

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

Form C-101

August 1, 2011

Permit 283995

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

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1. Operator Name and Address AMEREDEV OPERATING, LLC 2901 Via Fortuna Austin, TX 78746		2. OGRID Number 372224
		3. API Number 30-025-47363
4. Property Code 320762	5. Property Name RED BUD 25 36 32 STATE COM	6. Well No. 108H

7. Surface Location

UL - Lot A	Section 5	Township 26S	Range 36E	Lot Idn A	Feet From 230	N/S Line N	Feet From 325	E/W Line E	County Lea
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8. Proposed Bottom Hole Location

UL - Lot A	Section 29	Township 25S	Range 36E	Lot Idn A	Feet From 50	N/S Line N	Feet From 380	E/W Line E	County Lea
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9. Pool Information

JAL;WOLFCAMP, WEST	33813
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Additional Well Information

11. Work Type New Well	12. Well Type OIL	13. Cable/Rotary	14. Lease Type Federal	15. Ground Level Elevation 3002
16. Multiple N	17. Proposed Depth 22421	18. Formation Wolfcamp	19. Contractor	20. Spud Date 12/29/2021
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

☒ We will be using a closed-loop system in lieu of lined pits

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	17.5	13.375	68	1325	1093	0
Int1	9.875	7.625	29.7	10786	2405	0
Prod	6.75	5.5	23	22421	1745	0

Casing/Cement Program: Additional Comments

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22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Double Ram	5000	5000	TO BE DETERMINED

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify I have complied with 19.15.14.9 (A) NMAC ☒ and/or 19.15.14.9 (B) NMAC ☒ if applicable.	OIL CONSERVATION DIVISION	
Signature:		
Printed Name: Electronically filed by Christie Hanna	Approved By: Paul F Kautz	
Title:	Title: Geologist	
Email Address: channa@ameredev.com	Approved Date: 7/2/2020	Expiration Date: 7/2/2022
Date: 7/1/2020	Phone: 737-300-4723	Conditions of Approval Attached

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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

¹ API Number 30-025-	² Pool Code 33813	³ Pool Name Jal; Wolfcamp, West
⁴ Property Code	⁵ Property Name RED BUD STATE COM 25 36 32	
⁷ OGRID No. 372224	⁸ Operator Name AMEREDEV OPERATING, LLC.	⁶ Well Number 108H
		⁹ Elevation 3002'

¹⁰Surface Location

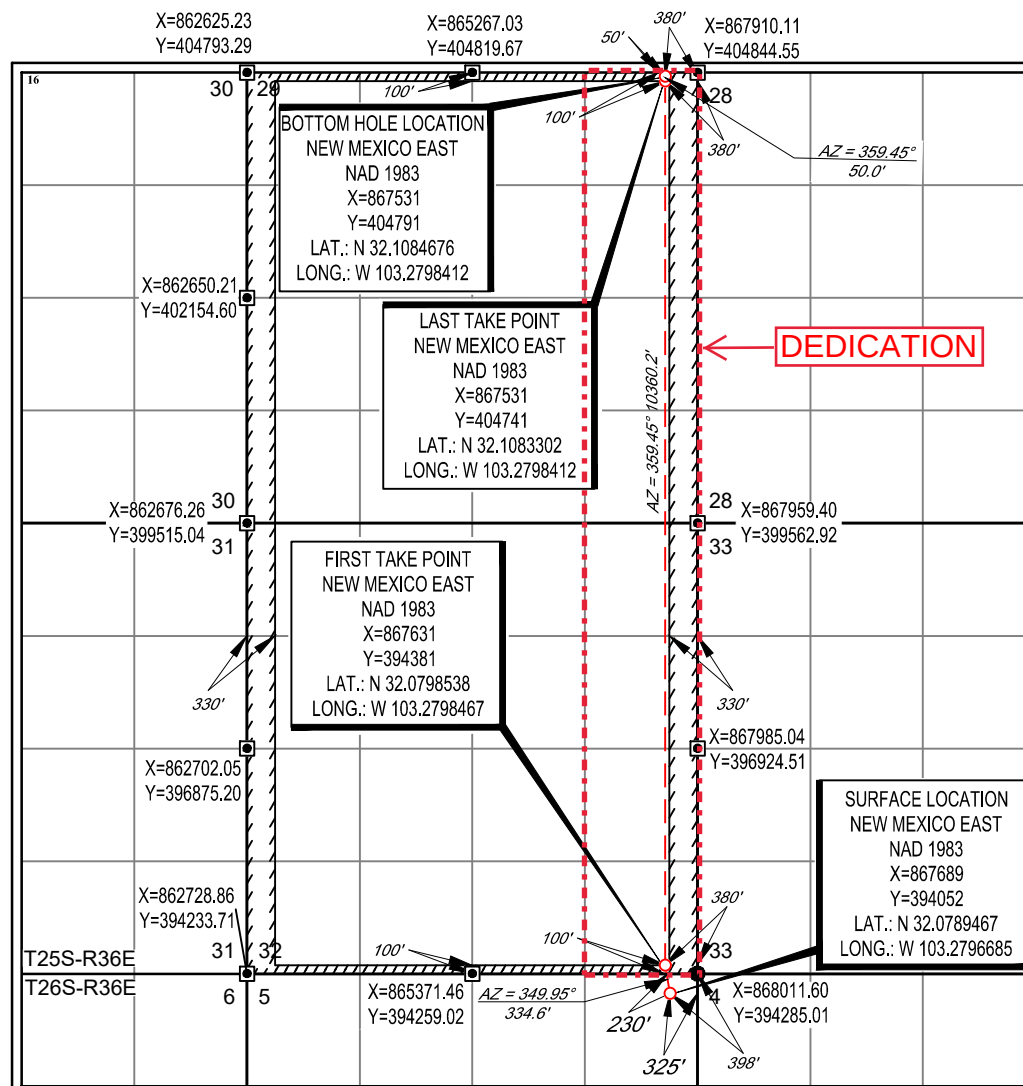
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	5	26-S	36-E	-	230'	NORTH	325'	EAST	LEA

¹¹Bottom 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
A	29	25-S	36-E	-	50'	NORTH	380'	EAST	LEA

¹² Dedicated Acres 320	¹³ Joint or Infill	¹⁴ Consolidation Code C	¹⁵ Order No.
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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.



¹⁷OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature Te Hammond Date 7/1/2020

Floyd Hammond
Printed Name

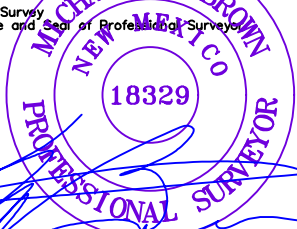
fhammond@ameredev.com
E-mail Address

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true to the best of my belief.

05/03/2018

Date of Survey
Signature and Seal of Professional Surveyor



Certificate Number

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Energy, Minerals and Natural Resources
Oil Conservation Division
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Santa Fe, NM 87505

GAS CAPTURE PLAN

Date: 7/2/2020

☒ Original

Operator & OGRID No.: [372224] AMEREDEV OPERATING, LLC

☐ Amended - Reason for
Amendment:

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomple to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
RED BUD 25 36 32 STATE COM #108H	30-025-47363	A-5-26S-36E	0230N 0325E	1500	Flared	

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to ETC FIELD SERVICES LLC and will be connected to ETC FIELD SERVICES LLC Low Pressure gathering system located in Lea County, New Mexico. It will require 200' of pipeline to connect the facility to Low Pressure gathering system. AMEREDEV OPERATING, LLC provides (periodically) to ETC FIELD SERVICES LLC a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, AMEREDEV OPERATING, LLC and ETC FIELD SERVICES LLC have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at ETC FIELD SERVICES LLC Processing Plant located in Sec. 33, Twn. 24S, Rng. 37E, Lea County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on ETC FIELD SERVICES LLC system at that time. Based on current information, it is AMEREDEV OPERATING, LLC's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
 - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
 - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
 - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

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Form APD Comments

Permit 283995

PERMIT COMMENTS

Operator Name and Address: AMEREDEV OPERATING, LLC [372224] 2901 Via Fortuna Austin, TX 78746		API Number: 30-025-47363
		Well: RED BUD 25 36 32 STATE COM #108H
Created By	Comment	Comment Date

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Form APD Conditions

Permit 283995

PERMIT CONDITIONS OF APPROVAL

Operator Name and Address: AMEREDEV OPERATING, LLC [372224] 2901 Via Fortuna Austin, TX 78746	API Number: 30-025-47363
	Well: RED BUD 25 36 32 STATE COM #108H

OCD Reviewer	Condition
pkautz	Will require a directional survey with the C-104
pkautz	1) SURFACE & INTERMEDIATE CASING - Cement must circulate to surface -- 2) PRODUCTION CASING - Cement must tie back into intermediate casing --
pkautz	If cement does not circulate to surface, must run temperature survey or other log to determine top of cement
pkautz	Surface casing must be set 25' below top of Rustler Anhydrite in order to seal off protectable water
pkautz	1)- The Operator is to notify NMOCD by sundry (Form C-103) within ten (10) days of the well being spud 2)- Drilling Sundries Form C-103 (Casing and Cement test are to be submitted within 10 days 3)- Completion Reports & Logs are to be submitted within 45 days 4)- Deviation / Directional Drill Survey are to be filed with or prior to C-104
pkautz	It is the operator's responsibility to monitor cancellation dates of approved APDs. APD's are good for 2 years and may be extended for one year. Only one 1 year extension will be granted if submitted by C-103 before expiration date. After expiration date or after a 1 year extension must submit new APD. If an APD expires and if site construction has occurred, site remediation is required
pkautz	Stage Tool 1) Must notify OCD Hobbs Office prior to running Stage Tool at 5753703186 2) If using Stage Tool on Surface casing, Stage Tool must be set greater than 350' from surface and a minimum of 200 feet above surface shoe. 3) When using a Stage Tool on Intermediate or Production Casing Stage must be a minimum of 50 feet below previous casing shoe.



Ameredev II, LLC

Contingency Wellbore Schematic

Well: Red Bud 25 36 32 State Com 108H
SHL: Sec. 05 26S-36E 230' FNL & 325' FEL
BHL: Sec. 29 25S-36E 50' FNL & 380' FEL
 Lea, NM

Wellhead: A - 13-5/8" 10M x 13-5/8" SOW
 B - 13-5/8" 10M x 13-5/8" 10M
 C - 13-5/8" 10M x 13-5/8" 10M
 Tubing Spool - 7-1/16" 15M x 13-3/8" 10M

Xmas Tree: 2-9/16" 10M

Tubing: 2-7/8" L-80 6.5# 8rd EUE

Co. Well ID: XXXXXX
AFE No.: XXXX-XXX
API No.: XXXXXXXXXXXX
GL: 3,002'
Field: Delaware
Objective: Wolfcamp A
TVD: 11,599'
MD: 22,421'
Rig: TBD **KB 27'**
E-Mail: Wellsite2@ameredev.com

Hole Size	Formation Tops	Logs	Cement	Mud Weight
17.5"	Rustler 1,200'	1,093 Sacks TOC 0'	100% Excess	8.4-8.6 ppg WBM
	13.375" 68# J-55 BTC 1,325'			
12.25"	Salado 1,814'	844 Sacks TOC 0'	50% Excess	8.5-9.4 Diesel Brine Emulsion
	DV Tool with ACP 3,353'			
	Tansill 3,353'			
	Capitan Reef 3,863'			
	Lamar 5,080'			
	Bell Canyon 5,114'			
	No Casing 5,205'			
9.875"	Brushy Canyon 6,822'	2,405 Sacks TOC 0'	50% Excess	
	Bone Spring Lime 7,985'			
	First Bone Spring 9,479'			
	Second Bone Spring 10,002'			
	Third Bone Spring Upper 10,661'			
	7.625" 29.7# L-80HC BTC 10,786'			
6.75"	Third Bone Spring 11,318'	1,745 Sacks TOC 0'	25% Excess	10.5-12.5 ppg OBM
12° Build @ 11,025' MD thru 12,162' MD	Wolfcamp 11,499'			
	5.5" 23# P110 MS2 Anaconda GT 22,421'			
	Target Wolfcamp A 11599 TVD // 22421 MD			

Casing Design and Safety Factor Check

Casing Specifications						
Segment	Hole ID	Depth	OD	Weight	Grade	Coupling
Surface	17.5	1,325'	13.375	68	J-55	BTC
Intermediate	9.875	10,786'	7.625	40	HCL-80	BTC
Prod Segment A	6.75	11,025'	5.5	23	P-110	GT
Prod Segment B	6.75	22,421'	5.5	23	P-110	GT

Check Surface Casing				
OD Cplg	Body	Joint	Collapse	Burst
<i>inches</i>	<i>1000 lbs</i>	<i>1000 lbs</i>	<i>psi</i>	<i>psi</i>
14.375	1,069	915	4,100	3,450
Safety Factors				
1.56	11.87	10.16	6.93	0.66
Check Intermediate Casing				
OD Cplg	Body	Joint	Collapse	Burst
<i>inches</i>	<i>1000 lbs</i>	<i>1000 lbs</i>	<i>psi</i>	<i>psi</i>
7.625	940	558	6700	9460
Safety Factors				
1.13	2.93	2.04	1.27	1.26
Check Prod Casing, Segment A				
OD Cplg	Body	Joint	Collapse	Burst
<i>inches</i>	<i>1000 lbs</i>	<i>1000 lbs</i>	<i>psi</i>	<i>psi</i>
5.777	728	655	12780	14360
Safety Factors				
0.49	2.73	2.46	1.79	1.91
Check Prod Casing, Segment B				
OD Cplg	Body	Joint	Collapse	Burst
<i>inches</i>	<i>1000 lbs</i>	<i>1000 lbs</i>	<i>psi</i>	<i>psi</i>
5.777	728	655	12780	14360
Safety Factors				
0.49	55.14	49.61	1.70	1.91



Ameredev Operating, LLC.

RB/HOL

RB/HOL #10S

Redbud 108H

Wellbore #1

Plan: Design #1

Lease Penetration Section Line Foot

26 February, 2019



Ameredev Operating, LLC

Lease Penetration Section Line Footages

Company:	Ameredev Operating, LLC.	Local Co-ordinate Reference:	Well Redbud 108H
Project:	RB/HOL	TVD Reference:	KB @ 3029.0usft
Site:	RB/HOL #10S	MD Reference:	KB @ 3029.0usft
Well:	Redbud 108H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	EDM5000

Project	RB/HOL		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		RB/HOL #10S			
Site Position:		Northing:	394,052.38 usft	Latitude:	32° 4' 44.208 N
From:	Lat/Long	Easting:	867,748.93 usft	Longitude:	103° 16' 46.109 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.56 °

Well		Redbud 108H				
Well Position	+N/-S	0.0 usft	Northing:	394,051.79 usft	Latitude:	32° 4' 44.208 N
	+E/-W	0.0 usft	Easting:	867,688.93 usft	Longitude:	103° 16' 46.807 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,002.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	7.60	60.16	48,740.40981710

Design	Design #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	359.15

Survey Tool Program	Date	2/6/2019		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	22,420.8	Design #1 (Wellbore #1)	MWD	OWSG MWD - Standard

Planned Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	+FSL/-FNL (usft)	+FWL/-FEL (usft)	Latitude	Longitude	
0.0	0.00	0.00	0.0	-230.6	-325.0	32° 4' 44.208 N	103° 16' 46.807 W	
100.0	0.00	0.00	100.0	-230.6	-325.0	32° 4' 44.208 N	103° 16' 46.807 W	
200.0	0.00	0.00	200.0	-230.6	-325.0	32° 4' 44.208 N	103° 16' 46.807 W	
300.0	0.00	0.00	300.0	-230.6	-325.0	32° 4' 44.208 N	103° 16' 46.807 W	
400.0	0.00	0.00	400.0	-230.6	-325.0	32° 4' 44.208 N	103° 16' 46.807 W	
500.0	0.00	0.00	500.0	-230.6	-325.0	32° 4' 44.208 N	103° 16' 46.807 W	
600.0	0.00	0.00	600.0	-230.6	-325.0	32° 4' 44.208 N	103° 16' 46.807 W	
700.0	0.00	0.00	700.0	-230.6	-325.0	32° 4' 44.208 N	103° 16' 46.807 W	
800.0	0.00	0.00	800.0	-230.6	-325.0	32° 4' 44.208 N	103° 16' 46.807 W	
900.0	0.00	0.00	900.0	-230.6	-325.0	32° 4' 44.208 N	103° 16' 46.807 W	
1,000.0	0.00	0.00	1,000.0	-230.6	-325.0	32° 4' 44.208 N	103° 16' 46.807 W	
1,100.0	0.00	0.00	1,100.0	-230.6	-325.0	32° 4' 44.208 N	103° 16' 46.807 W	



Ameredev Operating, LLC
Lease Penetration Section Line Footages

Company:	Ameredev Operating, LLC.	Local Co-ordinate Reference:	Well Redbud 108H
Project:	RB/HOL	TVD Reference:	KB @ 3029.0usft
Site:	RB/HOL #10S	MD Reference:	KB @ 3029.0usft
Well:	Redbud 108H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	EDM5000

Planned Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	+FSL/-FNL (usft)	+FWL/-FEL (usft)	Latitude	Longitude
1,200.0	0.00	0.00	1,200.0	-230.6	-325.0	32° 4' 44.208 N	103° 16' 46.807 W
1,300.0	0.00	0.00	1,300.0	-230.6	-325.0	32° 4' 44.208 N	103° 16' 46.807 W
1,400.0	0.00	0.00	1,400.0	-230.6	-325.0	32° 4' 44.208 N	103° 16' 46.807 W
1,500.0	0.00	0.00	1,500.0	-230.6	-325.0	32° 4' 44.208 N	103° 16' 46.807 W
1,600.0	0.00	0.00	1,600.0	-230.6	-325.0	32° 4' 44.208 N	103° 16' 46.807 W
1,700.0	0.00	0.00	1,700.0	-230.6	-325.0	32° 4' 44.208 N	103° 16' 46.807 W
1,800.0	0.00	0.00	1,800.0	-230.6	-325.0	32° 4' 44.208 N	103° 16' 46.807 W
1,900.0	0.00	0.00	1,900.0	-230.6	-325.0	32° 4' 44.208 N	103° 16' 46.807 W
2,000.0	0.00	0.00	2,000.0	-230.6	-325.0	32° 4' 44.208 N	103° 16' 46.807 W
2,100.0	2.00	237.00	2,100.0	-231.5	-326.5	32° 4' 44.199 N	103° 16' 46.824 W
2,200.0	4.00	237.00	2,199.8	-234.4	-330.9	32° 4' 44.171 N	103° 16' 46.875 W
2,300.0	6.00	237.00	2,299.5	-239.1	-338.2	32° 4' 44.125 N	103° 16' 46.961 W
2,400.0	6.00	237.00	2,398.9	-244.8	-346.9	32° 4' 44.069 N	103° 16' 47.063 W
2,500.0	6.00	237.00	2,498.4	-250.5	-355.7	32° 4' 44.014 N	103° 16' 47.166 W
2,600.0	6.00	237.00	2,597.8	-256.2	-364.5	32° 4' 43.958 N	103° 16' 47.268 W
2,700.0	6.00	237.00	2,697.3	-261.9	-373.2	32° 4' 43.903 N	103° 16' 47.371 W
2,800.0	6.00	237.00	2,796.7	-267.6	-382.0	32° 4' 43.847 N	103° 16' 47.473 W
2,900.0	6.00	237.00	2,896.2	-273.3	-390.8	32° 4' 43.792 N	103° 16' 47.576 W
3,000.0	6.00	237.00	2,995.6	-279.0	-399.5	32° 4' 43.736 N	103° 16' 47.678 W
3,100.0	6.00	237.00	3,095.1	-284.7	-408.3	32° 4' 43.681 N	103° 16' 47.781 W
3,200.0	6.00	237.00	3,194.5	-290.4	-417.1	32° 4' 43.625 N	103° 16' 47.883 W
3,300.0	6.00	237.00	3,294.0	-296.1	-425.8	32° 4' 43.570 N	103° 16' 47.986 W
3,400.0	6.00	237.00	3,393.4	-301.8	-434.6	32° 4' 43.515 N	103° 16' 48.088 W
3,500.0	6.00	237.00	3,492.9	-307.4	-443.4	32° 4' 43.459 N	103° 16' 48.191 W
3,600.0	6.00	237.00	3,592.3	-313.1	-452.1	32° 4' 43.404 N	103° 16' 48.293 W
3,700.0	6.00	237.00	3,691.8	-318.8	-460.9	32° 4' 43.348 N	103° 16' 48.396 W
3,800.0	6.00	237.00	3,791.2	-324.5	-469.7	32° 4' 43.293 N	103° 16' 48.498 W
3,900.0	6.00	237.00	3,890.7	-330.2	-478.4	32° 4' 43.237 N	103° 16' 48.601 W
4,000.0	6.00	237.00	3,990.1	-335.9	-487.2	32° 4' 43.182 N	103° 16' 48.703 W
4,100.0	6.00	237.00	4,089.6	-341.6	-496.0	32° 4' 43.126 N	103° 16' 48.806 W
4,200.0	6.00	237.00	4,189.0	-347.3	-504.7	32° 4' 43.071 N	103° 16' 48.908 W
4,300.0	6.00	237.00	4,288.5	-353.0	-513.5	32° 4' 43.015 N	103° 16' 49.011 W
4,400.0	6.00	237.00	4,387.9	-358.7	-522.3	32° 4' 42.960 N	103° 16' 49.114 W
4,500.0	6.00	237.00	4,487.4	-364.4	-531.0	32° 4' 42.904 N	103° 16' 49.216 W
4,600.0	6.00	237.00	4,586.9	-370.1	-539.8	32° 4' 42.849 N	103° 16' 49.319 W
4,700.0	6.00	237.00	4,686.3	-375.8	-548.6	32° 4' 42.793 N	103° 16' 49.421 W
4,800.0	6.00	237.00	4,785.8	-381.5	-557.3	32° 4' 42.738 N	103° 16' 49.524 W
4,900.0	6.00	237.00	4,885.2	-387.2	-566.1	32° 4' 42.682 N	103° 16' 49.626 W
5,000.0	6.00	237.00	4,984.7	-392.8	-574.9	32° 4' 42.627 N	103° 16' 49.729 W
5,100.0	6.00	237.00	5,084.1	-398.5	-583.6	32° 4' 42.571 N	103° 16' 49.831 W
5,200.0	6.00	237.00	5,183.6	-404.2	-592.4	32° 4' 42.516 N	103° 16' 49.934 W
5,300.0	6.00	237.00	5,283.0	-409.9	-601.2	32° 4' 42.460 N	103° 16' 50.036 W
5,400.0	6.00	237.00	5,382.5	-415.6	-609.9	32° 4' 42.405 N	103° 16' 50.139 W
5,500.0	6.00	237.00	5,481.9	-421.3	-618.7	32° 4' 42.349 N	103° 16' 50.241 W



Ameredev Operating, LLC
Lease Penetration Section Line Footages

Company:	Ameredev Operating, LLC.	Local Co-ordinate Reference:	Well Redbud 108H
Project:	RB/HOL	TVD Reference:	KB @ 3029.0usft
Site:	RB/HOL #10S	MD Reference:	KB @ 3029.0usft
Well:	Redbud 108H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	EDM5000

Planned Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	+FSL/-FNL (usft)	+FWL/-FEL (usft)	Latitude	Longitude
5,600.0	6.00	237.00	5,581.4	-427.0	-627.5	32° 4' 42.294 N	103° 16' 50.344 W
5,700.0	6.00	237.00	5,680.8	-432.7	-636.2	32° 4' 42.238 N	103° 16' 50.446 W
5,800.0	6.00	237.00	5,780.3	-438.4	-645.0	32° 4' 42.183 N	103° 16' 50.549 W
5,900.0	6.00	237.00	5,879.7	-444.1	-653.8	32° 4' 42.127 N	103° 16' 50.651 W
6,000.0	6.00	237.00	5,979.2	-449.8	-662.5	32° 4' 42.072 N	103° 16' 50.754 W
6,100.0	6.00	237.00	6,078.6	-455.5	-671.3	32° 4' 42.016 N	103° 16' 50.856 W
6,200.0	6.00	237.00	6,178.1	-461.2	-680.1	32° 4' 41.961 N	103° 16' 50.959 W
6,300.0	6.00	237.00	6,277.5	-466.9	-688.8	32° 4' 41.905 N	103° 16' 51.061 W
6,400.0	6.00	237.00	6,377.0	-472.5	-697.6	32° 4' 41.850 N	103° 16' 51.164 W
6,500.0	6.00	237.00	6,476.4	-478.2	-706.4	32° 4' 41.795 N	103° 16' 51.267 W
6,600.0	6.00	237.00	6,575.9	-483.9	-715.1	32° 4' 41.739 N	103° 16' 51.369 W
6,700.0	6.00	237.00	6,675.3	-489.6	-723.9	32° 4' 41.684 N	103° 16' 51.472 W
6,724.8	6.00	237.00	6,700.0	-491.0	-726.1	32° 4' 41.670 N	103° 16' 51.497 W
6,800.0	4.50	237.00	6,774.9	-494.8	-731.8	32° 4' 41.633 N	103° 16' 51.564 W
6,900.0	2.50	237.00	6,874.7	-498.1	-736.9	32° 4' 41.601 N	103° 16' 51.624 W
7,000.0	0.50	237.00	6,974.7	-499.5	-739.1	32° 4' 41.587 N	103° 16' 51.650 W
7,024.8	0.00	0.00	6,999.5	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
7,100.0	0.00	0.00	7,074.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
7,200.0	0.00	0.00	7,174.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
7,300.0	0.00	0.00	7,274.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
7,400.0	0.00	0.00	7,374.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
7,500.0	0.00	0.00	7,474.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
7,600.0	0.00	0.00	7,574.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
7,700.0	0.00	0.00	7,674.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
7,800.0	0.00	0.00	7,774.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
7,900.0	0.00	0.00	7,874.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
8,000.0	0.00	0.00	7,974.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
8,100.0	0.00	0.00	8,074.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
8,200.0	0.00	0.00	8,174.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
8,300.0	0.00	0.00	8,274.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
8,400.0	0.00	0.00	8,374.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
8,500.0	0.00	0.00	8,474.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
8,600.0	0.00	0.00	8,574.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
8,700.0	0.00	0.00	8,674.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
8,800.0	0.00	0.00	8,774.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
8,900.0	0.00	0.00	8,874.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
9,000.0	0.00	0.00	8,974.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
9,100.0	0.00	0.00	9,074.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
9,200.0	0.00	0.00	9,174.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
9,300.0	0.00	0.00	9,274.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
9,400.0	0.00	0.00	9,374.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
9,500.0	0.00	0.00	9,474.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
9,600.0	0.00	0.00	9,574.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
9,700.0	0.00	0.00	9,674.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W



Ameredev Operating, LLC
Lease Penetration Section Line Footages

Company:	Ameredev Operating, LLC.	Local Co-ordinate Reference:	Well Redbud 108H
Project:	RB/HOL	TVD Reference:	KB @ 3029.0usft
Site:	RB/HOL #10S	MD Reference:	KB @ 3029.0usft
Well:	Redbud 108H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	EDM5000

Planned Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	+FSL/-FNL (usft)	+FWL/-FEL (usft)	Latitude	Longitude
9,800.0	0.00	0.00	9,774.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
9,900.0	0.00	0.00	9,874.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
10,000.0	0.00	0.00	9,974.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
10,100.0	0.00	0.00	10,074.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
10,200.0	0.00	0.00	10,174.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
10,300.0	0.00	0.00	10,274.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
10,400.0	0.00	0.00	10,374.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
10,500.0	0.00	0.00	10,474.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
10,600.0	0.00	0.00	10,574.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
10,700.0	0.00	0.00	10,674.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
10,800.0	0.00	0.00	10,774.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
10,900.0	0.00	0.00	10,874.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
11,000.0	0.00	0.00	10,974.7	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
11,025.3	0.00	0.00	11,000.0	-499.6	-739.2	32° 4' 41.586 N	103° 16' 51.651 W
RB108 KOP							
11,100.0	8.96	31.45	11,074.4	-494.6	-736.2	32° 4' 41.635 N	103° 16' 51.615 W
11,200.0	20.96	31.45	11,170.8	-472.6	-722.7	32° 4' 41.852 N	103° 16' 51.456 W
11,300.0	32.96	31.45	11,259.8	-434.0	-699.1	32° 4' 42.231 N	103° 16' 51.178 W
11,400.0	44.96	31.45	11,337.4	-380.5	-666.4	32° 4' 42.758 N	103° 16' 50.791 W
11,500.0	56.96	31.45	11,400.3	-314.3	-625.9	32° 4' 43.408 N	103° 16' 50.313 W
11,591.8	67.98	31.45	11,442.6	-245.0	-583.5	32° 4' 44.090 N	103° 16' 49.813 W
11,600.0	67.98	31.45	11,445.7	-238.5	-579.5	32° 4' 44.154 N	103° 16' 49.766 W
11,700.0	67.98	31.45	11,483.2	-159.4	-531.2	32° 4' 44.932 N	103° 16' 49.195 W
11,800.0	67.98	31.45	11,520.7	-80.4	-482.8	32° 4' 45.710 N	103° 16' 48.623 W
11,843.6	67.98	31.45	11,537.0	-45.9	-461.7	32° 4' 46.049 N	103° 16' 48.375 W
11,890.0	70.92	26.40	11,553.3	-7.9	-440.7	32° 4' 46.423 N	103° 16' 48.126 W
RB108 into Sec. 32							
11,900.0	71.57	25.33	11,556.6	0.7	-436.6	32° 4' 46.507 N	103° 16' 48.077 W
12,000.0	78.37	15.09	11,582.5	91.1	-403.4	32° 4' 47.399 N	103° 16' 47.682 W
12,013.4	79.31	13.76	11,585.1	103.9	-400.2	32° 4' 47.525 N	103° 16' 47.642 W
RB108 FTP							
12,100.0	85.51	5.34	11,596.6	188.4	-386.0	32° 4' 48.360 N	103° 16' 47.468 W
12,161.7	90.00	359.44	11,599.0	250.0	-383.4	32° 4' 48.969 N	103° 16' 47.431 W
RB108 FTP2							
12,200.0	90.00	359.44	11,599.0	288.3	-383.8	32° 4' 49.348 N	103° 16' 47.431 W
12,300.0	90.00	359.44	11,599.0	388.3	-384.8	32° 4' 50.337 N	103° 16' 47.431 W
12,400.0	90.00	359.44	11,599.0	488.3	-385.7	32° 4' 51.327 N	103° 16' 47.431 W
12,500.0	90.00	359.44	11,599.0	588.3	-386.7	32° 4' 52.316 N	103° 16' 47.431 W
12,600.0	90.00	359.44	11,599.0	688.3	-387.7	32° 4' 53.306 N	103° 16' 47.431 W
12,700.0	90.00	359.44	11,599.0	788.2	-388.7	32° 4' 54.295 N	103° 16' 47.431 W
12,800.0	90.00	359.44	11,599.0	888.2	-389.6	32° 4' 55.285 N	103° 16' 47.431 W
12,900.0	90.00	359.44	11,599.0	988.2	-390.6	32° 4' 56.274 N	103° 16' 47.431 W
13,000.0	90.00	359.44	11,599.0	1,088.2	-391.6	32° 4' 57.264 N	103° 16' 47.431 W
13,100.0	90.00	359.44	11,599.0	1,188.2	-392.6	32° 4' 58.253 N	103° 16' 47.431 W
13,200.0	90.00	359.44	11,599.0	1,288.2	-393.5	32° 4' 59.243 N	103° 16' 47.431 W



Ameredev Operating, LLC
Lease Penetration Section Line Footages

Company:	Ameredev Operating, LLC.	Local Co-ordinate Reference:	Well Redbud 108H
Project:	RB/HOL	TVD Reference:	KB @ 3029.0usft
Site:	RB/HOL #10S	MD Reference:	KB @ 3029.0usft
Well:	Redbud 108H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	EDM5000

Planned Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	+FSL/-FNL (usft)	+FWL/-FEL (usft)	Latitude	Longitude
13,300.0	90.00	359.44	11,599.0	1,388.2	-394.5	32° 5' 0.232 N	103° 16' 47.431 W
13,400.0	90.00	359.44	11,599.0	1,488.2	-395.5	32° 5' 1.222 N	103° 16' 47.431 W
13,500.0	90.00	359.44	11,599.0	1,588.2	-396.5	32° 5' 2.211 N	103° 16' 47.431 W
13,600.0	90.00	359.44	11,599.0	1,688.2	-397.4	32° 5' 3.201 N	103° 16' 47.431 W
13,700.0	90.00	359.44	11,599.0	1,788.2	-398.4	32° 5' 4.190 N	103° 16' 47.431 W
13,800.0	90.00	359.44	11,599.0	1,888.2	-399.4	32° 5' 5.180 N	103° 16' 47.431 W
13,900.0	90.00	359.44	11,599.0	1,988.2	-400.4	32° 5' 6.169 N	103° 16' 47.431 W
14,000.0	90.00	359.44	11,599.0	2,088.2	-401.3	32° 5' 7.159 N	103° 16' 47.431 W
14,100.0	90.00	359.44	11,599.0	2,188.2	-402.3	32° 5' 8.148 N	103° 16' 47.431 W
14,200.0	90.00	359.44	11,599.0	2,288.2	-403.3	32° 5' 9.138 N	103° 16' 47.431 W
14,300.0	90.00	359.44	11,599.0	2,388.2	-404.3	32° 5' 10.127 N	103° 16' 47.430 W
14,400.0	90.00	359.44	11,599.0	2,488.2	-405.2	32° 5' 11.117 N	103° 16' 47.430 W
14,500.0	90.00	359.44	11,599.0	2,588.2	-406.2	32° 5' 12.106 N	103° 16' 47.430 W
14,600.0	90.00	359.44	11,599.0	2,688.2	-407.2	32° 5' 13.096 N	103° 16' 47.430 W
14,700.0	90.00	359.44	11,599.0	2,788.2	-408.2	32° 5' 14.085 N	103° 16' 47.430 W
14,800.0	90.00	359.44	11,599.0	2,888.1	-409.1	32° 5' 15.075 N	103° 16' 47.430 W
14,900.0	90.00	359.44	11,599.0	2,988.1	-410.1	32° 5' 16.064 N	103° 16' 47.430 W
15,000.0	90.00	359.44	11,599.0	3,088.1	-411.1	32° 5' 17.054 N	103° 16' 47.430 W
15,100.0	90.00	359.44	11,599.0	3,188.1	-412.1	32° 5' 18.043 N	103° 16' 47.430 W
15,200.0	90.00	359.44	11,599.0	3,288.1	-413.0	32° 5' 19.033 N	103° 16' 47.430 W
15,300.0	90.00	359.44	11,599.0	3,388.1	-414.0	32° 5' 20.022 N	103° 16' 47.430 W
15,400.0	90.00	359.44	11,599.0	3,488.1	-415.0	32° 5' 21.012 N	103° 16' 47.430 W
15,500.0	90.00	359.44	11,599.0	3,588.1	-416.0	32° 5' 22.001 N	103° 16' 47.430 W
15,600.0	90.00	359.44	11,599.0	3,688.1	-416.9	32° 5' 22.991 N	103° 16' 47.430 W
15,700.0	90.00	359.44	11,599.0	3,788.1	-417.9	32° 5' 23.980 N	103° 16' 47.430 W
15,800.0	90.00	359.44	11,599.0	3,888.1	-418.9	32° 5' 24.970 N	103° 16' 47.430 W
15,900.0	90.00	359.44	11,599.0	3,988.1	-419.9	32° 5' 25.959 N	103° 16' 47.430 W
16,000.0	90.00	359.44	11,599.0	4,088.1	-420.8	32° 5' 26.949 N	103° 16' 47.430 W
16,100.0	90.00	359.44	11,599.0	4,188.1	-421.8	32° 5' 27.938 N	103° 16' 47.430 W
16,200.0	90.00	359.44	11,599.0	4,288.1	-422.8	32° 5' 28.928 N	103° 16' 47.430 W
16,300.0	90.00	359.44	11,599.0	4,388.1	-423.8	32° 5' 29.918 N	103° 16' 47.430 W
16,400.0	90.00	359.44	11,599.0	4,488.1	-424.7	32° 5' 30.907 N	103° 16' 47.430 W
16,500.0	90.00	359.44	11,599.0	4,588.1	-425.7	32° 5' 31.897 N	103° 16' 47.430 W
16,600.0	90.00	359.44	11,599.0	4,688.1	-426.7	32° 5' 32.886 N	103° 16' 47.430 W
16,700.0	90.00	359.44	11,599.0	4,788.1	-427.7	32° 5' 33.876 N	103° 16' 47.430 W
16,800.0	90.00	359.44	11,599.0	4,888.1	-428.6	32° 5' 34.865 N	103° 16' 47.430 W
16,900.0	90.00	359.44	11,599.0	4,988.0	-429.6	32° 5' 35.855 N	103° 16' 47.430 W
17,000.0	90.00	359.44	11,599.0	5,088.0	-430.6	32° 5' 36.844 N	103° 16' 47.430 W
17,100.0	90.00	359.44	11,599.0	5,188.0	-431.6	32° 5' 37.834 N	103° 16' 47.430 W
17,192.0	90.00	359.44	11,599.0	5,280.0	-432.5	32° 5' 38.744 N	103° 16' 47.430 W
RB108 into Sec. 29							
17,200.0	90.00	359.44	11,599.0	5,288.0	-432.5	32° 5' 38.823 N	103° 16' 47.430 W
17,300.0	90.00	359.44	11,599.0	5,388.0	-433.5	32° 5' 39.813 N	103° 16' 47.430 W
17,400.0	90.00	359.44	11,599.0	5,488.0	-434.5	32° 5' 40.802 N	103° 16' 47.430 W
17,500.0	90.00	359.44	11,599.0	5,588.0	-435.5	32° 5' 41.792 N	103° 16' 47.430 W



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Lease Penetration Section Line Footages

Company:	Ameredev Operating, LLC.	Local Co-ordinate Reference:	Well Redbud 108H
Project:	RB/HOL	TVD Reference:	KB @ 3029.0usft
Site:	RB/HOL #10S	MD Reference:	KB @ 3029.0usft
Well:	Redbud 108H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	EDM5000

Planned Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	+FSL/-FNL (usft)	+FWL/-FEL (usft)	Latitude	Longitude
17,600.0	90.00	359.44	11,599.0	5,688.0	-436.4	32° 5' 42.781 N	103° 16' 47.430 W
17,700.0	90.00	359.44	11,599.0	5,788.0	-437.4	32° 5' 43.771 N	103° 16' 47.430 W
17,800.0	90.00	359.44	11,599.0	5,888.0	-438.4	32° 5' 44.760 N	103° 16' 47.430 W
17,900.0	90.00	359.44	11,599.0	5,988.0	-439.4	32° 5' 45.750 N	103° 16' 47.430 W
18,000.0	90.00	359.44	11,599.0	6,088.0	-440.3	32° 5' 46.739 N	103° 16' 47.430 W
18,100.0	90.00	359.44	11,599.0	6,188.0	-441.3	32° 5' 47.729 N	103° 16' 47.430 W
18,200.0	90.00	359.44	11,599.0	6,288.0	-442.3	32° 5' 48.718 N	103° 16' 47.430 W
18,300.0	90.00	359.44	11,599.0	6,388.0	-443.3	32° 5' 49.708 N	103° 16' 47.429 W
18,400.0	90.00	359.44	11,599.0	6,488.0	-444.2	32° 5' 50.697 N	103° 16' 47.429 W
18,500.0	90.00	359.44	11,599.0	6,588.0	-445.2	32° 5' 51.687 N	103° 16' 47.429 W
18,600.0	90.00	359.44	11,599.0	6,688.0	-446.2	32° 5' 52.676 N	103° 16' 47.429 W
18,700.0	90.00	359.44	11,599.0	6,788.0	-447.2	32° 5' 53.666 N	103° 16' 47.429 W
18,800.0	90.00	359.44	11,599.0	6,888.0	-448.1	32° 5' 54.655 N	103° 16' 47.429 W
18,900.0	90.00	359.44	11,599.0	6,988.0	-449.1	32° 5' 55.645 N	103° 16' 47.429 W
19,000.0	90.00	359.44	11,599.0	7,087.9	-450.1	32° 5' 56.634 N	103° 16' 47.429 W
19,100.0	90.00	359.44	11,599.0	7,187.9	-451.0	32° 5' 57.624 N	103° 16' 47.429 W
19,200.0	90.00	359.44	11,599.0	7,287.9	-452.0	32° 5' 58.613 N	103° 16' 47.429 W
19,300.0	90.00	359.44	11,599.0	7,387.9	-453.0	32° 5' 59.603 N	103° 16' 47.429 W
19,400.0	90.00	359.44	11,599.0	7,487.9	-454.0	32° 6' 0.592 N	103° 16' 47.429 W
19,500.0	90.00	359.44	11,599.0	7,587.9	-454.9	32° 6' 1.582 N	103° 16' 47.429 W
19,600.0	90.00	359.44	11,599.0	7,687.9	-455.9	32° 6' 2.571 N	103° 16' 47.429 W
19,700.0	90.00	359.44	11,599.0	7,787.9	-456.9	32° 6' 3.561 N	103° 16' 47.429 W
19,800.0	90.00	359.44	11,599.0	7,887.9	-457.9	32° 6' 4.550 N	103° 16' 47.429 W
19,900.0	90.00	359.44	11,599.0	7,987.9	-458.8	32° 6' 5.540 N	103° 16' 47.429 W
20,000.0	90.00	359.44	11,599.0	8,087.9	-459.8	32° 6' 6.529 N	103° 16' 47.429 W
20,100.0	90.00	359.44	11,599.0	8,187.9	-460.8	32° 6' 7.519 N	103° 16' 47.429 W
20,200.0	90.00	359.44	11,599.0	8,287.9	-461.8	32° 6' 8.508 N	103° 16' 47.429 W
20,300.0	90.00	359.44	11,599.0	8,387.9	-462.7	32° 6' 9.498 N	103° 16' 47.429 W
20,400.0	90.00	359.44	11,599.0	8,487.9	-463.7	32° 6' 10.487 N	103° 16' 47.429 W
20,500.0	90.00	359.44	11,599.0	8,587.9	-464.7	32° 6' 11.477 N	103° 16' 47.429 W
20,600.0	90.00	359.44	11,599.0	8,687.9	-465.7	32° 6' 12.466 N	103° 16' 47.429 W
20,700.0	90.00	359.44	11,599.0	8,787.9	-466.6	32° 6' 13.456 N	103° 16' 47.429 W
20,800.0	90.00	359.44	11,599.0	8,887.9	-467.6	32° 6' 14.445 N	103° 16' 47.429 W
20,900.0	90.00	359.44	11,599.0	8,987.9	-468.6	32° 6' 15.435 N	103° 16' 47.429 W
21,000.0	90.00	359.44	11,599.0	9,087.9	-469.6	32° 6' 16.424 N	103° 16' 47.429 W
21,100.0	90.00	359.44	11,599.0	9,187.8	-470.5	32° 6' 17.414 N	103° 16' 47.429 W
21,200.0	90.00	359.44	11,599.0	9,287.8	-471.5	32° 6' 18.403 N	103° 16' 47.429 W
21,300.0	90.00	359.44	11,599.0	9,387.8	-472.5	32° 6' 19.393 N	103° 16' 47.429 W
21,400.0	90.00	359.44	11,599.0	9,487.8	-473.5	32° 6' 20.382 N	103° 16' 47.429 W
21,500.0	90.00	359.44	11,599.0	9,587.8	-474.4	32° 6' 21.372 N	103° 16' 47.429 W
21,600.0	90.00	359.44	11,599.0	9,687.8	-475.4	32° 6' 22.361 N	103° 16' 47.429 W
21,700.0	90.00	359.44	11,599.0	9,787.8	-476.4	32° 6' 23.351 N	103° 16' 47.429 W
21,800.0	90.00	359.44	11,599.0	9,887.8	-477.4	32° 6' 24.340 N	103° 16' 47.429 W
21,900.0	90.00	359.44	11,599.0	9,987.8	-478.3	32° 6' 25.330 N	103° 16' 47.428 W



Ameredev Operating, LLC
Lease Penetration Section Line Footages

Company:	Ameredev Operating, LLC.	Local Co-ordinate Reference:	Well Redbud 108H
Project:	RB/HOL	TVD Reference:	KB @ 3029.0usft
Site:	RB/HOL #10S	MD Reference:	KB @ 3029.0usft
Well:	Redbud 108H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	EDM5000

Planned Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	+FSL/-FNL (usft)	+FWL/-FEL (usft)	Latitude	Longitude
22,000.0	90.00	359.44	11,599.0	10,087.8	-479.3	32° 6' 26.319 N	103° 16' 47.428 W
22,100.0	90.00	359.44	11,599.0	10,187.8	-480.3	32° 6' 27.309 N	103° 16' 47.428 W
22,200.0	90.00	359.44	11,599.0	10,287.8	-481.3	32° 6' 28.298 N	103° 16' 47.428 W
22,300.0	90.00	359.44	11,599.0	10,387.8	-482.2	32° 6' 29.288 N	103° 16' 47.428 W
22,370.8	90.00	359.44	11,599.0	10,458.6	-482.9	32° 6' 29.989 N	103° 16' 47.428 W
RB108 LTP							
22,400.0	90.00	359.44	11,599.0	10,487.8	-483.2	32° 6' 30.277 N	103° 16' 47.428 W
22,420.8	90.00	359.44	11,599.0	10,508.6	-483.4	32° 6' 30.483 N	103° 16' 47.428 W
RB108 BHL							

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
11,890.0	11,553.3	222.7	-115.7	RB108 into Sec. 32
17,192.0	11,599.0	5,510.6	-107.5	RB108 into Sec. 29

Checked By: _____ Approved By: _____ Date: _____



H₂S Drilling Operation Plan

1. All Company and Contract personnel admitted on location must be trained by a qualified H₂S safety instructor to the following:

- a. Characteristics of H₂S
- b. Physical effects and hazards
- c. Principal and operation of H₂S detectors, warning system and briefing areas
- d. Evacuation procedure, routes and first aid
- e. Proper use of safety equipment and life support systems
- f. Essential personnel meeting Medical Evaluation criteria will receive additional training on the proper use of 30 minute pressure demand air packs.

2. Briefing Area:

- a. Two perpendicular areas will be designated by signs and readily accessible.
- b. Upon location entry there will be a designated area to establish all safety compliance criteria (1.) has been met.

3. H₂S Detection and Alarm Systems:

- a. H₂S sensors/detectors shall be located on the drilling rig floor, in the base of the sub structure/cellar area, and on the mud pits in the shale shaker area. Additional H₂S detectors may be placed as deemed necessary. All detectors will be set to initiate visual alarm at 10 ppm and visual with audible at 14 ppm and all equipment will be calibrated every 30 days or as needed.
- b. An audio alarm will be installed on the derrick floor and in the top doghouse.

4. Protective Equipment for Essential Personnel:

- a. **Breathing Apparatus:**
 - i. Rescue Packs (SCBA) - 1 Unit shall be placed at each briefing area.
 - ii. Two (SCBA) Units will be stored in safety trailer on location.
 - iii. Work/Escapes packs - 1 Unit will be available on rig floor in doghouse for emergency evacuation for driller.
- b. **Auxiliary Rescue Equipment:**
 - i. Stretcher
 - ii. 2 - OSHA full body harnesses
 - iii. 100 ft. 5/8" OSHA approved rope
 - iv. 1 - 20# class ABC fire extinguisher

5. Windsock and/or Wind Streamers:

- a. Windsock at mud pit area should be high enough to be visible.
- b. Windsock on the rig floor should be high enough to be visible.

6. Communication:

- a. While working under mask scripting boards will be used for communication where applicable.
- b. Hand signals will be used when script boards are not applicable.



H₂S Drilling Operation Plan

- c. Two way radios will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at Drilling Foreman's Office.
- 7. **Drill Stem Testing:** - No Planned DST at this time.
- 8. **Mud program:**
 - a. If H₂S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H₂S scavengers if necessary.
- 9. **Metallurgy:**
 - a. All drill strings, casing, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H₂S service.
 - b. Drilling Contractor supervisor will be required to be familiar with the effect H₂S has on tubular goods and other mechanical equipment provided through contractor.



H₂S Contingency Plan

Emergency Procedures

In the event of a release of H₂S, the first responder(s) must:

- Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- Evacuate any public places encompassed by the 100 ppm ROE.
- Be equipped with H₂S monitors and air packs in order to control the release.
- Use the “buddy system” to ensure no injuries occur during the response.
- Take precautions to avoid personal injury during this operation.
- Contact Operator and/or local officials the aid in operation. See list of phone numbers attached.
- Have received training in the:
 - Detection of H₂S and
 - Measures for protection against the gas,
 - Equipment used for protection and emergency response.

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO₂). 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 there is an ignition of the gas.

Characteristics of H₂S and SO₂

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

Contacting Authorities

Ameredev Operating LLC personnel must liaise 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 direction to site. The following call list of essential and potential responders has been prepared for use during a release. Ameredev Operating LLC's response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER)



H₂S Contingency Plan

Ameredev Operating LLC – Emergency Phone 737-300-4799			
Key Personnel:			
Name	Title	Office	Mobile
Floyd Hammond	Chief Operating officer	737-300-4724	512-783-6810
Zachary Boyd	Operations Superintendent	737-300-4725	432-385-6996
Blake Estrada	Construction Foreman		432-385-5831

<u>Artesia</u>			
Ambulance			911
State Police			575-746-2703
City Police			575-746-2703
Sheriff's Office			575-746-9888
Fire Department			575-746-2701
Local Emergency Planning Committee			575-746-2122
New Mexico Oil Conservation Division			575-748-1283
<u>Carlsbad</u>			
Ambulance			911
State Police			575-885-3137
City Police			575-885-2111
Sheriff's Office			575-887-7551
Fire Department			575-887-3798
Local Emergency Planning Committee			575-887-6544
US Bureau of Land Management			575-887-6544
<u>Santa Fe</u>			
New Mexico Emergency Response Commission (Santa Fe)			505-476-9600
New Mexico Emergency Response Commission (Santa Fe) 24 Hrs			505-827-9126
New Mexico State Emergency Operations Center			505-476-9635
<u>National</u>			
National Emergency Response Center (Washington, D.C.)			800-424-8802
<u>Medical</u>			
Flight for Life - 4000 24th St.; Lubbock, TX			806-743-9911
Aerocare - R3, Box 49F; Lubbock, TX			806-747-8923
Med Flight Air Amb - 2301 Yale Blvd S.E., #D3; Albuquerque, NM			505-842-4433
.SB Air Med Service - 2505 Clark Carr Loop S.E.; Albuquerque, NM			505-842-4949