State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

Tony Delfin
Acting Cabinet Secretary

David R. Catanach, Division Director
Oil Conservation Division

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

Operator Signature Date: 4/14/16
Well information:
Operator BP, Well Name and Number Gallegos Canyon Unit 599 COM #2H
API# 30-045-35772, Section 19, Township 28 (N)S, Range 11 E/(W)

Conditions of Approval: (See the below checked and handwritten conditions)

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

Charles Henn
NMOCD Approved by Signature

9-14-2016
Date

Assee - Blanco
+BP actual
onsite - 1/29/16

NOS: Ø
APDP: 5
MP:
SMA: BLM
BOND: WY2924
CA/PA: NMNM78391C

OIL CONS. DIV DIST. 3

MAY 12 2016

ACCEPTED FOR RECORD

APR 15 2016

FARMINGTON FIELD OFFICE
BY

ATS-F010-16-131

Form 3160-3
(March 2012)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No. NMSF080844A	6. If Indian, Allotee or Tribe Name
1a. Type of work: ☑ DRILL ☐ REENTER	7. If Unit or CA Agreement, Name and No. NMNM78391C
1b. Type of Well: ☐ Oil Well ☑ Gas Well ☐ Other ☐ Single Zone ☑ Multiple Zone	8. Lease Name and Well No. GALLEGOS CANYON UNIT 599 COM /2H
2. Name of Operator BP AMERICA PROD CO	9. API Well No. 30-045-35772
3a. Address 737 North Eldridge Pkwy Houston TX 77079	3b. Phone No. (include area code) (281)366-7148
	10. Field and Pool, or Exploratory BASIN DAKOTA
4. Location of Well (Report location clearly and in accordance with any State requirements.*) At surface A NENE / 512 FNL / 642 FEL / 36.653537 / -108.038355 At proposed prod. zone L NWSW / 2252 FSL / 710 FWL / 36.64465 / -108.069647	11. Sec., T. R. M. or Blk. and Survey or Area SEC 19 / T28N / R11W / NMP
14. Distance in miles and direction from nearest town or post office* 4.8 miles	12. County or Parish SAN JUAN / 13. State NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 710 feet	16. No. of acres in lease 635.84 ✓ / 17. Spacing Unit dedicated to this well 1280
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 446 feet	19. Proposed Depth 5150 feet / 16500 feet / 20. BLM/BIA Bond No. on file FED: WY2924
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 5587 feet	22. Approximate date work will start* 11/01/2016 / 23. Estimated duration 25 days

24. Attachments

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

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

25. Signature (Electronic Submission)	Name (Printed/Typed) Toya Colvin / Ph: (281)366-7148	Date 04/14/2016
Title Regulatory Analyst		
Approved by (Signature)	Name (Printed/Typed)	Date 5/16/16
Title AFM	Office FARMINGTON FTO	

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

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

(Continued on page 2)

*(Instructions on page 2)

DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS"

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

This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4

NMOCD

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

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

☐ AMENDED REPORT

OIL CONS. DIV DIST. 3

SEP 01 2016

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-045-35772	71599	Basin Dakota

[4] Property Code	[5] Property Name	[6] Well Number
316205	Gallegos Canyon Unit 599 Com	2H

[7] OGRID No.	[8] Operator Name	[9] Elevation
000778	BP America Production Company	5586

[10] Surface Location

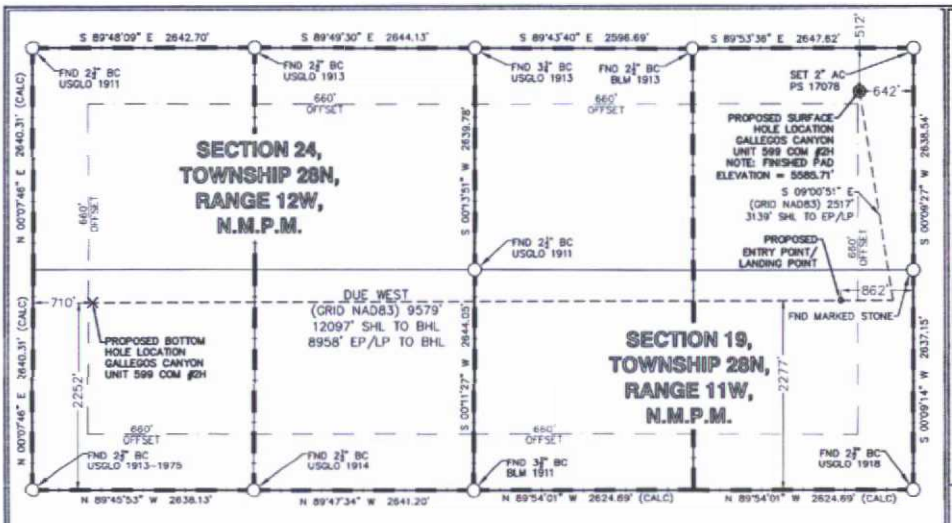
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	19	28N	11W		512	North	642	East	San Juan

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	24	28N	12W		2252	South	710	West	San Juan

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
1,275.84			

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



LEGEND
FOUND MONUMENT ○
PROPOSED SURFACE HOLE LOCATION ⊕
PROPOSED BOTTOM HOLE LOCATION ×

GCU 599 COM #2H	*NMWZ NAD'83*	*NAD'83*	*TIES*
PROPOSED SURFACE HOLE LOCATION (SHL)	*N (Y) = 2,057,264.65' E (X) = 2,662,952.84'*	*LAT. = 36.65353764°N LON.= 108.03835590°W*	*FNL = 512' FEL = 642'*
PROPOSED ENTRY POINT (EP)/ LANDING POINT (LP)	*N (Y) = 2,054,778.61' E (X) = 2,662,725.12'*	*LAT. = 36.64670745°N LON.= 108.03911406°W*	*FSL = 2277' FEL = 862'*
PROPOSED BOTTOM HOLE LOCATION (BHL)	*N (Y) = 2,054,778.61' E (X) = 2,653,767.83'*	*LAT. = 36.64665079°N LON.= 108.06964794°W*	*FSL = 2252' FWL = 710'*

[17] OPERATOR CERTIFICATION

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

Toya Colvin 7/05/16
Signature Date

Toya Colvin
Printed Name

Toya.Colvin@bp.com
E-mail Address

[18] SURVEYOR CERTIFICATION

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

2-16-16
Date of Survey

Signature and Seal of Professional Surveyor

MARSHALL W. LINDEEN · NEW MEXICO · 17078 · 6-28-16 · PROFESSIONAL SURVEYOR

17078
Certificate Number

SECTION – 3 Casing

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

1. Bit Program
   12-1/4" Surface Hole = Surface to 385'
   8-3/4" = 385' to 7087' MD = 7" Casing point @ 90.95 degrees
   6-1/8" Lateral = 6600' MD to 16,045' MD = Pay Zone Horizontal

2. Casing Program – all casing stings are new casing

Casing & Hole Size	Weight	Grade	Coupling	Setting Depth (MD)	Comments
9-5/8" (12-1/4")	36 ppf	J or K-55	LT&C	0' - 385'	New casing. Cement to surface. *Surface Casing maybe preset
7" (8-3/4")	23 ppf	J or K-55	LT&C	0' - 7087' MD	New Casing. Two Stage Cement to surface
4-1/2" (6-1/8")	11.6 ppf	P-110	BT&C	6600' - 16,045' MD	New Casing – Single Stage Cement to Top of liner – ±150' above KOP.

Casing strings below the conductor casing will be tested to .22 psi per foot of casing string length or 1500 psi, whichever is greater, but not to exceed 70% of the minimum internal yield.

Minimum casing design factors used:
Collapse - 1.0
Burst - 1.1
Jt. Strength - 1.40

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

The intermediate casing will be centralized using 1 centralizer the first 6 jts and spaced appropriately through the curve section of the well-bore and then spaced +/- 1 centralizer / 4 jts through the remainder of the cement column, using approximately 40 centralizers.

BP respectfully request to have option to place stage tool at +/-2700' MD if severe losses occur while drilling.

*Surface casing maybe preset with a preset rig (MOTE).

Completions will utilize tie back string to surface for frac, to protect the 7" casing from frac pressure. The tie back string will be either 4 ½", 11.6#, P-110 or 5 ½", 17# P110, depending on well/reservoir conditions and frac design. The tie back string will be run either with the drilling rig or completions rig and pressure tested

Surface Casing Design - Evacuated/Max SICP (collaspe & burst), 100k overpull (tension)

	Size	Weight	Grade	Conn	Collapse	Burst	Tension	Notes
Surface	9.625	36	K55	LTC	2,020	3,520	489,000	0' - 385'
					1.125	1.000	1.200	
					341 psi (Maximum Estimated SIP)			

36 ppf K55 LTC

Collapse	Casing Depth	MW in	MW out	Pres in	Pres out	SF	
	385	0	16	0	316	6.39	15.8ppg cement in annulus & evactuated pipe
Burst	385	9	0	876	0	4.02	700psi test with 9ppg MW
		Mud Wt	Air Wt	Bouy Wt	BW +100k		100k over pull
Tension	385	9	13,860	11,956	111,956	4.37	
		BF					BF= 1- (MW)/65.5
		0.8626					

Intermediate Casing Design - Evacuation/Casing Test (collaspe & burst), 100k overpull (tension)

	Collapse	Burst	Tension
Min Safety Factors	1.000	1.100	1.400

	Btm Interval	Size	Weight	Grade	Conn	Collapse	Burst	Tension (Pipe Body)	Tension (Connection)
Intermediate	7087	7	23	J55	LTC	3,270	4,360	366,000	313,000
						80% of Burst =	3,488		

23 ppf J55 LTC

	Measured Depth	TVD	MW in	MW out	Pres in	Pres out	SF	
Collapse	7087	6071	0	9.00	0	2841	1.15	
Burst	7087	6071	9.0	0	2841	0	1.53	
			Mud Wt	Air Wt	Bouy Wt	BW +100k		
Tension (Pipe Body)	7087	6071	9.0	139,633	120,447	220,447	1.66	100k over pull
Tension (Connection)		6071	9.0	139,633	120,447	220,447	1.42	
		BF= 1- (MW)/65.5 =	0.8626					

Liner Casing Design - Evacuation/Max Mud Wt (collaspe), Max Frac Pres (burst) 100k overpull (tension)

	Collapse	Burst	Tension
Min Safety Factors	1.000	1.100	1.400

	Size	Weight	Grade	Conn	Collapse	Burst	Tension (Pipe Body)	Tension (Connection)
Production	4.5	11.6	P-110	BTC	7,580	10,690	367,000	385,000

11.6 ppf P-110 BTC

	Casing Depth TVD	MW in	MW out	Pres in	Pres out	SF	Notes
Collapse	5890	0	9.00	0	2757	2.75	TD 16,045' MD & TOL 6600' MD/ 5890' TVD
Burst	5890	9.0	0	9718	0	1.10	Max Allowable Treating Pressure = Frac Pressure Pop off valve will be set below this value
		Mud Wt	Air Wt	Bouy Wt	BW +100k		
Tension (Pipe Body)	5890	9.0	68,324	58,936	158,936	2.31	100k over pull
Tension (Connection)	5890	9.0	68,324	58,936	158,936	2.42	
	BF= 1- (MW)/65.5 =	0.8626					

SECTION – 4 Cement

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

The proposed cementing program has been designed to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. Any isolating medium other than cement shall receive approval prior to use. The casing setting depth shall be calculated to position the casing seat opposite a competent formation which will contain the maximum pressure to which it will be exposed during normal drilling operations. All indications of useable water shall be reported.

- Pea Gravel or other material shall not be used to fill up around the surface casing in the event cement fall back occurs.
- The surface casing shall in all cases be cemented back to surface. In the event cement does not circulate to surface or fall back of the cement column occurs, remedial cementing shall be done to cement the casing back to surface. No more than the top 100' will be remediated with 1" line if fall back occurs. Anything more than 100' will require plan approval to remediate.
- If returns are lost and/or cement is not brought to surface and no fallback occurs, a cement bond log (CBL) will be required to determine the quality of the job prior to drilling ahead (see OO2).
- Top plugs shall be used to reduce contamination of cement by displacement fluid. A bottom plug or other acceptable technique, such as a pre-flush fluid, inner string cement method, etc. shall be utilized to help isolate the cement from contamination by the mud fluid being displaced ahead of the cement slurry.
- Production liner will be cemented.
- BP respectfully requests to have a two stage cement contingency option in the case of severe losses occur while drilling.
- Cement Volumes may be adjusted based on hole conditions.

Surface Casing Single Stage Job – (0-385'MD/TVD):

Excess – 100% over gauge hole – 12-1/4" hole and 9-5/8" casing

Top of Cement - Surface

Lead #1 - (0' – 385'): 240 sx – 15.8 ppg, conventional cement containing:

VARICEM ™ CEMENT – Class G

2 % Calcium Chloride, Pellet

Poly-E-Flake – Lost Circulation Control Agent

Yield – 1.18 ft3/sx

Water requirement – 5.24 gal/sx.

Volume: 49.8 bbls

Intermediate Casing – Single Stage (0-7087'MD/6071'TVD):

Excess – 40% over gauge hole – 8-3/4" hole and 7" casing

Top of Cement – Surface.

Lead #1 - (0'): 465 sx – 12.3 ppg

EXTENDACEM ™ Class G Poz

HR-5 – Retardant

Kol-Seal – LCM

Poly E Flake - LCM

Yield – 1.958 ft3/sx

Water requirement – 10.08 gal/sx.

Volume 161.9 bbls

Tail #1 - (4400' – 7087'): 455 sx – 13.5 ppg

HALCEM ™ – Class G Poz

HALAD 567 – Fluid loss control

SA-1015 – Suspending agent

Poly E Flake - LCM

Yield – 1.292 ft3/sx

Water requirement – 5.65 gal/sx.

Volume: 104 bbls

Intermediate Casing – Two Stage Contingency (0-7087'MD/6071'TVD) Stage tool @ +/-2700'MD:

Stage 1

Lead #1 - (2700'): 420 sx – 12.3 ppg

EXTENDACEM ™ - Class G Poz

HR-5 – Retardant

Kol-Seal – LCM

Poly E Flake - LCM

Yield – 1.958 ft3/sx

Water requirement – 10.08 gal/sx.

Volume 144.9 bbls

Tail #1 - (6566' – 7087'): 455 sx – 13.5 ppg

HALCEM ™ – Class G Poz

HALAD 567 – Fluid loss control

SA-1015 – Suspending agent

Poly E Flake - LCM

Yield – 1.292 ft3/sx

Water requirement – 5.65 gal/sx.

Volume: 23 bbls

Stage 2 – Stage tool @ +/-2700' MD

Lead #2 - (0'): 255 sx – 12.3 ppg

EXTENDACEM ™ – Class G Poz

HR-5 – Retardant

Kol-Seal – LCM

Yield – 1.937 ft3/sx

Water requirement – 10.19 gal/sx.

Volume 144.9bbls

Tail #2 - (2428'): 50 sx – 15.8 ppg

HALCEM ™ – Class G Poz

HR-5 – Retardant

Yield – 1.147 ft3/sx

Water requirement – 4.98 gal/sx.

Volume: 23 bbls

Production Casing (Liner) – Single Stage Conventional Cement - (5735' - 14,962' MD/ 5150'TVD):

Excess – 20% over gauge hole – 6-1/8" hole and 4-1/2" casing

Top of Cement – Top of liner.

Tail #1 - (5735' – 14,962'): XX sx – 13.3 ppg, conventional cement containing:

EXTENDACEM ™ – Cement – 62.01 lbs/sx WBWOB

Kol-Seal – Lost Circulation Control Agent – 2.5 lbs/sx WBWOB

Yield – 1.347 ft3/sx

Water requirement – 5.85 gal/sx.

Total sacks of cement pumped = 775

Cement calculations are used for volume estimation. Well conditions will dictate final cement job design.

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

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

SECTION – 5 Circulating Medium (Mud Program)

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

CLOSED-LOOP SYSTEM DESIGN PLAN

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

Design considerations include:

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

CLOSED-LOOP SYSTEM OPERATING & MAINTENANCE PLAN

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

Operation and maintenance considerations include:

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

CLOSED-LOOP SYSTEM CLOSURE PLAN

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

include:

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

Mud Tables

Interval (MD)	Hole Section	Hole Size	Type	MW	VIS	FL	PV	YP	PH	REMARKS
0'-385'	Surface	12-1/4"	FW/Gel	8.4-9.0	32-44	NC	8	12	9.0	Spud Mud
385'-6125'	Vertical to KOP	8-3/4"	Flex Firm KA	8.4-9.5	38-42	6	14	12	11.0	Fresh Water
6125'-7087'	Curve	8-3/4"	Flex KA	9.0-9.5	38-42	6	14	12	11.0	30% LCM
7087'-16045'	Horizontal	6-1/8"	Evolution	8.3-9.0	36-50	10	8	8	9.5	LSND

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

The formula for weight up with barite is listed below:
Sacks of Barite per 100 bbl of mud = 1470 x (W2 – W1) ÷ (35 – W2)

Where; W1 = current mud weight

W2 = new mud weight

Sacks = 1470 x (10.5 – 8.4)/ (35-10.5) = 126 sx * 5 (500bbls minimum) = 630sx

Pason Pit Volume Totalizer (PVT) equipment (or equilvant) will be on each pit to monitor pit levels. A trip tank equipped with a Pason PVT will be used to monitor trip volumes.

Possible lost circulation in the Fruitland Coal at 1013' and Pictured Cliffs Sand at 1601'. Lost circulation has been successfully mitigated with lost circulation materials in concentrations of up to 30% by volume. Intermediate casing will be set through this interval to 7087'MD.

Possible water flow in Mesa Verde at 3373 - 4389' due to produced water injection 1.5 mile West.

A closed-loop system will be used to recover drilling fluid and dry cuttings in both phases of the well and on all hole intervals, including fresh water and oil-based operations. Above-ground tanks will be utilized to hold cuttings and fluids for rig operations. A frac tank will be on location to store fresh water. Waste will be disposed of properly at an EPA-approved hazardous waste facility. Fresh water cuttings will be disposed of as outlined is surface use plane location will be lined in accordance with the Surface Use Plan of Operations.

SECTION – 6 Test, Logging & Coring

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

Testing: None planned.

Logging:

GR/RES – Surface casing to landing point of curve

Azimuthal and Radial GR – Drilling Lateral

Minimum logging requirements for the entire well shall consist of a calibrated gamma ray (GR) log scaled in API units from total measured depth to surface, with a repeat section. Maximum logging speed 3,600 feet/hour in open hole and 2,000 feet/hour in cased hole. An MWD GR log is sufficient for this requirement in the curved and lateral portions of the well.

Minimum logging requirements above the kick off point (KOP) shall consist of:

1. Multiple depth-of-investigation resistivity log from surface casing to the KOP, and
2. Compensated density-neutron logs over potential hydrocarbon producing zones or,
3. A cased hole pulsed neutron log if there are open hole compensated density-neutron, gamma ray, and multiple depth-of-investigation resistivity logs (such as medium and deep induction and shallow laterlog, or array induction logs) suitable for calibration within one-half mile. The pulsed neutron log should be run from KOP to the base of surface casing no faster than 1,800 feet/hour.

BLM shall be provided with a directional survey to establish the location of the horizontal lateral and bottom of the well including the surface reference, inclination, horizontal angle, reference, and direction turned. If reduced data are provided, the algorithm, datum, and projection should also be provided.

Submission of digital logging data shall be in Log ASCII Standard (LAS) file format.

Mud Logging:

Geologist & a manned mud-logging unit will be operational @ +/- 3,000' on the main hole to TD of the horizontal hole.

Gas detecting equipment shall be installed in the mud return system for exploratory wells and hydrocarbon gas shall be monitored for pore pressue changes from base of surface casing to TD.

Visual mud monitoring equipment shall be in place to detect volume changes indicating loss or gain of circulating fluid volume.

Coring: None.

Cement Bond Log:

A CBL will be run if no cement will return to surface when cementing the production casing

SECTION – 7 Pressure

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

Normal to subnormal pressure gradient to TD.

MASP and casing design parameters determined using 0.324 psi/ft.

Maximum expected BHP @ 6071' TVD: 2076 psi

Maximum expected BHT @ 6071' TVD: ~160° F

Possible lost circulation in the Fruitland Coal at 1013' and Pictured Cliffs Sand at 1601'. Lost circulation has been successfully mitigated with lost circulation materials in concentrations of up to 30% by volume. Intermediate casing will be set through this interval to 7087'MD.

Possible water flow in Mesa Verde at 3373 - 4389' due to produced water injection 1.5 mile West.

No hydrogen sulfide gas is anticipated, however, if H_2S is encountered, the guidelines in Onshore Order No. 6 will be followed.

i. Any other facets of the proposed operation that the operator would like the BLM to considered in reviewing the application. Examples include, but are not limited to: For directional wells, proposed directional designs, plan view, and vertical section in true vertical and measured depths: Horizontal drilling; and Coil tubing Operations.

Directional Plans: Horizontal directional well, directional plans attached.

COMPLETION:

- **Pressure test**
  - Pressure test tie back string and liner to allowable frac pressure or as per BLM requirements.
  - Increase pressure to open toe sleeve
- **Stimulation**
  - Stimulate with approximately 16,000,000 pound of proppant in 400,000 bbls of water; the number of stages and the amount of proppant will be adjusted based on the petrophysical properties of the target zone
  - Stages will be isolated with flow through plugs
  - Drill out plugs and flowback well
  - Retrieve tie back string
- **Run tubing**
  - Install production tubing 2 ⅜", 4.7# J55 EUE and artificial lift if needed

Timing: BP plans to drill this well in November, 2016

It is anticipated that the drilling of this well will take approximately 25 days.

It is anticipated that completion operations will begin within 30 days after the well has been drilled depending on stimulation company availability.

CLOSED-LOOP SYSTEM DESIGN PLAN

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

Design considerations include:

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

CLOSED-LOOP SYSTEM OPERATING & MAINTENANCE PLAN

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

Operation and maintenance considerations include:

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

CLOSED-LOOP SYSTEM CLOSURE PLAN

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

include:

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

B.P.

San Juan County, NM NAD83
GCU 599 Pad
GCU 599 Com 2H

OH

Plan: Plan #1

Standard Planning Report

22 February, 2016

Scientific Drilling

www.scientificdrilling.com

Company: B.P.
Project: San Juan County, NM NAD83
Site: GCU 599 Pad
Well: GCU 599 Com 2H
Wellbore: OH
Design: Plan #1

PROJECT DETAILS: San Juan County, NM NAD83

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

Scientific Drilling

WELL DETAILS: GCU 599 Com 2H

GL 5585.71' & RKB 11' @ 5596.71usft (Aztec 507)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	2057264.65	2662952.84	36.6535376	-108.0383559

Plan: Plan #1 (GCU 599 Com 2H/OH)

Created By: Janie Collins Date: 14:20, February 22 2016

Azimuths to Grid North
True North: 0.12°
Magnetic North: 9.32°

Magnetic Field
Strength: 50051.3nT
Dip Angle: 63.32°
Date: 2/22/2016
Model: HDGM

DESIGN TARGET DETAILS

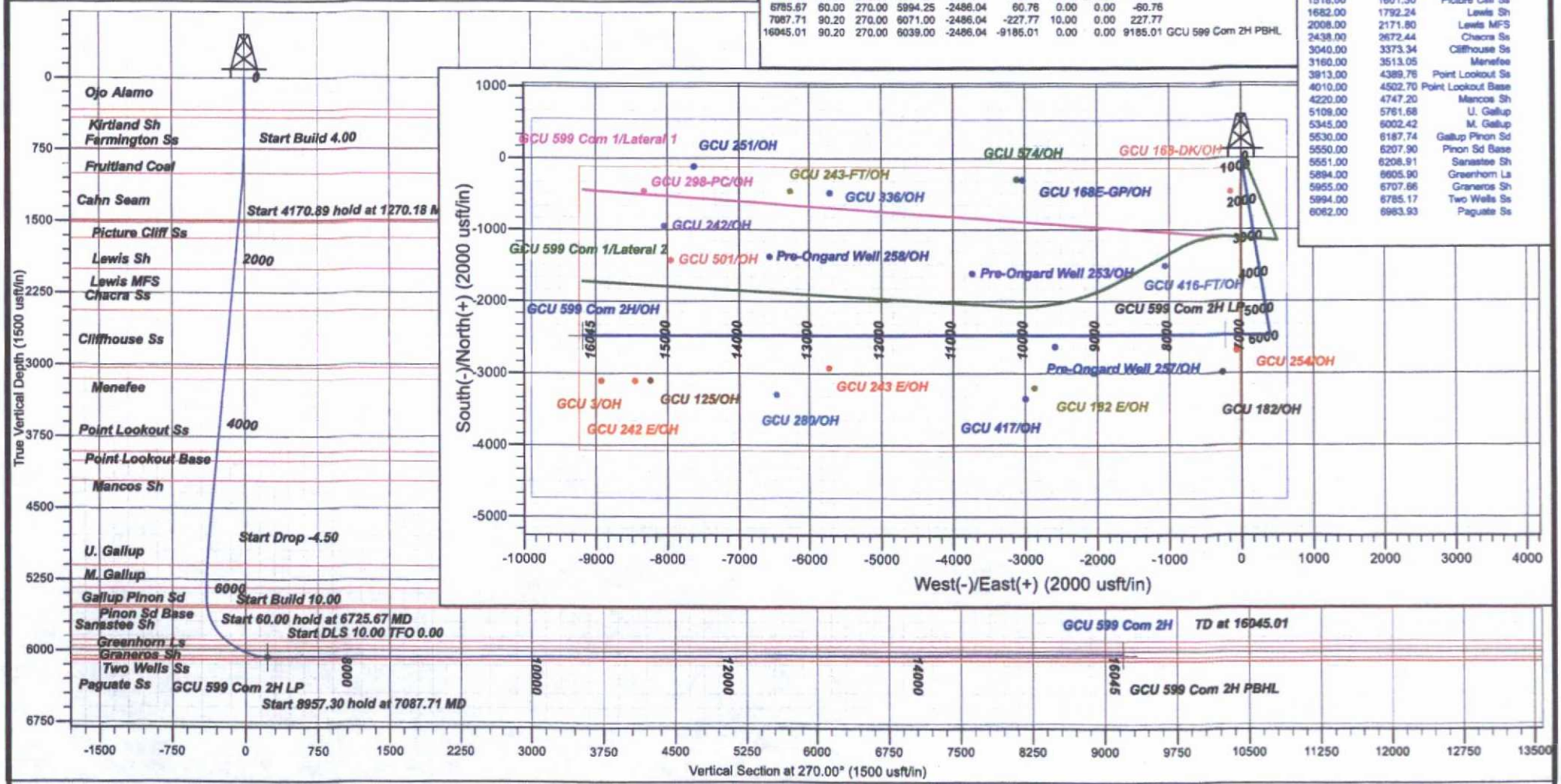
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
GCU 599 Com 2H PBHL	6039.00	-2486.04	-9185.01	2054778.61	2653767.83	36.6466508	-108.0696479
GCU 599 Com 2H LP	6071.00	-2486.04	-227.72	2054778.61	2662725.12	36.6467074	-108.0391141

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	
1270.18	30.81	170.88	1233.60	-199.56	32.04	4.00	170.88	-32.04	
5441.06	30.81	170.88	4815.96	-2308.65	370.71	0.00	0.00	-370.71	
6125.67	0.00	0.00	5468.05	-2486.04	399.20	4.50	180.00	-399.20	
6725.67	60.00	270.00	5964.25	-2486.04	112.72	10.00	270.00	-112.72	
6785.67	60.00	270.00	5994.25	-2486.04	60.76	0.00	0.00	-60.76	
7087.71	90.20	270.00	6071.00	-2486.04	-227.77	10.00	0.00	227.77	
16045.01	90.20	270.00	6039.00	-2486.04	-9185.01	0.00	0.00	9185.01	GCU 599 Com 2H PBHL

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
338.00	338.00	Ojo Alamo
420.00	420.00	Kirtland Sh
741.00	742.15	Farmington Ss
1003.00	1013.96	Fruitland Coal
1489.00	1567.54	Cahn Seam
1518.00	1601.30	Picture Cliff Ss
1682.00	1792.24	Lewis Sh
2008.00	2171.80	Lewis MFS
2438.00	2672.44	Chacra Ss
3040.00	3373.34	Cliffhouse Ss
3160.00	3513.05	Menefee
3913.00	4389.76	Point Lookout Ss
4010.00	4502.70	Point Lookout Base
4220.00	4747.20	Mancos Sh
5109.00	5761.68	U. Gallup
5345.00	6002.42	M. Gallup
5530.00	6187.74	Gallup Pinon Sd
5550.00	6207.90	Pinon Sd Base
5551.00	6208.91	Sanastee Sh
5894.00	6605.90	Greenhorn Ls
5955.00	6707.66	Graneros Sh
5994.00	6785.17	Two Wells Ss
6062.00	6983.93	Paguate Ss



Database:	Grand Junction District	**Local Co-ordinate Reference:**	Well GCU 599 Com 2H
Company:	B.P.	**TVD Reference:**	GL 5585.71' & RKB 11' @ 5596.71usft (Aztec 507)
Project:	San Juan County, NM NAD83	**MD Reference:**	GL 5585.71' & RKB 11' @ 5596.71usft (Aztec 507)
Site:	GCU 599 Pad	**North Reference:**	Grid
Well:	GCU 599 Com 2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

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

Site	GCU 599 Pad				
Site Position:		**Northing:**	2,057,259.93 usft	**Latitude:**	36.6535249
From:	Map	**Easting:**	2,662,995.00 usft	**Longitude:**	-108.0382122
Position Uncertainty:	0.00 usft	**Slot Radius:**	13.20 in	**Grid Convergence:**	-0.12 °

Well	GCU 599 Com 2H					
Well Position	**+N/-S**	4.72 usft	**Northing:**	2,057,264.65 usft	**Latitude:**	36.6535376
	+E/-W	-42.16 usft	**Easting:**	2,662,952.84 usft	**Longitude:**	-108.0383559
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	0.00 usft	**Ground Level:**	5,585.71 usft

Wellbore	OH			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	HDGM	2/22/2016	9.20	63.32	50,051

Design	Plan #1				
Audit Notes:					
Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.00	0.00	0.00	270.00	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,270.18	30.81	170.88	1,233.60	-199.56	32.04	4.00	4.00	0.00	170.88	
5,441.06	30.81	170.88	4,815.96	-2,308.65	370.71	0.00	0.00	0.00	0.00	
6,125.67	0.00	0.00	5,468.05	-2,486.04	399.20	4.50	-4.50	0.00	180.00	
6,725.67	60.00	270.00	5,964.25	-2,486.04	112.72	10.00	10.00	0.00	270.00	
6,785.67	60.00	270.00	5,994.25	-2,486.04	60.76	0.00	0.00	0.00	0.00	
7,087.71	90.20	270.00	6,071.00	-2,486.04	-227.77	10.00	10.00	0.00	0.00	
16,045.01	90.20	270.00	6,039.00	-2,486.04	-9,185.01	0.00	0.00	0.00	0.00	GCU 599 Com 2H PB

Database:	Grand Junction District	**Local Co-ordinate Reference:**	Well GCU 599 Com 2H
Company:	B.P.	**TVD Reference:**	GL 5585.71' & RKB 11' @ 5596.71usft (Aztec 507)
Project:	San Juan County, NM NAD83	**MD Reference:**	GL 5585.71' & RKB 11' @ 5596.71usft (Aztec 507)
Site:	GCU 599 Pad	**North Reference:**	Grid
Well:	GCU 599 Com 2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
338.00	0.00	0.00	338.00	0.00	0.00	0.00	0.00	0.00	0.00
Ojo Alamo									
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
420.00	0.00	0.00	420.00	0.00	0.00	0.00	0.00	0.00	0.00
Kirtland Sh									
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	4.00	170.88	599.92	-3.45	0.55	-0.55	4.00	4.00	0.00
700.00	8.00	170.88	699.35	-13.76	2.21	-2.21	4.00	4.00	0.00
742.15	9.69	170.88	741.00	-20.16	3.24	-3.24	4.00	4.00	0.00
Farmington Ss									
800.00	12.00	170.88	797.81	-30.91	4.96	-4.96	4.00	4.00	0.00
900.00	16.00	170.88	894.82	-54.79	8.80	-8.80	4.00	4.00	0.00
1,000.00	20.00	170.88	989.91	-85.29	13.70	-13.70	4.00	4.00	0.00
1,013.96	20.56	170.88	1,003.00	-90.07	14.46	-14.46	4.00	4.00	0.00
Fruitland Coal									
1,100.00	24.00	170.88	1,082.61	-122.27	19.63	-19.63	4.00	4.00	0.00
1,200.00	28.00	170.88	1,172.47	-165.54	26.58	-26.58	4.00	4.00	0.00
1,270.18	30.81	170.88	1,233.60	-199.56	32.04	-32.04	4.00	4.00	0.00
1,300.00	30.81	170.88	1,259.21	-214.64	34.47	-34.47	0.00	0.00	0.00
1,400.00	30.81	170.88	1,345.10	-265.21	42.59	-42.59	0.00	0.00	0.00
1,500.00	30.81	170.88	1,430.99	-315.77	50.71	-50.71	0.00	0.00	0.00
1,567.54	30.81	170.88	1,489.00	-349.92	56.19	-56.19	0.00	0.00	0.00
Cahn Seam									
1,600.00	30.81	170.88	1,516.88	-366.34	58.83	-58.83	0.00	0.00	0.00
1,601.30	30.81	170.88	1,518.00	-367.00	58.93	-58.93	0.00	0.00	0.00
Picture Cliff Ss									
1,700.00	30.81	170.88	1,602.77	-416.91	66.95	-66.95	0.00	0.00	0.00
1,792.24	30.81	170.88	1,682.00	-463.55	74.43	-74.43	0.00	0.00	0.00
Lewis Sh									
1,800.00	30.81	170.88	1,688.66	-467.48	75.06	-75.06	0.00	0.00	0.00
1,900.00	30.81	170.88	1,774.55	-518.04	83.18	-83.18	0.00	0.00	0.00
2,000.00	30.81	170.88	1,860.44	-568.61	91.30	-91.30	0.00	0.00	0.00
2,100.00	30.81	170.88	1,946.33	-619.18	99.42	-99.42	0.00	0.00	0.00
2,171.80	30.81	170.88	2,008.00	-655.48	105.25	-105.25	0.00	0.00	0.00
Lewis MFS									
2,200.00	30.81	170.88	2,032.22	-669.74	107.54	-107.54	0.00	0.00	0.00
2,300.00	30.81	170.88	2,118.11	-720.31	115.66	-115.66	0.00	0.00	0.00
2,400.00	30.81	170.88	2,204.00	-770.88	123.78	-123.78	0.00	0.00	0.00
2,500.00	30.81	170.88	2,289.89	-821.44	131.90	-131.90	0.00	0.00	0.00
2,600.00	30.81	170.88	2,375.78	-872.01	140.02	-140.02	0.00	0.00	0.00
2,672.44	30.81	170.88	2,438.00	-908.64	145.91	-145.91	0.00	0.00	0.00
Chacra Ss									
2,700.00	30.81	170.88	2,461.67	-922.58	148.14	-148.14	0.00	0.00	0.00
2,800.00	30.81	170.88	2,547.56	-973.15	156.26	-156.26	0.00	0.00	0.00
2,900.00	30.81	170.88	2,633.45	-1,023.71	164.38	-164.38	0.00	0.00	0.00
3,000.00	30.81	170.88	2,719.34	-1,074.28	172.50	-172.50	0.00	0.00	0.00
3,100.00	30.81	170.88	2,805.23	-1,124.85	180.62	-180.62	0.00	0.00	0.00

Database:	Grand Junction District	**Local Co-ordinate Reference:**	Well GCU 599 Com 2H
Company:	B.P.	**TVD Reference:**	GL 5585.71' & RKB 11' @ 5596.71usft (Aztec 507)
Project:	San Juan County, NM NAD83	**MD Reference:**	GL 5585.71' & RKB 11' @ 5596.71usft (Aztec 507)
Site:	GCU 599 Pad	**North Reference:**	Grid
Well:	GCU 599 Com 2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

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)
3,200.00	30.81	170.88	2,891.12	-1,175.41	188.74	-188.74	0.00	0.00	0.00
3,300.00	30.81	170.88	2,977.01	-1,225.98	196.86	-196.86	0.00	0.00	0.00
3,373.34	30.81	170.88	3,040.00	-1,263.07	202.82	-202.82	0.00	0.00	0.00
Cliffhouse Ss									
3,400.00	30.81	170.88	3,062.90	-1,276.55	204.98	-204.98	0.00	0.00	0.00
3,500.00	30.81	170.88	3,148.79	-1,327.12	213.10	-213.10	0.00	0.00	0.00
3,513.05	30.81	170.88	3,160.00	-1,333.72	214.16	-214.16	0.00	0.00	0.00
Menefee									
3,600.00	30.81	170.88	3,234.68	-1,377.68	221.22	-221.22	0.00	0.00	0.00
3,700.00	30.81	170.88	3,320.57	-1,428.25	229.34	-229.34	0.00	0.00	0.00
3,800.00	30.81	170.88	3,406.46	-1,478.82	237.46	-237.46	0.00	0.00	0.00
3,900.00	30.81	170.88	3,492.35	-1,529.38	245.58	-245.58	0.00	0.00	0.00
4,000.00	30.81	170.88	3,578.24	-1,579.95	253.70	-253.70	0.00	0.00	0.00
4,100.00	30.81	170.88	3,664.13	-1,630.52	261.82	-261.82	0.00	0.00	0.00
4,200.00	30.81	170.88	3,750.02	-1,681.08	269.94	-269.94	0.00	0.00	0.00
4,300.00	30.81	170.88	3,835.91	-1,731.65	278.06	-278.06	0.00	0.00	0.00
4,389.76	30.81	170.88	3,913.00	-1,777.04	285.35	-285.35	0.00	0.00	0.00
Point Lookout Ss									
4,400.00	30.81	170.88	3,921.80	-1,782.22	286.18	-286.18	0.00	0.00	0.00
4,500.00	30.81	170.88	4,007.68	-1,832.79	294.30	-294.30	0.00	0.00	0.00
4,502.70	30.81	170.88	4,010.00	-1,834.15	294.52	-294.52	0.00	0.00	0.00
Point Lookout Base									
4,600.00	30.81	170.88	4,093.57	-1,883.35	302.42	-302.42	0.00	0.00	0.00
4,700.00	30.81	170.88	4,179.46	-1,933.92	310.54	-310.54	0.00	0.00	0.00
4,747.20	30.81	170.88	4,220.00	-1,957.79	314.37	-314.37	0.00	0.00	0.00
Mancos Sh									
4,800.00	30.81	170.88	4,265.35	-1,984.49	318.66	-318.66	0.00	0.00	0.00
4,900.00	30.81	170.88	4,351.24	-2,035.05	326.78	-326.78	0.00	0.00	0.00
5,000.00	30.81	170.88	4,437.13	-2,085.62	334.90	-334.90	0.00	0.00	0.00
5,100.00	30.81	170.88	4,523.02	-2,136.19	343.02	-343.02	0.00	0.00	0.00
5,200.00	30.81	170.88	4,608.91	-2,186.76	351.14	-351.14	0.00	0.00	0.00
5,300.00	30.81	170.88	4,694.80	-2,237.32	359.26	-359.26	0.00	0.00	0.00
5,400.00	30.81	170.88	4,780.69	-2,287.89	367.38	-367.38	0.00	0.00	0.00
5,441.06	30.81	170.88	4,815.96	-2,308.65	370.71	-370.71	0.00	0.00	0.00
5,500.00	28.15	170.88	4,867.26	-2,337.29	375.31	-375.31	4.50	-4.50	0.00
5,600.00	23.65	170.88	4,957.19	-2,380.41	382.24	-382.24	4.50	-4.50	0.00
5,700.00	19.15	170.88	5,050.27	-2,416.44	388.02	-388.02	4.50	-4.50	0.00
5,761.68	16.38	170.88	5,109.00	-2,435.02	391.00	-391.00	4.50	-4.50	0.00
U. Gallup									
5,800.00	14.65	170.88	5,145.92	-2,445.14	392.63	-392.63	4.50	-4.50	0.00
5,900.00	10.15	170.88	5,243.56	-2,466.35	396.03	-396.03	4.50	-4.50	0.00
6,000.00	5.65	170.88	5,342.59	-2,479.92	398.21	-398.21	4.50	-4.50	0.00
6,002.42	5.55	170.88	5,345.00	-2,480.16	398.25	-398.25	4.50	-4.50	0.00
M. Gallup									
6,100.00	1.15	170.88	5,442.39	-2,485.78	399.15	-399.15	4.50	-4.50	0.00
6,125.67	0.00	0.00	5,468.05	-2,486.04	399.20	-399.20	4.50	-4.50	0.00
6,187.74	6.21	270.00	5,530.00	-2,486.04	395.84	-395.84	10.00	10.00	0.00
Gallup Pinon Sd									
6,200.00	7.43	270.00	5,542.18	-2,486.04	394.38	-394.38	10.00	10.00	0.00
6,207.90	8.22	270.00	5,550.00	-2,486.04	393.31	-393.31	10.00	10.00	0.00
Pinon Sd Base									

Database:	Grand Junction District	**Local Co-ordinate Reference:**	Well GCU 599 Com 2H
Company:	B.P.	**TVD Reference:**	GL 5585.71' & RKB 11' @ 5596.71usft (Aztec 507)
Project:	San Juan County, NM NAD83	**MD Reference:**	GL 5585.71' & RKB 11' @ 5596.71usft (Aztec 507)
Site:	GCU 599 Pad	**North Reference:**	Grid
Well:	GCU 599 Com 2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

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)
6,208.91	8.32	270.00	5,551.00	-2,486.04	393.16	-393.16	10.00	10.00	0.00
Sanastee Sh									
6,300.00	17.43	270.00	5,639.71	-2,486.04	372.88	-372.88	10.00	10.00	0.00
6,400.00	27.43	270.00	5,732.02	-2,486.04	334.76	-334.76	10.00	10.00	0.00
6,500.00	37.43	270.00	5,816.32	-2,486.04	281.20	-281.20	10.00	10.00	0.00
6,600.00	47.43	270.00	5,890.03	-2,486.04	213.81	-213.81	10.00	10.00	0.00
6,605.90	48.02	270.00	5,894.00	-2,486.04	209.44	-209.44	10.00	10.00	0.00
Greenhorn Ls									
6,700.00	57.43	270.00	5,950.92	-2,486.04	134.65	-134.65	10.00	10.00	0.00
6,707.66	58.20	270.00	5,955.00	-2,486.04	128.17	-128.17	10.00	10.00	0.00
Graneros Sh									
6,725.67	60.00	270.00	5,964.25	-2,486.04	112.72	-112.72	10.00	10.00	0.00
6,785.17	60.00	270.00	5,994.00	-2,486.04	61.18	-61.18	0.00	0.00	0.00
Two Wells Ss									
6,785.67	60.00	270.00	5,994.25	-2,486.04	60.76	-60.76	0.00	0.00	0.00
6,800.00	61.43	270.00	6,001.26	-2,486.04	48.25	-48.25	10.00	10.00	0.00
6,900.00	71.43	270.00	6,041.19	-2,486.04	-43.29	43.29	10.00	10.00	0.00
6,983.93	79.83	270.00	6,062.00	-2,486.04	-124.53	124.53	10.00	10.00	0.00
Paguate Ss									
7,000.00	81.43	270.00	6,064.62	-2,486.04	-140.38	140.38	10.00	10.00	0.00
7,087.66	90.20	270.00	6,071.00	-2,486.04	-227.72	227.72	10.00	10.00	0.00
GCU 599 Com 2H LP									
7,087.71	90.20	270.00	6,071.00	-2,486.04	-227.77	227.77	10.00	10.00	0.00
7,100.00	90.20	270.00	6,070.96	-2,486.04	-240.06	240.06	0.00	0.00	0.00
7,200.00	90.20	270.00	6,070.60	-2,486.04	-340.06	340.06	0.00	0.00	0.00
7,300.00	90.20	270.00	6,070.25	-2,486.04	-440.06	440.06	0.00	0.00	0.00
7,400.00	90.20	270.00	6,069.89	-2,486.04	-540.06	540.06	0.00	0.00	0.00
7,500.00	90.20	270.00	6,069.53	-2,486.04	-640.06	640.06	0.00	0.00	0.00
7,600.00	90.20	270.00	6,069.17	-2,486.04	-740.05	740.05	0.00	0.00	0.00
7,700.00	90.20	270.00	6,068.82	-2,486.04	-840.05	840.05	0.00	0.00	0.00
7,800.00	90.20	270.00	6,068.46	-2,486.04	-940.05	940.05	0.00	0.00	0.00
7,900.00	90.20	270.00	6,068.10	-2,486.04	-1,040.05	1,040.05	0.00	0.00	0.00
8,000.00	90.20	270.00	6,067.74	-2,486.04	-1,140.05	1,140.05	0.00	0.00	0.00
8,100.00	90.20	270.00	6,067.39	-2,486.04	-1,240.05	1,240.05	0.00	0.00	0.00
8,200.00	90.20	270.00	6,067.03	-2,486.04	-1,340.05	1,340.05	0.00	0.00	0.00
8,300.00	90.20	270.00	6,066.67	-2,486.04	-1,440.05	1,440.05	0.00	0.00	0.00
8,400.00	90.20	270.00	6,066.32	-2,486.04	-1,540.05	1,540.05	0.00	0.00	0.00
8,500.00	90.20	270.00	6,065.96	-2,486.04	-1,640.05	1,640.05	0.00	0.00	0.00
8,600.00	90.20	270.00	6,065.60	-2,486.04	-1,740.05	1,740.05	0.00	0.00	0.00
8,700.00	90.20	270.00	6,065.24	-2,486.04	-1,840.05	1,840.05	0.00	0.00	0.00
8,800.00	90.20	270.00	6,064.89	-2,486.04	-1,940.05	1,940.05	0.00	0.00	0.00
8,900.00	90.20	270.00	6,064.53	-2,486.04	-2,040.05	2,040.05	0.00	0.00	0.00
9,000.00	90.20	270.00	6,064.17	-2,486.04	-2,140.05	2,140.05	0.00	0.00	0.00
9,100.00	90.20	270.00	6,063.81	-2,486.04	-2,240.05	2,240.05	0.00	0.00	0.00
9,200.00	90.20	270.00	6,063.46	-2,486.04	-2,340.04	2,340.04	0.00	0.00	0.00
9,300.00	90.20	270.00	6,063.10	-2,486.04	-2,440.04	2,440.04	0.00	0.00	0.00
9,400.00	90.20	270.00	6,062.74	-2,486.04	-2,540.04	2,540.04	0.00	0.00	0.00
9,500.00	90.20	270.00	6,062.39	-2,486.04	-2,640.04	2,640.04	0.00	0.00	0.00
9,600.00	90.20	270.00	6,062.03	-2,486.04	-2,740.04	2,740.04	0.00	0.00	0.00
9,700.00	90.20	270.00	6,061.67	-2,486.04	-2,840.04	2,840.04	0.00	0.00	0.00
9,800.00	90.20	270.00	6,061.31	-2,486.04	-2,940.04	2,940.04	0.00	0.00	0.00

Database:	Grand Junction District	**Local Co-ordinate Reference:**	Well GCU 599 Com 2H
Company:	B.P.	**TVD Reference:**	GL 5585.71' & RKB 11' @ 5596.71usft (Aztec 507)
Project:	San Juan County, NM NAD83	**MD Reference:**	GL 5585.71' & RKB 11' @ 5596.71usft (Aztec 507)
Site:	GCU 599 Pad	**North Reference:**	Grid
Well:	GCU 599 Com 2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

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)
9,900.00	90.20	270.00	6,060.96	-2,486.04	-3,040.04	3,040.04	0.00	0.00	0.00
10,000.00	90.20	270.00	6,060.60	-2,486.04	-3,140.04	3,140.04	0.00	0.00	0.00
10,100.00	90.20	270.00	6,060.24	-2,486.04	-3,240.04	3,240.04	0.00	0.00	0.00
10,200.00	90.20	270.00	6,059.88	-2,486.04	-3,340.04	3,340.04	0.00	0.00	0.00
10,300.00	90.20	270.00	6,059.53	-2,486.04	-3,440.04	3,440.04	0.00	0.00	0.00
10,400.00	90.20	270.00	6,059.17	-2,486.04	-3,540.04	3,540.04	0.00	0.00	0.00
10,500.00	90.20	270.00	6,058.81	-2,486.04	-3,640.04	3,640.04	0.00	0.00	0.00
10,600.00	90.20	270.00	6,058.45	-2,486.04	-3,740.04	3,740.04	0.00	0.00	0.00
10,700.00	90.20	270.00	6,058.10	-2,486.04	-3,840.03	3,840.03	0.00	0.00	0.00
10,800.00	90.20	270.00	6,057.74	-2,486.04	-3,940.03	3,940.03	0.00	0.00	0.00
10,900.00	90.20	270.00	6,057.38	-2,486.04	-4,040.03	4,040.03	0.00	0.00	0.00
11,000.00	90.20	270.00	6,057.03	-2,486.04	-4,140.03	4,140.03	0.00	0.00	0.00
11,100.00	90.20	270.00	6,056.67	-2,486.04	-4,240.03	4,240.03	0.00	0.00	0.00
11,200.00	90.20	270.00	6,056.31	-2,486.04	-4,340.03	4,340.03	0.00	0.00	0.00
11,300.00	90.20	270.00	6,055.95	-2,486.04	-4,440.03	4,440.03	0.00	0.00	0.00
11,400.00	90.20	270.00	6,055.60	-2,486.04	-4,540.03	4,540.03	0.00	0.00	0.00
11,500.00	90.20	270.00	6,055.24	-2,486.04	-4,640.03	4,640.03	0.00	0.00	0.00
11,600.00	90.20	270.00	6,054.88	-2,486.04	-4,740.03	4,740.03	0.00	0.00	0.00
11,700.00	90.20	270.00	6,054.52	-2,486.04	-4,840.03	4,840.03	0.00	0.00	0.00
11,800.00	90.20	270.00	6,054.17	-2,486.04	-4,940.03	4,940.03	0.00	0.00	0.00
11,900.00	90.20	270.00	6,053.81	-2,486.04	-5,040.03	5,040.03	0.00	0.00	0.00
12,000.00	90.20	270.00	6,053.45	-2,486.04	-5,140.03	5,140.03	0.00	0.00	0.00
12,100.00	90.20	270.00	6,053.10	-2,486.04	-5,240.03	5,240.03	0.00	0.00	0.00
12,200.00	90.20	270.00	6,052.74	-2,486.04	-5,340.03	5,340.03	0.00	0.00	0.00
12,300.00	90.20	270.00	6,052.38	-2,486.04	-5,440.02	5,440.02	0.00	0.00	0.00
12,400.00	90.20	270.00	6,052.02	-2,486.04	-5,540.02	5,540.02	0.00	0.00	0.00
12,500.00	90.20	270.00	6,051.67	-2,486.04	-5,640.02	5,640.02	0.00	0.00	0.00
12,600.00	90.20	270.00	6,051.31	-2,486.04	-5,740.02	5,740.02	0.00	0.00	0.00
12,700.00	90.20	270.00	6,050.95	-2,486.04	-5,840.02	5,840.02	0.00	0.00	0.00
12,800.00	90.20	270.00	6,050.59	-2,486.04	-5,940.02	5,940.02	0.00	0.00	0.00
12,900.00	90.20	270.00	6,050.24	-2,486.04	-6,040.02	6,040.02	0.00	0.00	0.00
13,000.00	90.20	270.00	6,049.88	-2,486.04	-6,140.02	6,140.02	0.00	0.00	0.00
13,100.00	90.20	270.00	6,049.52	-2,486.04	-6,240.02	6,240.02	0.00	0.00	0.00
13,200.00	90.20	270.00	6,049.17	-2,486.04	-6,340.02	6,340.02	0.00	0.00	0.00
13,300.00	90.20	270.00	6,048.81	-2,486.04	-6,440.02	6,440.02	0.00	0.00	0.00
13,400.00	90.20	270.00	6,048.45	-2,486.04	-6,540.02	6,540.02	0.00	0.00	0.00
13,500.00	90.20	270.00	6,048.09	-2,486.04	-6,640.02	6,640.02	0.00	0.00	0.00
13,600.00	90.20	270.00	6,047.74	-2,486.04	-6,740.02	6,740.02	0.00	0.00	0.00
13,700.00	90.20	270.00	6,047.38	-2,486.04	-6,840.02	6,840.02	0.00	0.00	0.00
13,800.00	90.20	270.00	6,047.02	-2,486.04	-6,940.02	6,940.02	0.00	0.00	0.00
13,900.00	90.20	270.00	6,046.66	-2,486.04	-7,040.01	7,040.01	0.00	0.00	0.00
14,000.00	90.20	270.00	6,046.31	-2,486.04	-7,140.01	7,140.01	0.00	0.00	0.00
14,100.00	90.20	270.00	6,045.95	-2,486.04	-7,240.01	7,240.01	0.00	0.00	0.00
14,200.00	90.20	270.00	6,045.59	-2,486.04	-7,340.01	7,340.01	0.00	0.00	0.00
14,300.00	90.20	270.00	6,045.23	-2,486.04	-7,440.01	7,440.01	0.00	0.00	0.00
14,400.00	90.20	270.00	6,044.88	-2,486.04	-7,540.01	7,540.01	0.00	0.00	0.00
14,500.00	90.20	270.00	6,044.52	-2,486.04	-7,640.01	7,640.01	0.00	0.00	0.00
14,600.00	90.20	270.00	6,044.16	-2,486.04	-7,740.01	7,740.01	0.00	0.00	0.00
14,700.00	90.20	270.00	6,043.81	-2,486.04	-7,840.01	7,840.01	0.00	0.00	0.00
14,800.00	90.20	270.00	6,043.45	-2,486.04	-7,940.01	7,940.01	0.00	0.00	0.00
14,900.00	90.20	270.00	6,043.09	-2,486.04	-8,040.01	8,040.01	0.00	0.00	0.00
15,000.00	90.20	270.00	6,042.73	-2,486.04	-8,140.01	8,140.01	0.00	0.00	0.00

Database:	Grand Junction District	**Local Co-ordinate Reference:**	Well GCU 599 Com 2H
Company:	B.P.	**TVD Reference:**	GL 5585.71' & RKB 11' @ 5596.71usft (Aztec 507)
Project:	San Juan County, NM NAD83	**MD Reference:**	GL 5585.71' & RKB 11' @ 5596.71usft (Aztec 507)
Site:	GCU 599 Pad	**North Reference:**	Grid
Well:	GCU 599 Com 2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

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)
15,100.00	90.20	270.00	6,042.38	-2,486.04	-8,240.01	8,240.01	0.00	0.00	0.00
15,200.00	90.20	270.00	6,042.02	-2,486.04	-8,340.01	8,340.01	0.00	0.00	0.00
15,300.00	90.20	270.00	6,041.66	-2,486.04	-8,440.01	8,440.01	0.00	0.00	0.00
15,400.00	90.20	270.00	6,041.30	-2,486.04	-8,540.01	8,540.01	0.00	0.00	0.00
15,500.00	90.20	270.00	6,040.95	-2,486.04	-8,640.00	8,640.00	0.00	0.00	0.00
15,600.00	90.20	270.00	6,040.59	-2,486.04	-8,740.00	8,740.00	0.00	0.00	0.00
15,700.00	90.20	270.00	6,040.23	-2,486.04	-8,840.00	8,840.00	0.00	0.00	0.00
15,800.00	90.20	270.00	6,039.88	-2,486.04	-8,940.00	8,940.00	0.00	0.00	0.00
15,900.00	90.20	270.00	6,039.52	-2,486.04	-9,040.00	9,040.00	0.00	0.00	0.00
16,000.00	90.20	270.00	6,039.16	-2,486.04	-9,140.00	9,140.00	0.00	0.00	0.00
16,045.01	90.20	270.00	6,039.00	-2,486.04	-9,185.01	9,185.01	0.00	0.00	0.00
GCU 599 Com 2H PBHL									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
GCU 599 Com 2H PBHL - plan hits target center - Point	0.00	360.00	6,039.00	-2,486.04	-9,185.01	2,054,778.61	2,653,767.83	36.6466508	-108.0696480
GCU 599 Com 2H LP - plan hits target center - Point	0.00	360.00	6,071.00	-2,486.04	-227.72	2,054,778.61	2,662,725.12	36.6467074	-108.0391141

Database:	Grand Junction District	**Local Co-ordinate Reference:**	Well GCU 599 Com 2H
Company:	B.P.	**TVD Reference:**	GL 5585.71' & RKB 11' @ 5596.71usft (Aztec 507)
Project:	San Juan County, NM NAD83	**MD Reference:**	GL 5585.71' & RKB 11' @ 5596.71usft (Aztec 507)
Site:	GCU 599 Pad	**North Reference:**	Grid
Well:	GCU 599 Com 2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
338.00	338.00	Ojo Alamo		0.00	0.00
420.00	420.00	Kirtland Sh		0.00	0.00
742.15	741.00	Farmington Ss		0.00	0.00
1,013.96	1,003.00	Fruitland Coal		0.00	0.00
1,567.54	1,489.00	Cahn Seam		0.00	0.00
1,601.30	1,518.00	Picture Cliff Ss		0.00	0.00
1,792.24	1,682.00	Lewis Sh		0.00	0.00
2,171.80	2,008.00	Lewis MFS		0.00	0.00
2,672.44	2,438.00	Chacra Ss		0.00	0.00
3,373.34	3,040.00	Cliffhouse Ss		0.00	0.00
3,513.05	3,160.00	Menefee		0.00	0.00
4,389.76	3,913.00	Point Lookout Ss		0.00	0.00
4,502.70	4,010.00	Point Lookout Base		0.00	0.00
4,747.20	4,220.00	Mancos Sh		0.00	0.00
5,761.68	5,109.00	U. Gallup		0.00	0.00
6,002.42	5,345.00	M. Gallup		0.00	0.00
6,187.74	5,530.00	Gallup Pinon Sd		0.00	0.00
6,207.90	5,550.00	Pinon Sd Base		0.00	0.00
6,208.91	5,551.00	Sanastee Sh		0.00	0.00
6,605.90	5,894.00	Greenhorn Ls		0.00	0.00
6,707.66	5,955.00	Graneros Sh		0.00	0.00
6,785.17	5,994.00	Two Wells Ss		0.00	0.00
6,983.93	6,062.00	Paguate Ss		0.00	0.00

SECTION – 1 – GEOLOGIC FORMATIONS AND CONTENTS

Formation names, lithology, Depths Encountered, producing formation, and contents based on an estimated GR of 5586.28'

FORMATION/Lithology	Subsea	TVD	MD	Contents	BHP psi/ft
Ojo Alamo	5,263	338	338	Water	0.44
Kirtland Shale	5,181	420	420	Wet	0.44
Farmington Sandstone	4,860	741	742	Wet	0.44
Fruitland Coal	4,598	1,003	1013	Gas	0.117
Cahn Coal Seam	4,112	1,489	1567	Wet	0.117
Picture Cliffs Sandstone	4,083	1,518	1601	Wet	0.115
Lewis Shale	3,919	1,682	1792	Wet	0.345
Lewis MF Shale	3,593	2,008	2171	Wet	0.345
Chacra Sandstone	3,163	2,438	2672	Gas/Water	0.344
Cliffhouse Sandstone	2,561	3,040	3373	Wet/Injection	0.352
Menfee Sandstone	2,441	3,160	3513	Wet/Injection	0.354
PointLookout Sandstone	1,688	3,913	4389	Wet/Injection	0.355
Point Lookout Base	1,591	4,010	4502	Gas/Oil	0.355
Mancos Shale	1,381	4,220	4747	Gas/Oil	0.309
U. Gallup Sand	492	5,109	5761	Gas/Oil	0.307
M. Gallup Sand	256	5,345	6002	Gas/Oil	0.316
Gallup Pinon Sand	71	5,530	6187	Gas/Oil	0.314
Pinon Sandd Base	51	5,550	6207	Gas/Oil	0.314
Sanastee Shale	50	5,551	6208	Gas/Oil	0.324
Greenhorn Limestone	-293	5,894	6605	Gas/Oil	0.307
Graneros Shale	-354	5,955	6707	Gas/Oil	0.316
DAKOTA					0.311
Two Wells Sandstone	-393	5,994	6785	Gas/Oil	0.324
Paguate Sandstone	-461	6,062	6983	Gas/Oil	0.324

Possible Aquifers: Ojo Alamo, base at 338'.

Oil Shale: None Expected.

Oil & Gas: Primary objective is the Dakota formation from 6062' to 6100'.
Landing point is expected to be in the Paguate Ss at 6071' TVD.

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

SECTION – 2 BOPE

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

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

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

Maximum Bottom Hole pressure = 6071' TVD x 0.324 psi/ft = 2076 psi (based on measured offset bottom hole pressures).

Maximum Surface Pressure = 2076 psi - (6071' TVD x .22 psi/ft) = 2076psi – 1335 psi = 741 psi, which is less than 2000 psi working pressure.

Therefore a 2000 psi BOPE system required.

A 2000 psig double ram hydraulic BOP will be used (see attached diagram) accessories to the BOP will meet BLM requirements for a 2000 psig system, in accordance with Onshore Order #2 (111.A well requirements).

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

BOPs will be function tested every 24 hours and will be recorded on an IADC log. Accessories to the BOPE will include upper and lower Kelly cocks with handles with a stabbing valve to fit drill pipe on the floor at all times, string float at bit, 3000 psig choke manifold with 2" adjustable and 2"positive chokes, and pressure gauge.

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

The wellhead BOP equipment will be nippled-up on the 9-5/8" x 11" 2,000 psi WP casing head prior to drilling out from under surface casing. All ram preventers and related equipment will be tested to 2,000 psi for 10 minutes. Annular preventers will be tested to 50% of rated working pressure for 10 minutes. Surface casing will be tested to 70% of internal yield pressure. All preventers and surface casing will be tested before drilling out of surface casing. BOP equipment will be tested every 14 days, after any repairs are made to the BOP equipment, and after the BOP equipment is subjected to pressure. Annular preventers will be functionally operated at least once per week. Pipe rams will be activated daily and blind rams shall be activated each trip or at least weekly. The New Mexico Oil & Gas Conservation Commission and the BLM will be notified 24 hours in advance of testing of BOPE.

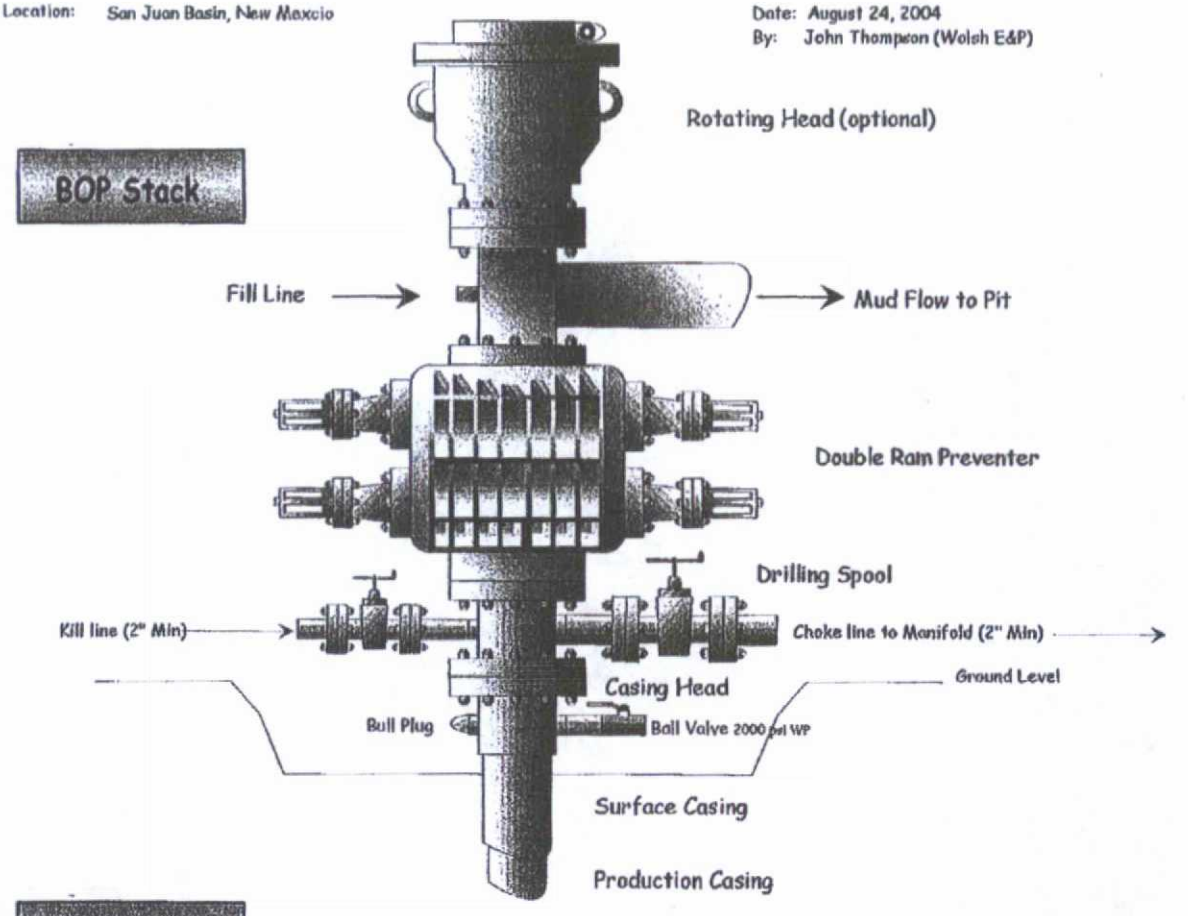
Well Control Equipment Schematic for 2M Service

Attachment to Drilling Technical Program

Exhibit #1
Typical BOP setup

Location: San Juan Basin, New Mexcio

Date: August 24, 2004
By: John Thompson (Welsh E&P)



Note: