Form 3160-5
(February 2005)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED
APR 18 2011
Farmington Field Office
Bureau of Land Management

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.

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

1. Type of Well ☐ Oil Well ☒ Gas Well ☐ Other	5. Lease Serial No. NMNM 23044
	6. If Indian, Allottee or Tribe Name
	7. If Unit of CA/Agreement, Name and/or No.
	8. Well Name and No. Schalk 32 #1A
2. Name of Operator Williams Production Company, LLC	9. API Well No. 30-039-30915
3a. Address PO Box 640 Aztec, NM 87410 3b. Phone No. *(include area code)* 505-634-4208	10. Field and Pool or Exploratory Area Basin Fruitland Coal
4. Location of Well *(Footage, Sec., T.,R.,M., or Survey Description)* 1965' FNL & 660' FWL, section 32, T31N, R4W	11. Country or Parish, State Rio Arriba

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	_____
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	_____

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

Williams Production wishes to change the casing weights and cement volumes on this well as per attached drilling 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

RECEIVED
APR 2011
OIL CONS. DIV. DIST. 3

14. I hereby certify that the foregoing is true and correct. Name *(Printed/Typed)* Larry Higgins	Title Permit Supervisor
Signature Larry Higgins	Date 4-18-11

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by Troy L. Salyers	Title PE	Date 4/19/2011
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

GENERAL INSTRUCTIONS

This form is designed for submitting proposals to perform certain well operations and reports of such operations when completed as indicated on Federal and Indian lands pursuant to applicable Federal law and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local area or regional procedures and practices, are either shown below, will be issued by or may be obtained from the local Federal office.

SPECIFIC INSTRUCTIONS

Item 4 - Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult the local Federal office for specific instructions.

Item 13 - Proposals to abandon a well and subsequent reports of abandonment should include such special information as is required by the local Federal office. In addition, such proposals and reports should include reasons for the abandonment; data on any former or present productive zones or other zones with present significant fluid contents not sealed off by cement or otherwise; depths (top and bottom) and method of placement of cement plugs; mud or other material placed below, between and above plugs; amount, size, method of parting of any casing, liner or tubing pulled and the depth to the top of any tubing left in the hole; method of closing top of well and date well site conditioned for final inspection looking for approval of the abandonment.

NOTICES

The Privacy Act of 1974 and the regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 351 et seq., 25 U.S.C. 396; 43 CFR 3160. PRINCIPAL PURPOSE: The information is used to: (1) Evaluate, when appropriate, approve applications, and report completion of subsequent well operations, on a Federal or Indian lease; and (2) document for administrative use, information for the management, disposal and use of National Resource lands and resources, such as: (a) evaluating the equipment and procedures to be used during a proposed subsequent well operation and reviewing the completed well operations for compliance with the approved plan; (b) requesting and granting approval to perform those actions covered by 43 CFR 3162.3-2, 3162.3-3, and 3162.3-4; (c) reporting the beginning or resumption of production, as required by 43 CFR 3162.4-1(c)and (d) analyzing future applications to drill or modify operations in light of data obtained and methods used.

ROUTINE USES: Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions in connection with congressional inquiries or to consumer reporting agencies to facilitate collection of debts owed the Government.

EFFECT OF NOT PROVIDING THE INFORMATION: Filing of this notice and report and disclosure of the information is mandatory for those subsequent well operations specified in 43 CFR 3162.3-2, 3162.3-3, 3162.3-4.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM collects this information to evaluate proposed and/or completed subsequent well operations on Federal or Indian oil and gas leases.

Response to this request is mandatory.

The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 25 minutes per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Collection Clearance Officer (WO-630), 1849 C St., N.W., Mail Stop 401 LS, Washington, D.C. 20240

Schalk 32 #1A
Drilling Program
Williams Production Co. LLC

WELL NAME:	**Schalk 32 #1A**
COUNTY, STATE:	Rio Arriba County, New Mexico
AFE #	WT18574-62246162
LOCATION – Surface:	1965' FNL & 660' FWL of Sec 32, T31N, R4W
TD at Bottom Hole:	1800' FNL & 1500' FEL Sec 32, T31N, R4W
API #:	30-039-30915
Surface Csg Size / Depth	9-5/8" at 310' MD
PROPOSED TD:	Hor. 6,772' MD/ TBD TVD at Incl. 90.00°, Azi. 86.91°
ZONES OF INTEREST / OBJECTIVES:	Top and bottom of target zone TBD from pilot hole logs
GLE / RKB-ML:	6,978' GL ungraded KB – GL=14'
DHC /D&C / WI% TOTAL:	

Coordinates: X_{SL}: 197,376.03 E Y_{SL}: 2,133,165.99 N

Entry Point TBD TVD / TBD MD, 90.00° Incl. 86.91° Azm X_{BHL}: 197,677.25 E, Y_{BHL}: 2,133,178.98 N
TD/PBHL TBD TVD / TBD MD, 90.00° Incl. 86.91° Azm X_{BHL}: 200,484.87 E, Y_{BHL}: 2,133,300.07 N

Driving Directions: From US-550 and US-64 in Bloomfield, NM Drive east 49.6 miles on US-64 to Forest Road 310. Turn left on Forest Road 310, location is approximately 11 miles from pavement. Rig will be signed in from intersection of US-64 and Forest Road 310

Drilling Rig: Aztec #781 **KB Elevation: 6,992'**

Geology: ***Formation***

NAME		TVD	MD		NAME		TVD	MD
San Jose		Surface	Surface		Top Target Coal		TBD	TBD
Nacimiento		1,942	1,942		Bottom Target Coal		TBD	
Ojo Alamo		3,172	3,172		Base Coal		3,807	
Kirtland		3,287	3,287		Picture Cliffs		3,807	
Fruitland		3,667	3,679		Lewis		4,132	
Top Coal		3,782	3,892		**TD**		TBD	**6,772**

Proposed Casing Program:

	Hole Size	***Casing***	***MD/TVD***	***TOC***
Surface:	12-1/4"	9-5/8",36ppf,J55, ST&C,8rd thrd,Rge 3	310'/310'	Surface
Intermediate: (Pilot Hole)	8-3/4"	7",23ppf,K55, LT&C, 8rd thrd, Rge 3	4,232'/4,232'	Surface
Production Liner:	6-1/8"	4-1/2", 11.6ppf, LT&C,J55,8rd thrd,Rge 3 Pre-perforated	6,772'/TBD	None

Coring: Over coal interval (expected to be 3,782' to 3,807' **IF COAL IS ENCOUNTERED BEFORE 3,782' DO NOT DRILL FURTHER WITHOUT CONTACTING ENGINEERING)**

Evaluation: Mud Logging: Choquette Well Logging – 2 Man Unit from 310' – TD

Electric Logging: Company: Weatherford

Pilot Hole: From TD (4,232') to 9-5/8" shoe (310')

Schalk 32 #1A
Drilling Program
Williams Production Co. LLC

Log with a GR/HRI/SDL/DSN

Production: None

Major Service Providers:

Cement:	Halliburton
Drilling Fluids:	Baroid Drilling Fluids
Directional:	Pathfinder
Logging:	Weatherford
Fuel:	Fraley's
Fresh Water:	SSS Trucking

Drilling Procedure:

1. Mobilize and RU Aztec Well Service #781. Install flowline as to minimize the need to reposition flowline after every casing string. Once rig is rigged up, perform pre-spud inspection with Williams/IADC pre-spud inspection form. ***Contact Virgil Lucero at BLM Farmington FO prior to spud to schedule BLM Rig Inspection***

- Ensure adequate freshwater supply prior to spud.
- Review surface use agreement included with drilling program. Review same with Toolpushers and rig crews to ensure compliance with regard to trash pick up and lease road speed limits.
- Record beginning and ending diesel readings for Rig tank and Camp tank in daily report. Monitor and document daily fuel usage in IADC and daily reports. Fuel is to be charged out on a daily basis.
- Inventory and visually inspect all tubulars and downhole tools on location. Record all dimensions, serial numbers, etc, of all downhole equipment. Maintain a file of all relative inspection reports.
- BHA inspection will be conducted every 300 hours or as needed.
- Gauge all BHA tools and stabilizers prior to and after running, record in IADC and daily reports.
- Advise the New Mexico OCD and BLM of spud 24 hours prior to spud. Advise 24 hour prior to cementing all casing strings. All conversations are to be documented in the IADC reports as well as the daily reports. Include all pertinent information, including date, time, person contacted, details of the discussion/exception, etc. in the reports.
- Confirm KB elevation prior to spud and document same in the IADC and daily reports.
- Ensure a copy of the approved drilling permit are posted in doghouse prior to spud of the well.
- *All drill pipe tallies, casing tallies, and BHAs are the responsibility of the drilling* supervisor. Confirm drill pipe tallies prior to TD.
- It is the drilling supervisor's responsibility to check and confirm calculations with regard to rig operations including cement volumes, pressure tests, etc.
- Maintain a rental tool log of all tools delivered to location. Ensure daily totals match the figures reported in PA. Include delivery dates, condition, damage if any, etc.

- All accidents are to be reported as soon as practical to drilling supervisor and Ronnie Shorter (Williams EH&S) and detailed in the daily reports as well on the Williams accident form. A copy of the contractor's incident investigation report should also be included with Williams accident form.

- Pipe rams are to be function tested weekly (if not otherwise tested during well control drills) and prior to all trips. Blind rams are to be functioned after all trips. All function tests are to be documented in daily reports.

- BOP and associated well control equipment are to be inspected prior to nipple up. Ensure bottles are properly charged and all equipment is in working condition.

- BOP pressure tests are to be conducted after the BOPs have been installed, after each casing string or anytime a pressure seal has been broken and/or every 30 days.

- Well control drills are to be conducted as necessary to ensure crews are familiar with shut-in procedures. Once crews are familiar with the proper well control procedures, drills may be conducted once per week per crew. All drills and shut-in times are to be documented in IADC and daily reports.

- Slow pump rates are to be recorded and documented on the daily reports daily or when the mud weight has changed more the 0.3 ppg.

- All trips are to be conducted using pump strokes and trip sheet to monitor for proper fill-up and displacement.

- The following reports are to be sent every morning by 06:00 hrs:

    - WellEZ Daily Drilling Report
    - Mud Logs/Show Reports
    - BHA, Casing Tallies etc as they become available
    - Directional Survey Reports
    - Mud Reports

- The following items need to be recorded daily in the PA morning reports.

    - Daily fuel consumption/cumulative use
    - Topic of Tailgate safety meeting for both crews
    - Accidents/Injuries if any are reported
    - Crew status (crews full, etc)
    - Repair time for an event/Cumulative Repair time
    - Rotating hours and cumulative hour on BHA & Jars, etc.

- The attached drilling program is intended to act as a guide and is NOT a substitute for common sense.

2. Pick up mud motor and drill rat hole and mouse to depth as needed to set shucks.

SURFACE HOLE: 12-1/4" Hole , 9-5/8" Casing

3. Prepare to spud well by picking up the following BHA:

    - 12-1/4" Milled Tooth jetted with 3x18 nozzles
    - 6-1/2" OD Float sub w/float installed
    - 2 – 6-1/2" Drill Collar
    - 6-1/2" Drill Collars as needed to reach 310'

Spud well. Drill ahead using, surveying well every 150' below surface and at interval TD

Interval Mud Properties:

Interval *(Feet)*	Mud Weight *(ppg)*	Funnel Vis. *(sec/qt)*	Plastic Vis. *(cp)*	Yield Point *(lb/100ft^2)*	Fluid Loss *(ml/30 min)*	HTHP Fluid Loss *(ml/30 min)*	Total Solids *(%)*
0 - 500'	8.4 - 8.7	As needed	N/A	N/A	N/A	N/A	< 3

- Spud well with 8.3 ppg fresh water.
- Control seepage losses with the addition of drilling paper and other LCM as needed.
- Use PHPA polymer as needed for sweeps
- Use high viscosity sweeps containing freshwater gel to clean hole as required. Frequency will be dictated by holes conditions and previous results of sweeps pumped.
- Spot high viscosity/weighted pills on bottom prior running casing as needed.

Continue drilling ahead with the above mud properties to the planned TD/Casing Point. Planned surface casing point is 310' MD.

- Casing tally should be completed prior to TD, adjust TD of this hole section accordingly to allow for casing collar to be at floor level during cement job.

4. Upon reaching TD, circulate and sweep hole clean. Wiper trip will be at the discretion of well site supervisor. Spot a high viscosity pill on bottom (as necessary), drop survey and strap out of the hole, confirm pipe figures and joint count.

5. Hold pre-job safety meeting regarding casing running equipment, discuss shoe and collar locations as well as centralizer placement with rig and casing crews. RU casing running equipment and run casing as follows:

- 9-5/8" ST&C Notched Regular Pattern Shoe (Baker Lock on threads)
- 1 jt – 9-5/8" 36#, J-55, ST&C Casing (Baker Lock Connections)
- 9-5/8" ST&C Float Collar (Baker Lock Connections)
- 9-5/8" 36#, J-55 ST&C Casing to surface.

Casing Specifications:

STC
9-5/8", 36#, J-55, ~~LT&C~~

Collapse:	2,020 psi
Burst:	3,520 psi
Tension:	394,000 lbs
Make-up:	3,940 Ft-lb

Estimated Cost: **$ 22.88/ft (Includes inspection)**

All casing is to be drifted prior to running. Threads are to be visually inspected by drilling supervisor for dirt/sand and should be cleaned as necessary.

Centralizers are to be placed as follows:

- 1 standard bowspring centralizer bottom 4 jts of casing.

- ***Notify BLM Casing/Cement hotline and New Mexico Oil Conservation District 24 hrs prior to running and cementing casing.***
- *Have casing swage on location*

Be prepared to wash casing to bottom as necessary with rig pumps. Circulate a minimum 1-1/2 times the casing annular volume with rig pumps prior to cementing well.

6. Make up landing joint, land casing at depth necessary to make up wellhead, NU BOP and stab flowline.

7. RU Halliburton. Hold safety/procedure meeting regarding cement job. Pressure test lines to 2M# and cement surface casing with the following:

10 bbls	Freshwater
125 sks	Type III cement + 2% Cal-Seal 60 + ¼ #/sk Poly-E-Flake + 0.3% Versaset + 2% Econolite + 6% Salt mixed @ 13.5 ppg and 9.41 gps mix water with a yield of 1.80 ft^3/sk.

The above volumes are based on 100% excess on annular volume.

Release top plug and displace with fresh water using the Halliburton pumps. Monitor and note cement returns in daily reports. Bump plug with 500 psi over final circulating pressure. Do not over-displace more than ½ the volume of the shoe joint. Release pressure and ensure floats are holding. RD cementing equipment from rig floor.

8. RD cementing equipment. Begin WOC. WOC Minimum 12 hours.

9. After WOC 12 hours, break out landing jt and install wellhead from Antelope Sales and Service

10. NU BOP and associated equipment.

11. Pressure test BOP and related equipment as follows:
    - 250 psi (low) for 5 minutes
    - 1,500 psi (high) for 10 minutes
    - Utilize BOP testing unit with recording chart and appropriate test plug
    - ***Notify BLM Farmington FO and NMOCD of BOP pressure test 24 hours prior to testing***

12. After completion of BOP pressure testing or WOC for 12 hours ***WHICHEVER IS GREATER*** pressure test surface casing to 600 psi for 30 minutes prior to tripping in to drill out. Utilize BOP testing unit with recording chart.

INTERMEDIATE HOLE: 8-3/4" Hole , 7" Casing

13. Pick up 140 jts 5-1/2" 21.9# S-135, CSX54 Quest Coring Drill Pipe and rack back in derrick

14. PU the following BHA and TIH to drill float equipment:

- 8-3/4" Smith MDSi616BPX PDC Bit - 6x15's
- 1- 6-3/4" 7/8 lobe 5.7 Stage Pathfinder Mud Motor
- Float Sub
- 10- 6-1/4" drill collars

TIH and tag cement, note cement top in daily reports.

15. Cautiously continue drilling ahead until DC's have cleared casing shoe and WBM mud has been treated and conditioned. Drill ahead taking surveys every 500' with rig TOTCO.

    Use all solids control equipment to remove cuttings from mud. Place water based mud cuttings in cuttings pit on location.

    Drill with at least 450 gpm; using both pumps as needed

    Interval Mud Properties:

Interval *(Feet)*	Mud Weight *(ppg)*	Funnel Vis. *(sec/qt)*	Plastic Vis. *(cp)*	Yield Point *(lb/100ft^2)*	Fluid Loss *(ml/30 min)*	HTHP Fluid Loss *(ml/30 min)*	LG Solids *(%)*
500' to 3,782'	8.5 – 9.0	60-70	7-15	25-35	<10	NA	<4

16. Drill to Core Point of 3,782' MD/TVD. ***IF COAL IS ENCOUNTERED BEFORE 3,782' DO NOT DRILL AHEAD WITHOUT CONTACTING ENGINEERING AND GEOLOGY***

17. Circulate hole clean make wiper trip as needed to assure hole conditions.

18. POOH, LD mud motor and bit

19. PU 6 Quest Coring 6-1/2" CSX54 drill collars, 7-7/8" core head and associated coring tools.

20. TIH

21. Drill ahead coring the entire coal interval (2-30' core barrels). Retrieve core barrels with wireline as directed by Quest Coring.

22. After drilling 2nd core barrel, install drill rod in core head

23. Drill ahead to TD 4,232' MD/TVD

24. Circulate hole clean, make wiper trip as necessary to assure hole conditions

25. POOH LD Quest Coring collars and tools

26. PU 8-3/4" tri-cone rock bit, and float sub, TIH on 6-1/4" DCs and 5-1/2" DP.

27. Ream 7-7/8" hole open to 8-3/4"

28. Circulate hole clean and prepare for e-logs

29. POOH, LDDP and BHA

30. Hold PJSM regarding wireline logging. RU Weatherford Logging Services log from TD to surface shoe with GR/HRI/SDL/DSN. RD Weatherford Logging Services.

31. Change out pipe rams to 7" casing rams.

32. Hold pre-job safety meeting regarding casing running operations and equipment, discuss shoe and collar locations as well as centralizer placement with rig and casing crews. All casing running equipment is to be visually inspected for adequate capacity as well as condition. Review wellhead installation procedures with casing and rig crews. RU casing running equipment and run casing as follows:

- Float shoe (Baker Lock on threads)
- 1 jt – 7" 23# K-55 LT&C (Thread-Lok Connections)
- Float Collar (Thread-Lok Connections)
- 7" 23# K-55 LT&C to Surface

Make-up mandrel/landing joint to casing. Ensure all lock downs are backed out in wellhead and prepare to land casing.

Land out casing in wellhead with landing joint and running tool.

Use swage to fill 7" casing. No fillup tool required.

Casing Specifications:

	7" 23# K-55 LT&C
Collapse:	3,270 psi
Burst:	4,360 psi
Tension:	341,000 lbs
Make-up:	3,090 ft-lb

Estimated Cost: $15.36/ft

All casing is to be drifted to 8-1/2" prior to running. Threads are to be visually inspected by drilling supervisor for dirt/sand and should be cleaned as necessary.

Monitor make-up torque and check periodically as needed.

Centralizers are to be placed as follows:

- 1 – Turbolizer centralizer on bottom 3 joints (3 centralizers)
- 1 – Bowspring centralizer on every 3rd joint from float collar to 2,500' MD (13 centralizers)
- 1 – Turbolizer centralizer at 2,700', 2,500', 2,300', 2,000', 1,500', and 1,000' (6 centralizers)
- Grand total centralizers 9 - 8-3/4" x 7" turbolizer type centralizers and 13 8-3/4" x 7" bowspring type centralizers.

- ***Notify BLM Casing/Cement hotline and New Mexico Oil Conservation District 24 hrs prior to running and cementing casing.***

Be prepared to wash casing to landing point (10-12' off bottom to assure mandrel will land in head) as necessary with rig pumps. Circulate a minimum of 2 casing annular volumes with rig pumps prior to cementing well.

33. Land casing with mandrel in wellhead and test packoff prior to cementing.

34. Hold pre-job safety/procedure meeting prior to RU Halliburton cementing company. RU cementing company while circulating. Cement 7" casing as follows:

20 bbls	Freshwater

340 sks Lead	Halliburton Extendacem + 5 #/sk phenoseal + 5% Cal-Seal 60 + 0.5% D-AIR 3000 mixed at 11.5 ppg with 15.37 gps mix water and a yield of 2.73 ft^3/sk.
100 sks Tail	Premium cement + 1/8 #/sk Poly-E-Flake mixed at 15.6 ppg with 5.20 gps mix water and a yield of 1.18 ft^3/sk.

The above cement volumes are based on a TOC @ surface with 80% excess applied to open hole volumes. Actual volumes will be based on caliper log plus 25% excess.

Release top plug and displace with fresh water from storage tanks using the cement pumps. Monitor and note returns in daily reports. Bump plug with 500 psi over final circulating pressure. Do not over-displace more than ½ the volume of the shoe joint. Release pressure and ensure floats are holding. RD cementing equipment from rig floor. ***Immediately contact engineering if cement is not circulated to surface***

35. WOC 12 hours. Operations while WOC:

- Break out and lay down landing jt
- PU and rack back 225 jts 3-1/2" DP
- Strap and prepare to run Knight Oil Tools whipstock
- Install 3-1/2" DP rams in BOP
- Install ditch magnets in possum belly of shale shakers
- RU Pathfinder Directional Services and ensure good connection for geosteering.

36. Pressure test pipe rams to 1500 psi high for 10 minutes and 250 psi low for 5 minutes and intermediate casing to 1,500 psi for 30 minutes. Utilize BOP testing unit with recorder chart.

CURVE: 6-1/4" Hole

37. RU Basin Wireline and set 7" retrievable bridge plug at expected setting depth of whipstock, 300' above top of target coal. Target coal will be chosen by Barb Pickup, Williams Geologist, based on open hole logs. Setting depth expected to be 3,480' after setting, dump 1 sack of playground sand on top of bridge plug

38. PU Knight Oil Tools X-1 whipstock and anchor, and UBHO sub

39. TIH to set whipstock on 3-1/2" DP, per Knight Oil Tools supervisor's instruction

40. RU Basin Wireline and orient whipstock with azimuth of 86.91°

41. Set whipstock, RD Basin Wireline

42. Shear mill free from whipstock

43. Mill window in 7" casing, per instructions of Knight Oil Tools supervisor.

- Sweep hole with high viscosity pills at regular intervals
- Monitor ditch magnets to ensure adequate functioning. Clean off as necessary to maintain effectiveness of magnets
- Have mud logger monitor cuttings and report amounts of steel, cement and formation

44. Once cuttings show 100% formation and both mills have exited window, drill additional 3'

45. Circulate hole clean and prepare for trip

46. POOH, LD milling assembly

47. Pick up 6-1/4" TCI Rock Bit and orient Pathfinder directional BHA

48. TIH w/ directional BHA on 3-1/2" drill pipe

49. RU Basin Wireline and use gyro to orient BHA for slide

50. Drill ahead following directional plan using wireline gyro to steer well until MWD tool is clear of interference from 7" casing

51. Drill ahead building curve at 19.10°/100' according to directional plan. ***LAND WELL AT 3951'MD/3780'TVD 90° INC 87.23° AZM OR AS SPECIFIED BY GEOLOGY***

    Use all solids control equipment to remove cuttings from mud. Place water based mud cuttings in cuttings pit on location.

    Drill with at least 250 gpm. Sweep hole as needed to keep torque and drag under control.

Interval Mud Properties:

Interval *(Feet)*	Mud Weight *(ppg)*	Funnel Vis. *(sec/qt)*	Plastic Vis. *(cp)*	Yield Point *(lb/100ft^2)*	Fluid Loss *(ml/30 min)*	HTHP Fluid Loss *(ml/30 min)*	LG Solids *(%)*
3,480' to 3,951'	8.5 – 9.0	60-70	7-15	25-35	<10	NA	<4

52. Circulate hole clean and prepare for trip

    - Empty mud pits and refill with fruitland coal produced water have at least 3 frac tanks and pits full of produced water before drilling ahead.

53. POOH and lay mud motor and bit used for curve

Lateral: 6-1/4" Hole , 4-1/2" Liner

54. PU and orient Pathfinder directional BHA including PZIG gamma and inclination at bit sensor and milled tooth tri-cone rock bit for lateral.

55. TIH to TD and circulate hole over to Fruitland Coal produced water

Interval Mud Properties:

Interval *(Feet)*	Mud Weight *(ppg)*	Funnel Vis. *(sec/qt)*	Plastic Vis. *(cp)*	Yield Point *(lb/100ft^2)*	Fluid Loss *(ml/30 min)*	HTHP Fluid Loss *(ml/30 min)*	LG Solids *(%)*
3,951' to 6,768'	8.4 – 8.8	26-30	NA	NA	NA	NA	<4

- Use minimum amount of gel needed to sweep hole in lateral

- Treat for seepage losses as necessary using BaraCarb products from Baroid

56. Soft land curve in top of the target coal as chosen from openhole logs

- Have liner and liner hanger on location before drilling ahead.

57. Drill ahead maintaining Azimuth of 87.23° Pathfinder will geosteer well using PZIG tool and determine TVD at TD as well is drilled.

- ***CONTROL ROP TO LESS THAN 60 FEET PER HOUR***
- ***DO NOT DRILL WITH MORE THAN 200 GALLONS PER MINUTE PUMP RATE***
- Seepage losses are expected through this interval, use Pathfinder ECD tool to monitor changes that indicate losses
- Continue drilling ahead so long as returns are sufficient to keep hole clean and torque drag under control
- If torque and drag become unmanageable or hole will not stay open contact engineering and make preparations to run liner
- ***DO NOT HESITATE TO CONTACT ENGINEERING IF CONDITIONS DICTATE STOPPING***

58. At TD circulate bottoms up while rotating and reciprocating pipe. Make wiper trip to window if deemed necessary by Drilling Foreman and Directional Driller

59. POOH, Stand back enough drill pipe to run liner (~3490') LD directional tools and remaining DP

60. Hold pre-job safety meeting regarding casing running operations and equipment, discuss shoe and collar locations as well as marker joint and centralizer placement with rig and casing crews. All casing running equipment is to visually inspected adequate capacity as well as condition. RU casing running equipment and run casing as follows:

- Cement nose guide shoe (Baker Lock on threads)
- 62 jts – 4-1/2" 11.6# J-55, Preperforated LT&C
- TIW H-Latch Dropoff Liner Hanger
- TIW Running Tool
- 3,490' 3-1/2" drill pipe to drop hanger off 5-10' outside of window

Casing Specifications:

4-1/2" 11.6# J-55 Preperforated LT&C

Collapse:	N/A
Burst:	N/A
Tension:	162,000 lbs
Make-up:	1,620 ft-lb

Estimated Cost: **$8.76/ft (includes inspection)**

Threads are to be visually inspected by drilling supervisor for dirt/sand and should be cleaned as necessary.

Monitor make-up torque and check periodically as needed.

Centralizers are to be placed as follows:

- No centralizers in lateral

- ***Notify BLM Casing/Cement hotline and New Mexico Oil Conservation District 24 hrs prior to running and cementing casing.***

61. Land 4-1/2" pre-perforated liner with liner hanger 5-10' outside of casing exit. Drop off liner hanger per instructions from DnH/TIW supervisor

62. POOH with running tool. LD Running Tool

63. PU Knight Oil Tools whipstock retrieving tool.

64. RIH w/retrieving tool on 3-1/2" DP

65. Retrieve whipstock and POOH, LD whipstock

66. PU bridge plug retrieving tool

67. RIH w/retrieving tool and wash sand from top of bridge plug

68. Retrieve bridge plug and POOH/LDDP

69. Secure well. RD Aztec Well Service Rig #781 in preparation of moving to the Rosa Unit #399A.

Schalk 32 #1A
Drilling Program
Williams Production Co. LLC

Company Contact Information:

Company	Role	Name	Office Phone	Cell Phone	Email
TDCI	Drilling Supervisor	Glenn Gathings		(505)215-9201	gmagic93@aol.com
TDCI	Drilling Supervisor	Tom Arnold		(505)801-0826	ita2@earthlink.net
Williams	Drilling Engineering	Brian Alleman	(918)573-2434	(719)330-1052	Brian.Alleman@Williams.com
Williams	Geology	Barb Pickup	(918)573-6256	(918)606-9605	Barbara.Pickup@Williams.com
Williams	Completions/Production	Michael Andrews	(918)573-0711	(918)720-5495	Michael.Andrews@Williams.com
Williams	Environmental	Myke Lane	(505)634-4219	(505)330-3198	Myke.Lane@Williams.com
Williams	Procurement	Tommy Darrell	(505)634-4237	(505)947-1174	Tommy.Darrell@Williams.com
Williams	Procurement	Ron Cochran	(505)-634-4231	(505)320-7065	Ron.Cochran@Williams.com
Williams	Contracts/MSA's	Helen Manzanares	(505)634-4224		Helen.Manzanares@Williams.com
Williams	Regulatory	Larry Higgins	(505)634-4208	(505)320-4314	Larry.Higgins@Williams.com
Williams	Production Superintendent	Randy VanDenBerg	(505)634-4201	(970)759-0501	Randy.VanDenBerg@Williams.com
Williams	SJB Management	Ken McQueen	(918)573-2889	(918)232-3081	Ken.McQueen@Williams.com
Antelope Sales and Service	Wellheads (owner)	Brian Wimbish	(505)327-0918	(505)860-7999	wimbishbriang@qwest.net
Antelope Sales and Service	Wellheads (service coordinator)	Gabe Salazar	(505)327-0918	(505)860-0438	
SSS Trucking	Fresh Water	Mitch Wagner	(505)334-6193		
Halliburton	Alliance Engineer	Hap Pinkerton	(918)581-5213	(918)645-1715	Hap.Pinkerton@Halliburton.com
Halliburton	Mud Technical Professional	Matt Jensen		(505)486-3049	Matt.Jensen@Halliburton.com
Halliburton	Baroid Warehouse Engineer	Gary Przekurat	(505)325-1896	(505)320-8410	Gary.Przekurat2@Halliburton.com
Halliburton	Cement Co-ordinator	Justin Kiddoo	(505)324-3505	(505)330-3081	Justin.Kiddoo@Halliburton.com
Pathfinder	Directional Coordinator	Thomas Billings	(505)324-0357	(505)801-9065	Tbillings@Pathfinder.slb.com
Weatherford	Wireline Logging	Bill Rodgers	(303)824-6558	(720)635-6016	Bill.Rodgers@Weatherford.com
BLM	Cement Hotline		(505)599-8907		
NMOCD	Kelly Roberts		(505)334-6178 x16		
Fraley's	Fuel		(505)327-7474		
Knight Oil Tools	Rental Tools	Ben Reese	(505)632-6666	(505)330-0347	breese@knightoiltools.com
Knight Oil Tools	Fishing Tools	Tim Torrez	(505)632-6666	(505)330-8092	
Choquette Well Logging	Mud Logging	Andy Choquette			
Smith International	Drill Bits (Denver)	Terry Kerr	(303)623-9185	(303)887-6807	tkerr@smith.com
Smith International	Drill Bits (Farmington)	Jacob Waitman	(505)326-2679	(505)325-0942	jwaitman@smith.com
K&C RV	Potable Water and Sewer		(505)334-4088		
High Desert Industrial	Welding	Steve Rowe	(505)325-2690	(505)320-6616	s.rowe@highdesertoilfield.com
Adobe	Location Construction	Johnny Stinson	(505)632-1486	(505)320-6076	johnny@adobecontractorsinc.com
Quest Coring	Coring Services	Kurt Heuttl	(303)226-5642	(303)916-5827	KurtHeuttl@questcoring.com
Basin Wireline	Gyro and Plug setting		(505)327-5244		

Invoice Processing/Accounts Payable Address:

Invoices are to have the following information:

Schalk 32 #1A

AFE# WT18574-62246162

Routing Code: NXEKK334711

All invoice shall have PO# on them if Applicable