PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Dakota Resources Inc
LEASE NO.:	NMLC029512A
WELL NAME & NO.:	Wallen Federal 10
SURFACE HOLE FOOTAGE:	660'/N & 990'/E
BOTTOM HOLE FOOTAGE	660'/N & 990'/E
LOCATION:	Section 19, T.20 S., R.34 E., NMPM
COUNTY:	Lea County, New Mexico

HOBBS OCD

FEB 28 2018

RECEIVED

COA

H2S	○ Yes	◉ No	
Potash	○ None	○ Secretary	◉ R-111-P
Cave/Karst Potential	◉ Low	○ Medium	○ High
Variance	◉ None	○ Flex Hose	○ Other
Wellhead	◉ Conventional	○ Multibowl	○ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP

A. Hydrogen Sulfide

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

B. CASING

1. The **9-5/8** inch surface casing shall be set at approximately **1587** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **Additional cement maybe required. Excess calculates to -25%.**

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
    b. Wait on cement (WOC) time for a primary cement job will be a minimum of **24 hours in the Potash Area** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Operator shall test annular to 50% of working pressure and all other BOP equipment to full working pressure.

2. The minimum required fill of cement behind the **7** inch intermediate casing is:
   - Cement to surface. If cement does not circulate see B.1.a, c-d above.

Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

3. The minimum required fill of cement behind the **4-1/2** inch production casing is:
   - Cement to surface. If cement does not circulate, contact the appropriate BLM office.**Additional cement maybe required. Excess calculates to -68%.**

C. PRESSURE CONTROL

1. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi.

2. **Operator shall test annular to 50% of working pressure and all other BOP equipment to full working pressure.**

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure

rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).

b. When the operator proposes to set surface casing with Spudder Rig
   - Notify the BLM when moving in and removing the Spudder Rig.
   - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
   - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for

details regarding lead cement slurry requirements. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
    e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

    b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

    c. The tests shall be done by an independent service company utilizing a test plug. The results of the test shall be reported to the appropriate BLM office.

    d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

e. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes. This test shall be performed prior to the test at full stack pressure.

g. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

Waste Minimization Plan (WMP)

In the interest of resource development, submission of additional well gas capture development plan information is deferred but may be required by the BLM Authorized Officer at a later date.

ZS 022018

PECOS DISTRICT
CONDITIONS OF APPROVAL

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COUNTY:	Lea County, New Mexico

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Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

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☐ **Noxious Weeds**
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I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken: Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching
Ditching shall be required on both sides of the road.

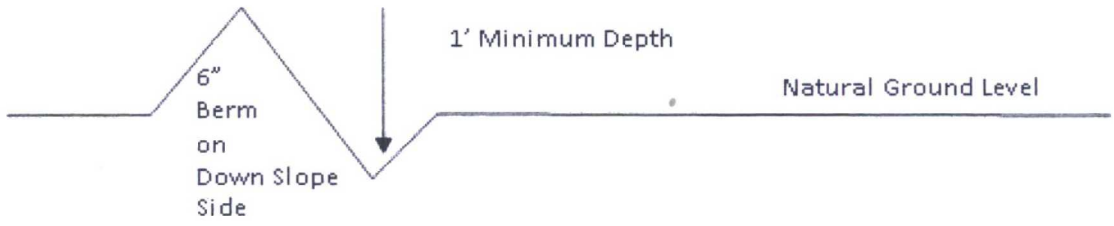
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

400 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ lead-off ditch interval

Cattleguards

An appropriately sized cattleguard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattleguards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

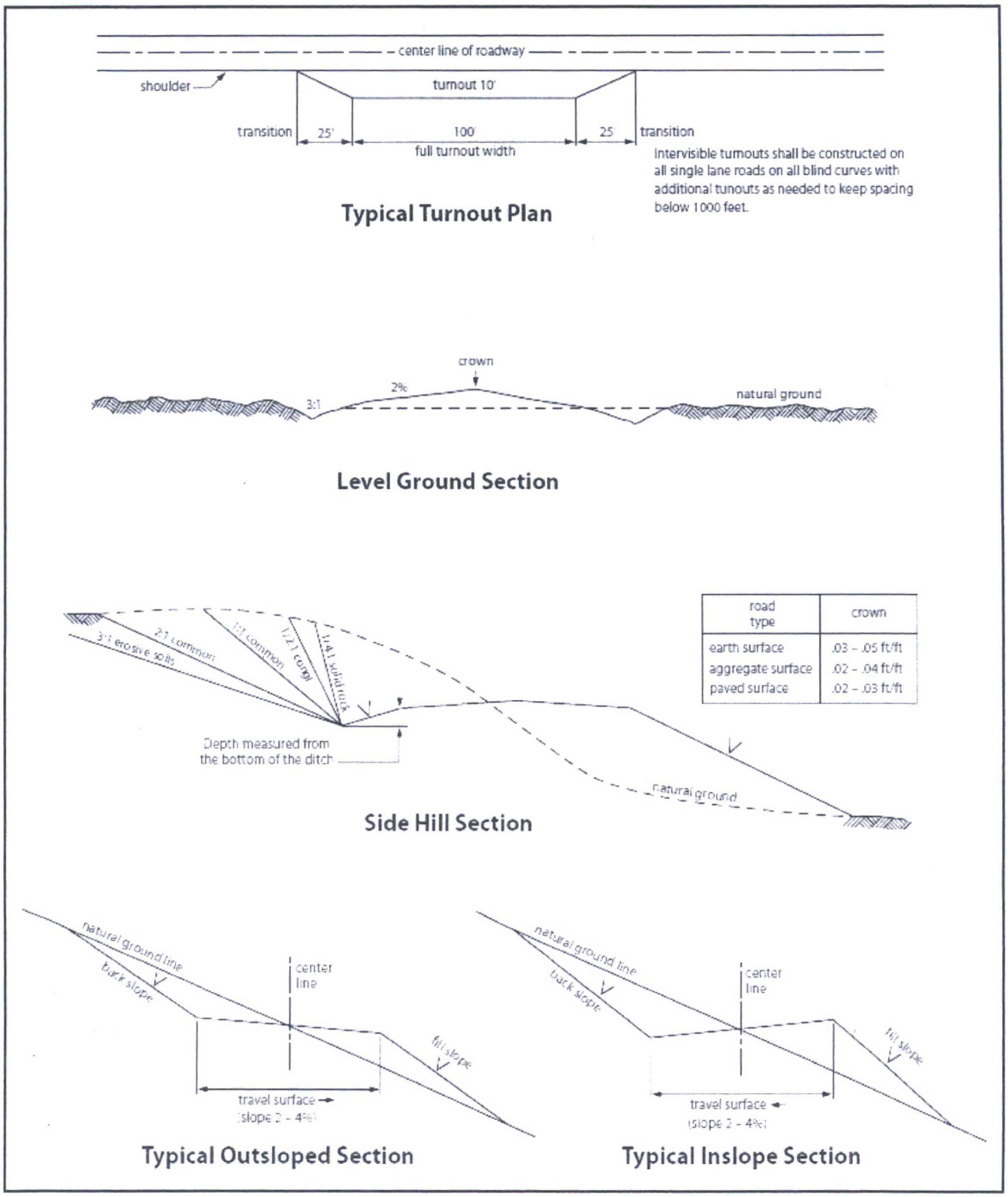


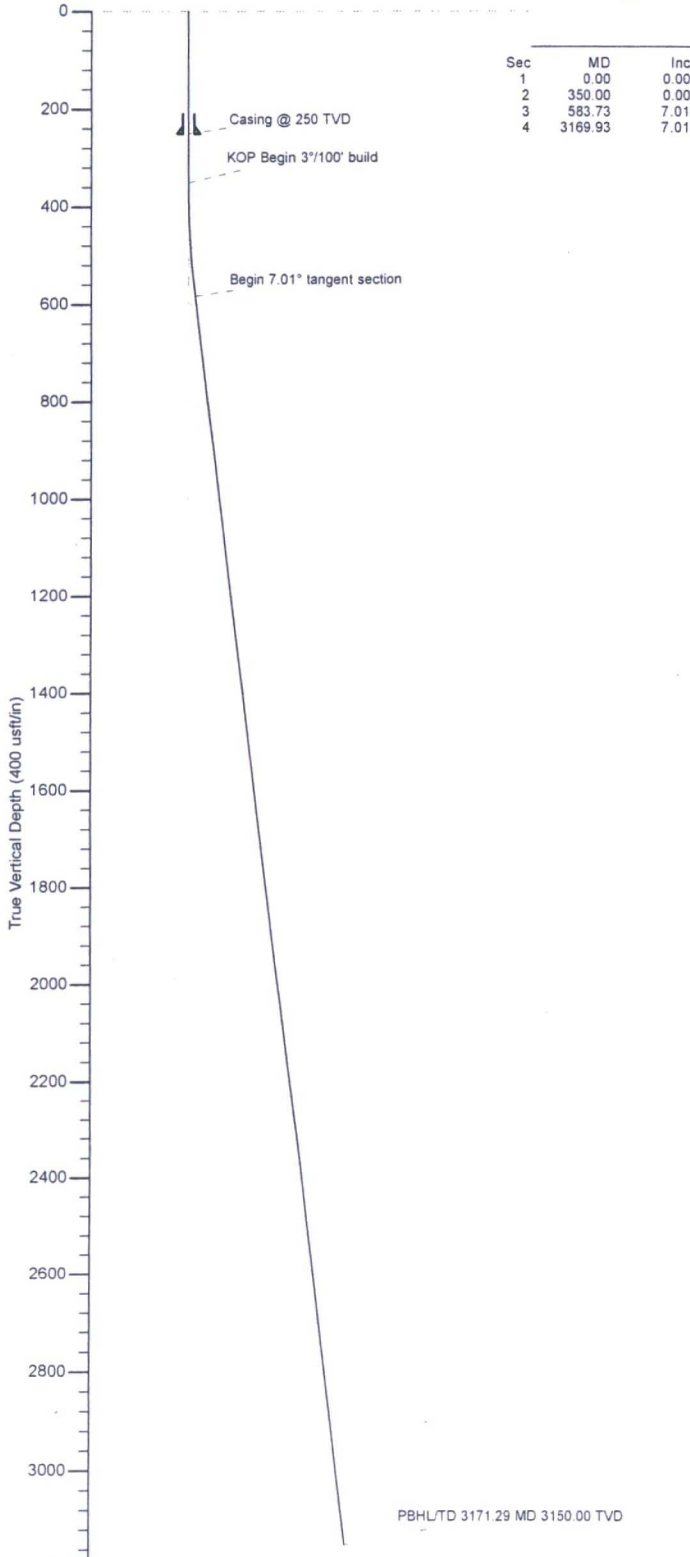
Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

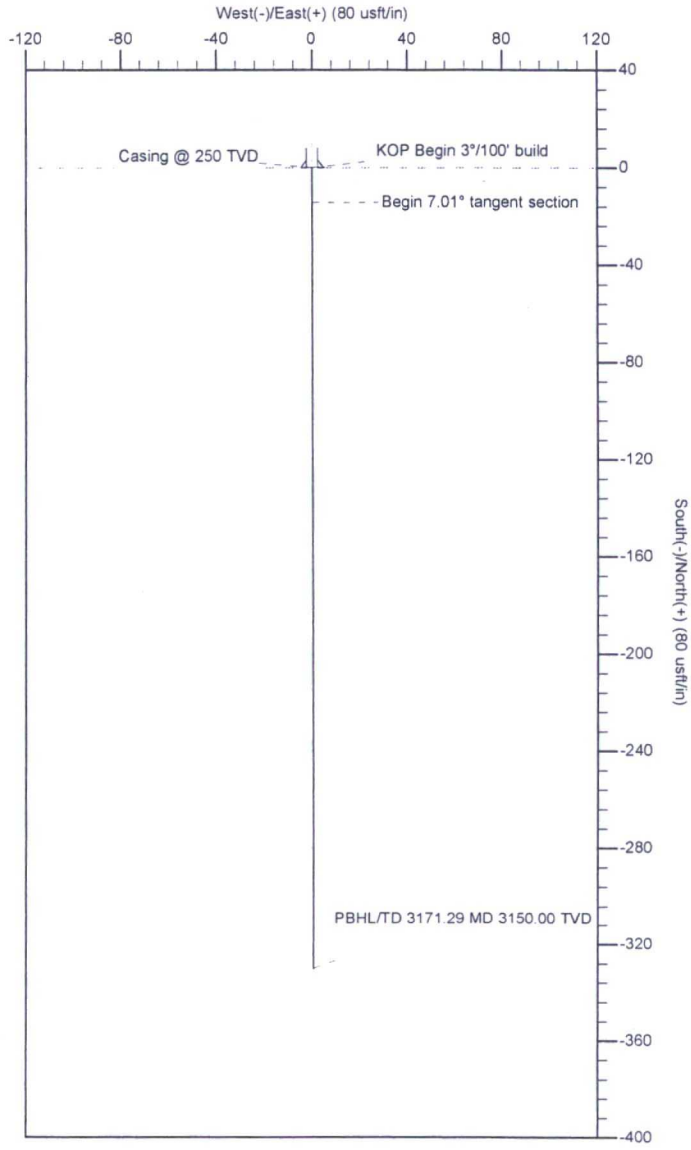
Dakota Resouces Inc

Well: Wallen Federal #10
Site: Wallen Federal
Project: Lea County, New Mexico
Design: rev2
Rig:

Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 3°/100' build
3	583.73	7.01	180.00	583.15	-14.28	0.00	3.00	180.00	14.28	Begin 7.01° tangent section
4	3169.93	7.01	180.00	3150.00	-330.00	0.00	0.00	0.00	330.00	PBHL/TD 3171.29 MD 3150.00 TVD





Surface Location: GL=3635.9 @ 3635.90usft
US State Plane 1927 (Exact solution)
New Mexico East 3001

Northing	Easting	Latittude	Longitude
569715.45	727698.12	32° 33' 50.69520000 N	103° 35' 39.33240000 W

Total Correction (M => G) To convert a Magnetic Direction to a Grid Direction, Add 6.58°

Azimuths to Grid North
True North: -0.40°
Magnetic North: 6.58°

Magnetic Field
Strength: 48121.9snT
Dip Angle: 60.37°
Date: 8/7/2017
Model: IGRF2015

M3P DIRECTIONAL SERVICES

10:27, August 07 2017

Planning Report

Database:	DB_Aug0116_LT_v14	**Local Co-ordinate Reference:**	Well Wallen Federal #10
Company:	Dakota Resouces Inc	**TVD Reference:**	GL=3635.9 @ 3635.90usft
Project:	Lea County, New Mexico	**MD Reference:**	GL=3635.9 @ 3635.90usft
Site:	Wallen Federal	**North Reference:**	Grid
Well:	Wallen Federal #10	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Project	Lea County, New Mexico		
Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Wallen Federal				
Site Position:		**Northing:**	569,721.36 usft	**Latitude:**	32° 33' 50.70960000 N
From:	Lat/Long	**Easting:**	728,338.01 usft	**Longitude:**	103° 35' 31.85520000 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.40 °

Well	Wallen Federal #10					
Well Position	**+N/-S**	-5.90 usft	**Northing:**	569,715.45 usft	**Latitude:**	32° 33' 50.69520000 N
	+E/-W	-639.90 usft	**Easting:**	727,698.11 usft	**Longitude:**	103° 35' 39.33240000 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	0.00 usft	**Ground Level:**	3,635.90 usft

Wellbore	Original Hole			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	8/7/2017	6.97	60.37	48,121.86605381

Design	rev2				
Audit Notes:					
Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.00	0.00	0.00	180.00	

Plan Survey Tool Program **Date** 8/7/2017

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	3,169.93	rev2 (Original Hole)	MWD	
				OWSG MWD - Standard	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	0.00	
583.73	7.01	180.00	583.15	-14.28	0.00	3.00	3.00	77.01	180.00	
3,169.93	7.01	180.00	3,150.00	-330.00	0.00	0.00	0.00	0.00	0.00	

Database:	DB_Aug0116_LT_v14	**Local Co-ordinate Reference:**	Well Wallen Federal #10
Company:	Dakota Resouces Inc	**TVD Reference:**	GL=3635.9 @ 3635.90usft
Project:	Lea County, New Mexico	**MD Reference:**	GL=3635.9 @ 3635.90usft
Site:	Wallen Federal	**North Reference:**	Grid
Well:	Wallen Federal #10	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP Begin 3°/100' build									
400.00	1.50	180.00	399.99	-0.65	0.00	0.65	3.00	3.00	0.00
500.00	4.50	180.00	499.85	-5.89	0.00	5.89	3.00	3.00	0.00
583.73	7.01	180.00	583.15	-14.28	0.00	14.28	3.00	3.00	0.00
Begin 7.01° tangent section									
600.00	7.01	180.00	599.30	-16.27	0.00	16.27	0.00	0.00	0.00
700.00	7.01	180.00	698.55	-28.48	0.00	28.48	0.00	0.00	0.00
800.00	7.01	180.00	797.80	-40.69	0.00	40.69	0.00	0.00	0.00
900.00	7.01	180.00	897.05	-52.89	0.00	52.89	0.00	0.00	0.00
1,000.00	7.01	180.00	996.30	-65.10	0.00	65.10	0.00	0.00	0.00
1,100.00	7.01	180.00	1,095.56	-77.31	0.00	77.31	0.00	0.00	0.00
1,200.00	7.01	180.00	1,194.81	-89.52	0.00	89.52	0.00	0.00	0.00
1,300.00	7.01	180.00	1,294.06	-101.72	0.00	101.72	0.00	0.00	0.00
1,400.00	7.01	180.00	1,393.31	-113.93	0.00	113.93	0.00	0.00	0.00
1,500.00	7.01	180.00	1,492.56	-126.14	0.00	126.14	0.00	0.00	0.00
1,600.00	7.01	180.00	1,591.82	-138.35	0.00	138.35	0.00	0.00	0.00
1,700.00	7.01	180.00	1,691.07	-150.56	0.00	150.56	0.00	0.00	0.00
1,800.00	7.01	180.00	1,790.32	-162.76	0.00	162.76	0.00	0.00	0.00
1,900.00	7.01	180.00	1,889.57	-174.97	0.00	174.97	0.00	0.00	0.00
2,000.00	7.01	180.00	1,988.82	-187.18	0.00	187.18	0.00	0.00	0.00
2,100.00	7.01	180.00	2,088.08	-199.39	0.00	199.39	0.00	0.00	0.00
2,200.00	7.01	180.00	2,187.33	-211.59	0.00	211.59	0.00	0.00	0.00
2,300.00	7.01	180.00	2,286.58	-223.80	0.00	223.80	0.00	0.00	0.00
2,400.00	7.01	180.00	2,385.83	-236.01	0.00	236.01	0.00	0.00	0.00
2,500.00	7.01	180.00	2,485.08	-248.22	0.00	248.22	0.00	0.00	0.00
2,600.00	7.01	180.00	2,584.34	-260.42	0.00	260.42	0.00	0.00	0.00
2,700.00	7.01	180.00	2,683.59	-272.63	0.00	272.63	0.00	0.00	0.00
2,800.00	7.01	180.00	2,782.84	-284.84	0.00	284.84	0.00	0.00	0.00
2,900.00	7.01	180.00	2,882.09	-297.05	0.00	297.05	0.00	0.00	0.00
3,000.00	7.01	180.00	2,981.34	-309.26	0.00	309.26	0.00	0.00	0.00
3,100.00	7.01	180.00	3,080.60	-321.46	0.00	321.46	0.00	0.00	0.00
3,169.93	7.01	180.00	3,150.00	-330.00	0.00	330.00	0.00	0.00	0.00
PBHL/TD 3171.29 MD 3150.00 TVD									

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
250.00	250.00	Casing @ 250 TVD	9-5/8	12-1/4

Database:	DB_Aug0116_LT_v14	**Local Co-ordinate Reference:**	Well Wallen Federal #10
Company:	Dakota Resouces Inc	**TVD Reference:**	GL=3635.9 @ 3635.90usft
Project:	Lea County, New Mexico	**MD Reference:**	GL=3635.9 @ 3635.90usft
Site:	Wallen Federal	**North Reference:**	Grid
Well:	Wallen Federal #10	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
350.00	350.00	0.00	0.00	KOP Begin 3°/100' build
583.73	583.15	-14.28	0.00	Begin 7.01° tangent section
3,169.93	3,150.00	-330.00	0.00	PBHL/TD 3171.29 MD 3150.00 TVD

Planning Report - Geographic

Database:	DB_Aug0116_LT_v14	**Local Co-ordinate Reference:**	Well Wallen Federal #10
Company:	Dakota Resouces Inc	**TVD Reference:**	GL=3635.9 @ 3635.90usft
Project:	Lea County, New Mexico	**MD Reference:**	GL=3635.9 @ 3635.90usft
Site:	Wallen Federal	**North Reference:**	Grid
Well:	Wallen Federal #10	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Project	Lea County, New Mexico		
Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Wallen Federal				
Site Position:		**Northing:**	569,721.36 usft	**Latitude:**	32° 33' 50.70960000 N
From:	Lat/Long	**Easting:**	728,338.01 usft	**Longitude:**	103° 35' 31.85520000 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.40 °

Well	Wallen Federal #10					
Well Position	**+N/-S**	0.00 usft	**Northing:**	569,715.45 usft	**Latitude:**	32° 33' 50.69520000 N
	+E/-W	0.00 usft	**Easting:**	727,698.11 usft	**Longitude:**	103° 35' 39.33240000 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	0.00 usft	**Ground Level:**	3,635.90 usft

Wellbore	Original Hole				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	8/7/2017	6.97	60.37	48,121.86605381

Design	rev2				
Audit Notes:					
Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.00	0.00	0.00	180.00	

Plan Survey Tool Program **Date** 8/7/2017

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	3,169.93	rev2 (Original Hole)	MWD	
				OWSG MWD - Standard	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
350.00	0.00	0.00	350.00	0.00	0.00	0.00	0.00	0.00	0.00	
583.73	7.01	180.00	583.15	-14.28	0.00	3.00	3.00	77.01	180.00	
3,169.93	7.01	180.00	3,150.00	-330.00	0.00	0.00	0.00	0.00	0.00	

Database:	DB_Aug0116_LT_v14	**Local Co-ordinate Reference:**	Well Wallen Federal #10
Company:	Dakota Resouces Inc	**TVD Reference:**	GL=3635.9 @ 3635.90usft
Project:	Lea County, New Mexico	**MD Reference:**	GL=3635.9 @ 3635.90usft
Site:	Wallen Federal	**North Reference:**	Grid
Well:	Wallen Federal #10	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	569,715.45	727,698.11	2° 33' 50.69520000 N	03° 35' 39.33240000 W
100.00	0.00	0.00	100.00	0.00	0.00	569,715.45	727,698.11	2° 33' 50.69520000 N	03° 35' 39.33240000 W
200.00	0.00	0.00	200.00	0.00	0.00	569,715.45	727,698.11	2° 33' 50.69520000 N	03° 35' 39.33240000 W
300.00	0.00	0.00	300.00	0.00	0.00	569,715.45	727,698.11	2° 33' 50.69520000 N	03° 35' 39.33240000 W
350.00	0.00	0.00	350.00	0.00	0.00	569,715.45	727,698.11	2° 33' 50.69520000 N	03° 35' 39.33240000 W
KOP Begin 3°/100' build									
400.00	1.50	180.00	399.99	-0.65	0.00	569,714.80	727,698.11	2° 33' 50.68872409 N	03° 35' 39.33245310 W
500.00	4.50	180.00	499.85	-5.89	0.00	569,709.57	727,698.11	2° 33' 50.63694349 N	03° 35' 39.33287763 W
583.73	7.01	180.00	583.15	-14.28	0.00	569,701.17	727,698.11	2° 33' 50.55385776 N	03° 35' 39.33355884 W
Begin 7.01° tangent section									
600.00	7.01	180.00	599.30	-16.27	0.00	569,699.18	727,698.11	2° 33' 50.53420430 N	03° 35' 39.33371997 W
700.00	7.01	180.00	698.55	-28.48	0.00	569,686.98	727,698.11	2° 33' 50.41340862 N	03° 35' 39.33471035 W
800.00	7.01	180.00	797.80	-40.69	0.00	569,674.77	727,698.11	2° 33' 50.29261294 N	03° 35' 39.33570073 W
900.00	7.01	180.00	897.05	-52.89	0.00	569,662.56	727,698.11	2° 33' 50.17181726 N	03° 35' 39.33669111 W
1,000.00	7.01	180.00	996.30	-65.10	0.00	569,650.35	727,698.11	2° 33' 50.05102158 N	03° 35' 39.33768148 W
1,100.00	7.01	180.00	1,095.56	-77.31	0.00	569,638.15	727,698.11	2° 33' 49.93022590 N	03° 35' 39.33867185 W
1,200.00	7.01	180.00	1,194.81	-89.52	0.00	569,625.94	727,698.11	2° 33' 49.80943021 N	03° 35' 39.33966222 W
1,300.00	7.01	180.00	1,294.06	-101.72	0.00	569,613.73	727,698.11	2° 33' 49.68863453 N	03° 35' 39.34065259 W
1,400.00	7.01	180.00	1,393.31	-113.93	0.00	569,601.52	727,698.11	2° 33' 49.56783884 N	03° 35' 39.34164296 W
1,500.00	7.01	180.00	1,492.56	-126.14	0.00	569,589.31	727,698.11	2° 33' 49.44704315 N	03° 35' 39.34263332 W
1,600.00	7.01	180.00	1,591.82	-138.35	0.00	569,577.11	727,698.11	2° 33' 49.32624747 N	03° 35' 39.34362369 W
1,700.00	7.01	180.00	1,691.07	-150.56	0.00	569,564.90	727,698.11	2° 33' 49.20545178 N	03° 35' 39.34461405 W
1,800.00	7.01	180.00	1,790.32	-162.76	0.00	569,552.69	727,698.11	2° 33' 49.08465609 N	03° 35' 39.34560441 W
1,900.00	7.01	180.00	1,889.57	-174.97	0.00	569,540.48	727,698.11	2° 33' 48.96386040 N	03° 35' 39.34659477 W
2,000.00	7.01	180.00	1,988.82	-187.18	0.00	569,528.28	727,698.11	2° 33' 48.84306471 N	03° 35' 39.34758513 W
2,100.00	7.01	180.00	2,088.08	-199.39	0.00	569,516.07	727,698.11	2° 33' 48.72226902 N	03° 35' 39.34857549 W
2,200.00	7.01	180.00	2,187.33	-211.59	0.00	569,503.86	727,698.11	2° 33' 48.60147333 N	03° 35' 39.34956584 W
2,300.00	7.01	180.00	2,286.58	-223.80	0.00	569,491.65	727,698.11	2° 33' 48.48067765 N	03° 35' 39.35055619 W
2,400.00	7.01	180.00	2,385.83	-236.01	0.00	569,479.44	727,698.11	2° 33' 48.35988195 N	03° 35' 39.35154654 W
2,500.00	7.01	180.00	2,485.08	-248.22	0.00	569,467.24	727,698.11	2° 33' 48.23908626 N	03° 35' 39.35253689 W
2,600.00	7.01	180.00	2,584.34	-260.42	0.00	569,455.03	727,698.11	2° 33' 48.11829057 N	03° 35' 39.35352724 W
2,700.00	7.01	180.00	2,683.59	-272.63	0.00	569,442.82	727,698.11	2° 33' 47.99749487 N	03° 35' 39.35451759 W
2,800.00	7.01	180.00	2,782.84	-284.84	0.00	569,430.61	727,698.11	2° 33' 47.87669918 N	03° 35' 39.35550793 W
2,900.00	7.01	180.00	2,882.09	-297.05	0.00	569,418.41	727,698.11	2° 33' 47.75590348 N	03° 35' 39.35649827 W
3,000.00	7.01	180.00	2,981.34	-309.26	0.00	569,406.20	727,698.11	2° 33' 47.63510779 N	03° 35' 39.35748862 W
3,100.00	7.01	180.00	3,080.60	-321.46	0.00	569,393.99	727,698.11	2° 33' 47.51431209 N	03° 35' 39.35847895 W
3,169.93	7.01	180.00	3,150.00	-330.00	0.00	569,385.45	727,698.11	2° 33' 47.42984425 N	03° 35' 39.35917146 W
PBHL/TD 3171.29 MD 3150.00 TVD									

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
250.00	250.00	Casing @ 250 TVD	9-5/8	12-1/4

Database:	DB_Aug0116_LT_v14	**Local Co-ordinate Reference:**	Well Wallen Federal #10
Company:	Dakota Resouces Inc	**TVD Reference:**	GL=3635.9 @ 3635.90usft
Project:	Lea County, New Mexico	**MD Reference:**	GL=3635.9 @ 3635.90usft
Site:	Wallen Federal	**North Reference:**	Grid
Well:	Wallen Federal #10	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
350.00	350.00	0.00	0.00	KOP Begin 3°/100' build
583.73	583.15	-14.28	0.00	Begin 7.01° tangent section
3,169.93	3,150.00	-330.00	0.00	PBHL/TD 3171.29 MD 3150.00 TVD