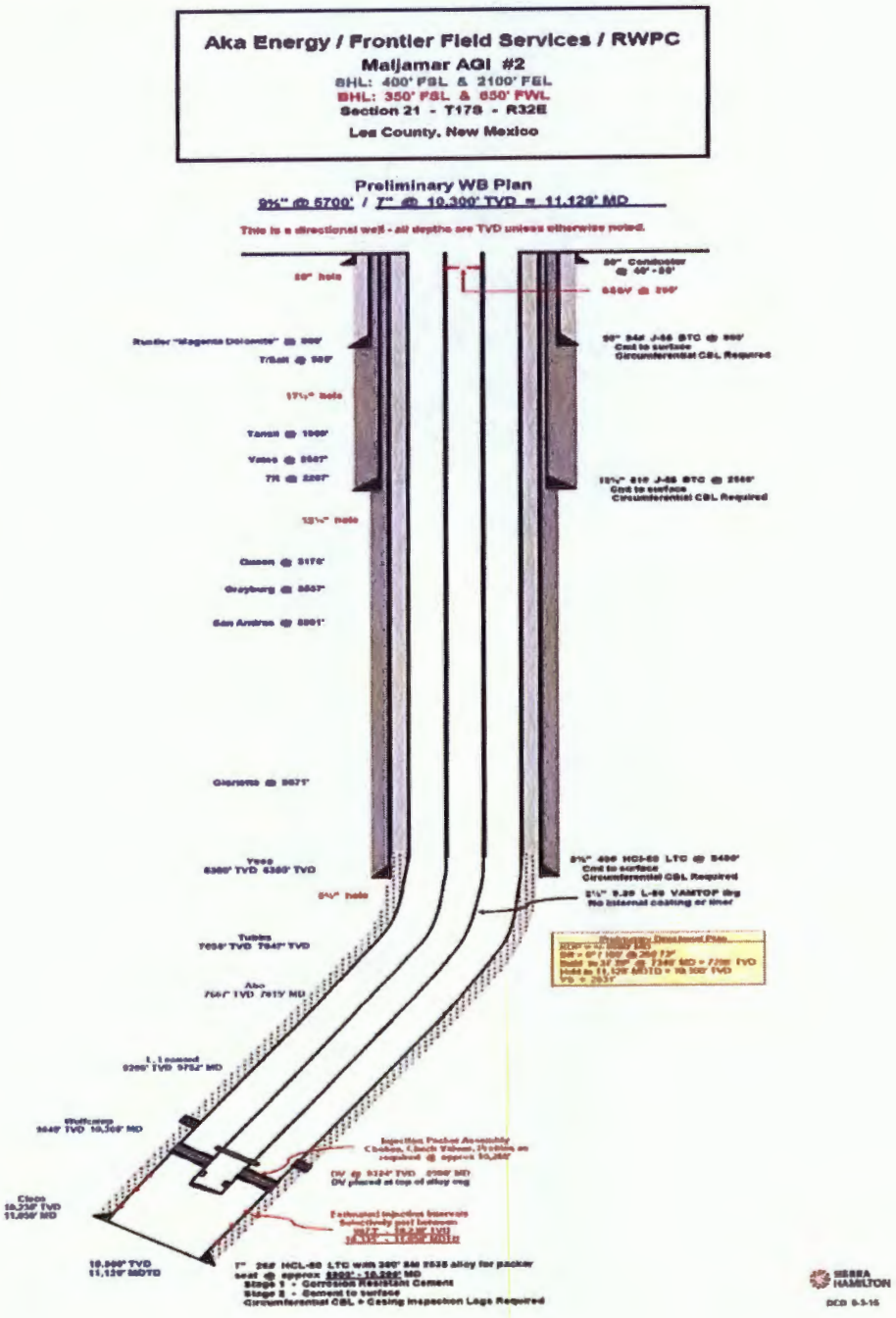
Depth	Mud Type	Exp. Mud Weight	Exp. Fracture Gradient	Potential Drilling Hazard	Baroid Solutions
0'-890'	**AQUAGEL SPUD MUD**	8.4-8.6 ppg	N/A	Lost Returns	▪ Proper Dilution ▪ Optimize Solids Control LCM sweeps
890'-2,550'	**BRINE**	10.0 ppg	N/A	Lost Returns Deviation	▪ LCM sweeps ▪ Proper Dilution ▪ Optimize Solids Control
2,550'-6,400'	**Cut Brine**	8.6-9.4 ppg	N/A	Lost Returns	▪ Proper Dilution ▪ Optimize Solids Control ▪ LCM sweeps
6,400'-11,129'	**Water Based Mud**	8.8-9.4 ppg	N/A	Seepage Abnormal Pressure Well Bore Stability in the Curve and Lateral	▪ Proper Dilution ▪ Optimize Solids Control

1.0.5 Baroid Project Support Team

Baroid Support Team				
Title	**Name**	**Cell Number**	**Office Number**	**Email address**
Account Representative	Russell Austin	432.238.2420	432.683.0205	Russell.Austin@Halliburton.com
Technical Professional	Dustin O'Dell	432.294.3707	432.221.8016	Dustin.O'Dell@Halliburton.com

2.0 Well Design

2.0.1 Well Schematic / Well Blue Print



2.0.2 Casing Design

Hole Size	Casing Size	Depth RKB (MD/ TVD)	Fluid Density
26"	20" 94# J-55	890' MD/ 890' TVD	8.4-8.6 ppg
17-1/2"	13-3/8" 61# J-55	2,550'MD / 2,550' TVD	10.0 ppg
12-1/4"	9-5/8" 40# HCL-80	6,400'MD / 6,400' TVD	8.6-9.4 ppg
8-3/4"	7" 26# HCL-80	11,129' MD / 10,300' TVD	8.8-9.4 ppg

2.0.3 Drilling Fluid Properties

MD(RKB) (ft)	WEIGHT (ppg)	FV	PV	YP	API	Ca	pH	Pm	MBT	%LGS
0-890'	8.4-8.6	30-32	1-6	1-6	NC	<100	8.8-9.4	0.40-1.0	15	<6

Drill 26" hole
Circulate a closed loop system with an **AQUAGEL®** Spud Mud system
Set 20" Surface Casing at 890'MD / 890'TVD

MD(RKB) (ft)	WEIGHT (ppg)	FV	PV	YP	API	Ca	pH	Pm	MBT	%LGS
890'-2,550'	10.0	29-30	1-3	1-3	NC	NC	9.0-10.5	---	---	<6

Drill 17-1/2" hole
Circulate a closed loop system with 10.0 ppg Brine
Set 13-3/8" Intermediate Casing at 2,550'MD / 2,550'TVD

MD(RKB) (ft)	WEIGHT (ppg)	FV	PV	YP	API	Ca	pH	Pm	MBT	%LGS
2,550'-6,400'	8.6-9.4	29-30	1-3	1-3	NC	NC	9.0-10.5	---	---	<6

Drill 12-1/4" hole
Circulate a closed loop fresh water system
Set 9-5/8" Intermediate Casing at 6,400'MD / 6,400'TVD

MD(RKB) (ft)	WEIGHT (ppg)	FV	PV	YP	API	Ca	pH	Pm	MBT	%LGS
6,400'-11,129'	8.8-9.4	38-42	10-20	10-20	<10	NC	9.0-10.5	---	---	<6

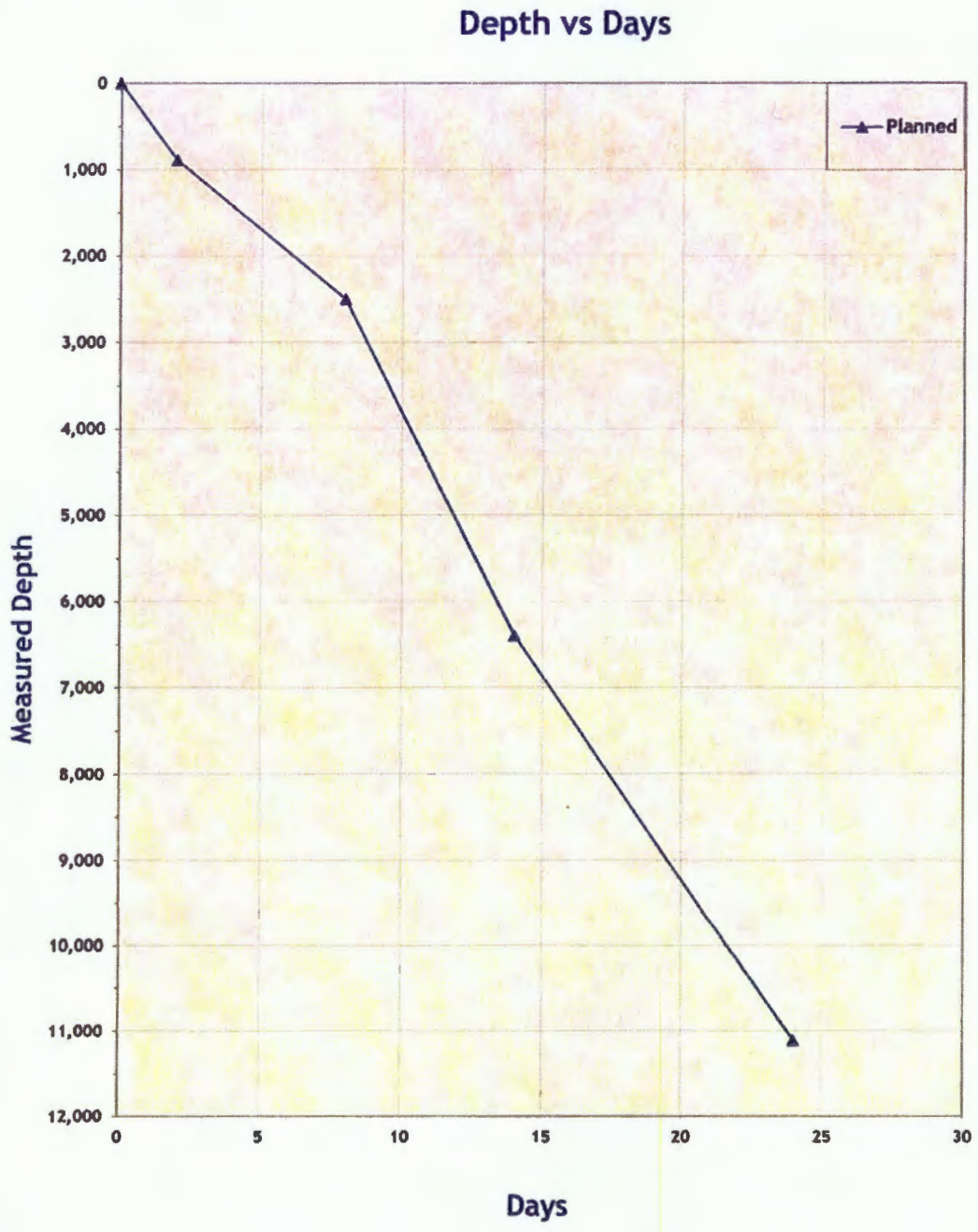
Drill 8-3/4" vertical and curve section
Circulate a closed loop system with 8.8-9.4 ppg Water Based Mud
Cut curve @ 5°/100'
Drill 8-3/4" lateral
Set 7" Production Casing at 11,129' MD / 10,300'TVD

2.0.4 Drilling Fluid Objectives

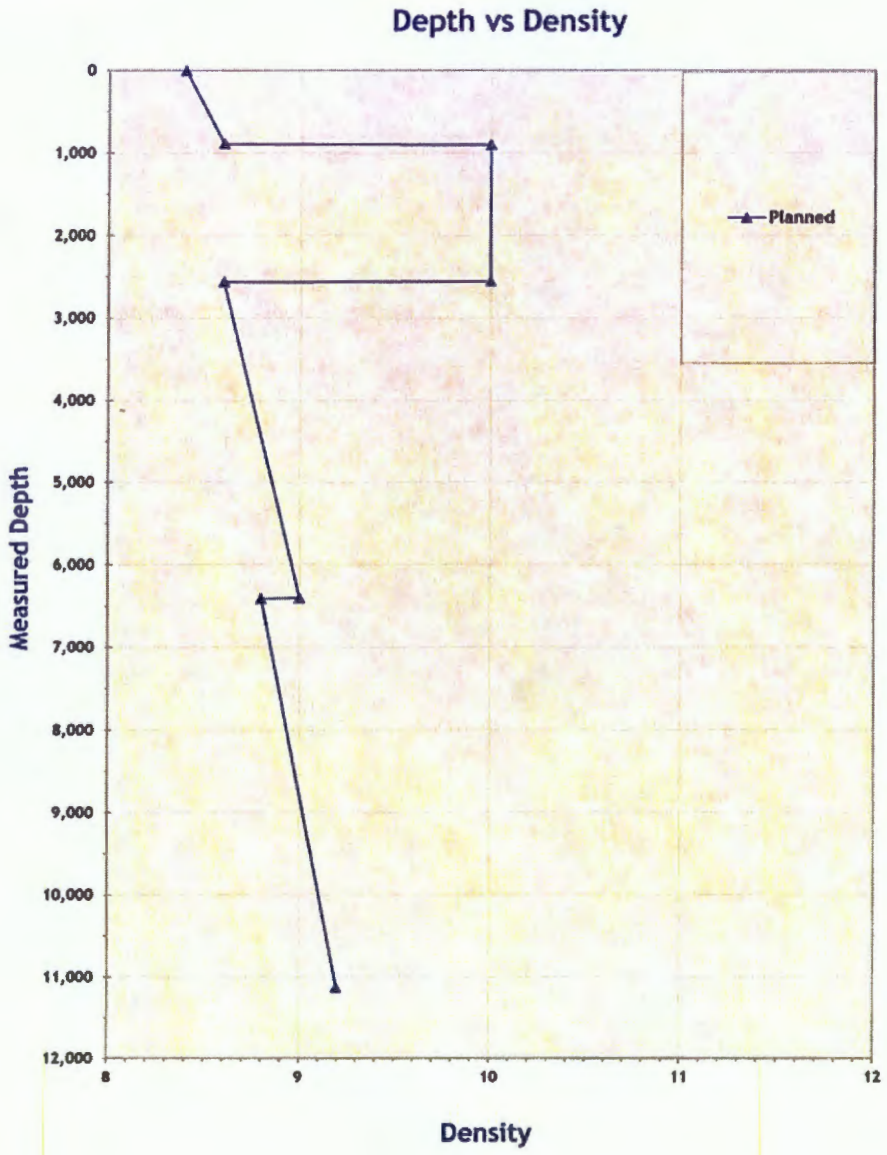
Primary Objective: Drill the well safely, both with respect to personnel and the environment

- Provide borehole stability
- Optimize Hole Cleaning through the use of DFG Hydraulics
- Prevent Balling on Drilling Assembly
- Prevent induced kicks and lost circulation
- Prevent Differentially Stuck Pipe

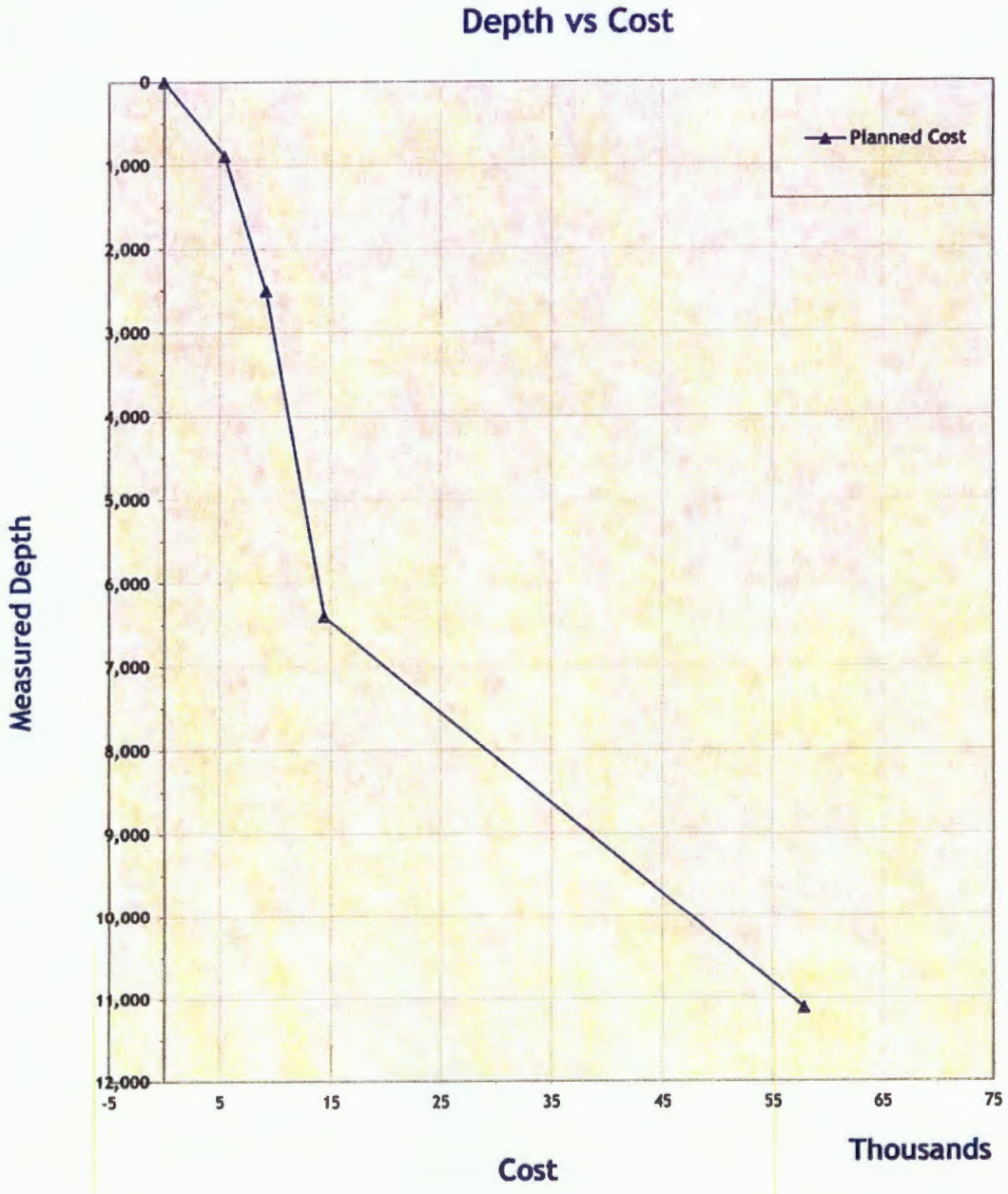
2.0.5 Days vs. Depth Graph



2.0.6 MW vs. Depth Graph



2.0.7 Cost vs. Depth Graph



3.0 Interval Discussions

3.0.1 Interval Depths: 0 –890'MD / 890'TVD

MD(RKB) (ft)	WEIGHT (ppg)	FV	PV	YP	API	Ca	pH	Pm	MBT	%LGS
0-890'	8.4-8.6	30-32	1-6	1-6	NC	<100	8.8-9.4	0.40-1.0	15	<6

- Drill 26" hole
- Circulate a closed loop system with an **AQUAGEL®** Spud Mud system
- Set 20" Surface Casing at 890'MD / 890'TVD

3.0.2 Interval Goals

Primary Objective: Drill the well safely, both with respect to personnel and the environment

- Provide borehole stability
- Optimize Hole Cleaning through the use of DFG Hydraulics
- Prevent Balling on Drilling Assembly
- Prevent induced kicks and lost circulation
- Prevent Differentially Stuck Pipe

3.0.3 Primary Products

PRODUCTS	Product Description	Product Function
AQUAGEL	Sodium Montmorillonite	Viscosifier
LIME	Calcium Hydroxide	pH Control
SODA ASH	Sodium Carbonate	Total Hardness Reducer
DRILLING PAPER	Ground Paper	LCM
EZ-MUD	PHPA Copolymer	Shale Stabilizer

3.0.4 Potential Problems and Solutions

Depth	Mud Type	Exp. Mud Weight	Exp. Fracture Gradient	Potential Drilling Hazard	Baroid Solutions
0' – 890'MD	**AQUAGEL® SPUD MUD**	8.4-8.6 ppg	N/A	Lost Returns	▪ Proper Dilution ▪ Optimize Solids Control ▪ LCM sweeps

3.0.5 Mud Maintenance

A. Operations

- Fill working pits with Fresh Water and treat out excess hardness with Soda Ash
- Add 7-10 ppb **AQUAGEL®**
- Drilling Paper in sweeps and for seepage control
- **EZ-MUD®** for supplemental sweeps
- **Sweep the hole at TD** with 50± bbls pre-hydrated **AQUAGEL®** with 60-80 sec/1000cc funnel viscosity prior to running casing

B. Filtrate Control

- No API filtrate control in this interval
- Should conditions dictate, lower the API filtrate with Drilling Starch
- It may be necessary to use a Bactericide to control Sulfite Reducing Bacteria (SRB.) Our engineer will test for the presence and make **XC-207®** Bactericide treatment recommendations as necessary

C. Hydraulics & Hole Cleaning

- Hole cleaning will be achieved with maximum pump output
- Pump frequent high viscosity pre-hydrated **AQUAGEL®** sweeps
- **EZ-MUD®** may be used for supplemental sweeps
- Monitor hole cleaning parameters; torque, drag, pick-up and slack-off weights, flow rate and
- Pump pre-hydrated **AQUAGEL®** sweeps with 60-80 sec/1000 cc funnel viscosity prior to all trips and prior to running casing

D. Formation Considerations

- Predominate formations are unconsolidated fresh water sands and the Rustler

E. Lost Circulation

- Maintain the lowest practical mud weight
- Use additions of Fresh Water and jetting pits as required to control viscosity, mud weight, and drilled solids
- Drilling Paper for seepage control
- For excessive seepage or lost returns mix in 100 bbls Fresh Water the following:
  - 1 sack of Soda Ash, **AQUAGEL®** for a 35+ sec/1000cc funnel viscosity
  - 8-10 ppb **PLUG-GIT®**
  - 8-10 ppb **BARO-SEAL®**
  - 6-8 ppb Cottonseed Hulls
- If returns are cannot be reestablished we recommend dry drilling. Pump frequent pre-hydrated **AQUAGEL®**/LCM sweeps while dry drilling to minimize the potential for stuck pipe due to solids accumulation in the annulus

3.0.6 SCE Requirements

- A High-G, linear motion shale shakes is recommended in order to maximize the system solids removal efficiency. Run all available solids control equipment to prevent solids build-up.
- All shale shakers should be "screened up" with finer mesh screens whenever possible without the loss of drilling fluid off the end of the shakers
- The shale shakers should be continuously monitored for the proper distribution of drilling fluid across the screens to fully utilize the entire surface area of the screens. The drilling fluid should cover 2/3 to 3/4 of the length of the screens. Damaged screens should be promptly changed
- If near size particle blinding occurs, an attempt should be made to "screen-up" to alleviate this problem. If "screening-up" does not solve this situation, then coarser mesh screens must be installed until past this formation

3.1 Interval Discussions

3.1.1 Interval Depths: 890'-2,550'

MD(RKB) (ft)	WEIGHT (ppg)	FV	PV	YP	API	Ca	pH	Pm	MBT	%LGS
890'-2,550'	10.0	29-30	1-3	1-3	NC	NC	9.0-10.5	---	---	<6

- Drill 17-1/2" hole
- Circulate a closed loop system with 10.0 ppg Brine
- Set 13-3/8" Intermediate Casing at 2,550'MD / 2,550'TVD

3.1.2 Interval Goals

Primary Objective: Drill the well safely, both with respect to personnel and the environment

- Provide borehole stability
- Optimize Hole Cleaning through the use of DFG Hydraulics
- Prevent Balling on Drilling Assembly
- Prevent induced kicks and lost circulation
- Prevent Differentially Stuck Pipe

3.1.3 Primary Products

PRODUCTS	Product Description	Product Function
ZEOGEL	Attapulgite	Viscosifier
LIME	Calcium Hydroxide	pH Control
DRILLING PAPER	Ground Paper	LCM
EZ-MUD	PHPA Copolymer	Shale Stabilizer

3.1.4 Potential Problems and Solutions

Depth	Mud Type	Exp. Mud Weight	Exp. Fracture Gradient	Potential Drilling Hazard	Baroid Solutions
2,550'-6,400'MD	BRINE	10.0 ppg	N/A	Lost Returns Deviation	▪ LCM sweeps ▪ Proper Dilution ▪ Optimize Solids Control

3.1.5 Mud Maintenance

A. Operations

- Circulate a closed loop system with 10.0 ppg Brine
- Maintain a 9.0-10.5 pH with Lime
- Pump frequent pre-mixed **ZEOGEL®** sweeps
- **EZ-MUD®** may be used for supplemental sweeps
- Pump Drill Paper and Cedar Fiber for losses
- Drilling Paper in sweeps and for seepage control
- **Sweep the hole at TD** with 50± bbls pre-mixed **ZEOGEL®** with 60-80 sec/1000cc funnel viscosity prior to running casing
- **NOTE:** Possible losses in the Yates

B. Filtrate Control

- No Control in this interval
- **Note** - Should conditions dictate, lower the API filtrate with Drilling Starch. It may be necessary to use a Bactericide to control Sulfite Reducing Bacteria (SRB.) Our engineer will test for the presence and make **XC-207®** Bactericide treatment recommendations as necessary

C. Hydraulics & Hole Cleaning

- Pump frequent pre-mixed **ZEOGEL®** sweeps
- **EZ-MUD®** for supplemental sweeps
- Drilling Paper added to sweeps to provide additional hole cleaning
- Should conditions dictate increase the funnel viscosity with **ZEOGEL®**
- Pump pre-mixed **ZEOGEL®** sweeps prior to all trips and before running casing

D. Formation Considerations

- The Salado Salt Beds, Tansil, and Yates will be drilled in this interval
-

E. Lost Circulation

- Maintain the lowest practical mud weight (10.0 ppg fully saturated Brine)
- Drilling Paper can be used for seepage control
- For excessive seepage or lost returns mix in 100 bbls Fresh Water the following:
  1 sack of Soda Ash, **AQUAGEL®** for a 35+ sec/1000cc funnel viscosity
  8-10 ppb **PLUG-GIT®**
  8-10 ppb **BARO-SEAL®**
  6-8 ppb Cottonseed Hulls
- If returns are cannot be reestablished we recommend dry drilling. Pump frequent pre-hydrated **AQUAGEL®**/LCM sweeps while dry drilling to minimize the potential for stuck pipe due to solids accumulation in the annulus
- If partial losses are encountered we recommend adding 10.0 ppg Brine to the system to prevent washing out the salt section of the wellbore. Pump frequent pre-hydrated **AQUAGEL®**/LCM sweeps to minimize losses while drilling.

3.1.6 SCE Requirements

- Multiple, High-G, linear motion shale shakers are recommended in order to maximize the system solids removal efficiency. Run all available solids control equipment to prevent solids build-up
- All shale shakers should be "screened up" with finer mesh screens whenever possible without the loss of drilling fluid off the end of the shakers
- The shale shakers should be continuously monitored for the proper distribution of drilling fluid across the screens to fully utilize the entire surface area of the screens. The drilling fluid should cover 2/3 to 3/4 of the length of the screens. Damaged screens should be promptly changed
- If near size particle blinding occurs, an attempt should be made to "screen-up" to alleviate this problem. If "screening-up" does not solve this situation, then coarser mesh screens must be installed until past this formation

3.2 Interval Discussions

3.2.1 Interval Depths: 2,550'MD / 6,400'TVD

MD(RKB) (ft)	WEIGHT (ppg)	FV	PV	YP	API	Ca	pH	Pm	MBT	%LGS
2,550'-6,400'	8.6-9.4	29-30	1-3	1-3	NC	NC	9.0-10.5	---	---	<6

- Drill 12-1/4" hole
- Circulate a closed loop fresh water system
- Set 9-5/8" Intermediate Casing at 6,400'MD / 6,400'TVD

3.2.2 Interval Goals

Primary Objective: Drill the well safely, both with respect to personnel and the environment

- Provide borehole stability
- Optimize Hole Cleaning through the use of DFG Hydraulics
- Prevent Balling on Drilling Assembly
- Prevent induced kicks and lost circulation
- Prevent Differentially Stuck Pipe

3.2.3 Primary Products

PRODUCTS	Product Description	Product Function
ZEOGEL	Attapulgite	Viscosifier
Lime	Calcium Hydroxide	pH Control
Soda Ash	Sodium Carbonate	Total Hardness Reducer
Drilling Paper	Ground Paper	LCM
EZ-MUD	PHPA Copolymer	Shale Stabilizer

3.2.4 Potential Problems and Solutions

Depth	Mud Type	Exp. Mud Weight	Exp. Fracture Gradient	Potential Drilling Hazard	Baroid Solutions
2,550'-6,400'MD	Cut Brine	8.6-9.4 ppg	N/A	Lost Returns	▪ Proper Dilution ▪ Optimize Solids Control ▪ LCM sweeps

3.2.5 Mud Maintenance

A. Operations

- Fill working pits with Cut Brine 8.6-9.4 ppg
- Drilling Paper in sweeps and for seepage control
- **EZ-MUD®** for supplemental sweeps
- **Sweep the hole at TD** with 50± bbls pre-hydrated **ZEOGEL®** with 60-80 sec/1000cc funnel viscosity prior to running casing
- Treat losses with Drill Paper and Cedar Fiber

B. Filtrate Control

- No API filtrate control in this interval
- Should conditions dictate, lower the API filtrate with Drilling Starch
- It may be necessary to use a Bactericide to control Sulfite Reducing Bacteria (SRB.) Our engineer will test for the presence and make **XC-207®** Bactericide treatment recommendations as necessary

C. Hydraulics & Hole Cleaning

- Hole cleaning will be achieved with maximum pump output
- Pump frequent high viscosity pre-hydrated **ZEOGEL®** sweeps
- **EZ-MUD®** may be used for supplemental sweeps
- Monitor hole cleaning parameters; torque, drag, pick-up and slack-off weights, flow rate and
- Pump pre-hydrated **ZEOGEL®** sweeps with 60-80 sec/1000 cc funnel viscosity prior to all trips and prior to running casing

D. Formation Considerations

- The Queen, Grayburg, San Andres, Glorietta, and Yeso will be drilled

E. Lost Circulation

- Maintain the lowest practical mud weight
- Use additions of Fresh Water and jetting pits as required to control viscosity, mud weight, and drilled solids
- Drilling Paper and Cedar Fiber for seepage control
- For excessive seepage or lost returns mix in 100 bbls Fresh Water the following:
  - 1 sack of Soda Ash, **AQUAGEL®** for a 35+ sec/1000cc funnel viscosity
  - 8-10 ppb **PLUG-GIT®**
  - 8-10 ppb **BARO-SEAL®**
  - 6-8 ppb Cottonseed Hulls
- If returns are cannot be reestablished we recommend dry drilling. Pump frequent pre-hydrated **AQUAGEL®**/LCM sweeps while dry drilling to minimize the potential for stuck pipe due to solids accumulation in the annulus

3.2.6 SCE Requirements

- A High-G, linear motion shale shakes is recommended in order to maximize the system solids removal efficiency. Run all available solids control equipment to prevent solids build-up.
- All shale shakers should be "screened up" with finer mesh screens whenever possible without the loss of drilling fluid off the end of the shakers
- The shale shakers should be continuously monitored for the proper distribution of drilling fluid across the screens to fully utilize the entire surface area of the screens. The drilling fluid should cover 2/3 to 3/4 of the length of the screens. Damaged screens should be promptly changed
- If near size particle blinding occurs, an attempt should be made to "screen-up" to alleviate this problem. If "screening-up" does not solve this situation, then coarser mesh screens must be installed until past this formation

3.3 Interval Discussions

3.3.1 Interval Depths: 6,400' MD– 11,129' MD

MD(RKB) (ft)	WEIGHT (ppg)	FV	PV	YP	API	Ca	pH	Pm	MBT	%LGS
6,400'-11,129'	8.8-9.4	38-42	10-20	10-20	<10	NC	9.0-10.5	---	---	<6

- Drill 8-3/4" vertical and curve section
- Circulate a closed loop system with 8.8-9.4 ppg Water Based Mud
- Cut curve @ 5°/100'
- Drill 8-3/4" lateral
- Set 7" Production Casing at 11,129' MD / 10,300'TVD

3.3.2 Interval Goals

Primary Objective: Drill the well safely, both with respect to personnel and the environment

- Provide borehole stability
- Optimize Hole Cleaning through the use of DFG Hydraulics
- Prevent Balling on Drilling Assembly
- Prevent induced kicks and lost circulation
- Prevent Differentially Stuck Pipe

3.3.3 Primary Products

PRODUCTS	Product Description	Product Function
ZEOGEL	Attapulgite	Viscosifier
LIME	Calcium Hydroxide	pH Control
SODA ASH	Sodium Carbonate	Total Hardness Reducer
DRILLING PAPER	Ground Paper	LCM
BARAZAN D PLUS	Xanthan Biopolymer	Viscosifier
EZ MUD	PHPA Copolymer	Shale Stabilizer
ENVIRO-TORQ	Fatty Acids and Emulsifiers	Lubricant

3.3.4 Potential Problems and Solutions

Depth	Mud Type	Exp. Mud Weight	Exp. Fracture Gradient	Potential Drilling Hazard	Baroid Solutions
6,400'– 11,129' MD	Water Based Mud	8.8-9.4 ppg	N/A	Seepage	▪ Proper Dilution ▪ Optimize Solids Control

3.3.5 Mud Maintenance

A. Operations

- Circulate a closed loop system with Cut Brine
- Maintain a 9.0-10.5 pH with Lime or Caustic Soda
- Increase funnel viscosity to 38-42 sec/qt using **BARAZAN D PLUS®** and **ZEOGEL®**
- Pump frequent pre-mixed **ZEOGEL®** sweeps
- **EZ-MUD®** may be used for shale stabilization and supplemental sweeps
- Drilling Paper in sweeps and for seepage control
- Adjust fluid weight with Brine or Fresh Water as required
- **ENVIRO-TORQ®** may be used for additional lubricity while building the curve and drilling the lateral

B. Filtrate Control

- Lower filtration to <10 cc during this interval using **PAC L®**

C. Hydraulics & Hole Cleaning

- Hole cleaning will be achieved with maximum pump output, rheology and high viscosity sweeps
- Monitor hole cleaning parameters; torque, drag pick-up and slack-off weights, flow rate and rheology, and coordinate ROP's
- Adjust Yield Point and funnel viscosity with **BARAZAN D PLUS®**
- Pump sweeps prior to all trips and before tripping out of the hole to run casing

D. Torque & Drag Control

- Maintain a Total Hardness of less than 100 ppm with Soda Ash for maximum lubricant effectiveness
- Maintain a pH of 8.5-8.8 for maximum lubricant effectiveness. Do not allow the pH to fall below 7.0 and do not exceed a 10.0 pH
- Do not add diesel to the system. The use of diesel will damage the film created by lubricants resulting in increased torque and drag
- Lubricants will be added into the system in sweeps. This will allow for proper evaluation of the ideal product concentration and prevent over treatment
- **Initial Treatment –**
  - Pump pills with 1.0-1.5% **ENVIRO-TORQ®**, by volume.
  - Pills may be pumped until a 2.5-3.0% concentration of lubricants, by volume, is reached. Exceeding this amount results in diminishing returns economically
- **BAROTROL® –**
  - The initial treatment plan above is currently being used with great success in wells in the area. If adverse wellbore conditions are encountered **BAROTROL®** may be added to the system. **BAROTROL®** additions to the system should be through the use of sweeps rather than by mixing directly to the system. Total concentration should not exceed 3.0 ppb, by volume. Exceeding this level will result in diminishing returns economically
- **LUBRA-BEADS**
  - Lubra Beads may be added to sweeps, not to exceed 8 ppb, by volume
  - Some operators spot pills with Lubra Beads in the lateral prior to running open hole packer system or production liner

E. **Formation Considerations**

- The Tubb, Leonard, Wolfcamp and Cisco will be drilled

F. **Lost Circulation**

- Acid soluble LCM products are recommended to minimize the potential for formation damage **in potentially producing formations**. The use of non-acid soluble LCM products is discouraged
- Pump **BARACARB® 50** and **150** and/or **BAROFIBRE O®** sweeps for seepage control
- If excessive seepage loss occurs, the following product concentration is recommended for LCM sweeps:
  30 bbl whole mud with a minimum
  10 ppb **BAROFIBRE O®**
  10 ppb **BARACARB 50®**
  10 ppb **STEELSEAL 150®**
- Maintain a sufficient inventory of lost circulation material, such as **BARACARB® 50** and **150, BAROFIBRE O®**, and **STEELSEAL®** on location at all times.
- Product concentrations are limited by jet size and mud motor/MWD restrictions. Verify all sweeps types and concentrations with MWD engineer prior to pumping.
- **In non-producing formations,** Drilling Paper can be used for seepage control
- For excessive seepage or lost returns mix in 100 bbls Fresh Water the following:
  1 sack of Soda Ash
  AQUAGEL® for a 35+ sec/1000cc funnel viscosity
  8-10 ppb **PLUGIT®**
  8-10 ppb **BARO-SEAL®**
  6-8 ppb Cottonseed Hulls
  If returns cannot be reestablished we recommend dry drilling. Pump frequent pre-mixed **ZEOGEL®**/LCM or pre-hydrated **AQUAGEL®**/LCM sweeps while dry drilling to minimize the potential for stuck pipe due to solids accumulation in the annulus
- Product concentrations are limited by jet size and mud motor/MWD restrictions. Verify all sweeps types and concentrations with MWD engineer prior to pumping

G. **Abnormal Pressure**

- Abnormal pressure could be encountered in the Wolfcamp. Use of a rotating head and flow line valve is recommended
- Keep the hole full on connections, surveys, and trips to minimize the potential for flows
- Closely monitor background gas and flow line cuttings for indications of abnormal pressure. Check pits frequently for an abnormal gain or loss while drilling ahead and initiate well control procedures if an abnormal situation is encountered
- Control trip speed in order to prevent swabbing or surging the well bore. Monitor the pits for an abnormal gain or loss on trips and begin well control procedures if an abnormal situation is encountered
- Increase the weight slowly with Brine in order to minimize the potential for lost returns

3.3.6 SCE Requirements

- Multiple, High-G, linear motion shale shakers are recommended in order to maximize the system solids removal efficiency. Run all available solids control equipment to prevent solids build-up
- All shale shakers should be "screened up" with finer mesh screens whenever possible without the loss of drilling fluid off the end of the shakers
- The shale shakers should be continuously monitored for the proper distribution of drilling fluid across the screens to fully utilize the entire surface area of the screens. The drilling fluid should cover 2/3 to 3/4 of the length of the screens. Damaged screens should be promptly changed
- If near size particle blinding occurs, an attempt should be made to "screen-up" to alleviate this problem. If "screening-up" does not solve this situation, then coarser mesh screens must be installed until past this formation

Mud Conditioner, Mud Cleaner or Centrifuge:

- It is recommended to use a mud Cleaner to accomplish the maximum removal of drill solids. The screen should be as fine as possible while utilizing the mud Cleaner for this purpose. This will maximize the drill solids removal efficiency while maintaining drilling fluid properties within the prescribed parameters

4.0 Well Cost

4.0.1 Interval I Cost

AKA Energy
Maljamar AGI #2
Sec 21 - T17S - R32E
Lea County, New Mexico

Version 1.0

Discount Cost

0'-890' — **26" Hole Size**

	I.D.	Depth	BBLS
Pit Volume			500
Casing	30.00	80	70
Open Hole	26.00	890	532
Washout %	15		172
%SCE	80		
% LGS	6		
Dilution	2.0		703
Total Volume			1,977

Spud Mud
0'-890'

PRODUCTS	PACKAGE	PPB	UNITS	PRICE	COST
AQUAGEL	50		200	$5.27	$1,054.00
Drilling Paper	50		15	$11.03	$165.45
EZ Mud	40		10	$79.44	$794.40
Lime	50		15	$6.02	$90.30
Soda Ash	50		20	$12.31	$246.20
Drill Starch	50		30	$22.58	$677.40
Pallets	each		5	$15.00	$75.00
Shrink Wrap	each		15	$15.00	$225.00

TOTAL COST OF MUD MATERIALS				**$3,327.75**
ENGINEERING SERVICES				
Day Checks	2	DAYS @	$100.00 Each	$200.00
24 Hour Service	0	DAYS @	Each	$0.00
Material Trucking	75,000	LBS @	$2.00 / 100 WT	$1,500.00
TAXES				$414.79
TOTAL ESTIMATED LIST COST				**$5,442.54**
CUMULATIVE COST				**$5,442.54**

4.0.2 Interval II Cost

Version 1.0

AKA Energy
Maljamar AGI #2
Sec 21 - T17S - R32E
Lea County, New Mexico

Discount Cost

890'-2,500' — **17.5" Hole Size**

	I.D.	Depth	BBLS
Pit Volume			600
Casing	19.12	890	316
Open Hole	17.50	2,500	479
Washout %	15		154
%SCE	80		
% LGS	6		
Dilution	2.0		633
Total Volume			2,183

Brine

890'-2,500'

PRODUCTS	PACKAGE	PPB	UNITS	PRICE	COST
BARADEFOAM HP	5		2	$229.12	$458.24
Cedar Fiber	50		25	$10.09	$252.25
Drilling Paper	50		25	$11.03	$275.75
EZ-MUD	50		10	$9.44	$94.40
Lime	50		25	$6.02	$150.50
ZEOGEL	50		50	$9.41	$470.50
Shrink Wrap	each		10	$15.00	150.00

TOTAL COST OF MUD MATERIALS				**$1,851.64**
ENGINEERING SERVICES				
Day Checks	6	DAYS @	$100.00 Each	$600.00
24 Hour Service	0	DAYS @	Each	$0.00
Material Trucking	50,000	LBS @	$2.00 / 100 WT	$1,000.00
TAXES				$284.76
TOTAL ESTIMATED LIST COST				**$3,736.40**
CUMULATIVE COST				**$9,178.94**

4.0.3 Interval III Cost

Version 1.0

AKA Energy
Maljamar AGI #2
Sec 21 - T17S - R32E
Lea County, New Mexico

Discount Cost

2,500'-6,400' — **12.25" Hole Size**

	I.D.	Depth	BBLS
Pit Volume			600
Casing	12.62	2,500	386
Open Hole	12.25	6,400	569
Washout %	15		183
%SCE	70		
% LGS	6		
Dilution	2.0		752
Total Volume			2,490

Cut Brine

2,500'-6,400'

PRODUCTS	PACKAGE	PPB	UNITS	PRICE	COST
BARA DEFOAM HP	5		2	$229.12	$458.24
Cedar Fiber	50		25	$14.67	$366.75
Drilling Paper	50		20	$11.03	$220.60
EZ-MUD	50		10	$79.44	$794.40
Lime	50		50	$6.02	$301.00
ZEOGEL	50		100	$9.41	$941.00
Shrink Wrap	each		10	$15.00	150.00

TOTAL COST OF MUD MATERIALS **$3,231.99**

ENGINEERING SERVICES

Day Checks	6	DAYS @	$100.00 Each	$600.00
24 Hour Service	0	DAYS @	Each	$0.00
Material Trucking	50,000	LBS @	$2.00 / 100 WT	$1,000.00
TAXES				$398.64

TOTAL ESTIMATED LIST COST **$5,230.63**
CUMULATIVE COST **$14,409.57**

4.0.4 Interval IV

Version 1.0

AKA Energy
Maljamar AGI #2
Sec 21 - T17S - R32E
Lea County, New Mexico

Discount Cost

6,400'-11,114' — **8.5" and 8.75" Hole Size**

	I.D.	Depth	BBLS
Pit Volume			600
Casing	8.84	6,400	485
Open Hole	8.75	11,114	351
Washout %	5		36
%SCE	70		
% LGS	6		
Dilution	2.0		387
Total Volume			1,858

WBM

6,400'-11,114'

PRODUCTS	PACKAGE	PPB	UNITS	PRICE	COST
BARA DEFOAM HP	5		4	$229.12	$916.48
BARAZAN D PLUS	25		100	$149.63	$14,963.00
ENVIRO-TORQUE	55		10	$1,051.48	$10,514.80
LIME	50		50	$6.02	$301.00
PAC L	50		30	$121.54	$3,646.20
SODA ASH	50		75	$12.31	$923.25
ZEOGEL	50		400	$9.41	$3,764.00
BAROID	100		160	$14.67	$2,347.20
Shrink Wrap	Each		20	$15.00	$300.00

TOTAL COST OF MUD MATERIALS				**$37,675.93**
ENGINEERING SERVICES				
Day Checks	10	DAYS @	$100.00 Each	$1,000.00
24 Hour Service	0	DAYS @	Each	$0.00
Material Trucking	75,000	LBS @	$2.00 / 100 WT	$1,500.00
TAXES				$3,314.51
TOTAL ESTIMATED LIST COST				**$43,490.44**
CUMULATIVE COST				**$57,900.01**

4.0.5 Total Well Cost

Version 1.0

AKA Energy
Maljamar AGI #2
Sec 21 - T17S - R32E
Lea County, New Mexico

Discount Cost

Total Product Mix

PRODUCTS	Package	UNITS		PRICE	COST
AQUAGEL	50	200		$5.27	$1,054.00
BARA DEFOAM HP	5	8		$229.12	$1,832.96
BARAZAN D PLUS	25	100		$149.63	$14,963.00
Cedar Fiber	50	50		$10.09	$504.50
Drilling Paper	40	60		$11.03	$661.80
ENVIRO-TORQUE	55	10		$1,051.48	$10,514.80
EZ-MUD	5	30		$79.44	$2,383.20
Lime	50	140		$6.02	$842.80
PAC L	50	30		$121.54	$3,646.20
Soda Ash	50	95		$12.31	$1,169.45
ZEOGEL	50	550		$9.41	$5,175.50
Drill Starch	50	30		$22.58	$677.40
BAROID	100	160		$14.67	$2,347.20
Pallets	1 ea	5		$15.00	$75.00
Shrink Wrap	1 ea	55		$15.00	$825.00
TOTAL COST OF MUD MATERIALS					**$46,672.81**

ENGINEERING SERVICES				
Day Checks	**24**	**DAYS @**	**$100.00 Each**	**$2,400.00**
24 Hour Service	**0**	**DAYS @**	**Each**	**$0.00**
Material Trucking	**250,000**	**LBS @**	**$2.00 / 100 WT**	**$5,000.00**
TAXES				**$4,412.70**
TOTAL ESTIMATED COST				**$57,900.01**

5.0 Terms and Conditions

The cost in this analysis is good for the materials and/or services outlined within. In order to meet your needs under this proposal with a high quality of service and responsive timing, Halliburton will be allocating limited resources and committing valuable equipment and materials to your area of operations. Accordingly, the discounts reflected in this proposal are available only for materials and services awarded on a first-call basis. Alternate pricing may apply in the event that Halliburton is awarded work on any basis other than as a first-call provider.

The unit prices stated in the proposal are based on our current published prices. The projected equipment, personnel, and material needs are only estimates based on information about the work presently available to us. At the time the work is actually performed, conditions then existing may require an increase or decrease in the equipment, personnel, and/or material needs. Charges will be based upon unit prices in effect at the time the work is performed and the amount of equipment, personnel, and/or material actually utilized in the work. Taxes, if any, are not included. Applicable taxes, if any, will be added to the actual invoice.

It is understood and agreed between the parties that with the exception of the subject discounts, all services performed and equipment and materials sold are provided subject to Halliburton's General Terms and Conditions contained in our current price list, (which include LIMITATION OF LIABILITY and WARRANTY provisions), and pursuant to the applicable Halliburton Work Order Contract (whether or not executed by you), unless a Master Service and/or Sales Contract applicable to the services, equipment, or materials supplied exists between your company and Halliburton, in which case the negotiated Master Contract shall govern the relationship between the parties. A copy of the latest version of our General Terms and Conditions is available from your Halliburton representative or at: http://www.halliburton.com/hes/general_terms_conditions.pdf for your convenient review, and we would appreciate receiving any questions you may have about them. Should your company be interested in negotiating a Master Contract with Halliburton, our Law Department would be pLeased to work with you to finalize a mutually agreeable contract. In this connection, it is also understood and agreed that Customer will continue to execute Halliburton usual field work orders and/or tickets customarily required by Halliburton in connection with the furnishing of said services, equipment, and materials.
Any terms and conditions contained in purchase orders or other documents issued by the customer shall be of no effect except to confirm the type and quantity of services, equipment, and materials to be supplied to the customer.
If customer does not have an approved open account with Halliburton or a mutually executed written contract with Halliburton, which dictates payment terms different than those set forth in this clause, all sums due are payable in cash at the time of performance of services or delivery of equipment, products, or materials. If customer has an approved open account, invoices are payable on the twentieth day after date of invoice.

Customer agrees to pay interest on any unpaid balance from the date payable until paid at the highest lawful contract rate applicable, but never to exceed 18% per annum. In the event Halliburton employs an attorney for collection of any account, customer agrees to pay attorney fees of 20% of the unpaid account, plus all collection and court costs.

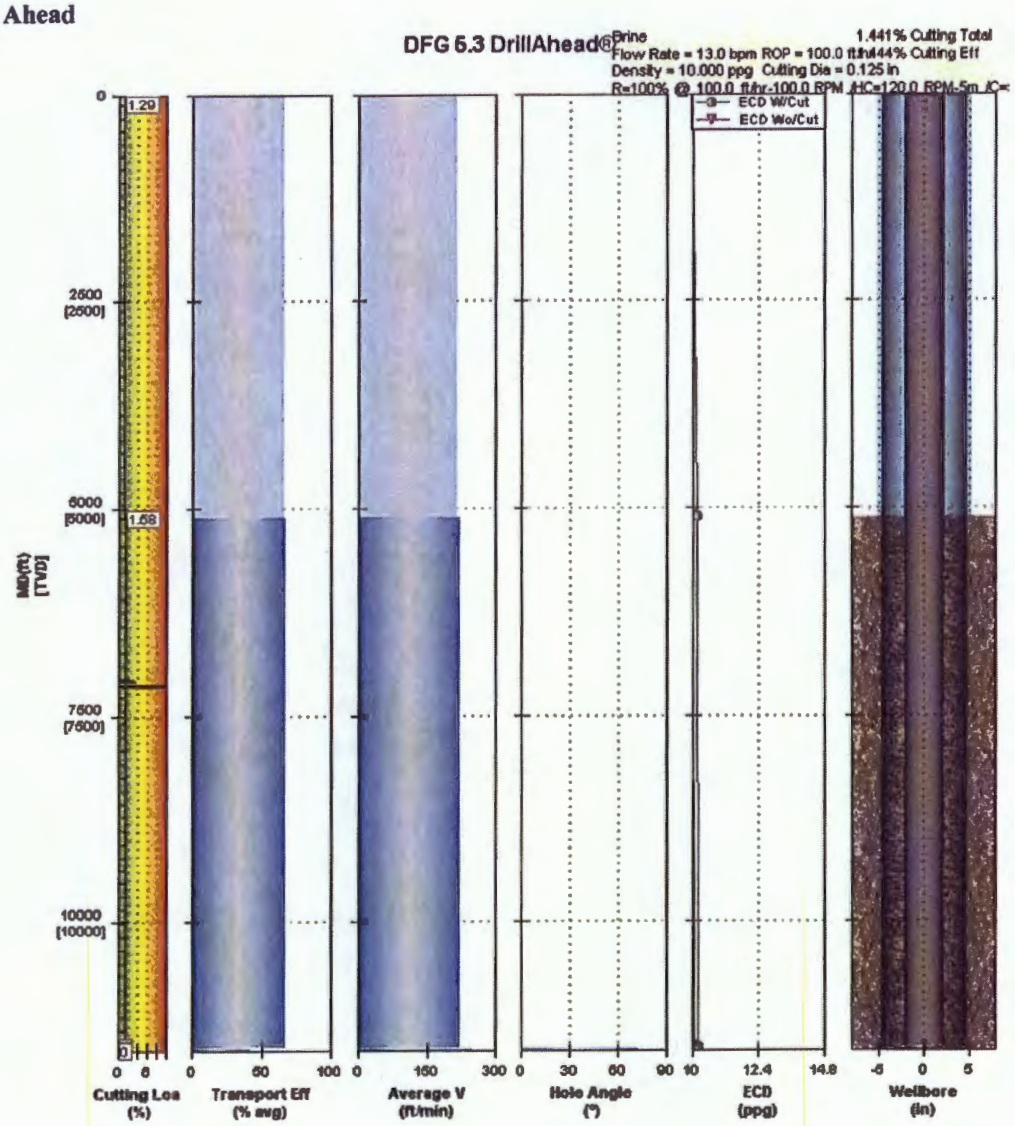
6.0 Offset Data

Offset Data will be provided upon request.

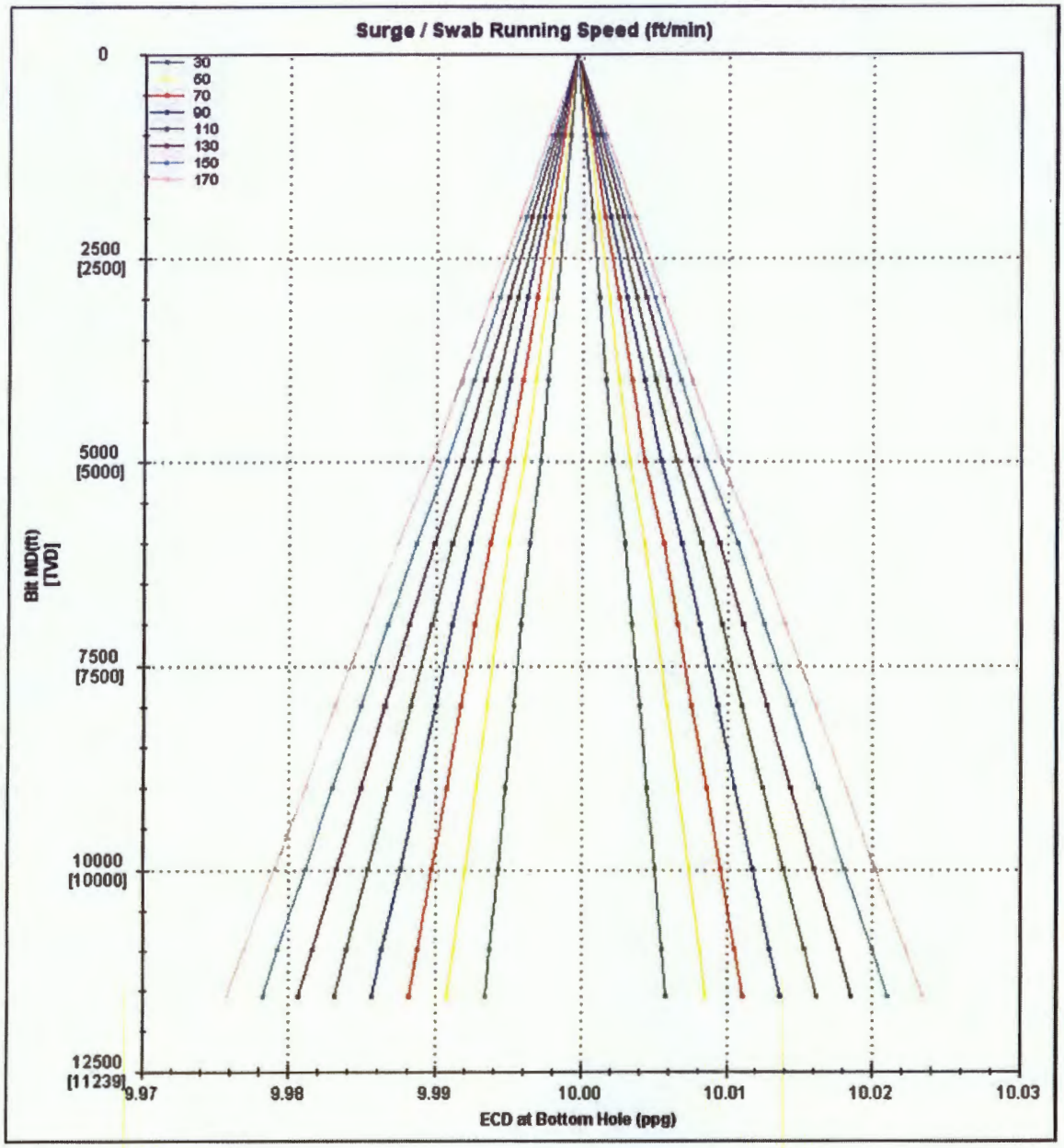
7.0 Appendixes

7.0.1 DFG Hydraulics—Available upon request.

- **Drill Ahead**



- Surge and Swab



7.0.2 Lost Circulation Recommendation

There are four primary loss types in drilling operations. They have been defined as follows for the critical nature of this well:

Loss Severity	% of Loss Rate	Typical Formations
A. Catastrophic	90% - No returns	Cavernous/large fractures
B. Severe	20%-90% 35 bbls/hr or more	Large sections of unconsolidated sands/ fractures.
C. Partial	10-20% 10-35 bbls/hr	Unconsolidated sands and gravel: small open fractures
D. Seepage	<10% 1-10 bbls/hr	Porous and permeable shell beds/reef deposits. It should be expected to lose 2.0 bbls of mud per bbl of cuttings drilled based on average cuttings retention of 1.5 bbl/bbl and .5 bbl/bbl to the formation.

Note: Prior to assuming that lost circulation to the formation has taken place, all surface equipment must be examined for Leaks or breaks i.e. mud pits, solids control equipment, mud mixing system and/or incorrectly lined up pumps or circulating lines.

- Constant monitoring of pit levels should be practiced and all drilling indicators monitored. For more serious seepage add an additional 10-30 ppb of equally mixed grade **STEELSEAL** to the base mud for use in sweeps. If needed for more serious losses, concentrations up to 100 ppb of equally mixed grade **STEELSEAL** may be used. Always verify LCM concentrations with logging services provider prior to pumping. Do not exceed logging tool limitations.

1. Seepage Loss Control & Lost Returns

The following should be applied to **reduce seepage losses**:

a) **All LCM treatments should be done in sweeps.** Due to the nature of this system, all LCM added directly to the system will be flocculated and removed at the shakers. It is very important that a sweep program be agreed upon and followed while drilling this well.

2. Drilling Into the Tops of Sands

The following should be considered for pumping when drilling into the tops of sands.

a) Mix and pump the following LCM formulation when initially drilling into the depleted sands. Time pumping so the sweep cLears the bit as the top of the sand is entered.

BARACARB 50	10 ppb
BARACARB 150	10 ppb
STEELSEAL (regular)	10 ppb

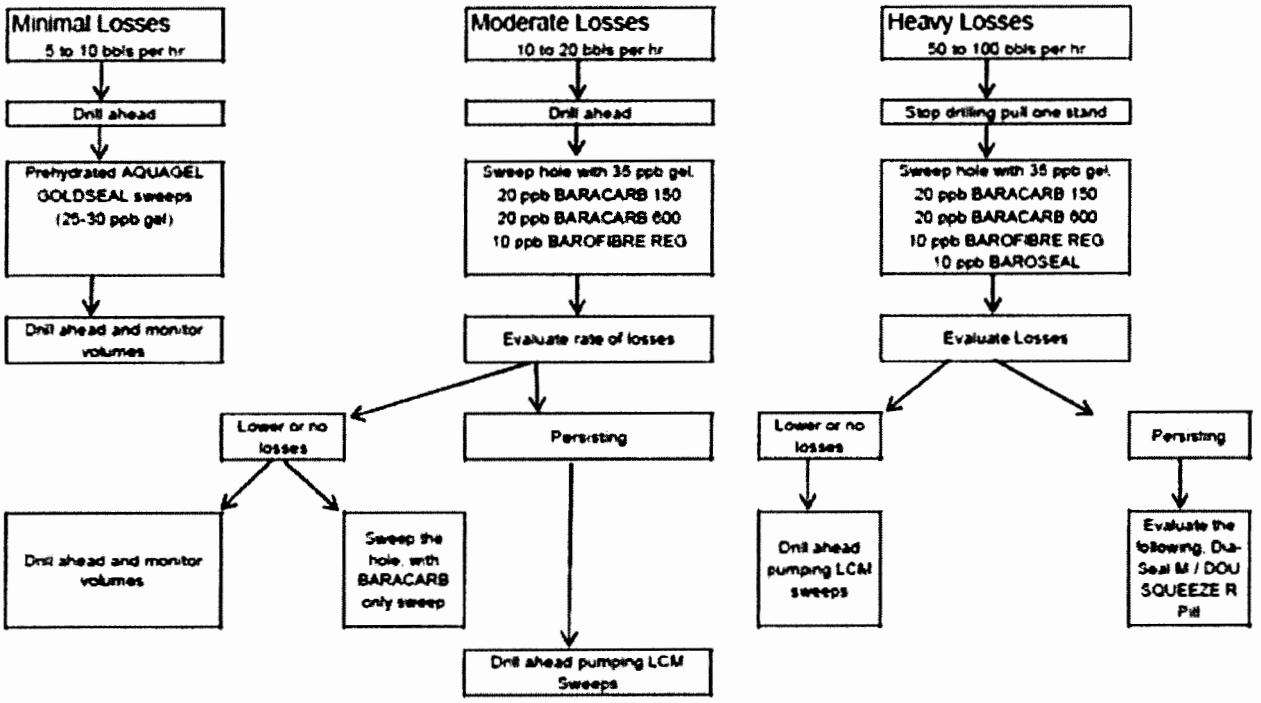
3. **Curing Lost Returns (Severe and Catastrophic)**
The following should be considered for **curing lost returns if they occur.**

a) Immediately fill the backside with water (if necessary) to stabilize the hole and to calculate the fracture closure stress.
b) Lower ECD by reducing flow rate.
c) With well control in mind, reduce the MW as much as possible.
d) Keeping the backside full, spot the following pill across the loss zone, pick up above the loss zone, and allow the hole to heal for 6-12 hours.

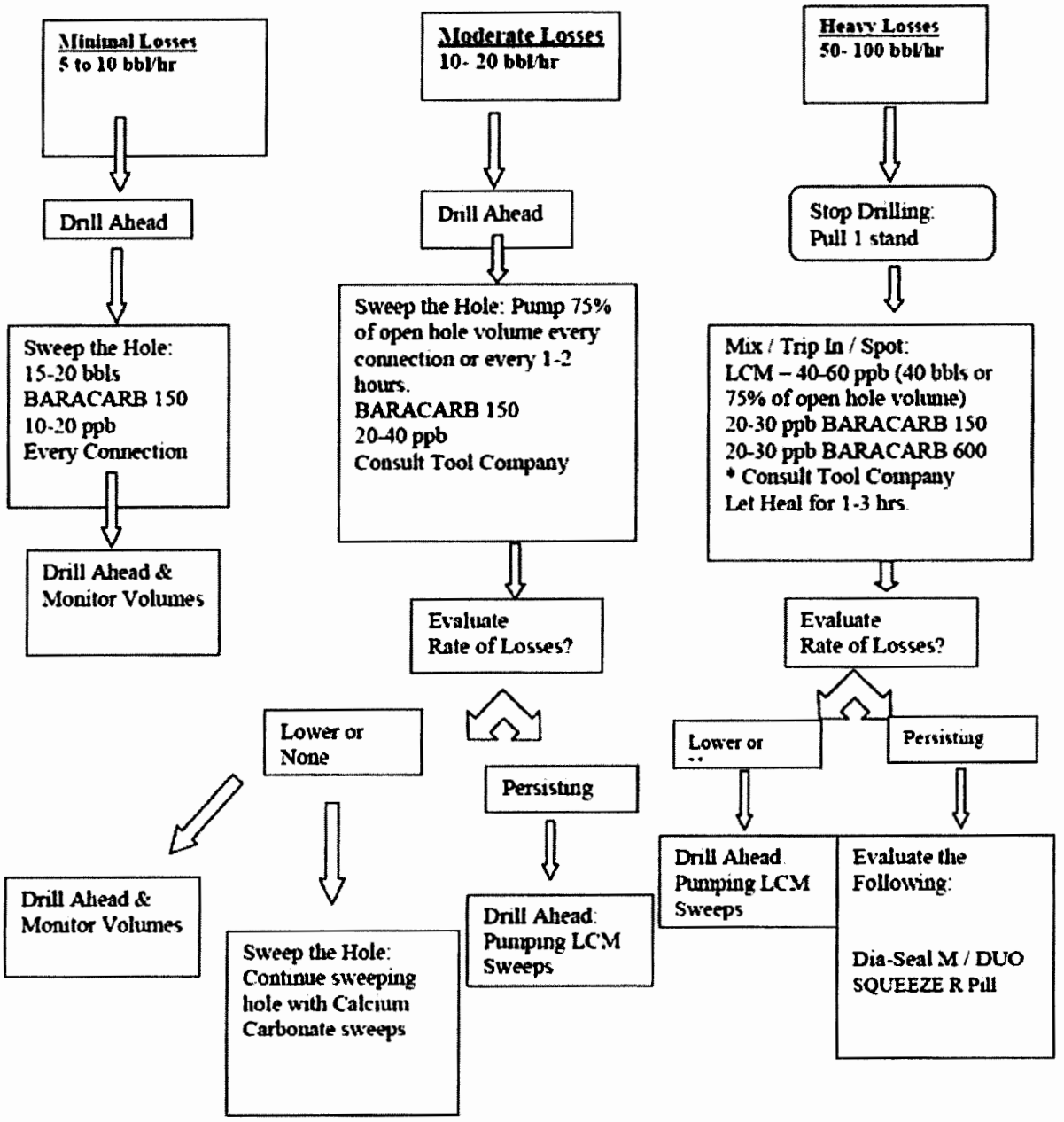
BARACARB 50	20 ppb
BARACARB 150	20 ppb
BAROFIBRE	10 ppb
STEELSEAL (regular)	35 ppb
STEELSEAL (fine)	35 ppb

e) Spot and squeeze a HYDRO-PLUG slurry.
f) Spot and squeeze a HYDRO-PLUG/cement slurry.

Surface Hole LCM decision tree



Production LCM Decision Tree



7.0.3 WEIGHTED SWEEPS

- Weighted sweeps have been proven effective in increasing ability to clean the hole when used properly. While building the curve section, weighted sweeps at 2.0- 2.5 ppg mud weight should be utilized once inclination has reached greater than 25 degrees. Weighted sweeps should be pumped as needed when rotation of the pipe is applied/ planned. Communication with the directional driller, company men, and mud engineer is key in identifying any changes in parameters that might indicate cleaning deficiencies. Weighted sweeps should be utilized when pipe rotation occurs.

7.0.4 Testing at the Wellsight

- 24 hr-services available upon request.

7.0.5 Routine Sampling-Upon Request

- Mud samples *(1 GALLON)* should be sent in any time the need arises and would be additional to the routine samples.

7.0.6 Supporting Lab Data-Upon Request

- Report No. EMB-1145-11 Project No. 3513

7.0.7 **Stock Point Information**

Monahans, Texas

PHYSICAL & MAILING ADDRESS:	400 North Industrial Monahans, Texas 79756
TELEPHONE:	432 – 943 - 8691
FAX NUMBER:	432 – 943 - 8694

PERSONNEL:

Operations Manager:	**Dustin Pargmann** Office: 432-943-1759 Mobile: 432-556-3051
Stockpoint Manager:	**Justin Brisnahan** Office: 432-943-1761 Mobile: 432-208-8674

FACILITIES:

Site Size:	8 acres
Bulk Plant:	1,000 Tons Bulk Barite storage 1,400 Tons Bulk Gel Storage
Warehouse:	1 – 6,400 square foot closed warehouse 1 - 7,000 square foot open warehouse
Liquid Mud Plant:	1 – 250 barrel oil base mixing pits 1 – 500 barrel water base mud mixing pit
Liquid mud Storage:	12 – 500 barrel Upright Tanks 4 – 500 barrel Horizontal Frac Tanks Total Storage – 8,000 barrel

MAJOR EQUIPMENT:

Forklifts:	3 – Warehouse forklifts 6 – All terrain forklifts
Trucks:	12 – Tractors with winch and blower
Trailers:	6 – Lowboy Trailers 2 – Float Trailers 5 – Bulk Trailers 2 – Goose Neck 35 – Bar Bins

NUMBER OF PERSONNEL: 9

MISCELLANEOUS:

Communications: 24 hour telephone
24 hour delivery service

Other:

Lab Size:	8' x 20' (Mud Lab @ Mixing Plant)
Office Size:	40' x 80'
Drivers' room:	35' x 35'

7.0.8 Wellsight Reporting Information

- **Distribution List for Mud Reports**
  - **TO:**
  - **CC:**

- **Mud Report Format**

  - **Subject Line: Maljamar AGI #2 Mud Report**

  - **Body (text):**

Customer Name
Rig Name
Well Name
Date

Operations:
Detailed past 24 hrs activity

Forecast:
24 hr

Fluid:
Type of fluid
Mud weight: 0 ppg
Any additional treatments or address any issues with solution/ treatment

Casing:
Surface:
Intermediate:
Production:

7.0.9 Reporting

250.456 What safe practices must the drilling fluid program follow?

Tripping

(1) Before starting out of the hole with drill pipe, your must properly condition the drilling fluid. You must circulate a volume of drilling fluid equal to the annular volume with the drill pipe just off-bottom. You may omit this practice if documentation in the driller's report shows:

(2) No indication of formation fluid influx before starting to pull the drill pipe from the hole;

(3) The weight of returning drilling fluid is within 0.2 pounds per gallon (1.5 pounds per cubic foot) of the drilling fluid entering the hole; and

(4) Other drilling fluid properties are within the limits established by the program approved in the APD.

Daily Testing Requirements

When circulating, you must test the drilling fluid at Least once each tour, or more frequently if conditions warrant. Your tests must conform to industry-accepted practices and include density, viscosity, and gel strength; hydrogen ion concentration; filtration; and any other tests the District Manager requires for monitoring and maintaining drilling fluid quality, prevention of down hole equipment problems and for kick detection. You must record the results of these tests in the drilling fluid report; and

250.458 What quantities of drilling fluids are required?

(1) You must use, maintain, and replenish quantities of drilling fluid and drilling fluid materials at the drill site as necessary to ensure well control. You must determine those quantities based on known or anticipated drilling conditions, rig storage capacity, weather conditions, and estimated time for delivery.

(2) You must record the daily inventories of drilling fluid and drilling fluid materials, including weight materials and additives in the drilling fluid report.

(3) If you do not have sufficient quantities of drilling fluid and drilling fluid material to maintain well control, you must suspend drilling operations.

215. Drilling Fluids

Safe Practices

1. Before starting out of the hole with drill pipe, you drilling fluid must be properly conditioned. A volume of drilling fluid equal to the annular volume must be circulated with the drill pipe just off-bottom. This practice may be omitted if documentation in the driller's report shows:

a. No indication of formation fluid influx before starting to pull the drill pipe from the hole;
b. The weight of returning drilling fluid is within 0.2 pounds per gallon of the drilling fluid entering the hole

2. When circulating, the drilling fluid must be tested at Least once each work shift or more frequently if conditions warrant. The tests must conform to industry-accepted practices and include density, viscosity, and gel strength; hydrogen ion concentration filtration; and any other tests the District Manager requires for monitoring and
maintaining drilling fluid quality, prevention of down hole equipment problems and for kick detection. The test results must be recorded in the drilling fluid report.

Drilling Fluid Quantities

1. Quantities of drilling fluid and drilling fluids materials must be maintained and replenished at the drill site as necessary to ensure well control. These quantities must be determined based on known or anticipated drilling conditions, rig storage capacity, weather conditions, and estimated time for delivery.

2. The daily inventories of drilling fluid and drilling fluid materials must be recorded, including weight materials and additives in the drilling fluid report.

3. If there are not sufficient quantities of drilling fluid and drilling fluid material on to maintain well control, the drilling operations must be suspended.

HALLIBURTON

Red Willow Production Co
PO Box 369
Ignacio, Co., 81137

MALJAMAR AGI 2
AGI
LEA County, NM, US
API/UWI 30-025-42628-00
SEC: 21,TWP: 17,RNG: 32
Rig: NABORS M10

Cementing Cost Estimate

Surface, 1st Intermediate, 2nd Intermediate,
& 2 Stg Production w/Thermalock
Proposal 185696 - Version 2.0
October 01, 2015

Submitted by:
Jose Moroles
125 W Missouri - Suite 500
Midland, TX - 79701
432.202.1024

HALLIBURTON

Contents

Halliburton appreciates the opportunity to present this cost estimate and looks forward to being of service to you.

Foreword

MIDLAND SALES OFFICE
1-800-844-8451

ODESSA DISTRICT
1-432-571-8600

CEMENTING:
Steve Luscombe / Joe Briseno
Robert Simpson / Mike Kilgore

STIMULATION:
Robert Rodriguez / Preston Watts
John Perez / Juan Jimenez

LOGGING & PERFORATING
Xavier Emiliano / Sammy Fowler

COILED TUBING
Quincy Cole

TOOLS & TESTING, PROD. SVCS., TCP, COMPL. PRODUCTS
Steve Engleman / Kevin Warren

BAROID
Dustin Pargmann / Joe Molina

SPERRY
Mark Bland / Wade Mitchell

PREPARED BY: Bruce Day

HOBBS DISTRICT
1-575-492-5900

CEMENTING
Louis Ginanni / Jaime Gonzales
Andrew Dennis / Clay Erwin

STIMULATION
Robert Rodriguez / Preston Watts
John Perez / Juan Jimenez

LOGGING & PERFORATING
Tatiana Rodriguez / John Harrison

DRILL BITS:
Whit McWilliams / Mike Washington

TOOLS & TESTING, PROD. SVCS., TCP, COMPL. PRODUCTS
Matthew Berry / Tommy Bradford

ARTIFICIAL LIFT
Jeff Wilhelm / Heath Hauldren

Joe Moroles, Project Coordinator

Cementing Best Practices

1. **Cement quality and weight**: You must choose cement slurry that is designed to solve the problems specific to each string of pipe.
2. **Waiting time**: You must hold the cement slurry in place and under pressure until it hardens. Cement slurry is a time-dependent liquid and must be allowed to undergo a hydration reaction to produce a competent cement sheath. Fresh cement slurry can be worked (thickening or pump time) as long as it is plastic, and the initial set of cement occurs during the rapid reaction stage. If the cement is not allowed to hydrate; it will be subject to changes in density, dilution, settling, water separation, and gas cutting that can lead to lack of zonal isolation with resultant bridging in the annulus.
3. **Pipe movement**: Pipe movement may be one of the single most influential factors in mud removal. Reciprocation and/or rotation mechanically breaks up gelled mud and constantly changes the flow patterns in the annulus for better cement bonding.
4. **Mud properties:** Plastic viscosity (PV) should be less than 15 centipoise (cp), and less than 10 cp, if possible, yield point (YP) should be less than 10 pound/100-square feet (lb/100 ft²) decreasing down to about 5 lb/100 ft².
5. **Mud gel strength**: A nonthixotropic mud is desirable for good mud removal. Mud left in the hole prior to running casing should have 10-second/10-minute/30-minute gel strength such that the 10-minute is less than double the 10-second and the 30-minute is less than 20 lb/100 ft²). Sufficient shear strength may not be achieved on a primary cement job to remove mud left in the hole should the mud develop more than 25 lb/100 ft².
6. **Mud fluid loss**: Decreasing the filtrate loss into a permeable zone enhances the creation of a thin filter cake. This increases the fluid mud in the hole, which is more easily removed. Generally, an API fluid loss of 7 or 8 milliliter (ml) is sufficient with high-temperature/high-pressure fluid loss (HTHP) to more than double this amount.
7. **Circulation**: Circulate bottoms up twice, or until well conditioned mud is being returned to the surface. There should be no cuttings in the mud returns. An annular velocity of 260 feet per minute is optimum (SPE/IADC 18617), if possible.
8. **Flow rate**: Turbulent flow is more desirable flow regime for mud removal. If turbulence cannot be achieved, better mud removal is found when maximum flow energy is used. The maximum pump rate should be determined to obtain the best flow regime.
9. **Hole size**: The optimum hole size recommended for good mud removal is 1.5 to 2 inches larger than the casing or liner size. Hole sizes larger than 2 inches annular space can be dealt with, but those that are smaller than 1.5 inches present difficult problems.
10. **Pipe Centralization**: This helps to create a uniform flow area perpendicular to flow direction. Cement will take the path of least resistance so that centralization is important in keeping the pipe off the walls of the hole. At least a 70 percent standoff should be achieved for centralization.
11. Rat hole: When applicable, a weighted viscous pill in the rat hole prevents cement from swapping with lighter weight mud when displacement stops.
12. **Shoe joint**: A shoe joint is recommended on all primary casings and liners. The length of the shoe joint will vary, although the absolute minimum length is one joint of pipe. If conditions exist, such as not running a bottom plug, two joints should be the minimum length.

Service Center Contacts

Slurry Volumes and Slurry Designs

These slurry volumes and slurry designs are for planning purposes. Final slurry designs and volumes will be adjusted for best results based on drilling results, hole conditions, and fluid or open hole calipers (when available).

Surface Casing

Job Information Surface Casing

Job Criticality Status: GREEN
Well Name: MALJAMAR AGI Well #: 2

Conductor	0 - 40 ft (MD)
Outer Diameter	30 in
Inner Diameter	29.25 in
26" Hole	40 - 890 ft (MD)
Inner Diameter	26 in
Surface Casing	0 - 890 ft (MD)
Outer Diameter	20 in
Inner Diameter	19.124 in
Linear Weight	94 lbm/ft
Casing Grade	J55
Shoe Joint Length	40 ft

Estimated Calculations Surface Casing

Stage 1

Shoe Joint Volume: (40 ft fill)

40 ft * 1.9947 ft3/ft	= 79.79 ft3
	= 14.2 bbl
	ft3
	bbl

Total Pipe Capacity:

850 ft * 1.9947 ft3/ft	= 1695.52 ft3
40 ft * 1.9947 ft3/ft	= 79.79 ft3
	= 316.2 bbl

Displacement Volume to Shoe Joint:

Capacity of Pipe - Shoe Joint	= 316.2 bbl - 14.2 bbl
	= 302 bbl

Job Volume Estimates Surface Casing

Stage 1

Fluid 1: Water Based Spacer

Gel Spacer	Fluid Density:	8.4 lbm/gal
2.50 lbm/bbl CHEM,FDP-S1050-12, BULK BAG	Liquid Volume:	20 bbl

Fluid 2: Lead Slurry

ECONOCEM (TM) SYSTEM	Fluid Weight:	12.9 lbm/gal
0.25 lbm Poly-E-Flake	Slurry Yield:	1.833 ft3/sack
	Total Mixing Fluid:	9.83 Gal/sack
	Liquid Volume:	269.3 bbl
	Calculated sack:	0 sack
	Proposed sack:	825 sack

Fluid 3: Tail Slurry

HALCEM (TM) SYSTEM	Fluid Weight:	[illegible]8 lbm/gal
1 % Calcium Chloride, Pellet	Slurry Yield:	1.[illegible] ft3/sack
	Total Mixing Fluid:	6.39 Gal/sack
	Liquid Volume:	149.2 bbl
	Calculated sack:	0 sack
	Proposed sack:	625 sack

Volume Estimate Table Surface Casing

Calculations are used for volume estimation. Well conditions will dictate final cement job design.
Stage 1

Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Estimated Avg Rate	Downhole Volume
1	SPACER	Gel Spacer	8.4		20 bbl
2	CEMENT	EconoCem - HLTRRC	12.9		825 sack
3	CEMENT	HalCem - C	14.8		625 sack

NOTE: These slurries and spacers will require lab testing. The additives and concentrations are estimates based on field experience in the area and may need to be modified prior to the job. The proposed spacer is designed to be generally compatible with water base mud systems. Compatibility testing with field mud samples used may indicate changes in the additive package and the related costs.

Cost Estimate

Mtrl Nbr	Description	Qty	UOM	Unit Price	Gross Amt	Discount %	Net Amount
7521	**CMT SURFACE CASING BOM**	1.00	JOB	0.00	0.00		0.00
1	ZI-MILEAGE FROM NEAREST HES BASE,/UNIT Number of Units	110.00 2	MI	9.79	2,153.80	75.00	538.45
2	MILEAGE FOR CEMENTING CREW Number of Units	110.00 1	MI	5.76	633.60	75.00	158.40
7	ENVIRONMENTAL CHARGE,/JOB,ZI	1.00	JOB	134.00	134.00		134.00
372867	Cmt PSL - DOT Vehicle Charge, CMT	6.00	EA	241.00	1,446.00		1,446.00
11881	OVERWEIGHT PERMIT FEE-CEMENTING	1.00	EA	60.00	60.00		60.00
16091	ZI - PUMPING CHARGE FEET/METERS (FT/M) DEPTH	1.00 FT 890	EA	5,290.00	5,290.00	75.00	1,322.50
141	RCM II W/ADC,/JOB,ZI ENTER FEET\METER\JOB\DAY NUMBER OF JOBS NUMBER OF UNITS	1.00 JOB 1 1	JOB	1,990.00	1,990.00	75.00	497.50
16115	FIELD STORAGE BIN ON SITE >8 HRS,DAY,ZI DAYS OR PARTIAL DAY(WHOLE NO.)	1.00 1	EA	1,344.00	1,344.00	75.00	336.00
74038	ZI PLUG CONTAINER RENTAL-1ST DAY HR/DAY/WEEK/MTH/YEAR/JOB/RUN DAYS OR FRACTION (MIN1)	1.00 DAY 1	EA	322.00	322.00	75.00	330.50
100003153	PLUG,CMTG,TOP,18-5/8 & 20 IN,PLSTC,16.79	1.00	EA	2,896.00	2,896.00	25.00	2,172.00
102175420	CHEM,FDP-S1050-12, BULK BAG	50.00	LB	65.29	3,264.50	75.00	816.12
452992	CMT, EconoCem (TM) system	825	SK	0.00	40,912.52	75.00	10,228.13
101216940	CHEM, Pol-E-Flake, 25 lb bag	207.00	LB	8.31	1,720.17	75.00	430.04
452986	CMT, HalCem (TM) system	625.00	SK	0.00	35,938.54	75.00	8,984.63
101509387	CHEM, CALCIUM CHLORIDE-PELLET, 50 LB SK	12.00	SK	180.30	2,163.60	75.00	540.90
76400	MILEAGE,CMT MTLS DEL/RET,/UNIT NUMBER OF TONS	55.00 68.904	MI	3.35	12,695.56	75.00	3,173.89
3965	HANDLE&DUMP SVC CHRG, CMT&ADDITIVES,I Unit of Measurement NUMBER OF EACH	1,620.00 EA 1	CF	5.49	8,893.80	75.00	2,223.45
3997	BULK TANK CLEANING,/JOB, ZI ENTER FEET\METER\JOB\DAY NUMBER OF JOBS NUMBER OF UNITS	1.00 JOB 1 1	JOB	3,090.00	3,090.00	96.28	115.00
	Total Gross Amount						**125,948.09**
	Total Item Discounts						**92,440.58**
	Total Net Amount	**USD**					**33,507.51**

Primary Plant: Hobbs, NM, USA
Secondary Plant: Artesia, NM, USA
Price Book Ref: 27 - PERMIAN BASIN
Price Date: 9/4/2015

Additional Services

SAP Mtrl Number	Description	Quantity	Unit of Measure	Unit Price	Discount (%)	Net Price
	25% Discount					
3	DERRICK CHARGE	1	EA	$ 987.00	25%	$ 740.25
	35% Discount					
464256	ADDITIONAL HOURS - BULK TRUCK	1	EA	$ 196.00	35%	$ 127.40
	HOURS	1				
17	MSC ON SITE,ADD HR,ZI	1	H	$ 1,139.00	35%	$ 740.35
	NUMBER OF UNITS	1				
802332	CEM STBY UNIT 8 HR OR FRACTION CASING JOB	1	UN	$ 10,000.00	35%	$ 6,500.00
803106	CEM STBY UNIT CSG JOB ADDL HR>8	1	EA	$ 1,139.00	35%	$ 740.35
	NUMBER OF HOURS	1				
	HR/DAY/WEEK/MTH/YEAR/JOB/RUN		H			
802333	CEM STBY UNIT 8 HR OR FRACTION MSC	1	UN	$ 10,000.00	35%	$ 6,500.00
803177	CEM STBY UNIT MULT STAGE ADDL HR>8	1	UN	$ 1,139.00	35%	$ 740.35
910253	CMT-ZI-100 BBL BLENDER, ADD HRS	1	EA	$ 1,139.00	35%	$ 740.35
	Services Discount					
775759	CEM RNTL BMXR 100 BBL 8HR OR FRACTION	1	EA	$ 3,898.00	75%	$ 974.50
	NUMBER OF HOURS	8				
	UNIT OF MEASURE - HRS		H			
116	BOOSTER PUMP-SKID,/DAY	1	EA	$ 1,362.00	75%	$ 340.50
	NUMBER OF DAYS	1				
756211	LAB TEST PER HOUR,MIN 4 HR	4	EA	$ 309.00	75%	$ 77.25
356745	3rd Party Rental Pass Through, CMT	1	EA	$ 3,500.00	0%	$ 3,500.00

1st Intermediate

Job Information 1st Intermediate

Job Criticality Status: GREEN
Well Name: MALJAMAR AGI — Well #: 2

Surface Casing	0 - 890 ft (MD)
Outer Diameter	20 in
Inner Diameter	19.124 in
Linear Weight	94 lbm/ft
Casing Grade	J-55
17-1/2" Hole	890 - 2550 ft (MD)
Inner Diameter	17.5 in
1st Intermediate Casing	0 - 2550 ft (MD)
Outer Diameter	13.375 in
Inner Diameter	12.515 in
Linear Weight	61 lbm/ft
Casing Grade	J-55
Shoe Joint Length	40 ft
Thread Type	BTC

Estimated Calculations 1st Intermediate

Stage 1

Shoe Joint Volume: (40 ft fill)

40 ft * 0.8543 ft3/ft	= 34.17 ft3
	= 6.1 bbl
	ft3
	bbl

Total Pipe Capacity:

890 ft * 0.8543 ft3/ft	= 760.29 ft3
1610 ft * 0.8543 ft3/ft	= 1375.36 ft3
	= 380.4 bbl

Displacement Volume to Shoe Joint:

Capacity of Pipe - Shoe Joint	= 380.4 bbl - 6.1 bbl
	= 374.3 bbl

Job Volume Estimates 1st Intermediate

Stage 1

Fluid 1: Water Based Spacer

Gel Spacer
2.50 lbm/bbl CHEM,FDP-S1050-12, BULK BAG

Fluid Density:	8.4 lbm/gal
Liquid Volume:	20 bbl

Fluid 2: Lead Slurry

ECONOCEM (TM) SYSTEM
5 % Salt
0.20 % HR-800

Fluid Weight:	12.7 lbm/gal
Slurry Yield:	1.941 ft3/sack
Total Mixing Fluid:	10.52 Gal/sack
Liquid Volume:	478.8 bbl
Calculated sack:	0 sack
Proposed sack:	1385 sack

Fluid 3: Tail Slurry

HALCEM (TM) SYSTEM

Fluid Weight:	[illegible]8 lbm/gal
Slurry Yield:	1.[illegible]3/sack
Total Mixing Fluid:	6.34 Gal/sack
Liquid Volume:	112.2 bbl
Calculated sack:	0 sack
Proposed sack:	475 sack

Volume Estimate Table 1st Intermediate

Calculations are used for volume estimation. Well conditions will dictate final cement job design.
Stage 1

Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Estimated Avg Rate	Downhole Volume
1	SPACER	Gel Spacer	8.4		20 bbl
2	CEMENT	EconoCem - HLC	12.7		1385 sack
3	CEMENT	HalCem - C	14.8		475 sack

NOTE: These slurries and spacers will require lab testing. The additives and concentrations are estimates based on field experience in the area and may need to be modified prior to the job. The proposed spacer is designed to be generally compatible with water base mud systems. Compatibility testing with field mud samples used may indicate changes in the additive package and the related costs.

Cost Estimate

Mtrl Nbr	Description	Qty	UOM	Unit Price	Gross Amt	Discount %	Net Amount
7522	**CMT INTERMEDIATE CASING BOM**	1.00	JOB	0.00	0.00		0.00
1	ZI-MILEAGE FROM NEAREST HES BASE,/UNIT Number of Units	110.00 3	MI	9.79	3,230.70	75.00	807.67
2	MILEAGE FOR CEMENTING CREW Number of Units	110.00 1	MI	5.76	633.60	75.00	158.40
7	ENVIRONMENTAL CHARGE,/JOB,ZI	1.00	JOB	134.00	134.00		134.00
372867	Cmt PSL - DOT Vehicle Charge, CMT	7.00	EA	241.00	1,687.00		1,687.00
11881	OVERWEIGHT PERMIT FEE-CEMENTING	1.00	EA	60.00	60.00		60.00
16091	ZI - PUMPING CHARGE FEET/METERS (FT/M) DEPTH	1.00 FT 2550	EA	7,095.00	7,095.00	75.00	1,773.75
141	RCM II W/ADC,/JOB,ZI ENTER FEET\METER\JOB\DAY NUMBER OF JOBS NUMBER OF UNITS	1.00 JOB 1 1	JOB	1,990.00	1,990.00	75.00	497.50
16115	FIELD STORAGE BIN ON SITE >8 HRS,DAY,ZI DAYS OR PARTIAL DAY(WHOLE NO.)	2.00 1	EA	1,3[illegible].00	2,688.00	75.00	672.00
74038	ZI PLUG CONTAINER RENTAL-1ST DAY HR/DAY/WEEK/MTH/YEAR/JOB/RUN DAYS OR FRACTION (MIN1)	1.00 DAY 1	EA	[illegible]322.00	[illegible]22.00	75.00	330.50
101235693	PLUG,CMTG,TOP,13 3/8,HWE,11.79 MIN/12.72	1.00	EA	[illegible]98.00	998.00	25.00	748.50
102175420	CHEM,FDP-S1050-12, BULK BAG	50.00	LB	65.29	3,264.50	75.00	816.12
452992	CMT, EconoCem (TM) system	1,385.00	SK	0.00	66,763.25	75.00	16,690.81
100003695	CHEM, SALT,CEM GR,BULK	[illegible]70.00	LB	0.57	3,459.90	75.00	864.97
101619742	CHEM, HR-800, 50 LB SACK	241.00	LB	11.07	2,667.87	75.00	666.97
452986	CMT, HalCem (TM) system	475.00	SK	0.00	26,467.00	75.00	6,616.75
76400	MILEAGE,CMT MTLS DEL/RET MIN NUMBER OF TONS	55.00 9.343	MI	3.35	16,461.45	75.00	4,115.36
3965	HANDLE&DUMP SVC CHRG, CMT&ADDITIVES,ZI Unit of Measure NUMBER OF EA	2,071.00 EA 1	CF	5.49	11,369.79	75.00	2,842.45
3997	BULK TANK CLEAN[illegible] EA/JOB, ZI ENTER FEET\METER\J[illegible]DAY NUMBER OF JOBS NUMBER OF UNITS	1.00 JOB 1 1	JOB	3,090.00	3,090.00	96.28	115.00
	Total Gross Amount						**153,382.06**
	Total Item Discounts						**113,784.31**
	Total Net Amount	**USD**					**39,597.75**

Primary Plant: Hobbs, NM, USA
Secondary Plant: Artesia, NM, USA
Price Book Ref: 27 - PERMIAN BASIN
Price Date: 9/4/2015

Additional Services

SAP Mtrl Number	Description	Quantity	Unit of Measure	Unit Price	Discount (%)	Net Price
	25% Discount					
3	DERRICK CHARGE	1	EA	$ 987.00	25%	$ 740.25
	35% Discount					
464256	ADDITIONAL HOURS - BULK TRUCK	1	EA	$ 196.00	35%	$ 127.40
	HOURS	1				
17	MSC ON SITE,ADD HR,ZI	1	H	$ 1,139.00	35%	$ 740.35
	NUMBER OF UNITS	1				
802332	CEM STBY UNIT 8 HR OR FRACTION CASING JOB	1	UN	$ 10,000.00	35%	$ 6,500.00
803106	CEM STBY UNIT CSG JOB ADDL HR>8	1	EA	$ 1,139.00	35%	$ 740.35
	NUMBER OF HOURS	1				
	HR/DAY/WEEK/MTH/YEAR/JOB/RUN		H			
802333	CEM STBY UNIT 8 HR OR FRACTION MSC	1	UN	$ 10,000.00	35%	$ 6,500.00
803177	CEM STBY UNIT MULT STAGE ADDL HR>8	1	UN	$ 1,139.00	35%	$ 740.35
910253	CMT-ZI-100 BBL BLENDER, ADD HRS	1	EA	$ 1,139.00	35%	$ 740.35
	Services Discount					
775759	CEM RNTL BMXR 100 BBL 8HR OR FRACTION	1	EA	$ 3,898.00	75%	$ 974.50
	NUMBER OF HOURS	8				
	UNIT OF MEASURE - HRS		H			
116	BOOSTER PUMP-SKID,/DAY	1	EA	$ 1,362.00	75%	$ 340.50
	NUMBER OF DAYS	1				
756211	LAB TEST PER HOUR,MIN 4 HR	4	EA	$ 309.00	75%	$ 77.25
356745	3rd Party Rental Pass Through, CMT	1	EA	$ 3,500.00	0%	$ 3,500.00

2nd Intermediate

Job Information 2nd Intermediate

Job Criticality Status: GREEN
Well Name: MALJAMAR AGI — Well #: 2

1st Intermediate Casing	0 - 2550 ft (MD)
Outer Diameter	13.375 in
Inner Diameter	12.515 in
Linear Weight	61 lbm/ft
Casing Grade	J-55
Thread Type	BTC
12-1/4" Hole	2550 - 6500 ft (MD)
Inner Diameter	12.25 in
2nd Intermediate Casing	0 - 6500 ft (MD)
Outer Diameter	8.625 in
Inner Diameter	8.835 in
Linear Weight	40 lbm/ft
Casing Grade	HCK-55
Shoe Joint Length	40 ft

Estimated Calculations 2nd Intermediate

Stage 1

Shoe Joint Volume: (40 ft fill)

40 ft * 0.4257 ft3/ft	= 17.03 ft3
	= 3 bbl
	ft3
	bbl

Total Pipe Capacity:

3900 ft * 0.4257 ft3/ft	= 1660.37 ft3
2500 ft * 0.4257 ft3/ft	= 1064.34 ft3
	= 485.3 bbl

Displacement Volume to Shoe Joint:

Capacity of Pipe - Shoe Joint	= 485.3 bbl - 3 bbl
	= 482.3 bbl

Job Volume Estimates 2nd Intermediate

Stage 1

Fluid 1: Water Based Spacer

Gel Spacer
2.50 lbm/bbl CHEM,FDP-S1050-12, BULK BAG

Fluid Density:	8.4 lbm/gal
Liquid Volume:	20 bbl

Fluid 2: Lead Slurry

ECONOCEM (TM) SYSTEM
0.25 % D-AIR 5000
0.30 % HR-601

Fluid Weight:	11.9 lbm/gal
Slurry Yield:	2.437 ft3/sack
Total Mixing Fluid:	13.93 Gal/sack
Liquid Volume:	585.9 bbl
Calculated sack:	0 sack
Proposed sack:	1350 sack

Fluid 3: Tail Slurry

VERSACEM (TM) SYSTEM
0.30 % Halad(R)-322

Fluid Weight:	[illegible]4 lbm/gal
Slurry Yield:	1.[illegible] ft3/sack
Total Mixing Fluid:	5.4 Gal/sack
Liquid Volume:	86.6 bbl
Calculated sack:	0 sack
Proposed sack:	400 sack

Volume Estimate Table 2nd Intermediate

Calculations are used for volume estimation. Well conditions will dictate final cement job design.
Stage 1

Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Estimated Avg Rate	Downhole Volume
1	SPACER	Gel Spacer	8.4		20 bbl
2	CEMENT	EconoCem - C	11.9		1350 sack
3	CEMENT	VersaCem - C	14.4		400 sack

NOTE: These slurries and spacers will require lab testing. The additives and concentrations are estimates based on field experience in the area and may need to be modified prior to the job. The proposed spacer is designed to be generally compatible with water base mud systems. Compatibility testing with field mud samples used may indicate changes in the additive package and the related costs.

Cost Estimate

Mtrl Nbr	Description	Qty	UOM	Unit Price	Gross Amt	Discount %	Net Amount
7522	**CMT INTERMEDIATE CASING BOM**	1.00	JOB	0.00	0.00		0.00
1	ZI-MILEAGE FROM NEAREST HES BASE,/UNIT Number of Units	110.00 3	MI	9.79	3,230.70	75.00	807.67
2	MILEAGE FOR CEMENTING CREW Number of Units	110.00 1	MI	5.76	633.60	75.00	158.40
7	ENVIRONMENTAL CHARGE,/JOB,ZI	1.00	JOB	134.00	134.00		134.00
372867	Cmt PSL - DOT Vehicle Charge, CMT	7.00	EA	241.00	1,687.00		1,687.00
11881	OVERWEIGHT PERMIT FEE-CEMENTING	1.00	EA	60.00	60.00		60.00
16091	ZI - PUMPING CHARGE FEET/METERS (FT/M) DEPTH	1.00 FT 6500	EA	9,448.00	9,448.00	75.00	2,362.00
141	RCM II W/ADC,/JOB,ZI ENTER FEET\METER\JOB\DAY NUMBER OF JOBS NUMBER OF UNITS	1.00 JOB 1 1	JOB	1,990.00	1,990.00	75.00	497.50
16115	FIELD STORAGE BIN ON SITE >8 HRS,DAY,ZI DAYS OR PARTIAL DAY(WHOLE NO.)	2.00 1	EA	1,344.00	2,688.00	75.00	672.00
74038	ZI PLUG CONTAINER RENTAL-1ST DAY HR/DAY/WEEK/MTH/YEAR/JOB/RUN DAYS OR FRACTION (MIN1)	1.00 DAY 1	EA	1,322.00	1,322.00	75.00	330.50
101214575	PLUG,CMTG,TOP,9 5/8,HWE,8.16 MIN/9.06 MA	1.00	EA	454.00	454.00	25.00	340.50
102175420	CHEM,FDP-S1050-12, BULK BAG	50.00	LB	65.29	3,264.50	75.00	816.12
452992	CMT, EconoCem (TM) system	1,350.00	SK	0.00	67,568.99	75.00	16,892.24
102068797	CHEM, D-AIR 5000, 50 LB SACK	284.00	LB	11.92	3,385.28	75.00	846.32
101328348	Chem - HR-601 - 50 Lb Bag	341.00	LB	23.11	7,880.51	75.00	1,970.13
452010	CMT, VersaCem (TM) system	400.00	SK	0.00	16,584.15	75.00	4,146.04
100003646	CHEM, HALAD-322, 50 LB SACK	101.00	LB	21.14	2,135.14	75.00	533.78
76400	MILEAGE,CMT MTLS DEL/RET MIN NUMBER OF TONS	55.00 85.268	MI	3.35	15,710.63	75.00	3,927.66
3965	HANDLE&DUMP SVC CHRG, CMT&ADDITIVES Unit of Measurement NUMBER OF EACH	2,121.00 EA 1	CF	5.49	11,644.29	75.00	2,911.07
3997	BULK TANK CLEANING,/JOB, ZI ENTER FEET\METER\JOB\DAY NUMBER OF JOBS NUMBER OF UNITS	1.00 JOB 1 1	JOB	3,090.00	3,090.00	96.28	115.00
	Total Gross Amount						**152,910.79**
	Total Item Discounts						**113,702.86**
	Total Net Amount	**USD**					**39,207.93**

Primary Plant: Hobbs, NM, USA
Secondary Plant: Artesia, NM, USA
Price Book Ref: 27 - PERMIAN BASIN
Price Date: 9/4/2015

Additional Services

SAP Mtrl Number	Description	Quantity	Unit of Measure	Unit Price	Discount (%)	Net Price
	25% Discount					
3	DERRICK CHARGE	1	EA	$ 987.00	25%	$ 740.25
	35% Discount					
464256	ADDITIONAL HOURS - BULK TRUCK	1	EA	$ 196.00	35%	$ 127.40
	HOURS	1				
17	MSC ON SITE,ADD HR,ZI	1	H	$ 1,139.00	35%	$ 740.35
	NUMBER OF UNITS	1				
802332	CEM STBY UNIT 8 HR OR FRACTION CASING JOB	1	UN	$ 10,000.00	35%	$ 6,500.00
803106	CEM STBY UNIT CSG JOB ADDL HR>8	1	EA	$ 1,139.00	35%	$ 740.35
	NUMBER OF HOURS	1				
	HR/DAY/WEEK/MTH/YEAR/JOB/RUN		H			
802333	CEM STBY UNIT 8 HR OR FRACTION MSC	1	UN	$ 10,000.00	35%	$ 6,500.00
803177	CEM STBY UNIT MULT STAGE ADDL HR>8	1	UN	$ 1,139.00	35%	$ 740.35
910253	CMT-ZI-100 BBL BLENDER, ADD HRS	1	EA	$ 1,139.00	35%	$ 740.35
	Services Discount					
775759	CEM RNTL BMXR 100 BBL 8HR OR FRACTION	1	EA	$ 3,898.00	75%	$ 974.50
	NUMBER OF HOURS	8				
	UNIT OF MEASURE - HRS		H			
116	BOOSTER PUMP-SKID,/DAY	1	EA	$ 1,362.00	75%	$ 340.50
	NUMBER OF DAYS	1				
756211	LAB TEST PER HOUR,MIN 4 HR	4	EA	$ 309.00	75%	$ 77.25
356745	3rd Party Rental Pass Through, CMT	1	EA	$ 3,500.00	0%	$ 3,500.00

2 Stg Production w/ThermaLock

Job Information 2 Stg Production w/ThermaLock

Job Criticality Status: YELLOW
Well Name: MALJAMAR AGI — Well #: 2

2nd Intermediate Casing	0 - 6500 ft (MD)
Outer Diameter	9.625 in
Inner Diameter	8.835 in
Linear Weight	40 lbm/ft
Casing Grade	HCK-55
Thread Type	BTC
Kick-off Point	- 6600 ft (MD)
8-3/4" Hole	6500 - 11129 ft (MD)
	6500- 10327 ft (TVD)
Inner Diameter	8.75 in
Excess Factor	25 %
Production Casing	0 - 11129 ft (MD)
	0- 10327 ft (TVD)
Outer Diameter	7 in
Inner Diameter	6.094 in
Linear Weight	32 lbm/ft
Shoe Joint Length	40 ft
Multiple Stage Cementer	9665 ft (MD)

Estimated Calculations 2 Stg Production w/ThermaLock

Stage 1

Shoe Joint Volume: (40 ft fill)

40 ft * 0.2026 ft3/ft	= 8.1 ft3
	= 1.4 bbl
	ft3
	bbl

Total Pipe Capacity:

6400 ft * 0.2026 ft3/ft	= 1296.32 ft3
4714 ft * 0.2026 ft3/ft	= 954.82 ft3
	= 400.9 bbl

Displacement Volume to Shoe Joint:

Capacity of Pipe - Shoe Joint	= 400.9 bbl - 1.4 bbl
	= 399.5 bbl

Stage 2

Total Pipe Capacity:

6400 ft * 0.2026 ft3/ft	= 1296.32 ft3
3865 ft * 0.2026 ft3/ft	= 782.86 ft3
	= 370.3 bbl

Job Volume Estimates 2 Stg Production w/ThermaLock

Stage 1

Fluid 1: Water Based Spacer

Gel Spacer	Fluid Density:	8.4 lbm/gal
2.50 lbm/bbl CHEM,FDP-S1050-12, BULK BAG	Liquid Volume:	20 bbl

Fluid 2: Tail Slurry

THERMACEM (TM) SYSTEM	Fluid Weight:	15.5 lbm/gal
	Slurry Yield:	0.874 ft3/sack
	Total Mixing Fluid:	3.32 Gal/sack
	Liquid Volume:	62.3 bbl
	Calculated sack:	0 sack
	Proposed sack:	400 sack

Multiple Stage Cementer 9665 ft(MD)

Stage 2

Fluid 1: Water Based Spacer

Gel Spacer	Fluid Density:	8.4 lbm/gal
2.50 lbm/bbl CHEM,FDP-S1050-12, BULK BAG	Liquid Volume:	20 bbl

Fluid 2: Reactive Spacer

Super Flush 101	Fluid Density:	10 lbm/gal
	Liquid Volume:	23.8 bbl

Fluid 3: Water Spacer

Fresh Water	Fluid Density:	8.4 lbm/gal
	Liquid Volume:	10 bbl

Fluid 4: Lead Slurry

ECONOCEM (TM) SYSTEM	Fluid Weight:	11.8 lbm/gal
3 lbm Kol-Seal	Slurry Yield:	2.531 ft3/sack
0.1250 lbm Poly-E-Flake	Total Mixing Fluid:	14.39 Gal/sack
	Liquid Volume:	293 bbl
	Calculated sack:	0 sack
	Proposed sack:	650 sack

Fluid 5: Heavy Weight

CORROSACEM (TM) SYSTEM	Fluid Weight:	14.8 lbm/gal
0.40 % HR-601	Slurry Yield:	1.136 ft3/sack
	Total Mixing Fluid:	4.78 Gal/sack
	Liquid Volume:	20.2 bbl
	Calculated sack:	162.55 sack

Proposed sack: 100 sack

Volume Estimate Table 2 Stg Production w/ThermaLock

Calculations are used for volume estimation. Well conditions will dictate final cement job design.
Stage 1

Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Estimated Avg Rate	Downhole Volume
1	SPACER	Gel Spacer	8.4		20 bbl
2	CEMENT	Thermalock	15.5		400 sack

Stage 2

Fluid #	Fluid Type	Fluid Name	Surface Density lbm/gal	Estimated Avg Rate	Downhole Volume
1	SPACER	Gel Spacer	8.4		20 bbl
2	SPACER	Super Flush 101	10		23.8 bbl
3	SPACER	Fresh Water	8.4		10 bbl
4	CEMENT	EconoCem - H	11.8		650 sack
5	CEMENT	CorrosaCem - H	14.8		100 sack

NOTE: These slurries and spacers will require lab testing. The additives and concentrations are estimates based on field experience in the area and may need to be modified prior to the job. The proposed spacer is designed to be generally compatible with water base mud systems. Compatibility testing with field mud samples used may indicate changes in the additive package and the related costs.

Cost Estimate

Mtrl Nbr	Description	Qty	UOM	Unit Price	Gross Amt	Discount %	Net Amount
392189	**CMT MULTIPLE STAGES BOM**	1.00	JOB	0.00	0.00		0.00
1	ZI-MILEAGE FROM NEAREST HES BASE,/UNIT Number of Units	110.00 3	MI	9.79	3,230.70	75.00	807.67
2	MILEAGE FOR CEMENTING CREW Number of Units	110.00 1	MI	5.76	633.60	75.00	158.40
7	ENVIRONMENTAL CHARGE,/JOB,ZI	1.00	JOB	134.00	134.00		134.00
372867	Cmt PSL - DOT Vehicle Charge, CMT	6.00	EA	241.00	1,446.00		1,446.00
11881	OVERWEIGHT PERMIT FEE-CEMENTING	1.00	EA	60.00	60.00		60.00
16093	MSC PUMP CHARGE (1ST STAGE), ZI FEET/METERS (FT/M) DEPTH	1.00 FT 11129	EA	22,898.00	22,898.00	75.00	5,724.50
16	MULTIPLE STAGE CEMENTING Number of Units	1.00 1	STG	5,055.00	5,055.00	75.00	1,263.75
141	RCM II W/ADC,/JOB,ZI ENTER FEET\METER\JOB\DAY NUMBER OF JOBS NUMBER OF UNITS	1.00 JOB 1 1	JOB	1,990.00	1,990.00	75.00	497.50
16115	FIELD STORAGE BIN ON SITE >8 HRS,DAY,ZI DAYS OR PARTIAL DAY(WHOLE NO.)	1.00 1	EA	1,344.00	1,344.00	75.00	336.00
116	BOOSTER PUMP-SKID,/DAY,ZI NUMBER OF DAYS	1.00 1	EA	1,362.00	1,362.00	75.00	340.50
4020	DELIVERY CHG, PKG MTLS,F/HD PER UNIT/HR Number of Units	1.00 8	H	320.56	2,564.48	75.00	641.12
74038	ZI PLUG CONTAINER RENTAL-1ST DAY HR/DAY/WEEK/MTH/YEAR/JOB/RUN DAYS OR FRACTION (MIN1)	1.00 DAY 1	EA	1,322.00	1,322.00	75.00	330.50
102175420	CHEM,FDP-S1050-12, BULK [illegible]	0.00	LB	65.29	3,264.50	75.00	816.12
452975	CMT, ThermaCem (TM) system	400.00	SK	0.00	126,180.64	75.00	31,545.16
102175420	CHEM,FDP-S1050-12, BULK BAG	50.00	LB	65.29	3,264.50	75.00	816.12
12199	SBM SUPERFLUSH 101	1,000.00	GAL	6.79	6,790.00	75.00	1,697.50
452992	CMT, EconoCem (TM) system	650.00	SK	0.00	34,216.91	75.00	8,554.23
100064232	CHEM,KOL-SEAL,LOST CIRC ADDT,50 LB	1,950.00	LB	1.72	3,354.00	75.00	838.50
101216940	CHEM, Pol-E-Flake, 25 lb bag	82.00	LB	8.31	681.42	75.00	170.35
452967	CMT, CorrosaCem (TM) system	100.00	SK	0.00	6,485.49	75.00	1,621.37
101328348	Chem - HR-601 - 50 Lb Bag	34.00	LB	23.11	785.74	75.00	196.43
76400	MILEAGE,CMT MTLS DEL/RET MIN NUMBER OF TONS	55.00 52.688	MI	3.35	9,707.76	75.00	2,426.94
3965	HANDLE&DUMP SVC CHRG, CMT&ADDITIVES,ZI Unit of Measurement NUMBER OF EACH	1,385.00 EA 1	CF	5.49	7,603.65	75.00	1,900.91

Mtrl Nbr	Description	Qty	UOM	Unit Price	Gross Amt	Discount %	Net Amount
3997	BULK TANK CLEANING, EA/JOB, ZI ENTER FEET\METER\JOB\DAY NUMBER OF JOBS NUMBER OF UNITS	1.00 JOB 1 1	JOB	3,090.00	3,090.00	96.28	115.00
	Total Gross Amount						**247,464.39**
	Total Item Discounts						**185,025.82**
	Total Net Amount	**USD**					**62,438.57**

Primary Plant:	Hobbs, NM, USA	**Price Book Ref:**	27 - PERMIAN BASIN
Secondary Plant:	Artesia, NM, USA	**Price Date:**	9/4/2015

Additional Services

SAP Mtrl Number	Description	Quantity	Unit of Measure	Unit Price	Discount (%)	Net Price
	25% Discount					
3	DERRICK CHARGE	1	EA	$ 987.00	25%	$ 740.25
	35% Discount					
464256	ADDITIONAL HOURS - BULK TRUCK	1	EA	$ 196.00	35%	$ 127.40
	HOURS	1				
17	MSC ON SITE,ADD HR,ZI	1	H	$ 1,139.00	35%	$ 740.35
	NUMBER OF UNITS	1				
802332	CEM STBY UNIT 8 HR OR FRACTION CASING JOB	1	UN	$ 10,000.00	35%	$ 6,500.00
803106	CEM STBY UNIT CSG JOB ADDL HR>8	1	EA	$ 1,139.00	35%	$ 740.35
	NUMBER OF HOURS	1				
	HR/DAY/WEEK/MTH/YEAR/JOB/RUN		H			
802333	CEM STBY UNIT 8 HR OR FRACTION MSC	1	UN	$ 10,000.00	35%	$ 6,500.00
803177	CEM STBY UNIT MULT STAGE ADDL HR>8	1	UN	$ 1,139.00	35%	$ 740.35
910253	CMT-ZI-100 BBL BLENDER, ADD HRS	1	EA	$ 1,139.00	35%	$ 740.35
	Services Discount					
775759	CEM RNTL BMXR 100 BBL 8HR OR FRACTION	1	EA	$ 3,898.00	75%	$ 974.50
	NUMBER OF HOURS	8				
	UNIT OF MEASURE - HRS		H			
116	BOOSTER PUMP-SKID,/DAY	1	EA	$ 1,362.00	75%	$ 340.50
	NUMBER OF DAYS	1				
756211	LAB TEST PER HOUR,MIN 4 HR	4	EA	$ 309.00	75%	$ 77.25
356745	3rd Party Rental Pass Through, CMT	1	EA	$ 3,500.00	0%	$ 3,500.00

Conditions

The cost in this analysis is good for the materials and/or services outlined within and shall be valid for 30 days from the date of this proposal. In order to meet your needs under this proposal with a high quality of service and responsive timing, Halliburton will be allocating limited resources and committing valuable equipment and materials to your area of operations. Accordingly, the discounts reflected in this proposal are available only for materials and services awarded on a first-call basis. Alternate pricing may apply in the event that Halliburton is awarded work on any basis other than as a first-call provider.

The unit prices stated in the proposal are based on our current published prices. The projected equipment, personnel, and material needs are only estimates based on information about the work presently available to us. At the time the work is actually performed, conditions then existing may require an increase or decrease in the equipment, personnel, and/or material needs. Charges will be based upon unit prices in effect at the time the work is performed and the amount of equipment, personnel, and/or material actually utilized in the work. Taxes, if any, are not included. Applicable taxes, if any, will be added to the actual invoice.

It is understood and agreed between the parties that with the exception of the subject discounts, all services performed and equipment and materials sold are provided subject to Halliburton's General Terms and Conditions contained in our current price list, (which include LIMITATION OF LIABILITY and WARRANTY provisions), and pursuant to the applicable Halliburton Work Order Contract (whether or not executed by you), unless a Master Service and/or Sales Contract applicable to the services, equipment or materials supplied exists between your company and Halliburton, in which case the negotiated Master Contract shall govern the relationship between the parties. A copy of the latest version of our General Terms and Conditions is available from your Halliburton representative or at: http://www.halliburton.com/terms for your convenient review, and we would appreciate receiving any questions you may have about them. Should your company be interested in negotiating a Master Contract with Halliburton, our Law Department would be pleased to work with you to finalize a mutually agreeable contract. In this connection, it is also understood and agreed that Customer will continue to execute Halliburton usual field work orders and/or tickets customarily required by Halliburton in connection with the furnishing of said services, equipment, and materials.

Any terms and conditions contained in purchase orders or other documents issued by the customer shall be of no effect except to confirm the type and quantity of services, equipment, and materials to be supplied to the customer.

If customer does not have an approved open account with Halliburton or a mutually executed written contract with Halliburton, which dictates payment terms different than those set forth in this clause, all sums due are payable in cash at the time of performance of services or delivery of equipment, products, or materials. If customer has an approved open account, invoices are payable on the twentieth day after date of invoice.

Customer agrees to pay interest on any unpaid balance from the date payable until paid at the highest lawful contract rate applicable, but never to exceed 18% per annum. In the event Halliburton employs an attorney for collection of any account, customer agrees to pay attorney fees of 20% of the unpaid account, plus all collection and court costs.