

Form 3160-3  
(June 2015)FORM APPROVED  
OMB No. 1004-0137  
Expires: January 31, 2018UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
**APPLICATION FOR PERMIT TO DRILL OR REENTER**

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER			5. Lease Serial No. <b>NMNM12833</b>
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other			6. If Indian, Allottee or Tribe Name
1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input type="checkbox"/> Single Zone <input checked="" type="checkbox"/> Multiple Zone			7. If Unit or CA Agreement, Name and No.
2. Name of Operator <b>SILVERBACK OPERATING II LLC</b>			8. Lease Name and Well No. <b>ARROW ARW FEDERAL COM</b> <b>205H</b>
3a. Address <b>19707 IH 10 WEST SUITE 201, SAN ANTONIO, TX 78251</b>		3b. Phone No. (include area code) <b>(303) 585-3316</b>	9. API Well No. <b>30-015-55354</b>
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface <b>SENE / 2530 FNL / 275 FEL / LAT 32.675885 / LONG -104.464912</b> At proposed prod. zone <b>SENE / 1963 FNL / 100 FEL / LAT 32.677014 / LONG -104.447387</b>			10. Field and Pool, or Exploratory <b>N SEVEN RIVERS/GLORIETA-YESO</b>
14. Distance in miles and direction from nearest town or post office* <b>11 miles</b>			11. Sec., T. R. M. or Blk. and Survey or Area <b>SEC 10/T19S/R25E/NMP</b>
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) <b>110 feet</b>		16. No of acres in lease	12. County or Parish <b>EDDY</b>
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. <b>20 feet</b>		17. Spacing Unit dedicated to this well <b>480.0</b>	13. State <b>NM</b>
19. Proposed Depth <b>3707 feet / 9014 feet</b>		20. BLM/BIA Bond No. in file <b>FED: NMB002001</b>	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) <b>3465 feet</b>		22. Approximate date work will start* <b>06/01/2024</b>	23. Estimated duration <b>30 days</b>
24. Attachments			

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

- |                                                                                                                                                |                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| 1. Well plat certified by a registered surveyor.                                                                                               | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan.                                                                                                                            | 5. Operator certification.                                                                      |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be requested by the BLM.            |

25. Signature (Electronic Submission)	Name (Printed/Typed) <b>BRIAN WOOD / Ph: (303) 585-3316</b>	Date <b>01/31/2024</b>
Title <b>Permitting Agent</b>		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) <b>CODY LAYTON / Ph: (575) 234-5959</b>	Date <b>07/23/2024</b>
Title <b>Assistant Field Manager Lands &amp; Minerals</b>		
Office <b>Carlsbad Field Office</b>		

Application approval 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.  
Conditions of approval, if any, are attached.

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.

(Continued on page 2)

\*(Instructions on page 2)



Approval Date: 07/23/2024

**District I**  
1625 N. French Dr., Hobbs, NM 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720  
**District II**  
811 S. First St., Artesia, NM 88210  
Phone: (575) 748-1283 Fax: (575) 748-9720  
**District III**  
1000 Rio Brazos Road, Aztec, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170  
**District IV**  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy, Minerals & Natural Resources Department  
**OIL CONSERVATION DIVISION**  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102  
Revised August 1, 2011  
Submit one copy to appropriate  
District Office  
☐ AMENDED REPORT

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

<sup>1</sup> API Number <b>30-015- 55354</b>	<sup>2</sup> Pool Code <b>97565</b>	<sup>3</sup> Pool Name <b>N. SEVEN RIVERS; GLORIETA-YESO</b>
<sup>4</sup> Property Code <b>331814</b>	<sup>5</sup> Property Name <b>ARROW ARW FEDERAL COM</b>	
<sup>7</sup> OGRID No. <b>330968</b>	<sup>8</sup> Operator Name <b>SILVERBACK OPERATING II, LLC.</b>	<sup>6</sup> Well Number <b>205H</b>
		<sup>9</sup> Elevation <b>3,465'</b>

<sup>10</sup> Surface Location

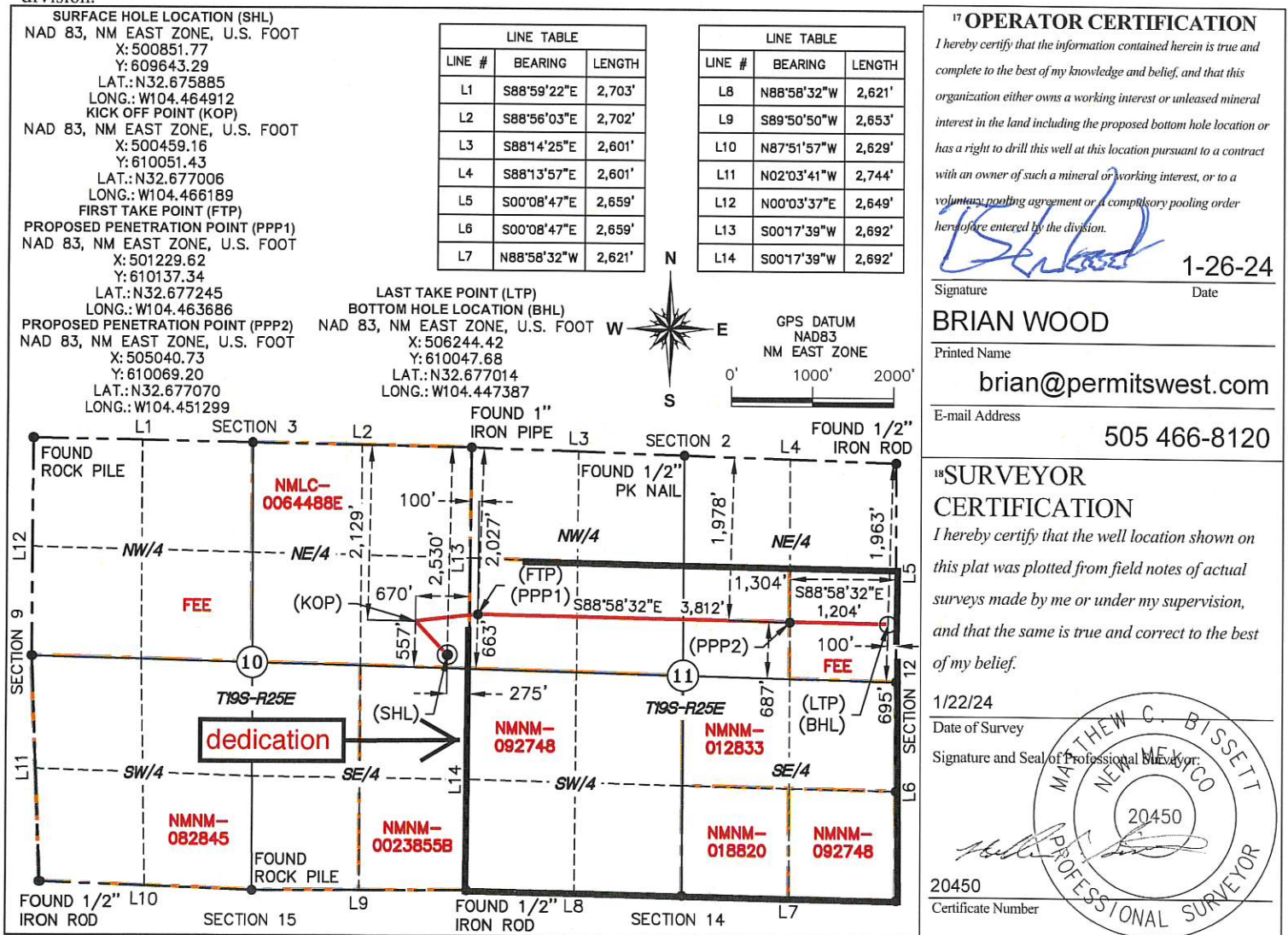
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	10	19-S	25-E		2,530'	NORTH	275'	EAST	EDDY

<sup>11</sup> Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	11	19-S	25-E		1,963'	NORTH	100'	EAST	EDDY

<sup>12</sup> Dedicated Acres	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.
<b>480.00</b>		<b>C</b>	<b>NSP</b>

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



State of New Mexico  
Energy, Minerals and Natural Resources Department  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Submit Electronically  
Via E-permitting

## NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

### Section 1 – Plan Description

Effective May 25, 2021

**I. Operator:** Silverback Operating II, LLC. **OGRID:** 330968 **Date:**      /      / 2024

**II. Type:** ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: \_\_\_\_\_

**III. Well(s):** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
See attached						

**IV. Central Delivery Point Name:** Arrow ARW Federal Com CTB [See 19.15.27.9(D)(1) NMAC]

**V. Anticipated Schedule:** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
See attached						

**VI. Separation Equipment:** ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

**VII. Operational Practices:** ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

**VIII. Best Management Practices:** ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.



## **Section 2 – Enhanced Plan**

### **EFFECTIVE APRIL 1, 2022**

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☐ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

#### **IX. Anticipated Natural Gas Production:**

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF
See attached			

#### **X. Natural Gas Gathering System (NGGS):**

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in
See attached				

**XI. Map.** ☒ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

**XII. Line Capacity.** The natural gas gathering system ☒ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

**XIII. Line Pressure.** Operator ☒ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

**XIV. Confidentiality:** ☒ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

### **Section 3 - Certifications**

**Effective May 25, 2021**

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system.

*If Operator checks this box, Operator will select one of the following:*

**Well Shut-In.** ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

**Venting and Flaring Plan.** ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- (a) power generation on lease;
- (b) power generation for grid;
- (c) compression on lease;
- (d) liquids removal on lease;
- (e) reinjection for underground storage;
- (f) reinjection for temporary storage;
- (g) reinjection for enhanced oil recovery;
- (h) fuel cell production; and
- (i) other alternative beneficial uses approved by the division.

### **Section 4 - Notices**

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature: *Fatma Abdallah*

Printed Name: Fatma Abdallah

Title: Regulatory Manager

E-mail Address: fabdallah@silverbackexp.com

Date:

Phone: 210-585-3316

**OIL CONSERVATION DIVISION**  
**(Only applicable when submitted as a standalone form)**

Approved By:

Title:

Approval Date:

Conditions of Approval:

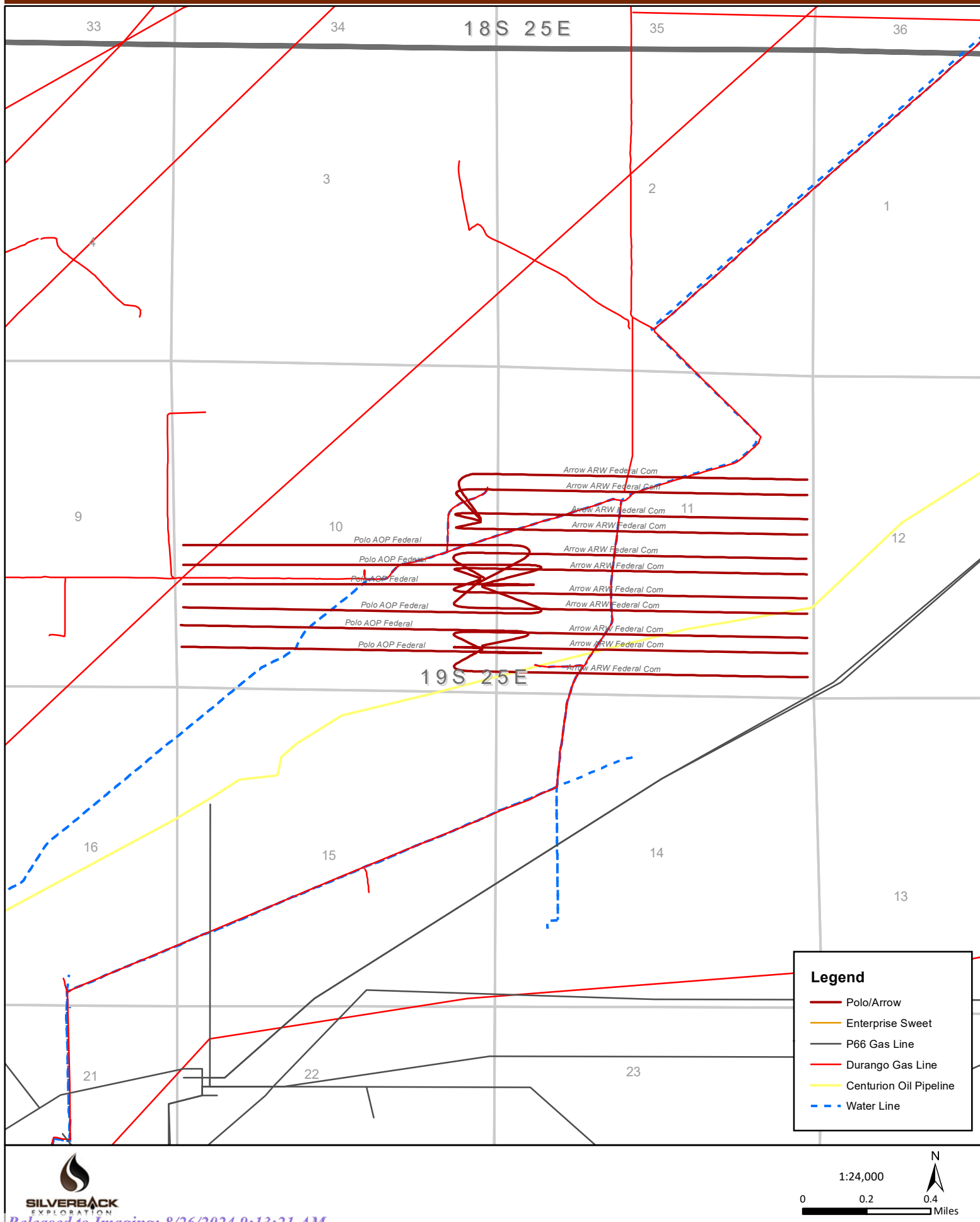
Well Name		API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D


		Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

X. Natural Gas Gathering System (NGGS):

Operator	System	ULSTR of Tie-in	Available Maximum Daily Capacity of System Segment Tie-in

# Silverback Exploration: Polo/Arrow





## Separation Equipment

Silverback Operating II (LLC) has sampled existing producing wells and performed laboratory testing to determine composition. Performance of existing producing wells was analyzed to predict expected production volumes including a low probably, high volume production case (approximately 75% higher than type curve or most likely amount of production). Production composition and the volumes were utilized as inputs to a process model which predicts relative amounts of gas, oil and water throughout the process. The high volume case was used to size equipment, piping and instrumentation. Equipment sizing is based on drop settlement and limits the amount of carry over to the gas phase.

Each well has a dedicated 3 phase separator and gas from that separator is taken directly to gas sales. Facility piping and pipeline were sized to allow peak volumes to flow with minimal pressure loss and deliver to midstream gatherer at an acceptable pressure. Water is conveyed directly to tankage.

Oil from 3 phase separators is comingled and conveyed to a heated separator for enhanced liquid-liquid separation and degassing. Vapors from the heater treater are routed to flare. Oil and water storage tanks vapor outlets are common and utilize a closed vent vapor system to ensure all working & breathing and flashing losses are routed to the flare which is sized to accommodate peak expected production volume. Flash volumes were estimated using the high volume case and process modeling software.

## Operational Practices

Silverback Operating II, LLC will ensure pipeline connectivity before producing hydrocarbons and will operate a closed vent vapor capture system that is designed to capture all associated and evolved gas during normal operation. Venting will only occur during maintenance activities or equipment failure or upset. Silverback may utilize the following from list A-I of Section 3 for its operations to minimize flaring:

- Power generation on lease – Natural gas driven gen set to produce power required to run supply well pad electrical loads
- Compression on lease – gas lift or gas compression as required
- Liquids removal on lease – gas pressure will be used to convey fluids as needed

## **Best Management Practices**

Silverback utilizes automate engineering controls included in facility design to minimize venting and flaring. Additionally, operational best practices support minimization of flare and venting as described below.

If the main gas outlet becomes unavailable and pressure increases on the outlet sales line, produced gas will be routed directly to the facility flare. The facility control system will alert personnel to the need for maintenance and appropriate response to the temporary flaring event.

The facility design includes a closed vent vapor capture system to route flash or evolved from the heater treater and tanks to the flare.

For maintenance activities, Silverback will utilize the facility flare to blowdown equipment and piping whenever practical to minimize venting

Silverback Operating II, LLC  
Arrow ARW Federal Com 205H  
SHL: 2530' FNL & 275' FEL 10-19S-25E  
BHL: 1963' FNL & 100' FEL 11-19S-25E  
Eddy County, NM

## DRILL PLAN PAGE 1

Drilling Program1. ESTIMATED TOPS

Formation/Lithology	TVD	MD	Contains
Quaternary caliche	000'	000'	water
San Andres dolomite	1017'	1024'	hydrocarbons
Glorieta dolomite	2581'	2662'	hydrocarbons
(KOP	2598'	2680'	hydrocarbons)
Paddock member of the Yeso dolomite	2903'	2995'	hydrocarbons
Blinebry member of the Yeso dolomite	3188'	3334'	hydrocarbons
TD	3707'	9014'	hydrocarbons

2. NOTABLE ZONES

Yeso Blinebry is the goal. Closest water well (RA 04208) is 0.85 mile north. Water bearing strata were found from 80' to 90' in the 110' deep well.

3. PRESSURE CONTROL

A 5000-psi 5000' rated BOP stack consisting of annular preventer and double (blind and pipe) ram will be used below surface casing to TD. See attached BOP and choke manifold diagram.

A third-party testing company will conduct pressure tests and record the results before drilling out below casing shoes. The BOP, choke, choke manifold, top drive valves, and floor safety valve will be tested to 3500 psi before drilling below the surface casing shoe. The annular preventer will be tested to 3500 psi before drilling below the surface casing shoe.

Silverback Operating II, LLC  
 Arrow ARW Federal Com 205H  
 SHL: 2530' FNL & 275' FEL 10-19S-25E  
 BHL: 1963' FNL & 100' FEL 11-19S-25E  
 Eddy County, NM

## DRILL PLAN PAGE 2

BOP equipment will be tested after any repairs to the equipment as well as drilling out below any casing string. Pipe rams, blind rams, and annular preventer will be activated on each trip. Weekly BOP drills will be held with each crew.

Floor safety valves that are full open and sized to fit the drill pipe and collars will be available on the rig floor in the open position when the Kelly is not in use.

A variance is requested to the requirement of a rigid steel line connecting to the choke manifold. Flex hose specifications are attached.

### 4. CASING & CEMENT

All casing will be API and new.

Hole O. D.	Set MD	Set TVD	Casing O. D.	Weight (lb/ft)	Grade	Joint	Collapse	Burst	Tension
12.25"	0' - 1250'	0' - 1224'	Surface 9.625"	36	J-55	BTC	3.26	2.24	14.97
8.75"	0' - 3872'	0' - 3448'	Product. 7"	32	L-80	HC PIXS	6.361	2.144	10.904
	3872' - 9014'	3448' - 3707'	Product. 5.5"	20	L-80	HC PIXS	8.95	2.64	100.00

Silverback Operating II, LLC  
 Arrow ARW Federal Com 205H  
 SHL: 2530' FNL & 275' FEL 10-19S-25E  
 BHL: 1963' FNL & 100' FEL 11-19S-25E  
 Eddy County, NM

## DRILL PLAN PAGE 3

Casing Name	Type	Sacks	Yield	Cu. Ft.	Weight	Blend
Surface	Lead	259	2.30	595	12.5	Class C + 5% salt + 2% extender + 3 pps coal seal + 5 pps pumice + 1/8 pps cello-flake
	Tail	84	1.34	112	14.8	Class C + 2% CaCl <sub>2</sub>
TOC = GL		>20% Excess			11 bow spring centralizers	
Production Top	Lead GL – 1773'	142	2.81	399	11.5	50% Class B poz + 50% Class C + 10% gel + 5% salt + 0.5% SMS + 0.4% FR-5 + 0.1% SA-1+ 3 pps gilsonite + 0.25 pps pol-e-flake + 0.005 GPS No Foam V1A
	Tail 1773' – 3872'	329	1.15	378	14.8	Class C + CFL-316 + 0.05% C-37 + 0.005 GPS No Foam V1A
TOC = GL		>20%			13 bow spring + 50 double bow	
Production Bottom	Tail 3872' – 9014'	1355	1.15	1558	14.8	50% Class B poz + 50% Class C + 0.1% FR-5 + 0.4% CFL-316 + 0.05% C-37 + 0.005 GPS No Foam V1A
TOC = 3872'		20% excess			123 solid bodies	

5. MUD PROGRAM

An electronic/mechanical mud monitor with a minimum pit volume totalizer, stroke counter, and flow sensor will be used. All necessary mud products (e. g., LCM) to handle any abnormal hole condition that may be encountered while drilling this well will be on site. A closed loop system will be used.

Type	Interval (MD)	lb/gal	Viscosity	Fluid Loss
fresh water	0' - 1250'	8.4 – 9.5	32 - 34	NC
cut brine	1250' - 1773'	8.9 – 9.1	32 - 34	NC
cut brine	1773' - 9014'	8.9 - 9.1	32 - 34	NC



Silverback Operating II, LLC  
Arrow ARW Federal Com 205H  
SHL: 2530' FNL & 275' FEL 10-19S-25E  
BHL: 1963' FNL & 100' FEL 11-19S-25E  
Eddy County, NM

DRILL PLAN PAGE 4

6. CORES, TESTS, & LOGS

No core or drill stem test is planned.

Mud loggers will collect samples from base of surface casing to TD. GR and SP/CNL logs will be run from 1250' to 2853'. CBL will be run from 1250' to TD.

7. DOWN HOLE CONDITIONS

No abnormal pressure or temperature is expected. Maximum expected bottom hole pressure is 1800 psi. Expected bottom hole temperature is 90° F.

A Hydrogen Sulfide Drilling Operation Plan is attached.

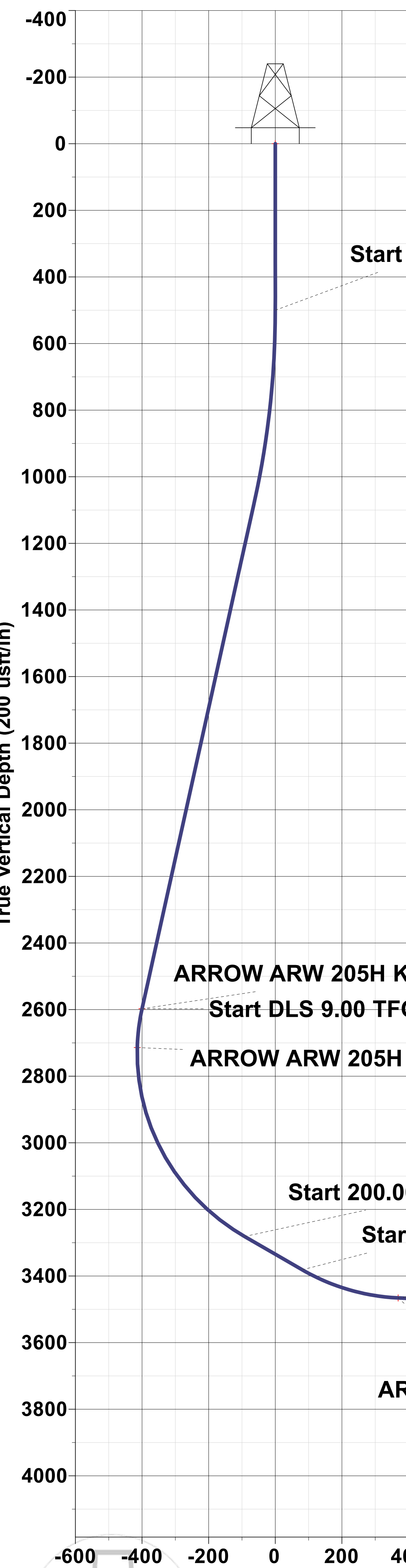
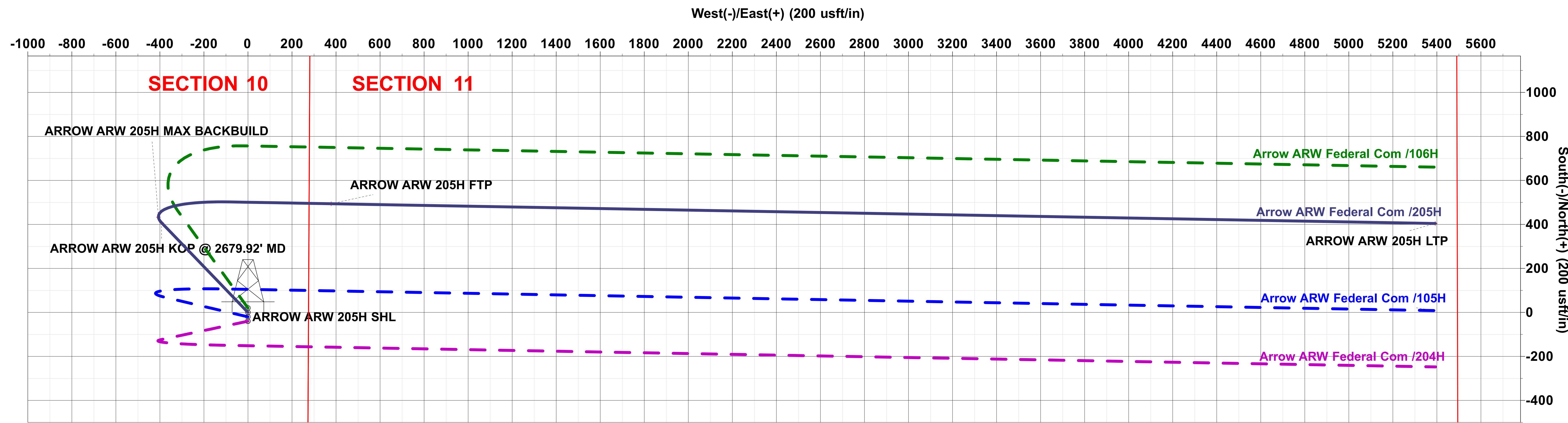
8. OTHER INFORMATION

Anticipated spud date is upon approval. It is expected it will take ≈1 month to drill and complete the well.





Project: EDDY COUNTY, NM (NAD 83 - NME)  
Site: Arrow ARW Federal Com  
Well: 205H  
Wellbore: OH  
Design: Plan 2r0



WELL DETAILS: 205H

Rig Name:	TBD	RKB = 20' @ 3485.00usft (TBD)			
	Ground Level:	3465.00			
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	609643.29	500851.77	32.6758853	-104.4649118

uild 3.00

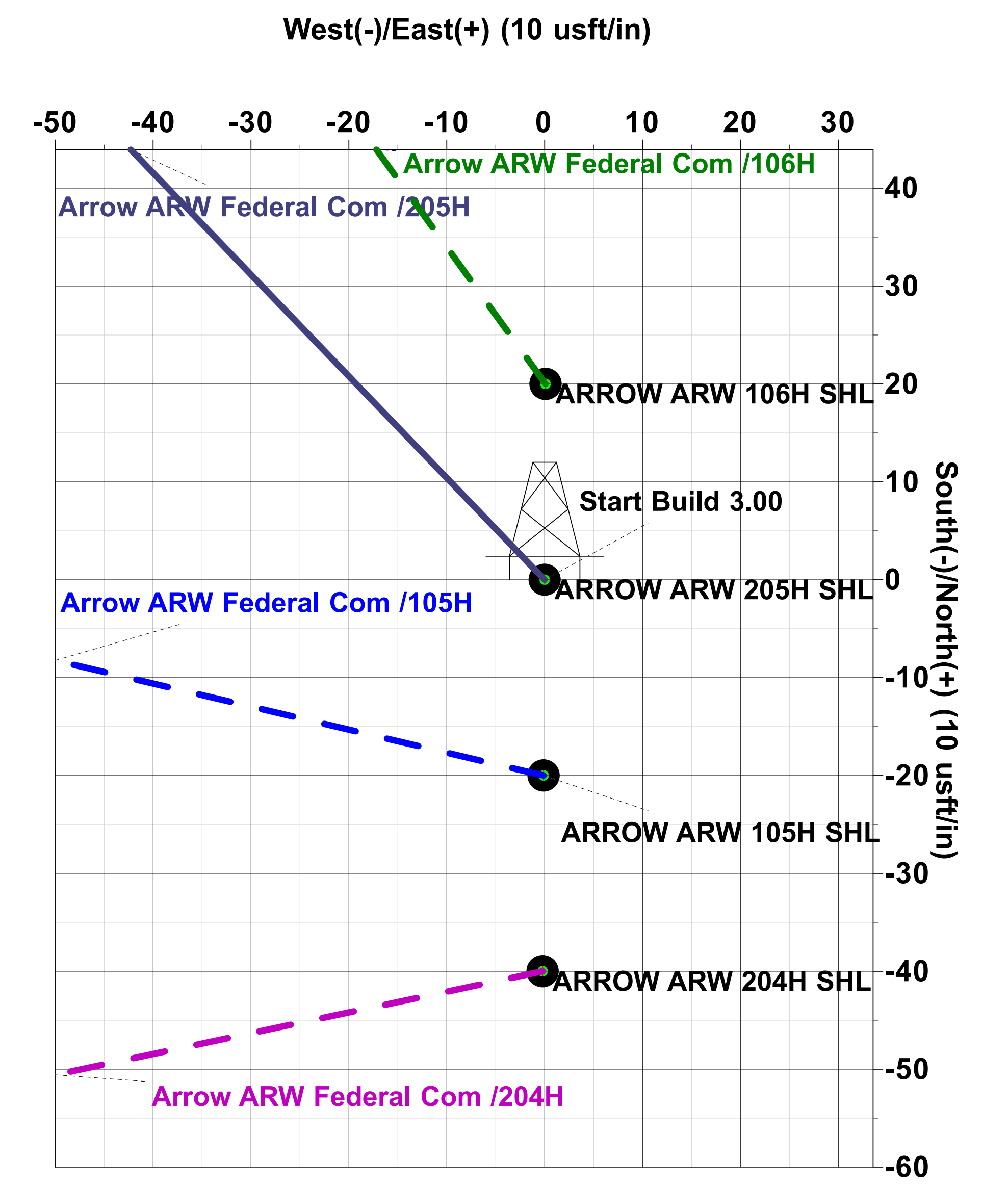
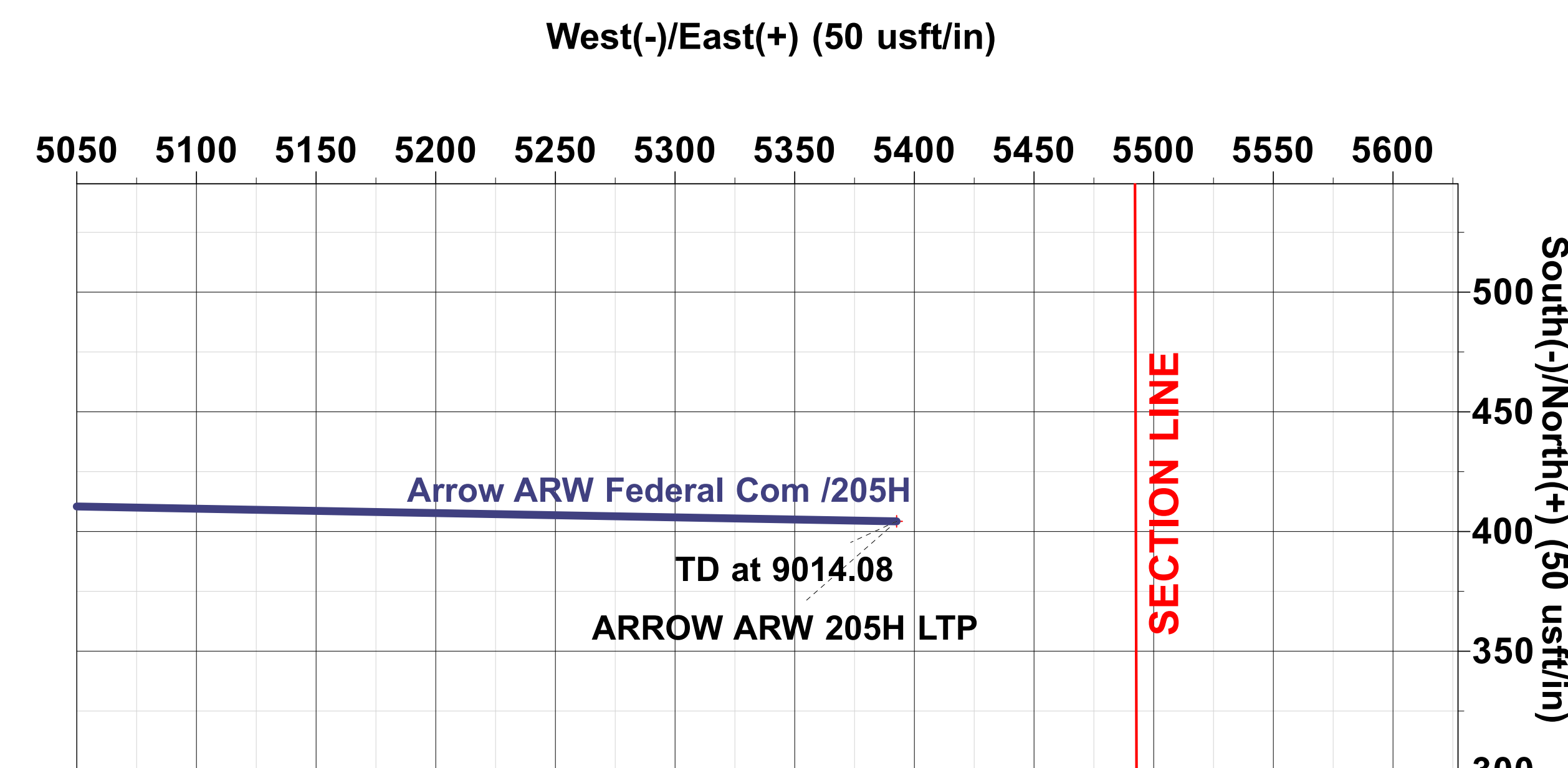
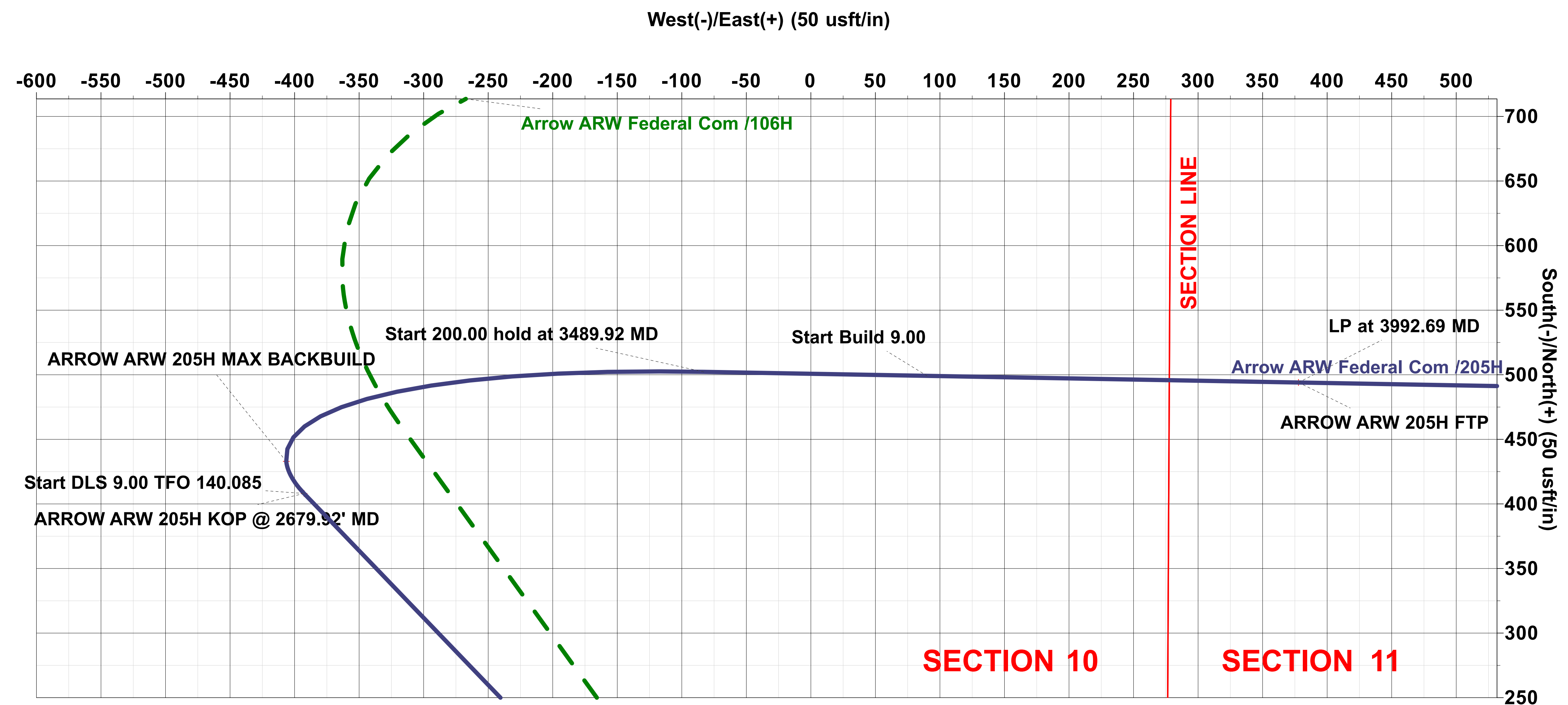
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	
3	1080.61	17.42	316.11	1071.71	63.12	-60.71	3.00	-61.84	
4	2679.92	17.42	316.11	2597.68	408.14	-392.61	0.00	-399.88	
5	3489.92	60.00	91.03	3281.44	502.30	-83.04	9.00	-92.05	
6	3689.92	60.00	91.03	3381.44	499.20	90.14	0.00	81.15	
7	3992.69	87.25	91.03	3466.00	494.05	377.85	9.00	368.91	ARROW ARW 205H FTP
8	9014.08	87.25	91.03	3707.00	404.29	5392.65	0.00	5384.51	ARROW ARW 205H LTP

DESIGN TARGET DETAILS									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude		
ARROW ARW 205H SHL	0.00	0.00	0.00	609643.29	500851.77	32.6758853	-104.4649118		
ARROW ARW 205H KOP @ 2679.92' MD	2597.68	408.14	-392.61	610051.43	500459.16	32.6770058	-104.4661894		
ARROW ARW 205H MAX BACKBUILD	2714.17	432.96	-406.43	610076.25	500445.34	32.6770740	-104.4662345		
ARROW ARW 205H FTP	3466.00	494.05	377.85	610137.34	501229.62	32.6772446	-104.4636858		
ARROW ARW 205H LTP	3707.00	404.29	5392.65	610047.58	506244.42	32.6770137	-104.4473872		

#### PROJECT DETAILS: EDDY COUNTY, NM (NAD 83 - NME)

Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: New Mexico Eastern Zone  
System Datum: Mean Sea Level



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Plan: Plan 2r0 (205H/OH)

Created By: PROTOTYPE WELL PLANNING / Date: 11:59, November 13 2023





Planning Report

Database:	EDM 5000.1.13 Single User Db	Local Co-ordinate Reference:	Well 205H
Company:	SILVERBACK EXPLORATION	TVD Reference:	RKB = 20' @ 3485.00usft (TBD)
Project:	EDDY COUNTY, NM (NAD 83 - NME)	MD Reference:	RKB = 20' @ 3485.00usft (TBD)
Site:	Arrow ARW Federal Com	North Reference:	Grid
Well:	205H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan 2r0		

Project	EDDY COUNTY, NM (NAD 83 - NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		Arrow ARW Federal Com				
Site Position:		Northing:	609,623.30 usft	Latitude:	32.6758304	
From:	Map	Easting:	500,851.67 usft	Longitude:	-104.4649120	
Position Uncertainty:		0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.071 °

Well	205H					
Well Position	+N/-S	19.99 usft	Northing:	609,643.29 usft	Latitude:	32.6758853
	+E/-W	0.10 usft	Easting:	500,851.77 usft	Longitude:	-104.4649118
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,465.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	11/13/23	6.711	60.100	47,417

Design	Plan 2r0			
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	91.03

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	0.000	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,080.61	17.42	316.11	1,071.71	63.12	-60.71	3.00	3.00	0.00	316.111	
2,679.92	17.42	316.11	2,597.68	408.14	-392.61	0.00	0.00	0.00	0.000	
3,489.92	60.00	91.03	3,281.44	502.30	-83.04	9.00	5.26	16.66	140.085	
3,689.92	60.00	91.03	3,381.44	499.20	90.14	0.00	0.00	0.00	0.000	
3,992.69	87.25	91.03	3,466.00	494.05	377.85	9.00	9.00	0.00	0.000	ARROW ARW 205H
9,014.08	87.25	91.03	3,707.00	404.29	5,392.65	0.00	0.00	0.00	0.000	ARROW ARW 205H



## Planning Report

<b>Database:</b>	EDM 5000.1.13 Single User Db	<b>Local Co-ordinate Reference:</b>	Well 205H
<b>Company:</b>	SILVERBACK EXPLORATION	<b>TVD Reference:</b>	RKB = 20' @ 3485.00usft (TBD)
<b>Project:</b>	EDDY COUNTY, NM (NAD 83 - NME)	<b>MD Reference:</b>	RKB = 20' @ 3485.00usft (TBD)
<b>Site:</b>	Arrow ARW Federal Com	<b>North Reference:</b>	Grid
<b>Well:</b>	205H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan 2r0		

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
<b>ARROW ARW 205H SHL</b>									
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
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	3.00	316.11	599.95	1.89	-1.81	-1.85	3.00	3.00	0.00
700.00	6.00	316.11	699.63	7.54	-7.25	-7.39	3.00	3.00	0.00
800.00	9.00	316.11	798.77	16.95	-16.30	-16.60	3.00	3.00	0.00
900.00	12.00	316.11	897.08	30.08	-28.93	-29.47	3.00	3.00	0.00
1,000.00	15.00	316.11	994.31	46.90	-45.12	-45.95	3.00	3.00	0.00
1,080.61	17.42	316.11	1,071.71	63.12	-60.71	-61.84	3.00	3.00	0.00
1,100.00	17.42	316.11	1,090.21	67.30	-64.74	-65.94	0.00	0.00	0.00
1,200.00	17.42	316.11	1,185.62	88.87	-85.49	-87.07	0.00	0.00	0.00
1,300.00	17.42	316.11	1,281.04	110.45	-106.24	-108.21	0.00	0.00	0.00
1,400.00	17.42	316.11	1,376.45	132.02	-126.99	-129.35	0.00	0.00	0.00
1,500.00	17.42	316.11	1,471.87	153.59	-147.75	-150.48	0.00	0.00	0.00
1,600.00	17.42	316.11	1,567.28	175.17	-168.50	-171.62	0.00	0.00	0.00
1,700.00	17.42	316.11	1,662.70	196.74	-189.25	-192.76	0.00	0.00	0.00
1,800.00	17.42	316.11	1,758.11	218.31	-210.00	-213.90	0.00	0.00	0.00
1,900.00	17.42	316.11	1,853.52	239.89	-230.76	-235.03	0.00	0.00	0.00
2,000.00	17.42	316.11	1,948.94	261.46	-251.51	-256.17	0.00	0.00	0.00
2,100.00	17.42	316.11	2,044.35	283.03	-272.26	-277.31	0.00	0.00	0.00
2,200.00	17.42	316.11	2,139.77	304.61	-293.01	-298.44	0.00	0.00	0.00
2,300.00	17.42	316.11	2,235.18	326.18	-313.77	-319.58	0.00	0.00	0.00
2,400.00	17.42	316.11	2,330.60	347.76	-334.52	-340.72	0.00	0.00	0.00
2,500.00	17.42	316.11	2,426.01	369.33	-355.27	-361.85	0.00	0.00	0.00
2,600.00	17.42	316.11	2,521.43	390.90	-376.02	-382.99	0.00	0.00	0.00
2,679.92	17.42	316.11	2,597.68	408.14	-392.61	-399.88	0.00	0.00	0.00
<b>ARROW ARW 205H KOP @ 2679.92' MD</b>									
2,700.00	16.07	320.30	2,616.91	412.45	-396.47	-403.82	9.00	-6.70	20.87
2,750.00	13.20	334.10	2,665.30	422.91	-403.39	-410.92	9.00	-5.75	27.59
2,800.00	11.40	353.61	2,714.17	432.96	-406.43	-414.15	9.00	-3.59	39.02
<b>ARROW ARW 205H MAX BACKBUILD</b>									
2,850.00	11.21	16.69	2,763.22	442.54	-405.59	-413.47	9.00	-0.37	46.17
2,900.00	12.71	37.31	2,812.16	451.57	-400.85	-408.90	9.00	2.99	41.24
2,950.00	15.41	52.26	2,860.67	460.02	-392.26	-400.47	9.00	5.39	29.88
3,000.00	18.79	62.40	2,908.47	467.82	-379.87	-388.22	9.00	6.77	20.29
3,050.00	22.56	69.40	2,955.25	474.93	-363.75	-372.22	9.00	7.53	14.01
3,100.00	26.54	74.45	3,000.72	481.30	-343.99	-352.59	9.00	7.97	10.09
3,150.00	30.66	78.24	3,044.61	486.90	-320.74	-329.44	9.00	8.24	7.58
3,200.00	34.87	81.20	3,086.65	491.68	-294.12	-302.91	9.00	8.41	5.93
3,250.00	39.13	83.59	3,126.57	495.63	-264.30	-273.16	9.00	8.53	4.79
3,300.00	43.44	85.58	3,164.14	498.72	-231.46	-240.39	9.00	8.61	3.98
3,350.00	47.77	87.28	3,199.11	500.92	-195.82	-204.79	9.00	8.67	3.39
3,400.00	52.13	88.76	3,231.28	502.23	-157.57	-166.58	9.00	8.71	2.95
3,450.00	56.50	90.07	3,260.44	502.63	-116.98	-125.99	9.00	8.74	2.62
3,489.92	60.00	91.03	3,281.44	502.30	-83.04	-92.05	9.00	8.77	2.39
3,500.00	60.00	91.03	3,286.48	502.14	-74.31	-83.32	0.00	0.00	0.00
3,600.00	60.00	91.03	3,336.48	500.59	12.28	3.28	0.00	0.00	0.00
3,689.92	60.00	91.03	3,381.44	499.20	90.14	81.15	0.00	0.00	0.00
3,700.00	60.91	91.03	3,386.41	499.04	98.91	89.92	9.00	9.00	0.00



## Planning Report

<b>Database:</b>	EDM 5000.1.13 Single User Db	<b>Local Co-ordinate Reference:</b>	Well 205H
<b>Company:</b>	SILVERBACK EXPLORATION	<b>TVD Reference:</b>	RKB = 20' @ 3485.00usft (TBD)
<b>Project:</b>	EDDY COUNTY, NM (NAD 83 - NME)	<b>MD Reference:</b>	RKB = 20' @ 3485.00usft (TBD)
<b>Site:</b>	Arrow ARW Federal Com	<b>North Reference:</b>	Grid
<b>Well:</b>	205H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan 2r0		

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)
3,750.00	65.41	91.03	3,408.98	498.24	143.50	134.52	9.00	9.00	0.00
3,800.00	69.91	91.03	3,427.99	497.42	189.73	180.76	9.00	9.00	0.00
3,850.00	74.41	91.03	3,443.30	496.57	237.30	228.34	9.00	9.00	0.00
3,900.00	78.91	91.03	3,454.84	495.70	285.93	276.98	9.00	9.00	0.00
3,950.00	83.41	91.03	3,462.52	494.81	335.32	326.37	9.00	9.00	0.00
3,992.69	87.25	91.03	3,466.00	494.05	377.85	368.91	9.00	9.00	0.00
ARROW ARW 205H FTP									
4,000.00	87.25	91.03	3,466.35	493.92	385.15	376.21	0.00	0.00	0.00
4,100.00	87.25	91.03	3,471.15	492.13	485.02	476.10	0.00	0.00	0.00
4,200.00	87.25	91.03	3,475.95	490.34	584.89	575.98	0.00	0.00	0.00
4,300.00	87.25	91.03	3,480.75	488.56	684.76	675.86	0.00	0.00	0.00
4,400.00	87.25	91.03	3,485.55	486.77	784.63	775.75	0.00	0.00	0.00
4,500.00	87.25	91.03	3,490.35	484.98	884.50	875.63	0.00	0.00	0.00
4,600.00	87.25	91.03	3,495.15	483.19	984.36	975.52	0.00	0.00	0.00
4,700.00	87.25	91.03	3,499.95	481.41	1,084.23	1,075.40	0.00	0.00	0.00
4,800.00	87.25	91.03	3,504.75	479.62	1,184.10	1,175.29	0.00	0.00	0.00
4,900.00	87.25	91.03	3,509.55	477.83	1,283.97	1,275.17	0.00	0.00	0.00
5,000.00	87.25	91.03	3,514.35	476.04	1,383.84	1,375.06	0.00	0.00	0.00
5,100.00	87.25	91.03	3,519.15	474.26	1,483.71	1,474.94	0.00	0.00	0.00
5,200.00	87.25	91.03	3,523.94	472.47	1,583.58	1,574.83	0.00	0.00	0.00
5,300.00	87.25	91.03	3,528.74	470.68	1,683.45	1,674.71	0.00	0.00	0.00
5,400.00	87.25	91.03	3,533.54	468.89	1,783.31	1,774.60	0.00	0.00	0.00
5,500.00	87.25	91.03	3,538.34	467.11	1,883.18	1,874.48	0.00	0.00	0.00
5,600.00	87.25	91.03	3,543.14	465.32	1,983.05	1,974.37	0.00	0.00	0.00
5,700.00	87.25	91.03	3,547.94	463.53	2,082.92	2,074.25	0.00	0.00	0.00
5,800.00	87.25	91.03	3,552.74	461.74	2,182.79	2,174.14	0.00	0.00	0.00
5,900.00	87.25	91.03	3,557.54	459.96	2,282.66	2,274.02	0.00	0.00	0.00
6,000.00	87.25	91.03	3,562.34	458.17	2,382.53	2,373.91	0.00	0.00	0.00
6,100.00	87.25	91.03	3,567.14	456.38	2,482.40	2,473.79	0.00	0.00	0.00
6,200.00	87.25	91.03	3,571.94	454.59	2,582.26	2,573.68	0.00	0.00	0.00
6,300.00	87.25	91.03	3,576.74	452.81	2,682.13	2,673.56	0.00	0.00	0.00
6,400.00	87.25	91.03	3,581.54	451.02	2,782.00	2,773.44	0.00	0.00	0.00
6,500.00	87.25	91.03	3,586.34	449.23	2,881.87	2,873.33	0.00	0.00	0.00
6,600.00	87.25	91.03	3,591.14	447.44	2,981.74	2,973.21	0.00	0.00	0.00
6,700.00	87.25	91.03	3,595.94	445.66	3,081.61	3,073.10	0.00	0.00	0.00
6,800.00	87.25	91.03	3,600.74	443.87	3,181.48	3,172.98	0.00	0.00	0.00
6,900.00	87.25	91.03	3,605.54	442.08	3,281.35	3,272.87	0.00	0.00	0.00
7,000.00	87.25	91.03	3,610.34	440.29	3,381.21	3,372.75	0.00	0.00	0.00
7,100.00	87.25	91.03	3,615.13	438.51	3,481.08	3,472.64	0.00	0.00	0.00
7,200.00	87.25	91.03	3,619.93	436.72	3,580.95	3,572.52	0.00	0.00	0.00
7,300.00	87.25	91.03	3,624.73	434.93	3,680.82	3,672.41	0.00	0.00	0.00
7,400.00	87.25	91.03	3,629.53	433.14	3,780.69	3,772.29	0.00	0.00	0.00
7,500.00	87.25	91.03	3,634.33	431.35	3,880.56	3,872.18	0.00	0.00	0.00
7,600.00	87.25	91.03	3,639.13	429.57	3,980.43	3,972.06	0.00	0.00	0.00
7,700.00	87.25	91.03	3,643.93	427.78	4,080.30	4,071.95	0.00	0.00	0.00
7,800.00	87.25	91.03	3,648.73	425.99	4,180.16	4,171.83	0.00	0.00	0.00
7,900.00	87.25	91.03	3,653.53	424.20	4,280.03	4,271.72	0.00	0.00	0.00
8,000.00	87.25	91.03	3,658.33	422.42	4,379.90	4,371.60	0.00	0.00	0.00
8,100.00	87.25	91.03	3,663.13	420.63	4,479.77	4,471.49	0.00	0.00	0.00
8,200.00	87.25	91.03	3,667.93	418.84	4,579.64	4,571.37	0.00	0.00	0.00
8,300.00	87.25	91.03	3,672.73	417.05	4,679.51	4,671.26	0.00	0.00	0.00
8,400.00	87.25	91.03	3,677.53	415.27	4,779.38	4,771.14	0.00	0.00	0.00
8,500.00	87.25	91.03	3,682.33	413.48	4,879.25	4,871.02	0.00	0.00	0.00
8,600.00	87.25	91.03	3,687.13	411.69	4,979.11	4,970.91	0.00	0.00	0.00





Planning Report

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<b>Company:</b>	SILVERBACK EXPLORATION	<b>TVD Reference:</b>	RKB = 20' @ 3485.00usft (TBD)
<b>Project:</b>	EDDY COUNTY, NM (NAD 83 - NME)	<b>MD Reference:</b>	RKB = 20' @ 3485.00usft (TBD)
<b>Site:</b>	Arrow ARW Federal Com	<b>North Reference:</b>	Grid
<b>Well:</b>	205H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan 2r0		

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)
8,700.00	87.25	91.03	3,691.93	409.90	5,078.98	5,070.79	0.00	0.00	0.00
8,800.00	87.25	91.03	3,696.73	408.12	5,178.85	5,170.68	0.00	0.00	0.00
8,900.00	87.25	91.03	3,701.52	406.33	5,278.72	5,270.56	0.00	0.00	0.00
9,000.00	87.25	91.03	3,706.32	404.54	5,378.59	5,370.45	0.00	0.00	0.00
9,014.08	87.25	91.03	3,707.00	404.29	5,392.65	5,384.51	0.00	0.00	0.00
ARROW ARW 205H LTP									

Design Targets									
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	
	- Shape								Latitude Longitude
ARROW ARW 205H S	- plan hits target center	0.00	0.00	0.00	0.00	0.00	609,643.29	500,851.77	32.6758853 -104.4649118
	- Point								
ARROW ARW 205H R	- plan hits target center	0.00	360.00	2,597.68	408.14	-392.61	610,051.44	500,459.16	32.6770059 -104.4661894
	- Point								
ARROW ARW 205H M	- plan hits target center	0.00	360.00	2,714.17	432.96	-406.43	610,076.26	500,445.34	32.6770740 -104.4662344
	- Point								
ARROW ARW 205H F	- plan hits target center	0.00	0.00	3,466.00	494.05	377.85	610,137.34	501,229.62	32.6772446 -104.4636857
	- Point								
ARROW ARW 205H L	- plan hits target center	0.00	0.00	3,707.00	404.29	5,392.65	610,047.58	506,244.42	32.6770138 -104.4473871
	- Point								

## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

<b>OPERATOR'S NAME:</b>	Silverback Operating LLC
<b>WELL NAME &amp; NO.:</b>	Arrow Arw Federal Com 205H
<b>LOCATION:</b>	Sec 10-19S-25E-NMP
<b>COUNTY:</b>	Eddy County, New Mexico <span style="border: 1px solid black; padding: 2px;">▼</span>

COA

<b>H<sub>2</sub>S</b>	<input checked="" type="radio"/> No <span style="margin-left: 100px;"><input type="radio"/> Yes</span>			
<b>Potash / WIPP</b>	<input checked="" type="radio"/> None	<input type="radio"/> Secretary	<input type="radio"/> R-111-Q	<input type="checkbox"/> Open Annulus <input type="checkbox"/> WIPP
<b>Cave / Karst</b>	<input type="radio"/> Low	<input checked="" type="radio"/> Medium	<input type="radio"/> High	<input type="radio"/> Critical
<b>Wellhead</b>	<input checked="" type="radio"/> Conventional	<input type="radio"/> Multibowl	<input type="radio"/> Both	<input type="radio"/> Diverter
<b>Cementing</b>	<input type="checkbox"/> Primary Squeeze	<input type="checkbox"/> Cont. Squeeze	<input type="checkbox"/> EchoMeter	<input type="checkbox"/> DV Tool
<b>Special Req</b>	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> Water Disposal	<input checked="" type="checkbox"/> COM	<input type="checkbox"/> Unit
<b>Waste Prev.</b>	<input type="radio"/> Self-Certification	<input type="radio"/> Waste Min. Plan	<input checked="" type="radio"/> APD Submitted prior to 06/10/2024	
<b>Additional Language</b>	<input checked="" type="checkbox"/> Flex Hose	<input type="checkbox"/> Casing Clearance	<input type="checkbox"/> Pilot Hole	<input type="checkbox"/> Break Testing
	<input type="checkbox"/> Four-String	<input type="checkbox"/> Offline Cementing	<input type="checkbox"/> Fluid-Filled	

### A. HYDROGEN SULFIDE

Hydrogen Sulfide (H<sub>2</sub>S) monitors shall be installed prior to drilling out the surface shoe. If H<sub>2</sub>S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet 43 CFR 3176 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 **1250** feet (a minimum of 70 feet (Eddy County) into the Rustler Anhydrite, above the salt, and below usable fresh water) 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 7 inch production 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, Capitan Reef, or potash.**

### 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).

### D. 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 **5000 (5M)** psi.

### E. SPECIAL REQUIREMENT (S)

#### Communitization Agreement

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- The operator will submit an as-drilled survey well plat of the well completion, but are not limited to, those specified in 43 CFR 3171 and 3172.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

## 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)

**Contact Eddy County Petroleum Engineering Inspection Staff:**

Email or call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220;  
**BLM NM CFO DrillingNotifications@BLM.GOV**; (575) 361-2822

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
    - i. Notify the BLM when moving in and removing the Spudder Rig.
    - ii. Notify the BLM when moving in the 2<sup>nd</sup> Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
    - iii. BOP/BOPE test to be conducted per **43 CFR 3172** as soon as 2<sup>nd</sup> 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. For intervals in which cement to surface is required, cement to surface should be verified with a visual check and density or pH check to differentiate cement from spacer and drilling mud. The results should be documented in the driller's log and daily reports.

**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 of both lead and tail cement, 2) until cement has been in place at least 8 hours. WOC time will be

recorded in the driller's log. The casing integrity 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 integrity 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-Q 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 **43 CFR 3172**.
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:
  - i. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - ii. 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.
  - iii. Manufacturer representative shall install the test plug for the initial BOP test.
  - iv. Whenever any seal subject to test pressure is broken, all the tests in 43 CFR 3172.6(b)(9) must be followed.
  - v. 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.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - i. 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 cement), 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).
  - ii. 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 cement plug. The BOPE test can be initiated after bumping the cement plug with the casing valve open. (only applies to single stage cement jobs, prior to the cement setting up.)
  - iii. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer and can be initiated immediately with the casing valve open. The operator also has the option of utilizing an

independent tester to test without a plug (i.e. against the casing) pursuant to **43 CFR 3172** with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for 8 hours or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

- iv. 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.
- v. The results of the test shall be reported to the appropriate BLM office.
- vi. 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.
- vii. 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 if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- viii. 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 **43 CFR 3172**.

### **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.

## **Silverback Operating II, LLC HYDROGEN SULFIDE (H<sub>2</sub>S) CONTINGENCY PLAN**

**Assumed 100 ppm ROE = 3000'**

100 ppm H<sub>2</sub>S concentration shall trigger activation of this plan.

**This is an open drilling site. H<sub>2</sub>S monitoring equipment and emergency response equipment will be rigged up and in use when the company drills out from under surface casing. H<sub>2</sub>S monitors, warning signs, wind indicators and flags will be in use.**

1. All personnel shall receive proper H<sub>2</sub>S training in accordance with Onshore Order 6 111.C.3.a
2. Briefing Area: Two perpendicular areas will be designated by signs and readily accessible.
3. Required Emergency Equipment:
  - 3.1. Well control equipment
    - 3.1.1. Flare line 150' from wellhead to be ignited by flare gun.
    - 3.1.2. Choke manifold with a remotely operated choke.
    - 3.1.3. Mud/Gas Separator.
  - 3.2. Protective Equipment for essential personnel.
    - 3.2.1. Breathing apparatus:
    - 3.2.2. Rescue Packs (SCBA) - 1 unit shall be placed at each briefing area. 2 units shall be stored in the safety trailer.
    - 3.2.3. Work/Escapes packs - 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.
    - 3.2.4. Emergency Escape Packs - 4 packs shall be stored in the doghouse for emergency evacuation.
  - 3.3. Auxiliary Rescue Equipment:
    - 3.3.1. Stretcher
    - 3.3.2. Two OSHA full body harness
    - 3.3.3. 100 ft. 5/8" OSHA approved rope
    - 3.3.4. One 20# class ABC fire extinguisher
  - 3.4. H<sub>2</sub>S detection and monitoring Equipment:
    - 3.4.1. The stationary detector with three sensors will be placed in the upper doghouse, set to visually alarm@ 10 ppm and audible@ 14 ppm. Calibrate a minimum of every 30 days or as needed. The sensors will be placed in the following places: Rig floor, Bell nipple, end of flare line or where well bore fluid is being discharged (Gas sample tubes will be stored in the safety trailer).
  - 3.5. Visual warning systems.
    - 3.5.1. One color code condition sign will be placed at the entrance to the site reflecting the possible conditions at the site.



- 3.5.2. A colored condition flag will be on display, reflecting the current condition, at the drilling site.
- 3.5.3. Two windsocks will be placed in strategic locations, visible from all angles.
- 3.6. Mud Program:
  - 3.6.1. The mud program has been designated to minimize the volume of H<sub>2</sub>S circulated to surface. The operator will have the necessary mud products to minimize hazards while drilling in H<sub>2</sub>S bearing zones.
- 3.7. Metallurgy:
  - 3.7.1. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, shall be suitable for H<sub>2</sub>S service.
  - 3.7.2. All elastomers used for packing and seals shall be H<sub>2</sub>S trim.
- 3.8. Communication:
  - 3.8.1. Communication will be via two-way radio located in company vehicles. Cell phones and landlines where available.

### H<sub>2</sub>S Operations

Though no H<sub>2</sub>S is anticipated during the drilling operation, this contingency plan will provide for methods to ensure the well is kept under control in the event an H<sub>2</sub>S reading of 100 ppm or more is encountered. Once personnel are safe and the proper protective gear is in place and on personnel, the operator and rig crew essential personnel will ensure the well is under control, suspend drilling operations and shut-in the well (unless pressure build up or other operational situations dictate suspending operations will prevent well control), increase the mud weight and circulate all gas from the hole utilizing the mud/gas separator downstream of the choke, the choke manifold and the emergency flare system located 150' from the well. Bring the mud system into compliance and the H<sub>2</sub>S level below 10 ppm, then notify all emergency officers that drilling ahead is practical and safe. Proceed with drilling ahead only after all provisions of Onshore Order 6, Section 111.C. have been satisfied.

### Ignition of Gas source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO<sub>2</sub>). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally, the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever this is an ignition of the gas.

### Characteristics of H<sub>2</sub>S and SO<sub>2</sub>

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H <sub>2</sub> S	1.189 Air= 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO <sub>2</sub>	2.21 Air= 1	2 ppm	N/A	1000 ppm

## Contacting Authorities

Silverback Operating II, LLC's personnel must liaison with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. Silverback's response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER).

Public Safety	
Eddy County Sheriff	(575) 887-7551
Carlsbad Fire Department	(575) 885-3125
Artesia General Hospital	(575) 748-3333
Ambulance	911
Department of Public Safety	(392) 392-5588
Oil Conservation Division	(575) 748-1823
New Mexico Energy, Minerals & Natural Resources Department	(575) 748-1283
Silverback Operating II, LLC	
Drilling Manager	Wade Chapman- 361-215-2373
Drilling Engineer	
Operations Manager	Wade Chapman- 361-215-2373
Company Representative	Fatma Abdallah- 832-506-7262
Drilling Contractor	
Tool Pusher	
Relief Tool Pusher	
Drilling Manager	
Silverback Operating II, LLC Safety	
EHS Coordinator	Mark Ritchie- 713-553-8320
Field Safety Technician	
BLM ON-CALL LIST	
On-Call Engineer	575-706-2779
BLM Eddy County PET On-Call	575-361-2822
BLM Hobbs County PET On-Call	575-689-5981



## EDDY COUNTY, NEW MEXICO

Flare 150' from well heads

Secondary Safety Briefing Area &amp; Exit &gt;150' from Well Heads

Highest Ground to West

Wind Socks on Rig Floor &amp; at Mud Tanks

Warning Sign &amp; Windsock

STATE OF NEW MEXICO  
COUNTY OF EDDY

I hereby certify that the above and foregoing plat represents an on the ground survey conducted in November of 2023 and is true and correct to the best of my knowledge.

 1/10/24
MATTHEW C. BISSETT,  
PROFESSIONAL LAND SURVEYOR  
NEW MEXICO REGISTRATION NO. 20450

ARROW ARW FEDERAL  
COM #106H  
ELEV. 3,465.2'

ARROW ARW FEDERAL  
COM #205H  
ELEV. 3,465.1'

ARROW ARW FEDERAL  
COM #105H  
ELEV. 3,465.4'

ARROW ARW FEDERAL  
COM #204H  
ELEV. 3,465.5'

WELL LAYOUT

1. CATWALK  
2. DOGHOUSE  
3. WATER TANK  
4. ACCUMULATOR  
5. HPU  
6. PARTS HOUSE  
7. SHAKER TANK  
8. MIXING TANK  
9. PUMP HOUSE #1  
10. PUMP HOUSE #2  
11. PLUG BOARD  
12. DRIVE HOUSE  
13. AIRCOND ROOM  
14. BOILER  
15. TRAILER

PROPOSED  
WELL PAD  
2.97 ACRESCUT/FILL  
TRANSITION  
LINE

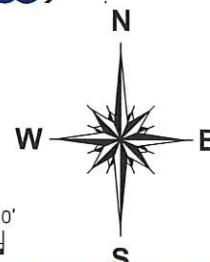
TOP SOIL PILE

PRIMARY Safety Briefing Area  
& Exit >150' from Well Heads

## LEGEND

— PAD LINE  
— EXISTING PIPELINE  
— X — FENCE LINE  
- - - SECTION LINE

0' 30' 60'

Prevailing Winds  
Blow from South

## RIG LAYOUT PLAT

SILVERBACK OPERATING II, LLC.

ARROW ARW FEDERAL COM # 106H, ARROW ARW  
FEDERAL COM #205H, ARROW ARW FEDERAL COM #105H,  
& ARROW ARW FEDERAL COM #204H PAD SITE  
SITUATED IN  
SECTION 10, T19S, R25E  
EDDY COUNTY, NEW MEXICO

## NOTES:

1. SURVEY RECONSTRUCTION FILED IN THE OFFICE OF ATWELL, LLC.
2. ALL BEARING AND COORDINATES SHOWN ARE BASED ON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, NORTH AMERICAN DATUM OF 1983.
3. THE ABOVE SKETCH REPRESENTS THE LOCATION AS STAKED ON THE GROUND AND IS FOR PERMIT PURPOSE ONLY.
4. THIS DOES NOT CONSTITUTE A BOUNDARY SURVEY.
5. UNIT DESCRIPTION PROVIDED BY CLIENT.

SILVERBACK  
EXPLORATION

**ATWELL**  
866.850.4200 www.atwell-group.com  
10100 Reunion Place, Suite 700  
San Antonio, Texas 78216  
TBPLS FIRM # 10194153

DRAWN

CHECKED

APP'D

SCALE

1"=60'

PAGE

8 OF 10

REV#

DATE

DESC.

JOB NO.

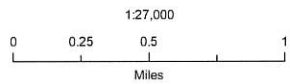
23006260



# Silverback Operating, LLC

Arrow ARW Federal Com Pad  
H2S Contingency Plan:  
Radius Map

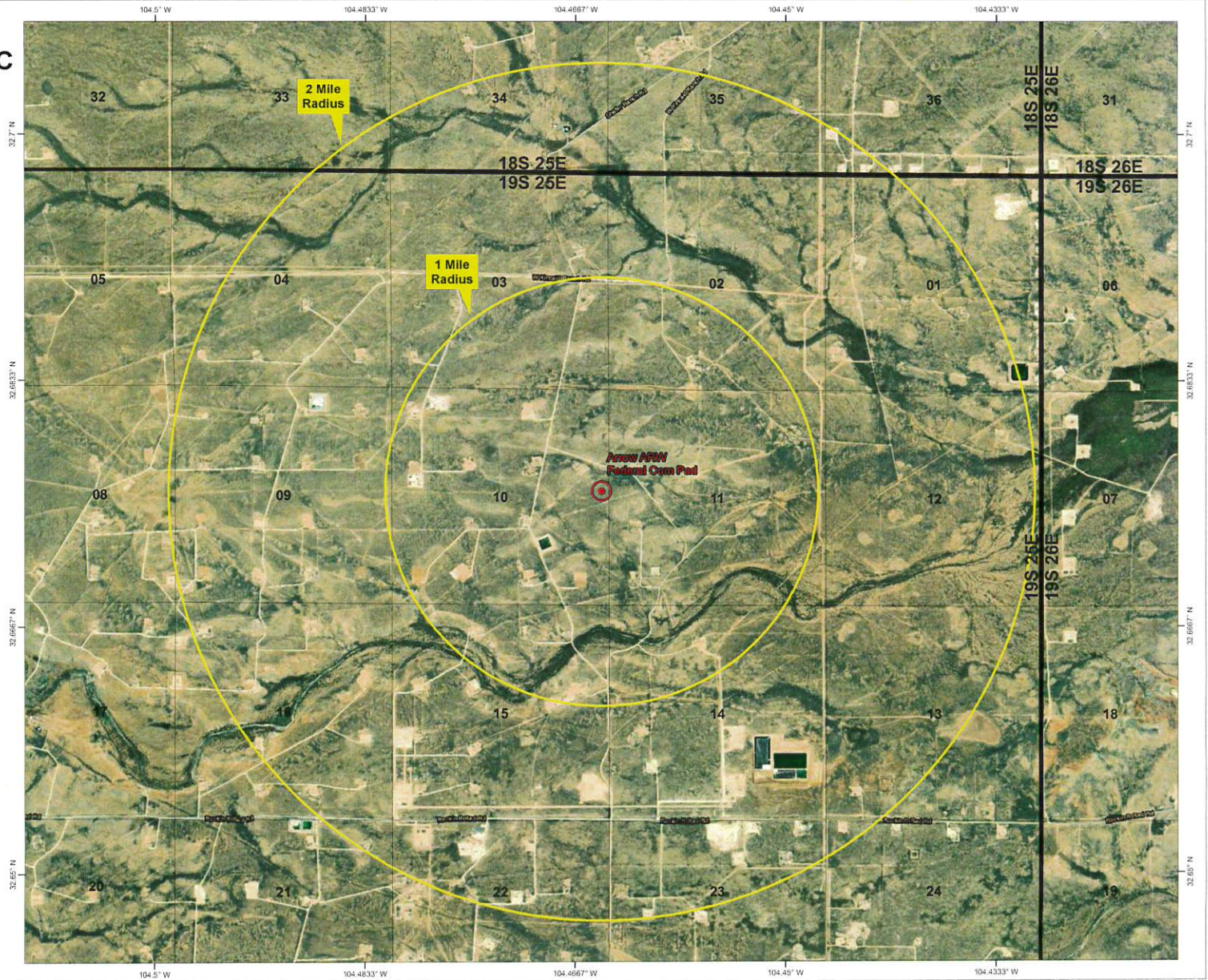
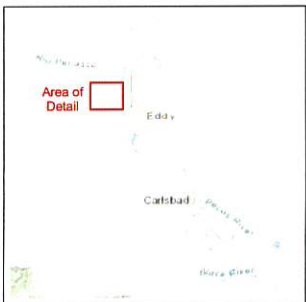
Section 10, Township 19S, Range 25E  
Eddy County, New Mexico



NAD 1983 New Mexico State Plane East  
FIPS 3001 Feet



Prepared by Permits West, Inc., January 22, 2024  
for Avant Operating, LLC







Schematic Closed Loop Drilling Rig\*

- 1. Pipe Rack
- 2. Drill Rig
- 3. House Trailers/ Offices
- 4. Generator/Fuel/Storage
- 5. Overflow-Frac Tank
- 6. Skids
- 7. Roll Offs
- 8. Hopper or Centrifuge
- 9. Mud Tanks
- 10. Loop Drive
- 11. Generator (only for use with centrifuge)

\*Not drawn to scale: Closed loop system requires at least 30 feet beyond mud tanks. Ideally 60 feet would be available



Above: Centrifugal Closed Loop System



Closed Loop Drilling System: Mud tanks to right (1)  
Hopper in air to settle out solids (2)  
Water return pipe (3)  
Shaker between hopper and mud tanks (4)  
Roll offs on skids (5)

Flow Chart for Drilling Fluids and Solids



Photos Courtesy of Gandy Corporation Oil  
Field Service

**District I**  
1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720  
**District II**  
811 S. First St., Artesia, NM 88210  
Phone:(575) 748-1283 Fax:(575) 748-9720  
**District III**  
1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170  
**District IV**  
1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

CONDITIONS  
  
Action 367936

CONDITIONS

Operator: Silverback Operating II, LLC 1001 W. Wilshire Blvd Oklahoma City, OK 73112	OGRID:
	330968
	Action Number:
	367936
Action Type:	
[C-101] BLM - Federal/Indian Land Lease (Form 3160-3)	

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	Notify OCD 24 hours prior to casing & cement	8/26/2024
ward.rikala	Will require a File As Drilled C-102 and a Directional Survey with the C-104	8/26/2024
ward.rikala	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string	8/26/2024
ward.rikala	Cement is required to circulate on both surface and intermediate1 strings of casing	8/26/2024
ward.rikala	If cement does not circulate on any string, a CBL is required for that string of casing	8/26/2024
ward.rikala	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system	8/26/2024