ONSHORE ORDER NO. 1 Chevron SD EA 18/19 Fed Com P13 11H Lea County, NM

#### 1. FORMATION TOPS

The estimated tops of important geologic markers are as follows:

FORMATION	SUB-SEA TVD	KBTVD	MD
Rustler		800	
Castile		3480	
Lamar		4900	
Bell Canyon		4930	
Cherry Canyon		5970	
Brushy Canyon		7620	
Bone Spring Limestone		9090	
Upr. Avalon		9120	
Top Bone Spring 1		10040	
Top Bone Spring 2		10700	
Top Bone Spring 3		11740	к.
Wolfcamp		12140	
Wolfcamp A1		· 12193	
Wolfcamp A2		12,523	
Lateral TD (Wolfcamp A2)		12,523	23000

#### 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	800
Water	Bell Canyon	4930
Water	Cherry Canyon	5970
Oil/Gas	Brushy Canyon	7620
Oil/Gas	Bone Spring Limestone	9090
Oil/Gas	Upr. Avalon	9120
Oil/Gas	Top Bone Spring 1	10040
Oil/Gas	Top Bone Spring 2	10700
Oil/Gas	Top Bone Spring 3	11740
Oil/Gas	Wolfcamp	12140
Oil/Gas	Wolfcamp A1	12193
Oil/Gas	Wolfcamp A2	12,523

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 intermediate casing (Wolfcamp is not exposed until drillout of the intermediate casing). Stack will be tested as specified in the attached testing requirements. Batch drilling of the surface, intermediate, and production will take place. A full BOP test will be performed unless approval from BLM

Chevron requests a variance to use a FMC UH2 Multibowl wellhead, which will be run through the rig foor on surface casing. BOPE will be nippled 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. ONSHORE ORDER NO. 1 Chevron SD EA 18/19 Fed Com P13 11H Lea County, NM

### 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'	800'	17-1/2"	13-3/8"	55 #	J55	STC	New
Intermediate	0'	11,500'	12-1/4"	9-5/8"	43.5#	HCK-L80	LTC	New
Liner	10,850'	12,300'	8-1/2"	7-5/8"	29.7 #	HCP-110	H513	New
Production	0'	12,500'	6-3/4"	5.5"	20#	P-110-ICY	TXP BTC	New
(Taper String)	12,500'	23,000'	6-3/4"	5"	18#	P-110 IC	TSH521	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 recalcuated & 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:	850'			
Intermediate Casing:	11,200' TVI	C		
Production Casing:	23,000' MD	/12,750' TVD (10,300' VS	@ 90 deg inc)	
Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial
Surface	1.36	3.12	3.17	1.70
Intermediate	1.12	1.44	1.93	1.37
Liner	1.69	5.36	2.50	2.09
Production	1.11	1.23	1.97	1.37

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

		Surf	Int	Liner	Prod
Burst Design					
Pressure Test- Surfac	e, Int, Prod Csg	X	X	X	X
P external:	Water				
P internal:	Test psi + next section heaviest mud in csg				
Displace to Gas- Surf	Csg	Х			
P external:	Water				
P internal:	Dry Gas from Next Csg Point				· · · · · · · · · · · · · · · · · · ·
Frac at Shoe, Gas to	Surf- Int Csg		X	X	
P external:	Water				
P internal:	Dry Gas, 16 ppg Frac Gradient				
Stimulation (Frac) Pre	ssures- Prod Csg		1		X
P external:	Water				
P internal:	Max inj pressure w/ heaviest injected fluid				
Tubing leak- Prod Csg	g (packer at KOP)				X
P external:	Water				
P internal:	Leak just below surf, 8.7 ppg packer fluid				
Collapse Design					
Full Evacuation		X	X	X	X
P external:	Water gradient in cement, mud above TOC				
P internal:	none				
Cementing- Surf, Int, I	Prod Csg	X	X	X	X
P external:	Wet cement				
P internal:	water				
Tension Design					
100k lb overpull		X	X	X	X

### 5. CEMENTING PROGRAM

Slurry	Туре	Тор	Bottom	Weight	Yield	%Excess	Sacks	Water
Surface				(ppg)	(sx/cu ft)	Open Hole		gal/sk
Tail	Class C	0'	800'	14.8	1.33	50	650	6.57
Intermediate							·	
Stage 2 Lead	Class C	0'	4570	11.9	2.39	100	1070	13.46
Stage 2 Tail	Class C	4570	4870	14.8	1.33	25	<u>89</u>	<u>6.35</u>
Stage 1 Lead	50:50 Poz Class C	4,870'	10,650'	11.9	2.21	25	1024	12.18
Stage 1 Tail	Class H	10,650'	11,150'	15.6	1.22	25	184	5.37
Liner								
Tail	Class H	10,850'	12,300'	15.6	1.22	17	123	5.34
Production								
Tail	Acid Soluble	10,350'	23,000'	15.6	1.2	17	1362	5.05

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 horizontal type centralizer on every joint for the first 1000' from TD, then every other joint to EOB, and then every third joint to KOP. Bowspring type centralizers will be run from KOP to intermediate casing.

ONSHORE ORDER NO. 1 Chevron SD EA 18/19 Fed Com P13 11H Lea County, NM

#### 6. MUD PROGRAM

From	То	Туре	Weight	F. Vis	Filtrate
0'	800'	Spud Mud	8.3 - 8.7	32 - 34	NC - NC
800'	11,150'	Oil Based Mud	8.7-9.2	28 - 30	25-30
11,150'	12,300'	Oil Based Mud	9.5-13.5	70 - 75	25 - 30
12,300'	23,000'	Oil Based Mud	12.0-15.0	70 - 75	25 - 30

A closed system will by 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.

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:

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

TYPE	Logs	Interval	Timing	Vendor
Mudlogs	2 man mudlog	Int Csg to TD	Drillout of Int Csg	TBD
LWD	MWD Gamma	Int. and Prod. Hole	While Drilling	TBD

c. Conventional whole core samples are not planned.

d. A Directional Survey will be run.

#### 8. ABNORMAL PRESSURES AND HYDROGEN SULFIDE

a. No abnormal pressures or temperatures are expected. Estimated BHP is: 7050 psi

b. Hydrogen sulfide gas is not anticipated. An H2S Contingency plan is attached with this APD in the event that H2S is encountered



Diagram B



Diagram D



Diagram C

		BLOWOUT	PREVENTOR SCHEMATIC
		Mi	inimum Requirements
0	PERATION :	Wolfcamp A Well	S
Minin	num System	· · · · · · · · · · · · · · · · · · ·	
Press	sure Rating	10,000 psi	
	·		
ei.	TE PRESSIRE	DESCRIPTION	
A	N/A	Bell Nipple	
B 13	5/8" 10,000 psi	Annular	
C 13	5/8- 10.000 psi	Pipe Ram	Flowline to Shaker
D 13	5/8" 10,000 psi	Blind Ram	Fill Up Line
E 13	5/8" 10,000 psi	Mud Cross	
F			m
DSA	As require	d for each hole size	
	Kill L	ine	Cro to D
SIZE	PRESSURE	DESCRIPTION	C C C
2"	10,000 psi i	Gate Valve	
2"	10,000 psi	Gate Valve	Der o vol
	10,000 psi	Check Valve	CCCC D
			Choke Line to Choke Manifold
			Mil Line- 2 minimum
	Choke	Line	
3"	10.000 psi	Gate Valve	
3"	10,000 psi	HCRValve	
	Installation	1 Checklist	
	The following it	em must be verified and	d checked off prior to pressure testing of BOP equipment.
		P equipment meets at l	east the minimum requirements (rating, type, size, configuration) as shown on
<b></b>	The installed BO		botistical for any inclust any income set of the higher program Additional
	The installed BO this schematic. components may	Components may be su be put into place as lo	ng as they meet or exceed the minimum pressure rating of the system.
	The installed BO this schematic. components may	Components may be su to be put into place as lo	ng as they meet or exceed the minimum pressure rating of the system.
	The installed BO this schematic. components may All valves on the	Components may be su / be put into place as lo kill line and choke line	will be full opening and will allow straight though flow.
	The installed BO this schematic. components may All valves on the The kill line and and will be anch	Components may be su y be put into place as lo kill line and choke line choke line will be straig pred to prevent whip an	will be full opening and will allow straight though flow. ght unless turns use tee blocks or are targeted with running tess, d reduce vibration.
	The installed BO this schematic. components may All valves on the The kill line and and will be anch	Components may be su y be put into place as lo kill line and choke line choke line will be straig ored to prevent whip an	will be full opening and will allow straight though flow. ght unless turns use tee blocks or are targeted with running tess, d reduce vibration.
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	The installed BO this schematic. components may All valves on the The kill line and and will be anch Manual (hand wh installed on all m A valve will be in This yalve will	Components may be su y be put into place as lo kill line and choke line choke line will be straig ored to prevent whip an reels) or automatic lock ianual valves on the cho istalled in the closing lin main open unless accu	will be full opening and will allow straight though flow. ght unless turns use tee blocks or are targeted with running tess, ing devices will be installed on all ram preventers. Hand wheels will also be oke line and kill line. ne as close as possible to the annular preventer to act as a locking device. mulater is inoperative.
	The installed BO this schematic. components may All valves on the The kill line and and will be anch Manual (hand whi installed on ail m A valve will be in This valve will be in this valve will be in	Components may be su y be put into place as lo kill line and choke line choke line will be straig ored to prevent whip an neels) or automatic lock banual valves on the cho stalled in the closing line main open unless accu	will be full opening and will allow straight though flow. will be full opening and will allow straight though flow. ght unless turns use tee blocks or are targeted with running tess, ing devices will be installed on all ram preventers. Hand wheels will also be oke line and kill line. he as close as possible to the annular preventer to act as a locking device. mulator is inoperative.
	The installed BO this schematic. components may All valves on the The kill line and and will be anch Manual (hand wh installed on all m A valve will be in This valve will be in This valve will re Upper kelly cock connections in u	Components may be su y be put into place as lo kill line and choke line choke line will be straig ored to prevent whip an meels) or automatic lock annual valves on the cho istalled in the closing li main open unless accu valve with handle will so.	will be full opening and will allow straight though flow. ght unless turns use tee blocks or are targeted with running tess, ing devices will be installed on all ram preventers. Hand wheels will also be oke line and kill line. ne as close as possible to the annular preventer to act as a locking device. mulator is inoperative. be available on rig floor along with safety valve and subs to fit all drill string
	The installed BO this schematic. components may All valves on the The kill line and and will be anch Manual (hand wh installed on all m A valve will be in This valve will be in This valve will be in Connections in u	Components may be su y be put into place as lo kill line and choke line choke line will be straig ored to prevent whip an ueels) or automatic lock hanual valves on the cho- istalled in the closing lin- main open unless accu valve with handle will i se.	will be full opening and will allow straight though flow. ght unless turns use tee blocks or are targeted with running tess, id reduce vibration. Sing devices will be installed on all ram preventers. Hand wheels will also be oke line and kill line. ne as close as possible to the annular preventer to act as a locking device. mulator is inoperative. be available on rig floor along with safety valve and subs to fit all drill string the information below and agail to Superinterdent and Poilling Forigreen
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After Ir	The installed BO this schematic. components may All valves on the The kill line and and will be anch Manual (hand whi installed on all m A valve will be in This valve will be in This valve will be Upper kelly cock connections in u Installation Check We	Components may be su y be put into place as lo kill line and choke line choke line will be straig ored to prevent whip an ieels) or automatic lock hanual valves on the cho istalled in the closing line main open unless accu valve with handle will be so, list is complete, fill out liname:	will be full opening and will allow straight though flow. will be full opening and will allow straight though flow. ght unless turns use tee blocks or are targeted with running tess, ind reduce vibration. ing devices will be installed on all ram preventers. Hand wheels will also be oke line and kill line. ne as close as possible to the annular preventer to act as a locking device. mulator is inoperative. be available on rig floor along with safety valve and subs to fit all drill string the information below and email to Superintendent and Drilling Engineer
After Ir	The installed BO this schematic. components may All valves on the The kill line and and will be anch Manual (hand wh installed on ail m A valve will be in This valve will be in	Components may be su y be put into place as lo kill line and choke line choke line will be straig ored to prevent whip an necls) or automatic lock hanual valves on the chi- istalled in the closing lin- main open unless accu valve with handle will be so. list is complete, fill out liname: ntative:	will be full opening and will allow straight though flow. ght unless turns use tee blocks or are targeted with running tess, and reduce vibration. Sing devices will be installed on all ram preventers. Hand wheels will also be oke line and kill line. The as close as possible to the annular preventer to act as a locking device. mulator is inoperative. be available on rig floor along with safety valve and subs to fit all drill string the information below and email to Superintendent and Drilling Engineer

Diagram A

**Tenaris** 

# Casing and Tubing Performance Data

		PIPE	BODY DATA		
		GI	EOMETRI		
Outside Diameter	9.625 in	Wall Thickness	0.435 in	API Drift Diameter	8.599 in
Nominal Weight	43.50 lbs/ft	Nominal ID	8.755 in	Alternative Drift Diameter	8.625 in
Plain End Weight	42.73 lbs/ft	Nominal cross section	12.559 in		
		PER	FORMANCI		-
Steel Grade	L80	80 Minimum Yield		Minimum Ultimate	95,000 psi
Tension Yield	1,005,000 in	Internal Pressure Yield	6,330 psi	Collapse Pressure	3,810 psi
Available Seamless	Yes	Available Welded	No		
		CONNE		ΓA	
TYPE: LTC		G	EOMETRI		
Coupling Reg OD	10.625 in	Threads per in	8	Thread turns make up	3.5
		PER	FORMANCI		
Steel Grade	L80	Coupling Min Yield	80,000 psi	Coupling Min Ultimate	95,000 psi
Joint Strength	813,000 lbs			Internal Pressure Resistance	6,330 psi

## **FMSS**

U.S. Department of the Interior BUREAU OF LAND MANAGEMENT Drilling Plan Data Report

10/16/2017

APD ID: 10400014980

Operator Name: CHEVRON USA INCORPORATED

Submission Date: 06/22/2017

Highlighted data reflects the most recent changes

Show Final Text

Well Name: SD EA 18 19 FED COM P13

Well Number: 11H Well Work Type: Drill

Well Type: OIL WELL

### **Section 1 - Geologic Formations**

Formation			True Vertical	Measured			Producing
ID	Formation Name	Elevation	Depth	Depth	Lithologies	Mineral Resources	Formation
1	RUSTLER	3222	800	800	ANHYDRITE	NONE	No
2	CASTILE	-258	3480	3480	SHALE,DOLOMITE	NONE	No
3	LAMAR	-1678	4900	4900	LIMESTONE	NONE	No
4	BELL CANYON	-1708	4930	4930	SANDSTONE	NONE	No
5	CHERRY CANYON	-2748	5970	5970	SANDSTONE	NONE	No
6	BRUSHY CANYON	-4398	7620	7620	SANDSTONE	NONE	No
7	BONE SPRING LIME	-5868	9090	9090	LIMESTONE	NONE	No
8	UPPER AVALON SHALE	-5898	9120	9120	SHALE	NONE	No
9	BONE SPRING 1ST	-6818	10040	10040	LIMESTONE	NONE	No
10	BONE SPRING 2ND	-7478	10700	10700	LIMESTONE	NONE	No
11	BONE SPRING 3RD	-8518	11740	11740	LIMESTONE	NONE	No
12	WOLFCAMP	-8918	12140	23000	SHALE	OIL	Yes

### **Section 2 - Blowout Prevention**

Pressure Rating (PSI): 10M

Rating Depth: 12523

**Equipment:** MINIMUM OF 10000 PSI RIG STACK (SEE PROPOSED SCHEMATIC FOR DRILL OUT BELOW SURF CASING) WOLFCAMP IS NOT EXPOSED UNTIL DRILLOUT OF THE INTER CSG. COULD POSSIBLY USE 5000 PSI RIG STACK FOR DRILL OUT BELOW SURF CSG DUE TO AVAILABILITY OF 10M ANNULAR. BATCH DRILLING OF SURF, INTER, & PROD WILL TAKE PLACE.

Requesting Variance? YES

**Variance request:** FMC UH2 MULTIBOWL WELLHEAD, WHICH WILL BE RUN THROUGH THE RIG FLOOR ON SURFACE CASING. BOP WILL BE NU & TESTED AFTER CEMENTING SURF CSG. SUBSEQUENT TESTS WILL BE PERFORMED AS NEEDED, NOT TO EXCEED 30 DAYS. A FULL BOP TEST WILL BE PERFORMED UNLESS

Well Name: SD EA 18 19 FED COM P13

Well Number: 11H

APPROVAL FROM BLM IS RECVD OTHERWISE. FLEX CHOKE HOSE WILL BE USED FOR ALL WELLS ON THE PAD.

**Testing Procedure:** STACK WILL BE TESTED AS SPECIFIED IN THE ATTACHED TESTING REQUIREMENTS, UPON NU AND NOT TO EXCEED 30 DAYS. BOPE WILL BE NIPPLED UP & TESTED AFTER CEMENTING SURFACE CSG. SUBSEQUENT TESTS WILL BE PERFORMED AS NEEDED. BOP TEST WILL BE CONDUCTED BY A 3RD PARTY.

#### **Choke Diagram Attachment:**

10M\_BOP\_Choke\_Schematics\_BLM\_20170906141954.pdf

Choke\_hose\_Spec\_X30\_20170906142021.pdf

1684\_001\_20170906142031.pdf

#### **BOP Diagram Attachment:**

UH 2 10K 20170906142047.pdf

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	800	0	<b>-8</b> 00 ´	-9278	-8478	800	J-55	55	STC	3.12	1.36	DRY	3.17 ·	DRY	1.7
2	INTERMED IATE	12.2 5	9.625	NEW	API	N	0	11500	0	- 11500	-9278	2222	11500	HCL -80	43.5	LTC	1.44	1.12	DRY	1.93	DRY	1.37
3	LINER	8.5	7.625	NEW	API	N	10850	12300	10850	- 12300			1450	HCP -110	29.7	OTHER - H513	5.36	1.69	DRY	2.5	DRY	2.09
4	PRODUCTI ON	6.75	5.5	NEW	API	N	0	12500	0	- 12500	- 21778	13722	12500	<b>Р-</b> 110	20	OTHER - TXP BTC	1.23	1,11	BUOY	1.97	DRY	1.37
5	OTHER	6.75	5.0	NEW	API	Y	12500	23000	12500	12750			10500	P- 110	18	OTHER - TSH521	1.23	1.11	DRY	1.97	DRY	1.37

### **Section 3 - Casing**

#### **Casing Attachments**

### Operator Name: CHEVRON USA INCORPORATED Well Name: SD EA 18 19 FED COM P13

Well Number: 11H

### **Casing Attachments**

Casing ID: 1 String Type: SURFACE Inspection Document:

Spec Document:

**Tapered String Spec:** 

### Casing Design Assumptions and Worksheet(s):

SD\_EA\_1819\_FED\_COM\_P13\_11H\_9\_PT\_PLAN\_20170906142222.pdf

Casing ID: 2 String Type: INTERMEDIATE

**Inspection Document:** 

Spec Document:

**Tapered String Spec:** 

Casing Design Assumptions and Worksheet(s):

SD\_\_EA\_1819\_FED\_COM\_P13\_11H\_9\_PT\_PLAN\_20170906142252.pdf

9.625\_43.5lb\_L80IC\_LTC\_20170906142311.pdf

Casing ID: 3 String Type:LINER

**Inspection Document:** 

**Spec Document:** 

**Tapered String Spec:** 

Casing Design Assumptions and Worksheet(s):

SD\_EA\_1819\_FED\_COM\_P13\_11H\_9\_PT\_PLAN\_20170906142419.pdf

Well Name: SD EA 18 19 FED COM P13

Well Number: 11H

#### **Casing Attachments**

Casing ID: 4 String Type: PRODUCTION

**Inspection Document:** 

### Spec Document:

**Tapered String Spec:** 

SPECIAL\_CASING\_06-22-2017.pdf SPECIAL\_CSG\_1\_06-22-2017.pdf TENARIS\_SPEC\_CSG\_06-22-2017.pdf

Casing Design Assumptions and Worksheet(s):

SD\_EA\_1819\_FED\_COM\_P13\_11H\_9\_PT\_PLAN\_20170906142619.pdf

Casing ID: 5

String Type: OTHER

- TAPER STRING

**Spec Document:** 

### **Tapered String Spec:**

**Inspection Document:** 

5\_\_\_\_18\_P110\_ICY\_90\_RBW\_TXP\_20170906142912.PDF

5\_\_\_\_18\_P110\_IC\_521\_20170906142852.pdf

5\_\_\_\_18\_P110\_ICY\_90\_RBW\_521\_20170906142903.pdf

SD\_EA\_1819\_P13\_11H\_9\_PT\_PLAN\_08-09-2017.pdf

Casing Design Assumptions and Worksheet(s):

SD\_\_EA\_1819\_FED\_COM\_P13\_11H\_9\_PT\_PLAN\_20170906142719.pdf

Section															
String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives				
SURFACE	Lead		0	800	650	1.33	14.8	6.57	50	CLASS C	NONE				

### Section 4 - Cement

### **Operator Name:** CHEVRON USA INCORPORATED **Well Name:** SD EA 18 19 FED COM P13

#### Well Number: 11H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
INTERMEDIATE	Lead	4570	0	4570	1070	2.39	11.9	13.46	100	CLASS C	NONE
INTERMEDIATE	Tail		4570	4870	89	1.33	14.8	6.35	25	CLASS C	NONE
INTERMEDIATE	Lead		4870	1065 0	1024	2.21	11.9	12.18	25	50:50 POZ CLASS C	NONE
INTERMEDIATE	Tail		1065 0	1115 0	184	1.22	15.6	5.37	25	CLASS H	NONE
LINER	Lead		1085 0	1230 0	123	1.22	15.6	5.34	17	CLASS H	NONE

OTHER	Lead	1035	2300	1300	1.2	15.6	5.05	10	ACID SOLUBLE	NONE
		0	0							

PRODUCTION	Lead	1035	2300	1300	1.2	15.6	5.05	10	ACID SOLUBLE	NONE	
		 0	0								

### Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

**Describe what will be on location to control well or mitigate other conditions:** IN COMPLIANCE WITH ONSHORE ORDER #2

**Describe the mud monitoring system utilized:** VISUAL MUD MONITORING EQPT, PVT, STROKE COUNTER, FLOW SENSOR IN COMPLIANCE WITH ONSHORE ORDER #2

**Circulating Medium Table** 

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Well Name: SD EA 18 19 FED COM P13

### Well Number: 11H

Top Depth	Bottom Depth	Mud Type	Min Weight (Ibs/gal)	Max Weight (Ibs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	Н	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	800	SPUD MUD	8.3	8.7							
1115 0	1230 0	OIL-BASED MUD	9.5	13.5							
800	1115 0	OIL-BASED MUD	8.7	9.2							
1230 0	2300 0	OIL-BASED MUD	12	15							

### Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures: DRILL STEM TESTS NOT PLANNED

List of open and cased hole logs run in the well: MWD

Coring operation description for the well:

CONVENTIONAL WHOLE CORE SAMPLES ARE NOT PLANNED, DIRECTIONAL SURVEY TO BE RUN

### Section 7 - Pressure

Anticipated Bottom Hole Pressure: 9830

Anticipated Surface Pressure: 7080

Anticipated Bottom Hole Temperature(F): 160

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

 ${\tt SD\_EA\_18\_19\_Fed\_Com\_P13\_9H\_H2S\_06-22-2017.pdf}$ 

Well Name: SD EA 18 19 FED COM P13 Well Number: 11H

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### **Section 8 - Other Information**

Proposed horizontal/directional/multi-lateral plan submission:

SD EA 18 19 Fed Com P13 11H Plot 06-22-2017 pdf

SD\_EA\_18\_19\_Fed\_Com\_P13\_11H\_Direc\_Surv\_06-22-2017.pdf.

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Other proposed operations facets description:

Other proposed operations facets attachment:

Gas\_Capture\_Plan\_Form\_Pad\_13\_20170906143444.pdf

Other Variance attachment: