

District I

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

District II

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

District III

1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico

Energy, Minerals and Natural Resources

Oil Conservation Division

**1220 S. St Francis Dr.
Santa Fe, NM 87505**

Form C-101
August 1, 2011

Permit 205155

OIL CONS. DIV DIST. 3

JUN 12 2015

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1. Operator Name and Address BP AMERICA PRODUCTION COMPANY 501 Westlake Park Blvd. Houston, TX 77079		2. OGRID Number 778
4. Property Code 314987		3. API Number 30045-35089
5. Property Name Johnson 1		6. Well No. 001H

7. Surface Location

UL - Lot J	Section 2	Township 30N	Range 11W	Lot Idn	Feet From 1586	N/S Line S	Feet From 1484	E/W Line E	County SAN JUAN
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8. Proposed Bottom Hole Location

UL - Lot L	Section 2	Township 30N	Range 11W	Lot Idn L	Feet From 1351	N/S Line S	Feet From 712	E/W Line W	County San Juan
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9. Pool Information

BASIN FRUITLAND COAL (GAS)	71629
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Additional Well Information

11. Work Type New Well	12. Well Type GAS	13. Cable/Rotary	14. Lease Type Private	15. Ground Level Elevation 5831
16. Multiple N	17. Proposed Depth 5320	18. Formation Fruitland Coal	19. Contractor	20. Spud Date 9/1/2015
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

☒ We will be using a closed-loop system in lieu of lined pits

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	12.25	9.625	36	300	88	0
Int1	8.75	7	23	2690	363	0
Liner1	6.25	4.5	11.6	5320	0	0

Casing/Cement Program: Additional Comments

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22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Annular	3000	2000	Townsend
Blind	3000	2000	Townsend

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

I further certify I have complied with 19.15.14.9 (A) NMAC ☒ and/or 19.15.14.9 (B) NMAC ☐, if applicable.

Signature: *Toya Colvin*

Printed Name: *Toya Colvin*

Title: *Regulatory Analyst*

Email Address: *Toya.colvin@bp.com*

Date: *6/11/2015*

Phone: *281-366-7148*

OIL CONSERVATION DIVISION

Approved By: *Charles R. ...* 6-22-2015

Title: *SUPERVISOR, DISTRICT #3*

Approved Date: *JUN 22 2015*

Expiration Date:

Conditions of Approval Attached *AD C-102 & DIR Survey*

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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

JUN 12 2015 ☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-045-35089		² Pool Code 71629		³ Pool Name Basin Fruitland Coal	
⁴ Property Code 000749-314987		⁵ Property Name Johnson 1			⁶ Well Number 1H
⁷ OGRID No. 000778		⁸ Operator Name BP America Production Company			⁹ Elevation 5831

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	02	30N	11W		1586	South	1484	East	San Juan

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	02	30N	11W		1351	South	712	West	San Juan

¹² Dedicated Acres 320.33	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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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.

SECTION 02, TOWNSHIP 30N, RANGE 11W, N.M.P.M.

PROPOSED SURFACE HOLE LOCATION JOHNSON 1-1H
NOTE: FINISHED PAD ELEVATION = 5830.71'

PROPOSED BOTTOM HOLE LOCATION JOHNSON 1-1H

PROPOSED ENTRY POINT (EP)

LEGEND
FOUND MONUMENT O
PROPOSED SURFACE HOLE LOCATION ⊗
PROPOSED BOTTOM HOLE LOCATION X

JOHNSON 1-1H	NMWZ NAD'83	NAD'83	TIES
PROPOSED SURFACE HOLE LOCATION (SHL)	N (Y) = 2,124,360.50' E (X) = 2,687,073.83'	LAT. = 36.83795268°N LON. = 107.95641792°W	FSL = 1586' FEL = 1484'
PROPOSED ENTRY POINT (EP)	N (Y) = 2,124,160.50' E (X) = 2,687,102.16'	LAT. = 36.83740342°N LON. = 107.95632023°W	FSL = 1387' FEL = 1453'
PROPOSED BOTTOM HOLE LOCATION (BHL)	N (Y) = 2,124,160.50' E (X) = 2,683,952.88'	LAT. = 36.83739180°N LON. = 107.96708224°W	FSL = 1351' FWL = 712'

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.

Signature: *Toya Colvin* Date: 6/11/15

Printed Name: Toya Colvin

E-mail Address: Toya.Colvin@bp.com

¹⁸ SURVEYOR CERTIFICATION
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date of Survey: 6-2-15

Signature and Seal of Professional Surveyor: *Marshall W. Lindeen*

17078
Certificate Number

**Attachment to Application for Permit to Drill.
Drilling program**

**BP America Production Company
US Lower 48 Onshore
200 Energy Court
Farmington, NM 87401**

**Johnson 1-1H
Cahn Coal Horizontal Well
Surface Location: 1586' FSL & 1484' FEL
Section 2, T30N, R11W
Ungraded GL Elev = 5831'
Lat. = 36.8379527° N
Long. = 107.9564191° W
NAD83
San Juan County, New Mexico**

**Proposed Bottom Hole Location: 1351' FSL – 712' FWL
Section 2, T30N, R11W
San Juan County, New Mexico**

a. Names and estimated tops of all geologic groups, formations, members, or zones based on an estimated GR of 5839'

<u>Formation Tops</u>	<u>Surface (TVD)</u>	<u>Thickness</u>	<u>BHP psi/ft</u>
Ojo Alamo Sd	940	116	0.440
Kirtland Sh	1056	436	0.440
Farmington Sd	1492	357	0.440
L. Kirtland Sh	1685	193	0.440
Fruitland Coal	2010	123	0.440
IGNA Coal	2133	47	0.440
Fruitland Sand	2180	53	0.440
CTWD Coal	2233	96	0.440
Cahn Coal	2329	39	0.440
Cahn Coal Target	2345	16(below top)	0.440

Note: Geological tops will be updated based on drilling and geology operations

Drilling Plan

Drill 12-1/4" vertical hole with fresh water to Kick Off Point (KOP) #1 at 200'MD/TVD. Build 2°/100' to 2° inclination and 158.2° azimuth to 300'MD/TVD then set 9 5/8" casing.

Run and cement 9-5/8" casing and cement to surface to protect fresh water at 250'MD/TVD.

The 9-5/8" casing will be drilled out with LSND water base mud and a 8-3/4" drilling assembly. Building 2°/100' to 13.68° inclination and 158.2° azimuth by 884'MD/878'TVD and holding directional at 13.68° inclination and 158.2° azimuth to 1107'MD/1095'TVD and then drop 2°/100' to vertical to 0° inclination and 0° azimuth to KOP#2 at 1792'MD/1772'TVD.

Trip out of hole and pick up 8 3/4" kick off assembly and build and turn well at 10°/100' to 89.85° inclination and 270° azimuth to 7" casing point at 2690'MD/2345'TVD. 7" casing will be set in a legal location 1786' FSL & 1975' FEL at 2690'MD/2345'TVD in section 2, T30N, R11W.

Cement 7" casing in single stage cement top to surface.

The 7" casing will be drilled out with produced water/brine water base fluid and a 6-1/8" lateral drilling assembly. Building to 91.38° inclination and 270° azimuth to land well at 2705'MD/2345'TVD, 91.38° inclination, 270° azimuth in the Cahn Coal target (16' below top). Then hold 91.38° inclination, 270° azimuth to a TD of 5320'MD/2282'TVD.

Adjustments may be made to the directional program based on geology.

Total depth will be 5320'MD/2282'TVD – 91.38° inclination, 270° azimuth.

The Bottom Hole Location will be in a legal location at TD 5320'MD/2282'TVD at 1351' FSL & 712' FEL of section 2, T30N, R11W.

A total of 3127' of horizontal hole will be drilled.

b. Estimated depth and thickness of formations, members or zones potentially containing usable water, oil, gas or prospectively valuable deposits of other minerals that the operator expects to encounter, and the operator's plans for protecting such resources.

<u>Formation Tops</u>	<u>Surface (TVD)</u>	<u>Thickness</u>	<u>Contents</u>
Ojo Alamo Sd	940	116	Water
Kirtland Sh	1056	436	Water
Farmington Sd	1492	357	Water/Gas
L. Kirtland Sh	1685	193	Water/Gas
Fruitland Coal	2010	123	Water/Gas
IGNA Coal	2133	47	Gas
Fruitland Sand	2180	53	Gas
CTWD Coal	2233	96	Gas
Cahn Coal	2329	39	Gas
Cahn Coal Target	2345	16(below top)	Gas

Possible Aquifers: Ojo Alamo, 250'.

Oil Shale: None Expected.

Oil & Gas: Primary objective is the Cahn Coal 2329' 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.

Intermediate casing will be set at 2690'MD/2345'TVD and cemented to surface.

c. 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.

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.

Bottom Hole pressure = 2345' TVD x 0.440 TVD x .22 psi/ft) = 1032 psi – 516 psi = 516 psi and is less than 2000 psi working pressure.

Therefore 2000 psi BOPE system meets the requirements.

A 2000 psig annular BOP and single blind ram hydraulic BOP will be used (see attached diagram). Accessories to the BOP will meet requirements for a 2000 psig system.

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

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

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

The wellhead BOP equipment will be nipped-up on the 9-5/8" x 11" 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 30 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 Conservation Division will be notified 24 hours in advance of testing of BOPE.

d. 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 300'
 8-3/4" = 300' to 2690' MD = 7" Casing point @ 75.65 degrees
 6-1/8" Lateral = 2690' MD to 5320' MD = Pay Zone Horizontal
2. Casing Program – all casing strings are new casing

Casing & Hole Size	Weight	Grade	Coupling	Setting Depth (MD)	Comments
9-5/8" (12-1/4")	36 ppf	J or K-55	LT&C	0' - 300'	New casing. Cement to surface. *Surface Casing maybe preset
7" (8-3/4")	23 ppf	J or K-55	LT&C	0' - 2690' MD	New Casing. Cement in one stage to surface.
4-1/2" (6-1/4")	11.6 ppf	N-80	LT&C	2590' - 5320' MD	New Casing – 9 swell packers Top of liner 2590' with 100' minimum liner lap.

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 -	1.4

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 30 centralizers.

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

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' - 300'
					1.000	1.100	1.400	
					341 psi (Maximum Estimated SIP)			
36 ppf K55 LTC								
Collapse	Casing Depth	MW in	MW out	Pres in	Pres out	SF		
	300	0	9	0	137	14.71		
Burst	300	9	0	300	0	11.73		
		Mud Wt	Air Wt	Bouy Wt	BW +100k		100k over pull	
Tension	300	9	10,800	9,316	109,316	4.47		
		BF					BF= 1- (MW)/65.5	
		0.8626						

Intermediate Casing Design - Evacuated/Max Mud Wt (collapse & burst), 100k overpull (tension)										
	Top Interval	Btm Interval	Size	Weight	Grade	Conn	Collapse	Burst	Tension	Notes
Interval 1	0	2690	7	23	N80	LTC	3,830	6,340	442,000	
							1.000	1.100	1.400	
Collapse			Depth TVD	MW in	MW out	Pres in	Pres out	SF - 1.0		
Interval 1	0	2690	2345	0	9	0	1097	3.49		
23	N80									
Burst			Depth TVD	MW in	MW out	Pres in	Pres out	SF - 1.1	Frac Pres	
Interval 1	0	2690	2345	9	0	1097	0	1.10	4650	
23	N80					5747				
Tension										
				Mud Wt	Air Wt	Bouy Wt	BW +100k	SF - 1.4		
Interval 1	0	2690	2345	9	53,935	46,524	146,524	3.02		
23	N80			BF					BF= 1- (MW)/65.5	
				0.8626						

Liner Casing Design - Evacuation/Max Mud Wt (collapse), Max Frac Pres (burst) & 100k overpull (tension)										
Liner	Size	Weight	Grade	Conn	Collapse	Burst	Tension	Notes		
Interval 1	4.5	11.6	N-80	LTC	6,350	7,780	212,000	TD 5548', TVD 2345'		
					1.000	1.100	1.400			
Collapse	Casing Depth (TVD)	MW in	MW out	Pres in	Pres out	SF				
	2345	0.00	9.00	0	1097	5.79				
Burst	2345	9.00	0.00	1097	0	1.35	4650	frac pressure		
				5747				Burst pressure = Hyd + frac pressure		
Tension		Mud Wt	Air Wt	Bouy Wt	BW +100k			100k over pull		
	2345	8.80	27,202	23,547	123,547	1.72				
		BF						BF= 1- (MW)/65.5		
		0.8656								

e. 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 set a minimum of 100' above the 7" casing shoe and be isolated between stages with packers.

Surface Casing Single Stage Job – (0-300'MD/TVD):

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

Top of Cement - Surface

Lead Slurry - (0' – 168'): 43 sx – 12.3 ppg, conventional cement containing:

HALCEM™ SYSTEM – Cement – 94 lbs/sx WBWOB

Yield – 2.45 ft³/sx

Water requirement – 13.77 gal/sx.

Tail #1 - (168' – 300'): 45 sx – 13.5 ppg, conventional cement containing:

HALCEM™ SYSTEM – Cement – 94 lbs/sx WBWOB

Yield – 1.842 ft³/sx

Water requirement – 9.31 gal/sx.

Total sacks of cement pumped = 88

Intermediate Casing – Conventional Cement (Single Stage) - (0-2690'MD/2329'TVD):

Excess – 50% over gauge hole – 8-3/4" hole and 7" casing (0.1503 ft³/ft)

Top of Cement – Surface.

Lead #1 - (0' – 1870'): 263 sx – 12.3 ppg, conventional cement containing:

VARICEM™ – Cement – 94 lbs/sx WBWOB

Yield – 2.454 ft³/sx

Water requirement – 13.78 gal/sx

Tail #1 - (1870'-2690') - 820': 100 sx – 13.5 ppg, conventional cement containing:

VARICEM™ – Cement – 94 lbs/sx WBWOB

Yield – 1.849 ft³/sx

Water requirement – 9.33 gal/sx.

Total sacks of cement pumped = 363

Cement volumes are minimums and may be adjusted based on hole conditions and lab testing.

Production Casing (Liner) – No Cement - Swell Packers

Actual volumes will be calculated and determined by conditions onsite. All cement slurries will meet or exceed minimum 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.

f. 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.

Fluids	From MD (ft)	To MD (ft)	Weight	Vis	FL	PV	YP	Max. Salinity	pH	Remarks
Fresh Water	300	Surface	8.4-8.8	28-35	N/C	<5	<4	2500	8-8.5	Spud in with fresh water
LSND	2,690	300	8.8-9.5	35-44	<6	8-15	6-12	5000	8-8.5	Water Base Mud
Produced Water/Brine	5,320	2,690	8.4- 9.0	28-35	N/C	2-5	1-3	50000	8-8.5	Water Base Fluid

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

The formula for weight up with barite is listed below:

$$\text{Sacks of Barite per 100 bbl of mud} = 1470 \times (W2 - W1) \div (35 - W2)$$

Where; W1 = current mud weight

W2 = new mud weight

$$\text{Sacks} = 1470 \times (10.5 - 9.5) / (35 - 10.5) = 60 \text{ sx} \times 5 (500\text{bbls minimum}) = 300 \text{ sx}$$

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

- ✓ 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. 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. Water base cuttings will be disposed of as outlined in surface use plan, location will be lined in accordance with the Surface Use Plan of Operations.

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

Testing: None planned.

Logging:

Intermediate Hole Section (MWD - Gamma Ray)

Proposed Open Hole Logs – No Openhole Logs

Mud Logging:

Geologist & a manned mud-logging unit will be operational @ +/- 1,600' 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 pressure 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:

Will be run after the drilling of the well has been completed and as the start of the completion process. The CBL will confirm the quality of the cement bond and the actual TOC. If either of these two data points were not satisfactory per State and standard procedure, remedial cement work, if required, will be performed after consultation and approval of a plan from the State.

A cement bond log shall be run if the well is cased for production, injection, or disposal. The logged interval should extend from at least 50 feet below the KOP, if practical, to 200 feet above the top of cement. In no case shall the cement bond log begin above the KOP.

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 0.440 psi/ft.

Maximum expected BHP @ Cahn Coal target at 2345' TVD: 1032 psi

Maximum expected BHP @ TD at 5320'MD/2282'TVD: 1004 psi

Maximum expected BHT @ 2345' TVD: ~140° F

No hydrogen sulfide gas is anticipated, however, if H₂S is encountered, the requirements of 19.15.11 NMAC will be followed.

i. Any other facets of the proposed operation that the operator would like the agency to consider 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:

BP plans on completing the well utilizing hydraulic fracturing for approximately 9 stages. Adjustments maybe be made to the number of stages and stage size based on the petrophysical properties of the target zone.

The wellbore is then opened for flowback operations. The well is placed through sales equipment once natural gas is experienced at surface.

Once stimulation operations are completed, BP intends to drill out the plugs within one to two weeks with workover rig operations. Then 2-3/8", 4.7#, L-80 tubing will be landed in the wellbore for production.

Timing: BP plans to drill this well beginning September, 2015

It is anticipated that the drilling of this well will take approximately 15 days.

It is anticipated that completion operations will begin within 30 days after the well has been drilled depending on fracture treatment schedules with various pumping service companies.

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.

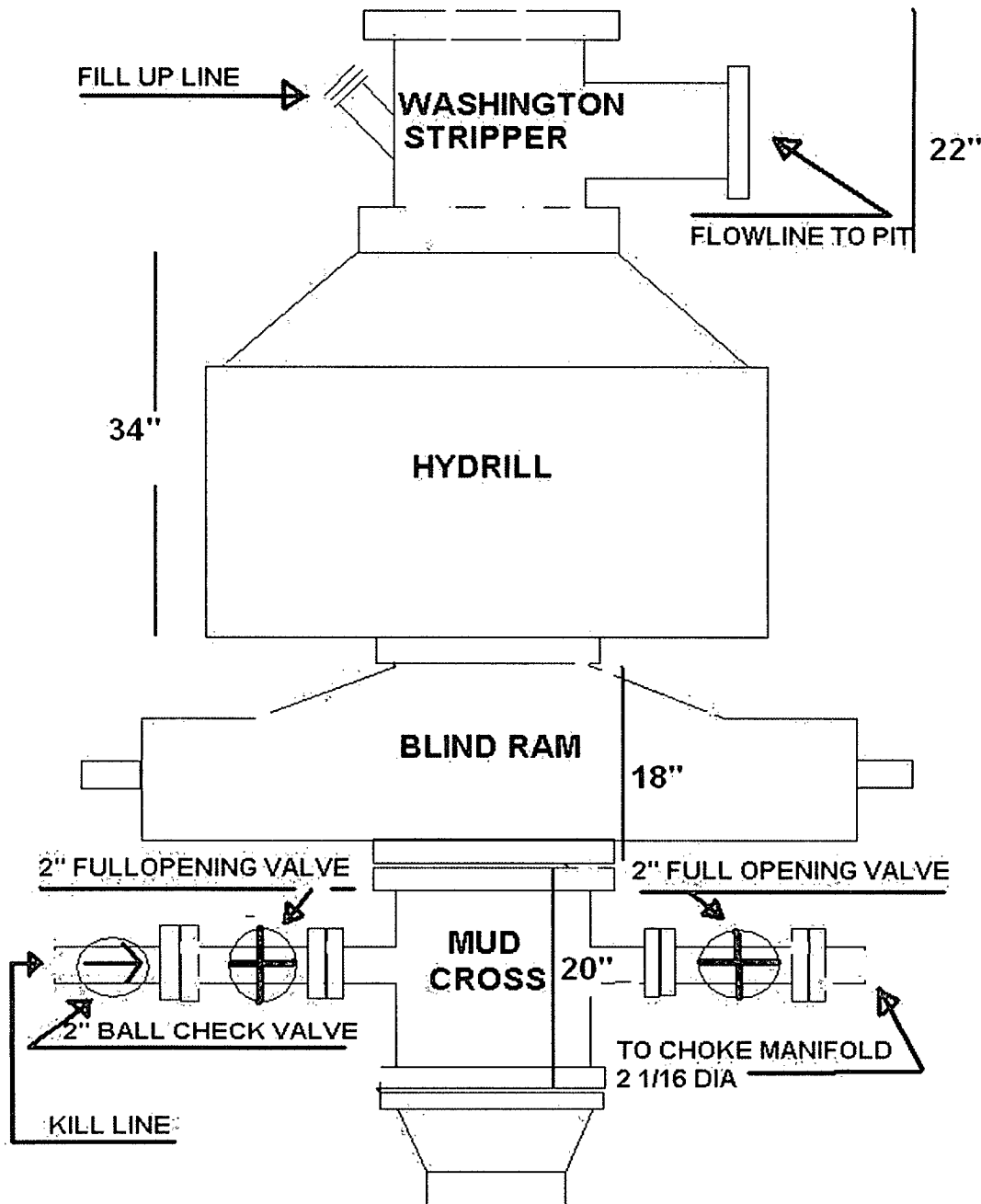
CLOSED-LOOP SYSTEM CLOSURE PLAN

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, and I of 19.15.17.13 NMAC.

92" overall height



Attachment: Proposed BOP Equipment for 2M system.



Company: B.P.
Project: San Juan County, NM NAD83
Site: Johnson Unit
Well: Johnson 1-1H
Wellbore: OH
Design: Plan #2

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



Azimuths to Grid North
True North: 0.07°
Magnetic North: 9.42°

Magnetic Field
Strength: 50200.3snT
Dip Angle: 63.43°
Date: 5/25/2015
Model: HDGM

WELL DETAILS: Johnson 1-1H

GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
+N/-S +E/-W Northing Easting Latitude Longitude
0.00 0.00 2124360.50 2687073.50 36.8379527 -107.9564191

Plan: Plan #2 (Johnson 1-1H/OH)

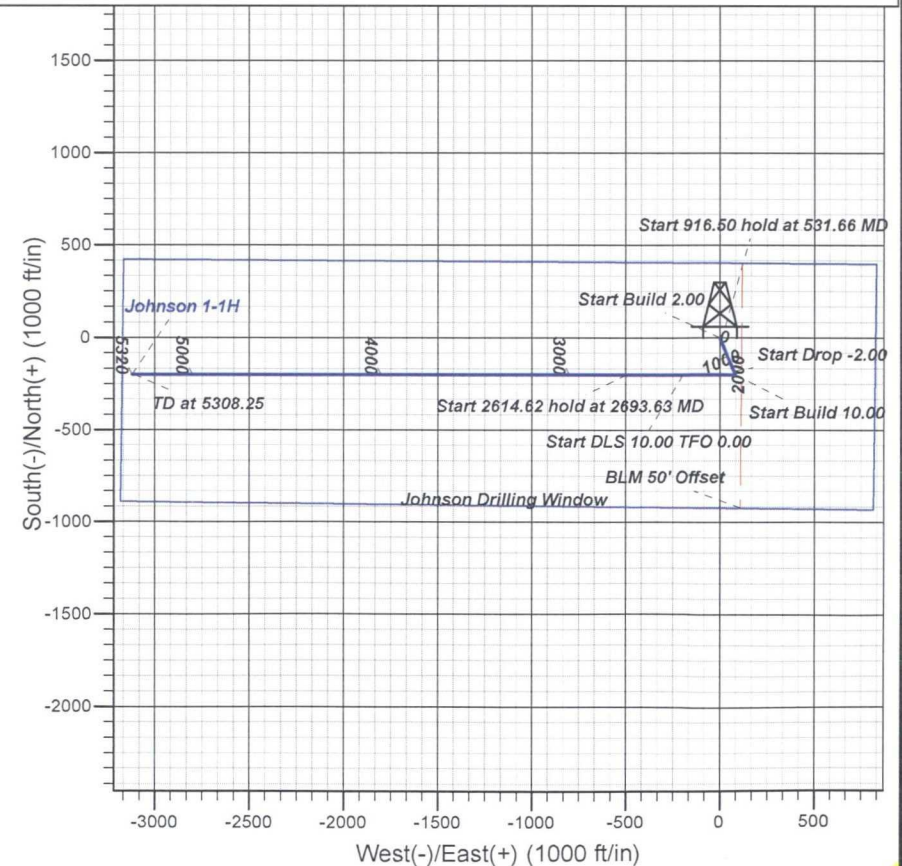
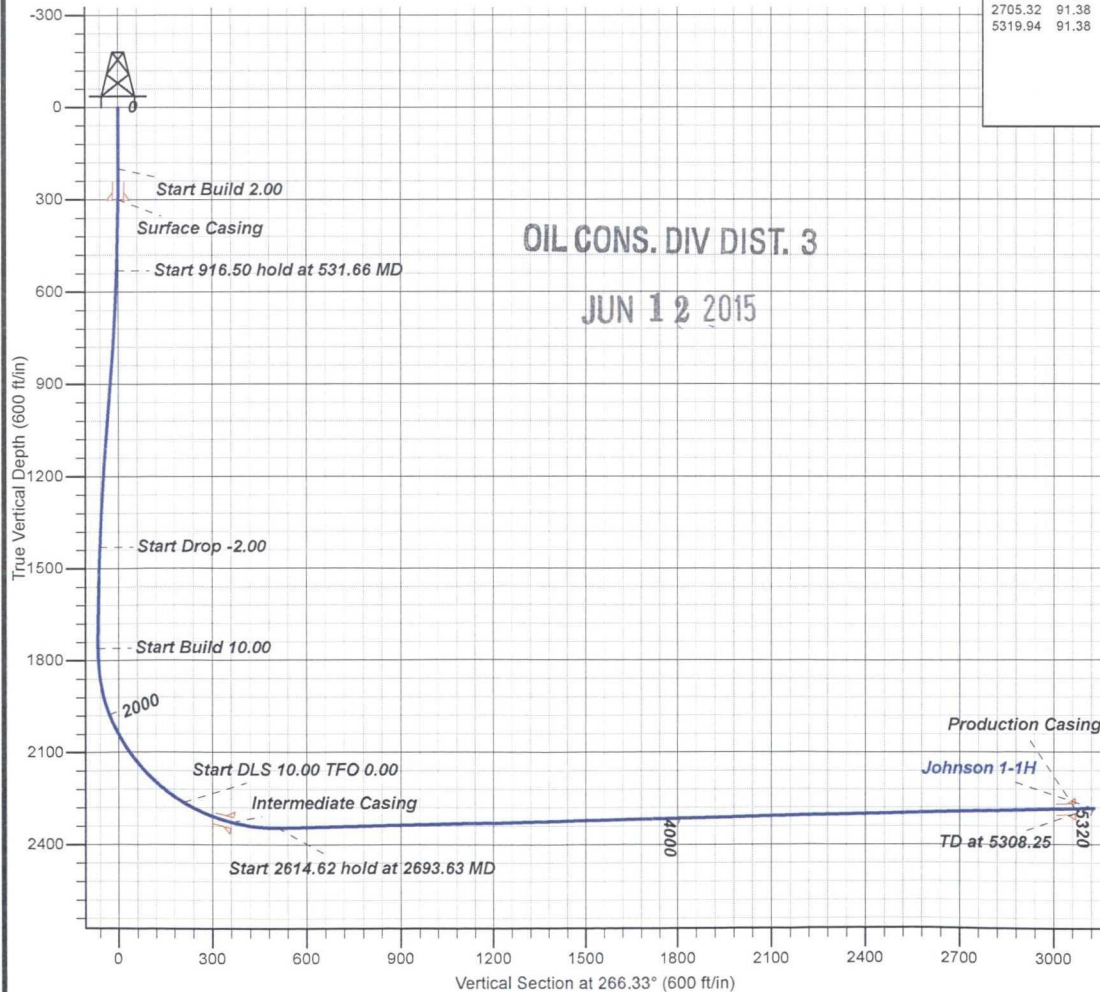
Created By: Janie Collins Date: 14:41, June 04 2015

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Johnson 1-1H PBHL ALT	2282.00	-200.00	-3120.63	2124160.50	2683952.88	36.8373918	-107.9670822
Johnson 1-1H LP ALT	2345.00	-200.00	-506.76	2124160.50	2686566.74	36.8374015	-107.9581499

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target	Annotation
0.00	0.00	0.00	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		Start Build 2.00
884.10	13.68	158.20	877.62	-75.48	30.19	2.00	158.20	-25.30		
1107.41	13.68	158.20	1094.59	-124.52	49.81	0.00	0.00	-41.74		
1791.51	0.00	0.00	1772.21	-200.00	80.00	2.00	180.00	-67.04		
2391.51	60.00	270.00	2268.41	-200.00	-206.48	10.00	270.00	218.85		
2705.32	91.38	270.00	2345.00	-200.00	-506.76	10.00	0.00	518.52		
5319.94	91.38	270.00	2282.00	-200.00	-3120.63	0.00	0.00	3127.03		Johnson 1-1H PBHL ALT





OIL CONS. DIV DIST. 3

JUN 12 2015

B.P.

San Juan County, NM NAD83

Johnson Unit

Johnson 1-1H

OH

Plan: Plan #2

Standard Planning Report

04 June, 2015



www.scientificdrilling.com



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Johnson 1-1H
Company:	B.P.	TVD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Project:	San Juan County, NM NAD83	MD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Site:	Johnson Unit	North Reference:	Grid
Well:	Johnson 1-1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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	Johnson Unit			
Site Position:		Northing:	2,124,360.50 usft	Latitude: 36.8379527
From:	Map	Easting:	2,687,073.50 usft	Longitude: -107.9564191
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence: -0.07 °

Well	Johnson 1-1H			
Well Position	+N/-S	0.00 ft	Northing:	2,124,360.50 usft
	+E/-W	0.00 ft	Easting:	2,687,073.50 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft
			Ground Level:	5,830.97 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	5/25/2015	9.35	63.43	50,200

Design	Plan #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	266.33

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	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	
884.10	13.68	158.20	877.62	-75.48	30.19	2.00	2.00	0.00	158.20	
1,107.41	13.68	158.20	1,094.59	-124.52	49.81	0.00	0.00	0.00	0.00	
1,791.51	0.00	0.00	1,772.21	-200.00	80.00	2.00	-2.00	0.00	180.00	
2,391.51	60.00	270.00	2,268.41	-200.00	-206.48	10.00	10.00	0.00	270.00	
2,705.32	91.38	270.00	2,345.00	-200.00	-506.76	10.00	10.00	0.00	0.00	
5,319.94	91.38	270.00	2,282.00	-200.00	-3,120.63	0.00	0.00	0.00	0.00	Johnson 1-1H PBHL /



Planning Report



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Johnson 1-1H
Company:	B.P.	TVD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Project:	San Juan County, NM NAD83	MD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Site:	Johnson Unit	North Reference:	Grid
Well:	Johnson 1-1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
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
Start Build 2.00									
300.00	2.00	158.20	299.98	-1.62	0.65	-0.54	2.00	2.00	0.00
Surface Casing									
400.00	4.00	158.20	399.84	-6.48	2.59	-2.17	2.00	2.00	0.00
500.00	6.00	158.20	499.45	-14.57	5.83	-4.88	2.00	2.00	0.00
531.66	6.63	158.20	530.92	-17.81	7.12	-5.97	2.00	2.00	0.00
Start 916.50 hold at 531.66 MD									
600.00	8.00	158.20	598.70	-25.89	10.35	-8.68	2.00	2.00	0.00
700.00	10.00	158.20	697.47	-40.41	16.16	-13.55	2.00	2.00	0.00
800.00	12.00	158.20	795.62	-58.13	23.25	-19.48	2.00	2.00	0.00
884.10	13.68	158.20	877.62	-75.48	30.19	-25.30	2.00	2.00	0.00
900.00	13.68	158.20	893.07	-78.97	31.59	-26.47	0.00	0.00	0.00
948.31	13.68	158.20	940.00	-89.58	35.83	-30.03	0.00	0.00	0.00
Ojo Alamo									
1,000.00	13.68	158.20	990.23	-100.93	40.37	-33.83	0.00	0.00	0.00
1,067.69	13.68	158.20	1,056.00	-115.80	46.32	-38.82	0.00	0.00	0.00
KRLD									
1,100.00	13.68	158.20	1,087.39	-122.89	49.16	-41.20	0.00	0.00	0.00
1,107.41	13.68	158.20	1,094.59	-124.52	49.81	-41.74	0.00	0.00	0.00
1,200.00	11.83	158.20	1,184.89	-143.50	57.40	-48.11	2.00	-2.00	0.00
1,300.00	9.83	158.20	1,283.11	-160.95	64.38	-53.95	2.00	-2.00	0.00
1,400.00	7.83	158.20	1,381.92	-175.20	70.08	-58.73	2.00	-2.00	0.00
1,448.17	6.87	158.20	1,429.68	-180.92	72.37	-60.65	2.00	-2.00	0.00
Start Drop -2.00									
1,500.00	5.83	158.20	1,481.20	-186.24	74.50	-62.43	2.00	-2.00	0.00
1,510.85	5.61	158.20	1,492.00	-187.25	74.90	-62.77	2.00	-2.00	0.00
FMNG									
1,600.00	3.83	158.20	1,580.84	-194.06	77.62	-65.05	2.00	-2.00	0.00
1,700.00	1.83	158.20	1,680.72	-198.64	79.46	-66.59	2.00	-2.00	0.00
1,704.29	1.74	158.20	1,685.00	-198.77	79.51	-66.63	2.00	-2.00	0.00
KRLD_L									
1,779.83	0.23	158.20	1,760.52	-199.98	79.99	-67.04	2.00	-2.00	0.00
Start Build 10.00									
1,791.51	0.00	0.00	1,772.21	-200.00	80.00	-67.04	2.00	-2.00	0.00
1,800.00	0.85	270.00	1,780.70	-200.00	79.94	-66.98	10.00	10.00	0.00
1,900.00	10.85	270.00	1,880.05	-200.00	69.76	-56.82	10.00	10.00	0.00
2,000.00	20.85	270.00	1,976.13	-200.00	42.48	-29.60	10.00	10.00	0.00
2,036.72	24.52	270.00	2,010.00	-200.00	28.33	-15.48	10.00	10.00	0.00
FCCL									
2,100.00	30.85	270.00	2,066.01	-200.00	-1.06	13.85	10.00	10.00	0.00
2,181.79	39.03	270.00	2,133.00	-200.00	-47.86	60.55	10.00	10.00	0.00
IGNA									
2,200.00	40.85	270.00	2,146.96	-200.00	-59.55	72.22	10.00	10.00	0.00
2,245.27	45.38	270.00	2,180.00	-200.00	-90.48	103.09	10.00	10.00	0.00
FCSD									
2,250.86	45.93	270.00	2,183.90	-200.00	-94.48	107.07	10.00	10.00	0.00
Johnson 1-1H LP									
2,300.00	50.85	270.00	2,216.53	-200.00	-131.21	143.74	10.00	10.00	0.00



Planning Report



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Johnson 1-1H
Company:	B.P.	TVD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Project:	San Juan County, NM NAD83	MD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Site:	Johnson Unit	North Reference:	Grid
Well:	Johnson 1-1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
2,326.87	53.54	270.00	2,233.00	-200.00	-152.44	164.92	10.00	10.00	0.00
CTWD									
2,379.83	58.83	270.00	2,262.46	-200.00	-196.42	208.81	10.00	10.00	0.00
Start DLS 10.00 TFO 0.00									
2,391.51	60.00	270.00	2,268.41	-200.00	-206.48	218.85	10.00	10.00	0.00
2,400.00	60.85	270.00	2,272.60	-200.00	-213.86	226.22	9.99	9.99	0.00
2,500.01	70.85	270.00	2,313.46	-200.00	-305.00	317.16	10.00	10.00	0.00
2,548.00	75.65	270.00	2,327.29	-200.00	-350.94	363.01	10.00	10.00	0.00
Intermediate Casing									
2,555.08	76.36	270.00	2,329.00	-200.00	-357.81	369.87	10.00	10.00	0.00
CAHN									
2,600.01	80.85	270.00	2,337.88	-200.00	-401.84	413.81	10.00	10.00	0.00
2,693.63	90.21	270.00	2,345.16	-200.00	-495.08	506.86	10.00	10.00	0.00
Start 2614.62 hold at 2693.63 MD									
2,700.01	90.85	270.00	2,345.10	-200.00	-501.45	513.21	9.99	9.99	0.00
2,705.32	91.38	270.00	2,345.00	-200.00	-506.76	518.51	10.01	10.01	0.00
Johnson 1-1H LP ALT									
2,800.01	91.38	270.00	2,342.72	-200.00	-601.42	612.98	0.00	0.00	0.00
2,900.01	91.38	270.00	2,340.31	-200.00	-701.39	712.75	0.00	0.00	0.00
3,000.01	91.38	270.00	2,337.90	-200.00	-801.36	812.51	0.00	0.00	0.00
3,100.01	91.38	270.00	2,335.49	-200.00	-901.33	912.28	0.00	0.00	0.00
3,200.01	91.38	270.00	2,333.08	-200.00	-1,001.31	1,012.05	0.00	0.00	0.00
3,300.01	91.38	270.00	2,330.67	-200.00	-1,101.28	1,111.81	0.00	0.00	0.00
3,400.01	91.38	270.00	2,328.26	-200.00	-1,201.25	1,211.58	0.00	0.00	0.00
3,500.01	91.38	270.00	2,325.85	-200.00	-1,301.22	1,311.35	0.00	0.00	0.00
3,600.01	91.38	270.00	2,323.44	-200.00	-1,401.19	1,411.11	0.00	0.00	0.00
3,700.01	91.38	270.00	2,321.03	-200.00	-1,501.16	1,510.88	0.00	0.00	0.00
3,800.01	91.38	270.00	2,318.62	-200.00	-1,601.13	1,610.65	0.00	0.00	0.00
3,900.01	91.38	270.00	2,316.21	-200.00	-1,701.10	1,710.41	0.00	0.00	0.00
4,000.01	91.38	270.00	2,313.80	-200.00	-1,801.08	1,810.18	0.00	0.00	0.00
4,100.01	91.38	270.00	2,311.40	-200.00	-1,901.05	1,909.95	0.00	0.00	0.00
4,200.01	91.38	270.00	2,308.99	-200.00	-2,001.02	2,009.71	0.00	0.00	0.00
4,300.01	91.38	270.00	2,306.58	-200.00	-2,100.99	2,109.48	0.00	0.00	0.00
4,400.01	91.38	270.00	2,304.17	-200.00	-2,200.96	2,209.25	0.00	0.00	0.00
4,500.01	91.38	270.00	2,301.76	-200.00	-2,300.93	2,309.01	0.00	0.00	0.00
4,600.01	91.38	270.00	2,299.35	-200.00	-2,400.90	2,408.78	0.00	0.00	0.00
4,700.01	91.38	270.00	2,296.94	-200.00	-2,500.87	2,508.54	0.00	0.00	0.00
4,800.01	91.38	270.00	2,294.53	-200.00	-2,600.84	2,608.31	0.00	0.00	0.00
4,900.01	91.38	270.00	2,292.12	-200.00	-2,700.82	2,708.08	0.00	0.00	0.00
5,000.01	91.38	270.00	2,289.71	-200.00	-2,800.79	2,807.84	0.00	0.00	0.00
5,100.01	91.38	270.00	2,287.30	-200.00	-2,900.76	2,907.61	0.00	0.00	0.00
5,200.01	91.38	270.00	2,284.89	-200.00	-3,000.73	3,007.38	0.00	0.00	0.00
5,261.70	91.38	270.00	2,283.40	-200.00	-3,062.40	3,068.92	0.00	0.00	0.00
Production Casing									
5,300.01	91.38	270.00	2,282.48	-200.00	-3,100.70	3,107.14	0.00	0.00	0.00
5,308.25	91.38	270.00	2,282.28	-200.00	-3,108.94	3,115.37	0.00	0.00	0.00
TD at 5308.25									
5,319.94	91.38	270.00	2,282.00	-200.00	-3,120.63	3,127.03	0.00	0.00	0.00
Johnson 1-1H PBHL - Johnson 1-1H PBHL ALT									



Planning Report



Database:	Grand Junction District	Local Co-ordinate Reference:	Well Johnson 1-1H
Company:	B.P.	TVD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Project:	San Juan County, NM NAD83	MD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Site:	Johnson Unit	North Reference:	Grid
Well:	Johnson 1-1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Johnson 1-1H PBHLAL1 - plan hits target center - Point	0.00	360.00	2,282.00	-200.00	-3,120.63	2,124,160.50	2,683,952.88	36.8373918	-107.9670823
Johnson 1-1H LP ALT - plan hits target center - Point	0.00	360.00	2,345.00	-200.00	-506.76	2,124,160.50	2,686,566.74	36.8374015	-107.9581500

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
300.00	299.98	Surface Casing	9.625	12.250
2,548.00	2,327.29	Intermediate Casing	7.000	8.750
5,261.70	2,283.40	Production Casing	4.500	6.250

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
948.31	940.00	Ojo Alamo		0.00	0.00
1,067.69	1,056.00	KRLD		0.00	0.00
1,510.85	1,492.00	FMNG		0.00	0.00
1,704.29	1,685.00	KRLD_L		0.00	0.00
2,036.72	2,010.00	FCCL		0.00	0.00
2,181.79	2,133.00	IGNA		0.00	0.00
2,245.27	2,180.00	FCSD		0.00	0.00
2,326.87	2,233.00	CTWD		0.00	0.00
2,555.08	2,329.00	CAHN		0.00	0.00

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.00	200.00	0.00	0.00	Start Build 2.00
531.66	530.92	-15.96	10.64	Start 916.50 hold at 531.66 MD
1,448.17	1,441.29	-104.04	69.36	Start Drop -2.00
1,779.83	1,772.21	-120.00	80.00	Start Build 10.00
2,379.83	2,268.41	-120.00	-206.48	Start DLS 10.00 TFO 0.00
2,693.63	2,345.00	-120.00	-506.76	Start 2614.62 hold at 2693.63 MD
5,308.25	2,282.00	-120.00	-3,120.63	TD at 5308.25



B.P.

San Juan County, NM NAD83
Johnson Unit
Johnson 1-1H

OH
Plan #2

Anticollision Report

04 June, 2015



www.scientificdrilling.com



Anticollision Report



Company:	B.P.	Local Co-ordinate Reference:	Well Johnson 1-1H
Project:	San Juan County, NM NAD83	TVD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Reference Site:	Johnson Unit	MD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Johnson 1-1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction District
Reference Design:	Plan #2	Offset TVD Reference:	Reference Datum

Reference	Plan #2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.00ft	Error Model:	ISCWSA
Depth Range:	0.00 to 30,000.06ft	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 15,000.03 ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	6/4/2015		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	5,319.94	Plan #2 (OH)	Gyro		

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Johnson Unit						
Aztec Com 4 #1 - OH - OH	4,155.96	2,262.23	261.88	173.39	2.959	CC, ES, SF
Blanco Com 1-1A - OH - OH	1,800.00	1,809.46	545.11	474.74	7.746	CC, ES
Blanco Com 1-1A - OH - OH	1,900.00	1,908.81	553.74	480.33	7.544	SF
Blanco Com 2 001B-MV - OH - OH	5,300.00	2,391.05	543.33	449.69	5.802	CC, ES, SF
Blanco Com 2 001-MV - OH - OH	4,183.78	2,257.19	610.15	521.86	6.911	CC, ES, SF
Coldiron Com A #001 - OH - OH	4,489.75	2,244.37	568.96	481.19	6.482	CC, ES, SF
Johnson 1 - OH - OH	200.00	190.80	42.66	37.03	7.574	CC
Johnson 1 - OH - OH	400.00	390.64	45.83	32.21	3.365	ES
Johnson 1 - OH - OH	600.00	589.50	59.35	37.89	2.765	SF

Offset Design Johnson Unit - Aztec Com 4 #1 - OH - OH													Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis		Distance										
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.00	0.00	0.00	47.82	0.00	0.00	-88.19	61.88	-1,956.98	1,958.55					
100.00	100.00	52.18	100.00	0.00	1.04	-88.19	61.88	-1,956.98	1,957.96	1,956.92	1.04	1,875.630		
200.00	200.00	152.18	200.00	0.00	4.09	-88.19	61.88	-1,956.98	1,957.96	1,953.87	4.09	479.024		
300.00	299.98	252.16	299.98	0.00	8.09	113.65	61.88	-1,956.98	1,958.66	1,950.58	8.09	242.235		
400.00	399.84	352.02	399.84	0.00	12.08	113.75	61.88	-1,956.98	1,960.77	1,948.69	12.08	162.367		
500.00	499.45	451.63	499.45	0.00	16.07	113.92	61.88	-1,956.98	1,964.30	1,948.25	16.05	122.378		
600.00	598.70	550.88	598.70	0.00	20.04	114.15	61.88	-1,956.98	1,969.30	1,949.29	20.00	98.450		
700.00	697.47	649.65	697.47	0.00	23.99	114.44	61.88	-1,956.98	1,975.80	1,951.87	23.92	82.586		
800.00	795.62	747.80	795.62	0.00	27.91	114.78	61.88	-1,956.98	1,983.87	1,956.06	27.81	71.346		
900.00	893.07	845.25	893.07	0.00	31.81	115.21	61.88	-1,956.98	1,993.55	1,961.91	31.65	62.991		
1,000.00	990.23	942.41	990.23	0.00	35.70	115.81	61.88	-1,956.98	2,003.98	1,968.47	35.51	56.439		
1,100.00	1,087.39	1,039.57	1,087.39	0.00	39.58	116.40	61.88	-1,956.98	2,014.63	1,975.27	39.36	51.180		
1,200.00	1,184.89	1,137.07	1,184.89	0.00	43.48	117.12	61.88	-1,956.98	2,024.83	1,981.54	43.29	46.771		
1,300.00	1,283.10	1,235.28	1,283.10	0.00	47.41	117.74	61.88	-1,956.98	2,033.61	1,986.35	47.26	43.029		
1,400.00	1,381.91	1,334.09	1,381.91	0.00	51.36	118.25	61.88	-1,956.98	2,040.88	1,989.62	51.26	39.817		
1,500.00	1,481.20	1,433.38	1,481.20	0.00	55.34	118.64	61.88	-1,956.98	2,046.58	1,991.31	55.27	37.029		

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



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Reference Site:	Johnson Unit	MD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Johnson 1-1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction District
Reference Design:	Plan #2	Offset TVD Reference:	Reference Datum

Offset Design Johnson Unit - Aztec Com 4 #1 - OH - OH													Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
1,600.00	1,580.84	1,533.02	1,580.84	0.00	59.32	118.92	61.88	-1,956.98	2,050.64	1,991.35	59.29	34.587		
1,700.00	1,680.71	1,632.89	1,680.71	0.00	63.32	119.08	61.88	-1,956.98	2,053.04	1,989.73	63.31	32.429		
1,800.00	1,780.70	1,732.88	1,780.70	0.00	67.32	7.33	61.88	-1,956.98	2,053.69	1,986.38	67.31	30.512		
1,900.00	1,880.05	1,832.23	1,880.05	0.00	71.29	7.49	61.88	-1,956.98	2,043.59	1,973.56	70.04	29.179		
2,000.00	1,976.13	1,928.31	1,976.13	0.00	75.13	7.98	61.88	-1,956.98	2,016.55	1,946.23	70.31	28.680		
2,100.00	2,066.01	2,018.19	2,066.01	0.00	78.73	8.86	61.88	-1,956.98	1,973.38	1,905.50	67.88	29.074		
2,200.00	2,146.96	2,099.14	2,146.96	0.00	81.97	10.34	61.88	-1,956.98	1,915.42	1,852.68	62.74	30.527		
2,300.00	2,216.53	2,168.71	2,216.53	0.00	84.75	12.80	61.88	-1,956.98	1,844.46	1,789.01	55.45	33.262		
2,400.00	2,272.59	2,224.77	2,272.59	0.00	86.99	17.14	61.88	-1,956.98	1,762.69	1,714.76	47.93	36.779		
2,500.00	2,313.46	2,265.64	2,313.46	0.00	88.63	25.79	61.88	-1,956.98	1,672.62	1,626.02	46.61	35.888		
2,600.00	2,337.88	2,290.06	2,337.88	0.00	89.60	46.64	61.88	-1,956.98	1,577.05	1,511.17	65.87	23.941		
2,700.00	2,345.10	2,297.28	2,345.10	0.00	89.89	94.71	61.88	-1,956.98	1,478.91	1,389.32	89.59	16.508		
2,800.00	2,342.72	2,294.90	2,342.72	0.00	89.80	97.11	61.88	-1,956.98	1,380.63	1,291.53	89.11	15.494		
2,900.00	2,340.31	2,292.49	2,340.31	0.00	89.70	96.59	61.88	-1,956.98	1,282.62	1,193.51	89.11	14.394		
3,000.00	2,337.90	2,290.08	2,337.90	0.00	89.60	96.07	61.88	-1,956.98	1,184.93	1,095.83	89.10	13.299		
3,100.00	2,335.49	2,287.67	2,335.49	0.00	89.51	95.55	61.88	-1,956.98	1,087.65	998.56	89.09	12.209		
3,200.00	2,333.08	2,285.26	2,333.08	0.00	89.41	95.03	61.88	-1,956.98	990.92	901.85	89.07	11.125		
3,300.00	2,330.67	2,282.85	2,330.67	0.00	89.31	94.50	61.88	-1,956.98	894.89	805.85	89.04	10.051		
3,400.00	2,328.26	2,280.44	2,328.26	0.00	89.22	93.98	61.88	-1,956.98	799.83	710.83	89.00	8.987		
3,500.00	2,325.85	2,278.03	2,325.85	0.00	89.12	93.45	61.88	-1,956.98	706.13	617.17	88.96	7.938		
3,600.00	2,323.44	2,275.62	2,323.44	0.00	89.02	92.93	61.88	-1,956.98	614.41	525.50	88.91	6.911		
3,700.00	2,321.03	2,273.21	2,321.03	0.00	88.93	92.40	61.88	-1,956.98	525.70	436.85	88.85	5.917		
3,800.00	2,318.62	2,270.80	2,318.62	0.00	88.83	91.88	61.88	-1,956.98	441.83	353.05	88.78	4.976		
3,900.00	2,316.21	2,268.39	2,316.21	0.00	88.74	91.35	61.88	-1,956.98	366.14	277.43	88.71	4.127		
4,000.00	2,313.81	2,265.99	2,313.81	0.00	88.64	90.82	61.88	-1,956.98	304.78	216.15	88.63	3.439		
4,100.00	2,311.40	2,263.58	2,311.40	0.00	88.54	90.29	61.88	-1,956.98	267.79	179.25	88.54	3.024		
4,155.96	2,310.05	2,262.23	2,310.05	0.00	88.49	90.00	61.88	-1,956.98	261.88	173.39	88.49	2.959 CC, ES, SF		
4,200.00	2,308.99	2,261.17	2,308.99	0.00	88.45	89.77	61.88	-1,956.98	265.55	177.11	88.45	3.002		
4,300.00	2,306.58	2,258.76	2,306.58	0.00	88.35	89.24	61.88	-1,956.98	298.86	210.52	88.34	3.383		
4,400.00	2,304.17	2,256.35	2,304.17	0.00	88.25	88.71	61.88	-1,956.98	357.91	269.68	88.23	4.056		
4,500.00	2,301.76	2,253.94	2,301.76	0.00	88.16	88.19	61.88	-1,956.98	432.29	344.18	88.11	4.906		
4,600.00	2,299.35	2,251.53	2,299.35	0.00	88.06	87.66	61.88	-1,956.98	515.40	427.41	87.99	5.858		
4,700.00	2,296.94	2,249.12	2,296.94	0.00	87.96	87.14	61.88	-1,956.98	603.64	515.79	87.86	6.871		
4,800.00	2,294.53	2,246.71	2,294.53	0.00	87.87	86.61	61.88	-1,956.98	695.07	607.36	87.71	7.924		
4,900.00	2,292.12	2,244.30	2,292.12	0.00	87.77	86.08	61.88	-1,956.98	788.58	701.01	87.57	9.005		
5,000.00	2,289.71	2,241.89	2,289.71	0.00	87.68	85.56	61.88	-1,956.98	883.50	796.08	87.41	10.107		
5,100.00	2,287.30	2,239.48	2,287.30	0.00	87.58	85.04	61.88	-1,956.98	979.42	892.17	87.25	11.225		
5,200.00	2,284.89	2,237.07	2,284.89	0.00	87.48	84.51	61.88	-1,956.98	1,076.09	989.00	87.08	12.357		
5,300.00	2,282.48	2,234.66	2,282.48	0.00	87.39	83.99	61.88	-1,956.98	1,173.31	1,086.40	86.91	13.501		

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



Anticollision Report



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Reference Site:	Johnson Unit	MD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Johnson 1-1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction District
Reference Design:	Plan #2	Offset TVD Reference:	Reference Datum

Offset Design Johnson Unit - Blanco Com 1-1A - OH - OH													Offset Site Error:	0.00 ft
Survey Program:		100-UNKNOWN											Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
0.00	0.00	28.76	0.00	0.00	0.58	132.25	-491.24	540.72	730.55					
100.00	100.00	128.76	100.00	0.00	3.15	132.25	-491.24	540.72	730.55	727.40	3.15	231.875		
200.00	200.00	228.76	200.00	0.00	7.15	132.25	-491.24	540.72	730.55	723.40	7.15	102.166		
300.00	299.98	328.74	299.98	0.00	11.15	-26.02	-491.24	540.72	728.98	717.83	11.14	65.413		
400.00	399.84	428.60	399.84	0.00	15.14	-26.24	-491.24	540.72	724.28	709.16	15.11	47.920		
500.00	499.45	528.21	499.45	0.00	19.13	-26.62	-491.24	540.72	716.47	697.42	19.04	37.620		
600.00	598.70	627.46	598.70	0.00	23.10	-27.16	-491.24	540.72	705.58	682.66	22.92	30.783		
700.00	697.47	726.23	697.47	0.00	27.05	-27.88	-491.24	540.72	691.67	664.94	26.73	25.877		
800.00	795.62	824.38	795.62	0.00	30.98	-28.80	-491.24	540.72	674.81	644.35	30.46	22.156		
900.00	893.07	921.83	893.07	0.00	34.87	-29.91	-491.24	540.72	655.12	620.99	34.13	19.194		
1,000.00	990.23	1,018.99	990.23	0.00	38.76	-30.96	-491.24	540.72	634.58	596.62	37.95	16.720		
1,100.00	1,087.39	1,116.15	1,087.39	0.00	42.65	-32.09	-491.24	540.72	614.26	572.48	41.78	14.702		
1,200.00	1,184.89	1,213.65	1,184.89	0.00	46.55	-33.02	-491.24	540.72	595.42	549.56	45.85	12.985		
1,300.00	1,283.10	1,311.86	1,283.10	0.00	50.47	-33.85	-491.24	540.72	579.65	529.69	49.96	11.601		
1,400.00	1,381.91	1,410.67	1,381.91	0.00	54.43	-34.57	-491.24	540.72	566.91	512.83	54.08	10.482		
1,500.00	1,481.20	1,509.96	1,481.20	0.00	58.40	-35.15	-491.24	540.72	557.13	498.93	58.20	9.573		
1,600.00	1,580.84	1,609.60	1,580.84	0.00	62.38	-35.57	-491.24	540.72	550.25	487.96	62.29	8.833		
1,700.00	1,680.71	1,709.47	1,680.71	0.00	66.38	-35.82	-491.24	540.72	546.24	479.88	66.36	8.232		
1,779.27	1,759.97	1,788.73	1,759.97	0.00	69.55	-114.22	-491.24	540.72	545.39	475.85	69.55	7.842		
1,800.00	1,780.70	1,809.46	1,780.70	0.00	70.38	-147.70	-491.24	540.72	545.11	474.74	70.37	7.746 CC, ES		
1,900.00	1,880.05	1,908.81	1,880.05	0.00	74.35	-147.80	-491.24	540.72	553.74	480.33	73.40	7.544 SF		
2,000.00	1,976.13	2,004.89	1,976.13	0.00	78.20	-147.97	-491.24	540.72	577.11	502.56	74.55	7.741		
2,100.00	2,066.01	2,094.77	2,066.01	0.00	81.79	-147.95	-491.24	540.72	615.10	541.44	73.66	8.350		
2,200.00	2,146.96	2,175.72	2,146.96	0.00	85.03	-147.32	-491.24	540.72	667.19	596.21	70.98	9.399		
2,300.00	2,216.53	2,245.29	2,216.53	0.00	87.81	-145.53	-491.24	540.72	732.33	664.81	67.52	10.846		
2,400.00	2,272.59	2,301.35	2,272.59	0.00	90.05	-141.61	-491.24	540.72	808.83	743.18	65.65	12.320		
2,500.00	2,313.46	2,342.22	2,313.46	0.00	91.69	-133.61	-491.24	540.72	894.46	824.90	69.55	12.860		
2,600.00	2,337.88	2,366.64	2,337.88	0.00	92.67	-117.24	-491.24	540.72	986.52	903.86	82.67	11.934		
2,700.00	2,345.10	2,373.86	2,345.10	0.00	92.95	-86.97	-491.24	540.72	1,082.10	989.27	92.82	11.657		
2,800.00	2,342.72	2,371.48	2,342.72	0.00	92.86	-84.60	-491.24	540.72	1,178.68	1,086.24	92.45	12.750		
2,900.00	2,340.31	2,369.07	2,340.31	0.00	92.76	-84.13	-491.24	540.72	1,275.80	1,183.52	92.28	13.826		
3,000.00	2,337.90	2,366.66	2,337.90	0.00	92.67	-83.66	-491.24	540.72	1,373.32	1,281.22	92.10	14.911		
3,100.00	2,335.49	2,364.25	2,335.49	0.00	92.57	-83.20	-491.24	540.72	1,471.17	1,379.25	91.92	16.005		
3,200.00	2,333.08	2,361.84	2,333.08	0.00	92.47	-82.73	-491.24	540.72	1,569.28	1,477.55	91.73	17.107		
3,300.00	2,330.67	2,359.43	2,330.67	0.00	92.38	-82.26	-491.24	540.72	1,667.62	1,576.08	91.54	18.218		
3,400.00	2,328.26	2,357.02	2,328.26	0.00	92.28	-81.80	-491.24	540.72	1,766.14	1,674.80	91.34	19.336		
3,500.00	2,325.85	2,354.61	2,325.85	0.00	92.18	-81.34	-491.24	540.72	1,864.82	1,773.68	91.13	20.463		
3,600.00	2,323.44	2,352.20	2,323.44	0.00	92.09	-80.87	-491.24	540.72	1,963.62	1,872.70	90.92	21.597		
3,700.00	2,321.03	2,349.79	2,321.03	0.00	91.99	-80.41	-491.24	540.72	2,062.54	1,971.83	90.71	22.738		
3,800.00	2,318.62	2,347.38	2,318.62	0.00	91.90	-79.95	-491.24	540.72	2,161.56	2,071.07	90.49	23.888		
3,900.00	2,316.21	2,344.97	2,316.21	0.00	91.80	-79.49	-491.24	540.72	2,260.66	2,170.40	90.26	25.046		
4,000.00	2,313.81	2,342.57	2,313.81	0.00	91.70	-79.03	-491.24	540.72	2,359.83	2,269.80	90.03	26.212		
4,100.00	2,311.40	2,340.16	2,311.40	0.00	91.61	-78.58	-491.24	540.72	2,459.07	2,369.27	89.79	27.386		
4,200.00	2,308.99	2,337.75	2,308.99	0.00	91.51	-78.12	-491.24	540.72	2,558.36	2,468.81	89.55	28.568		
4,300.00	2,306.58	2,335.34	2,306.58	0.00	91.41	-77.67	-491.24	540.72	2,657.71	2,568.40	89.31	29.759		
4,400.00	2,304.17	2,332.93	2,304.17	0.00	91.32	-77.22	-491.24	540.72	2,757.10	2,668.04	89.06	30.959		
4,500.00	2,301.76	2,330.52	2,301.76	0.00	91.22	-76.77	-491.24	540.72	2,856.53	2,767.73	88.80	32.168		
4,600.00	2,299.35	2,328.11	2,299.35	0.00	91.12	-76.32	-491.24	540.72	2,956.00	2,867.46	88.54	33.385		
4,700.00	2,296.94	2,325.70	2,296.94	0.00	91.03	-75.88	-491.24	540.72	3,055.50	2,967.22	88.28	34.612		
4,800.00	2,294.53	2,323.29	2,294.53	0.00	90.93	-75.43	-491.24	540.72	3,155.03	3,067.02	88.01	35.849		
4,900.00	2,292.12	2,320.88	2,292.12	0.00	90.84	-74.99	-491.24	540.72	3,254.58	3,166.85	87.74	37.095		

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



Anticollision Report



Company:	B.P.	Local Co-ordinate Reference:	Well Johnson 1-1H
Project:	San Juan County, NM NAD83	TVD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Reference Site:	Johnson Unit	MD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Johnson 1-1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction District
Reference Design:	Plan #2	Offset TVD Reference:	Reference Datum

Offset Design Johnson Unit - Blanco Com 1-1A - OH - OH													Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
5,000.00	2,289.71	2,318.47	2,289.71	0.00	90.74	-74.55	-491.24	540.72	3,354.17	3,266.71	87.46	38.351		
5,100.00	2,287.30	2,316.06	2,287.30	0.00	90.64	-74.11	-491.24	540.72	3,453.77	3,366.59	87.18	39.617		
5,200.00	2,284.89	2,313.65	2,284.89	0.00	90.55	-73.67	-491.24	540.72	3,553.40	3,466.50	86.90	40.893		
5,300.00	2,282.48	2,311.24	2,282.48	0.00	90.45	-73.23	-491.24	540.72	3,653.04	3,566.43	86.61	42.179		



Anticollision Report



Company:	B.P.	Local Co-ordinate Reference:	Well Johnson 1-1H
Project:	San Juan County, NM NAD83	TVD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Reference Site:	Johnson Unit	MD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Johnson 1-1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction District
Reference Design:	Plan #2	Offset TVD Reference:	Reference Datum

Offset Design Johnson Unit - Blanco Com 2 001B-MV - OH - OH													Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	108.57	0.00	0.00	2.34	-103.38	-742.83	-3,123.96	3,211.06					
100.00	100.00	208.57	100.00	0.00	6.34	-103.38	-742.83	-3,123.96	3,211.06	3,204.72	6.34	506.237		
200.00	200.00	308.57	200.00	0.00	10.34	-103.38	-742.83	-3,123.96	3,211.06	3,200.72	10.34	310.457		
300.00	299.98	408.55	299.98	0.00	14.34	98.45	-742.83	-3,123.96	3,211.32	3,196.97	14.34	223.910		
400.00	399.84	508.41	399.84	0.00	18.34	98.53	-742.83	-3,123.96	3,212.09	3,193.75	18.34	175.184		
500.00	499.45	608.02	499.45	0.00	22.32	98.66	-742.83	-3,123.96	3,213.40	3,191.08	22.32	143.980		
600.00	598.70	707.27	598.70	0.00	26.29	98.83	-742.83	-3,123.96	3,215.26	3,188.98	26.29	122.323		
700.00	697.47	806.04	697.47	0.00	30.24	99.06	-742.83	-3,123.96	3,217.72	3,187.49	30.23	106.440		
800.00	795.62	904.19	795.62	0.00	34.17	99.32	-742.83	-3,123.96	3,220.83	3,186.68	34.15	94.318		
900.00	893.07	1,001.64	893.07	0.00	38.07	99.64	-742.83	-3,123.96	3,224.62	3,186.58	38.04	84.779		
1,000.00	990.23	1,098.80	990.23	0.00	41.95	100.05	-742.83	-3,123.96	3,228.78	3,186.86	41.92	77.029		
1,100.00	1,087.39	1,195.96	1,087.39	0.00	45.84	100.45	-742.83	-3,123.96	3,233.11	3,187.31	45.80	70.597		
1,200.00	1,184.89	1,293.46	1,184.89	0.00	49.74	100.90	-742.83	-3,123.96	3,237.32	3,187.62	49.70	65.136		
1,300.00	1,283.10	1,391.67	1,283.10	0.00	53.67	101.29	-742.83	-3,123.96	3,241.00	3,187.36	53.64	60.424		
1,400.00	1,381.91	1,490.48	1,381.91	0.00	57.62	101.62	-742.83	-3,123.96	3,244.08	3,186.48	57.60	56.323		
1,500.00	1,481.20	1,589.77	1,481.20	0.00	61.59	101.87	-742.83	-3,123.96	3,246.52	3,184.94	61.58	52.722		
1,600.00	1,580.84	1,689.41	1,580.84	0.00	65.58	102.05	-742.83	-3,123.96	3,248.27	3,182.70	65.57	49.539		
1,700.00	1,680.71	1,789.28	1,680.71	0.00	69.57	102.15	-742.83	-3,123.96	3,249.31	3,179.74	69.57	46.706		
1,800.00	1,780.70	1,889.27	1,780.70	0.00	73.57	-9.62	-742.83	-3,123.96	3,249.55	3,175.99	73.56	44.174		
1,900.00	1,880.05	1,988.62	1,880.05	0.00	77.54	-9.82	-742.83	-3,123.96	3,239.52	3,163.32	76.20	42.514		
2,000.00	1,976.13	2,084.70	1,976.13	0.00	81.39	-10.39	-742.83	-3,123.96	3,212.63	3,136.40	76.24	42.139		
2,100.00	2,066.01	2,174.58	2,066.01	0.00	84.98	-11.45	-742.83	-3,123.96	3,169.72	3,096.25	73.47	43.143		
2,200.00	2,146.96	2,255.53	2,146.96	0.00	88.22	-13.18	-742.83	-3,123.96	3,112.11	3,044.10	68.02	45.754		
2,300.00	2,216.53	2,325.10	2,216.53	0.00	91.00	-16.03	-742.83	-3,123.96	3,041.58	2,980.91	60.67	50.132		
2,400.00	2,272.59	2,381.16	2,272.59	0.00	93.25	-20.95	-742.83	-3,123.96	2,960.29	2,906.34	53.96	54.865		
2,500.00	2,313.46	2,422.03	2,313.46	0.00	94.88	-30.41	-742.83	-3,123.96	2,870.75	2,815.73	55.02	52.174		
2,600.00	2,337.88	2,446.45	2,337.88	0.00	95.86	-51.43	-742.83	-3,123.96	2,775.72	2,700.18	75.54	36.744		
2,700.00	2,345.10	2,453.67	2,345.10	0.00	96.15	-94.09	-742.83	-3,123.96	2,678.10	2,582.20	95.90	27.925		
2,800.00	2,342.72	2,451.29	2,342.72	0.00	96.05	-96.39	-742.83	-3,123.96	2,580.29	2,484.83	95.46	27.031		
2,900.00	2,340.31	2,448.88	2,340.31	0.00	95.96	-96.14	-742.83	-3,123.96	2,482.64	2,387.24	95.41	26.022		
3,000.00	2,337.90	2,446.47	2,337.90	0.00	95.86	-95.89	-742.83	-3,123.96	2,385.19	2,289.84	95.35	25.014		
3,100.00	2,335.49	2,444.06	2,335.49	0.00	95.76	-95.63	-742.83	-3,123.96	2,287.96	2,192.66	95.30	24.008		
3,200.00	2,333.08	2,441.65	2,333.08	0.00	95.67	-95.38	-742.83	-3,123.96	2,190.97	2,095.72	95.24	23.004		
3,300.00	2,330.67	2,439.24	2,330.67	0.00	95.57	-95.13	-742.83	-3,123.96	2,094.26	1,999.07	95.19	22.001		
3,400.00	2,328.26	2,436.83	2,328.26	0.00	95.47	-94.88	-742.83	-3,123.96	1,997.87	1,902.75	95.13	21.002		
3,500.00	2,325.85	2,434.42	2,325.85	0.00	95.38	-94.63	-742.83	-3,123.96	1,901.86	1,806.79	95.07	20.006		
3,600.00	2,323.44	2,432.01	2,323.44	0.00	95.28	-94.37	-742.83	-3,123.96	1,806.27	1,711.27	95.00	19.013		
3,700.00	2,321.03	2,429.60	2,321.03	0.00	95.18	-94.12	-742.83	-3,123.96	1,711.18	1,616.25	94.94	18.024		
3,800.00	2,318.62	2,427.19	2,318.62	0.00	95.09	-93.87	-742.83	-3,123.96	1,616.69	1,521.82	94.87	17.041		
3,900.00	2,316.21	2,424.78	2,316.21	0.00	94.99	-93.61	-742.83	-3,123.96	1,522.89	1,428.09	94.80	16.064		
4,000.00	2,313.81	2,422.38	2,313.81	0.00	94.90	-93.36	-742.83	-3,123.96	1,429.93	1,335.20	94.73	15.094		
4,100.00	2,311.40	2,419.97	2,311.40	0.00	94.80	-93.11	-742.83	-3,123.96	1,337.98	1,243.32	94.66	14.135		
4,200.00	2,308.99	2,417.56	2,308.99	0.00	94.70	-92.85	-742.83	-3,123.96	1,247.27	1,152.68	94.59	13.187		
4,300.00	2,306.58	2,415.15	2,306.58	0.00	94.61	-92.60	-742.83	-3,123.96	1,158.08	1,063.57	94.51	12.254		
4,400.00	2,304.17	2,412.74	2,304.17	0.00	94.51	-92.35	-742.83	-3,123.96	1,070.80	976.37	94.43	11.340		
4,500.00	2,301.76	2,410.33	2,301.76	0.00	94.41	-92.09	-742.83	-3,123.96	985.93	891.58	94.35	10.450		
4,600.00	2,299.35	2,407.92	2,299.35	0.00	94.32	-91.84	-742.83	-3,123.96	904.15	809.88	94.27	9.591		
4,700.00	2,296.94	2,405.51	2,296.94	0.00	94.22	-91.58	-742.83	-3,123.96	826.38	732.20	94.18	8.774		
4,800.00	2,294.53	2,403.10	2,294.53	0.00	94.12	-91.33	-742.83	-3,123.96	753.87	659.77	94.10	8.011		
4,900.00	2,292.12	2,400.69	2,292.12	0.00	94.03	-91.08	-742.83	-3,123.96	688.27	594.26	94.01	7.321		
5,000.00	2,289.71	2,398.28	2,289.71	0.00	93.93	-90.82	-742.83	-3,123.96	631.75	537.83	93.92	6.726		

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



Anticollision Report



Company:	B.P.	Local Co-ordinate Reference:	Well Johnson 1-1H
Project:	San Juan County, NM NAD83	TVD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Reference Site:	Johnson Unit	MD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Johnson 1-1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction District
Reference Design:	Plan #2	Offset TVD Reference:	Reference Datum

Offset Design Johnson Unit - Blanco Com 2 001B-MV - OH - OH													Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Distance								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (")	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
5,100.00	2,287.30	2,395.87	2,287.30	0.00	93.83	-90.57	-742.83	-3,123.96	586.93	493.10	93.83	6.255		
5,200.00	2,284.89	2,393.46	2,284.89	0.00	93.74	-90.31	-742.83	-3,123.96	556.64	462.91	93.74	5.938		
5,300.00	2,282.48	2,391.05	2,282.48	0.00	93.64	-90.06	-742.83	-3,123.96	543.33	449.69	93.64	5.802 CC, ES, SF		



Anticollision Report



Company:	B.P.	Local Co-ordinate Reference:	Well Johnson 1-1H
Project:	San Juan County, NM NAD83	TVD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Reference Site:	Johnson Unit	MD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Johnson 1-1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction District
Reference Design:	Plan #2	Offset TVD Reference:	Reference Datum

Offset Design Johnson Unit - Blanco Com 2 001-MV - OH - OH													Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.00	0.00	0.00	52.19	0.00	0.00	-78.32	410.15	-1,984.79	2,027.40					
100.00	100.00	47.81	100.00	0.00	0.96	-78.32	410.15	-1,984.79	2,026.73	2,025.77	0.96	2,118.891		
200.00	200.00	147.81	200.00	0.00	3.91	-78.32	410.15	-1,984.79	2,026.73	2,022.82	3.91	518.001		
300.00	299.98	247.79	299.98	0.00	7.91	123.50	410.15	-1,984.79	2,027.69	2,019.78	7.91	256.335		
400.00	399.84	347.65	399.84	0.00	11.91	123.58	410.15	-1,984.79	2,030.59	2,018.69	11.91	170.677		
500.00	499.45	447.26	499.45	0.00	15.89	123.70	410.15	-1,984.79	2,035.43	2,019.56	15.86	128.305		
600.00	598.70	546.51	598.70	0.00	19.86	123.87	410.15	-1,984.79	2,042.24	2,022.44	19.80	103.139		
700.00	697.47	645.28	697.47	0.00	23.81	124.08	410.15	-1,984.79	2,051.06	2,027.36	23.70	86.549		
800.00	795.62	743.43	795.62	0.00	27.74	124.34	410.15	-1,984.79	2,061.92	2,034.38	27.55	74.853		
900.00	893.07	840.88	893.07	0.00	31.64	124.66	410.15	-1,984.79	2,074.86	2,043.51	31.35	66.189		
1,000.00	990.23	938.04	990.23	0.00	35.52	125.18	410.15	-1,984.79	2,088.66	2,053.47	35.19	59.353		
1,100.00	1,087.39	1,035.20	1,087.39	0.00	39.41	125.70	410.15	-1,984.79	2,102.64	2,063.61	39.03	53.871		
1,200.00	1,184.89	1,132.70	1,184.89	0.00	43.31	126.38	410.15	-1,984.79	2,115.91	2,072.93	42.99	49.222		
1,300.00	1,283.10	1,230.91	1,283.10	0.00	47.24	126.97	410.15	-1,984.79	2,127.27	2,080.28	46.99	45.273		
1,400.00	1,381.91	1,329.72	1,381.91	0.00	51.19	127.44	410.15	-1,984.79	2,136.62	2,085.61	51.01	41.884		
1,500.00	1,481.20	1,429.01	1,481.20	0.00	55.16	127.81	410.15	-1,984.79	2,143.91	2,088.86	55.05	38.942		
1,600.00	1,580.84	1,528.65	1,580.84	0.00	59.15	128.07	410.15	-1,984.79	2,149.10	2,090.00	59.10	36.366		
1,700.00	1,680.71	1,628.52	1,680.71	0.00	63.14	128.22	410.15	-1,984.79	2,152.15	2,089.02	63.13	34.091		
1,800.00	1,780.70	1,728.51	1,780.70	0.00	67.14	16.46	410.15	-1,984.79	2,153.00	2,085.86	67.13	32.070		
1,900.00	1,880.05	1,827.86	1,880.05	0.00	71.11	16.82	410.15	-1,984.79	2,143.24	2,073.29	69.95	30.639		
2,000.00	1,976.13	1,923.94	1,976.13	0.00	74.96	17.85	410.15	-1,984.79	2,117.11	2,046.58	70.53	30.019		
2,100.00	2,066.01	2,013.82	2,066.01	0.00	78.55	19.71	410.15	-1,984.79	2,075.45	2,006.65	68.79	30.169		
2,200.00	2,146.96	2,094.77	2,146.96	0.00	81.79	22.73	410.15	-1,984.79	2,019.62	1,954.38	65.23	30.960		
2,300.00	2,216.53	2,164.34	2,216.53	0.00	84.57	27.54	410.15	-1,984.79	1,951.43	1,890.02	61.41	31.779		
2,400.00	2,272.59	2,220.40	2,272.59	0.00	86.82	35.27	410.15	-1,984.79	1,873.10	1,812.23	60.87	30.771		
2,500.00	2,313.46	2,261.27	2,313.46	0.00	88.45	47.91	410.15	-1,984.79	1,787.18	1,718.72	68.46	26.105		
2,600.00	2,337.88	2,285.69	2,337.88	0.00	89.43	67.58	410.15	-1,984.79	1,696.48	1,613.64	82.84	20.478		
2,700.00	2,345.10	2,292.91	2,345.10	0.00	89.72	92.06	410.15	-1,984.79	1,603.94	1,514.28	89.66	17.889		
2,800.00	2,342.72	2,290.53	2,342.72	0.00	89.62	93.13	410.15	-1,984.79	1,511.96	1,422.47	89.49	16.896		
2,900.00	2,340.31	2,288.12	2,340.31	0.00	89.52	92.90	410.15	-1,984.79	1,421.06	1,331.65	89.41	15.894		
3,000.00	2,337.90	2,285.71	2,337.90	0.00	89.43	92.68	410.15	-1,984.79	1,331.47	1,242.14	89.33	14.905		
3,100.00	2,335.49	2,283.30	2,335.49	0.00	89.33	92.45	410.15	-1,984.79	1,243.46	1,154.20	89.25	13.932		
3,200.00	2,333.08	2,280.89	2,333.08	0.00	89.24	92.22	410.15	-1,984.79	1,157.39	1,068.22	89.17	12.980		
3,300.00	2,330.67	2,278.48	2,330.67	0.00	89.14	92.00	410.15	-1,984.79	1,073.73	984.65	89.09	12.053		
3,400.00	2,328.26	2,276.07	2,328.26	0.00	89.04	91.77	410.15	-1,984.79	993.10	904.09	89.00	11.158		
3,500.00	2,325.85	2,273.66	2,325.85	0.00	88.95	91.55	410.15	-1,984.79	916.28	827.36	88.91	10.305		
3,600.00	2,323.44	2,271.25	2,323.44	0.00	88.85	91.32	410.15	-1,984.79	844.33	755.50	88.83	9.505		
3,700.00	2,321.03	2,268.84	2,321.03	0.00	88.75	91.09	410.15	-1,984.79	778.58	689.85	88.74	8.774		
3,800.00	2,318.62	2,266.43	2,318.62	0.00	88.66	90.87	410.15	-1,984.79	720.75	632.11	88.65	8.131		
3,900.00	2,316.21	2,264.02	2,316.21	0.00	88.56	90.64	410.15	-1,984.79	672.88	584.32	88.56	7.598		
4,000.00	2,313.81	2,261.62	2,313.81	0.00	88.46	90.42	410.15	-1,984.79	637.21	548.75	88.46	7.203		
4,100.00	2,311.40	2,259.21	2,311.40	0.00	88.37	90.19	410.15	-1,984.79	615.87	527.50	88.37	6.969		
4,183.78	2,309.38	2,257.19	2,309.38	0.00	88.29	90.00	410.15	-1,984.79	610.15	521.86	88.29	6.911 CC, ES, SF		
4,200.00	2,308.99	2,256.80	2,308.99	0.00	88.27	89.96	410.15	-1,984.79	610.37	522.09	88.27	6.915		
4,300.00	2,306.58	2,254.39	2,306.58	0.00	88.18	89.74	410.15	-1,984.79	621.11	532.94	88.17	7.044		
4,400.00	2,304.17	2,251.98	2,304.17	0.00	88.08	89.51	410.15	-1,984.79	647.31	559.23	88.08	7.349		
4,500.00	2,301.76	2,249.57	2,301.76	0.00	87.98	89.28	410.15	-1,984.79	687.18	599.21	87.98	7.811		
4,600.00	2,299.35	2,247.16	2,299.35	0.00	87.89	89.06	410.15	-1,984.79	738.53	650.65	87.87	8.404		
4,700.00	2,296.94	2,244.75	2,296.94	0.00	87.79	88.83	410.15	-1,984.79	799.13	711.36	87.77	9.105		
4,800.00	2,294.53	2,242.34	2,294.53	0.00	87.69	88.61	410.15	-1,984.79	867.06	779.39	87.67	9.890		
4,900.00	2,292.12	2,239.93	2,292.12	0.00	87.60	88.38	410.15	-1,984.79	940.72	853.16	87.56	10.743		

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



Anticollision Report



Company:	B.P.	Local Co-ordinate Reference:	Well Johnson 1-1H
Project:	San Juan County, NM NAD83	TVD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Reference Site:	Johnson Unit	MD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Johnson 1-1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction District
Reference Design:	Plan #2	Offset TVD Reference:	Reference Datum

Offset Design Johnson Unit - Blanco Com 2 001-MV - OH - OH													Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
5,000.00	2,289.71	2,237.52	2,289.71	0.00	87.50	88.15	410.15	-1,984.79	1,018.88	931.42	87.46	11.650		
5,100.00	2,287.30	2,235.11	2,287.30	0.00	87.40	87.93	410.15	-1,984.79	1,100.57	1,013.22	87.35	12.600		
5,200.00	2,284.89	2,232.70	2,284.89	0.00	87.31	87.70	410.15	-1,984.79	1,185.07	1,097.83	87.24	13.584		
5,300.00	2,282.48	2,230.29	2,282.48	0.00	87.21	87.48	410.15	-1,984.79	1,271.81	1,184.69	87.13	14.597		



Anticollision Report



Company:	B.P.	Local Co-ordinate Reference:	Well Johnson 1-1H
Project:	San Juan County, NM NAD83	TVD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Reference Site:	Johnson Unit	MD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Johnson 1-1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction District
Reference Design:	Plan #2	Offset TVD Reference:	Reference Datum

Offset Design Johnson Unit - Coldiron Com A #001 - OH - OH													Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	0.00	57.63	0.00	0.00	-80.85	368.96	-2,290.67	2,320.91					
100.00	100.00	42.37	100.00	0.00	0.85	-80.85	368.96	-2,290.67	2,320.20	2,319.35	0.85	2,737.002		
200.00	200.00	142.37	200.00	0.00	3.69	-80.85	368.96	-2,290.67	2,320.20	2,316.50	3.70	627.929		
300.00	299.98	242.35	299.98	0.00	7.69	120.97	368.96	-2,290.67	2,321.10	2,313.40	7.69	301.718		
400.00	399.84	342.21	399.84	0.00	11.69	121.04	368.96	-2,290.67	2,323.80	2,312.11	11.68	198.939		
500.00	499.45	441.82	499.45	0.00	15.67	121.14	368.96	-2,290.67	2,328.31	2,312.66	15.65	148.772		
600.00	598.70	541.07	598.70	0.00	19.64	121.29	368.96	-2,290.67	2,334.66	2,315.07	19.59	119.166		
700.00	697.47	639.84	697.47	0.00	23.59	121.47	368.96	-2,290.67	2,342.88	2,319.38	23.50	99.712		
800.00	795.62	737.99	795.62	0.00	27.52	121.69	368.96	-2,290.67	2,353.01	2,325.65	27.36	86.017		
900.00	893.07	835.44	893.07	0.00	31.42	121.97	368.96	-2,290.67	2,365.07	2,333.90	31.17	75.876		
1,000.00	990.23	932.60	990.23	0.00	35.30	122.45	368.96	-2,290.67	2,377.94	2,342.92	35.02	67.905		
1,100.00	1,087.39	1,029.76	1,087.39	0.00	39.19	122.92	368.96	-2,290.67	2,390.97	2,352.10	38.87	61.519		
1,200.00	1,184.89	1,127.26	1,184.89	0.00	43.09	123.54	368.96	-2,290.67	2,403.35	2,360.53	42.81	56.136		
1,300.00	1,283.10	1,225.47	1,283.10	0.00	47.02	124.09	368.96	-2,290.67	2,413.93	2,367.13	46.80	51.576		
1,400.00	1,381.91	1,324.28	1,381.91	0.00	50.97	124.53	368.96	-2,290.67	2,422.66	2,371.84	50.82	47.672		
1,500.00	1,481.20	1,423.57	1,481.20	0.00	54.94	124.87	368.96	-2,290.67	2,429.46	2,374.61	54.85	44.293		
1,600.00	1,580.84	1,523.21	1,580.84	0.00	58.93	125.11	368.96	-2,290.67	2,434.30	2,375.42	58.89	41.340		
1,700.00	1,680.71	1,623.08	1,680.71	0.00	62.92	125.26	368.96	-2,290.67	2,437.15	2,374.24	62.91	38.739		
1,800.00	1,780.70	1,723.07	1,780.70	0.00	66.92	13.50	368.96	-2,290.67	2,437.93	2,371.02	66.92	36.433		
1,900.00	1,880.05	1,822.42	1,880.05	0.00	70.90	13.79	368.96	-2,290.67	2,428.04	2,358.34	69.70	34.834		
2,000.00	1,976.13	1,918.50	1,976.13	0.00	74.74	14.62	368.96	-2,290.67	2,401.53	2,331.36	70.17	34.225		
2,100.00	2,066.01	2,008.38	2,066.01	0.00	78.34	16.14	368.96	-2,290.67	2,359.25	2,291.07	68.17	34.606		
2,200.00	2,146.96	2,089.33	2,146.96	0.00	81.57	18.63	368.96	-2,290.67	2,302.53	2,238.51	64.02	35.968		
2,300.00	2,216.53	2,158.90	2,216.53	0.00	84.36	22.65	368.96	-2,290.67	2,233.16	2,174.24	58.92	37.903		
2,400.00	2,272.59	2,214.96	2,272.59	0.00	86.60	29.35	368.96	-2,290.67	2,153.34	2,097.18	56.16	38.343		
2,500.00	2,313.46	2,255.83	2,313.46	0.00	88.23	41.13	368.96	-2,290.67	2,065.59	2,003.59	62.00	33.315		
2,600.00	2,337.88	2,280.25	2,337.88	0.00	89.21	62.17	368.96	-2,290.67	1,972.67	1,893.51	79.17	24.918		
2,700.00	2,345.10	2,287.47	2,345.10	0.00	89.50	92.67	368.96	-2,290.67	1,877.51	1,788.11	89.40	21.001		
2,800.00	2,342.72	2,285.09	2,342.72	0.00	89.40	94.09	368.96	-2,290.67	1,782.50	1,693.33	89.18	19.989		
2,900.00	2,340.31	2,282.68	2,340.31	0.00	89.31	93.85	368.96	-2,290.67	1,688.06	1,598.96	89.11	18.944		
3,000.00	2,337.90	2,280.27	2,337.90	0.00	89.21	93.61	368.96	-2,290.67	1,594.30	1,505.26	89.03	17.907		
3,100.00	2,335.49	2,277.86	2,335.49	0.00	89.11	93.37	368.96	-2,290.67	1,501.33	1,412.37	88.96	16.876		
3,200.00	2,333.08	2,275.45	2,333.08	0.00	89.02	93.13	368.96	-2,290.67	1,409.33	1,320.44	88.89	15.855		
3,300.00	2,330.67	2,273.04	2,330.67	0.00	88.92	92.88	368.96	-2,290.67	1,318.48	1,229.67	88.81	14.846		
3,400.00	2,328.26	2,270.63	2,328.26	0.00	88.83	92.64	368.96	-2,290.67	1,229.06	1,140.33	88.73	13.851		
3,500.00	2,325.85	2,268.22	2,325.85	0.00	88.73	92.40	368.96	-2,290.67	1,141.38	1,052.73	88.65	12.875		
3,600.00	2,323.44	2,265.81	2,323.44	0.00	88.63	92.16	368.96	-2,290.67	1,055.89	967.32	88.57	11.922		
3,700.00	2,321.03	2,263.40	2,321.03	0.00	88.54	91.92	368.96	-2,290.67	973.17	884.68	88.49	10.998		
3,800.00	2,318.62	2,260.99	2,318.62	0.00	88.44	91.67	368.96	-2,290.67	893.98	805.57	88.40	10.113		
3,900.00	2,316.21	2,258.58	2,316.21	0.00	88.34	91.43	368.96	-2,290.67	819.34	731.02	88.32	9.277		
4,000.00	2,313.81	2,256.18	2,313.81	0.00	88.25	91.19	368.96	-2,290.67	750.62	662.39	88.23	8.508		
4,100.00	2,311.40	2,253.77	2,311.40	0.00	88.15	90.95	368.96	-2,290.67	689.59	601.45	88.14	7.824		
4,200.00	2,308.99	2,251.36	2,308.99	0.00	88.05	90.70	368.96	-2,290.67	638.45	550.41	88.05	7.251		
4,300.00	2,306.58	2,248.95	2,306.58	0.00	87.96	90.46	368.96	-2,290.67	599.75	511.79	87.96	6.819		
4,400.00	2,304.17	2,246.54	2,304.17	0.00	87.86	90.22	368.96	-2,290.67	575.99	488.13	87.86	6.556		
4,489.75	2,302.00	2,244.37	2,302.00	0.00	87.77	90.00	368.96	-2,290.67	568.96	481.19	87.78	6.482 CC, ES, SF		
4,500.00	2,301.76	2,244.13	2,301.76	0.00	87.77	89.98	368.96	-2,290.67	569.05	481.29	87.77	6.484		
4,600.00	2,299.35	2,241.72	2,299.35	0.00	87.67	89.73	368.96	-2,290.67	579.54	491.87	87.67	6.611		
4,700.00	2,296.94	2,239.31	2,296.94	0.00	87.57	89.49	368.96	-2,290.67	606.54	518.98	87.57	6.926		
4,800.00	2,294.53	2,236.90	2,294.53	0.00	87.48	89.25	368.96	-2,290.67	648.01	560.54	87.47	7.408		
4,900.00	2,292.12	2,234.49	2,292.12	0.00	87.38	89.00	368.96	-2,290.67	701.37	614.01	87.37	8.028		

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



Anticollision Report



Company:	B.P.	Local Co-ordinate Reference:	Well Johnson 1-1H
Project:	San Juan County, NM NAD83	TVD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Reference Site:	Johnson Unit	MD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Johnson 1-1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction District
Reference Design:	Plan #2	Offset TVD Reference:	Reference Datum

Offset Design Johnson Unit - Coldiron Com A #001 - OH - OH												Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis				Distance					
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.00	2,289.71	2,232.08	2,289.71	0.00	87.28	88.76	368.96	-2,290.67	764.15	676.88	87.26	8.757	
5,100.00	2,287.30	2,229.67	2,287.30	0.00	87.19	88.52	368.96	-2,290.67	834.21	747.05	87.16	9.571	
5,200.00	2,284.89	2,227.26	2,284.89	0.00	87.09	88.28	368.96	-2,290.67	909.88	822.83	87.05	10.452	
5,300.00	2,282.48	2,224.85	2,282.48	0.00	86.99	88.04	368.96	-2,290.67	989.87	902.93	86.94	11.385	



Anticollision Report



Company:	B.P.	Local Co-ordinate Reference:	Well Johnson 1-1H
Project:	San Juan County, NM NAD83	TVD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Reference Site:	Johnson Unit	MD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Johnson 1-1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction District
Reference Design:	Plan #2	Offset TVD Reference:	Reference Datum

Offset Design Johnson Unit - Johnson 1 - OH - OH														Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN														Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)					
0.00	0.00	0.00	9.20	0.00	0.00	45.31	30.00	30.33	43.64						
100.00	100.00	90.80	100.00	0.00	1.82	45.31	30.00	30.33	42.66	40.84	1.82	23.489			
200.00	200.00	190.80	200.00	0.00	5.63	45.31	30.00	30.33	42.66	37.03	5.63	7.574 CC			
300.00	299.98	290.78	299.98	0.00	9.63	-115.00	30.00	30.33	43.37	33.74	9.63	4.503			
400.00	399.84	390.64	399.84	0.00	13.63	-120.89	30.00	30.33	45.83	32.21	13.62	3.365 ES			
500.00	499.45	490.25	499.45	0.00	17.61	-129.25	30.00	30.33	50.86	33.29	17.57	2.895			
600.00	598.70	589.50	598.70	0.00	21.58	-138.25	30.00	30.33	59.35	37.89	21.46	2.765 SF			
700.00	697.47	688.27	697.47	0.00	25.53	-146.42	30.00	30.33	71.82	46.56	25.26	2.843			
800.00	795.62	786.42	795.62	0.00	29.46	-153.10	30.00	30.33	88.41	59.46	28.95	3.054			
900.00	893.07	883.87	893.07	0.00	33.35	-158.30	30.00	30.33	108.98	76.44	32.54	3.349			
1,000.00	990.23	981.03	990.23	0.00	37.24	-162.11	30.00	30.33	131.32	95.03	36.29	3.619			
1,100.00	1,087.39	1,078.19	1,087.39	0.00	41.13	-164.81	30.00	30.33	154.05	114.01	40.04	3.847			
1,200.00	1,184.89	1,175.69	1,184.89	0.00	45.03	-166.80	30.00	30.33	175.60	131.48	44.12	3.980			
1,300.00	1,283.10	1,273.90	1,283.10	0.00	48.96	-168.14	30.00	30.33	193.96	145.69	48.27	4.018			
1,400.00	1,381.91	1,372.71	1,381.91	0.00	52.91	-169.06	30.00	30.33	209.01	156.58	52.43	3.986			
1,500.00	1,481.20	1,472.00	1,481.20	0.00	56.88	-169.69	30.00	30.33	220.71	164.11	56.60	3.900			
1,600.00	1,580.84	1,571.64	1,580.84	0.00	60.87	-170.10	30.00	30.33	229.00	168.26	60.73	3.770			
1,700.00	1,680.71	1,671.51	1,680.71	0.00	64.86	-170.32	30.00	30.33	233.86	169.03	64.83	3.607			
1,800.00	1,780.70	1,771.50	1,780.70	0.00	68.86	-177.83	30.00	30.33	235.29	166.43	68.86	3.417			
1,900.00	1,880.05	1,870.85	1,880.05	0.00	72.83	-180.44	30.00	30.33	233.36	160.56	72.80	3.205			
2,000.00	1,976.13	1,966.93	1,976.13	0.00	76.68	-187.17	30.00	30.33	230.32	153.66	76.67	3.004			
2,031.85	2,005.56	1,996.36	2,005.56	0.00	77.85	-190.00	30.00	30.33	230.00	152.15	77.85	2.954			
2,100.00	2,066.01	2,056.81	2,066.01	0.00	80.27	-196.68	30.00	30.33	232.13	152.00	80.13	2.897			
2,200.00	2,146.96	2,137.76	2,146.96	0.00	83.51	-196.47	30.00	30.33	246.94	164.88	82.06	3.009			
2,300.00	2,216.53	2,207.33	2,216.53	0.00	86.29	-113.91	30.00	30.33	281.06	199.14	81.92	3.431			
2,400.00	2,272.59	2,263.39	2,272.59	0.00	88.54	-117.35	30.00	30.33	335.45	254.35	81.10	4.136			
2,500.00	2,313.46	2,304.26	2,313.46	0.00	90.17	-115.56	30.00	30.33	406.62	324.28	82.34	4.938			
2,600.00	2,337.88	2,328.68	2,337.88	0.00	91.15	-106.64	30.00	30.33	489.56	402.13	87.43	5.599			
2,700.00	2,345.10	2,335.90	2,345.10	0.00	91.44	-88.04	30.00	30.33	579.38	488.00	91.38	6.340			
2,800.00	2,342.72	2,333.52	2,342.72	0.00	91.34	-86.21	30.00	30.33	672.31	581.17	91.14	7.377			
2,900.00	2,340.31	2,331.11	2,340.31	0.00	91.24	-85.62	30.00	30.33	767.01	676.04	90.98	8.431			
3,000.00	2,337.90	2,328.70	2,337.90	0.00	91.15	-85.02	30.00	30.33	862.90	772.10	90.80	9.503			
3,100.00	2,335.48	2,326.28	2,335.48	0.00	91.05	-84.43	30.00	30.33	959.63	869.01	90.62	10.589			
3,200.00	2,333.09	2,323.89	2,333.09	0.00	90.96	-83.83	30.00	30.33	1,056.96	966.53	90.43	11.688			
3,300.00	2,330.67	2,321.47	2,330.67	0.00	90.86	-83.24	30.00	30.33	1,154.74	1,064.51	90.23	12.798			
3,400.00	2,328.26	2,319.06	2,328.26	0.00	90.76	-82.65	30.00	30.33	1,252.86	1,162.85	90.02	13.918			
3,500.00	2,325.85	2,316.65	2,325.85	0.00	90.67	-82.06	30.00	30.33	1,351.26	1,261.46	89.80	15.048			
3,600.00	2,323.44	2,314.24	2,323.44	0.00	90.57	-81.47	30.00	30.33	1,449.87	1,360.30	89.57	16.187			
3,700.00	2,321.03	2,311.83	2,321.03	0.00	90.47	-80.88	30.00	30.33	1,548.66	1,459.33	89.33	17.336			
3,800.00	2,318.62	2,309.42	2,318.62	0.00	90.38	-80.30	30.00	30.33	1,647.59	1,558.50	89.09	18.494			
3,900.00	2,316.21	2,307.01	2,316.21	0.00	90.28	-79.72	30.00	30.33	1,746.64	1,657.80	88.83	19.662			
4,000.00	2,313.81	2,304.61	2,313.81	0.00	90.18	-79.14	30.00	30.33	1,845.78	1,757.21	88.57	20.840			
4,100.00	2,311.40	2,302.20	2,311.40	0.00	90.09	-78.56	30.00	30.33	1,945.02	1,856.72	88.30	22.027			
4,200.00	2,308.99	2,299.79	2,308.99	0.00	89.99	-77.99	30.00	30.33	2,044.32	1,956.30	88.02	23.225			
4,300.00	2,306.58	2,297.38	2,306.58	0.00	89.90	-77.41	30.00	30.33	2,143.68	2,055.95	87.74	24.433			
4,400.00	2,304.17	2,294.97	2,304.17	0.00	89.80	-76.84	30.00	30.33	2,243.10	2,155.66	87.44	25.652			
4,500.00	2,301.76	2,292.56	2,301.76	0.00	89.70	-76.28	30.00	30.33	2,342.57	2,255.43	87.14	26.882			
4,600.00	2,299.35	2,290.15	2,299.35	0.00	89.61	-75.71	30.00	30.33	2,442.08	2,355.24	86.84	28.123			
4,700.00	2,296.94	2,287.74	2,296.94	0.00	89.51	-75.15	30.00	30.33	2,541.62	2,455.10	86.52	29.376			
4,800.00	2,294.53	2,285.33	2,294.53	0.00	89.41	-74.59	30.00	30.33	2,641.20	2,555.00	86.20	30.640			
4,900.00	2,292.12	2,282.92	2,292.12	0.00	89.32	-74.03	30.00	30.33	2,740.80	2,654.93	85.87	31.917			

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



Anticollision Report



Company:	B.P.	Local Co-ordinate Reference:	Well Johnson 1-1H
Project:	San Juan County, NM NAD83	TVD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Reference Site:	Johnson Unit	MD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Johnson 1-1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction District
Reference Design:	Plan #2	Offset TVD Reference:	Reference Datum

Offset Design Johnson Unit - Johnson 1 - OH - OH													Offset Site Error:	0.00 ft
Survey Program: 100-UNKNOWN													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
5,000.00	2,289.71	2,280.51	2,289.71	0.00	89.22	73.48	30.00	30.33	2,840.43	2,754.89	85.54	33.206		
5,100.00	2,287.30	2,278.10	2,287.30	0.00	89.12	72.93	30.00	30.33	2,940.09	2,854.89	85.20	34.508		
5,200.00	2,284.89	2,275.69	2,284.89	0.00	89.03	72.38	30.00	30.33	3,039.76	2,954.91	84.85	35.823		
5,300.00	2,282.48	2,273.28	2,282.48	0.00	88.93	71.84	30.00	30.33	3,139.46	3,054.95	84.50	37.152		



Anticollision Report

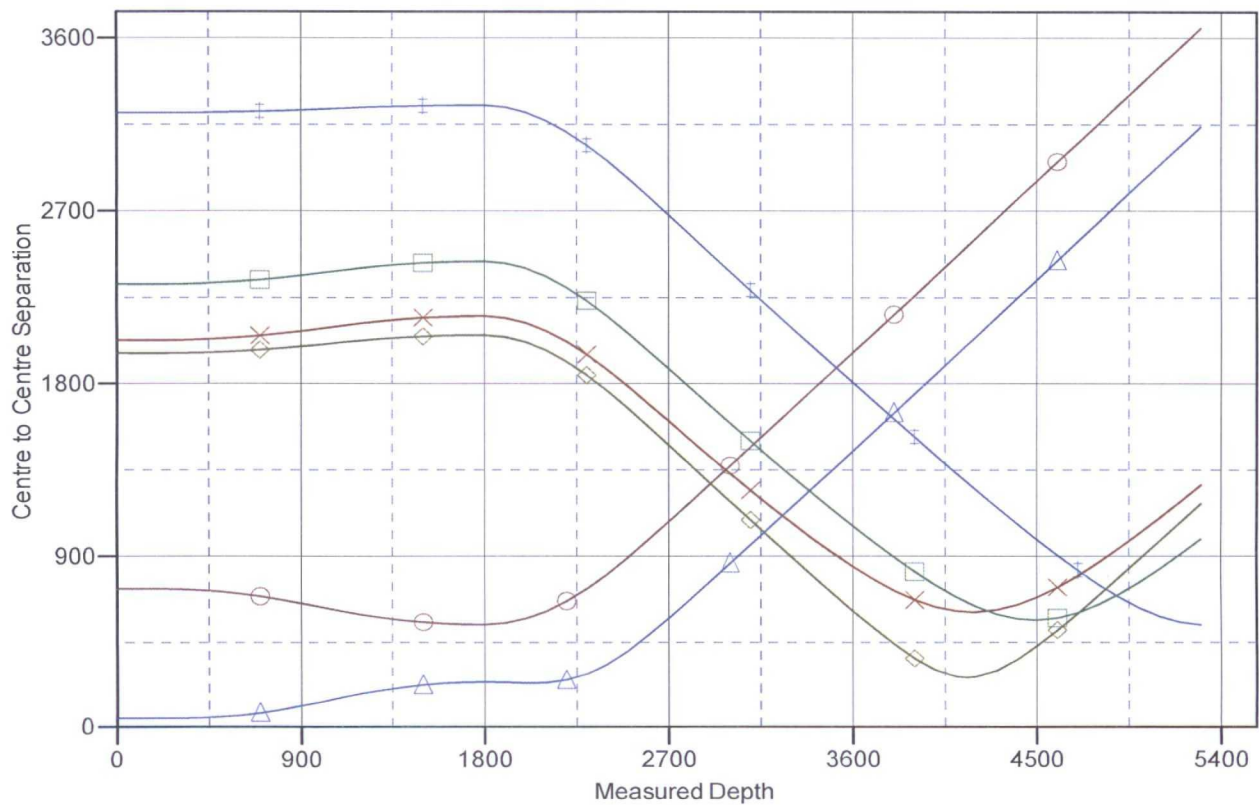


Company:	B.P.	Local Co-ordinate Reference:	Well Johnson 1-1H
Project:	San Juan County, NM NAD83	TVD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Reference Site:	Johnson Unit	MD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Johnson 1-1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction District
Reference Design:	Plan #2	Offset TVD Reference:	Reference Datum

Reference Depths are relative to GL 5830.97' & RKB 11' @ 5841.97ft (A)
Offset Depths are relative to Offset Datum
Central Meridian is -107.8333334

Coordinates are relative to: Johnson 1-1H
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: -0.07°

Ladder Plot



LEGEND

- Aztec Com 4 #1, OH, OH V0
- Johnson 1, OH, OH V0
- Blanco Com 2 001B-MV, OH, OH V0
- Blanco Com 2 001-MV, OH, OH V0
- Blanco Com 1-1A, OH, OH V0
- Coldiron Com A #001, OH, OH V0

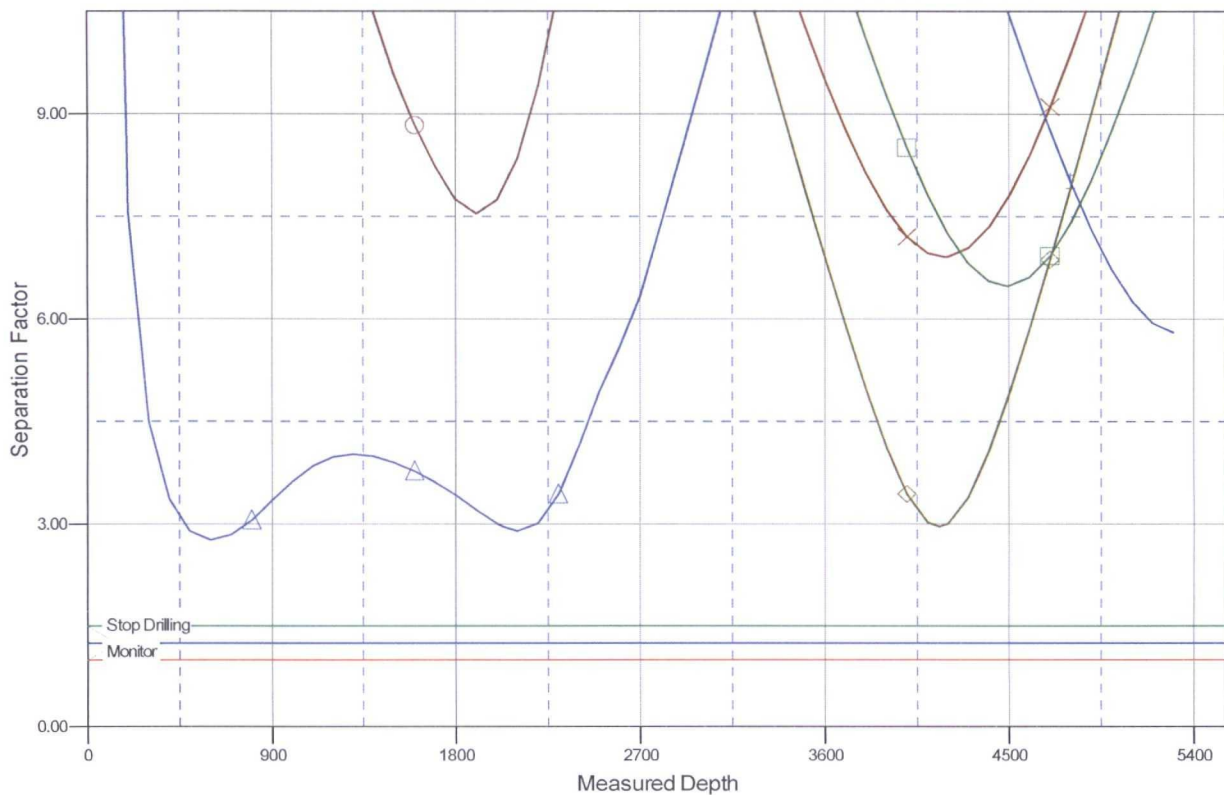


Company:	B.P.	Local Co-ordinate Reference:	Well Johnson 1-1H
Project:	San Juan County, NM NAD83	TVD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Reference Site:	Johnson Unit	MD Reference:	GL 5830.97' & RKB 11' @ 5841.97ft (Aztec 507)
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Johnson 1-1H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	Grand Junction District
Reference Design:	Plan #2	Offset TVD Reference:	Reference Datum

Reference Depths are relative to GL 5830.97' & RKB 11' @ 5841.97ft (A)
Offset Depths are relative to Offset Datum
Central Meridian is -107.8333334

Coordinates are relative to: Johnson 1-1H
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: -0.07°

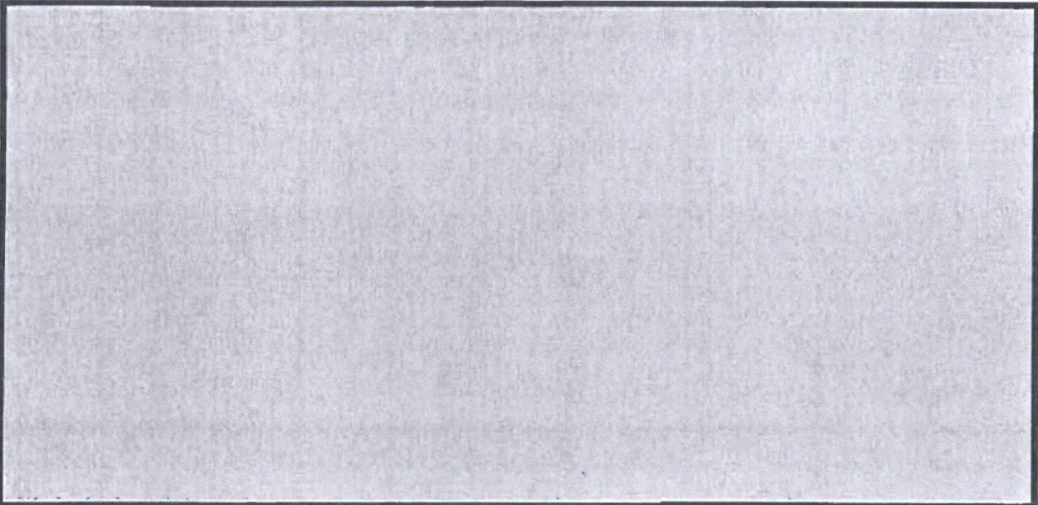
Separation Factor Plot

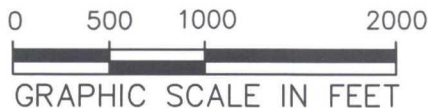


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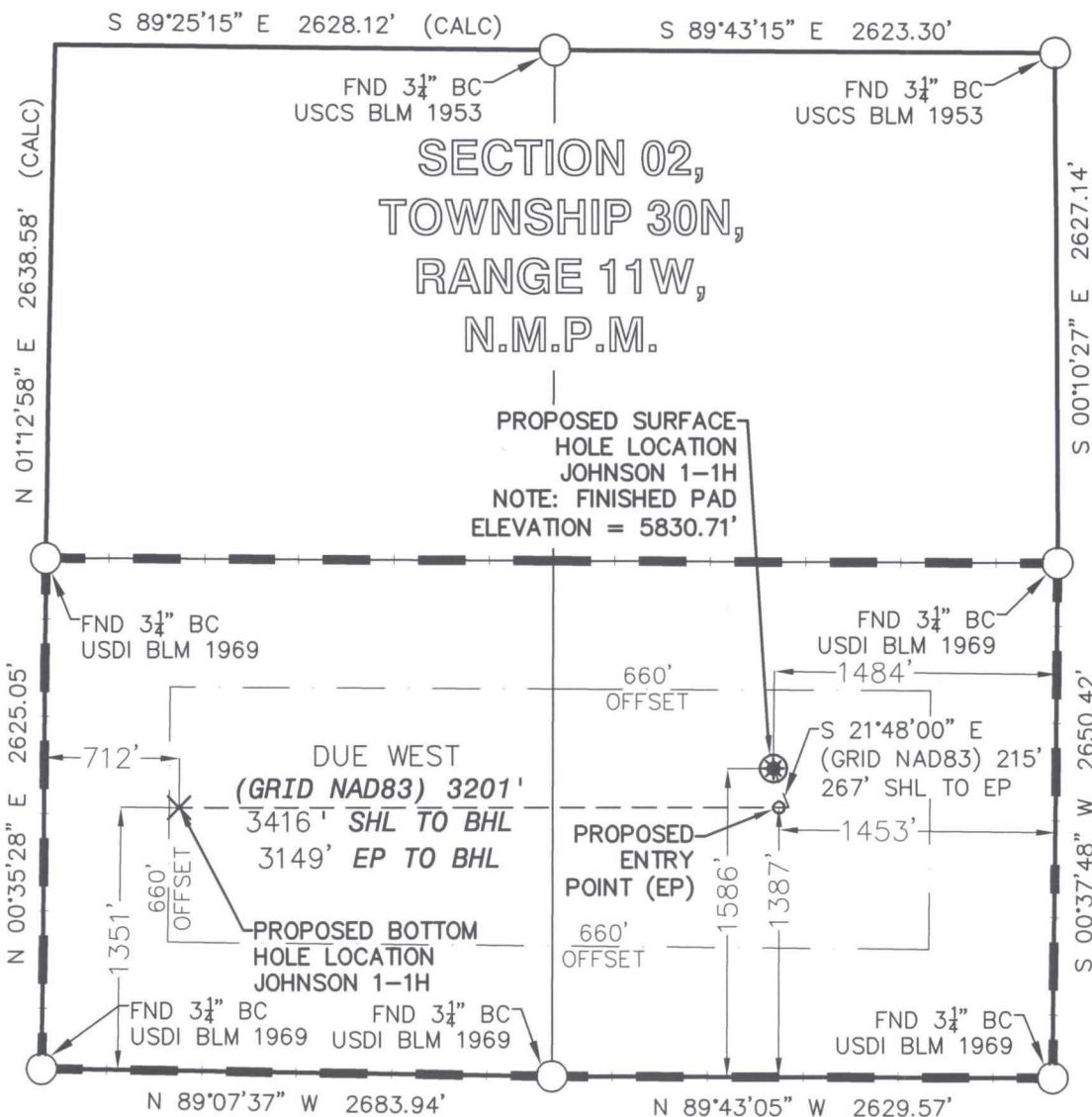
- | | | |
|--------------------------------|----------------------------|---------------------------------|
| Aztec Com 4 #1, OH, OH V0 | Johnson 1, OH, OH V0 | Blanco Com 2 001B-MV, OH, OH V0 |
| Blanco Com 2 001-MV, OH, OH V0 | Blanco Com 1-1A, OH, OH V0 | Coldiron Com A #001, OH, OH V0 |

Plat
Section 2, T30N-R11W, NMPM
San Juan County, New Mexico
Containing 640.28 Acres

			
Tract 1 New Mexico E-7123-5 BP 100% 80 Acres L-676214	 Aztec COM #4-1 SWNESW	Tract 3 Fee BP 100% 120 Acres L-676217-A/C	Lot 6 40.21 Ac
			Tract 4 USA Burlington 100% 80.33 Acres L-924104 BP ORRI NWSF-078144
	Tract 2 Coldiron Fee BP 100% 40 Acres L-676221		Lot 7 40.12 Ac
			Lot 7 40.12 Ac



LEGEND
 FOUND MONUMENT O
 PROPOSED SURFACE HOLE LOCATION
 PROPOSED BOTTOM HOLE LOCATION x



JOHNSON 1-1H	NMWZ NAD'83	NAD'83	TIES
PROPOSED SURFACE HOLE LOCATION (SHL)	N (Y) = 2,124,360.50' E (X) = 2,687,073.83'	LAT. = 36.83795268°N LON. = 107.95641792°W	FSL = 1586' FEL = 1484'
PROPOSED ENTRY POINT (EP)	N (Y) = 2,124,160.50' E (X) = 2,687,102.16'	LAT. = 36.83740342°N LON. = 107.95632023°W	FSL = 1387' FEL = 1453'
PROPOSED BOTTOM HOLE LOCATION (BHL)	N (Y) = 2,124,160.50' E (X) = 2,683,952.88'	LAT. = 36.83739180°N LON. = 107.96708224°W	FSL = 1351' FWL = 712'

SURVEYOR'S CERTIFICATE

I, MARSHALL LINDEEN, A PROFESSIONAL LAND SURVEYOR IN THE STATE OF NEW MEXICO, DO 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.

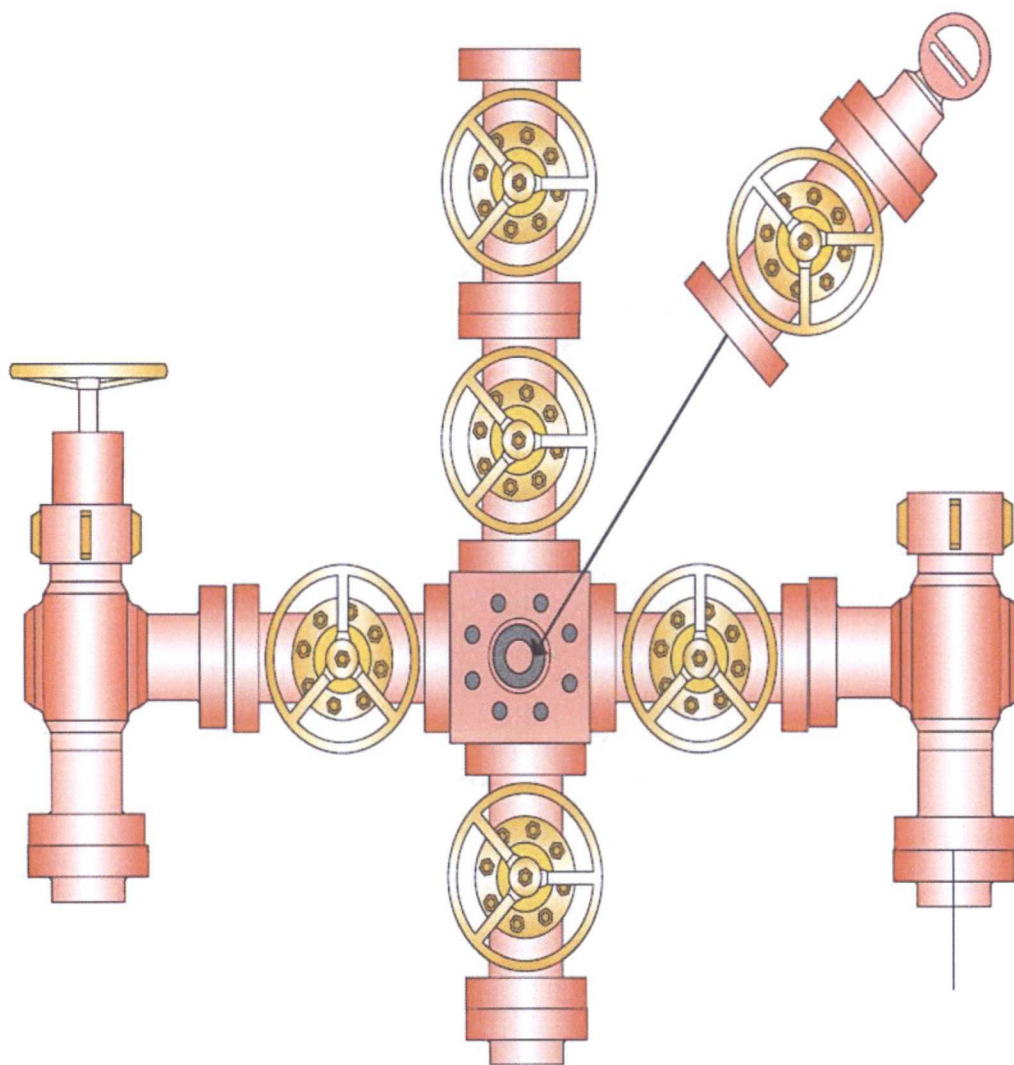


SURVEY NOTES

1. BEARING BASIS FOR THIS SURVEY IS BASED ON THE NORTH AMERICAN DATUM OF 1983, NEW MEXICO STATE PLANE COORDINATE SYSTEM, NEW MEXICO WEST, ZONE 3003.
2. ELEVATION BASIS FOR THIS SURVEY IS BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID12A).
3. SURVEYED IN THE FIELD ON 06/02/2015.
4. BEARINGS AND DISTANCE SHOWN ARE MEASURED IN THE FIELD UNLESS OTHERWISE NOTED.
5. ALL MEASURED DISTANCES SHOWN ARE GRID USING A COMBINED SCALE FACTOR 0.99964240.

	BP AMERICA PRODUCTION COMPANY US LOWER 48 ONSHORE
WELL LOCATION PLAT	
JOHNSON 1-1H PART OF SECTION 02, TOWNSHIP 30N, RANGE 11W, N.M.P.M. SAN JUAN COUNTY, NEW MEXICO	

DRAWN BY CFW\RLM	CHECKED BY MWL	SCALE 1"=1000'	DATE 06/08/2015	SHEET 1 OF 1	REVISION
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(Minimum 2")

Proposed 2,000 psi Choke Manifold Stack

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

David R. Catanach
Division Director
Oil Conservation Division



**New Mexico Oil Conservation Division Conditions of Approval
(C-101 Application for permit to drill)**

- ☒ Notify Aztec OCD 24hrs prior to casing & cement.
- ☒ Hold C-104 for directional survey & "As Drilled" Plat
 - ☐ Hold C-104 for NSL, NSP, DHC
 - ☐ Spacing rule violation. Operator must follow up with change of status notification on other well to be shut in or abandoned
- ☒ 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
- ☒ 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.