

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

MAY 12 2011

FORM APPROVED
OMB No. 1004-0137
Expires: March 31, 2007

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an
abandoned well. Use Form 3160-3 (APD) for such proposals.

Farmington Field Office
Bureau of Land Management
5-Case/Serial No.
NMSF-078772

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE – Other instructions on page 2.

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator
Williams Production Company, LLC

3a. Address
PO Box 640 Aztec, NM 87410

3b. Phone No. (include area code)
505-634-4208

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

8. Well Name and No.
Rosa Unit COM #60C

9. API Well No.
30-045-34213

10. Field and Pool or Exploratory Area
Blanco Mesaverde/Basin Dakota

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Sur: 255' FSL & 1870' FEL – BHL: 1980' FSL & 1300' FEL, sec 4, T31N, R6W

11. Country or Parish, State
San Juan

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	<u>Add Formation</u>
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

This well is presently permitted to the Mesaverde formation. Williams wishes to drill this to the Dakota and complete this as a MV/DK dual completion as per attached plat, operation plan and directional plan.

CONDITIONS OF APPROVAL
Adhere to previously issued stipulations.

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

14. I hereby certify that the foregoing is true and correct.
Name (Printed/Typed)
Larry Higgins

Title Permit Supervisor

Signature *Larry Higgins*

Date 5/12/11

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Troy L. Salvors

Title Petroleum Engineer

Date 5/18/2011

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

Office FFO

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

(Instructions on page 2)

NMOCD A

RCVD MAY 20 '11
OIL CONS. DIV.
DIST. 3

District I
1625 N French Dr., Hobbs, NM 88240

District II
1301 W. Grand Avenue, Artesia, NM 88210

District III
1000 Rio Brazos Rd., Aztec, NM 87410

District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

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 October 12, 2005
Instructions on back
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-045-34213		*Pool Code 72319 / 71599		*Pool Name BLANCO MESAVERDE / BASIN DAKOTA	
*Property Code 17033		*Property Name ROSA UNIT COM			*Well Number 60C
*OGRID No. 120782		*Operator Name WILLIAMS PRODUCTION COMPANY			*Elevation 6451'

¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	4	31N	6W		255	SOUTH	1870	EAST	SAN JUAN

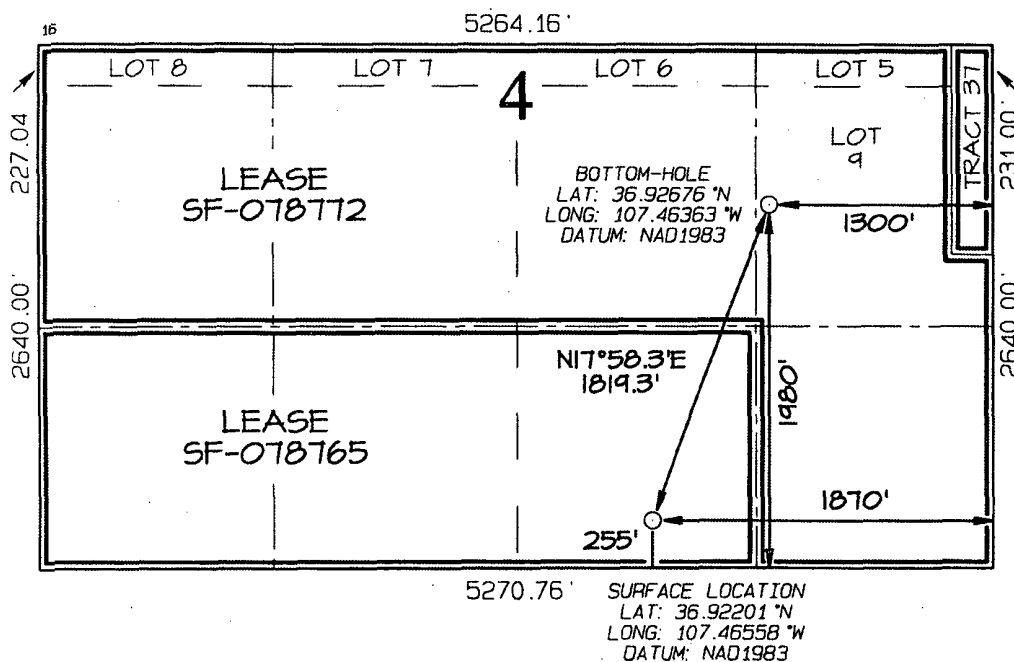
¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	4	31N	6W		1980	SOUTH	1300	EAST	SAN JUAN

¹² Dedicated Acres ~ SEE NOTE BELOW ~	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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346.29 Acres (MV) - Entire Section
343.23 Acres (DK) - Entire Section except Tract 37

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



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.

Larry Higgins
Signature Date
LARRY HIGGINS
Printed Name

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: MAY 2, 2006

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269



WILLIAMS PRODUCTION COMPANY

Operations Plan

(Note: This procedure will be adjusted on site based upon actual conditions)

DATE: 3/14/2011 **FIELD:** Basin DK/ BlancoMV
WELL NAME: Rosa Unit COM #60C **SURFACE:** BLM
BH LOCATION: NESE Sec 4-31N-6W **MINERALS:** BLM
San Juan, NM
ELEVATION: 6,451' GR **LEASE #** SF-078772
MEASURED DEPTH: 8,796'

I. **I. GEOLOGY:** Surface formation - San Jose

A. **FORMATION TOPS:** (KB)

Name	TVD	MD	Name	TVD	MD
Ojo Alamo	2,420	2,913	Point Lookout	5,730	6,310
Kirtland	2,535	3,048	Mancos	6,065	6,645
Fruitland	2,960	3,518	Gallup	7,055	7,635
Pictured Cliffs	3,240	3,812	Greenhorn	7,770	8,350
Lewis	3,545	4,123	Graneros	7,810	8,390
Cliff House	5,445	6,025	Dakota	7,946	8,526
Menefee	5,490	6,070	Morrison	8,166	8,746
			TD	8,216	8,796

- B. **MUD LOGGING PROGRAM:** Mudlogger on location from intermediate csg to TD. Mud logger to pick TD.
- C. **LOGGING PROGRAM:** HRI/Temp/SDL/DSN from intermediate casing to TD
- D. **NATURAL GAUGES:** Gauge any noticeable increases in gas flow. Record all gauges in Tour book and on morning reports.

II. **DRILLING**

- A. **MUD PROGRAM:** Clear water with benex to 7" casing point. Convert to a LSND mud to log and run pipe. Treat for lost circulation as necessary. Obtain 100% returns prior to cementing. Notify Engineering of any mud losses. Use air w/Air Hammer from 7" csg. to TD.
- B. **BOP TESTING:** While drill pipe is in use, the pipe rams and the blind rams will be function tested once each trip. The anticipated reservoir is expected to be less than 1300 psi, so the BOPE will be tested to **250 psi (Low) for 5 minutes and 1500 psi (High) for 10 minutes**. Utilize a BOPE Testing Unit with a recording chart and appropriate test plug for testing. The drum brakes will be inspected and tested each tour. **All tests and inspections will be recorded in the tour book as to time and results.**

III. **MATERIALS**

A. CASING PROGRAM:

CASING TYPE	OH SIZE (IN)	DEPTH (MD) (FT)	CASING SIZE (IN)	WEIGHT(LB)	GRADE
Surface	12 1/4	300	9 5/8	36	K-55
Intermediate	8 3/4	4,295	7	23	K-55
Longstring	6 1/4	8,796	4 1/2	11.6	P-110

B. FLOAT EQUIPMENT:

1. SURFACE CASING: 9-5/8" notched regular pattern guide shoe. Run (1) standard centralizer on each of the bottom (4) joints of Surface Casing.
2. INTERMEDIATE CASING: 7" cement nose guide shoe with a self-fill insert float. Place float collar one joint above the shoe. Install (1) Turbulent centralizer on each of the bottom (3) joints and one standard centralizer every (3) joints to 2,500 ft. Run (1) Turbulent centralizer at 2,700 ft., 2,500 ft., 2,300ft., 2,000ft., 1,500 ft., and 1,000 ft. (NTL-FRA 90-1).
3. PRODUCTION LINER / CASING: 4-1/2" whirler type cement nose guide shoe with a latch collar on top of 20' bottom joint. Place marker joint above 5,400'. Place centralizers as needed across selected production intervals.

C. CEMENTING:

(Note: Volumes may be adjusted onsite due to actual conditions)

1. SURFACE: Slurry: 290sx (521 cu.ft.) of "Type III" + 2% Cal-Seal 60 + ¼ # of poly-e-flake/sk + 0.3% Versaset + 2% Econolite + 6% Salt (Yield = 1.796 cu.ft./sk, Weight = 13.5 #/gal.). The 100% excess should circulate cement to the surface. WOC 12 hours. Test csg to 600psi. **For 30 min.**
2. INTERMEDIATE: Lead - 550 sx (1498 cu.ft.) of "EXTENDACEM" + 5 #/sk pheno-seal + 5% Cal-Seal 60 (Yield = 2.723 cu.ft./sk, Weight = 11.5 #/gal.). Tail - 100 sx (117.8cu.ft.) of Premium cement + 0.125 #/sk Poly-E-Flake, (Yield = 1.178 cu.ft./sk, Weight = 15.6#/gal.). Total volume = 1615 cu.ft. Bump Plug to 1,500 psi. Notify engineering if cement is not circulated to surface, WOC 12 hours, test csg to 1,500 psi **For 30 min.**
3. PRODUCTION CASING: 10 bbl Gelled Water spacer. Cement: 610 sx (853 ft³) of "FRACCEM" + 0.8% Halad-9 + 0.1% CFR-3 + 5 #/sk Gilsonite + 0.125 #/sk Poly-E-Flake + 0.15% HR-800. (Yield = 1.398 ft³/sk, Weight = 13.1 #/gal.). Displace cement at a minimum of 8 BPM. Total volume (853) ft³. WOC 12 hours.

IV. IV COMPLETION**A. CBL**

1. Run Cement Bond Log across all intervals to be perforated and find Top of Cement behind all casing strings if cement not circulated to surface..

B. PRESSURE TEST

1. Pressure test 4-1/2" casing to 6000 psi max, hold at 1500 psi for 30 minutes.

C. STIMULATION

1. Stimulate Dakota with approximately 5000# 100 mesh sand and 120,000# Ottawa Sand in slick water.
2. Isolate Dakota with a RBP.
3. Stimulate Point Lookout with approximately 40,000# 20/40 Ottawa sand in slick water.
4. Isolate Point Lookout with a RBP.
5. Perforate the Menefee/Cliff House as determined from the open hole logs.
6. Stimulate with approximately 40,000# 20/40 Ottawa sand in slick water.
7. Test each zone before removing bridge plugs.

D. RUNNING TUBING

1. Production Tubing: Run 2-3/8", 4.7#, J-55, EUE tubing with a SN (1.91" ID) on top of bottom joint. Land tubing approximately 25' above the bottom Point Lookout perforation

for 
Gary Sizemore
Sr. Drilling Engineer



Rosa Unit #60C
RIO ARRIBA CO. NM

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	18.97	0.00	0.00	0.00	0.00	0.00	0.00	
2	400.00	0.00	18.97	400.00	0.00	0.00	0.00	0.00	0.00	
3	1578.31	47.13	18.97	1449.84	433.05	148.87	4.00	18.97	457.93	
4	2188.56	47.13	18.97	1865.00	856.03	294.29	0.00	0.00	905.20	
5	4295.18	5.00	18.97	3715.00	1711.82	588.49	2.00	180.00	1810.15	Csg Tgt
6	4545.18	0.00	0.00	3964.68	1722.13	592.03	2.00	-180.00	1821.05	
7	8796.50	0.00	0.00	8216.00	1722.13	592.03	0.00	0.00	1821.05	Pbhl

WELL DETAILS

Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
60C	0.00	0.00	2157172.21	1285096.23	36°55'19.236N	107°27'56.088W	N/A

TARGET DETAILS

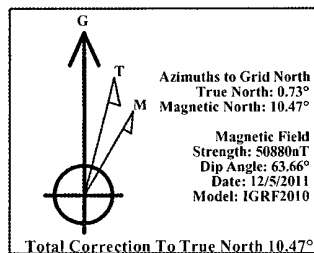
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Csg Tgt	3715.00	1711.82	588.49	36°55'36.234N	107°27'49.110W	Point
Pbhl	8071.00	1722.13	592.03	36°55'36.336N	107°27'49.068W	Point

FORMATION TOP DETAILS

No.	TVDPath	MDPath	Formation
1	2420.00	2913.73	Ojo Alamo SS.
2	2535.00	3048.31	Kirtland Sh.
3	2960.00	3518.67	Fruitland Fm.
4	3240.00	3812.54	Pictured Cliffs SS.
5	3545.00	4123.98	Lewis Sh.
6	5130.00	5710.50	Cliff House SS. Trans.
7	5445.00	6025.50	Cliff House SS.
8	5490.00	6070.50	Menefee Fm.
9	5730.00	6310.50	Point Lookout SS.
10	6065.00	6645.50	Mancos Sh.
11	7055.00	7635.50	Gallup SS.
12	7770.00	8350.50	Greenhorn Ls.
13	7810.00	8390.50	Graneros Sh.
14	7946.00	8526.50	Dakota SS.
15	8166.00	8746.50	Morrison Fm.

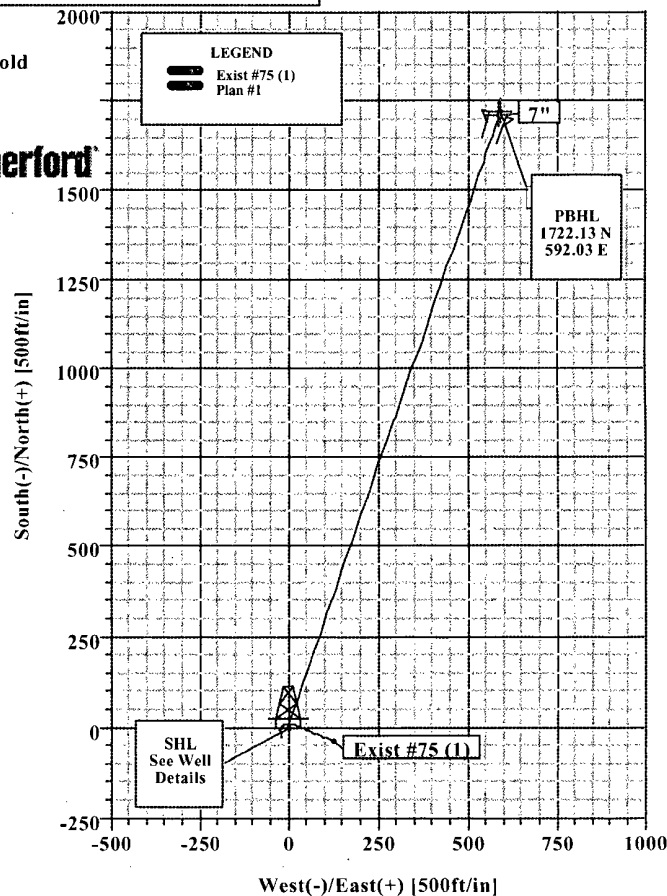
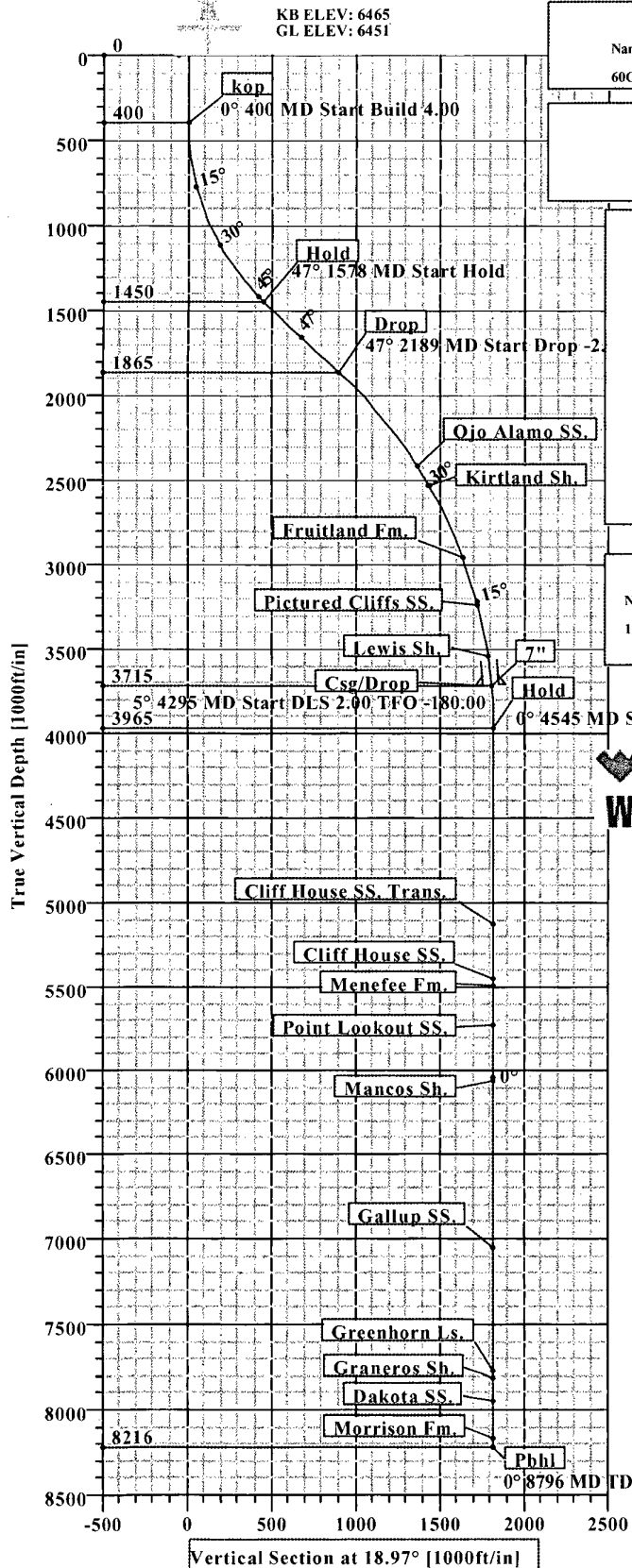
SITE DETAILS

Rosa Unit #60C
Site Centre Latitude: 36°55'19.236N
Longitude: 107°27'56.088W
Ground Level: 6451.00
Positional Uncertainty: 0.00
Convergence: -0.73



CASING DETAILS

No.	TVD	MD	Name	Size
1	3715.00	4295.18	7"	7.000





Weatherford International Ltd.

WFT Plan Report Lat, Long



Weatherford

Company: Williams Production		Date: 3/14/2011	Time: 13:37:02	Page: 1
Field: RIO ARRIBA CO. NM (NAD 83)		Co-ordinate(NE) Reference: Well: 60C, Grid North		
Site: Rosa Unit #60C		Vertical (TVD) Reference: SITE 6465.0		
Well: 60C		Section (VS) Reference: Well (0.00N,0.00E,18.97Azi)		
Wellpath: 1		Survey Calculation Method: Minimum Curvature	Db: Sybase	

Plan: Plan #1	Date Composed: 3/14/2011
Principal: Yes	Version: 1
	Tied-to: From Surface

Field: RIO ARRIBA CO. NM (NAD 83)	
Map System: US State Plane Coordinate System 1983	Map Zone: New Mexico, Central Zone
Geo Datum: GRS 1980	Coordinate System: Well Centre
Sys Datum: Mean Sea Level	Geomagnetic Model: IGRF2010

Site: Rosa Unit #60C	
Site Position:	Northings: 2157172.21 ft
From: Geographic	Easting: 1285096.23 ft
Position Uncertainty: 0.00 ft	Latitude: 36 55 19.236 N
Ground Level: 6451.00 ft	Longitude: 107 27 56.088 W
	North Reference: Grid
	Grid Convergence: -0.73 deg

Well: 60C		Slot Name:	
Well Position:	+N/-S 0.00 ft	Northings: 2157172.21 ft	Latitude: 36 55 19.236 N
	+E/-W 0.00 ft	Easting: 1285096.23 ft	Longitude: 107 27 56.088 W
Position Uncertainty: 0.00 ft			

Wellpath: 1		Drilled From: Surface	
Current Datum: SITE	Height 6465.00 ft	Tie-on Depth: 0.00 ft	
Magnetic Data: 12/5/2011		Above System Datum: Mean Sea Level	
Field Strength: 50880 nT		Declination: 9.74 deg	
Vertical Section: Depth From (TVD)	+N/-S	Mag Dip Angle: 63.66 deg	
ft	ft	+E/-W	Direction
		ft	deg
0.00	0.00	0.00	18.97

Plan Section Information											
MD	Incl	Azim	TVD	+N/-S	+E/-W	DLS	Build	Turn	TFO	Target	
ft	deg	deg	ft	ft	ft	deg/100ft	deg/100ft	deg/100ft	deg		
0.00	0.00	18.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
400.00	0.00	18.97	400.00	0.00	0.00	0.00	0.00	0.00	0.00		
1578.31	47.13	18.97	1449.84	433.05	148.87	4.00	4.00	0.00	18.97		
2188.56	47.13	18.97	1865.00	856.03	294.29	0.00	0.00	0.00	0.00		
4295.18	5.00	18.97	3715.00	1711.82	588.49	2.00	-2.00	0.00	180.00	Csg Tgt	
4545.18	0.00	0.00	3964.68	1722.13	592.03	2.00	-2.00	-7.59	-180.00		
8796.50	0.00	0.00	8216.00	1722.13	592.03	0.00	0.00	0.00	0.00	Pbhl	

Survey														
MD	Incl	Azim	TVD	N/S	E/W	VS	DLS	Lat	Min	Sec	Long	Min	Sec	Comment
ft	deg	deg	ft	ft	ft	ft	deg/100ft							
400.00	0.00	18.97	400.00	0.00	0.00	0.00	0.00	36	55	19.236	107	27	56.088	kop
500.00	4.00	18.97	499.92	3.30	1.13	3.49	4.00	36	55	19.269	107	27	56.075	
600.00	8.00	18.97	599.35	13.18	4.53	13.94	4.00	36	55	19.367	107	27	56.034	
700.00	12.00	18.97	697.81	29.60	10.18	31.30	4.00	36	55	19.530	107	27	55.967	
800.00	16.00	18.97	794.82	52.47	18.04	55.49	4.00	36	55	19.757	107	27	55.874	
900.00	20.00	18.97	889.91	81.69	28.08	86.38	4.00	36	55	20.047	107	27	55.755	
1000.00	24.00	18.97	982.61	117.11	40.26	123.84	4.00	36	55	20.399	107	27	55.611	
1100.00	28.00	18.97	1072.47	158.56	54.51	167.67	4.00	36	55	20.810	107	27	55.442	
1200.00	32.00	18.97	1159.05	205.83	70.76	217.66	4.00	36	55	21.280	107	27	55.249	
1300.00	36.00	18.97	1241.94	258.70	88.94	273.56	4.00	36	55	21.805	107	27	55.033	
1400.00	40.00	18.97	1320.73	316.91	108.95	335.12	4.00	36	55	22.383	107	27	54.796	
1500.00	44.00	18.97	1395.02	380.18	130.70	402.02	4.00	36	55	23.011	107	27	54.538	
1578.31	47.13	18.97	1449.84	433.05	148.87	457.93	4.00	36	55	23.536	107	27	54.323	Hold
1600.00	47.13	18.97	1464.60	448.09	154.04	473.82	0.00	36	55	23.685	107	27	54.262	
1700.00	47.13	18.97	1532.63	517.40	177.87	547.12	0.00	36	55	24.374	107	27	53.979	



Weatherford International Ltd.

WFT Plan Report Lat, Long

**Weatherford**

Company: Williams Production	Date: 3/14/2011	Time: 13:37:02	Page: 2
Field: RIO ARRIBA CO. NM (NAD 83)	Co-ordinate(NE) Reference: Well: 60C, Grid-North		
Site: Rosa Unit #60C	Vertical (TVD) Reference: SITE 6465.0		
Well: 60C	Section (VS) Reference: Well (0.00N,0.00E,18.97Azi)		
Wellpath: 1	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	Lat	Min	Sec	Long	Min	Sec	Comment
1800.00	47.13	18.97	1600.66	586.71	201.70	620.41	0.00	36	55	25.062	107	27	53.696	
1900.00	47.13	18.97	1668.69	656.02	225.53	693.70	0.00	36	55	25.750	107	27	53.414	
2000.00	47.13	18.97	1736.72	725.33	249.35	767.00	0.00	36	55	26.438	107	27	53.131	
2100.00	47.13	18.97	1804.75	794.64	273.18	840.29	0.00	36	55	27.126	107	27	52.849	
2188.56	47.13	18.97	1865.00	856.03	294.29	905.20	0.00	36	55	27.736	107	27	52.599	Drop
2200.00	46.90	18.97	1872.80	863.94	297.01	913.57	2.00	36	55	27.815	107	27	52.566	
2300.00	44.90	18.97	1942.38	931.85	320.35	985.38	2.00	36	55	28.489	107	27	52.290	
2400.00	42.90	18.97	2014.43	997.43	342.90	1054.72	2.00	36	55	29.140	107	27	52.022	
2500.00	40.90	18.97	2088.85	1060.58	364.61	1121.50	2.00	36	55	29.767	107	27	51.765	
2600.00	38.90	18.97	2165.56	1121.24	385.46	1185.65	2.00	36	55	30.369	107	27	51.518	
2700.00	36.90	18.97	2244.46	1179.34	405.43	1247.08	2.00	36	55	30.946	107	27	51.281	
2800.00	34.90	18.97	2325.46	1234.79	424.50	1305.72	2.00	36	55	31.497	107	27	51.055	
2900.00	32.90	18.97	2408.45	1287.54	442.63	1361.50	2.00	36	55	32.021	107	27	50.840	
2913.73	32.63	18.97	2420.00	1294.57	445.05	1368.93	2.00	36	55	32.091	107	27	50.811	Ojo Alamos
3000.00	30.90	18.97	2493.34	1337.51	459.81	1414.34	2.00	36	55	32.517	107	27	50.636	
3048.31	29.94	18.97	2535.00	1360.65	467.76	1438.81	2.00	36	55	32.747	107	27	50.542	Kirtland Sh
3100.00	28.90	18.97	2580.02	1384.66	476.02	1464.20	2.00	36	55	32.985	107	27	50.444	
3200.00	26.90	18.97	2668.39	1428.91	491.23	1510.99	2.00	36	55	33.424	107	27	50.263	
3300.00	24.90	18.97	2758.34	1470.22	505.43	1554.68	2.00	36	55	33.835	107	27	50.095	
3400.00	22.90	18.97	2849.76	1508.54	518.61	1595.19	2.00	36	55	34.215	107	27	49.939	
3500.00	20.90	18.97	2942.53	1543.82	530.73	1632.50	2.00	36	55	34.565	107	27	49.795	
3518.67	20.53	18.97	2960.00	1550.06	532.88	1639.10	2.00	36	55	34.627	107	27	49.769	Fruitland F
3600.00	18.90	18.97	3036.56	1576.01	541.80	1666.54	2.00	36	55	34.885	107	27	49.664	
3700.00	16.90	18.97	3131.71	1605.08	551.80	1697.28	2.00	36	55	35.174	107	27	49.545	
3800.00	14.90	18.97	3227.88	1630.99	560.70	1724.68	2.00	36	55	35.431	107	27	49.440	
3812.54	14.65	18.97	3240.00	1634.02	561.74	1727.88	2.00	36	55	35.461	107	27	49.427	Pictured C
3900.00	12.90	18.97	3324.94	1653.71	568.51	1748.71	2.00	36	55	35.657	107	27	49.347	
4000.00	10.90	18.97	3422.79	1673.22	575.22	1769.33	2.00	36	55	35.850	107	27	49.267	
4100.00	8.90	18.97	3521.29	1689.48	580.81	1786.53	2.00	36	55	36.012	107	27	49.201	
4123.98	8.42	18.97	3545.00	1692.90	581.99	1790.14	2.00	36	55	36.046	107	27	49.187	Lewis Sh.
4200.00	6.90	18.97	3620.34	1702.49	585.28	1800.28	2.00	36	55	36.141	107	27	49.148	
4295.18	5.00	18.97	3715.00	1711.82	588.49	1810.15	2.00	36	55	36.234	107	27	49.110	Csg Tgt
4300.00	4.90	18.97	3719.80	1712.21	588.63	1810.57	2.00	36	55	36.238	107	27	49.108	
4400.00	2.90	18.97	3819.56	1718.65	590.84	1817.37	2.00	36	55	36.301	107	27	49.082	
4500.00	0.90	18.97	3919.50	1721.79	591.92	1820.70	2.00	36	55	36.333	107	27	49.069	
4545.18	0.00	0.00	3964.68	1722.13	592.03	1821.05	2.00	36	55	36.336	107	27	49.068	Hold
4600.00	0.00	0.00	4019.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
4700.00	0.00	0.00	4119.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
4800.00	0.00	0.00	4219.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
4900.00	0.00	0.00	4319.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
5000.00	0.00	0.00	4419.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
5100.00	0.00	0.00	4519.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
5200.00	0.00	0.00	4619.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
5300.00	0.00	0.00	4719.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
5400.00	0.00	0.00	4819.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
5500.00	0.00	0.00	4919.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
5600.00	0.00	0.00	5019.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
5700.00	0.00	0.00	5119.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
5710.50	0.00	0.00	5130.00	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	Cliff House
5800.00	0.00	0.00	5219.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
5900.00	0.00	0.00	5319.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
6000.00	0.00	0.00	5419.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	



Weatherford International Ltd.

WFT Plan Report Lat, Long



Weatherford

Company: Williams Production	Date: 3/14/2011	Time: 13:37:02	Page: 3
Field: RIO ARRIBA CO: NM (NAD:83)	Co-ordinate(NE) Reference:	Well: 60C, Grid North	
Site: Rosa Unit #60C	Vertical (TVD) Reference:	SITE 6465.0	
Well: 60C	Section (VS) Reference:	Well (0.00N,0.00E:18.97Azi)	
Wellpath: 1	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	VS ft	DLS deg/100ft	Lat	Min	Sec	Long	Min	Sec	Comment
6025.50	0.00	0.00	5445.00	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	Cliff House
6070.50	0.00	0.00	5490.00	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	Menefee Fm.
6100.00	0.00	0.00	5519.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
6200.00	0.00	0.00	5619.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
6300.00	0.00	0.00	5719.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
6310.50	0.00	0.00	5730.00	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	Point Lookout
6400.00	0.00	0.00	5819.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
6500.00	0.00	0.00	5919.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
6600.00	0.00	0.00	6019.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
6645.50	0.00	0.00	6065.00	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	Mancos Sh.
6700.00	0.00	0.00	6119.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
6800.00	0.00	0.00	6219.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
6900.00	0.00	0.00	6319.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
7000.00	0.00	0.00	6419.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
7100.00	0.00	0.00	6519.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
7200.00	0.00	0.00	6619.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
7300.00	0.00	0.00	6719.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
7400.00	0.00	0.00	6819.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
7500.00	0.00	0.00	6919.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
7600.00	0.00	0.00	7019.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
7635.50	0.00	0.00	7055.00	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	Gallup SS.
7700.00	0.00	0.00	7119.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
7800.00	0.00	0.00	7219.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
7900.00	0.00	0.00	7319.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
8000.00	0.00	0.00	7419.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
8100.00	0.00	0.00	7519.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
8200.00	0.00	0.00	7619.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
8300.00	0.00	0.00	7719.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
8350.50	0.00	0.00	7770.00	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	Greenhorn L
8390.50	0.00	0.00	7810.00	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	Graneros Sh
8400.00	0.00	0.00	7819.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
8500.00	0.00	0.00	7919.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
8526.50	0.00	0.00	7946.00	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	Dakota SS.
8600.00	0.00	0.00	8019.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
8700.00	0.00	0.00	8119.50	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	
8746.50	0.00	0.00	8166.00	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	Morrison Fm
8796.50	0.00	0.00	8216.00	1722.13	592.03	1821.05	0.00	36	55	36.336	107	27	49.068	Pbhl

Targets

Name	Description	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<--- Latitude ---> Deg Min Sec	<--- Longitude ---> Deg Min Sec
Csg Tgt			3715.00	1711.82	588.49	2158884.03	1285684.72	36 55 36.234 N	107 27 49.110 W
-Plan hit target									
Pbhl			8216.00	1722.13	592.03	2158894.34	1285688.27	36 55 36.336 N	107 27 49.068 W
-Plan hit target									

Casing Points

MD ft	TVD ft	Diameter in.	Hole Size in.	Name
4295.18	3715.00	7.000	8.500	7"



Weatherford International Ltd.

WFT Plan Report Lat, Long

**Weatherford**

Company:	Williams Production	Date:	3/14/2011	Time:	13:37:02	Page:	4
Field:	RIO ARRIBA CO. NM (NAD 83)	Co-ordinate(NE) Reference:	Well: 60C, Grid North				
Site:	Rosa Unit #60C	Vertical (TVD) Reference:	SITE 6465.0				
Well:	60C	Section (VS) Reference:	Well (0.00N,0.00E,18.97Azi)				
Wellpath:	1	Survey Calculation Method:	Minimum Curvature			Db:	Sybase

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
2913.73	2420.00	Ojo Alamo SS.		0.00	0.00
3048.31	2535.00	Kirtland Sh.		0.00	0.00
3518.67	2960.00	Fruitland Fm.		0.00	0.00
3812.54	3240.00	Pictured Cliffs SS.		0.00	0.00
4123.98	3545.00	Lewis Sh.		0.00	0.00
5710.50	5130.00	Cliff House SS. Trans.		0.00	0.00
6025.50	5445.00	Cliff House SS.		0.00	0.00
6070.50	5490.00	Menefee Fm.		0.00	0.00
6310.50	5730.00	Point Lookout SS.		0.00	0.00
6645.50	6065.00	Mancos Sh.		0.00	0.00
7635.50	7055.00	Gallup SS.		0.00	0.00
8350.50	7770.00	Greenhorn Ls.		0.00	0.00
8390.50	7810.00	Graneros Sh.		0.00	0.00
8526.50	7946.00	Dakota SS.		0.00	0.00
8746.50	8166.00	Morrison Fm.		0.00	0.00

Annotation

MD ft	TVD ft	
400.00	400.00	kop
1578.31	1449.84	Hold
2188.56	1865.00	Drop
4295.18	3715.00	Csg/Drop
4545.18	3964.68	Hold
8796.49	8215.99	Pbhl



Weatherford International Ltd.

Anticollision Report



Weatherford

Company: Williams Production Date: 3/14/2011 Time: 12:42:38 Page: 1
 Field: RIO ARRIBA CO. NM (NAD 83)
 Reference Site: Rosa Unit #60C Co-ordinate(NE) Reference: Well: 60C, Grid North
 Reference Well: 60C Vertical (TVD) Reference: SITE 6465.0
 Reference Wellpath: 1 Db: Sybase

NO GLOBAL SCAN: Using user defined selection & scan criteria
 Interpolation Method: MD Interval: 100.00 ft
 Depth Range: 0.00 to 8651.50 ft
 Maximum Radius: 10000.00 ft

Reference: Plan: Plan #1
 Error Model: ISCWSA Ellipse
 Scan Method: Closest Approach 3D
 Error Surface: Ellipse

Plan: Plan #1 Date Composed: 3/14/2011
 Version: 1
 Principal: Yes Tied-to: From Surface

Summary

Site	Offset Wellpath	Wellpath	Reference MD ft	Offset MD ft	Ctr-Ctr Distance ft	Edge Distance ft	Separation Factor	Warning
Rosa Unit #60C	Exist #75	1 V0	700.00	703.40	39.85	37.36	16.01	

Site: Rosa Unit #60C
 Well: Exist #75
 Wellpath: 1 V0

Inter-Site Error: 0.00 ft

Reference MD ft	TVD ft	Offset MD ft	TVD ft	Semi-Major Axis Ref ft	Offset ft	TFO-IIS deg	Offset Location North ft	East ft	Ctr-Ctr Distance ft	Edge Distance ft	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	208.00	-31.22	-16.60	35.36			No Data
100.00	100.00	100.35	100.35	0.10	0.13	208.69	-30.57	-16.73	34.85	34.64	162.15	
200.00	200.00	200.67	200.65	0.32	0.25	210.90	-28.62	-17.13	33.37	32.81	59.68	
300.00	300.00	300.92	300.84	0.55	0.38	215.04	-25.38	-17.80	31.01	30.11	34.25	
400.00	400.00	401.07	400.88	0.77	0.50	221.93	-20.85	-18.73	28.04	26.78	22.32	
500.00	499.92	501.19	500.83	1.00	0.63	209.99	-15.03	-19.92	27.93	26.32	17.32	
600.00	599.35	601.72	601.10	1.24	0.82	211.35	-7.91	-20.87	33.07	31.03	16.25	
700.00	697.81	703.40	702.31	1.53	1.08	204.31	0.82	-17.01	39.85	37.36	16.01	
800.00	794.82	802.65	800.69	1.92	1.32	189.97	8.15	-6.41	50.96	48.07	17.67	
900.00	889.91	894.93	891.85	2.42	1.53	176.70	9.88	7.71	74.67	71.34	22.41	
1000.00	982.61	983.30	979.14	3.04	1.73	169.93	6.36	20.97	112.47	108.60	29.04	
1100.00	1072.47	1067.22	1061.45	3.78	1.96	165.61	-0.05	35.96	160.06	155.55	35.48	
1200.00	1159.05	1149.58	1141.36	4.65	2.26	162.06	-7.81	54.30	215.01	209.72	40.69	
1300.00	1241.94	1222.54	1211.43	5.64	2.59	159.31	-15.94	72.93	276.79	270.66	45.09	
1400.00	1320.73	1296.94	1282.35	6.73	2.97	156.94	-24.88	93.54	344.29	337.16	48.28	
1500.00	1395.02	1360.35	1342.23	7.93	3.34	154.72	-32.84	112.82	416.76	408.56	50.81	
1600.00	1464.60	1406.94	1386.00	9.22	3.62	153.01	-39.18	127.48	494.28	485.00	53.27	
1700.00	1532.63	1406.94	1386.00	10.55	3.62	153.01	-39.18	127.48	577.77	567.73	57.56	
1800.00	1600.66	1406.94	1386.00	11.89	3.62	153.01	-39.18	127.48	665.83	655.02	61.61	
1900.00	1668.69	1406.94	1386.00	13.24	3.62	153.01	-39.18	127.48	756.86	745.28	65.35	
2000.00	1736.72	1406.94	1386.00	14.59	3.62	153.01	-39.18	127.48	849.91	837.55	68.76	
2100.00	1804.75	1406.94	1386.00	15.94	3.62	153.01	-39.18	127.48	944.38	931.23	71.85	
2200.00	1872.80	1406.94	1386.00	17.28	3.62	153.36	-39.18	127.48	1039.88	1026.01	74.99	
2300.00	1942.38	1406.94	1386.00	18.34	3.62	156.19	-39.18	127.48	1135.64	1121.56	80.67	
2400.00	2014.43	1406.94	1386.00	19.39	3.62	158.68	-39.18	127.48	1231.21	1216.91	86.06	
2500.00	2088.85	1406.94	1386.00	20.44	3.62	160.86	-39.18	127.48	1326.54	1311.99	91.16	
2600.00	2165.56	1406.94	1386.00	21.47	3.62	162.77	-39.18	127.48	1421.57	1406.76	95.97	
2700.00	2244.46	1406.94	1386.00	22.47	3.62	164.43	-39.18	127.48	1516.25	1501.17	100.55	
2800.00	2325.46	1406.94	1386.00	23.44	3.62	165.87	-39.18	127.48	1610.53	1595.18	104.93	
2900.00	2408.45	1406.94	1386.00	24.37	3.62	167.14	-39.18	127.48	1704.38	1688.77	109.15	
3000.00	2493.34	1406.94	1386.00	25.26	3.62	168.25	-39.18	127.48	1797.76	1781.89	113.26	
3100.00	2580.02	1406.94	1386.00	26.12	3.62	169.23	-39.18	127.48	1890.63	1874.52	117.29	
3200.00	2668.39	1406.94	1386.00	26.92	3.62	170.09	-39.18	127.48	1982.97	1966.62	121.29	
3300.00	2758.34	1406.94	1386.00	27.68	3.62	170.86	-39.18	127.48	2074.72	2058.17	125.30	
3400.00	2849.76	1406.94	1386.00	28.40	3.62	171.54	-39.18	127.48	2165.88	2149.13	129.34	
3500.00	2942.53	1406.94	1386.00	29.06	3.62	172.14	-39.18	127.48	2256.39	2239.49	133.45	



Weatherford International Ltd.

Anticollision Report



Weatherford

Company: Williams Production Date: 3/14/2011 Time: 12:42:38 Page: 2
Field: RIO ARRIBA CO. NM (NAD 83)
Reference Site: Rosa Unit #60C Co-ordinate(NE) Reference: Well: 60C, Grid North
Reference Well: 60C Vertical (TVD) Reference: SITE 6465.0
Reference Wellpath: 1 Db: Sybase

Site: Rosa Unit #60C
Well: Exist #75
Wellpath: 1 V0

Inter-Site Error: 0.00 ft

Reference		Offset		Semi-Major Axis			Offset Location		Ctr-Ctr Edge		Separation	Warning
MD	TVD	MD	TVD	Ref	Offset	TFO-HS	North	East	Distance	Distance	Factor	
ft	ft	ft	ft	ft	ft	deg	ft	ft	ft	ft		
3600.00	3036.56	1406.94	1386.00	29.66	3.62	172.68	-39.18	127.48	2346.24	2329.20	137.66	
3700.00	3131.71	1406.94	1386.00	30.22	3.62	173.17	-39.18	127.48	2435.40	2418.25	142.00	
3800.00	3227.88	1406.94	1386.00	30.72	3.62	173.60	-39.18	127.48	2523.82	2506.60	146.50	
3900.00	3324.94	1406.94	1386.00	31.17	3.62	174.00	-39.18	127.48	2611.50	2594.22	151.18	
4000.00	3422.79	1406.94	1386.00	31.56	3.62	174.35	-39.18	127.48	2698.39	2681.10	156.07	
4100.00	3521.29	1406.94	1386.00	31.89	3.62	174.68	-39.18	127.48	2784.47	2767.20	161.20	
4200.00	3620.34	1406.94	1386.00	32.17	3.62	174.97	-39.18	127.48	2869.72	2852.49	166.61	
4300.00	3719.80	1406.94	1386.00	32.39	3.62	175.24	-39.18	127.48	2954.10	2936.95	172.32	
4400.00	3819.56	1406.94	1386.00	32.55	3.62	175.48	-39.18	127.48	3037.59	3020.56	178.36	
4500.00	3919.50	1406.94	1386.00	32.66	3.62	175.71	-39.18	127.48	3120.16	3103.27	184.78	
4600.00	4019.50	1406.94	1386.00	32.72	3.62	194.78	-39.18	127.48	3202.09	3185.22	189.82	
4700.00	4119.50	1406.94	1386.00	32.77	3.62	194.78	-39.18	127.48	3284.83	3267.85	193.49	
4800.00	4219.50	1406.94	1386.00	32.83	3.62	194.78	-39.18	127.48	3368.50	3351.41	197.14	
4900.00	4319.50	1406.94	1386.00	32.88	3.62	194.78	-39.18	127.48	3453.04	3435.84	200.77	
5000.00	4419.50	1406.94	1386.00	32.94	3.62	194.78	-39.18	127.48	3538.39	3521.07	204.37	
5100.00	4519.50	1406.94	1386.00	33.00	3.62	194.78	-39.18	127.48	3624.48	3607.05	207.93	
5200.00	4619.50	1406.94	1386.00	33.06	3.62	194.78	-39.18	127.48	3711.28	3693.73	211.46	
5300.00	4719.50	1406.94	1386.00	33.12	3.62	194.78	-39.18	127.48	3798.72	3781.05	214.94	
5400.00	4819.50	1406.94	1386.00	33.19	3.62	194.78	-39.18	127.48	3886.77	3868.97	218.39	
5500.00	4919.50	1406.94	1386.00	33.25	3.62	194.78	-39.18	127.48	3975.38	3957.46	221.79	
5600.00	5019.50	1406.94	1386.00	33.32	3.62	194.78	-39.18	127.48	4064.53	4046.47	225.14	
5700.00	5119.50	1406.94	1386.00	33.38	3.62	194.78	-39.18	127.48	4154.16	4135.98	228.45	
5800.00	5219.50	1406.94	1386.00	33.45	3.62	194.78	-39.18	127.48	4244.27	4225.95	231.71	
5900.00	5319.50	1406.94	1386.00	33.52	3.62	194.78	-39.18	127.48	4334.80	4316.35	234.92	
6000.00	5419.50	1406.94	1386.00	33.60	3.62	194.78	-39.18	127.48	4425.74	4407.15	238.08	
6100.00	5519.50	1406.94	1386.00	33.67	3.62	194.78	-39.18	127.48	4517.07	4498.34	241.19	
6200.00	5619.50	1406.94	1386.00	33.74	3.62	194.78	-39.18	127.48	4608.75	4589.88	244.25	
6300.00	5719.50	1406.94	1386.00	33.82	3.62	194.78	-39.18	127.48	4700.78	4681.76	247.25	
6400.00	5819.50	1406.94	1386.00	33.90	3.62	194.78	-39.18	127.48	4793.12	4773.96	250.21	
6500.00	5919.50	1406.94	1386.00	33.97	3.62	194.78	-39.18	127.48	4885.76	4866.46	253.11	
6600.00	6019.50	1406.94	1386.00	34.05	3.62	194.78	-39.18	127.48	4978.69	4959.24	255.96	
6700.00	6119.50	1406.94	1386.00	34.13	3.62	194.78	-39.18	127.48	5071.89	5052.29	258.76	
6800.00	6219.50	1406.94	1386.00	34.22	3.62	194.78	-39.18	127.48	5165.35	5145.59	261.51	
6900.00	6319.50	1406.94	1386.00	34.30	3.62	194.78	-39.18	127.48	5259.04	5239.13	264.21	
7000.00	6419.50	1406.94	1386.00	34.38	3.62	194.78	-39.18	127.48	5352.96	5332.90	266.86	
7100.00	6519.50	1406.94	1386.00	34.47	3.62	194.78	-39.18	127.48	5447.10	5426.88	269.45	
7200.00	6619.50	1406.94	1386.00	34.56	3.62	194.78	-39.18	127.48	5541.44	5521.07	272.00	
7300.00	6719.50	1406.94	1386.00	34.65	3.62	194.78	-39.18	127.48	5635.98	5615.45	274.50	
7400.00	6819.50	1406.94	1386.00	34.73	3.62	194.78	-39.18	127.48	5730.71	5710.02	276.95	
7500.00	6919.50	1406.94	1386.00	34.83	3.62	194.78	-39.18	127.48	5825.61	5804.75	279.36	
7600.00	7019.50	1406.94	1386.00	34.92	3.62	194.78	-39.18	127.48	5920.68	5899.66	281.72	
7700.00	7119.50	1406.94	1386.00	35.01	3.62	194.78	-39.18	127.48	6015.90	5994.72	284.03	
7800.00	7219.50	1406.94	1386.00	35.11	3.62	194.78	-39.18	127.48	6111.29	6089.94	286.29	
7900.00	7319.50	1406.94	1386.00	35.20	3.62	194.78	-39.18	127.48	6206.81	6185.30	288.51	
8000.00	7419.50	1406.94	1386.00	35.30	3.62	194.78	-39.18	127.48	6302.48	6280.80	290.69	
8100.00	7519.50	1406.94	1386.00	35.40	3.62	194.78	-39.18	127.48	6398.27	6376.42	292.83	
8200.00	7619.50	1406.94	1386.00	35.50	3.62	194.78	-39.18	127.48	6494.20	6472.18	294.92	
8300.00	7719.50	1406.94	1386.00	35.60	3.62	194.78	-39.18	127.48	6590.24	6568.05	296.97	
8400.00	7819.50	1406.94	1386.00	35.70	3.62	194.78	-39.18	127.48	6686.41	6664.04	298.98	
8500.00	7919.50	1406.94	1386.00	35.80	3.62	194.78	-39.18	127.48	6782.68	6760.14	300.95	
8600.00	8019.50	1406.94	1386.00	35.90	3.62	194.78	-39.18	127.48	6879.06	6856.34	302.88	



Weatherford International Ltd.

Anticollision Report



Weatherford

Company: Williams Production Date: 3/14/2011 Time: 12:42:38 Page: 3
Field: RIO ARRIBA.CO. NM (NAD 83)
Reference Site: Rosa Unit #60C Co-ordinate(NE) Reference: Well: 60C, Grid North
Reference Well: 60C Vertical (TVD) Reference: SITE 6465.0
Reference Wellpath: 1 Db: Sybase

Site: Rosa Unit #60C
Well: Exist #75
Wellpath: 1 V0

Inter-Site Error: 0.00 ft

Reference		Offset		Semi-Major Axis			Offset Location		Ctr-Ctr	Edge	Separation	Warning
MD	TVD	MD	TVD	Ref	Offset	TFO-HS	North	East	Distance	Distance	Factor	
ft	ft	ft	ft	ft	ft	deg	ft	ft	ft	ft		
8651.50	8071.00	1406.94	1386.00	35.96	3.62	194.78	-39.18	127.48	6928.73	6905.93	303.86	

**Weatherford®****Weatherford Drilling Services**

GeoDec v5.03

Report Date: March 14, 2011
Job Number: _____
Customer: Williams
Well Name: Rosa Unit 60C
API Number: _____
Rig Name: _____
Location: Rio Arriba Co, NM (Nad 83)
Block: _____
Engineer: RWJ

Geodetic Latitude / Longitude	Geodetic Latitude / Longitude
System: Latitude / Longitude	System: Latitude / Longitude
Projection: Geodetic Latitude and Longitude	Projection: Geodetic Latitude and Longitude
Datum: North American Datum 1983	Datum: North American Datum 1983
Ellipsoid: GRS 1980	Ellipsoid: GRS 1980
Latitude 36.9220100 DEG	Latitude 36.9220100 DEG
Longitude -107.4655800 DEG	Longitude -107.4655800 DEG

Geodetic Location WGS84 Elevation = 0.0 Meters
Latitude = 36.92201° N 36° 55 min 19.236 sec
Longitude = 107.46558° W 107° 27 min 56.088 sec

Magnetic Declination =	9.74°	[True North Offset]	
Local Gravity =	.9992 g	Checksum =	6767
Local Field Strength =	50877 nT	Magnetic Vector X =	22247 nT
Magnetic Dip =	63.66°	Magnetic Vector Y =	3818 nT
Magnetic Model =	IGRF-2010g11	Magnetic Vector Z =	45596 nT
Spud Date =	Dec 05, 2011	Magnetic Vector H =	22572 nT

Signed: _____

Date: _____