OCD Artesia

15-861

Form 3160-3
(March 2012)

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NM-45229, NM-90272, NM-56231

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone

8. Lease Name and Well No. 317391
Happy Valley 27 Federal Com 1H

2. Name of Operator RKI EXPLORATION & PRODUCTION, LLC. 246289

9. API Well No.
30-015-44056

3a. Address 210 PARK AVENUE, SUITE 900
OKLAHOMA CITY, OKLAHOMA 73102

3b. Phone No. *(include area code)*
(405) 987-2226 (Sam McCurdy)

10. Field and Pool, or Exploratory
Happy Valley; Bone Spring, Southeast

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface 155 FSL & 990 FWL (FIRST TAKE: 330 FSL & 330 FWL) NORTHODOX LOCATION
At proposed prod. zone 230 FNL & 330 FWL (LAST TAKE: 330 FNL & 330 FWL)

11. Sec., T. R. M. or Blk. and Survey or Area
SHL: SECTION 27, T. 22 S., R. 26 E.
BHL: SECTION 27, T. 22 S., R. 26 E.

14. Distance in miles and direction from nearest town or post office*
2 MILES SOUTHWEST OF CARLSBAD, NM

12. County or Parish
EDDY

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drlg. unit line, if any)
SHL: 155'
BHL: 230'

16. No. of acres in lease
SHL: 160
BHL: 80

17. Spacing Unit dedicated to this well
160

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
SHL: 1600'
BHL: N/A

19. Proposed Depth
TVD: 6,600'
MD: 11,131'

20. BLM/BIA Bond No. on file
NLM-NMB-000460

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3255' GL

22. Approximate date work will start*
ASAP

23. Estimated duration
35 DAYS

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
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).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the BLM.

25. Signature
Name *(Printed/Typed)* BARRY W. HUNT
Date 7/6/15

Title
PERMIT AGENT FOR RKI EXPLORATION & PRODUCTION, LLC.

Approved by *(Signature)* /s/Cody Layton
Name *(Printed/Typed)*
Date FEB - 2 2017

Title FIELD MANAGER
Office CARLSBAD FIELD OFFICE

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.

APPROVAL FOR TWO YEARS

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)

RJP 2/8/17
Accepted for record - NMOCD

Carlsbad Controlled Water Basin

NM OIL CONSERVATION
ARTESIA DISTRICT
FEB 06 2017

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

RECEIVED

Approval Subject to General Requirements
& Special Stipulations Attached

CERTIFICATION

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access road proposed herein; that I am familiar with the conditions that presently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct, and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or RKI Exploration and Production, LLC am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U. S. C. 1001 for the filing of false statements. Executed this 6th day of July 2015.

Signed: _____

Printed Name: Barry Hunt
Position: Agent for RKI Exploration & Production, LLC.
Address: 1403 Springs Farm Place, Carlsbad, NM 88220
Telephone: (575) 361-4078
E-mail: specialtpermitting@gmail.com

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) 476-3460 Fax: (505) 476-3462

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

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015-44056	96605	HAPPY VALLEY; BONE SPRING, SOUTHEAST

Property Code	Property Name	Well Number
317391	HAPPY VALLEY 27 FEDERAL COM	1H

OGRID No.	Operator Name	Elevation
246289	RKI EXPLORATION & PRODUCTION	3255'

Surface Location

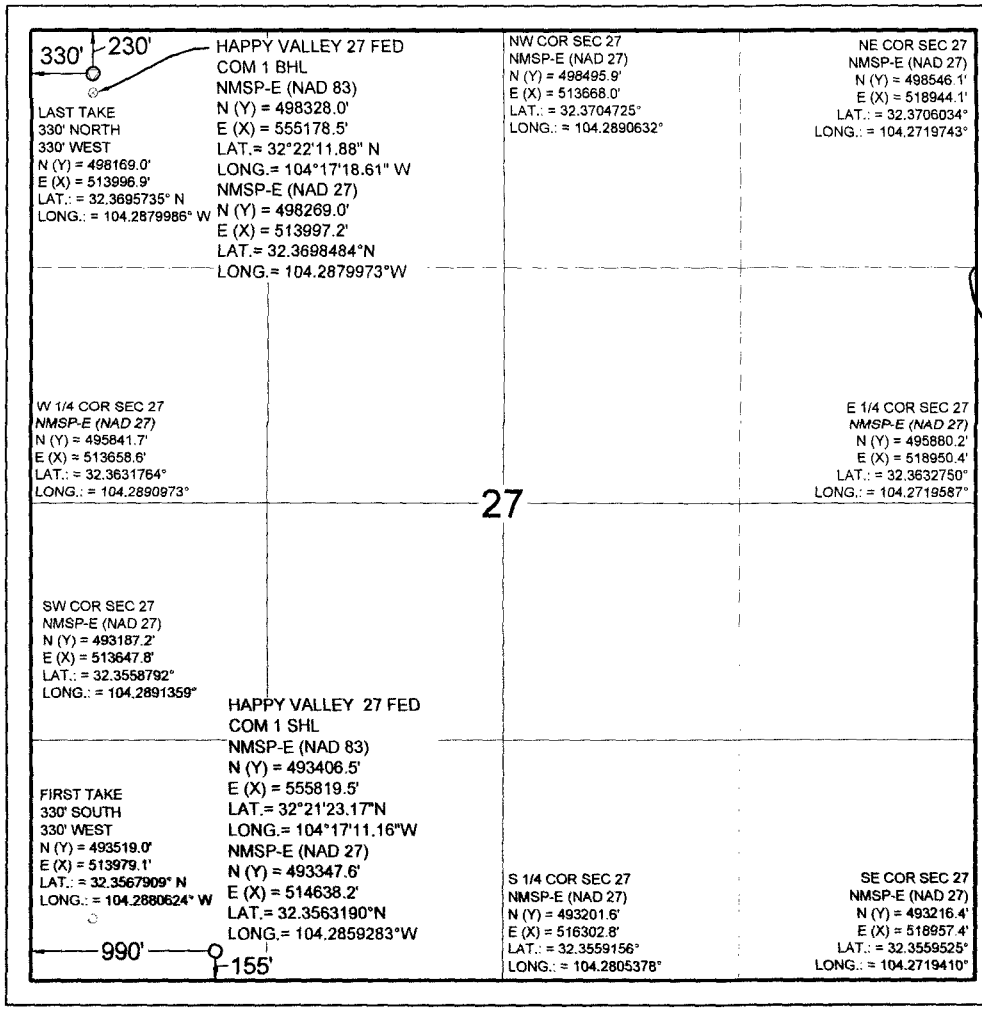
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	27	22 S	26 E		155	SOUTH	990	WEST	EDDY

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
D	27	22 S	26 E		230	NORTH	330	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidated Code	Order No.
160			

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.



OPERATOR 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 voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Barry W. Hunt 7/6/15
Signature Date

Barry W. Hunt
Print Name

E-mail Address

SURVEYORS 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 and correct to the best of my belief.

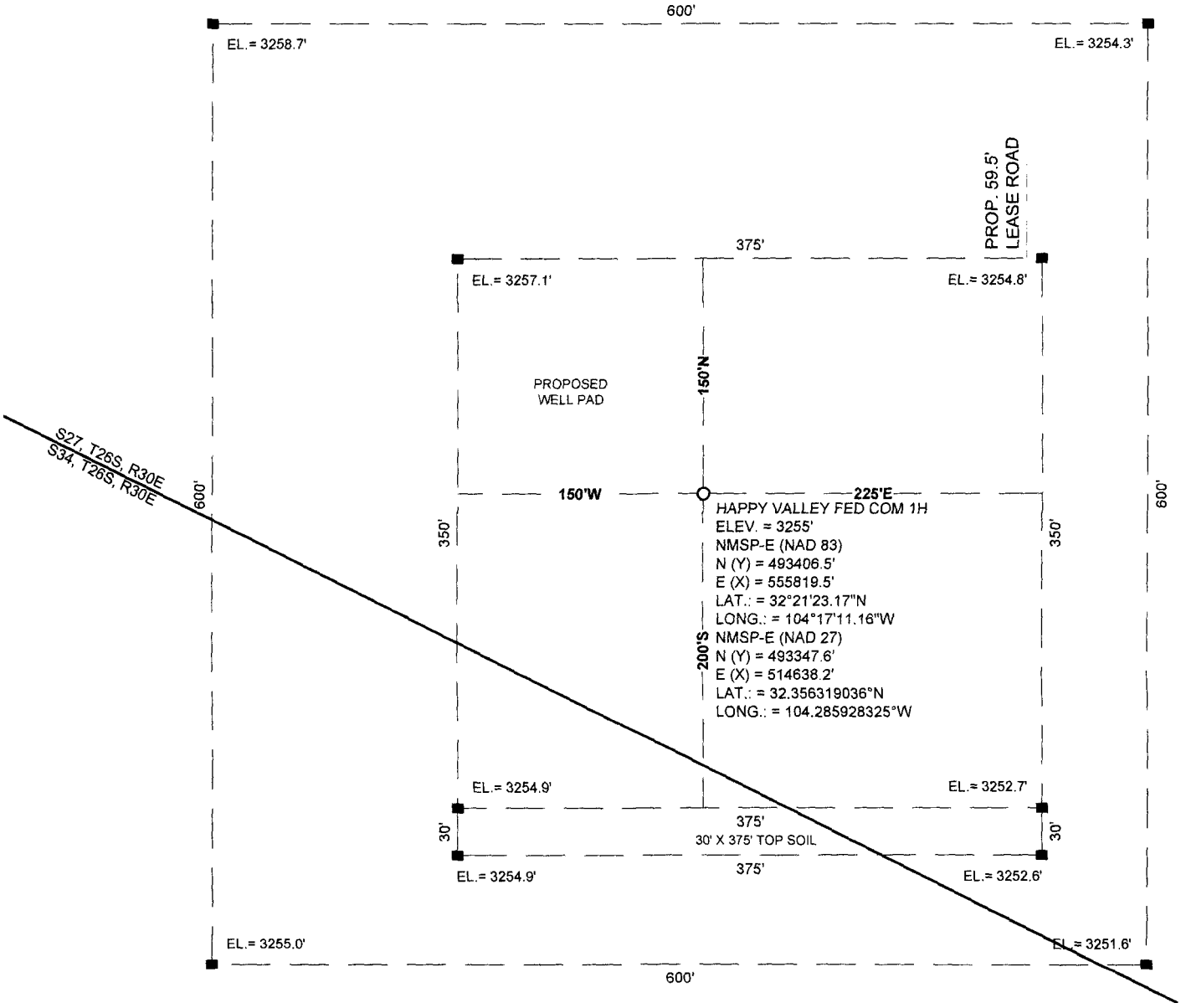
November 25, 2014
Date of Survey

Signature and Seal of Professional Surveyor:

JAMES E. TOMPKINS NEW MEXICO 14729 REGISTERED PROFESSIONAL LAND SURVEYOR

Job No.: WTC50355
JAMES E. TOMPKINS 14729
Certificate Number

SITE LOCATION



0 50 100 200

GRAPHIC SCALE 1" = 100'

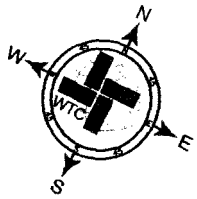
SECTION 27, T 22 S, R 26 E, N.M.P.M.

COUNTY: EDDY STATE: NM

DESCRIPTION: 155' FSL & 990' FWL

OPERATOR: RKI EXPLORATION & PRODUCTION

WELL NAME: HAPPY VALLEY 27 FED COM 1H



DRIVING DIRECTIONS:

Beginning at the intersection of Hwy 285 (S. Canal St.) and Hwy 180 (W. Greene St.). Head South on Hwy 285 (S. Canal St.) for approximately 1.9 miles to a Y in the road. Take right and head in southwest direction on Hwy 62 (National Parks Hwy) for approximately 1.6 miles to County Rd. 672 (Hidalgo Rd.) on right. Turn right and head West approximately 1.6 mile to a bend in the road. Continue on County Rd. 672 (Hidalgo Rd.) for approximately 1.8 miles. Turn left on Rubble Ln. and head South approximately 470 feet. The flagged location is to the right approximately 365 feet from the road.

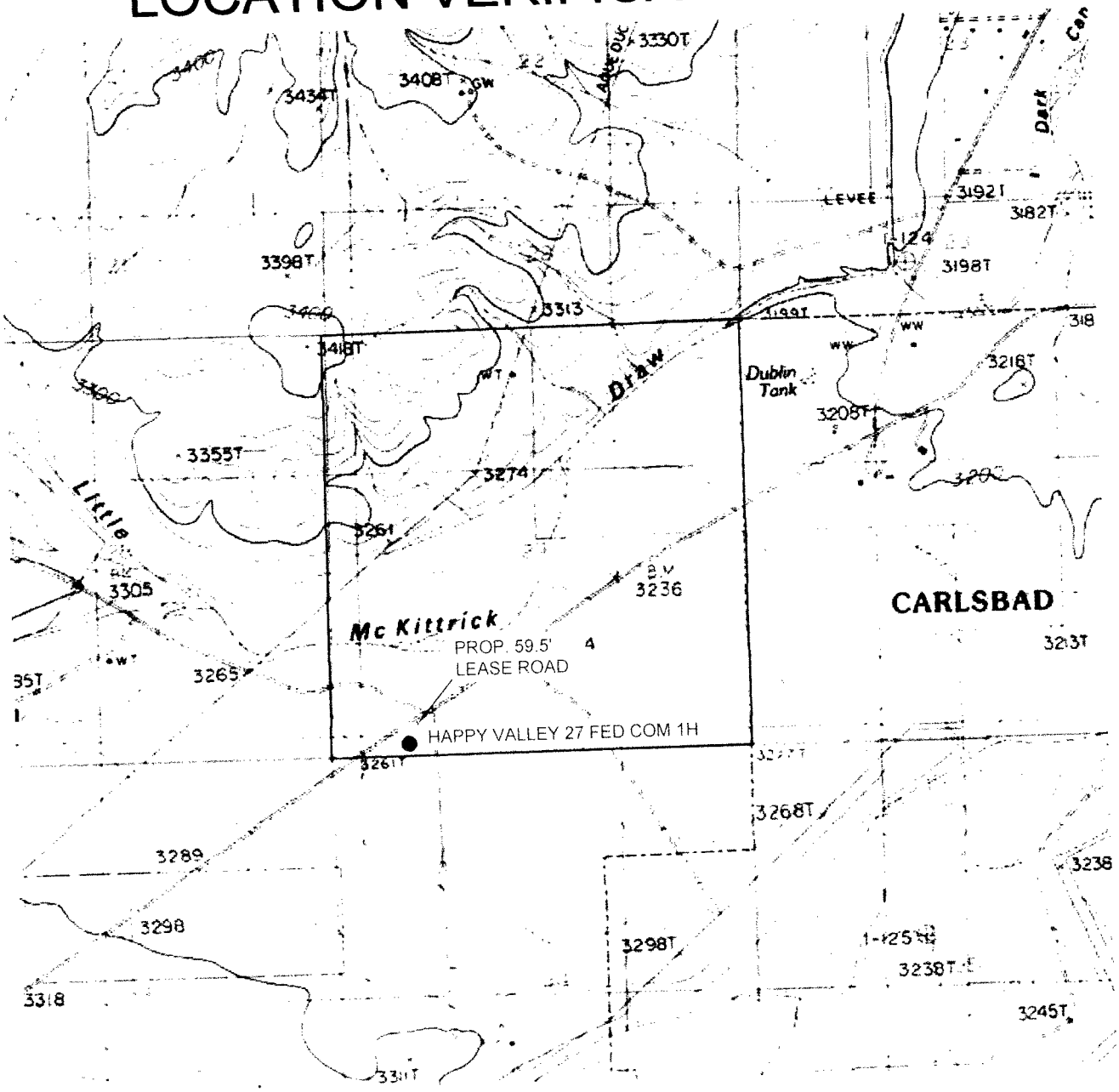
WTC

W T C, INC.
405 S.W. 1st Street
Andrews, TX 79714
(432) 523-2181

RKI Exploration & Production

JOB No.: 50355

LOCATION VERIFICATION MAP



GRAPHIC SCALE 1" = 2000'

SECTION 27, T 22 S, R 26 E, N.M.P.M.

COUNTY: EDDY STATE: NM

DESCRIPTION: 155' FSL & 990' FWL

OPERATOR: RKI EXPLORATION & PRODUCTION

WELL NAME: HAPPY VALLEY 27 FED COM 1H

DRIVING DIRECTIONS:

Beginning at the intersection of Hwy 285 (S. Canal St.) and Hwy 180 (W. Greene St.). Head South on Hwy 285 (S. Canal St.) for approximately 1.9 miles to a Y in the road. Take right and head in southwest direction on Hwy 62 (National Parks Hwy) for approximately 1.6 miles to County Rd. 672 (Hidalgo Rd.) on right. Turn right and head West approximately 1.6 mile to a bend in the road. Continue on County Rd. 672 (Hidalgo Rd.) for approximately 1.8 miles. Turn left on Rubble Ln. and head South approximately 470 feet. The flagged location is to the right approximately 365 feet from the road.

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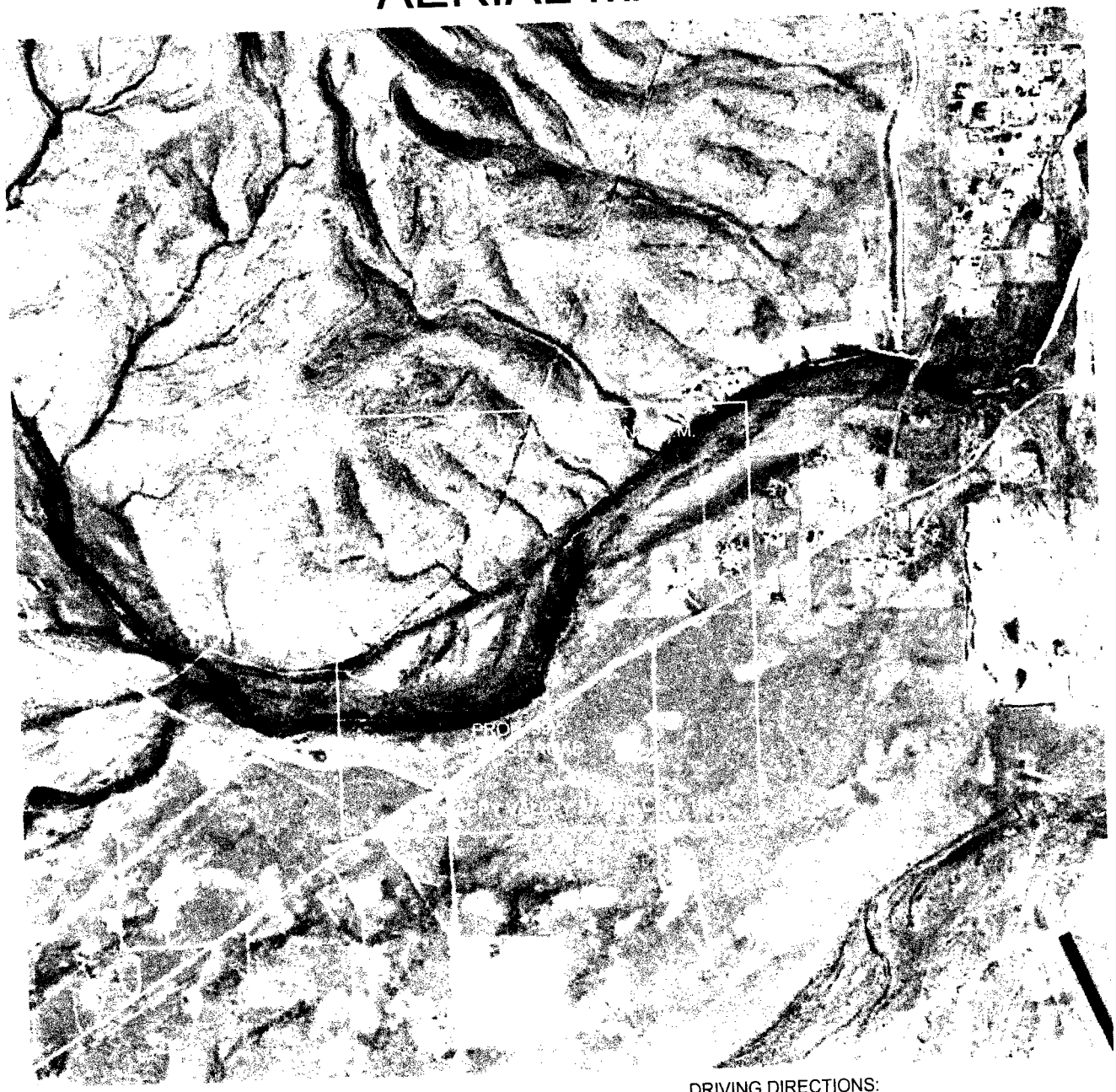
405 S.W. 1st Street
Andrews, TX 79714
(432) 523-2181

RKI Exploration & Production

JOB No.: 50355

AERIAL MAP



0 1000 2000 4000

GRAPHIC SCALE 1" = 2000'

SECTION 27, T 22 S, R 26 E, N.M.P.M.

COUNTY: EDDY STATE: NM

DESCRIPTION: 155' FSL & 990' FWL

OPERATOR: RKI EXPLORATION & PRODUCTION

WELL NAME: HAPPY VALLEY 27 FED COM 1H

DRIVING DIRECTIONS:

Beginning at the intersection of Hwy 285 (S. Canal St.) and Hwy 180 (W. Greene St.). Head South on Hwy 285 (S. Canal St.) for approximately 1.9 miles to a Y in the road. Take right and head in southwest direction on Hwy 62 (National Parks Hwy) for approximately 1.6 miles to County Rd. 672 (Hidalgo Rd.) on right. Turn right and head West approximately 1.6 mile to a bend in the road. Continue on County Rd. 672 (Hidalgo Rd.) for approximately 1.8 miles. Turn left on Rubble Ln. and head South approximately 470 feet. The flagged location is to the right approximately 365 feet from the road.

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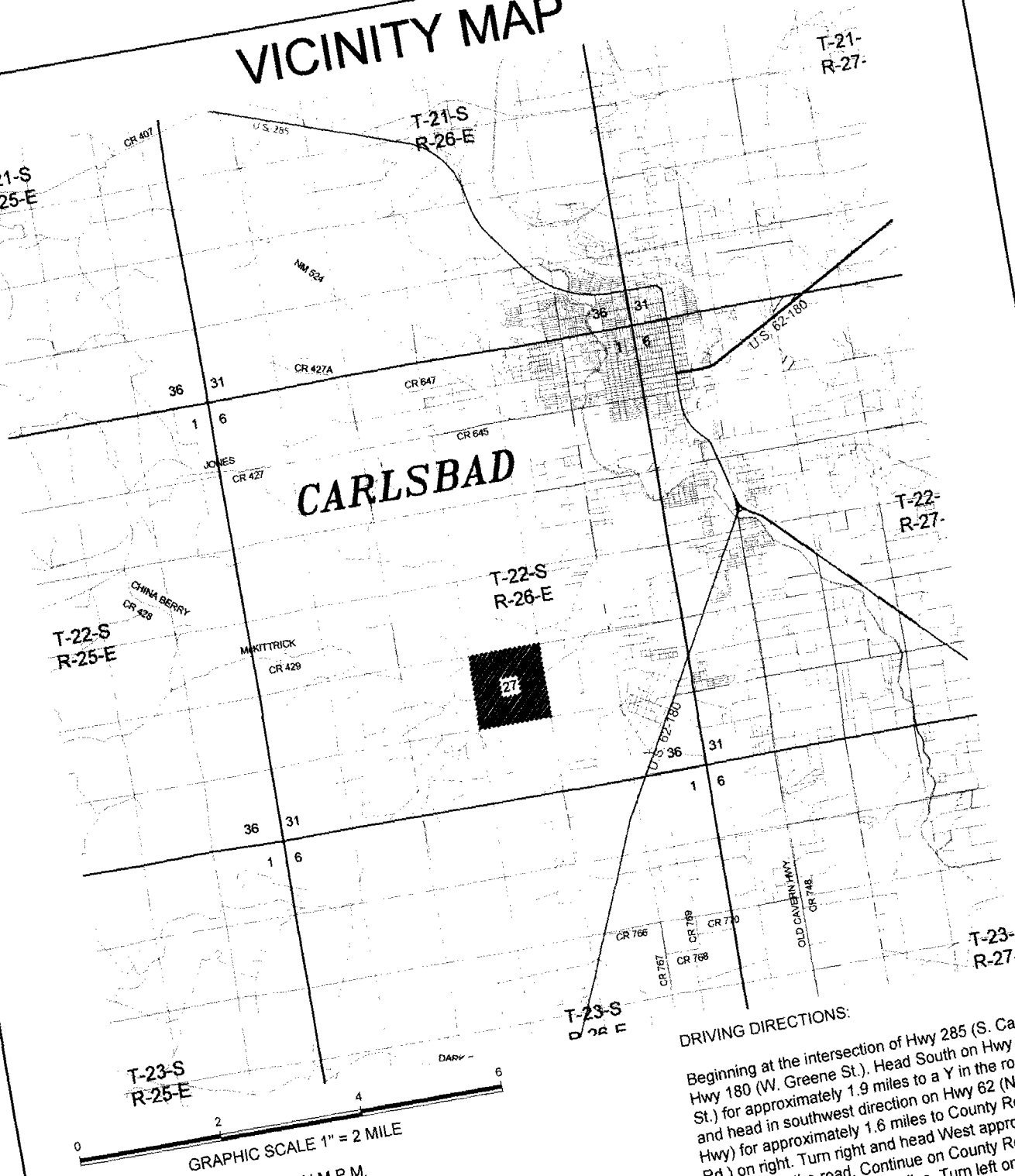
VICINITY MAP



SECTION 27, T 22 S, R 26 E, N.M.P.M.

COUNTY: EDDY STATE: NM

DESCRIPTION: 155' FSL & 990' FWL

OPERATOR: RKI EXPLORATION & PRODUCTION

WELL NAME: HAPPY VALLEY 27 FED COM 1H

DRIVING DIRECTIONS:

Beginning at the intersection of Hwy 285 (S. Canal St.) and Hwy 180 (W. Greene St.). Head South on Hwy 285 (S. Canal St.) for approximately 1.9 miles to a Y in the road. Take right and head in southwest direction on Hwy 62 (National Parks Hwy) for approximately 1.6 miles to County Rd. 672 (Hidalgo Rd.) on right. Turn right and head West approximately 1.6 mile to a bend in the road. Continue on County Rd. 672 (Hidalgo Rd.) for approximately 1.8 miles. Turn left on Rubble Ln. and head South approximately 470 feet. The flagged location is to the right approximately 365 feet from the road.

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RKI Exploration & Production

JOB No.: 50355

Exhibit A Access

AERIAL MAP

0 1000 2000 4000

GRAPHIC SCALE 1" = 2000'

SECTION 27, T 22 S, R 26 E, N.M.P.M.

COUNTY: EDDY STATE: NM

DESCRIPTION: 155' FSL & 990' FWL

OPERATOR: RKI EXPLORATION & PRODUCTION

WELL NAME: HAPPY VALLEY 27 FED COM 1H

DRIVING DIRECTIONS:

Beginning at the intersection of Hwy 285 (S. Canal St.) and Hwy 180 (W. Greene St.). Head South on Hwy 285 (S. Canal St.) for approximately 1.9 miles to a Y in the road. Take right and head in southwest direction on Hwy 62 (National Parks Hwy) for approximately 1.6 miles to County Rd. 672 (Hidalgo Rd.) on right. Turn right and head West approximately 1.6 mile to a bend in the road. Continue on County Rd. 672 (Hidalgo Rd.) for approximately 1.8 miles. Turn left on Rubble Ln. and head South approximately 470 feet. The flagged location is to the right approximately 365 feet from the road.

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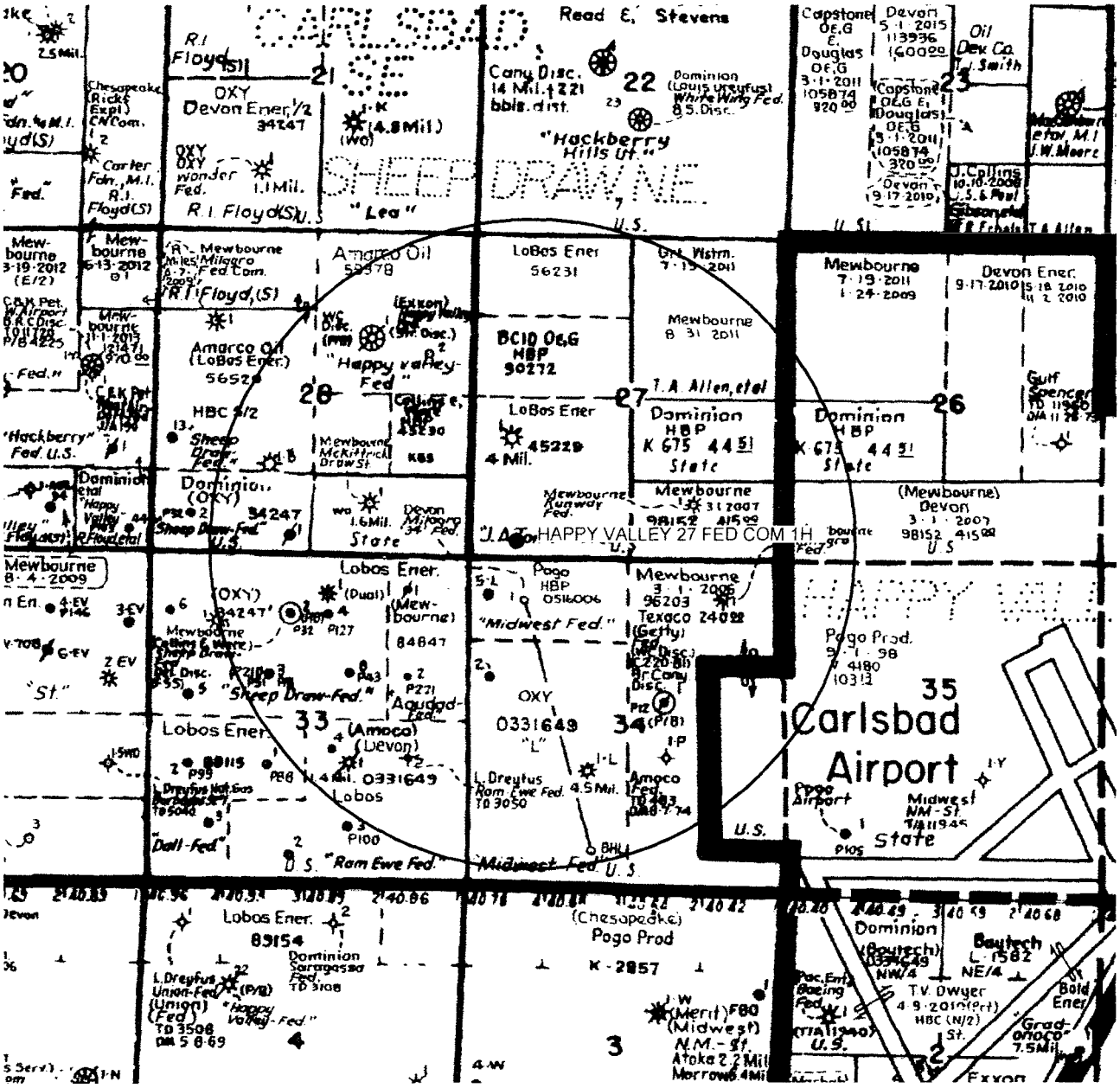
(432) 523-2181

RKI Exploration & Production

JOB No.: 50355

Exhibit 3 SHL

AERIAL MAP



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GRAPHIC SCALE 1" = 1/2 MILE

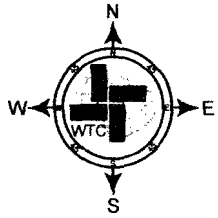
SECTION 27, T 22 S, R 26 E, N.M.P.M.

COUNTY: EDDY STATE: NM

DESCRIPTION: 155' FSL & 990' FWL

OPERATOR: RKI EXPLORATION & PRODUCTION

WELL NAME: HAPPY VALLEY 27 FED COM 1H



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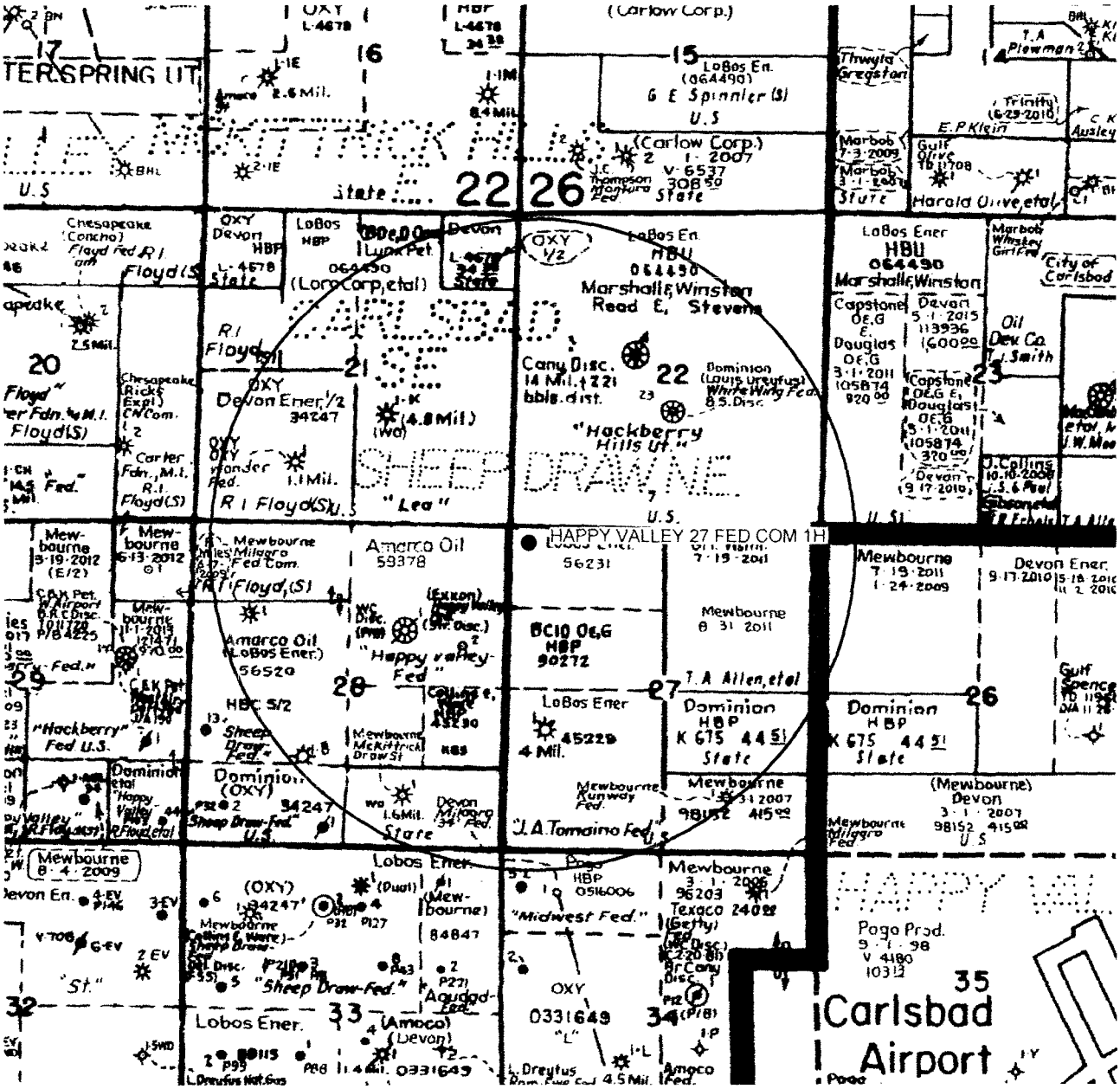
JOB No.: 50355

Ex 3 BHL

AERIAL MAP



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GRAPHIC SCALE 1" = 1/2 MILE

SECTION 27, T 22 S, R 26 E, N.M.P.M.

COUNTY: EDDY STATE: NM

DESCRIPTION: 230' FNL & 330' FWL

OPERATOR: RKI EXPLORATION & PRODUCTION

WELL NAME: HAPPY VALLEY 27 FED COM 1H

DRIVING DIRECTIONS:

Beginning at the intersection of Hwy 285 (S. Canal St.) and Hwy 180 (W. Greene St.). Head South on Hwy 285 (S. Canal St.) for approximately 1.9 miles to a Y in the road. Take right and head in southwest direction on Hwy 62 (National Parks Hwy) for approximately 1.6 miles to County Rd. 672 (Hidalgo Rd.) on right. Turn right and head West approximately 1.6 mile to a bend in the road. Continue on County Rd. 672 (Hidalgo Rd.) for approximately 1.8 miles. Turn left on Rubble Ln. and head South approximately 470 feet. The flagged location is to the right approximately 365 feet from the road.

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405 S.W. 1st Street
Andrews, TX 79714
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RKI Exploration & Production

JOB No.: 50355

Exploration & Production, LLC
ling Program

ll Happy Valley 27 Federal Com 1H
ation Surface: 155 FSL 990 FWL Sec 27-22S-26E
Bottom Hole: 230 FNL 330 FWL Sec 27-22S-26E

nty Eddy
e New Mexico

1) The elevation of the unprepared ground is 3,255 feet above sea level.

2) The geologic name of the surface formation is Quaternary - Alluvium.

3) A rotary rig will be utilized to drill the well to 11,131 feet and run casing.
This equipment will then be rigged down and the well will be completed with a workover rig.

4) Proposed depth is 11,131 feet measured depth.

5) Estimated tops:

	MD	TVD	Fluid		
Rustler	300	300	Freshwater		
Base Lamar Lime	1,611	1,606		BHP	
Delaware Top	2,104	2,104	Oil		
Cherry Canyon Sand	2,584	2,584	Oil	1,137	psi
KOP	6,009	5,956		2,621	psi
Bone Spring Lime	5,024	4,975	Oil	2,189	
Bone Spring 1 SS	6,036	5,983	Oil	2,633	
Bone Spring 2 SS	6,684	6,510	Oil	2,864	psi
Bone Spring 1 SS TT	7,009	6,600	Oil	2,904	psi
Landing Point	7,009	6,600	Oil	2,904	psi
Total Depth	11,131	6,600		230	Degrees F
Lateral Length	4,122 MD				

Water anticipated at 125 ft.
*Note: All mineral resources encountered will be protected by running casing and raising cement across all encountered resources.

6) Pressure control equipment:

The blowout preventer equipment will be 5,000 psi rated as shown in the attached BOP diagram and consist of the following:
Annular preventer
Pipe rams
Blind rams
Pipe rams
Drilling spool or blowout preventer with 2 side outlets (choke side shall be a 3" minimum diameter, kill side shall be at least 2" diameter
Choke line shall be 3" minimum diameter
2 choke line valves, 3" minimum diameter
2 chokes with 1 remotely controlled from the rig floor
Kill line, 2" minimum diameter
2 kill line valves and a check valve, 2" minimum diameter
Upper and lower kelly cock valves with handles readily available
Safety valves and subs to fit all drill string connections in use shall be readily available
Inside BOP or float available
Pressure gauge on choke manifold
All BOPE subjected to pressure shall be flanged, welded, or clamped
Fill-up line above uppermost preventer

e COA
The blowout preventer equipment (BOP) shown in Exhibit #1 will consist of a double ram type (5,000 psi WP) preventer, a bag-type annular preventer (5,000 psi WP), and a rotating head. Both units will be hydraulically operated and the ram type preventer will be equipped with blind rams on top and pipe rams (sized to accommodate the drill pipe size being utilized) on bottom. A 13 3/8" SOW x 13 5/8" 5M multi-bowl casing head will be installed and utilized until Total Depth is reached. The 9 5/8" casing will be landed in the head on a casing mandrel, and the stack will not be broken until total depth has been reached. Before drilling out the 9 5/8" casing will be tested to .22 psi/ft of casing setting depth or 1,500 psi whichever is greater, but not exceeding 70% of the burst rating of the pipe. After drilling approximately 10 feet of new formation an EMW test of 11.0 ppg will be performed. Pipe rams will be operated and checked each 24 hour period and each time the drill string is out of the hole. These function tests will be documented on the daily driller's log.

7) Casing program:

Hole Size	Top	Bottom	OD Csg	Weight	Grade	Connection	Burst	Pressure Max	Burst SF
17 1/2"	0	~~355~~ 700'	13 3/8"	54.5	J-55	STC	2730	166.14	16.43
12 1/4"	0	1,611	9 5/8"	40	HCL-80	LTC	5750	838	6.86
8 3/4"	0	11,131	5 1/2"	20	P-110	BTC	12630	10000	1.26

*Burst SF = Burst / Pmax

Hole Size	Top	Bottom	OD Csg	Weight	Grade	Connection	Collapse	Mud Weight	Collapse SF
17 1/2"	0	~~355~~ 700'	13 3/8"	54.5	J-55	STC	1580	9.0	9.51
12 1/4"	0	1,611	9 5/8"	40	HCL-80	LTC	4230	10.0	5.05
8 3/4"	0	11,131	5 1/2"	20	P-110	BTC	12100	11.5	1.82

*Collapse SF = [Collapse/(mw x 0.052 x Depth)]

Hole Size	Top	Bottom	OD Csg	Weight	Grade	Connection	Tension	Tension Load	Tension SF
17 1/2"	0	~~355~~ 700'	13 3/8"	54.5	J-55	STC	420000	19348	21.71
12 1/4"	0	1,611	9 5/8"	40	HCL-80	LTC	936000	64440	14.53
8 3/4"	0	11,131	5 1/2"	20	P-110	BTC	641000	222616	2.88

*All casing load assumptions are based on Air Wt. Burst design assumes Max Frac Pressure (10K), & Collapse design assumes evacuated & max Mud Weight during interval.

Minimum Design Standards	
Collapse	1.1
Burst	1
Tension	1.9

All casing will be new

Casing design subject to revision based on geologic conditions encountered

8) Cement program:

Surface		17 1/2" hole				
Pipe OD		13 3/8"				
Setting Depth		355 ft				
Annular Volume		0.6947 cf/ft				
Tail		200				
Shoe Joint		36.5				
Excess		1			100 %	
					383 ft	
Lead	130 sx		1.75 cf/sk	13.5 ppg		9.13 gal/sk
Tail	200 sx		1.33 cf/sk	14.8 ppg		6.32 gal/sk

Lead: "C" + 4% PF20 (gel) + 2% PF1 (CC) + .125 pps PF29 (CelloFlake) + .4 pps PF46 (antifoam)

Tail: "C" + 1% PF1 (CC)

Top of cement: Surface

3 centralizers on bottom 3 jts 1 per jt, then 1 every other jt

Intermediate		12 1/4" hole				
Pipe OD		9 5/8"				
Setting Depth		1,611 ft				
Annular Volume		0.3132 cf/ft		0.323 cf/ft		
Excess		1.6			160 %	
Lead	683 sx		1.92 cf/sk	12.6 ppg		9.95 gal/sk
Tail	175 sx		1.33 cf/sk	14.8 ppg		6.32 gal/sk

Lead: 35/65 Poz "C" + 5% PF44 + 6% PF20 + .2% PF13 + .125 ps PF29 + .4% PF46

Tail: "C" + .2% PF13

Top of cement: SURFACE

1 per joint bottom 3 joints, then 1 every 3rd jt

Production		8 3/4" hole				
Pipe OD (in OH)		5 1/2"				
Setting Depth		11,131 ft				
Annular Volume		0.2526 cf/ft		0.2526 cf/ft		
Excess		0.35			35 %	
Lead	1010 sx		1.47 cf/sk	13 ppg		10.06 gal/sk
Tail	924 sx		1.89 cf/sk	13 ppg		9.632 gal/sk

Lead: PVL +1.3% PF44 + 5% PF174 + .5% PF606 + .3% PF 813 + .1% PF153 +.4pps PF45

Tail: AcidSolid PVL + 5% PF174 + .7% PF606 + .2% PF153 + .5% PF13 + 30% PF151 + .4 pps PF47

Top of cement: 1,311 ft

1 per joint bottom 3 joints, then every 3rd joint to top of cement

NOTE: A cement bond log will be ran across 9 5/8" intermediate casing

9) Mud program:

Top	Bottom	Mud Wt.	Vis	PV	YP	Fluid Loss	Type System
0	~~355~~ 700'	8.3 to 8.5	28 to 30	1 - 6	1 - 6	NC	Fresh Water ND
~~355~~ 700'	1,611	9.8 to 10	28 to 30	1 - 10	1 - 12	NC	Brine
1,611	6,009	8.8 to 9.3	35 to 40	8 - 10	10 - 12	NC	Cut Brine
6,009	11,131	9.3 to 10.5	45 to 55	8 - 12	6 - 10	10 to 15	Cut Brine

*Enough Barite will be stored on location to weight up mud system to an 11.5 ppg mud weight if needed (2751 sx from 9.3 ppg to 11.5 ppg - 2000 bbl system).

Formula: Barite Required (lbs) = [(35.05 x (Wf-Wi))/(35.05-Wf)] x Mud Volume (gals).

*Pason PVT equipment will monitor all pit levels at all times, in the event an influx occurred.

10) Logging, coring, and testing program:

No drill stem test or cores are planned
KOP to intermediate: CNL, Caliper, GR, DLL
Intermediate to surface: CNL, GR

11) Potential hazards:

No abnormal pressure or temperature is expected. No H2S is known to exist in the area, although some form of H2S detection equipment will be utilized. If H2S is encountered the operator will comply with the provisions of Onshore Order No. 6. Lost circulation is not anticipated, but lost circulation material and weighting materials will be on location and readily available.

12) Anticipated start date ASAP
Duration 35 days

Exploration & Production, LLC
pletion Procedure

	Happy Valley 27 Fed Com 1H				
tion	Surface:	155 FSL		990 FWL	Sec. 27-22S-26E
	Bottom Hole:	230 FNL		330 FWL	Sec. 27-22S-26E

nty Eddy
e New Mexico

Hole Size	Top	Bottom	OD Csg	Wt/Grade	Connection	Collapse Design Factor	Burst Design Factor	Tension Design Factor
1/2"	0	See COA ~~355~~ 700'	13 3/8"	54.5	J-55	9.51	16.43	21.71
1/4"	0	1611	9 5/8"	40	HCL-80	5.05	6.86	14.53
3/4"	0	11130.8	5 1/2"'	20	P-110	1.82	1.26	2.88

11,131 ft MD 6,600 ft TVD

1) MIRU work over rig and NU BOP. Run CBL/GR log to confirm TOC

2) Fracture stimulate in 10 to 15 stages:

	2500 gal		15% HCL
	25000 gal		Linear 25# gel
	30000 gal	0.5 ppg	15000 100 mesh Linear 25# gel
	20000 gal		Lightning 20
	20000 gal	0.5 ppg	10000 40/70 White Sand Lightning 20
	30000 gal	1 ppg	13000 40/70 White Sand Lightning 20
	20000 gal	1.5 ppg	37500 40/70 White Sand Lightning 20
	20000 gal	2 ppg	50000 40/70 White Sand Lightning 20
	25000 gal	2.5 ppg	95500 40/70 White Sand Lightning 20
	30000 gal	3 ppg	95500 40/70 White Sand Lightning 20
	15000 gal	2 ppg	95500 40/70 CRC Sand Lightning 20
Flush	237500 gal total		250000 lb total Treated water

Repeat for remaining stages

3) Flow back and test

4) TIH and drill out frac plugs or sleeves

5) Run production equipment and place well on production

6) Stimulation Fluid: See attached chemical sheet

Surface treating pressure	6500 psi
Max injection pressure	8500 psi
Anticipated frac height	75 ft
Anticipated frac length	500 ft
Disposal	
Disposal	

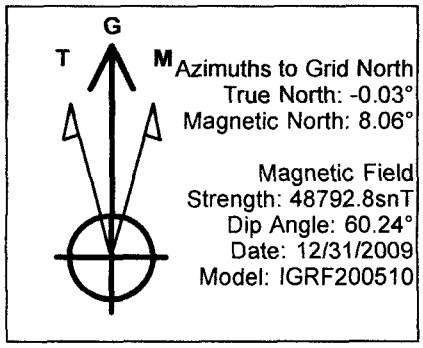
WELL DETAILS: Happy Valley 27 Fed Com 1H

Ground Level: 3255.0

Northing	Easting	Latittude	Longitude
493406.50	555819.50	32° 21' 23.171 N	104° 17' 11.159 W

27-1H SHL 155' FSL 990' FWL 27-22S-26E
27-1H PUPP 330' FSL 330' FWL 27-22S-26E
27-1H BHL 230' FNL 330' FWL 27-22S-26E

RKI Exploration & Production

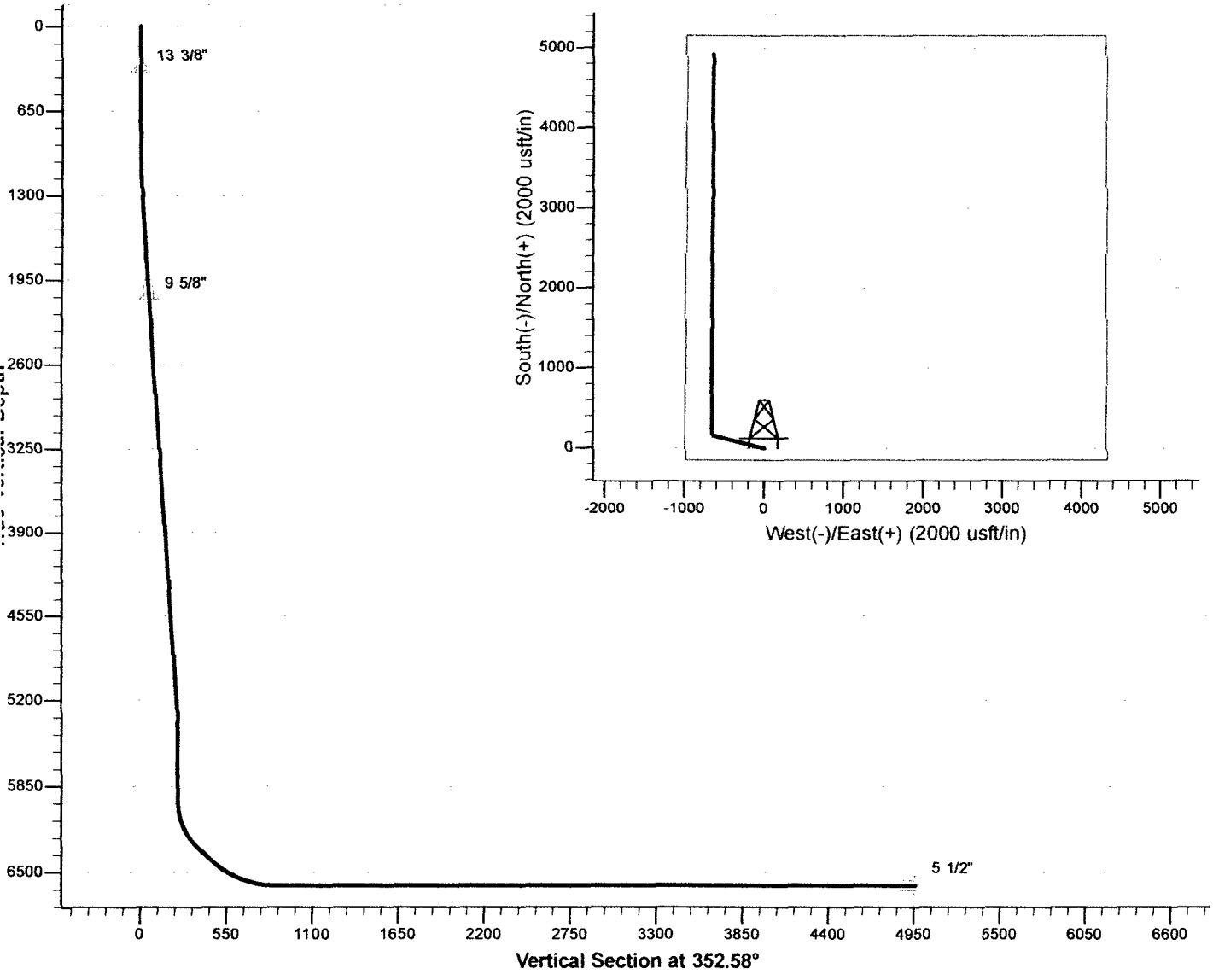


SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.0
1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.0
1306.1	9.18	283.35	1304.8	5.7	-23.8	3.00	8.7
5247.0	9.18	283.35	5195.2	150.8	-635.7	0.00	231.7
5553.1	*0.00*	*0.00*	*5500.0*	*156.5*	*-659.5*	*3.00*	*240.4*
6009.4	0.00	0.00	5956.3	156.5	-659.5	0.00	240.4
6459.4	45.00	0.22	6361.5	324.3	-658.8	10.00	406.7
6559.4	45.00	0.22	6432.2	395.0	-658.6	0.00	476.8
7009.4	90.00	0.22	6600.0	800.2	-657.0	10.00	878.3
11130.8	90.00	0.22	6600.0	4921.5	-641.0	0.00	4963.1

FORMATION TOP DETAILS

TVD	MD	Formation
1606.0	1611.2	Base Lamar
2104.0	2115.7	Delaware
2584.0	2601.9	Cherry Canyon
3330.0	3357.6	Topper Green
4975.0	5023.9	BS Lime
5983.0	6036.1	BS 1 SS
6510.0	6683.9	BS 2 SS
6600.0	7009.4	BS 2 SS TT



WPX Energy

Eddy County, New Mexico NAD 83
Happy Valley
Happy Valley 27 Federal Com 1H

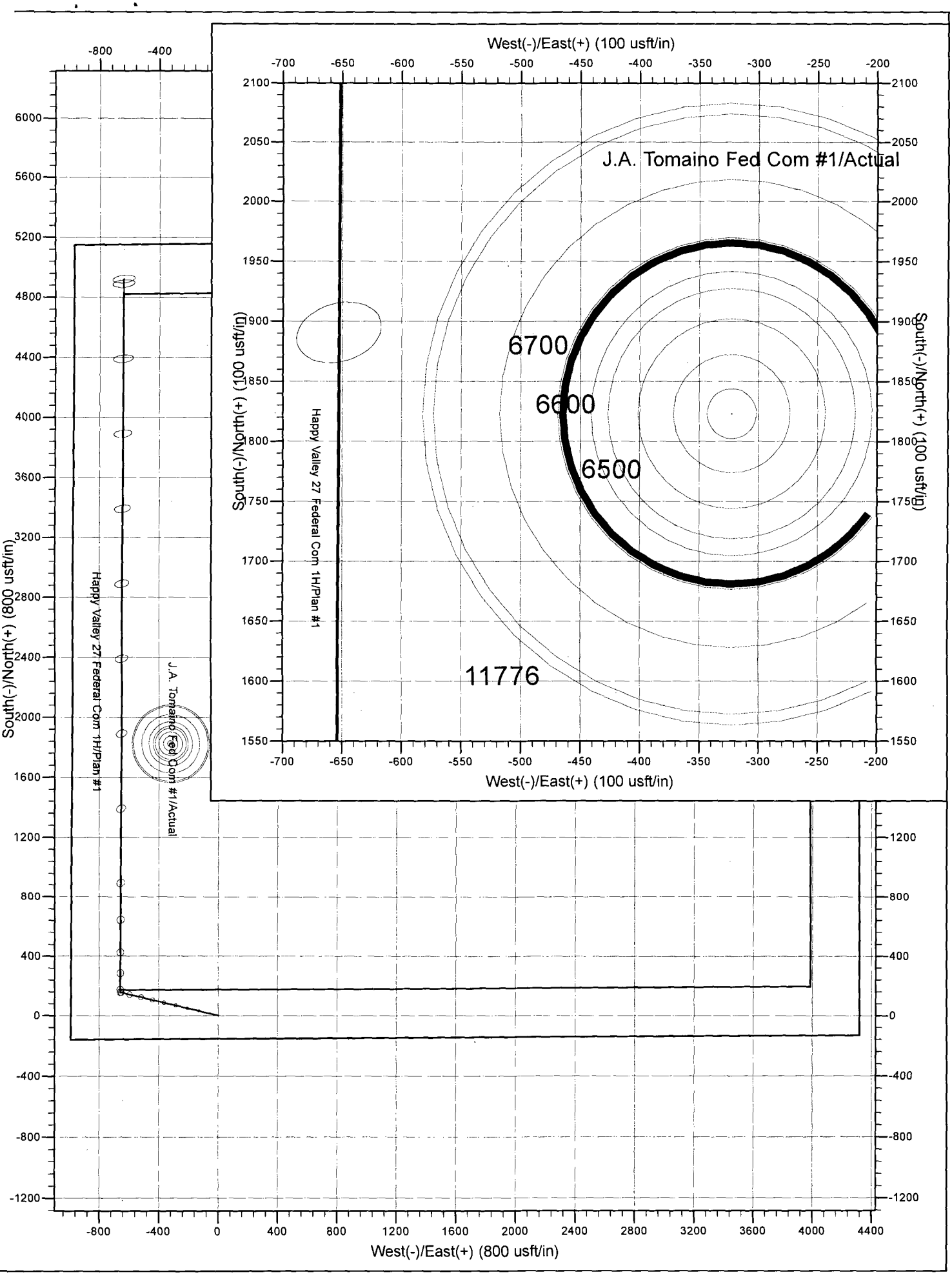
Wellbore #1
Plan #1

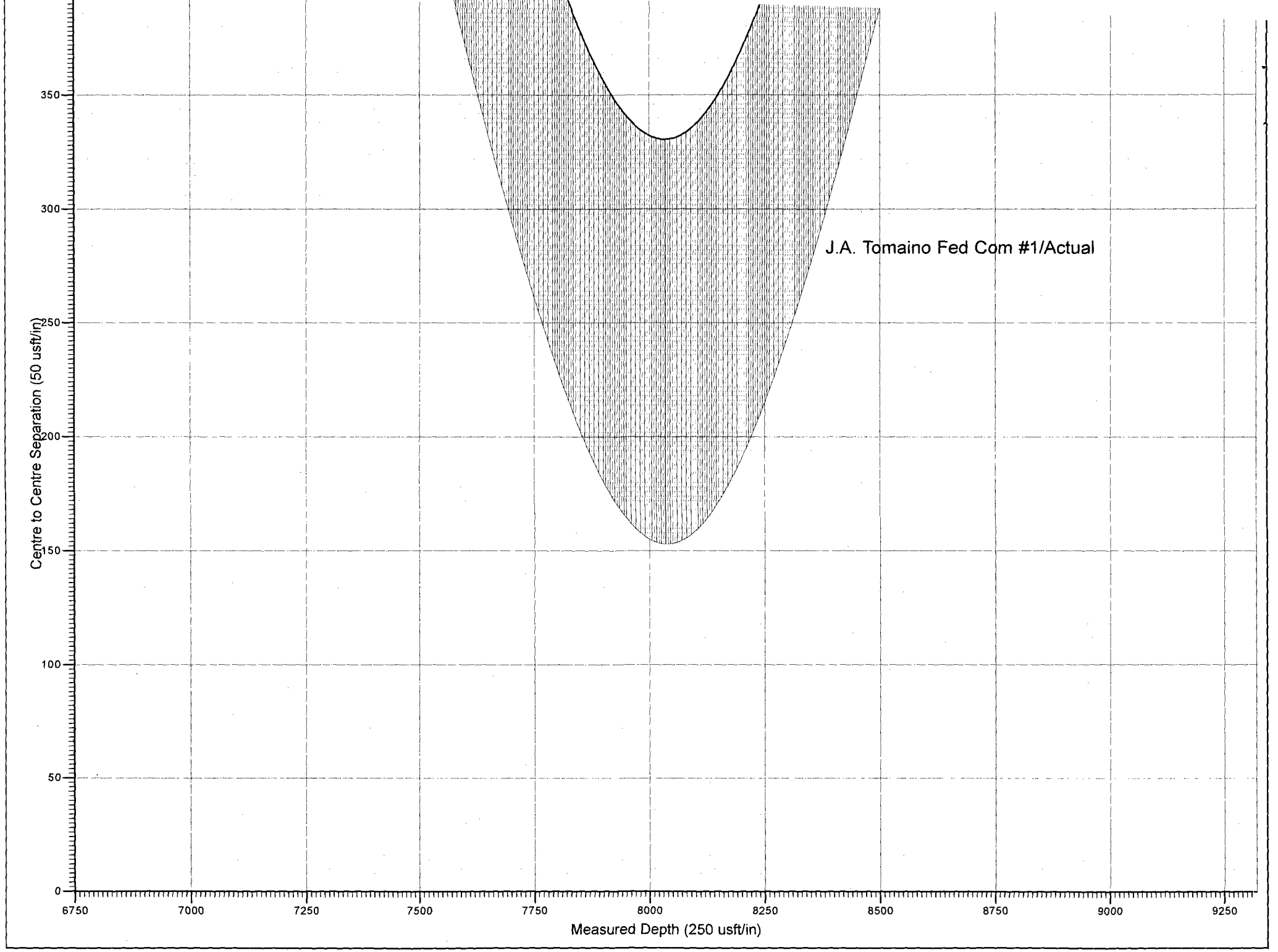
Anticollision Report

13 January, 2017

Scientific Drilling

www.scientificdrilling.com


West(-)/East(+) (100 usft/in)
South(-)/North(+) (100 usft/in)
J.A. Tomaino Fed Com #1/Actual
6700
6600
6500
11776
Happy Valley 27 Federal Com 1H/Plan #1
West(-)/East(+) (800 usft/in)
South(-)/North(+) (800 usft/in)
Happy Valley 27 Federal Com 1H/Plan #1
J.A. Tomaino Fed Com #1/Actual


J.A. Tomaino Fed Com #1/Actual
Centre to Centre Separation (50 usft/in)
0
50
100
150
200
250
300
350
6750
7000
7250
7500
7750
8000
8250
8500
8750
9000
9250
Measured Depth (250 usft/in)

Anticollision Report

Company:	WPX Energy	**Local Co-ordinate Reference:**	Well Happy Valley 27 Federal Com 1H
Project:	Eddy County, New Mexico NAD 83	**TVD Reference:**	KB @ 3277.0usft
Reference Site:	Happy Valley	**MD Reference:**	KB @ 3277.0usft
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Happy Valley 27 Federal Com 1H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Midland District
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0usft	**Error Model:**	ISCWSA
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0 usft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 1/13/2017

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	11,130.8	Plan #1 (Wellbore #1)	MWD+HDGM	OWSG MWD + HDGM

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Happy Valley						
J.A. Tomaino Fed Com #1 - Wellbore #1 - Actual	8,033.8	6,573.4	330.6	153.1	1.862	CC, ES, SF

Offset Design Happy Valley - J.A. Tomaino Fed Com #1 - Wellbore #1 - Actual — Offset Site Error: 0.0 usft

Survey Program: 181-INC-ONLY — Offset Well Error: 10.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	10.0	-10.03	1,823.3	-322.4	1,851.8				
100.0	100.0	73.0	73.0	0.1	10.0	-10.03	1,823.3	-322.4	1,851.6	1,841.4	10.17	182.140	
200.0	200.0	173.0	173.0	0.5	10.1	-10.03	1,823.3	-322.4	1,851.6	1,840.9	10.64	173.980	
300.0	300.0	273.0	273.0	0.9	10.6	-10.03	1,823.3	-322.4	1,851.6	1,840.1	11.48	161.239	
400.0	400.0	373.0	373.0	1.2	11.5	-10.03	1,823.3	-322.4	1,851.6	1,838.9	12.68	145.974	
500.0	500.0	473.0	473.0	1.6	12.6	-10.03	1,823.3	-322.4	1,851.6	1,837.4	14.17	130.670	
600.0	600.0	573.0	573.0	1.9	13.9	-10.03	1,823.3	-322.4	1,851.6	1,835.7	15.87	116.705	
700.0	700.0	673.0	673.0	2.3	15.5	-10.03	1,823.3	-322.4	1,851.6	1,833.8	17.80	104.013	
800.0	800.0	773.0	773.0	2.6	17.3	-10.03	1,823.3	-322.4	1,851.6	1,831.6	19.97	92.703	
900.0	900.0	873.0	873.0	3.0	19.2	-10.03	1,823.3	-322.4	1,851.6	1,829.3	22.25	83.229	
948.7	948.7	921.7	921.7	3.2	20.2	-10.03	1,823.3	-322.4	1,851.6	1,828.2	23.38	79.188	
1,000.0	1,000.0	938.0	938.0	3.4	20.5	-10.03	1,823.3	-322.4	1,851.9	1,828.0	23.89	77.515	
1,100.0	1,100.0	1,059.0	1,059.0	3.7	23.1	66.70	1,823.3	-322.4	1,850.6	1,823.8	26.81	69.032	
1,200.0	1,199.6	1,172.7	1,172.6	4.1	25.3	67.03	1,823.3	-322.4	1,847.4	1,818.1	29.34	62.959	
1,300.0	1,298.8	1,271.8	1,271.8	4.4	27.2	67.55	1,823.3	-322.4	1,842.4	1,810.8	31.53	58.435	
1,400.0	1,397.5	1,370.5	1,370.5	4.8	29.0	68.01	1,823.3	-322.4	1,836.3	1,802.6	33.69	54.498	
1,500.0	1,496.2	1,469.3	1,469.2	5.2	30.7	68.47	1,823.3	-322.4	1,830.3	1,794.4	35.86	51.045	
1,600.0	1,594.9	1,568.0	1,567.9	5.6	32.5	68.93	1,823.3	-322.4	1,824.4	1,786.4	38.00	48.016	
1,700.0	1,693.6	1,666.7	1,666.6	5.9	34.3	69.39	1,823.3	-322.4	1,818.7	1,778.5	40.15	45.296	
1,800.0	1,792.4	1,765.4	1,765.4	6.3	36.0	69.86	1,823.3	-322.4	1,813.1	1,770.7	42.32	42.842	
1,900.0	1,891.1	1,859.0	1,858.9	6.7	37.7	70.30	1,823.3	-322.4	1,807.6	1,763.2	44.41	40.705	
2,000.0	1,989.8	1,962.9	1,962.8	7.1	39.6	70.80	1,823.3	-322.4	1,802.2	1,755.5	46.70	38.592	
2,100.0	2,088.5	2,061.6	2,061.5	7.5	41.4	71.28	1,823.3	-322.4	1,797.0	1,748.0	48.91	36.744	
2,200.0	2,187.2	2,160.3	2,160.2	7.9	43.2	71.75	1,823.3	-322.4	1,791.8	1,740.7	51.12	35.052	
2,300.0	2,286.0	2,259.0	2,259.0	8.4	45.1	72.23	1,823.3	-322.4	1,786.8	1,733.5	53.39	33.466	
2,400.0	2,384.7	2,357.8	2,357.7	8.8	47.0	72.72	1,823.3	-322.4	1,782.0	1,726.3	55.70	31.994	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	WPX Energy	**Local Co-ordinate Reference:**	Well Happy Valley 27 Federal Com 1H
Project:	Eddy County, New Mexico NAD 83	**TVD Reference:**	KB @ 3277.0usft
Reference Site:	Happy Valley	**MD Reference:**	KB @ 3277.0usft
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Happy Valley 27 Federal Com 1H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Midland District
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Offset Design Happy Valley - J.A. Tomaino Fed Com #1 - Wellbore #1 - Actual — **Offset Site Error:** 0.0 usft

Survey Program: 181-INC-ONLY — **Offset Well Error:** 10.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
2,500.0	2,483.4	2,456.5	2,456.4	9.2	48.9	73.20	1,823.3	-322.4	1,777.3	1,719.2	58.01	30.639	
2,600.0	2,582.1	2,555.2	2,555.1	9.6	50.8	73.69	1,823.3	-322.4	1,772.7	1,712.4	60.30	29.398	
2,700.0	2,680.8	2,653.9	2,653.8	10.0	52.6	74.18	1,823.3	-322.4	1,768.2	1,705.6	62.54	28.271	
2,800.0	2,779.5	2,752.6	2,752.5	10.4	54.5	74.67	1,823.3	-322.4	1,763.8	1,699.1	64.79	27.222	
2,900.0	2,878.3	2,851.4	2,851.3	10.8	56.3	75.17	1,823.3	-322.4	1,759.6	1,692.6	67.05	26.245	
3,000.0	2,977.0	2,950.1	2,950.0	11.2	58.2	75.67	1,823.3	-322.4	1,755.6	1,686.2	69.35	25.315	
3,100.0	3,075.7	3,048.8	3,048.7	11.7	60.1	76.17	1,823.3	-322.4	1,751.7	1,680.0	71.68	24.436	
3,200.0	3,174.4	3,147.5	3,147.4	12.1	62.0	76.67	1,823.3	-322.4	1,747.9	1,673.8	74.02	23.614	
3,300.0	3,273.1	3,232.0	3,231.9	12.5	63.7	77.10	1,823.3	-322.4	1,744.3	1,668.2	76.08	22.927	
3,400.0	3,371.9	3,345.0	3,344.9	12.9	65.9	77.68	1,823.3	-322.4	1,740.7	1,662.0	78.70	22.119	
3,500.0	3,470.6	3,443.7	3,443.6	13.3	67.8	78.19	1,823.3	-322.4	1,737.3	1,656.3	81.04	21.438	
3,600.0	3,569.3	3,542.4	3,542.3	13.7	69.7	78.70	1,823.3	-322.4	1,734.1	1,650.7	83.36	20.802	
3,700.0	3,668.0	3,641.1	3,641.0	14.2	71.5	79.21	1,823.3	-322.4	1,731.0	1,645.3	85.63	20.213	
3,800.0	3,766.7	3,739.9	3,739.7	14.6	73.4	79.72	1,823.3	-322.4	1,728.0	1,640.1	87.91	19.657	
3,900.0	3,865.5	3,838.6	3,838.5	15.0	75.2	80.24	1,823.3	-322.4	1,725.2	1,635.0	90.19	19.129	
4,000.0	3,964.2	3,937.3	3,937.2	15.4	77.1	80.75	1,823.3	-322.4	1,722.5	1,630.1	92.47	18.629	
4,100.0	4,062.9	4,036.0	4,035.9	15.8	78.9	81.27	1,823.3	-322.4	1,720.0	1,625.3	94.75	18.154	
4,200.0	4,161.6	4,134.7	4,134.6	16.3	80.8	81.79	1,823.3	-322.4	1,717.6	1,620.6	97.03	17.702	
4,300.0	4,260.3	4,233.5	4,233.3	16.7	82.7	82.31	1,823.3	-322.4	1,715.4	1,616.1	99.31	17.273	
4,400.0	4,359.0	4,332.2	4,332.0	17.1	84.5	82.83	1,823.3	-322.4	1,713.3	1,611.7	101.59	16.864	
4,500.0	4,457.8	4,430.9	4,430.8	17.5	86.5	83.36	1,823.3	-322.4	1,711.4	1,607.4	103.94	16.464	
4,600.0	4,556.5	4,529.6	4,529.5	17.9	88.5	83.88	1,823.3	-322.4	1,709.6	1,603.2	106.37	16.072	
4,700.0	4,655.2	4,628.3	4,628.2	18.4	90.5	84.41	1,823.3	-322.4	1,707.9	1,599.1	108.80	15.698	
4,800.0	4,753.9	4,727.1	4,726.9	18.8	92.4	84.93	1,823.3	-322.4	1,706.4	1,595.2	111.18	15.349	
4,900.0	4,852.6	4,825.8	4,825.6	19.2	94.3	85.46	1,823.3	-322.4	1,705.1	1,591.6	113.46	15.028	
5,000.0	4,951.4	4,924.5	4,924.4	19.6	96.1	85.99	1,823.3	-322.4	1,703.9	1,588.1	115.75	14.720	
5,100.0	5,050.1	5,023.2	5,023.1	20.0	98.3	86.52	1,823.3	-322.4	1,702.8	1,584.5	118.30	14.393	
5,200.0	5,148.8	5,121.9	5,121.8	20.5	100.7	87.05	1,823.3	-322.4	1,701.9	1,580.7	121.16	14.046	
5,300.0	5,247.6	5,220.8	5,220.6	20.9	103.2	87.54	1,823.3	-322.4	1,701.2	1,577.1	124.02	13.716	
5,371.6	5,318.7	5,289.0	5,288.8	21.1	104.8	87.79	1,823.3	-322.4	1,700.8	1,574.8	125.99	13.500	
5,400.0	5,347.0	5,289.0	5,288.8	21.3	104.8	87.60	1,823.3	-322.4	1,701.0	1,574.9	126.10	13.490	
5,470.4	5,417.3	5,380.0	5,379.8	21.5	107.4	88.01	1,823.3	-322.4	1,700.6	1,571.7	128.88	13.195	
5,500.0	5,446.9	5,380.0	5,379.8	21.6	107.4	88.02	1,823.3	-322.4	1,701.0	1,572.0	128.99	13.187	
5,570.7	5,517.6	5,475.0	5,474.8	21.8	110.0	88.10	1,823.3	-322.4	1,700.6	1,568.8	131.81	12.902	
5,600.0	5,546.9	5,475.0	5,474.8	21.9	110.0	11.43	1,823.3	-322.4	1,701.1	1,569.2	131.90	12.897	
5,679.9	5,626.8	5,590.0	5,589.8	22.2	113.1	11.43	1,823.3	-322.4	1,700.6	1,565.2	135.31	12.568	
5,700.0	5,646.9	5,590.0	5,589.8	22.2	113.1	11.43	1,823.3	-322.4	1,700.8	1,565.4	135.37	12.564	
5,779.5	5,726.4	5,699.6	5,699.4	22.5	116.2	11.43	1,823.3	-322.4	1,700.5	1,561.8	138.74	12.257	
5,800.0	5,746.9	5,700.0	5,699.8	22.6	116.3	11.43	1,823.3	-322.4	1,700.6	1,561.8	138.81	12.251	
5,869.1	5,816.0	5,789.2	5,789.0	22.8	118.9	11.43	1,823.3	-322.4	1,700.5	1,558.9	141.65	12.005	
5,900.0	5,846.9	5,793.0	5,792.7	22.9	119.0	11.43	1,823.3	-322.4	1,700.7	1,558.9	141.86	11.989	
5,969.1	5,916.0	5,886.0	5,885.7	23.1	121.8	11.43	1,823.3	-322.4	1,700.5	1,555.6	144.90	11.736	
6,000.0	5,946.9	5,886.0	5,885.7	23.2	121.8	11.43	1,823.3	-322.4	1,700.9	1,555.9	145.00	11.730	
6,100.0	6,046.5	5,980.0	5,979.7	23.5	124.7	11.36	1,823.3	-322.4	1,694.0	1,547.5	146.46	11.566	
6,200.0	6,143.4	6,116.7	6,116.4	23.9	128.8	12.07	1,823.3	-322.4	1,669.7	1,525.0	144.75	11.535	
6,300.0	6,234.6	6,208.0	6,207.6	24.2	131.6	13.34	1,823.3	-322.4	1,629.8	1,492.3	137.55	11.849	
6,400.0	6,317.3	6,290.7	6,290.3	24.5	134.1	15.46	1,823.3	-322.4	1,575.1	1,448.6	126.51	12.450	
6,500.0	6,390.1	6,363.5	6,363.1	24.8	136.4	17.63	1,823.3	-322.4	1,508.2	1,388.5	119.73	12.597	
6,600.0	6,459.8	6,407.0	6,406.6	25.2	137.7	19.44	1,823.3	-322.4	1,438.6	1,323.5	115.07	12.502	
6,700.0	6,518.4	6,491.9	6,491.4	25.5	140.2	25.99	1,823.3	-322.4	1,359.8	1,253.7	106.12	12.814	
6,800.0	6,562.1	6,535.6	6,535.1	25.9	141.5	36.97	1,823.3	-322.4	1,272.9	1,161.8	111.09	11.458	
6,900.0	6,589.6	6,563.0	6,562.6	26.4	142.3	56.96	1,823.3	-322.4	1,180.4	1,039.4	140.97	8.373	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Anticollision Report

Company:	WPX Energy	**Local Co-ordinate Reference:**	Well Happy Valley 27 Federal Com 1H
Project:	Eddy County, New Mexico NAD 83	**TVD Reference:**	KB @ 3277.0usft
Reference Site:	Happy Valley	**MD Reference:**	KB @ 3277.0usft
Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	Happy Valley 27 Federal Com 1H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	Wellbore #1	**Database:**	Midland District
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

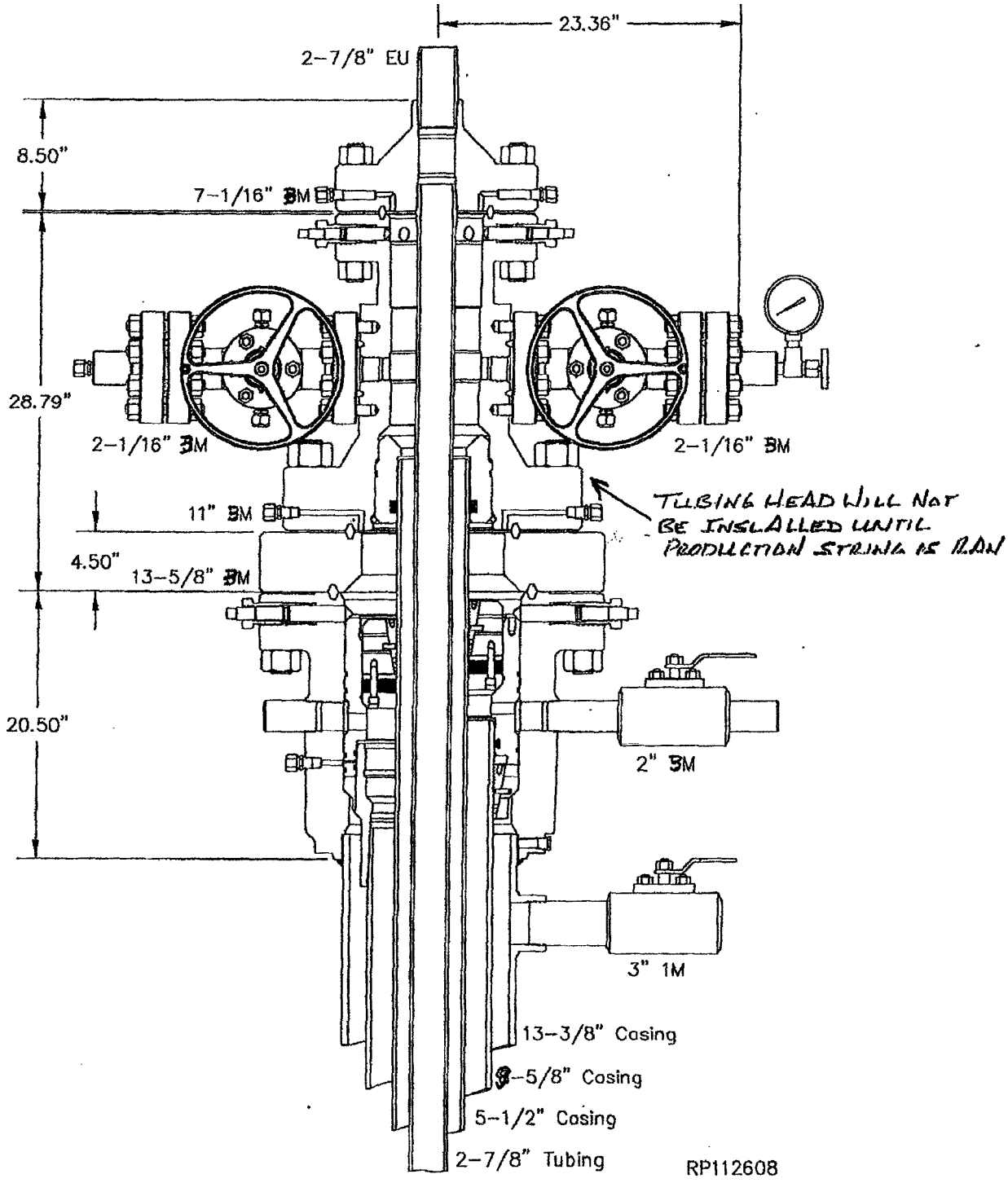
Offset Design Happy Valley - J.A. Tomaino Fed Com #1 - Wellbore #1 - Actual — **Offset Site Error:** 0.0 usft

Survey Program: 181-INC-ONLY — **Offset Well Error:** 10.0 usft

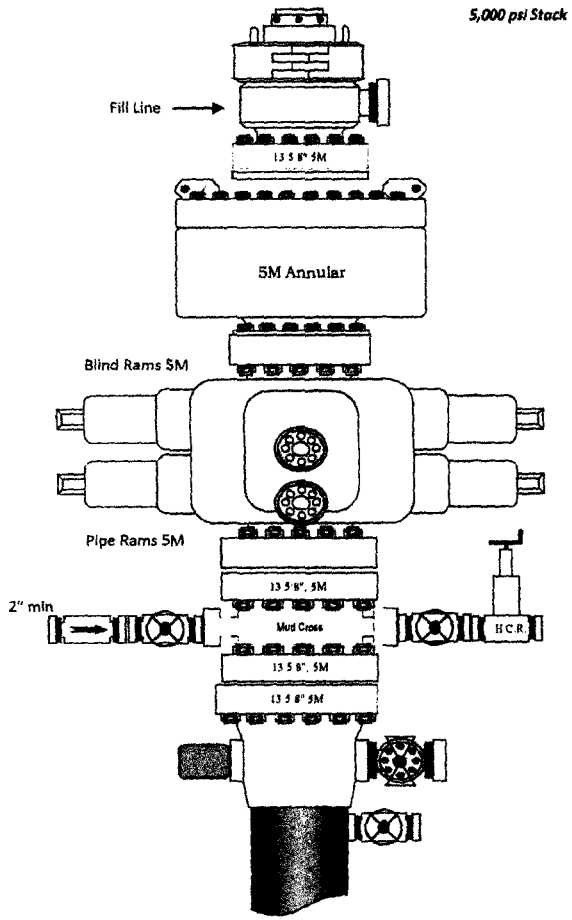
Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
7,000.0	6,599.9	6,573.3	6,572.9	27.0	142.6	87.06	1,823.3	-322.4	1,085.4	917.2	168.22	6.452	
7,100.0	6,600.0	6,573.4	6,573.0	27.6	142.6	90.00	1,823.3	-322.4	990.6	821.4	169.22	5.854	
7,200.0	6,600.0	6,573.4	6,573.0	28.2	142.6	90.00	1,823.3	-322.4	897.0	727.1	169.91	5.279	
7,300.0	6,600.0	6,573.4	6,573.0	29.0	142.6	90.00	1,823.3	-322.4	804.9	634.2	170.66	4.716	
7,400.0	6,600.0	6,573.4	6,573.0	29.7	142.6	90.00	1,823.3	-322.4	714.9	543.4	171.46	4.169	
7,500.0	6,600.0	6,573.4	6,573.0	30.6	142.6	90.00	1,823.3	-322.4	627.9	455.6	172.32	3.644	
7,600.0	6,600.0	6,573.4	6,573.0	31.4	142.6	90.00	1,823.3	-322.4	545.4	372.2	173.22	3.149	
7,700.0	6,600.0	6,573.4	6,573.0	32.4	142.6	90.00	1,823.3	-322.4	469.8	295.7	174.16	2.698	
7,800.0	6,600.0	6,573.4	6,573.0	33.3	142.6	90.00	1,823.3	-322.4	404.9	229.8	175.14	2.312	
7,900.0	6,600.0	6,573.4	6,573.0	34.3	142.6	90.00	1,823.3	-322.4	356.7	180.5	176.16	2.025	
8,000.0	6,600.0	6,573.4	6,573.0	35.3	142.6	90.00	1,823.3	-322.4	332.3	155.1	177.20	1.876	
8,033.8	6,600.0	6,573.4	6,573.0	35.7	142.6	90.00	1,823.3	-322.4	330.6	153.1	177.57	1.862	CC, ES, SF
8,100.0	6,600.0	6,573.4	6,573.0	36.4	142.6	90.00	1,823.3	-322.4	337.2	158.9	178.28	1.891	
8,200.0	6,600.0	6,573.4	6,573.0	37.5	142.6	90.00	1,823.3	-322.4	370.0	190.7	179.38	2.063	
8,300.0	6,600.0	6,573.4	6,573.0	38.6	142.6	90.00	1,823.3	-322.4	424.5	243.9	180.51	2.351	
8,400.0	6,600.0	6,573.4	6,573.0	39.7	142.6	90.00	1,823.3	-322.4	493.3	311.7	181.65	2.716	
8,500.0	6,600.0	6,573.4	6,573.0	40.9	142.6	90.00	1,823.3	-322.4	571.5	388.7	182.82	3.126	
8,600.0	6,600.0	6,573.4	6,573.0	42.0	142.6	90.00	1,823.3	-322.4	655.6	471.6	184.01	3.563	
8,700.0	6,600.0	6,573.4	6,573.0	43.2	142.6	90.00	1,823.3	-322.4	743.7	558.5	185.21	4.015	
8,800.0	6,600.0	6,573.4	6,573.0	44.4	142.6	90.00	1,823.3	-322.4	834.5	648.0	186.43	4.476	
8,900.0	6,600.0	6,573.4	6,573.0	45.6	142.6	90.00	1,823.3	-322.4	927.1	739.5	187.66	4.940	
9,000.0	6,600.0	6,573.4	6,573.0	46.9	142.6	90.00	1,823.3	-322.4	1,021.2	832.3	188.91	5.406	
9,100.0	6,600.0	6,573.4	6,573.0	48.1	142.6	90.00	1,823.3	-322.4	1,116.3	926.1	190.17	5.870	
9,200.0	6,600.0	6,573.4	6,573.0	49.4	142.6	90.00	1,823.3	-322.4	1,212.1	1,020.7	191.44	6.332	
9,300.0	6,600.0	6,573.4	6,573.0	50.6	142.6	90.00	1,823.3	-322.4	1,308.6	1,115.9	192.72	6.790	
9,400.0	6,600.0	6,573.4	6,573.0	51.9	142.6	90.00	1,823.3	-322.4	1,405.6	1,211.6	194.00	7.245	
9,500.0	6,600.0	6,573.4	6,573.0	53.2	142.6	90.00	1,823.3	-322.4	1,503.0	1,307.7	195.30	7.696	
9,600.0	6,600.0	6,573.4	6,573.0	54.5	142.6	90.00	1,823.3	-322.4	1,600.7	1,404.1	196.61	8.142	
9,700.0	6,600.0	6,573.4	6,573.0	55.8	142.6	90.00	1,823.3	-322.4	1,698.7	1,500.7	197.92	8.582	
9,800.0	6,600.0	6,573.4	6,573.0	57.1	142.6	90.00	1,823.3	-322.4	1,796.9	1,597.6	199.24	9.018	
9,900.0	6,600.0	6,573.4	6,573.0	58.4	142.6	90.00	1,823.3	-322.4	1,895.2	1,694.7	200.57	9.449	
10,000.0	6,600.0	6,573.4	6,573.0	59.7	142.6	90.00	1,823.3	-322.4	1,993.8	1,791.9	201.90	9.875	
10,100.0	6,600.0	6,573.4	6,573.0	61.1	142.6	90.00	1,823.3	-322.4	2,092.5	1,889.2	203.24	10.295	
10,200.0	6,600.0	6,573.4	6,573.0	62.4	142.6	90.00	1,823.3	-322.4	2,191.3	1,986.7	204.59	10.711	
10,300.0	6,600.0	6,573.4	6,573.0	63.7	142.6	90.00	1,823.3	-322.4	2,290.2	2,084.2	205.94	11.121	
10,400.0	6,600.0	6,573.4	6,573.0	65.1	142.6	90.00	1,823.3	-322.4	2,389.2	2,181.9	207.29	11.526	
10,500.0	6,600.0	6,573.4	6,573.0	66.4	142.6	90.00	1,823.3	-322.4	2,488.2	2,279.6	208.65	11.925	
10,600.0	6,600.0	6,573.4	6,573.0	67.8	142.6	90.00	1,823.3	-322.4	2,587.4	2,377.4	210.01	12.320	
10,700.0	6,600.0	6,573.4	6,573.0	69.1	142.6	90.00	1,823.3	-322.4	2,686.6	2,475.2	211.38	12.710	
10,800.0	6,600.0	6,573.4	6,573.0	70.5	142.6	90.00	1,823.3	-322.4	2,785.9	2,573.1	212.75	13.095	
10,900.0	6,600.0	6,573.4	6,573.0	71.9	142.6	90.00	1,823.3	-322.4	2,885.2	2,671.1	214.12	13.474	
11,000.0	6,600.0	6,573.4	6,573.0	73.2	142.6	90.00	1,823.3	-322.4	2,984.5	2,769.0	215.50	13.849	
11,100.0	6,600.0	6,573.4	6,573.0	74.6	142.6	90.00	1,823.3	-322.4	3,083.9	2,867.1	216.88	14.220	
11,130.8	6,600.0	6,573.4	6,573.0	75.0	142.6	90.00	1,823.3	-322.4	3,114.6	2,897.3	217.31	14.333	

GE Oil+Gas multi-bowl wellhead

System Drawing



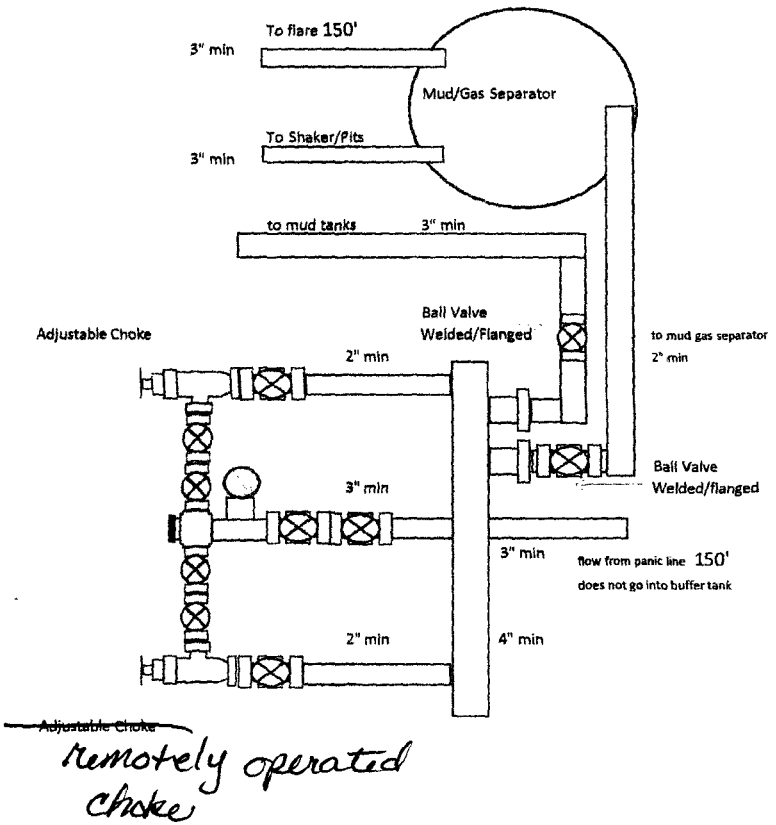
5,000 psi Stack



Solid Pipe

3" min

5,000 psi Manifold



~~Adjustable Choke~~

Remotely operated choke

RKI Exploration and Production
3817 N. W. Expressway, Suite 950
Oklahoma City, OK. 73112

Closed Loop System

Design Plan

Equipment List

2 – 414 Swaco Centrifuges
2 – 4 screen Mongoose shale shakers
2 – 250 bbl. tanks to hold fluid
2 – CRI Bins with track system
2 – 500 bbl. frac tanks for fresh water
2 – 500 bbl. frac tanks for brine water

Operation and Maintenance

- Closed Loop equipment will be inspected daily by each tour and any necessary maintenance performed
- Any leak in system will be repaired and/or contained immediately
- OCD notified within 48 hours
- Remediation process started

Closure Plan

During drilling operations, all liquids, drilling fluids and cuttings will be hauled off via CRI (Controlled Recovery Incorporated). Permit #: R-9166.

Plat for Closed Loop System

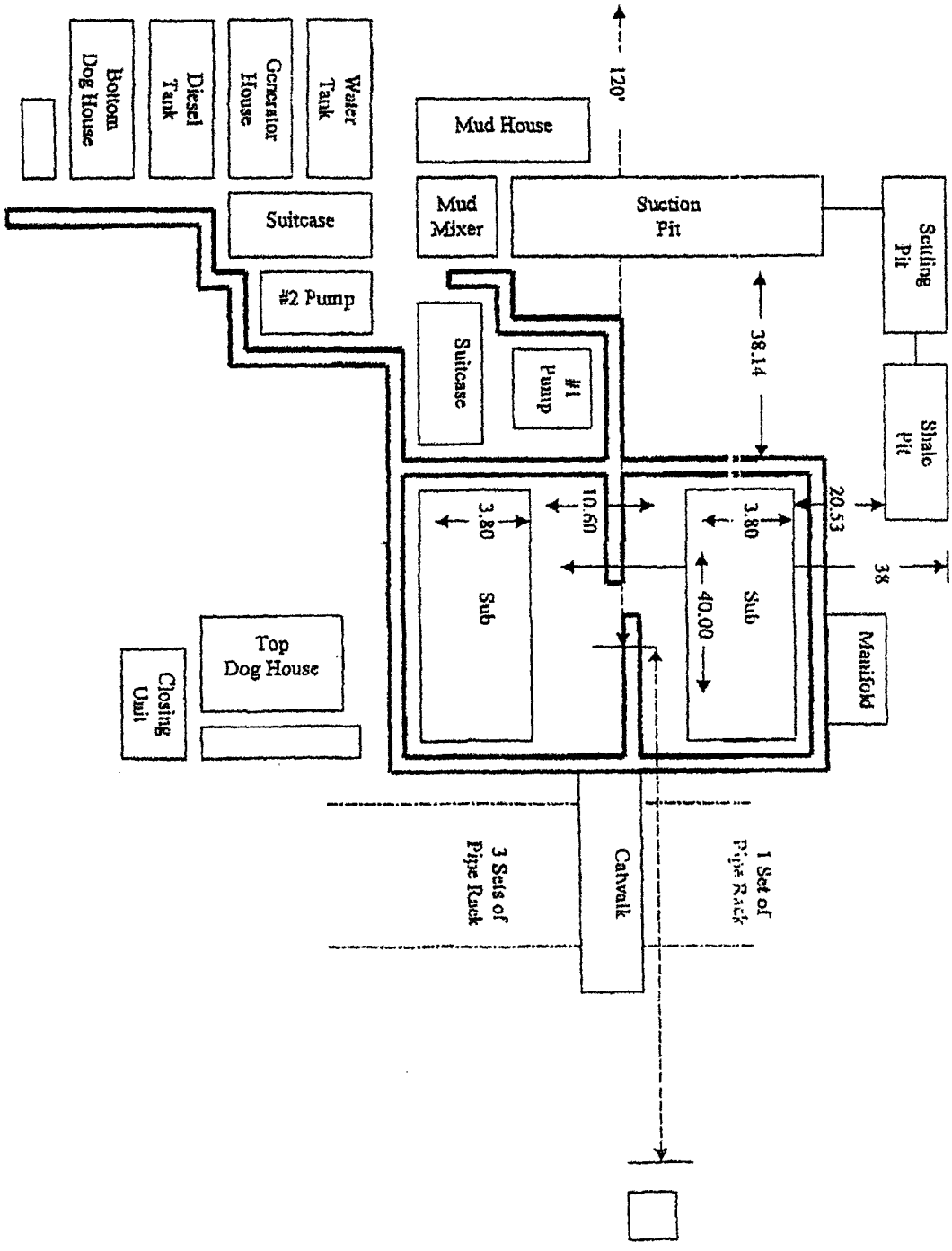
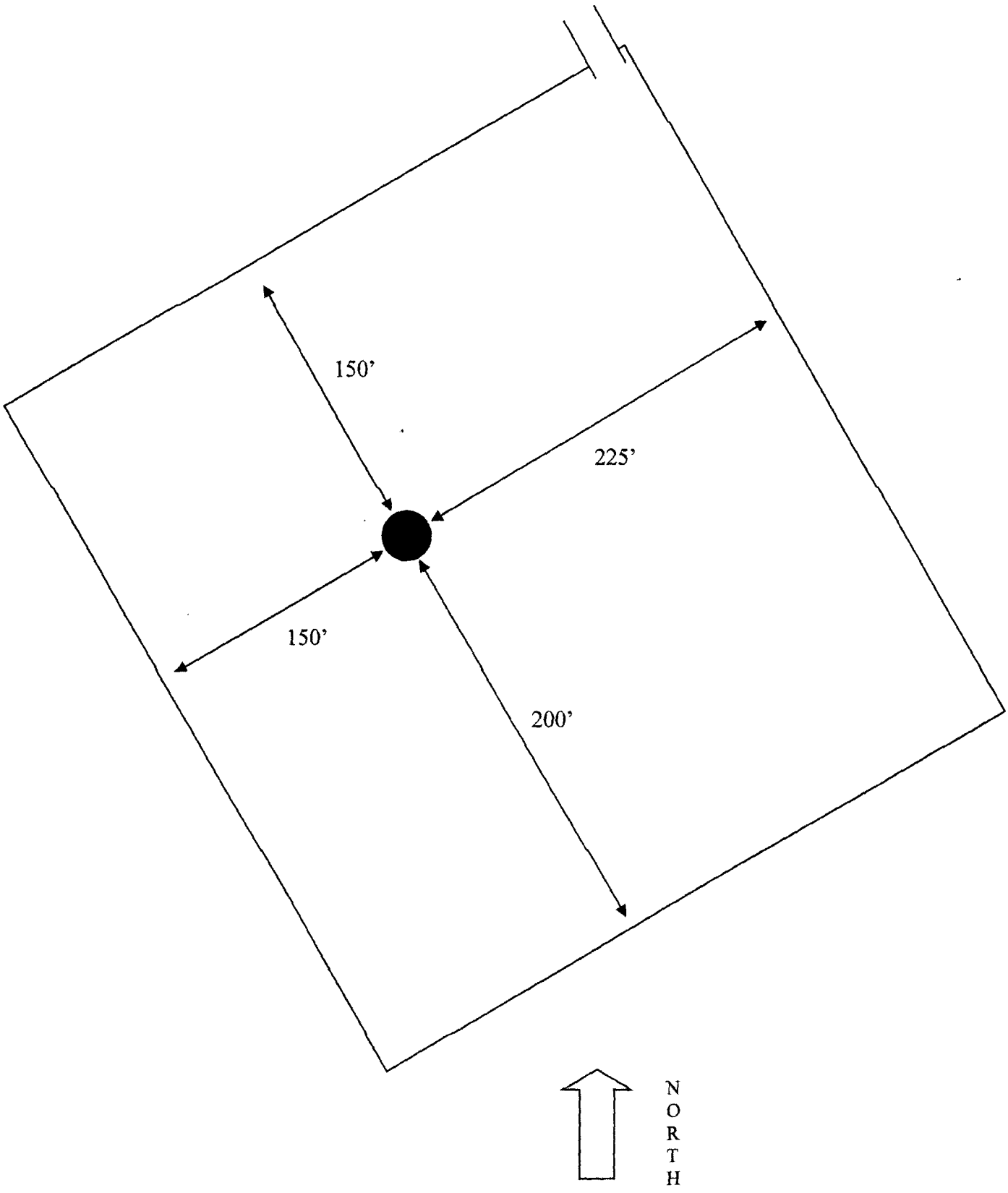


EXHIBIT D

Rig Plat Only
HAPPY VALLEY 27 FEDERAL COM 1H
V-DOOR NORTHWEST



RKI Exploration & Production

HYDROGEN SULFIDE (H2S) CONTINGENCY DRILLING PLAN

This well and its anticipated facility are not expected to have hydrogen sulfide releases. However, there may be hydrogen sulfide production in the nearby area. There are no private residences in the area but a contingency plan has been orchestrated. RKI Exploration & Production will have a company representative available to rig personnel throughout the drilling and production operations. If hydrogen sulfide is detected or suspected, monitoring equipment will be acquired for monitoring and or testing.

GENERAL H2S EMERGENCY ACTIONS

1. All personnel will immediately evacuate to an up-wind and if possible up- hill "safe area".
2. If for any reason a person must enter the hazardous area, they must wear a SCBA (Self Contained Breathing Apparatus).
3. Always use the "buddy system"
4. Isolate the well/problem if possible
5. Account for all personnel
6. Display the proper colors warning all unsuspecting personnel of the danger at hand.
7. Contact the Company personnel as soon as possible if not at the location (use the enclosed call list)

All communication will be via two-way radio or cell phone.

At this point the company representative will evaluate the situation and coordinate the necessary duties to bring the situation under control, and if necessary, the notification of the emergency response agencies and nearby residents.

EMERGENCY PROCEDURES FOR AN UNCONTROLLABLE RELEASE OF H2S

1. All personnel will don the self-contained breathing apparatus
2. Remove all personnel to the "safe area" (always use the buddy system)
3. Contact company personnel if not on location
4. Set in motion the steps to protect and or remove the general public to an upwind "safe area". Maintain strict security and safety procedures while dealing with the source.
5. No entry to any unauthorized personnel
6. Notify the appropriate agencies.
7. Call NMOCD

If at this time the supervising person determines the release of the H2S cannot be contained to the site location and the general public is in danger he will take the necessary steps to protect the workers and the public.

PROTECTION OF THE GENERAL PUBLIC

1. 100 ppm at any public area (any place not associated with this site)

2. 500 ppm at any public road (any road the general public may travel)

3. 100 ppm radius of ¼ mile in New Mexico will be assumed if there is insufficient data to calculate radius of exposure and there is reasonable expectation that H2S could be present in concentrations greater than 100 ppm in the gas mixture.

CALCULATION FOR THE 100 PPM (ROE) "PASQULL-GIFFFORD EQUATION

X = ((1.589)(mole fraction)(Q – volume in scf))^0.6258

CALCULATION FOR THE 500 PPM (ROE)

X = ((.4546)(mole fraction)(Q – volume in scf))^0.6258

Example:

A well is determined to have 150 / 500 ppm H2S in the gas mixture and the well/facility is producing at a gas rate of 100 mcfd

150 ppm
X = ((1.589)(150/100,000)(100,000))^0.6258 = 7 ft

500 ppm
X = *((.4546)(500/100,000)(100,000))^0.6258 = 3.3 ft*

These calculations will be forwarded to the appropriate NMOCD office when applicable

PUBLIC EVACUATION PLAN

1. Notification of the emergency response agencies of the hazardous condition and implement evacuation procedures.

2. A trained person in H2S safety shall monitor with detection equipment the H2S concentration, wind and area of exposure. This person will determine the outer perimeter of the hazardous area. The extent of the evaluation area will be determined from the data being collected.

3. Law enforcement shall be notified to set up necessary barriers and maintain such for the duration of the situation as well as aid in the evacuation procedure. The company supervisor shall stay in communications with all agencies through the duration of the situation and inform them when the situation has been contained and the affected area(s) is safe to enter.

IGNITION OF THE GAS

1. Human life and or property are in danger

2. There is no hope of bringing the situation under control with the prevailing conditions at the site

3. Two people are required. They must be equipped with positive pressure, self-contained breathing apparatus and "D" ring style full body, OSHA approved safety harness. Non-flammable rope will be attached.

4. One of the people will be qualified safety person who will test the atmosphere for H2S, oxygen and LFL. The other person will be the company supervisor, he is responsible for igniting the well.

5. Ignite up wind from a distance no closer than necessary. Before igniting, make a final check of combustible gases.

6. Following ignition, continue with the emergency actions and procedures as before.

Characteristics of H2S and S02

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H_2S	1.189 Air= 1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO_2	2.21 Air= 1	2ppm	N/A	1000 ppm

REQUIRED EMERGENCY EQUIPMENT

1. Breathing apparatus

   Rescue Packs (SCBA) – 1 unit shall be placed at each breathing area, 2 shall be stored in the safety trailer with radio communications.

   Work/Escape Packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.

   Emergency Escape Packs – 4 – packs shall be stored in the doghouse for emergency evacuation.

2. Signage and Flagging

   One color cod condition sign will be placed at the entrance to the site indicating possible conditions at the site

   A colored conditions flag will be on display, indicating the conditions at the site at the time

3. Briefing Area (see attachment)

4. Wind Socks

   Two windsocks will be placed in strategic locations, visible from all angles

5. H2S Detectors & Alarms

   The stationary detector with three sensors will be placed in the upper dog house if equipped, set to visually alarm @ 10 ppm and audible at 14 ppm. Calibrate a minimum of every 30 days or as needed. The sensors will be placed in the following places: (gas sample tubes will be stored in the safety trailer)

   Rig floor
   Bell nipple
   End of flow line or where well bore fluid is being discharged

6. Auxiliary Rescue Equipment and misc.

   Stretcher
   Two OSHA full body harnesses
   100 ft. 5/8" OSHA approved rope
   1 – 20# class ABC fire extinguisher
   Communication via cell phones on location and vehicles on location
   Flare gun/flares

Well Control Equipment

1. BOP Equipment

5,000 psi blowout preventer (pipe and blind rams)
5,000 psi annular preventer
5,000 psi rotating head
5,000 choke manifold (equipped with hydraulic choke)
Mud/gas separator
Flare stack with solar powered igniter (with battery backup igniter) 150' from the well

Mud info and H2S Operating Mud Conditions

Though no H_2S 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_2S reading of 100 ppm or more are 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_2S 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 III.C. have been satisfied. Mud will be a fresh water/brine system with the proper H2S scavengers on location and utilized when necessary. Mud pH will also be kept at a level to minimize sulfide stress cracking and embrittlement when H2S is present in the mud system.

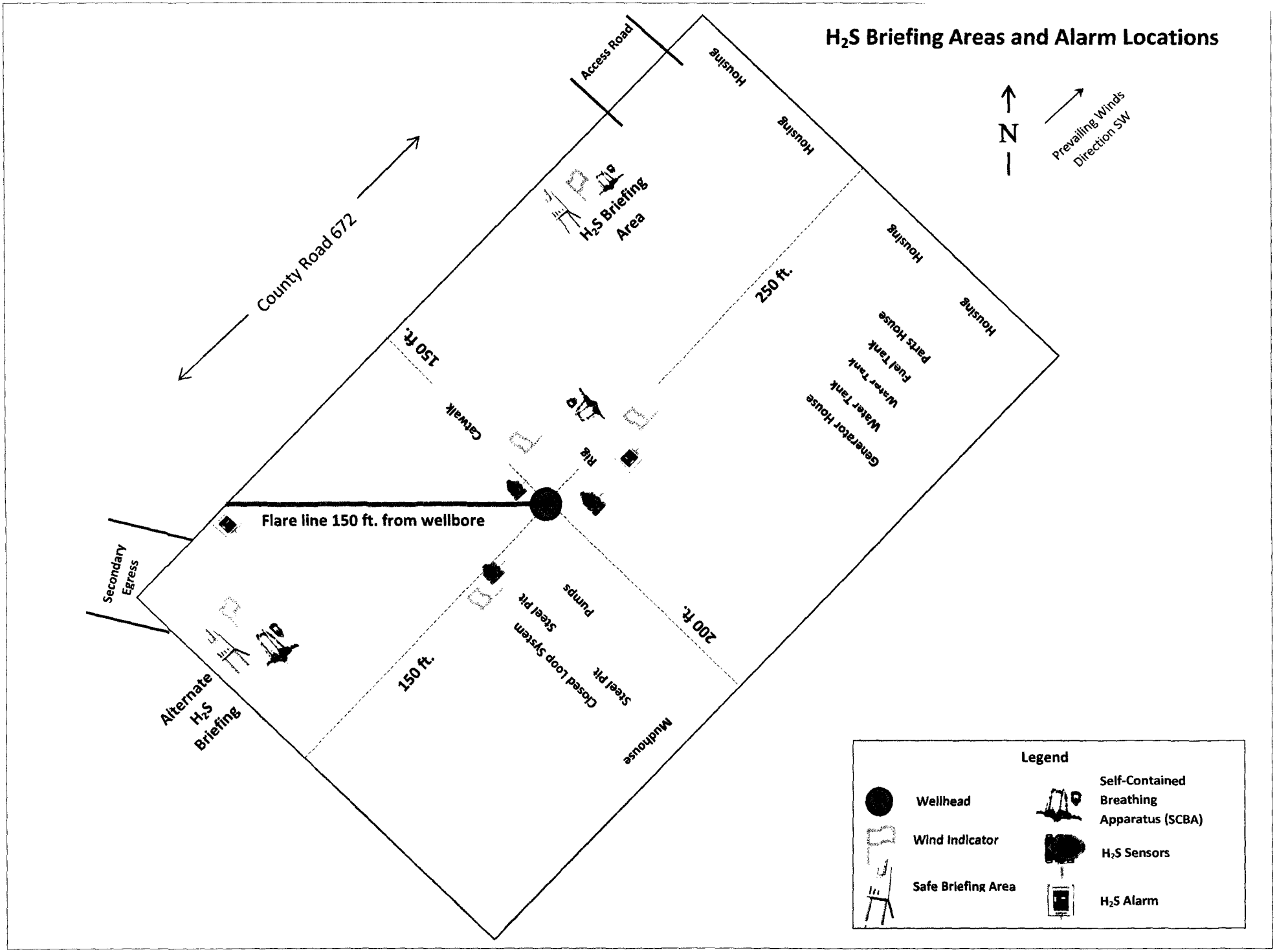
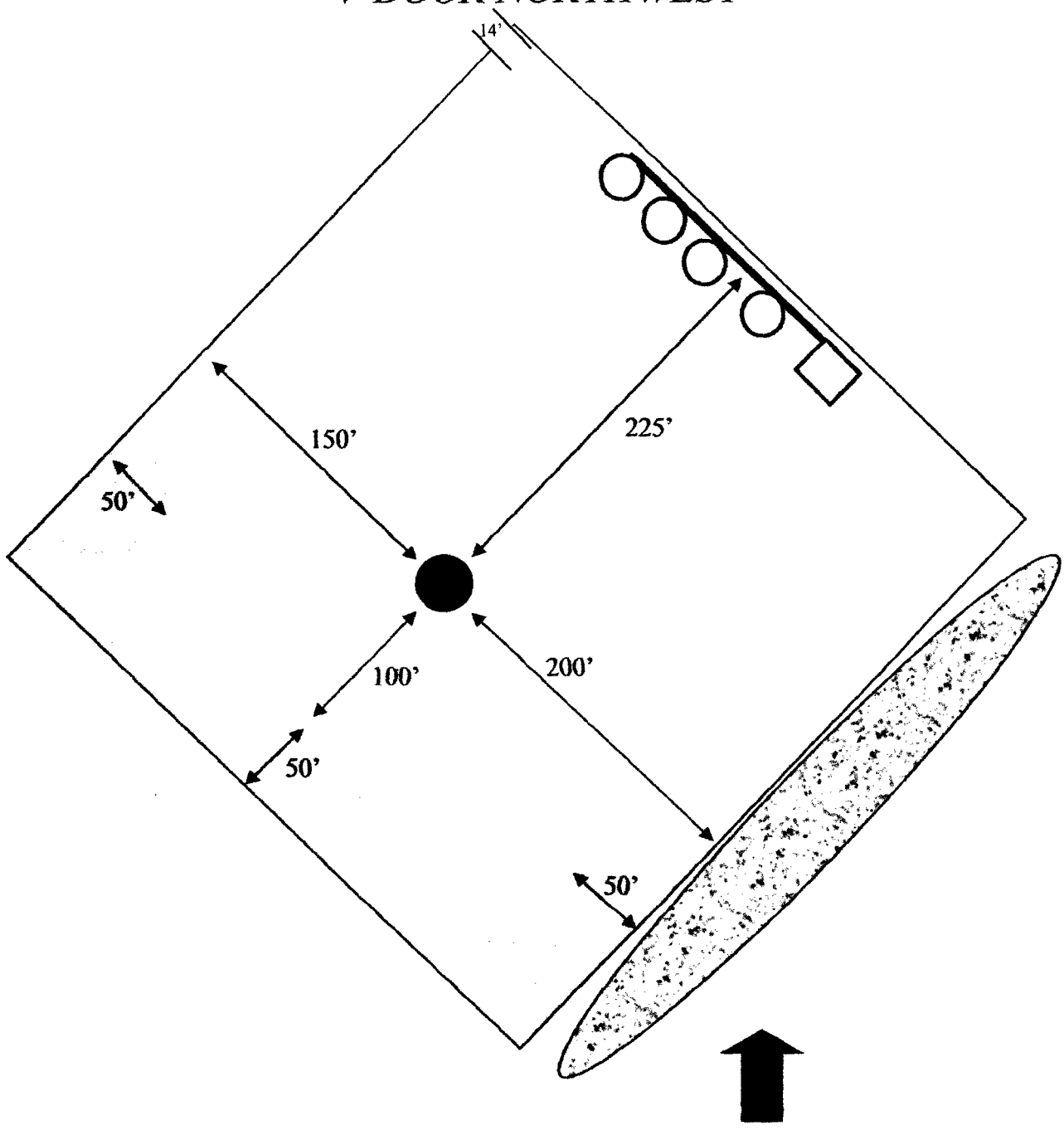

H2S Briefing Areas and Alarm Locations
Access Road
Housing
Housing
Housing
Housing
Housing
N
Prevailing Winds
Direction SW
H2S Briefing
Area
County Road 672
150 ft.
250 ft.
Catwalk
Rig
Generator House
Water Tank
Water Tank
Fuel Tank
Parts House
Flare line 150 ft. from wellbore
Secondary
Egress
Alternate
H2S
Briefing
150 ft.
Closed Loop System
Steel Pit
Steel Pit
Pumps
200 ft.
Mudhouse
Legend
Wellhead
Wind Indicator
Safe Briefing Area
Self-Contained
Breathing
Apparatus (SCBA)
H2S Sensors
H2S Alarm

EXHIBIT C

Interim Reclamation & Production Facilities
HAPPY VALLEY 27 FEDERAL COM 1H
V-DOOR NORTHWEST



LEGEND

Well Bore

Topsoil

Interim Reclamation

Production Facilities

NORTH

SURFACE USE PLAN

RKI Exploration & Production, LLC
Happy Valley 27 Federal Com 1H
SHL: 155' FSL & 990' FWL
BHL: 230 FNL & 330 FWL
Section 27, T. 22 S., R. 26 E
Eddy County, New Mexico

This plan is submitted with form 3160-3, Application for Permit to Drill, covering the above described well. The purpose of this plan is to describe the location of the proposed well, the proposed construction activities and operations plan, the magnitude of the surface disturbance involved and the procedures to be followed in rehabilitating the surface after completion of the operations, so that a complete appraisal can be made of the environmental effect associated with the operations.

1. EXISTING ROADS:

A. DIRECTIONS: Go southwest of Carlsbad, NM, on County Road 672 (Hidalgo Road), for 1.2 miles to beginning of road on south side of road. All existing roads are paved county roads.

B. See attached plats and maps provided by WTC Surveys.

C. The access routes from Eddy County Road 672 to the well location is depicted on **Exhibit A.** The route highlighted in red is all on lease and requires no ROW permit.

D. Existing roads on the access route will be improved and maintained to the standard set forth in Section 2 of this Surface Use Plan of Operations.

2. NEW OR RECONSTRUCTED ACCESS ROADS:

A. The new access road of 59.5' will begin at the northeast corner of the proposed well location and ru north, to County Road 672.

B. The maximum width of the driving surface will be 14 feet. The road will be crowned and ditched with a 2% slope from the tip of the crown to the edge of the driving surface. The ditches will be 1 foot deep with 3:1 slopes. The driving surface will be made 6" rolled and compacted caliche.

Level Ground Section

C. Surface material will be native caliche. The average grade of the entire road will be approximately 3%.
D. Fence Cuts: No
E. Cattle guards: No
F. Turnouts: No
G. Culverts: No
H. Cuts and Fills: Not significant
I. Approximately 6 inches of topsoil (root zone) will be stripped from the proposed access road

prior to any further construction activity. The topsoil that was stripped will be spread along the edge of the road and within the ditch. The topsoil will be seeded with the proper seed mix designated by the BLM.

J. The access road will be constructed and maintained as necessary to prevent soil erosion and accommodate all-weather traffic. The road will be crowned and ditched with water turnouts installed as necessary to provide for proper drainage along the access road route.

K. The access road and associated drainage structures will be constructed and maintained in accordance with road guidelines contained in the joint BLM/USFS publication: Surface Operating Standards for Oil and Gas Exploration and Development, The Gold Book, Fourth Edition and/or BLM Manual Section 9113 concerning road construction standards on projects subject to federal jurisdiction.

3. LOCATION OF EXISTING WELLS:

See attached map **(Exhibit B)** showing all wells within a one-mile radius.

4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES:

A. In the event the well is found productive, a TANK BATTERY, will be installed on the north east portion of the well pad. **(SEE EXHIBIT C).**

B. All permanent (on site six months or longer) aboveground structures constructed or installed on location and not subject to safety requirements will be painted to BLM specifications.

C. Containment berms will be constructed completely around production facilities designed to hold fluids. The containment berns will be constructed or compacted subsoil, be sufficiently impervious, hold 1 ½ times the capacity of the largest tank and away from cut or fill areas.

5. LOCATION AND TYPE OF WATER SUPPLY:

The well will be drilled using a combination of water mud systems as outlined in the Drilling Program. The water will be obtained from commercial water stations in the area and hauled to the location by transport truck using the existing and proposed roads shown in the attached survey plats. If a commercial water well is nearby, a temporary, surface poly line, will be laid along existing roads or other ROW easements and the water pumped to the well. No water well will be drilled on the location.

6. SOURCE OF CONSTRUCTION MATERIALS:

Any construction material that may be required for surfacing of the drill pad and access road will be from a contractor having a permitted source of materials within the general area. No construction materials will be removed from Federal lands without prior approval from the appropriate surface management agency. All roads will be constructed of 6" rolled and compacted caliche.

7. METHODS OF HANDLING WASTE DISPOSAL:

A. The well will be drilled utilizing a closed loop mud system. Drill cuttings will be held in roll-off style mud boxes and taken to an NMOCD approved disposal site.

B. Drilling fluids will be contained in steel mud pits.

C. Water produced from the well during completion will be held temporarily in steel tanks

and then taken to an NMOCD approved commercial disposal facility.

D. Oil produced during operations will be stored in tanks until sold.
E. Portable, self-contained chemical toilets will be provided for human waste disposal. Upon completion of operations, or as required, the toilet holding tanks will be pumped and the contents thereof disposed of in an approved sewage disposal facility. All state and local laws and regulations pertaining to disposal of human and solid waste will be complied with. This equipment will be properly maintained during the drilling and completion operations and will be removed when all operations are complete.
F. All trash, junk, and other waste materials will be contained in trash cages or bins to prevent scattering and will be removed and deposited in an approved sanitary landfill. Immediately after drilling all debris and other waste materials on and around the well location, not contained in the trash cage will be cleaned up and removed from the location. No potentially adverse materials or substances will be left on the location.

8. ANCILLARY FACILITIES:

No campsite, airstrip, or other facilities will be built as a result of the operation of this well. No staging areas are needed.

9. WELL SITE LAYOUT:

A. **Exhibit D** shows the dimensions of the proposed well pad.
B. The proposed well pad size will be 375' x 350' **(See Exhibit D).** There will be no reserve pit due to the well being drilled utilizing a closed loop mud system. The closed loop system will meet the NMOCD requirements 19.15.17 .
C. The WTC Surveyor's plat, Form C-102 and **Exhibit D**, shows how the well will be turned to a V-Door Northwest so as to parallel the county road.
D. A 600' x 600' area has been staked and flagged.
E. All equipment and vehicles will be confined to the approved disturbed areas of this APD (i.e., access road, well pad, and topsoil storage areas)

10. PLANS FOR SURFACE RECLAMATION:

A. After concluding the drilling and/or completion operations, if the well is found non-commercial, all the equipment will be removed, the surface material, caliche, will be removed from the well pad and road and transported to the original caliche pit or used for other roads. The original stock piled top soil will be returned to the pad and contoured, as close as possible, to the original topography. The access road will have the caliche removed and the road ripped, barricaded and seeded as directed by the BLM.
B. If the well is a producer, the portions of the location not essential to production facilities or space required for workover operations, will be reclaimed and seeded as per BLM requirements. **(SEE EXHIBIT C FOR INTERIM RECLAMATION PLAT FOR THIS WELL)**
C. Reclamation Performance Standards
The following reclamation performance standards will be met:

Interim Reclamation – Includes disturbed areas that may be redisturbed during operations and will be redisturbed at final reclamation to achieve restoration of the original landform and a natural vegetative community.

- Disturbed areas not needed for active, long-term production operations or vehicle travel will be recontoured, protected from erosion, and

revegetated with a self-sustaining, vigorous, diverse, native (or as otherwise approved) plant community sufficient to minimize visual impacts, provide forage, stabilize soils, and impede the invasion of noxious, invasive, and non-native weeds.

Final Reclamation – Includes disturbed areas where the original landform and a natural vegetative community will be restored and it is anticipated the site will not be redisturbed for future development.

- The original landform will be restored for all disturbed areas including well pads, production facilities, roads, pipelines, and utility corridors.
- A self-sustaining, vigorous, diverse, native (or otherwise approved) plant community will be established on the site, with a density sufficient to control erosion and invasion by non-native plants and to re-establish wildlife habitat or forage production. At a minimum, the established plant community will consist of species included in the seed mix and/or desirable species occurring in the surrounding natural vegetation.
- Erosion features are equal to or less than surrounding area and erosion control is sufficient so that water naturally infiltrates into the soil and gullying, headcutting, slumping, and deep or excessive rills (greater than 3 inches) are not observed.
- The site will be free of State- or county-listed noxious weeds, oil field debris and equipment, and contaminated soil. Invasive and non-native weeds are controlled.

D. Reclamation Actions

Earthwork for interim and final reclamation will be completed within 6 months of well completion or plugging unless a delay is approved in writing by the BLM authorized officer.

The following minimum reclamation actions will be taken to ensure that the reclamation objectives and standards are met. It may be necessary to take additional reclamation actions beyond the minimum in order to achieve the Reclamation Standards.

<u>Reclamation – General</u>

Notification:
- The BLM will be notified at least 3 days prior to commencement of any reclamation operations.

Housekeeping:
- Within 30 days of well completion, the well location and surrounding areas(s) will be cleared of, and maintained free of, all debris, materials, trash, and equipment not required for production.
- No hazardous substances, trash, or litter will be buried or placed in pits.

Topsoil Management:
- Operations will disturb the minimum amount of surface area necessary to conduct safe and efficient operations.
- Topsoil depth is defined as the top layer of soil that contains 80% of the roots. In areas to be heavily disturbed, the topsoil will be stripped and stockpiled

around the perimeter of the well location and along the perimeter of the access road to control run-on and run-off, to keep topsoil viable, and to make redistribution of topsoil more efficient during interim reclamation. Stockpiled topsoil will include vegetative material. Topsoil will be clearly segregated and stored separately from subsoils.

- Salvaging and spreading topsoil will not be performed when the ground or topsoil is frozen or too wet to adequately support construction equipment or so dry that dust clouds greater than 30 feet tall are created. If such equipment creates ruts in excess of four (4) inches deep, the soil will be deemed too wet.
- No major depressions will be left that would trap water and cause ponding unless the intended purpose is to trap runoff and sediment.

Seeding:

- Seedbed Preparation. Initial seedbed preparation will consist of recontouring to the appropriate interim or final reclamation standard. All compacted areas to be seeded will be ripped to a minimum depth of 18 inches with a minimum furrow spacing of 2 feet, followed by recontouring the surface and then evenly spreading the stockpiled topsoil. Prior to seeding, the seedbed will be scarified to a depth of no less than 4 – 6 inches. If the site is to be broadcast seeded, the surface will be left rough enough to trap seed and snow, control erosion, and increase water infiltration.
- If broadcast seeding is to be used and is delayed, final seedbed preparation will consist of contour cultivating to a depth of 4 to 6 inches within 24 hours prior to seeding, dozer tracking, or other imprinting in order to break the soil crust and create seed germination micro-sites.
- Seed Application. Seeding will be conducted no more than two weeks following completion of final seedbed preparation. A certified weed-free seed mix designed by the BLM to meet reclamation standards will be used.
- If the site is harrowed or dragged, seed will be covered by no more than 0.25 inch of soil.

11. SURFACE OWNERSHIP:

A. The surface is owned by the U. S. Government and is administered by the Bureau of Land Management. The surface is multiple use with the primary uses of the region for the grazing of livestock and the production of oil and gas.

12. OTHER INFORMATION:

A. The area surrounding the well site is in a gentle sloped, shallow gravelly loam, rolling hills type area. The vegetation consists of White-Thorn Acacia/ Mesquite/ Creosote and with three-awns and some dropseed species.
B. There is no permanent or live water in the immediate area.
C. There are dwellings 0.75 miles to northeast and southwest of this location.
D. The location falls outside the MOA area and an archaeological report from Boone Archaeological Services has been performed and submitted to the Carlsbad BLM office.

13. BOND COVERAGE:

Bond Coverage is Nationwide; Bond Number NMB-000460.

OPERATORS REPRESENTATIVE:

The RKI Exploration and Production, LLC representatvies responsible for ensuring compliance of the surface use plan are listed below:

Surface:
Barry W. Hunt – Permitting Agent
1403 Springs Farm Place
Carlsbad, NM 88220
(575) 885-1417 (Home)
(575) 361-4078 (Cell)

Drilling & Production:
Ken Fairchild – RKI Exploration and Production, LLC.
210 Park Avenue, Suite 900
Oklahoma City, Ok.73102
(405) 996-5764 (Office)
(469) 693-6051 (Cell)

ON-SITE PERFORMED ON 11/25/14 RESULTED IN PROPOSED LOCATION BEING MOVED 660 FT. EAST AND 75 FT. SOUTH, DUE TO ELECTRIC LINES, GAS PIPELINES AND COUNTRY ROAD 672. IT WAS FURTHER AGREED TO TURN THE LOCATION TO A V-DOOR NORTHWEST, RUN ACCESS ROAD FROM NORTHEAST CORNER NORTH, TANK BATTERY NORTHEAST AND TOP SOIL SOUTHEAST. INTERIM RECLAMATION WILL BE WEST, NORTHWEST AND SOUTHWEST PORTIONS OF THE PAD.

PRESENT AT ON-SITE:
BARRY HUNT – PERMITTING AGENT FOR RKI EXPLORATION & PRODUCTION
INDRA DAHAL – BLM
BECKIE HILL – BOONE ARCHAEOLOGICAL SERVICES
WTC SURVEYORS

RKI Exploration & Production LLC
3817 NW Expressway, Suite 950, Oklahoma City, OK 73112
405-949-2221 Fax 405-949-2223

June 25th, 2012

To Whom It May Concern:

Please be advised that Mr. Barry Hunt has been retained by RKI Exploration & Production to sign as our agent on Application for Permit to Drill (APD) as well as Right of Way applications within the States of New Mexico and Texas.

If you have any questions or require additional information, please feel free to contact me at (405) 996-5771.

Sincerely,

Charles K. Ahn
EH&S/Regulatory Manager

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**RKI Exploration & Production, LLC.**
LEASE NO.:	**NMNM056231**
WELL NAME & NO.:	**Happy Valley 27 Federal Com 1H**
SURFACE HOLE FOOTAGE:	**0155' FSL & 0990' FWL**
BOTTOM HOLE FOOTAGE	**0230' FNL & 0330' FWL**
LOCATION:	**Section 27, T. 22 S., R 26 E., NMPM**
COUNTY:	**Eddy County, New Mexico**

TABLE OF CONTENTS

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

I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

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

IV. NOXIOUS WEEDS

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

V. SPECIAL REQUIREMENT(S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, 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.

- 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.

Cave and Karst

** Depending on location, additional Drilling, Casing, and Cementing procedures may be required by engineering to protect critical karst groundwater recharge areas.

Cave/Karst Surface Mitigation

The following stipulations will be applied to minimize impacts during construction, drilling and production.

Construction:
In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

No Blasting:
No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

Pad Berming:
The entire perimeter of the well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad.

- The compacted berm shall be constructed at a minimum of 12 inches high with impermeable mineral material (e.g. caliche).
- No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad.
- The topsoil stockpile shall be located outside the bermed well pad.
- Topsoil, either from the well pad or surrounding area, shall not be used to construct the berm.
- No storm drains, tubing or openings shall be placed in the berm.
- If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.
- The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed.
- Any access road entering the well pad shall be constructed so that the integrity of the berm height surrounding the well pad is not compromised. (Any access road crossing the berm cannot be lower than the berm height.)

Tank Battery Liners and Berms:
Tank battery locations and all facilities will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

Leak Detection System:
A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating values and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

Automatic Shut-off Systems:
Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Cave/Karst Subsurface Mitigation

The following stipulations will be applied to protect cave/karst and ground water concerns:

Rotary Drilling with Fresh Water:
Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

Directional Drilling:
Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

Lost Circulation:
ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

Abandonment Cementing:
Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Pressure Testing:
Annual pressure monitoring will be performed by the operator on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

VI. CONSTRUCTION

A. NOTIFICATION

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

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

B. TOPSOIL

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

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

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

D. FEDERAL MINERAL MATERIALS PIT

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

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

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

F. EXCLOSURE FENCING (CELLARS & PITS)

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

G. ON LEASE ACCESS ROADS

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

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

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

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

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

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

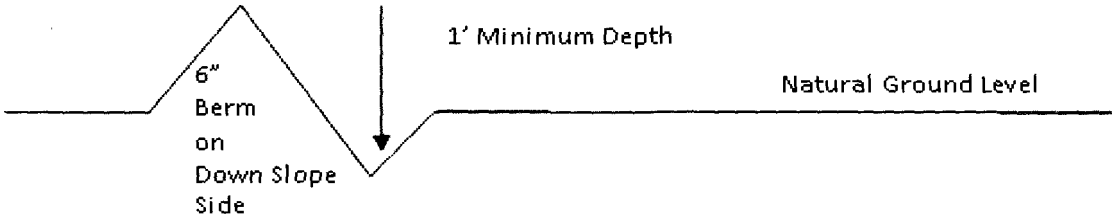
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

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

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

Cross Section of a Typical Lead-off Ditch



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

Formula for Spacing Interval of Lead-off Ditches

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

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

Cattleguards

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

Fence Requirement

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

Public Access

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

Construction Steps

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

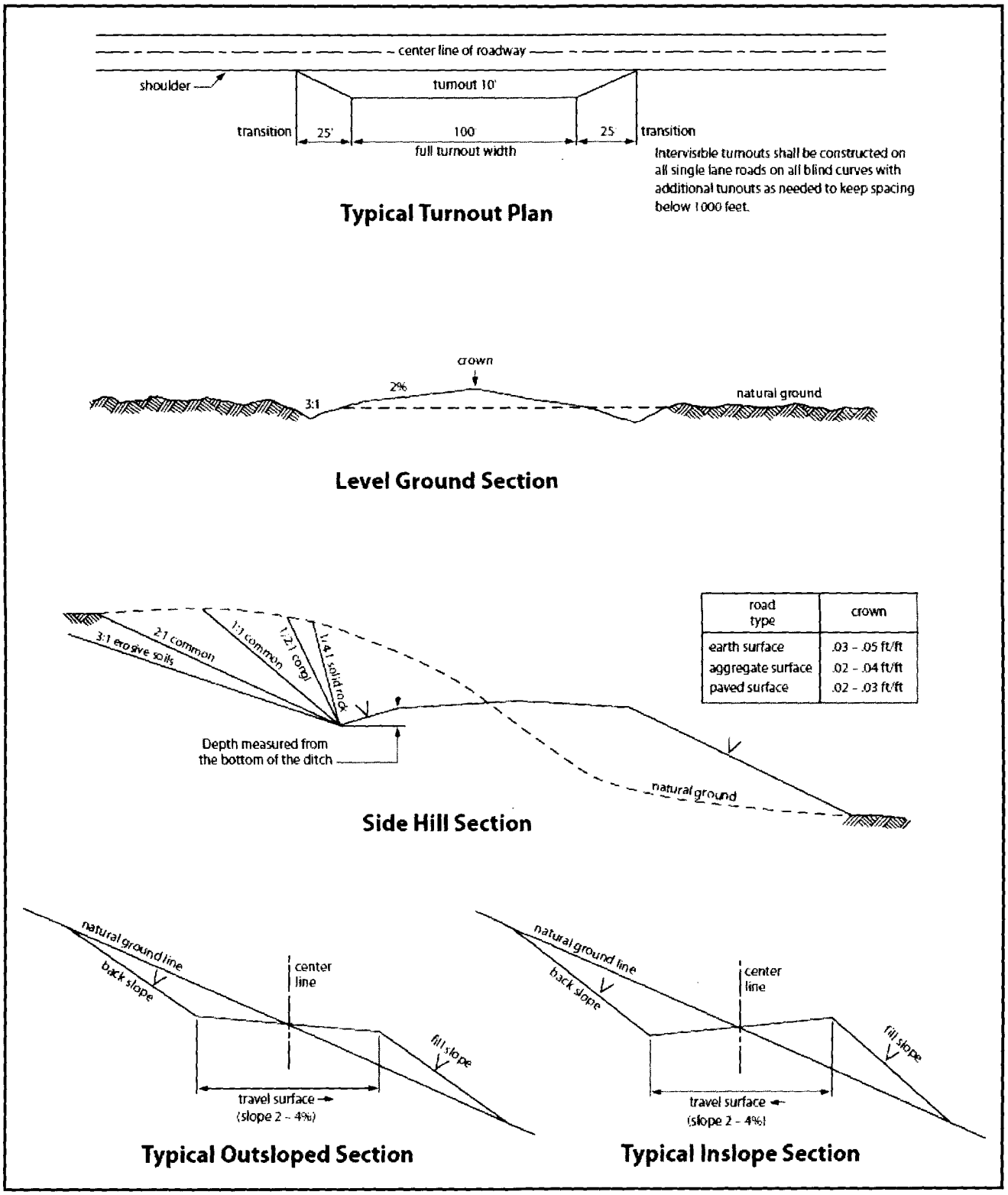


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. DRILLING

A. DRILLING OPERATIONS 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)

☒ **Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

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

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 is located, this does not include the dog house or stairway area.

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

B. CASING

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.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.
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.

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.

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

Medium Cave/Karst
Possibility of water flows in the Artesia Group and Capitan Reef
Possibility of lost circulation in the Castile, Artesia Group, Capitan Reef, and Delaware.

1. The **13-3/8** inch surface casing shall be set at approximately **700** feet and cemented to the surface. **Excess calculates to negative 9 % - Additional cement will be required. Within Carlsbad wellhead protection area ensure casing is set below all usable water and cave zones.**
    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 is to include the lead cement slurry.
    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.

Formation below the 13-3/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the hole. Report results to BLM office.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

    ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst.**

If cement does not circulate to surface on the intermediate casing, the cement on the production casing must come to surface.

Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:
   ☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification. **Excess calculates to negative 23% - Additional cement will be required.**

4. 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.

C. PRESSURE CONTROL

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

2. **Operator has proposed a multi-bowl wellhead assembly that has a weld on head with no o-ring seals. This assembly will only be tested when installed on the surface casing. 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.**
   a. **Wellhead manufacturer is supplying the test plug/retrieval tool for the operator's third party tester to use during the BOP/BOPE test. Operator shall use the supplied test plug/retrieval tool.**
   b. **Operator shall install the wear bushing required by the wellhead manufacturer. This wear bushing shall be installed by using the test plug/retrieval tool.**
   c. **Wellhead manufacturer representative shall be on location when the intermediate casing mandrel is landed. Operator shall submit copy of manufacturer's wellsite report with subsequent report.**
   d. **Operator shall perform the intermediate casing integrity test to 70% of the casing burst. This will test the multi-bowl seals.**
   e. **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.**

5M 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.

3. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
    b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.
    c. 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.
    d. The results of the test shall be reported to the appropriate BLM office.
    e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
    f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes 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.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. 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.

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VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities
Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)
Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening
The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures
Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

IX. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

X. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Seed Mixture 1 for Loamy Sites

Holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed shall be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed shall be planted using a drill equipped with a depth regulator to ensure proper depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture shall be evenly and uniformly planted over the disturbed area (small/heavier seeds have a tendency to drop the bottom of the drill and are planted first). Holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed shall be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre shall be doubled. The seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Plains lovegrass (Eragrostis intermedia)	0.5
Sand dropseed (Sporobolus cryptandrus)	1.0
Sideoats grama (Bouteloua curtipendula)	5.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed