

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1a. TYPE OF WORK

DRILL ☒

DEEPEN ☐

1b. TYPE OF WELL

OIL  
WELL ☒

GAS  
WELL ☐

OTHER

2. NAME OF OPERATOR

Bass Enterprises Production Co. 1801

3. ADDRESS AND TELEPHONE NO.

P.O. Box 2760, Midland, TX 79702-2760

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)

At surface

200' FEL, 1780' FSL, SECTION 36, T22S, R30E

At proposed prod. zone

BHL: 1980' FSL, 660' FWL, SECTION 31, T22S, R31E, Lot 3

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE\*

38 MILES EAST OF CARLSBAD, NM

15. DISTANCE FROM PROPOSED\*

LOCATION TO NEAREST

PROPERTY OR LEASE LINE, FT.

(Also to nearest drlg. unit line, if any) 660'

18. DISTANCE FROM PROPOSED LOCATION\*

TO NEAREST WELL, DRILLING, COMPLETED,

OR APPLIED FOR, ON THIS LEASE, FT. 1070'

16. NO. OF ACRES IN LEASE

320

17. NO. OF ACRES ASSIGNED

TO THIS WELL

40

19. PROPOSED DEPTH

11272' TVD/11365' MD

20. ROTARY OR CABLE TOOLS

ROTARY

21. ELEVATIONS (Show whether DF, RT, GR, etc.)

3316' GR

CARLSBAD CONTROLLED WATER BASIN

22. APPROX. DATE WORK WILL START\*

UPON APPROVAL

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
*14-3/4"	11-3/4", H40	42#	WITNESS 50'	360 SX CIRC TO SURFACE
11"	8-5/8", K55	32#	WITNESS 900'	995 SX CIRC TO SURFACE
7-7/8"	5-1/2", P110	17#	WITNESS 365'	1675 SX CIRC TO SURFACE. DV TOOL @ 5500'.

\*SURFACE TO BE SET IN THE RUSTLER ANHYDRITE.

DRILLING PROCEDURE, BOPE DIAGRAM, ANTICIPATED TOPS AND SURFACE PLANS ATTACHED.

THIS WILL BE A CONTROLLED DIRECTIONAL WELL. KOP @ APPROX 5200', BUILDING ANGLE AT APPROX 2.67 DEG/100' TO 19.16 DEG AT 5917' AND HOLDING THAT ANGLE TO 6859' WHERE WE WILL BEGIN TO DROP AT 2.67 DEG/100' TO 4.85 DEG AT 7394' AND HOLDING THAT ANGLE TO THE PTD. THE LEASE LINE WILL NOT BE CROSSED BY 6000' TVD AND ALL OBJECTIVES BELOW 7227' TVD WILL BE WITHIN ORTHODOX SPACING LIMITS.

\*\* (ALL DEPTH MEASURED DEPTH EXCEPT WHEN SPECIFIED OTHERWISE.)

THIS WELL IS LOCATED WITHIN THE R-111P POTASH AREA AND ALL POTASH LEASE OWNERS WITHIN A MILE OF THIS PROPOSED LOCATION WILL BE NOTIFIED OF THE DRILLING OF THIS WELL. POTASH NOTIFICATIONS WILL BE SENT UNDER SEPARATE COVER.

R-111-P POTASH

SECRETARY'S POTASH

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED

William R. Dannels

TITLE

W. R. DANNELS

DIVISION DRILLING SUPT.

DATE

12-30-99

(This space for Federal or State office use)

PERMIT NO.

APPROVAL DATE

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:

APPROVED BY

/s/ F Splendoria

TITLE

Acting

STATE DIRECTOR

DATE

3-14-00

\*See Instructions On Reverse Side

Title 18 U.S.C. Section 1001, makes 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.

Notify OCD at SPUD & TIME  
to witness cementing the  
11 3/4" x 8 3/8" casing.

RECEIVED  
JUN 11 1963

RECEIVED  
JUN 11 - 5 A 10:23

DISTRICT I  
P.O. Box 1980, Hobbs, NM 88240

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-102  
Revised February 10, 1994  
Instruction on back  
Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

DISTRICT II  
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III  
1000 Rio Brazos Rd., Artesia, NM 87410

OIL CONSERVATION DIVISION

P.O. Box 2088  
Santa Fe, New Mexico 87504-2088

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
		LOS MEDANOS (WOLFCAMP, BONE SPRING, DELAWARE)
Property Code	Property Name	Well Number
	JAMES RANCH UNIT	27
OGRID No.	Operator Name	Elevation
001801	BASS ENTERPRISES PRODUCTION COMPANY	3316'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	36	22 S	30 E		1780	SOUTH	200	EAST	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
LOT 3	31	22 S	31 E		1980	SOUTH	660	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
40	Y		

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

	<p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.</p> <p><u>William R. Dannels</u> Signature</p> <p>William R. Dannels Printed Name</p> <p>Division Drilling Supt. Title</p> <p>12-30-99 Date</p> <p><b>SURVEYOR CERTIFICATION</b></p> <p>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.</p> <p>November 18, 1999 Date Surveyed</p> <p><u>[Signature]</u> Signature &amp; Seal of Professional Surveyor</p> <p>W.O. No. 9487</p> <p>Certificate No. 7977</p> <p>BASIN SURVEYS</p>
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**EIGHT POINT DRILLING PROGRAM  
BASS ENTERPRISES PRODUCTION CO.**

**NAME OF WELL: JAMES RANCH UNIT #27**

**LEGAL DESCRIPTION - SURFACE:** 200' FEL & 1780' FSL, Section 36, T-22-S, R-30-E, Eddy County, New Mexico.

**Bottom Hole Location:** 1980' FSL & 660' FWL, Section 31, T22S, R31E, Eddy County, New Mexico.

**POINT 1: ESTIMATED FORMATION TOPS**

(See No. 2 Below)

**POINT 2: WATER, OIL, GAS AND/OR MINERAL BEARING FORMATIONS**

Anticipated Formation Tops: KB 3332' (est)  
GL 3316'

<u>FORMATION</u>	<u>ESTIMATED TOP FROM KB</u>		<u>ESTIMATED SUBSEA TOP</u>	<u>BEARING</u>
	<u>TVD</u>	<u>MD</u>	<u>TVD</u>	
T/Rustler	603'	603'	+2,729'	None
T/Salt	703'	703'	+2,629'	None
B/Salt	3,603'	3,603'	- 271'	None
T/Ramsey	3,953'	3,953'	- 621'	None
T/Delaware 'C'	7,227'	7,304'	- 3,895'	Oil & Gas
T/Delaware 'D'	7,447'	7,526'	- 4,115'	Oil & Gas
T/Bone Spring	7,727'	7,807'	- 4,395'	Oil & Gas
T/3 <sup>rd</sup> Bone Spring	10,897'	10,988'	- 7,565'	Oil & Gas
T/Wolfcamp	11,015'	11,107'	- 7,683'	Oil & Gas
TD	11,272'	11,365'	- 7,940'	

**POINT 3: CASING PROGRAM**

<u>TYPE</u>	<u>INTERVALS</u>	<u>PURPOSE</u>	<u>CONDITION</u>
16"	0' - 40'	Conductor	New
11-3/4", 42#, H-40, STC	0' - 650'	Surface	New
8-5/8", 32#, K-55, STC	0' - 3,900'	Intermediate	New
5-1/2", 17#, P-110, LTC	0' - 11,365'	Production	New

#### POINT 4: PRESSURE CONTROL EQUIPMENT (SEE ATTACHED DIAGRAM)

A BOP equivalent to Diagram 1 will be nipped up on the surface casing head. The BOP stack, choke, kill lines, kelly cocks, inside BOP, etc. will be hydro-tested to the lowest rated working pressure of the equipment being tested. In addition to the rated working pressure test, a low pressure (200 psi) test will be required. These tests will be performed:

- a) Upon installation
- b) After any component changes
- c) Fifteen days after a previous test
- d) As required by well conditions

A function test to insure that the preventers are operating correctly will be performed on each trip. See the attached Diagram 1 for the minimum criteria for the choke manifold.

#### POINT 5: MUD PROGRAM

DEPTH	MUD TYPE	WEIGHT	FV	PV	YP	FL	Ph
0' - 650'	FW Spud Mud	8.5 - 9.2	35-40	NC	NC	NC	NC
650' - 3,900'	BW	9.8 - 10.2	29-30	NC	NC	NC	NC
3,900' - 7,800'	FW/Starch	8.4 - 8.8	29-31	NC	NC	<100	9.5-10.5
7,800' - 11,365'	CBW/Polymer	8.6 - 9.8	34-45	10-14	12-18	15-18	9.5-10.5

#### POINT 6: TECHNICAL STAGES OF OPERATION

##### A) TESTING

Drill stem tests will be performed on significant shows in zones of interest.

##### B) LOGGING

GR-CNL-LDT, GR-DLL-MSFL run from TD to 3900', GR-CNL intermediate casing shoe to surface.

##### C) CORING

No cores are anticipated.

##### D) CEMENT

INTERVAL	AMOUNT SXS	FT OF FILL	TYPE	GALS/SX	PPG	FT <sup>3</sup> /SX
<u>SURFACE</u>						
Circ to surface						
Lead	±260	525	Class C + 4% Gel + 2% CaCl <sub>2</sub> + 1/4 ppg Celloflake	9.17	13.50	1.75
(100% excess)						
Tail	±100	125	Class C + 2% CaCl <sub>2</sub> + 1/4 ppg Celloflake	6.36	14.80	1.34
(100% excess)						

## Con't... POINT 6: TECHNICAL STAGES OF OPERATION

### D) CEMENT

<u>INTERVAL</u>	<u>AMOUNT SXS</u>	<u>FT OF FILL</u>	<u>TYPE</u>	<u>GALS/SX</u>	<u>PPG</u>	<u>FT<sup>3</sup>/SX</u>
INTERMEDIATE Circ to surface						
Lead (100% excess)	±745	3270	50/50 Poz C + 10% Gel + 5% Salt	12.09	12.59	2.24
Tail (100% excess)	±250	630	Class C + 1% CaCl <sub>2</sub>	6.34	14.80	1.34

PRODUCTION (Two stage w/DV tool @ 5500' and circulate cement to surface.)

<u>INTERVAL</u>	<u>AMOUNT SXS</u>	<u>FT OF FILL</u>	<u>TYPE</u>	<u>GALS/SX</u>	<u>PPG</u>	<u>FT<sup>3</sup>/SX</u>
1 <sup>st</sup> Stage 5500'-11,365' (50% excess)	1125	5865	Poz H + 0.5% FL-25 + 0.5% FL-52 + 2 pps Salt	6.36	14.00	1.36
2 <sup>nd</sup> Stage LEAD 0'-5000' (50% excess)	450	5000	Poz H + 10% Gel + 5% Salt + 0.2% FL-52	12.09	12.59	2.24
TAIL 5000-5500' (50% excess)	100	500	Class C Neat	6.34	14.80	1.34

### E) DIRECTIONAL DRILLING (See attached directional plan.)

A straight hole will be drilled to 5200' TVD. A gyro or multi-shot directional survey will be taken in 100' intervals from 5200' to surface.

Directional surveys will be provided at least every 200' from TD to 5200' detailing hole location.

## POINT 7: ANTICIPATED RESERVOIR CONDITIONS

Normal pressures are anticipated throughout the Delaware section. The Bone Spring expected BHP is 6000 (max) or an equivalent mud weight of 10.0 ppg @ TD. Due to the tight nature of the reservoir rock (high pressure, low volume), the well will be drilled under balanced utilizing a rotating head. The expected BHT at TD is 170°F. Prior to penetrating the abnormal pressures in the Bone Spring and Wolfcamp, mud-monitoring equipment will be installed and operative. No H<sub>2</sub>S is anticipated.

**POINT 8: OTHER PERTINENT INFORMATION****A) Auxiliary Equipment**

Upper and lower kelly cocks. Full opening stab in valve on the rig floor.

**B) Anticipated Starting Date**

Upon approval

30 days drilling operations

15 days completion operations

JCW/mac  
December 30, 1999

## **MULTI-POINT SURFACE USE PLAN**

**NAME OF WELL: JAMES RANCH UNIT #27**

**LEGAL DESCRIPTION - SURFACE:** 200' FEL & 1780' FSL, Section 36, T-22-S, R-30-E, Eddy County, New Mexico.

**Bottom Hole Location:** 1980' FSL & 660' FWL, Section 31, T22S, R31E, Eddy County, New Mexico.

### **POINT 1: EXISTING ROADS**

A) Proposed Well Site Location:

See Exhibit "A".

B) Existing Roads:

From Jal, New Mexico, go west on Hwy 128 approximately 47 miles (10 miles east of Hwy 31 & Hwy 128). Go North on paved WIPP road for 3/4 mile. Turn left and go West 1/2 mile on lease road, turn right and go North & Northeast for 3/4 miles, then turn right & go East into location.

C) Existing Road Maintenance or Improvement Plan:

See Exhibit "A".

### **POINT 2: NEW PLANNED ACCESS ROUTE**

A) Route Location:

See Exhibit "A". A new road from existing JRU #37 location will be 12' wide and approximately 200' long. The road will be constructed of watered and compacted caliche.

B) Width

Not applicable

C) Maximum Grade

Not applicable.

D) Turnout Ditches

None.

**POINT 2: NEW PLANNED ACCESS ROUTE – Con't...**

- E) Culverts, Cattle Guards, and Surfacing Equipment

None.

**POINT 3: LOCATION OF EXISTING WELLS**

Exhibit "A-1" indicates existing wells within the surrounding area.

**POINT 4: LOCATION OF EXISTING OR PROPOSED FACILITIES**

- A) Existing facilities within one mile owned or controlled by lessee/operator:

Production facilities and wells are shown on Exhibit "A-1" at:

James Ranch Unit #1	James Ranch Unit #13
James Ranch Unit #4	James Ranch Unit #19
James Ranch Unit #7	James Ranch Unit #29
James Ranch Unit #10	

- B) New Facilities in the Event of Production:

We plan to add production vessels to the existing facility at James Ranch Unit #19.

- C) Rehabilitation of Disturbed Areas Unnecessary for Production:

Those access areas required for continued production will be graded to provide drainage and minimize erosion. The areas unnecessary for use will be graded to blend in the surrounding topography – See Point 10.

**POINT 5: LOCATION AND TYPE OF WATER SUPPLY**

- A) Location and Type of Water Supply

Brine water will be hauled from commercial facilities. Fresh water to be hauled from Diamond and a Half Meter Station, 35 miles east of Carlsbad, New Mexico or from Mills Ranch.

- B) Water Transportation System

Water hauling to the location will be over the existing and proposed roads.

**POINT 6: SOURCE OF CONSTRUCTION MATERIALS**

A) Materials

Surface caliche will be used if possible. Closest alternate caliche source is indicated on Exhibit "A".

B) Land Ownership

State owned.

C) Materials Foreign to the Site

No construction materials foreign to this area are anticipated for this drill site.

D) Access Roads

See Exhibit "A".

**POINT 7: METHODS FOR HANDLING WASTE MATERIAL**

A) Cuttings

Cuttings will be contained in the plastic lined reserve pit.

B) Drilling Fluids

Drilling fluids will be contained in the plastic lined reserve pit.

C) Produced Fluids

Water production will be contained in the plastic lined reserve pit.

Hydrocarbon fluid or other fluids that may be produced during testing will be retained in test tanks. Prior to cleanup operations, any hydrocarbon material in the reserve pit will be removed by skimming or burning as the situation would dictate.

D) Sewage

Current laws and regulations pertaining to the disposal of human waste will be complied with.

E) Garbage

Portable containers will be utilized for garbage disposal during the drilling of this well.

**POINT 7: METHODS FOR HANDLING WASTE MATERIAL – Con't...**

**F) Cleanup of Well Site**

Upon release of the drilling rig, the surface of the drilling pad will be graded to accommodate a completion rig if electric log analysis indicate potential productive zones. In any case, the "mouse" hole and the "rat" hole will be filled and covered. The reserve pit will be bird netted and fenced. The fence will be maintained until the pit is backfilled. Reasonable cleanup will be performed prior to the final restoration of the site.

**POINT 8: ANCILLARY FACILITIES**

None required.

**POINT 9: WELL SITE LAYOUT**

**A) Rig Orientation and Layout**

Exhibit "C" shows the dimensions of the well pad and reserve pits, and the location of major rig components. Only minor leveling of the well site will be required. No significant cuts or fills will be necessary.

**B) Locations of Pits and Access Road**

See Exhibits "A" and "C".

**C) Lining of the Pits**

The reserve pits will be lined with plastic.

**POINT 10: PLANS FOR RESTORATION OF THE SURFACE**

**A) Reserve Pit Cleanup**

Pits will be fenced immediately after spudding and maintained until backfilled. Prior to back-filling, any hydrocarbon material on the pit surfaces shall be removed. The fluids and solids contained in the pits shall be backfilled with soil excavated from the site and soil adjacent to the reserve pits. The restored surface of the pits shall be contoured to prevent impoundment of surface water flow. Water-bars will be constructed as needed to prevent excessive erosion. Topsoil, as available, shall be placed over the restored surface in a uniform layer. The area will be seeded to Bureau of Land Management stipulations in the appropriate season following restoration.

**POINT 10: PLANS FOR RESTORATION OF THE SURFACE – Con't...**

**B) Restoration Plans - Production Developed**

Reserve pits will be backfilled and restored as described above under Item A. In addition, those areas not required for production will be graded to blend with the surrounding topography. Topsoil, as available, will be placed upon those areas and seeded. The portion of the site required for production will be graded to minimize erosion and provide access during inclement conditions. Following depletion and abandonment of the site, restoration procedures will be those that follow under Item C.

**C) Restoration Plans - No Production Developed**

Reserve pits will be restored as described above. With no production developed, the entire surface disturbed by construction of the well site will be restored. The site will be contoured to blend with the surrounding topography and provide drainage of surface water. The topsoil, as available, shall be replaced in a uniform layer and seeded according to the Bureau of Land Management's stipulations.

**D) Rehabilitation's Time table**

Upon completion of drilling operations, the initial cleanup of the site will be performed as soon as weather and site conditions allow economic execution of the work.

**POINT 11: OTHER INFORMATION**

**A) Terrain**

Relatively flat.

**B) Soil**

Caliche and sand.

**C) Vegetation**

Sparse, primarily grasses and mesquite with very little grass.

**D) Surface Use**

Primarily grazing.

**E) Surface Water**

There are no ponds, lakes, streams or rivers within several miles of the wellsite.

**POINT 11: OTHER INFORMATION – Con't...**

**F) Water Wells**

Mills Ranch has a water well.

**G) Residences and Buildings**

Ranch house is approximately 1 to 1-1/2 miles south of location.

**H) Historical Sites**

None observed.

**I) Archeological Resources**

An archeological survey will be obtained for this area. Before any construction begins, a full and complete archeological survey will be submitted to the Bureau of Land Management. Any location or construction conflicts will be resolved before construction begins.

**J) Surface Ownership**

The well site and new access road is on State owned land. ROW will be required before location can be built.

**K) Well signs will be posted at the drilling site.**

**L) Open Pits**

All pits containing liquid or mud will be fenced and bird netted.

**POINT 12: OPERATOR'S FIELD REPRESENTATIVE**

(Field personnel responsible for compliance with development plan for surface use).

**DRILLING**

William R. Dannels  
Box 2760  
Midland, Texas 79702  
(915) 683-2277

**PRODUCTION**

Mike Waygood  
3104 E. Green St.  
Carlsbad, New Mexico 88220  
(505) 887-7329

Keith E. Bucy  
Box 2760  
Midland, Texas 79702  
(915) 683-2277

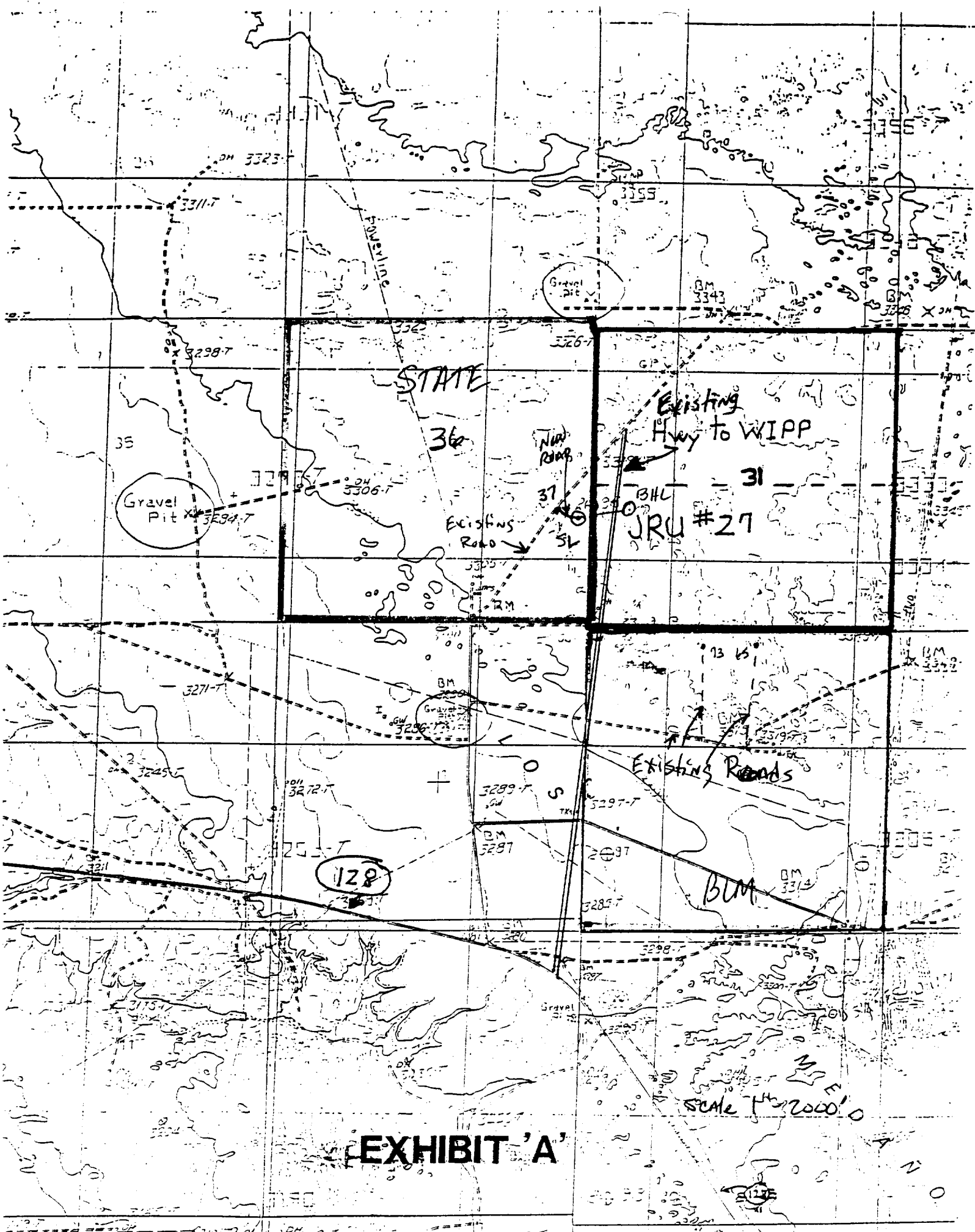
**POINT 13: CERTIFICATION**

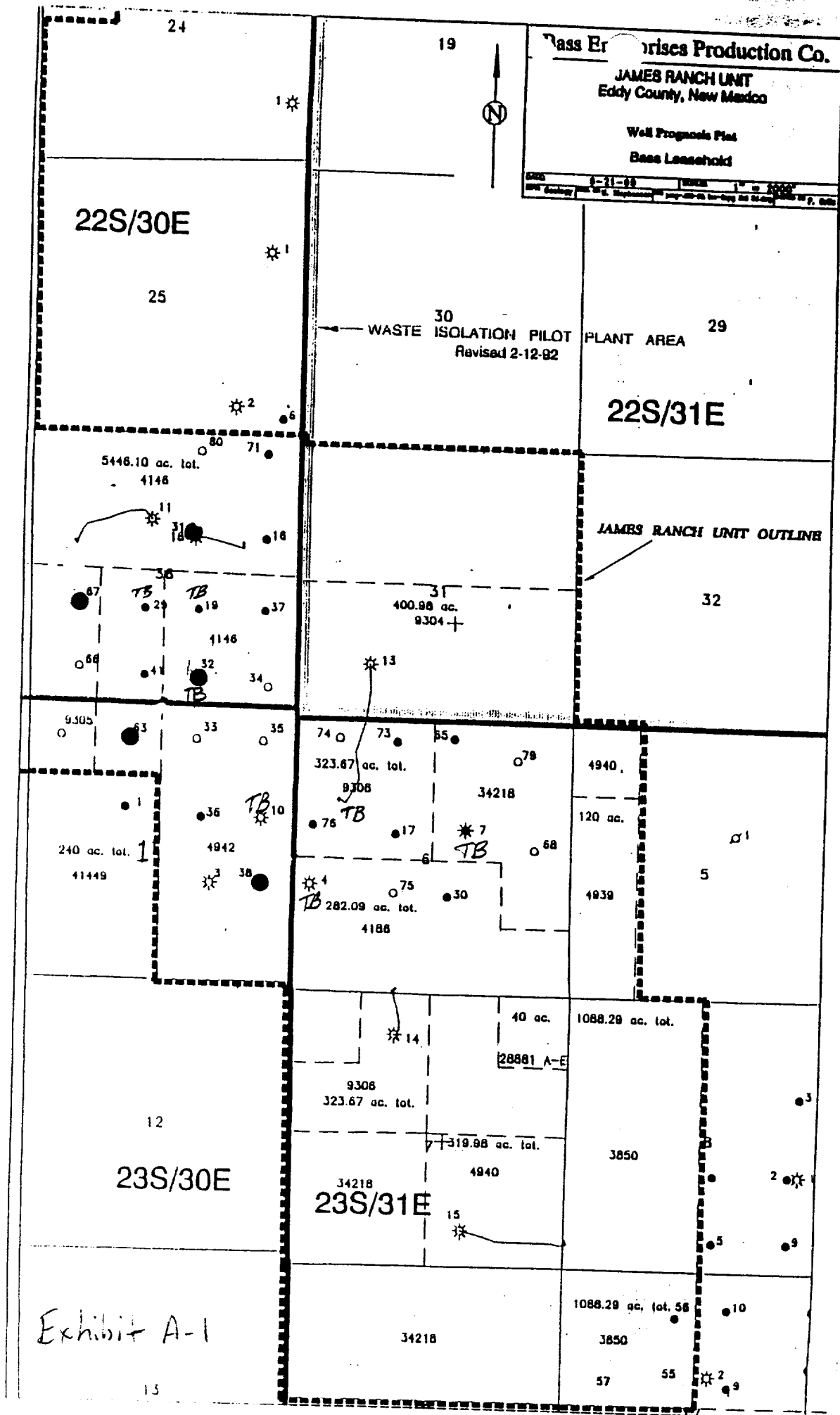
I hereby certify that I, or persons under my direct supervision have inspected the proposed drill site and access route; that I am familiar with the conditions which currently exist; that the statements made in the plan are, to the best of my knowledge, true and correct; and that the work associated with operations proposed herein will be performed by Bass Enterprises Production Co. and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

12-30-99  
Date

William R. Dannels  
William R. Dannels

WRD/JCW:mac





[illegible]

Scale = ~~X = 40'~~

This has been reduced.

Exhibit B

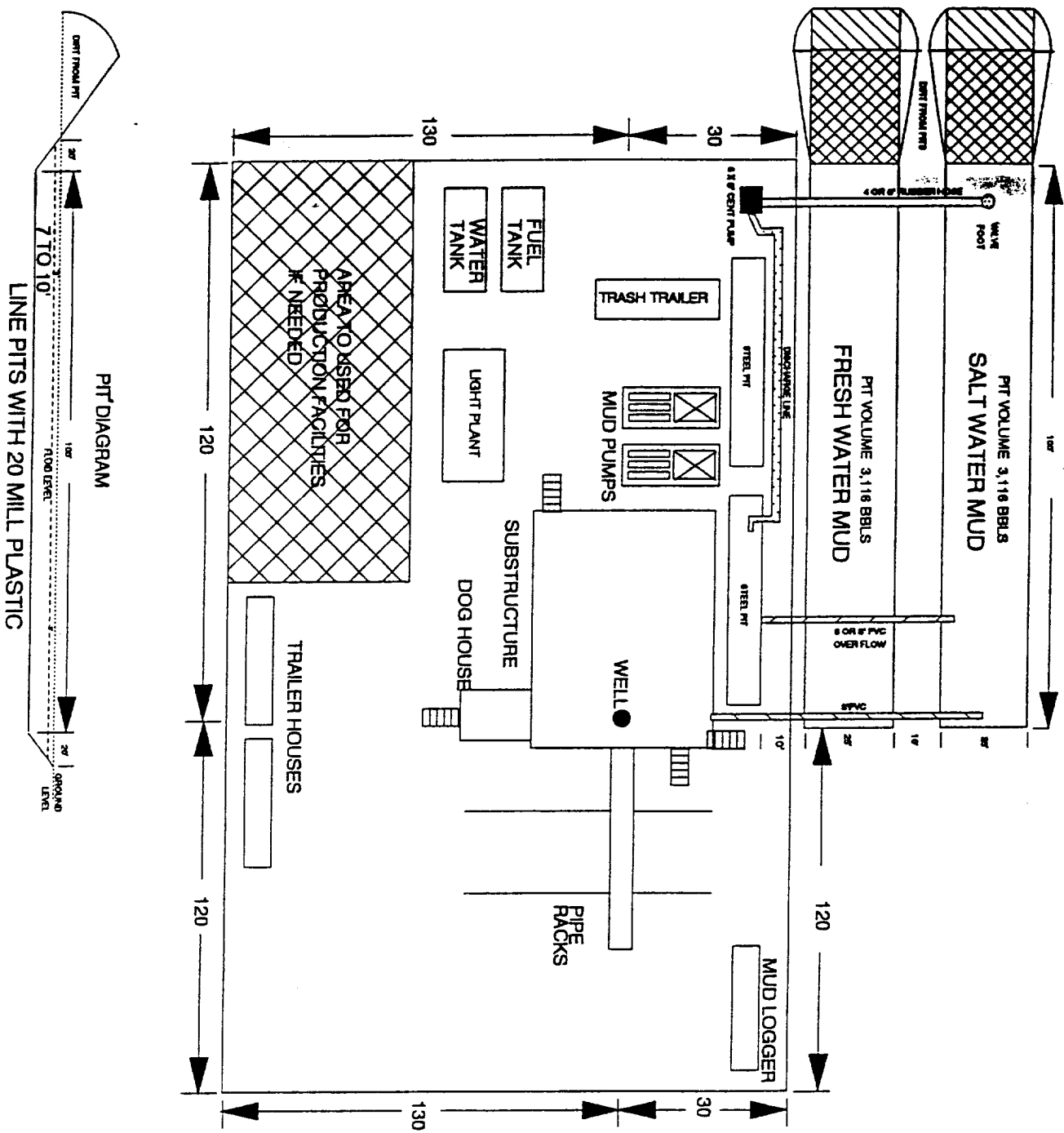
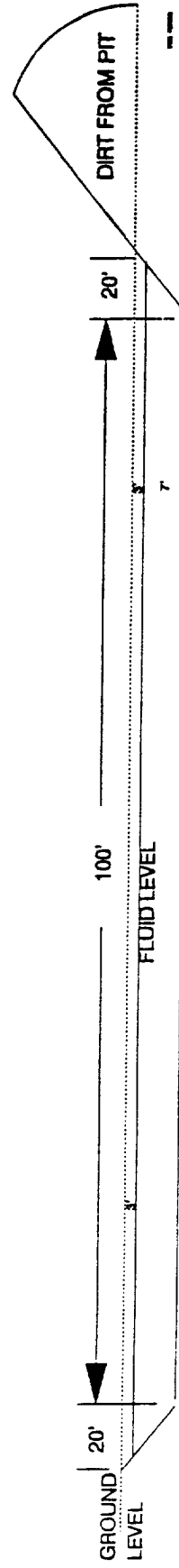
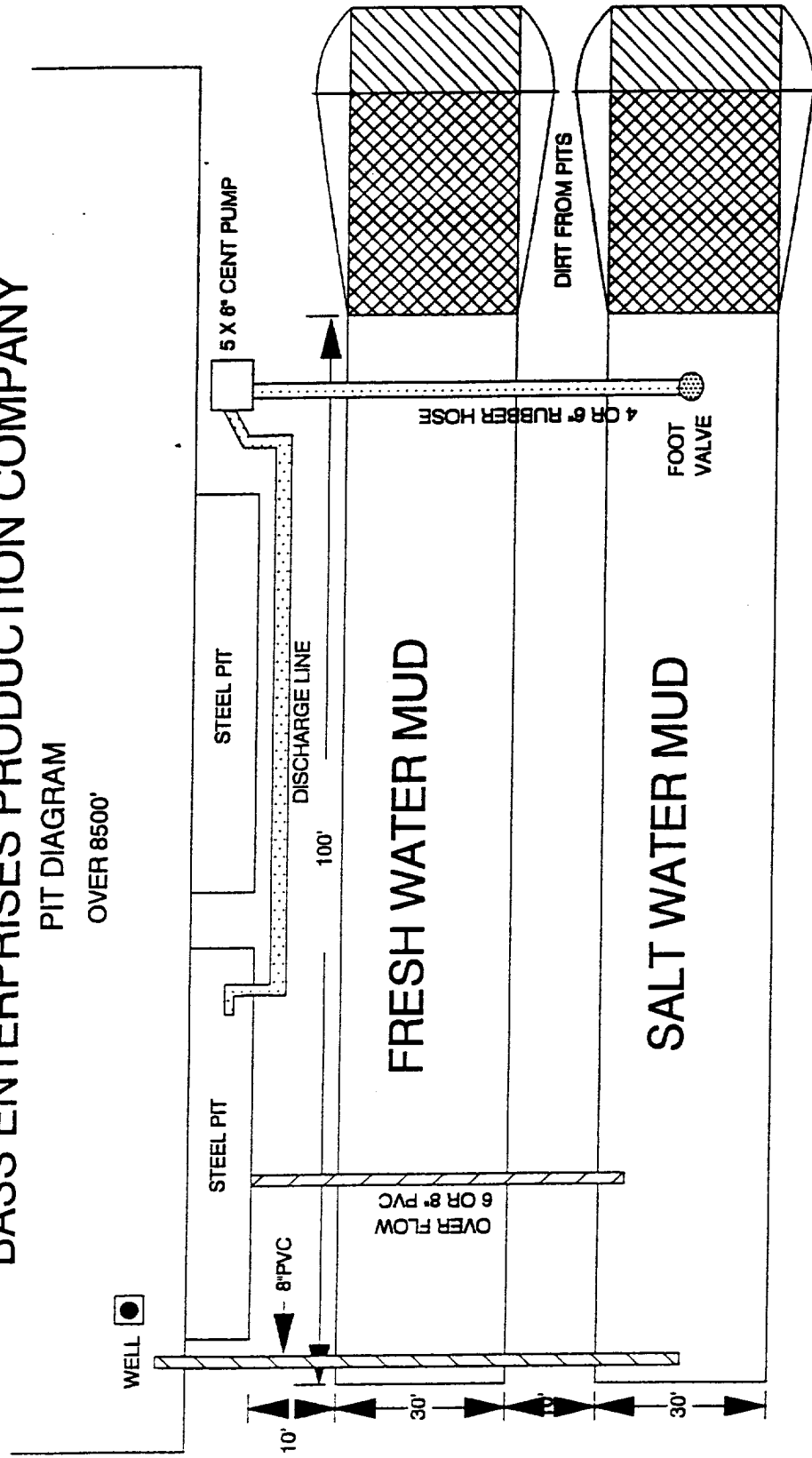


EXHIBIT "C"

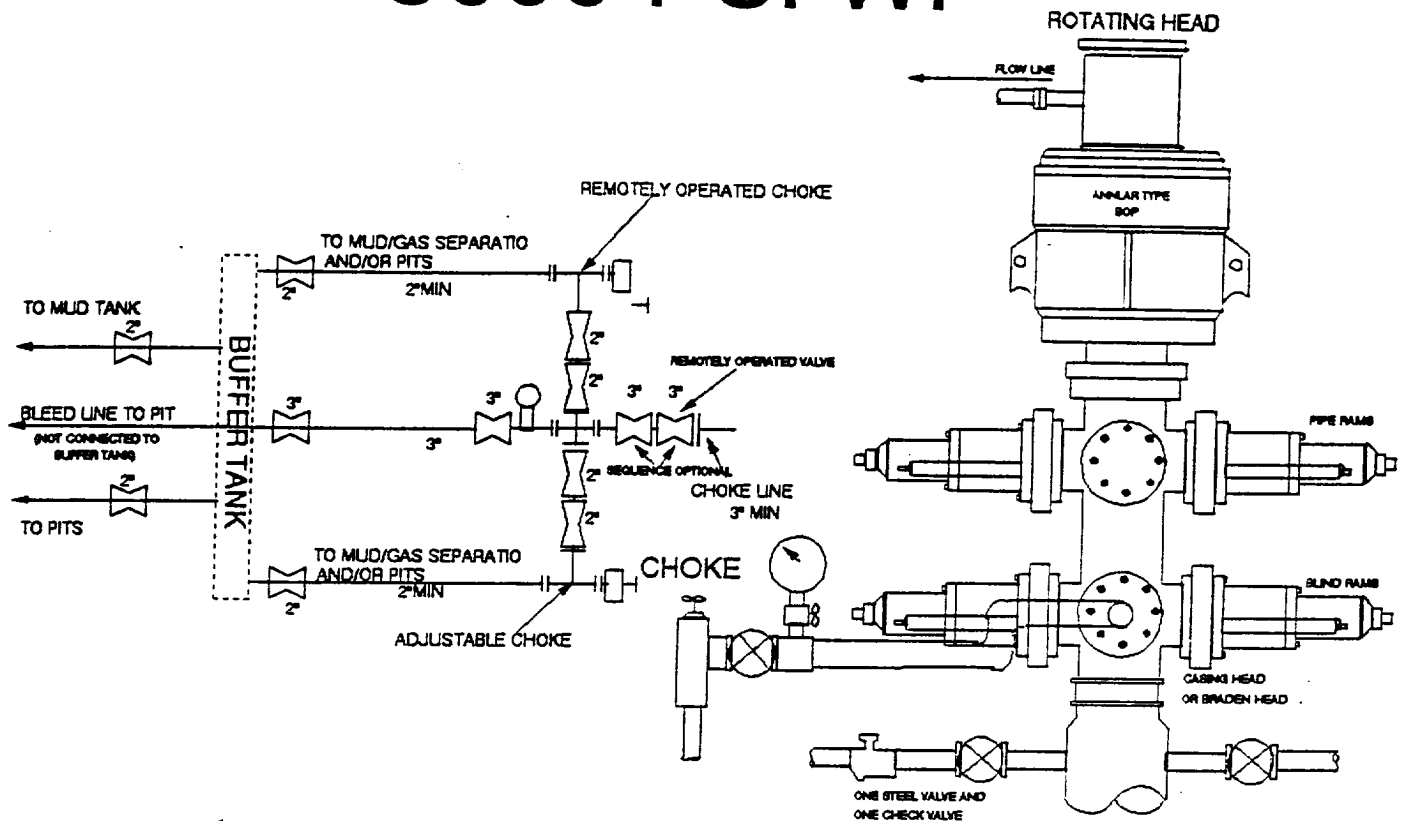
# BASS ENTERPRISES PRODUCTION COMPANY

## PIT DIAGRAM

OVER 8500'



# 5000 PSI WP



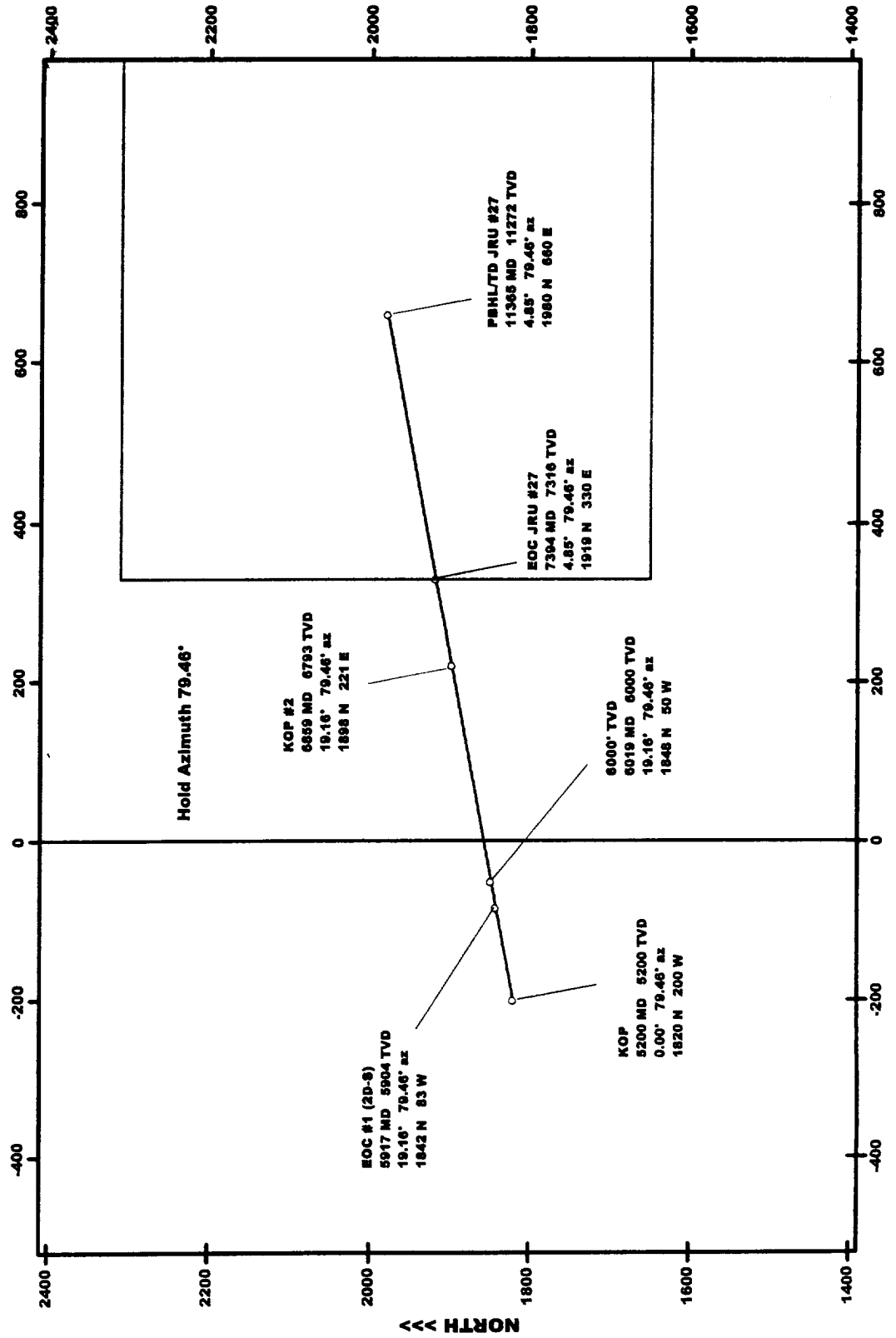
## THE FOLLOWING CONSTITUTE MINIMUM BLOWOUT PREVENTER REQUIREMENTS

- A. One double gate blowout preventer with lower rams for pipe and upper rams blind, all hydraulically controlled.
- B. Opening on preventers between rams to be flanged, studded or clamped and at least two inches in diameter.
- C. All connections from operating manifold to preventers to be all steel hose or tube a minimum of one inch in diameter.
- D. The available closing pressure shall be at least 15% in excess of that required with sufficient volume to operate (close, open, and re-close) the preventers.
- E. All connections to and from preventers to have a pressure rating equivalent to that of the BOP's.
- F. Manual controls to be installed before drilling cement plug.
- G. Valve to control flow through drill pipe to be located on rig floor.
- H. All chokes will be adjustable. Choke spool may be used between rams.

DIAGRAM 1

## PLAN VIEW

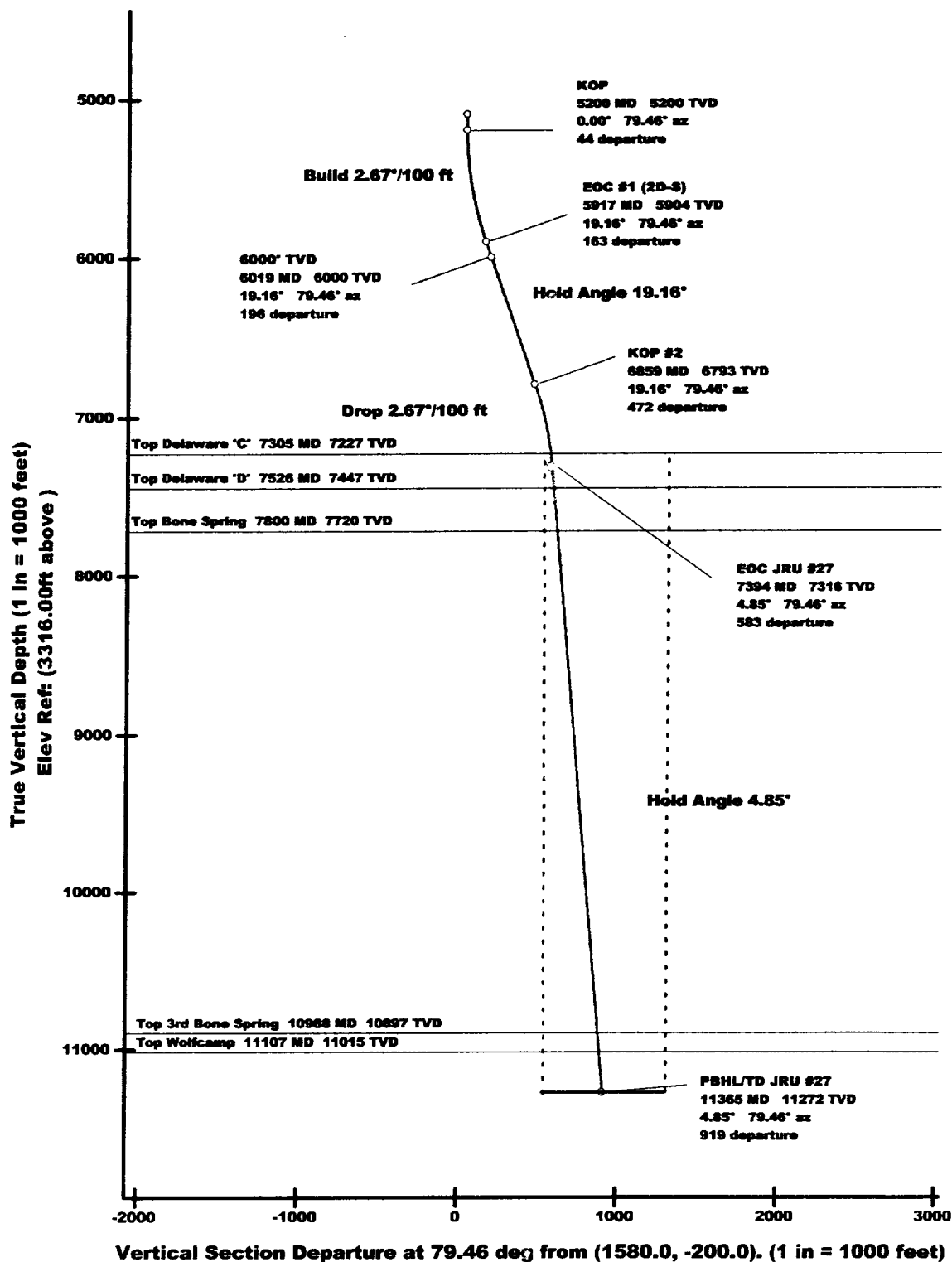
Client: Bass Enterprises Production Company  
 Well: JRU #27  
 Field: Eddy County, NM  
 Structure: James Ranch Unit  
 Scale: 1 in = 200 ft  
 Date: 31-Dec-1999



# Schlumberger

## VERTICAL SECTION VIEW

Client: Bass Enterprises Production Company  
Well: JRU #27  
Field: Eddy County, NM  
Structure: James Ranch Unit  
Section At: 79.46 deg  
Date: December 31, 1999



## Proposed Well Profile

<p>Client: Bass Enterprises Production Company</p> <p>Field: Eddy County, NM</p> <p>Structure: James Ranch Unit</p> <p>Well: JRU #27</p> <p>Borehole: JRU #27</p> <p>UWI/API#: _____</p> <p>Date: December 31, 1999</p> <p>Grid Convergence: 0.25620100°</p> <p>Scale Factor: 0.99993841</p> <p>Location: N 30 20 38.659, W 103 49 34.345</p> <p>: S 238190.269 ftUS, E 659966.637 ftUS</p> <p>Coordinate System: NAD27 New Mexico State Planes, Eastern Zone, US Feet</p>	<p>Survey Computation Method: Minimum Curvature</p> <p>DLS Computation Method: Lubinski</p> <p>Vertical Section Azimuth: 79.460°</p> <p>Vertical Section Origin: N 1580.000 ft, W 200.000 ft</p> <p>TVD Reference: _____</p> <p>3316.0 ft above</p> <p>Magnetic Declination: 8.829°</p> <p>Total Field Strength: 48577.583 nT</p> <p>Dip: 58.631°</p> <p>Declination Date: December 27, 1999</p> <p>Magnetic Declination Model: BGGM 1999</p> <p>North Reference: True North</p> <p>Coordinate Reference To: Structure Reference Point</p>
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Station ID	MD (ft)	Incl (°)	Azim (°)	TVD (ft)	VSec (ft)	N-S (ft)	E-W (ft)	Closure (ft)	at Azim (°)	DLS (°/100ft)	TF (°)
Tie-In	5100.00	0.00	79.46	5100.00	43.90	1820.00	-200.00	240.00	353.73	0.00	79.5MTF
KOP	5200.00	0.00	79.46	5200.00	43.90	1820.00	-200.00	240.00	353.73	0.00	79.5MTF
	5300.00	2.67	79.46	5299.96	46.23	1820.43	-197.71	240.44	353.80	2.67	79.5MTF
	5400.00	5.34	79.46	5399.71	53.21	1821.70	-190.84	241.88	354.02	2.67	0.0
	5500.00	8.01	79.46	5499.02	64.84	1823.83	-179.42	244.70	354.38	2.67	0.0
	5600.00	10.68	79.46	5597.69	81.07	1826.80	-163.45	249.49	354.89	2.67	0.0
	5700.00	13.35	79.46	5695.49	101.89	1830.61	-142.99	257.01	355.53	2.67	0.0
	5800.00	16.02	79.46	5792.21	127.24	1835.24	-118.07	268.07	356.32	2.67	0.0

Station ID	MD (ft)	Incl (°)	Azim (°)	TVD (ft)	VSec (ft)	N-S (ft)	E-W (ft)	Closure (ft)	at Azim (°)	DLS (°/100ft)	TF (°)
EOC #1 (2D-S)	5900.00	18.69	79.46	5887.65	157.06	1840.70	-88.75	283.44	357.24	2.67	0.0
	5917.47	19.16	79.46	5904.17	162.73	1841.73	-83.18	286.62	357.41	2.67	0.0
6000' TVD KOP #2	6018.91	19.16	79.46	6000.00	196.02	1847.82	-50.45	306.75	358.44	0.00	0.0
	6858.83	19.16	79.46	6793.41	471.63	1898.23	220.51	527.36	6.63	0.00	180.0
	6900.00	18.06	79.46	6832.43	484.77	1900.64	233.43	539.14	7.00	2.67	180.0
	7000.00	15.39	79.46	6928.19	513.54	1905.90	261.72	565.15	7.82	2.67	180.0
	7100.00	12.72	79.46	7025.19	537.82	1910.34	285.58	587.30	8.50	2.67	180.0
	7200.00	10.05	79.46	7123.21	557.55	1913.95	304.98	605.42	9.05	2.67	180.0
Top Delaware 'C' EOC JRU #27	7300.00	7.38	79.46	7222.05	572.70	1916.72	319.87	619.39	9.47	2.67	180.0
	7304.99	7.24	79.46	7227.00	573.33	1916.84	320.50	619.98	9.49	2.67	180.0
	7394.49	4.85	79.46	7316.00	582.76	1918.56	329.77	628.71	9.75	2.67	79.5MTF
	7400.00	4.85	79.46	7321.49	583.23	1918.65	330.23	629.14	9.77	0.00	79.5MTF
	7500.00	4.85	79.46	7421.13	591.69	1920.19	338.55	637.00	10.00	0.00	79.5MTF
Top Delaware 'D'	7525.97	4.85	79.46	7447.00	593.89	1920.59	340.71	639.04	10.06	0.00	79.5MTF
	7600.00	4.85	79.46	7520.77	600.15	1921.74	346.87	644.86	10.23	0.00	79.5MTF
	7700.00	4.85	79.46	7620.41	608.61	1923.29	355.18	652.75	10.46	0.00	79.5MTF
	7799.95	4.85	79.46	7720.00	617.07	1924.84	363.50	660.64	10.69	0.00	79.5MTF
	7800.00	4.85	79.46	7720.05	617.07	1924.84	363.50	660.64	10.69	0.00	79.5MTF
Top Bone Spring	7900.00	4.85	79.46	7819.69	625.54	1926.38	371.82	668.55	10.92	0.00	79.5MTF
	8000.00	4.85	79.46	7919.33	634.00	1927.93	380.14	676.48	11.15	0.00	79.5MTF
	8100.00	4.85	79.46	8018.98	642.46	1929.48	388.46	684.41	11.38	0.00	79.5MTF
	8200.00	4.85	79.46	8118.62	650.92	1931.03	396.78	692.36	11.61	0.00	79.5MTF
	8300.00	4.85	79.46	8218.26	659.38	1932.57	405.10	700.32	11.84	0.00	79.5MTF
	8400.00	4.85	79.46	8317.90	667.84	1934.12	413.42	708.30	12.07	0.00	79.5MTF
	8500.00	4.85	79.46	8417.54	676.31	1935.67	421.74	716.28	12.29	0.00	79.5MTF
	8600.00	4.85	79.46	8517.18	684.77	1937.22	430.06	724.27	12.52	0.00	79.5MTF
8700.00	4.85	79.46	8616.82	693.23	1938.77	438.37	732.28	12.74	0.00	79.5MTF	

Station ID	MD (ft)	Incl (°)	Azim (°)	TVD (ft)	VSec (ft)	N/S (ft)	E/W (ft)	Closure (ft)	at Azim (°)	DLS (°/100ft)	TF (°)
	8800.00	4.85	79.46	8716.47	701.69	1940.31	446.69	740.30	12.96	0.00	79.5MTF
	8900.00	4.85	79.46	8816.11	710.15	1941.86	455.01	748.32	13.19	0.00	79.5MTF
	9000.00	4.85	79.46	8915.75	718.61	1943.41	463.33	756.36	13.41	0.00	79.5MTF
	9100.00	4.85	79.46	9015.39	727.08	1944.96	471.65	764.40	13.63	0.00	79.5MTF
	9200.00	4.85	79.46	9115.03	735.54	1946.50	479.97	772.45	13.85	0.00	79.5MTF
	9300.00	4.85	79.46	9214.67	744.00	1948.05	488.29	780.51	14.07	0.00	79.5MTF
	9400.00	4.85	79.46	9314.31	752.46	1949.60	496.61	788.58	14.29	0.00	79.5MTF
	9500.00	4.85	79.46	9413.96	760.92	1951.15	504.93	796.66	14.51	0.00	79.5MTF
	9600.00	4.85	79.46	9513.60	769.38	1952.69	513.25	804.75	14.73	0.00	79.5MTF
	9700.00	4.85	79.46	9613.24	777.85	1954.24	521.56	812.84	14.94	0.00	79.5MTF
	9800.00	4.85	79.46	9712.88	786.31	1955.79	529.88	820.94	15.16	0.00	79.5MTF
	9900.00	4.85	79.46	9812.52	794.77	1957.34	538.20	829.05	15.37	0.00	79.5MTF
	10000.00	4.85	79.46	9912.16	803.23	1958.88	546.52	837.17	15.59	0.00	79.5MTF
	10100.00	4.85	79.46	10011.80	811.69	1960.43	554.84	845.29	15.80	0.00	79.5MTF
	10200.00	4.85	79.46	10111.44	820.15	1961.98	563.16	853.42	16.02	0.00	79.5MTF
	10300.00	4.85	79.46	10211.09	828.62	1963.53	571.48	861.55	16.23	0.00	79.5MTF
	10400.00	4.85	79.46	10310.73	837.08	1965.08	579.80	869.69	16.44	0.00	79.5MTF
	10500.00	4.85	79.46	10410.37	845.54	1966.62	588.12	877.84	16.65	0.00	79.5MTF
	10600.00	4.85	79.46	10510.01	854.00	1968.17	596.43	885.99	16.86	0.00	79.5MTF
	10700.00	4.85	79.46	10609.65	862.46	1969.72	604.75	894.15	17.07	0.00	79.5MTF
	10800.00	4.85	79.46	10709.29	870.93	1971.27	613.07	902.32	17.28	0.00	79.5MTF
	10900.00	4.85	79.46	10808.93	879.39	1972.81	621.39	910.49	17.48	0.00	79.5MTF
Top 3rd Bone Spring	10988.38	4.85	79.46	10897.00	886.87	1974.18	628.74	917.71	17.67	0.00	79.5MTF
	11000.00	4.85	79.46	10908.58	887.85	1974.36	629.71	918.66	17.69	0.00	79.5MTF
	11100.00	4.85	79.46	11008.22	896.31	1975.91	638.03	926.84	17.90	0.00	79.5MTF
Top Wolfcamp	11106.80	4.85	79.46	11014.99	896.89	1976.01	638.59	927.40	17.91	0.00	79.5MTF
	11200.00	4.85	79.46	11107.86	904.77	1977.46	646.35	935.03	18.10	0.00	79.5MTF
	11300.00	4.85	79.46	11207.50	913.23	1979.00	654.67	943.22	18.30	0.00	79.5MTF

Station ID	MD (ft)	Incl (°)	Azim (°)	TVD (ft)	VSec (ft)	N-S (ft)	E-W (ft)	Closure (ft)	at Azim (°)	DLS (°/100ft)	TF (°)
PBHL/TD JRU #27	11364.73	4.85	79.46	11272.00	918.66	1980.00	660.00	948.47	18.43	0.00	0.0MTF

Survey Program: (No Error Model Selected)