

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HOBBS OCD

FORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018

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. NMNM118722
2. Name of Operator CHEVRON USA INCORPORATED		6. If Indian, Allottee or Tribe Name
3a. Address 6301 DEAUVILLE BLVD MIDLAND, TX 79706		7. If Unit or CA/Agreement, Name and/or No.
3b. Phone No. (include area code) Ph: 432-687-7655		8. Well Name and No. SD 14 23 FED P18 14H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 14 T26S R32E NENW 455FNL 1505FWL 32.049053 N Lat, 103.649284 W Lon		9. API Well No. 30-025-45823-00-X1
		10. Field and Pool or Exploratory Area WC025G09S263327G UP WOLFCAMP
		11. County or Parish, State LEA COUNTY, NM

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	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	PD

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.

Chevron respectfully requests to change the casing design on this well to a 4-string design. The 9Pt drilling plan is attached with the following updates:

- Casing design factors have been updated to reflect new casing design.

- Annular clearance variance for the 5.5" production string in the 7-5/8" intermediate 2 liner. The crossover on the 5"x5.5" tapered production string will be located approximately 500' above the 7-5/8" shoe for all wells. Planned TOC will be above this crossover fulfilling BLM cementing requirement.

- Cement program updated to reflect changes in the casing design.

HOBBS OCD

JUN 24 2019

RECEIVED

14. I hereby certify that the foregoing is true and correct. Electronic Submission #468922 verified by the BLM Well Information System For CHEVRON USA INCORPORATED, sent to the Hobbs Committed to AFMSS for processing by PRISCILLA PEREZ on 06/13/2019 (19PP2189SE)	
Name (Printed/Typed) LAURA BECERRA	Title REGULATORY SPECIALIST
Signature (Electronic Submission)	Date 06/13/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By ZOTA STEVENS	Title PETROLEUM ENGINEER	Date 06/18/2019
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 Hobbs

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)

** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED **

KZ

Additional data for EC transaction #468922 that would not fit on the form

32. Additional remarks, continued

- Formations tops in the 9Pt. plan have been updated utilizing data from pilot holes Chevron has drilled in the area.

- Change depths to 23,000' MD/12,383' TVD

- Change of proposed FTP, LTP and BHL

FROM:

FTP:330' FNL, 2440' FWL; LTP:330' FSL, 2380' FWL; BHL:180' FSL, 2380' FWL

TO:

FTP:100' FNL, 1430' FWL; LTP:100' FSL, 1430' FWL; BHL:25' FSL, 1430' FWL

FIELD NAME CORRECTION: WC025G08S263205N

Revisions to Operator-Submitted EC Data for Sundry Notice #468922

	Operator Submitted	BLM Revised (AFMSS)
Sundry Type:	APDCH NOI	APDCH NOI
Lease:	NMNM118722	NMNM118722
Agreement:		
Operator:	CHEVRON USA INC 6301 DEAUVILLE BLVD MIDLAND, TX 79706 Ph: 432-687-7665	CHEVRON USA INCORPORATED 6301 DEAUVILLE BLVD MIDLAND, TX 79706 Ph: 432.687.7100 Fx: 432-687-7221
Admin Contact:	LAURA BECERRA REGULATORY SPECIALIST E-Mail: LBECERRA@CHEVRON.COM Ph: 432-687-7655	LAURA BECERRA REGULATORY SPECIALIST E-Mail: LBECERRA@CHEVRON.COM Ph: 432-687-7655
Tech Contact:	LAURA BECERRA REGULATORY SPECIALIST E-Mail: LBECERRA@CHEVRON.COM Ph: 432-687-7655	LAURA BECERRA REGULATORY SPECIALIST E-Mail: LBECERRA@CHEVRON.COM Ph: 432-687-7655
Location:		
State:	NM	NM
County:	LEA	LEA
Field/Pool:	WC025G09S263327G;UP WOLFC	WC025G09S263327G UP WOLFCAMP
Well/Facility:	SD 14 23 FED P18 14H Sec 14 T26S R32E Mer NMP NENW 455FNL 1505FWL	SD 14 23 FED P18 14H Sec 14 T26S R32E NENW 455FNL 1505FWL 32.049053 N Lat, 103.649284 W Lon

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Chevron USA Incorporated
LEASE NO.:	NMNM118722
WELL NAME & NO.:	SD 14 23 Fed P18 14H
SURFACE HOLE FOOTAGE:	455'/N & 1505'/W
BOTTOM HOLE FOOTAGE:	25'/S & 1430'/W
LOCATION:	Section 14, T.26 S., R.32 E., NMPM
COUNTY:	Lea County, New Mexico

COA

All previous COAs still apply expect the following:

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

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the **Delaware** formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM

B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **850** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - 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 **8 hours** 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.
2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:
 - Cement to surface. If cement does not circulate see B.1.a, c-d above
 - ❖ In Medium Cave/Karst Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

Operator shall filled 1/3rd of casing with fluid while running intermediate casing to maintain collapse safety factor.

3. The minimum required fill of cement behind the 7-5/8 inch intermediate liner is:
 - Cement should tie-back at least 100 feet into previous casing string. Operator shall provide method of verification.

Variance for an annular spacing between 7 5/8" and 5 1/2" casing is approved.

4. The minimum required fill of cement behind the 5-1/2 x 5 inch production casing is:
 - Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).
2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M) psi**.
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 9-5/8 intermediate casing shoe shall be **10,000 (10M) psi**.

ZS 061819

Delaware Basin Changes to APD/COA for Federal Well



Well Name:

SD 14 23 FED P18	14H	30-025-45823
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Rig: Nabors 1206

CVX CONTACT:

Jason Hannen
MCBU D&C Engineer – Nabors X30
Chevron North America Exploration and Production Co.
MidContinent Business Unit
Office: (713) 372-1169
Cell: (432) 238-3004
Email: Jason.Hannen@chevron.com

Summary of Changes to APD Submission

Chevron respectfully requests to update the original 9-point plan submitted for this well. The following changes were made to the 9-point plan:

- All four wells will be a 4 string design as outlined in the following table

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	850'	17-1/2"	13-3/8"	54.5 #	J55	BTC	New
Intermediate 1	0'	4900'	12-1/4"	9-5/8"	43.5#	L-80IC	LTC	New
Intermediate 2 (Liner)	4,400'	11,500'	8-1/2"	7-5/8"	29.7 #	L-80IC	W-513	New
Production	0'	11,000'	6-3/4"	5.5"	20#	P-110-ICY	TXP BTC	New
(Taper String)	11,000'	23,000'	6-3/4"	5"	18#	P-110 IC	W-521	New

- Casing design factors have been updated to reflect new casing design
- Annular clearance variance for the 5.5" production string in the 7-5/8" intermediate 2 liner. The crossover on the 5"x5.5" tapered production string will be located approximately 500' above the 7-5/8" shoe for all wells. Planned TOC will be above this crossover fulfilling BLM cementing requirement.
- Cement program updated to reflect changes in the casing design.
- Formations tops in the 9-point plan have been updated utilizing data from pilot holes Chevron has drilled in the area.

Please see attached, updated 9-point drilling plan.

1. FORMATION TOPS

The estimated tops of important geologic markers are as follows:

FORMATION	SUB-SEA TVD	KBTVD	MD
Rustler	2,530	700	700
Castile	492	2,738	2,749
Lamar	-1,344	4,574	4,607
Bell Canyon	-1,400	4,630	4,663
Cherry Canyon	-2,358	5,588	5,621
Brushy Canyon	-3,945	7,175	7,208
Bone Spring Limestone	-5,560	8,790	8,823
Upr. Avalon	-5,610	8,840	8,873
Top Bone Spring 1	-6,428	9,658	9,691
Top Bone Spring 2	-7,020	10,250	10,238
Top Bone Spring 3	-7,961	11,191	11,224
Wolfcamp	-8,700	11,930	11,964
Wolfcamp A2	-9,153	12,383	12,744
Lateral TD (Wolfcamp A2)	-9,153	12,383	23,000

2. ESTIMATED DEPTH OF WATER, OIL, GAS & OTHER MINERAL BEARING FORMATIONS

The estimated depths at which the top and bottom of the anticipated water, oil, gas, or other mineral bearing formations are expected to be encountered are as follows:

Substance	Formation	Depth
Deepest Expected Base of Fresh Water		700
Water	Rustler	700
Water	Bell Canyon	4,630
Water	Cherry Canyon	5,588
Oil/Gas	Brushy Canyon	7,175
Oil/Gas	Bone Spring Limestone	8,790
Oil/Gas	Upr. Avalon	8,840
Oil/Gas	Top Bone Spring 1	9,658
Oil/Gas	Top Bone Spring 2	10,250
Oil/Gas	Top Bone Spring 3	11,191
Oil/Gas	Wolfcamp	11,930
Oil/Gas	Wolfcamp A1	12,383

All shows of fresh water and minerals will be reported and protected.

3. BOP EQUIPMENT

Will have a minimum of a 10000 psi rig stack (see proposed schematic) for drill out below surface (Wolfcamp is not exposed until drillout of the intermediate 2 casing). Could possibly utilize the 5000 psi rig stack (see proposed schematic) for drill out below surface casing due to the availability of 10 M annular. (Wolfcamp is not exposed until drillout of the intermediate 2 casing) Stack will be tested as specified in the attached testing requirements. Batch drilling of the surface, intermediate 1 & intermediate 2, and production will take place. A full BOP test will be performed unless approval from BLM is received otherwise. Flex choke hose will be used for all wells on the pad (see attached specs) BOP test will be conducted by a third party.

Chevron requests a variance to use a FMC UH-S Multibowl wellhead, which will be run through the rig floor on surface casing. BOPE will be nipped up and tested after cementing surface casing. Subsequent tests will be performed as needed, not to exceed 30 days. The field report from FMC and BOP test information will be provided in a subsequent report at the end of the well. Please see the attached wellhead schematic. An installation manual has been placed on file with the BLM office and remains unchanged from previous submittal.

4. CASING PROGRAM

a. The proposed casing program will be as follows:

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	850'	17-1/2"	13-3/8"	54.5 #	J55	BTC	New
Intermediate 1	0'	4,900'	12-1/4"	9-5/8"	43.5#	L-80IC	LTC	New
Intermediate 2 (Liner)	4,600'	11,500'	8-1/2"	7-5/8"	29.7 #	L-80IC	W-513	New
Production	0'	4,500'	6-3/4"	5-1/2"	20#	P-110-ICY	TXP BTC	New
(Taper String)	4,500'	23,000'	6-3/4"	5"	18#	P-110 IC	W-521	New

b. Casing design subject to revision based on geologic conditions encountered.

c. ***A "Worst Case" casing design for wells in a particular area is used below to calculate the Casing Safety Factors. If for any reason the casing design for a particular well requires setting casing deeper than the following "worst case" design, then the Casing Safety Factors will be recalculated & sent to the BLM prior to drilling.

d. Chevron will fill casing at a minimum of every 20 jts (840') while running for intermediate and production casing in order to maintain collapse SF.

SF Calculations based on the following "Worst Case" casing design:

Surface Casing: 1,150' TVD
Intermediate 1 Casing: 5,132' TVD
Intermediate 2 Liner: 11,650' TVD
Production Casing: 23,000' MD/12,852' TVD (10,300' VS @ 90 deg inc)

4 String Design

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial
Surface	1.48	2.10	4.91	1.80
Intermediate 1	1.52	1.87	2.79	1.83
Intermediate 2 (Liner)	1.33	2.59	1.60	1.66
Production	1.10	1.39	1.61	1.32

Min SF is the smallest of a group of safety factors that include the following considerations:

	Surf	Int (1)	Int 2 (Liner)	Prod
Burst Design				
Pressure Test- Surface, Int 1, Int 2, Prod Csg P external: Mud weight above TOC, PP below P internal: Test psi + next section heaviest mud in csg	X	X	X	X
Displace to Gas- Surf Csg P external: Mud weight above TOC, PP below P internal: Field Gas from Next Csg Point	X			
Gas over mud (60/40 - Limit Frac at Shoe) - Int 1, Int 2 Csg P external: Mud weight above TOC, PP below P internal: 60% gas over 40% mud from hole TD PP		X	X	
Stimulation (Frac) Pressures- Prod Csg P external: Mud weight above TOC, PP below P internal: Max inj pressure w/ heaviest injected fluid				X
Tubing leak- Prod Csg (Packer @ KOP) P external: Mud weight above TOC, PP below P internal: Leak just below surf, 8.45 ppg packer fluid				X
Collapse Design				
Full Evacuation - Surface, Int 1, Int 2, Prod Csg P external: Water gradient in cement, mud above TOC P internal: none	X	X	X	X
Cementing- Surf, Int 1, Int 2, Prod Csg P external: Wet cement P internal: displacement fluid - water	X	X	X	X
Tension Design				
72k lb overpull			X	
100k lb overpull	X	X		X

5. CEMENTING PROGRAM

Slurry	Type	Top	Bottom	Weight	Yield	%Excess	Sacks	Water	Additives
Surface				(ppg)	(sx/cu ft)	Open Hole		gal/sk	
Tail	Class C	0'	850'	14.8	1.33	50	650	6.57	Extender Antifoam Retarder
Intermediate									
Lead	Class C	0'	4,600'	11.9	2.56	110	3704	14.69	Antifoam Extender Salt Retarder Viscosifier
Tail	Class C	4,600'	4,900'	14.8	1.335	110	576	6.29	Antifoam Retarder Viscosifier
Liner									
Lead	Class C	4,600'	11,150'	11.9	2.56	140	462	14.69	Antifoam Extender Salt Retarder Viscosifier
Tail	Class C	11,150'	11,500'	14.8	1.335	50	59	6.29	Antifoam Extender Salt Retarder Viscosifier
Production									
Lead	Class H	8,000'	21,500'	15.6	1.184	35	1558	5.18	Antifoam Dispersent Fluid Loss Retarder Viscosifier
Tail	Class H	21,500'	23,000'	16.0	1.903	20	110	7.45	Antifoam Dispersent Fluid Loss Retarder Viscosifier

1. Final cement volumes will be determined by caliper.
2. Surface casing shall have at least one centralizer installed on each of the bottom three joints starting with the shoe joint.
3. Production casing will have one solid body type centralizer on every joint from TD to KOP. Bowspring type centralizers will be run every other joint from KOP into intermediate casing 500' above planned TOC.

6. MUD PROGRAM

From	To	Type	Weight	F. Vis	Filtrate
0'	850'	Spud Mud	8.3-8.7	32 - 34	NC - NC
850'	4,900'	Brine	9.4-10.6	28 - 30	25-30
4,900'	11,500'	Cut Brine	8.8-10.0	70 - 75	25 - 30
11,500'	22,300'	Oil Based Mud	12.0-14.8	70 - 75	25 - 30

A closed system will be utilized consisting of above ground steel tanks. All wastes accumulated during drilling operations will be contained in a portable trash cage and removed from location and deposited in an approved sanitary landfill. Sanitary wastes will be contained in a chemical porta-toilet and then hauled to an approved sanitary landfill.

All fluids and cuttings will be disposed of in accordance with New Mexico Oil Conservation Division rules and regulations. And transporting of E&P waste will follow EPA regulations and accompanying manifests.

A mud test shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.

Visual mud monitoring equipment shall be in place to detect volume changes indicating loss or gain of circulating fluid volume. When abnormal pressures are anticipated -- a pit volume totalizer (PVT), stroke counter, and flow sensor will be used to detect volume changes indicating loss or gain of circulating fluid volume.

A weighting agent and lost circulating material (LCM) will be onsite to mitigate pressure or lost circulation as hole conditions dictate.

7. TESTING, LOGGING, AND CORING

The anticipated type and amount of testing, logging, and coring are as follows:

- Drill stem tests are not planned.
- The logging program will be as follows:

TYPE	Logs	Interval	Timing
Mudlogs	2 Man Mud Log	Surface casing shoe through prod hole TD	While drilling or circulating
LWD	MWD Gamma	Int. and Prod. Hole	While drilling

- Conventional whole core samples are not planned.
- A Directional Survey will be run.

8. ABNORMAL PRESSURES AND HYDROGEN SULFIDE

- No abnormal pressures or temperatures are expected. Estimated BHP at Int. 1 TD is:

2,361	psi
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No abnormal pressures or temperatures are expected. Estimated BHP at Int. 2 TD is:

5,359	psi
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No abnormal pressures or temperatures are expected. Estimated BHP at Prod. TD is:

9,382	psi
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- Hydrogen sulfide gas is not anticipated. An H2S Contingency plan is attached with this APD in the event that H2S is encountered

Chevron SD 14 23 FED P18 14H Rev0 kFc 06Jun19 Proposal Geodetic Report

(Def Plan)



Report Date: June 07, 2019 - 01:25 PM
 Client: Chevron
 Field: NM Lea County (NAD 27)
 Structure / Slot: Chevron SD 14 23 FED Pad 18 / 14H
 Well: SD 14 23 Fed P18 14H
 Borehole: SD 14 23 Fed P18 14H
 UWI / API#: Unknown / Unknown
 Survey Name: Chevron SD 14 23 FED P18 14H Rev0 kFc 06Jun19
 Survey Date: June 06, 2019
 Tort / AHD / DDI / ERD Ratio: 111.818 " / 11036.064 ft / 6.356 / 0.891
 Coordinate Reference System: NAD27 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 2' 56.14475", W 103° 38' 55.73888"
 Location Grid N/E Y/X: N 382198.000 ftUS, E 712088.000 ftUS
 CRS Grid Convergence Angle: 0.3632°
 Grid Scale Factor: 0.99996061
 Version / Patch: 2.10.760.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 179.730° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB = 31.5ft
 TVD Reference Elevation: 3229.500 ft above
 Seabed / Ground Elevation: 3198.000 ft above
 Magnetic Declination: 6.662°
 Total Gravity Field Strength: 998.4325mgm (9.80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 47710.176 nT
 Magnetic Dip Angle: 59.644°
 Declination Date: June 06, 2019
 Magnetic Declination Model: HDGM 2019
 North Reference: Grid North
 Grid Convergence Used: 0.3632°
 Total Corr Mag North->Grid: 6.2991°
 North: Well Head
 Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azlm Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ° '")	Longitude (E/W ° ° '")
Surface	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	382198.00	712088.00	N 32° 2' 56.14" W 103° 38' 55.74"	
	100.00	0.00	349.33	100.00	0.00	0.00	0.00	0.00	382198.00	712088.00	N 32° 2' 56.14" W 103° 38' 55.74"	
	200.00	0.00	349.33	200.00	0.00	0.00	0.00	0.00	382198.00	712088.00	N 32° 2' 56.14" W 103° 38' 55.74"	
	300.00	0.00	349.33	300.00	0.00	0.00	0.00	0.00	382198.00	712088.00	N 32° 2' 56.14" W 103° 38' 55.74"	
	400.00	0.00	349.33	400.00	0.00	0.00	0.00	0.00	382198.00	712088.00	N 32° 2' 56.14" W 103° 38' 55.74"	
	500.00	0.00	349.33	500.00	0.00	0.00	0.00	0.00	382198.00	712088.00	N 32° 2' 56.14" W 103° 38' 55.74"	
	600.00	0.00	349.33	600.00	0.00	0.00	0.00	0.00	382198.00	712088.00	N 32° 2' 56.14" W 103° 38' 55.74"	
Rustler	699.50	0.00	349.33	699.50	0.00	0.00	0.00	0.00	382198.00	712088.00	N 32° 2' 56.14" W 103° 38' 55.74"	
	700.00	0.00	349.33	700.00	0.00	0.00	0.00	0.00	382198.00	712088.00	N 32° 2' 56.14" W 103° 38' 55.74"	
	800.00	0.00	349.33	800.00	0.00	0.00	0.00	0.00	382198.00	712088.00	N 32° 2' 56.14" W 103° 38' 55.74"	
13 3/8" Casing	868.90	0.00	349.33	868.90	0.00	0.00	0.00	0.00	382198.00	712088.00	N 32° 2' 56.14" W 103° 38' 55.74"	
	900.00	0.00	349.33	900.00	0.00	0.00	0.00	0.00	382198.00	712088.00	N 32° 2' 56.14" W 103° 38' 55.74"	
	1000.00	0.00	349.33	1000.00	0.00	0.00	0.00	0.00	382198.00	712088.00	N 32° 2' 56.14" W 103° 38' 55.74"	
	1100.00	0.00	349.33	1100.00	0.00	0.00	0.00	0.00	382198.00	712088.00	N 32° 2' 56.14" W 103° 38' 55.74"	
	1200.00	0.00	349.33	1200.00	0.00	0.00	0.00	0.00	382198.00	712088.00	N 32° 2' 56.14" W 103° 38' 55.74"	
	1300.00	0.00	349.33	1300.00	0.00	0.00	0.00	0.00	382198.00	712088.00	N 32° 2' 56.14" W 103° 38' 55.74"	
	1400.00	0.00	349.33	1400.00	0.00	0.00	0.00	0.00	382198.00	712088.00	N 32° 2' 56.14" W 103° 38' 55.74"	
	1500.00	0.00	349.33	1500.00	0.00	0.00	0.00	0.00	382198.00	712088.00	N 32° 2' 56.14" W 103° 38' 55.74"	
Build 1.5"/100ft	1600.00	0.00	349.33	1600.00	0.00	0.00	0.00	0.00	382198.00	712088.00	N 32° 2' 56.14" W 103° 38' 55.74"	
	1700.00	1.50	349.33	1699.99	-1.29	1.29	-0.24	1.50	382199.29	712085.76	N 32° 2' 56.16" W 103° 38' 55.74"	
	1800.00	3.00	349.33	1799.91	-5.15	5.14	-0.67	1.50	382203.14	712085.03	N 32° 2' 56.20" W 103° 38' 55.75"	
	1900.00	4.50	349.33	1899.69	-11.58	11.57	-2.18	1.50	382209.57	712083.82	N 32° 2' 56.26" W 103° 38' 55.75"	
	2000.00	6.00	349.33	1899.27	-20.58	20.56	-3.87	1.50	382218.56	712082.13	N 32° 2' 56.35" W 103° 38' 55.75"	
	2100.00	7.50	349.33	2098.57	-32.14	32.11	-6.05	1.50	382230.11	712079.95	N 32° 2' 56.48" W 103° 38' 55.81"	
	2200.00	9.00	349.33	2197.54	-46.25	46.21	-8.71	1.50	382244.21	712077.29	N 32° 2' 56.60" W 103° 38' 55.84"	
Hold	2298.98	10.50	349.33	2296.07	-62.91	62.86	-11.84	1.50	382260.85	712074.16	N 32° 2' 56.77" W 103° 38' 55.87"	
	2300.00	10.50	349.33	2296.09	-62.91	62.86	-11.84	0.00	382260.85	712074.16	N 32° 2' 56.77" W 103° 38' 55.87"	
	2400.00	10.50	349.33	2394.41	-80.63	80.78	-15.22	0.00	382278.76	712070.78	N 32° 2' 56.94" W 103° 38' 55.91"	
	2500.00	10.50	349.33	2492.74	-98.76	98.87	-18.59	0.00	382296.67	712067.41	N 32° 2' 57.12" W 103° 38' 55.95"	
	2600.00	10.50	349.33	2591.07	-116.68	116.58	-21.86	0.00	382314.57	712064.04	N 32° 2' 57.30" W 103° 38' 55.99"	
	2700.00	10.50	349.33	2689.39	-134.61	134.49	-25.34	0.00	382332.46	712060.66	N 32° 2' 57.48" W 103° 38' 56.02"	
Castile	2748.93	10.50	349.33	2737.50	-143.37	143.25	-26.99	0.00	382341.24	712059.01	N 32° 2' 57.56" W 103° 38' 56.04"	
	2800.00	10.50	349.33	2787.72	-152.53	152.40	-28.71	0.00	382350.39	712057.29	N 32° 2' 57.65" W 103° 38' 56.06"	
	2900.00	10.50	349.33	2886.04	-170.45	170.30	-32.09	0.00	382368.30	712053.81	N 32° 2' 57.83" W 103° 38' 56.10"	
	3000.00	10.50	349.33	2984.37	-188.38	188.21	-35.48	0.00	382386.20	712050.54	N 32° 2' 58.01" W 103° 38' 56.14"	
	3100.00	10.50	349.33	3082.69	-206.30	206.12	-38.84	0.00	382404.11	712047.17	N 32° 2' 58.19" W 103° 38' 56.18"	
	3200.00	10.50	349.33	3181.02	-224.22	224.03	-42.21	0.00	382422.02	712043.79	N 32° 2' 58.36" W 103° 38' 56.21"	
	3300.00	10.50	349.33	3279.34	-242.15	241.93	-45.58	0.00	382439.92	712040.42	N 32° 2' 58.54" W 103° 38' 56.25"	
	3400.00	10.50	349.33	3377.67	-260.07	259.84	-48.98	0.00	382457.83	712037.04	N 32° 2' 58.72" W 103° 38' 56.29"	
	3500.00	10.50	349.33	3476.00	-277.99	277.75	-52.33	0.00	382475.74	712033.67	N 32° 2' 58.90" W 103° 38' 56.33"	
	3600.00	10.50	349.33	3574.32	-295.92	295.66	-55.71	0.00	382493.65	712030.30	N 32° 2' 59.07" W 103° 38' 56.37"	
	3700.00	10.50	349.33	3672.65	-313.84	313.57	-59.08	0.00	382511.55	712026.92	N 32° 2' 59.25" W 103° 38' 56.41"	
	3800.00	10.50	349.33	3770.97	-331.76	331.47	-62.45	0.00	382529.46	712023.55	N 32° 2' 59.43" W 103° 38' 56.44"	
Drop 1.5"/100ft	3857.93	10.50	349.33	3827.93	-342.15	341.85	-64.41	0.00	382539.83	712021.59	N 32° 2' 59.53" W 103° 38' 56.48"	
	3900.00	9.87	349.33	3869.34	-348.46	348.16	-65.79	1.50	382547.14	712020.22	N 32° 2' 59.60" W 103° 38' 56.48"	
	4000.00	8.37	349.33	3908.07	-355.05	354.73	-68.72	1.50	382562.72	712017.28	N 32° 2' 59.78" W 103° 38' 56.51"	
	4100.00	6.87	349.33	4067.19	-378.09	377.76	-71.17	1.50	382575.74	712014.83	N 32° 2' 59.99" W 103° 38' 56.54"	
	4200.00	5.37	349.33	4166.61	-388.57	388.23	-73.15	1.50	382586.22	712012.88	N 32° 2' 59.99" W 103° 38' 56.56"	
	4300.00	3.87	349.33	4266.29	-398.49	398.15	-74.64	1.50	382594.13	712011.38	N 32° 3' 0.07" W 103° 38' 56.56"	
	4400.00	2.37	349.33	4366.14	-401.84	401.49	-75.65	1.50	382599.46	712010.36	N 32° 3' 0.12" W 103° 38' 56.59"	
	4500.00	0.87	349.33	4466.09	-404.62	404.27	-76.17	1.50	382602.25	712009.83	N 32° 3' 0.15" W 103° 38' 56.60"	
Hold Vertical	4557.91	0.00	349.33	4524.00	-405.05	404.70	-76.25	1.50	382602.68	712009.75	N 32° 3' 0.15" W 103° 38' 56.60"	
	4600.00	0.00	349.33	4566.09	-405.05	404.70	-76.25	0.00	382602.68	712009.75	N 32° 3' 0.15" W 103° 38' 56.60"	
Lamar	4607.41	0.00	349.33	4573.50	-405.05	404.70	-76.25	0.00	382602.68	712009.75	N 32° 3' 0.15" W 103° 38' 56.60"	
Ball Canyon	4663.41	0.00	349.33	4629.50	-405.05	404.70	-76.25	0.00	382602.68	712009.75	N 32° 3' 0.15" W 103° 38' 56.60"	
	4700.00	0.00	349.33	4666.09	-405.05	404.70	-76.25	0.00	382602.68	712009.75	N 32° 3' 0.15" W 103° 38' 56.60"	
	4800.00	0.00	349.33	4766.09	-405.05	404.70	-76.25	0.00	382602.68	712009.75	N 32° 3' 0.15" W 103° 38' 56.60"	
	4900.00	0.00	349.33	4866.09	-405.05	404.70	-76.25	0.00	382602.68	712009.75	N 32° 3' 0.15" W 103° 38' 56.60"	
	5000.00	0.00	349.33	4966.09	-405.05	404.70	-76.25	0.00	382602.68	712009.75	N 32° 3' 0.15" W 103° 38' 56.60"	
	5100.00	0.00	349.33	5066.09	-405.05	404.70	-76.25	0.00	382602.68	712009.75	N 32° 3' 0.15" W 103° 38' 56.60"	
	5200.00	0.00	349.33	5166.09	-405.05	404.70	-76.25	0.00	382602.68	712009.75	N 32° 3' 0.15" W 103° 38' 56.60"	
	5300.00	0.00	349.33	5266.09	-405.05	404.70	-76.25	0.00	382602.68	712009.75	N 32° 3' 0.15" W 103° 38' 56.60"	
	5400.00	0.00	349.33	5366.09	-405.05	404.70	-76.25	0.00	382602.68	712009.75	N 32° 3' 0.15" W 103° 38' 56.60"	
	5500.00	0.00	349.33	5466.09	-405.05	404.70	-76.25	0.00	382602.68	712009.75	N 32° 3' 0.15" W 103° 38' 56.60"	
	5600.00	0.00	349.33	5566.09	-405.05	404.70	-76.25	0.00	382602.68	712009.75	N 32° 3' 0.15" W 103° 38' 56.60"	
Cherry Canyon	5621.41	0.00	349.33	5587.50	-405.05	404.70	-76.25	0.00	382602.68	712009.75	N 32° 3' 0.15" W 103° 38' 56.60"	
	5700.00	0.00	349.33	5666.09	-405.05	404.70	-76.25	0.00	382602.68	712009.75	N 32° 3' 0.15" W 103° 38' 56.60"	
	5800.00	0.00	349.33	5766.09	-405.05	404.70	-76.25	0.00	382602.68	712009.75	N 32° 3' 0.15" W 103° 38' 56.60"	
	5900.00	0.00	349.33	5866.09	-405.05	404.70	-76.25	0.00	382602.68	712009.75	N 32° 3' 0.15" W 103° 38' 56.60"	
	6000.00	0.00	349.33	5966.09	-405.05	404.70	-76.25	0.00	382602.68	712009.75	N 32° 3' 0.15" W 103° 38' 56.60"	
	6100.00	0.00	349.33	6066.09	-405.05							

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ft)	Easting (ft)	Latitude (N/S ° ° °)	Longitude (E/W ° ° °)
Brushy Canyon	7208.41	0.00	349.33	7174.50	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	7300.00	0.00	349.33	7266.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	7400.00	0.00	349.33	7366.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	7500.00	0.00	349.33	7466.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	7600.00	0.00	349.33	7566.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	7700.00	0.00	349.33	7666.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	7800.00	0.00	349.33	7766.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	7900.00	0.00	349.33	7866.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	8000.00	0.00	349.33	7966.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	8100.00	0.00	349.33	8066.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	8200.00	0.00	349.33	8166.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	8300.00	0.00	349.33	8266.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	8400.00	0.00	349.33	8366.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	8500.00	0.00	349.33	8466.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	8600.00	0.00	349.33	8566.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	8700.00	0.00	349.33	8666.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	8800.00	0.00	349.33	8766.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
Bone Spring	8823.41	0.00	349.33	8789.50	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
Upper Avalon	8873.41	0.00	349.33	8839.50	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	8900.00	0.00	349.33	8866.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	9000.00	0.00	349.33	8966.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	9100.00	0.00	349.33	9066.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	9200.00	0.00	349.33	9166.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	9300.00	0.00	349.33	9266.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	9400.00	0.00	349.33	9366.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	9500.00	0.00	349.33	9466.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	9600.00	0.00	349.33	9566.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
Top First Bone Spring	9691.41	0.00	349.33	9557.50	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	9700.00	0.00	349.33	9656.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	9800.00	0.00	349.33	9756.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	9900.00	0.00	349.33	9856.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	10000.00	0.00	349.33	9956.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
First Bone Spring Shale	10003.41	0.00	349.33	9989.50	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	10100.00	0.00	349.33	10086.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	10200.00	0.00	349.33	10186.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
Top Second Bone Spring	10283.41	0.00	349.33	10249.50	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	10300.00	0.00	349.33	10266.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	10400.00	0.00	349.33	10366.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	10500.00	0.00	349.33	10466.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	10600.00	0.00	349.33	10566.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	10700.00	0.00	349.33	10666.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	10800.00	0.00	349.33	10766.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
Second Bone Spring Third Carb	10833.41	0.00	349.33	10799.50	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	10900.00	0.00	349.33	10866.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
SBSG Third Carb base	10923.41	0.00	349.33	10889.50	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
Second Bone Spring Shale	10966.41	0.00	349.33	10932.50	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	11000.00	0.00	349.33	10966.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
Third Bone Spring First Carb	11069.41	0.00	349.33	11035.50	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	11100.00	0.00	349.33	11066.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
Third BSG 1 Carb base	11158.41	0.00	349.33	11124.50	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
7 5/8" Casing	11169.41	0.00	349.33	11135.50	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	11200.00	0.00	349.33	11166.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
Top Third Bone Spring	11224.41	0.00	349.33	11180.50	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	11300.00	0.00	349.33	11266.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	11400.00	0.00	349.33	11366.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	11500.00	0.00	349.33	11466.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	11600.00	0.00	349.33	11566.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	11700.00	0.00	349.33	11666.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	11800.00	0.00	349.33	11766.09	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
KOP, Build 10"/100ft	11843.51	0.00	349.33	11809.60	-405.05	404.70	-78.25	0.00	382602.68	712009.75	N 32 3 0.15	W 103 38 56.60
	11900.00	5.85	179.73	11866.09	-402.27	401.92	-78.24	10.00	382599.00	712009.77	N 32 3 0.13	W 103 38 56.60
Wolfcamp A	11964.30	12.08	179.73	11929.50	-392.37	392.01	-78.19	10.00	382590.00	712009.81	N 32 3 0.03	W 103 38 56.60
Wolfcamp A X Base	11993.10	14.96	179.73	11957.50	-385.84	385.28	-78.16	10.00	382583.27	712009.85	N 32 2 59.96	W 103 38 56.60
	12000.00	15.65	179.73	11984.15	-383.82	383.48	-78.15	10.00	382581.45	712009.85	N 32 2 59.94	W 103 38 56.60
Wolfcamp A Y	12055.19	21.17	179.73	12016.50	-388.39	388.04	-78.07	10.00	382564.02	712009.94	N 32 2 59.77	W 103 38 56.60
FTP Cross	12084.00	24.05	179.73	12043.09	-355.32	354.97	-78.01	10.00	382552.95	712009.99	N 32 2 59.66	W 103 38 56.60
	12100.00	25.65	179.73	12057.61	-348.60	348.24	-75.88	10.00	382546.23	712010.02	N 32 2 59.60	W 103 38 56.60
Wolfcamp A Y TGT 1	12140.54	29.70	179.73	12093.50	-329.77	329.42	-75.89	10.00	382527.41	712010.11	N 32 2 59.41	W 103 38 56.60
Wolfcamp A TGT	12195.05	35.15	179.73	12139.50	-300.55	300.19	-75.75	10.00	382498.18	712010.25	N 32 2 59.12	W 103 38 56.60
	12200.00	35.65	179.73	12143.53	-297.68	297.33	-75.74	10.00	382485.32	712010.26	N 32 2 59.09	W 103 38 56.60
	12300.00	45.65	179.73	12219.31	-232.62	232.27	-75.43	10.00	382430.26	712010.57	N 32 2 58.45	W 103 38 56.60
	12400.00	55.65	179.73	12282.63	-155.39	155.04	-75.08	10.00	382353.04	712010.64	N 32 2 57.68	W 103 38 56.60
	12500.00	65.65	179.73	12331.59	-68.34	67.89	-74.65	10.00	382265.99	712011.36	N 32 2 56.82	W 103 38 56.60
	12600.00	75.65	179.73	12384.68	25.89	-26.24	-74.20	10.00	382111.76	712011.81	N 32 2 55.89	W 103 38 56.60
	12700.00	85.65	179.73	12380.91	124.44	-124.78	-73.73	10.00	382073.22	712012.28	N 32 2 54.91	W 103 38 56.60
Landing Point	12744.49	90.10	179.73	12382.56	188.88	-169.23	-73.52	10.00	382028.78	712012.49	N 32 2 54.47	W 103 38 56.60
	12800.00	90.10										

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ft)	Easting (ft)	Latitude (N/S ° ° °)	Longitude (E/W ° ° °)
	16300.00	90.10	179.73	12376.48	3724.39	-3724.70	-56.58	0.00	378473.48	712029.43	N 32 2 19.28	W 103 38 56.87
	16400.00	90.10	179.73	12376.32	3824.39	-3824.70	-56.10	0.00	378373.48	712029.90	N 32 2 18.30	W 103 38 56.87
	16500.00	90.10	179.73	12376.15	3924.39	-3924.69	-55.62	0.00	378273.47	712030.38	N 32 2 17.31	W 103 38 56.88
	16600.00	90.10	179.73	12375.98	4024.39	-4024.68	-55.15	0.00	378173.47	712030.86	N 32 2 16.32	W 103 38 56.88
	16700.00	90.10	179.73	12375.81	4124.39	-4124.68	-54.67	0.00	378073.48	712031.33	N 32 2 15.33	W 103 38 56.88
	16800.00	90.10	179.73	12375.64	4224.39	-4224.68	-54.19	0.00	377973.48	712031.81	N 32 2 14.34	W 103 38 56.88
	16900.00	90.10	179.73	12375.47	4324.39	-4324.69	-53.72	0.00	377873.49	712032.28	N 32 2 13.35	W 103 38 56.88
	17000.00	90.10	179.73	12375.30	4424.39	-4424.69	-53.24	0.00	377773.50	712032.76	N 32 2 12.36	W 103 38 56.88
	17100.00	90.10	179.73	12375.13	4524.39	-4524.69	-52.76	0.00	377673.50	712033.24	N 32 2 11.37	W 103 38 56.89
	17200.00	90.10	179.73	12374.96	4624.39	-4624.69	-52.29	0.00	377573.51	712033.71	N 32 2 10.38	W 103 38 56.89
	17300.00	90.10	179.73	12374.79	4724.39	-4724.68	-51.81	0.00	377473.51	712034.19	N 32 2 9.39	W 103 38 56.89
	17400.00	90.10	179.73	12374.62	4824.39	-4824.68	-51.34	0.00	377373.52	712034.67	N 32 2 8.41	W 103 38 56.89
	17470.02	90.10	179.73	12374.50	4894.41	-4894.70	-51.00	0.00	377303.50	712035.00	N 32 2 7.71	W 103 38 56.89
	17478.29	89.91	179.73	12374.50	4903.67	-4903.97	-50.86	2.00	377264.23	712035.04	N 32 2 7.62	W 103 38 56.89
	17500.00	89.91	179.73	12374.53	4924.39	-4924.68	-50.86	0.00	377273.52	712035.14	N 32 2 7.42	W 103 38 56.89
	17600.00	89.91	179.73	12374.68	5024.39	-5024.68	-50.38	0.00	377173.53	712035.62	N 32 2 6.43	W 103 38 56.70
	17700.00	89.91	179.73	12374.84	5124.39	-5124.68	-49.91	0.00	377073.53	712036.10	N 32 2 5.44	W 103 38 56.70
	17800.00	89.91	179.73	12374.98	5224.39	-5224.68	-49.43	0.00	376973.54	712036.57	N 32 2 4.45	W 103 38 56.70
	17900.00	89.91	179.73	12375.14	5324.39	-5324.68	-48.95	0.00	376873.54	712037.05	N 32 2 3.46	W 103 38 56.70
	18000.00	89.91	179.73	12375.30	5424.39	-5424.68	-48.48	0.00	376773.55	712037.52	N 32 2 2.47	W 103 38 56.70
	18100.00	89.91	179.73	12375.45	5524.39	-5524.67	-48.00	0.00	376673.55	712038.00	N 32 2 1.48	W 103 38 56.70
	18200.00	89.91	179.73	12375.60	5624.39	-5624.67	-47.53	0.00	376573.56	712038.48	N 32 2 0.49	W 103 38 56.71
	18300.00	89.91	179.73	12375.75	5724.39	-5724.67	-47.05	0.00	376473.57	712038.95	N 32 1 59.50	W 103 38 56.71
	18400.00	89.91	179.73	12375.91	5824.39	-5824.67	-46.57	0.00	376373.57	712039.43	N 32 1 58.51	W 103 38 56.71
	18500.00	89.91	179.73	12376.06	5924.39	-5924.67	-46.10	0.00	376273.58	712039.90	N 32 1 57.52	W 103 38 56.71
	18600.00	89.91	179.73	12376.21	6024.39	-6024.67	-55.62	0.00	376173.58	712040.38	N 32 1 56.53	W 103 38 56.71
	18700.00	89.91	179.73	12376.37	6124.39	-6124.67	-45.14	0.00	376073.59	712040.86	N 32 1 55.54	W 103 38 56.72
	18800.00	89.91	179.73	12376.52	6224.39	-6224.67	-44.67	0.00	375973.59	712041.33	N 32 1 54.55	W 103 38 56.72
	18900.00	89.91	179.73	12376.67	6324.39	-6324.66	-44.19	0.00	375873.60	712041.81	N 32 1 53.56	W 103 38 56.72
	19000.00	89.91	179.73	12376.83	6424.39	-6424.66	-43.72	0.00	375773.60	712042.29	N 32 1 52.57	W 103 38 56.72
	19100.00	89.91	179.73	12376.98	6524.39	-6524.66	-43.24	0.00	375673.61	712042.76	N 32 1 51.58	W 103 38 56.72
	19200.00	89.91	179.73	12377.13	6624.39	-6624.66	-42.76	0.00	375573.61	712043.24	N 32 1 50.59	W 103 38 56.72
	19300.00	89.91	179.73	12377.28	6724.39	-6724.66	-42.29	0.00	375473.62	712043.71	N 32 1 49.60	W 103 38 56.73
	19400.00	89.91	179.73	12377.44	6824.39	-6824.66	-41.81	0.00	375373.62	712044.19	N 32 1 48.61	W 103 38 56.73
	19500.00	89.91	179.73	12377.59	6924.39	-6924.66	-41.33	0.00	375273.63	712044.67	N 32 1 47.62	W 103 38 56.73
	19600.00	89.91	179.73	12377.74	7024.39	-7024.66	-40.86	0.00	375173.64	712045.14	N 32 1 46.63	W 103 38 56.73
	19700.00	89.91	179.73	12377.90	7124.39	-7124.65	-40.38	0.00	375073.64	712045.62	N 32 1 45.64	W 103 38 56.73
	19800.00	89.91	179.73	12378.05	7224.39	-7224.65	-39.91	0.00	374973.65	712046.10	N 32 1 44.66	W 103 38 56.74
	19900.00	89.91	179.73	12378.20	7324.39	-7324.65	-39.43	0.00	374873.65	712046.57	N 32 1 43.67	W 103 38 56.74
	20000.00	89.91	179.73	12378.35	7424.39	-7424.65	-38.95	0.00	374773.66	712047.05	N 32 1 42.68	W 103 38 56.74
	20094.91	89.91	179.73	12378.50	7519.30	-7519.56	-38.50	0.00	374678.75	712047.50	N 32 1 41.74	W 103 38 56.74
	20100.00	90.01	179.73	12378.50	7524.38	-7524.65	-38.48	2.00	374673.66	712047.52	N 32 1 41.69	W 103 38 56.74
	20121.71	90.45	179.73	12378.42	7546.09	-7546.38	-38.37	2.00	374651.95	712047.63	N 32 1 41.47	W 103 38 56.74
	20200.00	90.45	179.73	12377.80	7624.38	-7624.65	-38.00	0.00	374573.67	712048.00	N 32 1 40.70	W 103 38 56.74
	20300.00	90.45	179.73	12377.02	7724.38	-7724.64	-37.53	0.00	374473.68	712048.48	N 32 1 39.71	W 103 38 56.74
	20400.00	90.45	179.73	12376.24	7824.38	-7824.64	-37.05	0.00	374373.69	712048.95	N 32 1 38.72	W 103 38 56.75
	20500.00	90.45	179.73	12375.46	7924.37	-7924.63	-36.57	0.00	374273.70	712049.43	N 32 1 37.73	W 103 38 56.75
	20600.00	90.45	179.73	12374.67	8024.37	-8024.63	-36.10	0.00	374173.70	712049.90	N 32 1 36.74	W 103 38 56.75
	20700.00	90.45	179.73	12373.89	8124.37	-8124.62	-35.62	0.00	374073.71	712050.38	N 32 1 35.75	W 103 38 56.75
	20800.00	90.45	179.73	12373.11	8224.36	-8224.62	-35.15	0.00	373973.72	712050.86	N 32 1 34.76	W 103 38 56.75
	20900.00	90.45	179.73	12372.33	8324.36	-8324.62	-34.67	0.00	373873.73	712051.33	N 32 1 33.77	W 103 38 56.76
	21000.00	90.45	179.73	12371.54	8424.38	-8424.61	-34.19	0.00	373773.74	712051.81	N 32 1 32.78	W 103 38 56.76
	21100.00	90.45	179.73	12370.76	8524.35	-8524.61	-33.72	0.00	373673.75	712052.28	N 32 1 31.79	W 103 38 56.76
	21200.00	90.45	179.73	12369.98	8624.35	-8624.60	-33.24	0.00	373573.75	712052.76	N 32 1 30.80	W 103 38 56.76
	21300.00	90.45	179.73	12369.20	8724.35	-8724.60	-32.77	0.00	373473.76	712053.24	N 32 1 29.81	W 103 38 56.76
	21400.00	90.45	179.73	12368.41	8824.34	-8824.59	-32.29	0.00	373373.77	712053.71	N 32 1 28.82	W 103 38 56.76
	21500.00	90.45	179.73	12367.63	8924.34	-8924.59	-31.81	0.00	373273.78	712054.19	N 32 1 27.83	W 103 38 56.77
	21600.00	90.45	179.73	12366.85	9024.34	-9024.59	-31.34	0.00	373173.79	712054.68	N 32 1 26.84	W 103 38 56.77
	21700.00	90.45	179.73	12366.07	9124.34	-9124.58	-30.86	0.00	373073.80	712055.14	N 32 1 25.85	W 103 38 56.77
	21800.00	90.45	179.73	12365.28	9224.33	-9224.58	-30.39	0.00	372973.80	712055.62	N 32 1 24.86	W 103 38 56.77
	21900.00	90.45	179.73	12364.50	9324.33	-9324.57	-29.91	0.00	372873.81	712056.09	N 32 1 23.87	W 103 38 56.77
	22000.00	90.45	179.73	12363.72	9424.33	-9424.57	-29.43	0.00	372773.82	712056.57	N 32 1 22.89	W 103 38 56.78
	22100.00	90.45	179.73	12362.94	9524.32	-9524.57	-28.96	0.00	372673.83	712057.04	N 32 1 21.90	W 103 38 56.78
	22200.00	90.45	179.73	12362.15	9624.32	-9624.56	-28.48	0.00	372573.84	712057.52	N 32 1 20.91	W 103 38 56.78
	22300.00	90.45	179.73	12361.37	9724.32	-9724.56	-28.01	0.00	372473.85	712058.00	N 32 1 19.92	W 103 38 56.78
	22400.00	90.45	179.73	12360.59	9824.31	-9824.55	-27.53	0.00	372373.85	712058.47	N 32 1 18.93	W 103 38 56.78
	22500.00	90.45	179.73	12359.81	9924.31	-9924.55	-27.05	0.00	372273.86	712058.95	N 32 1 17.94	W 103 38 56.78
	22600.00	90.45	179.73	12359.02	10024.31	-10024.54	-26.58	0.00	372173.87	712059.42	N 32 1 16.95	W 103 38 56.79
	22700.00	90.45	179.73	12358.24	10124.31	-10124.54	-26.10	0.00	372073.88	712059.90	N 32 1 15.96	W 103 38 56.79
	22719.88	90.45	179.73	12358.09	10144.18	-10144.40	-26.01	0.00	372059.02	712059.99	N 32 1 15.76	W 103 38 56.79
	22794.89	90.45	179.73	12357.50	10219.19	-10219.42	-25.85	0.00	371979.00	712060.35	N 32 1 15.02	W 103 38 56.79

Survey Type: Def Plan

Survey Error Model: ISCWSA Rev 3 *** 3-D 97.071% Confidence 3.0000 sigma
Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	31.500	1/100.000	30.000	30.000		B001Ma_MWD+HDGM-Depth Only	SD 14 23 Fed P18 14H / Chevron SD 14 23 Fed P18 14H Rev0 kFc 06Jun19
	1	31.500	22794.886	1/100.000	30.000	30.000		B001Ma_MWD+HDGM	SD 14 23 Fed P18 14H / Chevron SD 14 23 Fed P18 14H Rev0 kFc

...SD 14 23 Fed P18 14H\SD 14 23 Fed P18 14H\Chevron SD 14 23 FED P18 14H Rev0 kFc 06Jun19