

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1a. TYPE OF WORK

DRILL ☒

DEEPEN ☐

JUN 7 1992

b. TYPE OF WELL

OIL WELL ☒

GAS WELL ☐

OTHER

SINGLE ZONE ☒

D. MULTIPLE ZONE ☐

2. NAME OF OPERATOR

Bass Enterprises Production Company

3. ADDRESS AND TELEPHONE NO.

P.O. Box 2760, Midland, Texas 79702 915-683-2277

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

At surface

1980' FNL & 1980' FWL Section 4, T20S, R31E

At proposed prod. zone

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

9 miles west-northwest of Halfway, New Mexico

15. DISTANCE FROM PROPOSED*

LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT.
(Also to nearest drlg. unit line, if any)

1980'

16. NO. OF ACRES IN LEASE

552.10

17. NO. OF ACRES ASSIGNED TO THIS WELL

40

18. DISTANCE FROM PROPOSED LOCATION*

TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.

3500'

19. PROPOSED DEPTH

11,800'

20. ROTARY OR CABLE TOOLS

rotary

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

3485.8' GL

Capitan Controlled Water Basin

22. APPROX. DATE WORK WILL START*

upon approval

23. PROPOSED CASING AND CEMENTING PROGRAM

Secretary's Potash

SIZE OF HOLE	GRADE SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
* 15"	11-3/4"	42#	900'	688 circ to surface
11"	8-5/8"	24# & 32#	4,200'	1475 sx circ to surface
7-7/8"	5-1/2"	17#	11,800'	1675 sx tie back to 3700'

* Surface to be set 50' above salts in the Rustler Anhydrite.

Drilling procedure, BOPE diagram, anticipated tops and surface use plans attached.

This location is located in the Secretary's Potash Area.

CERTIFIED P-546-958-157
3-10-93

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS AND
SPECIAL STIPULATIONS
ATTACHED

POST 10-1
6-11-93
API

RECEIVED
MAY 11 1993
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 Keith E. Bucy TITLE Div Drlg and Prod Supt DATE 3/10/93

(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/ Kathy Eaton TITLE Acting State Director DATE 5-21-93

*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.

INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated, on all types of lands and leases for appropriate action by either a Federal or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office.

ITEM 1: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable State or Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plate, separate or on this reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal or State agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective production zone.

ITEM 22: Consult applicable Federal or State regulations, or appropriate officials, concerning approval of the proposal before operations are started.

NOTICE

The Privacy Act of 1974 and the regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR Part 3160.

PRINCIPAL PURPOSE: The information is to be used to process and evaluate your application for permit to drill or deepen an oil or gas well.

ROUTINE USES: (1) The analysis of the applicant's proposal to discover and extract the Federal or Indian resources encountered. (2) The review of procedures and equipment and the projected impact on the land involved. (3) The evaluation of the effects of proposed operation on surface and subsurface water and other environmental impacts. (4)(5) Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions, as well as routine regulatory responsibility.

EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if the operator elects to initiate drilling operation on an oil and gas lease.

BURDEN HOURS STATEMENT

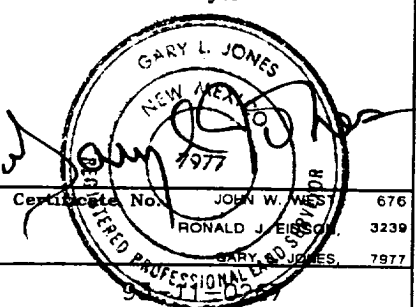
Public reporting burden for this form is estimated to average 30 minutes per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management, (Alternate) Bureau Clearance Officer, (WO-771), 1849 C Street, N.W., Washington, D.C. 20240, and the Office of Management and Budget, Paperwork Reduction Project (1004-0136), Washington, D.C. 20503.

The Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq) requires us to inform you that:

This information is being collected to allow evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases.

This information will be used to analyze and approve applications.

Response to this request is mandatory only if the operator elects to initiate drilling operations on an oil and gas lease.



BIG EDDY UNIT #122
BASS ENTERPRISES PRODUCTION COMPANY
March 8, 1993

<u>DEPTH</u>	<u>CASING</u>	<u>HOLE SIZE</u>	<u>EVALUATION</u>	<u>ELECTRIC LOGS</u>	<u>CIRC FLUID</u>
40'	>20"	24"	Conductor		FW Spud Mud
900'	>11-3/4"	15"			
		11"	2500' to 4200' One man logging unit 4200' to 11,800' TD Two man logging unit		Brine Water
4200'	>8-5/8"				
		7-7/8"		T/DELAWARE DIL-MSFL w/GR <u>4,200' to 11,800'</u> CNL-LDT w/GR <u>4,200' to 11,800'</u> Dipmeter <u>Strawn Interval</u>	Cut Brine Mud
11,800'	>5-1/2"				

MJE:sjw

EIGHT POINT DRILLING PROGRAM BASS ENTERPRISES PRODUCTION CO.

NAME OF WELL: BIG EDDY UNIT #122

LEGAL DESCRIPTION - SURFACE: 1980' FNL & 1980' FWL, Section 4, T-20-S, R-31-E, 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 3500' (est)
GL 3485' (est)

<u>FORMATION</u>	<u>ESTIMATED TOP FROM KB</u>	<u>ESTIMATED SUBSEA TOP</u>	<u>BEARING</u>
1/Rustler	750'	+2750	None
1/Salt	970'	+2530	None
B/Salt	2450'	+1050	None
1/Yates	2650'	+ 850	None
1/Reef	3050'	+ 450	None
1/Delaware Mt Grp	4290'	- 790	Oil & Gas
1/Bone Spring	7050'	-3550	Oil & Gas
1/Wolfcamp	10300'	-6800	Oil & Gas
1/Strawn	11075'	-7575	Oil & Gas
TD	11800	-8300	

POINT 3: CASING PROGRAM

<u>TYPE</u>	<u>INTERVALS</u>	<u>PURPOSE</u>	<u>CONDITION</u>
20"	0' - 40'	Conductor	Contractor Discretion
11-3/4" 42# H-40 ST&C	0' - 900'	Surface	New
8-5/8" 24# & 32# K-55 ST&C	0' - 4,200'	Intermediate	New
5-1/2" 17# N-80 & S-95 LT&C	0' - 11,800'	Production	New

*See Exhibits D1-D3 (Casing Design Program)

POINT 4: PRESSURE CONTROL EQUIPMENT (SEE ATTACHED DIAGRAMS)

A BOP equivalent to Diagram 1 will be nipped up on the surface casinghead. 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) Thirty 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.

POINT 5: MUD PROGRAM

<u>DEPTH</u>	<u>MUD TYPE</u>	<u>WEIGHT</u>	<u>FV</u>	<u>PV</u>	<u>YP</u>	<u>FL</u>	<u>Ph</u>
0' - 900'	FW Spud Mud	8.5 - 9.2	35-40	NC	NC	NC	NC
900' - 4200'	BW	9.6 - 10.0	29-30	NC	NC	NC	NC
4200' - 11,800'	Cut Brine Mud	9.1 - 9.6	34-40	10-14	12-18	15-18	9-9.5

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-DIL-MSFL run from TD (11,800') to 4200', GR-CNL intermediate casing to surface. Dipmeter over Strawn interval.

C) CORING

No cores are anticipated.

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>FT³/SX</u>
Surface	688 (100% excess circ to surface)	900	Class "C" with 2% CaCl ₂ and 1/4 ppg Cello-Flake	6.3	14.8	1.32
Intermediate	1475 (100% excess circ to surface)	4200	Class "C" with Salt	6.3	14.8	1.32
Production	1675 (50% excess)	7100	Class "C" w/additives for Wtr Loss Control	10.6	13.2	1.92

E) DIRECTIONAL DRILLING

No directional services anticipated.

POINT 7: ANTICIPATED RESERVOIR CONDITIONS

Normal pressures are anticipated throughout Delaware, Bone Spring, Wolfcamp and Strawn sections.

BHP 5487 psi max or ECD of 8.9 ppg at TD, BHT 154°.

Lost circulation can occur from surface to 4200'.

H₂S is not anticipated in this area, although H₂S safety equipment will be installed at 4200' to insure the proper safety, should any occur.

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

40 days drilling operations

10 days completion operations

MULTI-POINT SURFACE USE PLAN

NAME OF WELL: BIG EDDY UNIT #122

LEGAL DESCRIPTION - SURFACE: 1980' FNL & 1980' FWL, Section 4, T-20-S, R-31-E, Eddy County, New Mexico.

POINT 1: EXISTING ROADS

A) Proposed Well Site Location:

See Exhibit "A".

B) Existing Roads:

From Carlsbad, go northeast on U.S. 62-180, approx 14.5 miles to it's intersection with Hwy 360 North. Go north on Highway 360 for approximately 6 miles, then turn right on Sugart Road 222 and go 4 miles. Turn right on caliche road for 3 miles, then left for 3/4 mile to location.

C) Existing Road Maintenance or Improvement Plan:

See Exhibit "A".

POINT 2: NEW PLANNED ACCESS ROUTE

A) Route Location:

See Exhibit "A". The new road will be 12' wide and approximately 2600' long. The road will be constructed of watered and compacted caliche.

B) Width

Not applicable.

C) Maximum Grade

Not applicable.

D) Turnouts

None.

E) Culverts, Cattle Guards, and Surfacing Equipment

None.

POINT 3: LOCATION OF EXISTING WELLS

Exhibit "B" 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 one well are shown on Exhibit "B" at Big Eddy Unit #33 location.

- B) New Facilities in the Event of Production:

Will lay flowline to production battery at Big Eddy Unit #33.

- 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 the State 24 Well #1 Jim's Water Station located on Highway 217, 2.75 miles from Highway 360 intersection. Fresh water will be hauled from Marbob Energy Freshwater - Turkey Track well #1 located 11.5 miles north on Highway 360, then turn east on road 702 for 3.5 miles to station.

- 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

Exhibit "A" shows location of caliche source.

B) Land Ownership

Federally 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 "B".

POINT 7: METHODS FOR HANDLING WASTE MATERIAL

A) Cuttings

Cuttings will be contained in the reserve pit.

B) Drilling Fluids

Drilling fluids will be contained in the reserve pit.

C) Produced Fluids

Water production will be contained in the 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.

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 testing indicates potential productive zones. In any case, the "mouse" hole and the "rat" hole will be covered. The reserve pit will be fenced and the fence 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 pit will be lined with plastic.

POINT 10: PLANS FOR RESTORATION OF THE SURFACE

A) Reserve Pit Cleanup

A pit will be fenced immediately after spudding and shall be maintained until the pit is backfilled. Previous to backfill operations, any hydrocarbon material on the pit surface shall be removed. The fluids and solids contained in the pit shall be backfilled with soil excavated from the site and soil adjacent to the reserve pit. The restored surface of the pit 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 according to the Bureau of Land Management stipulations during the appropriate season following restoration.

B) Restoration Plans - Production Developed

The reserve pit 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

The reserve pit 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 accordingly to the Bureau of Land Management's stipulations.

D) Rehabilitations Timetable

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.

F) Water Wells

There is a water well approximately 2 miles northeast of location.

G) Residences and Buildings

None

H) Historical Sites

No 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 Federally owned land.

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

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

PRODUCTION

Mike Waygood
1012 West Pierce, Ste. F
Carlsbad, New Mexico 88220
(505) 887-7329

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

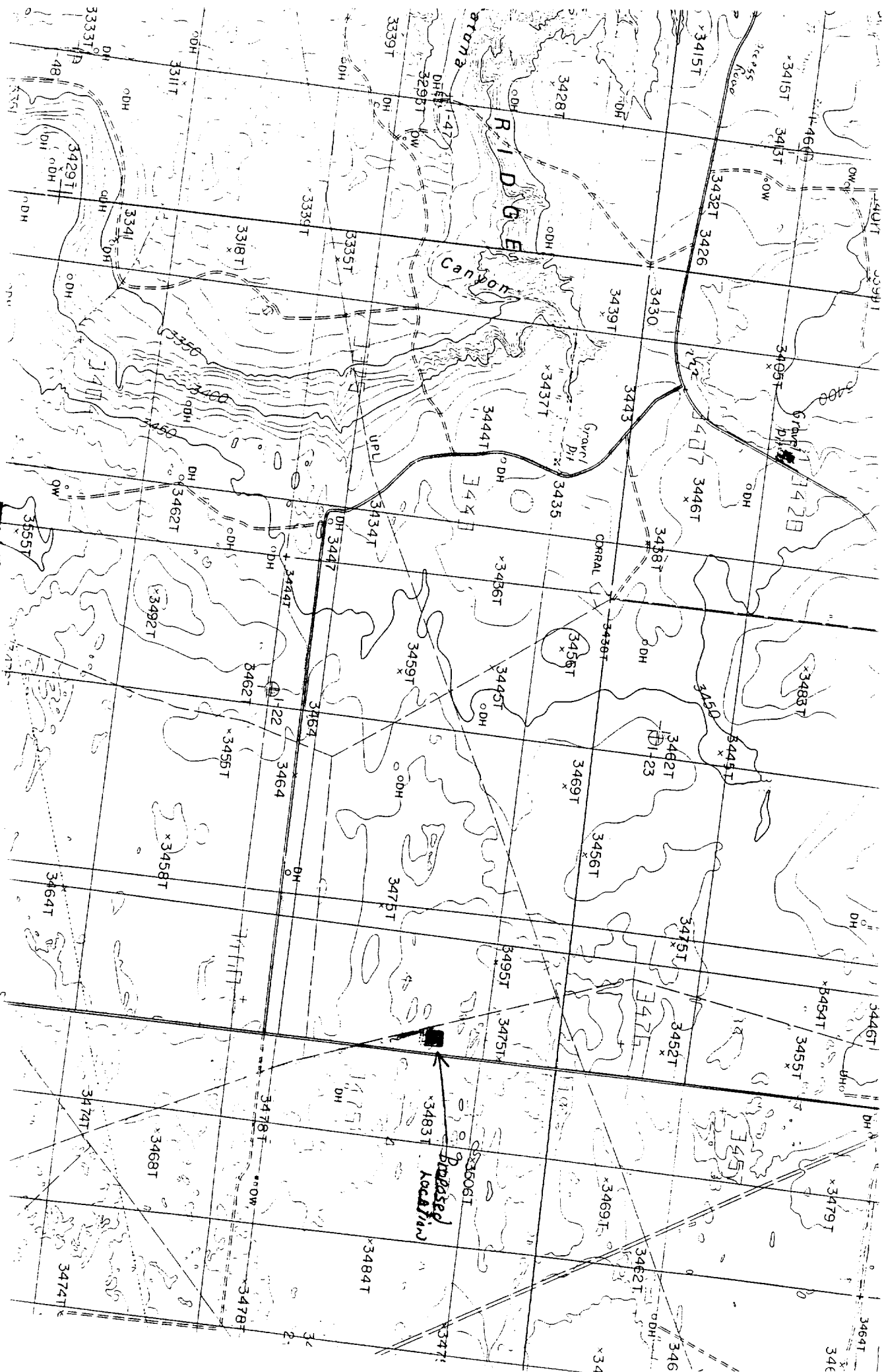
POINT 13: CERTIFICATION

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 it's 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.

3/10/93
Date

Keith E. Bucy
Keith E. Bucy

MJE:sjw



HACKBERRY N

HACKBERRY

ERRY

EDDY COUNTY (015)

LEA COUNTY (025)

LUSK S

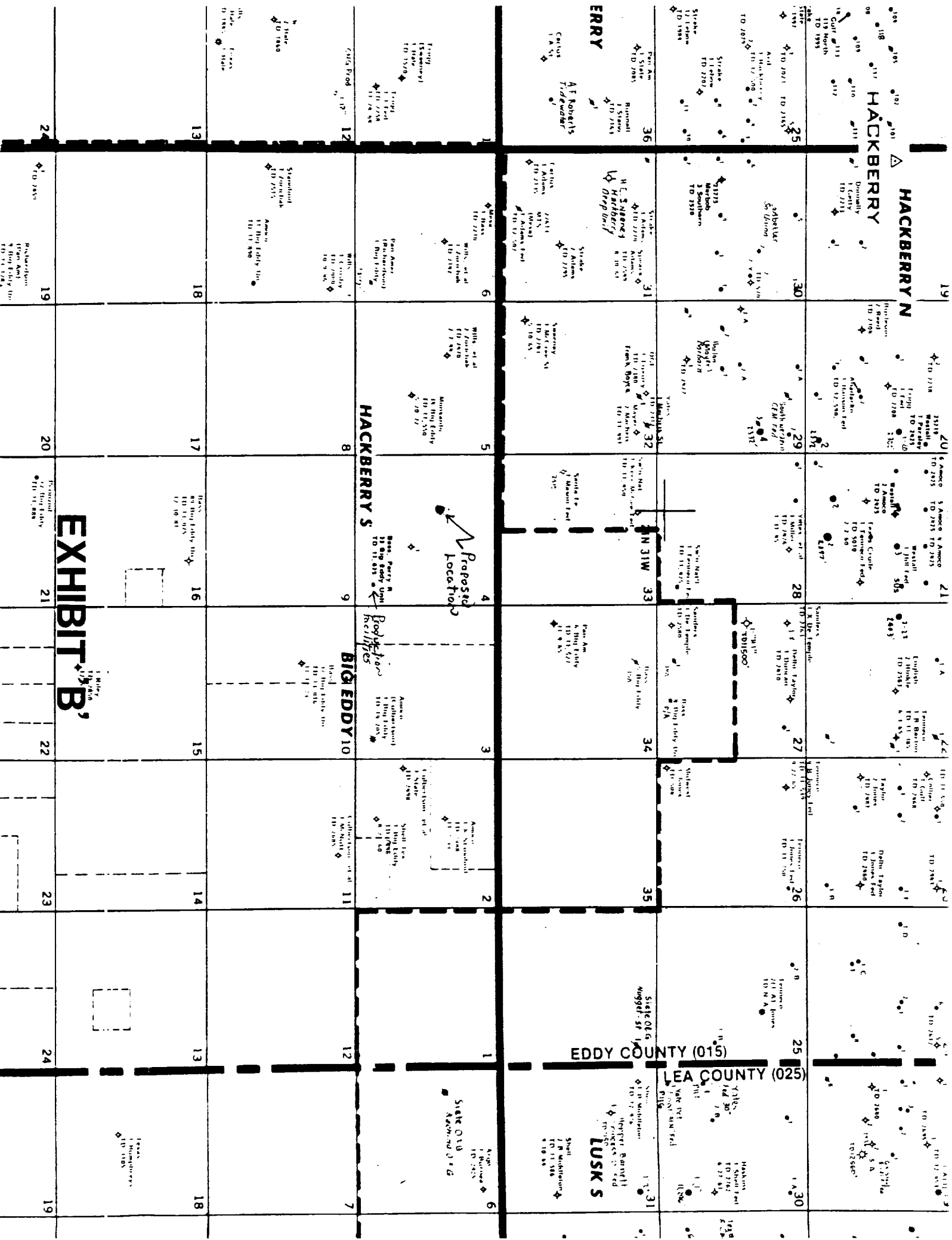
EXHIBIT 'B'




Proposed Location

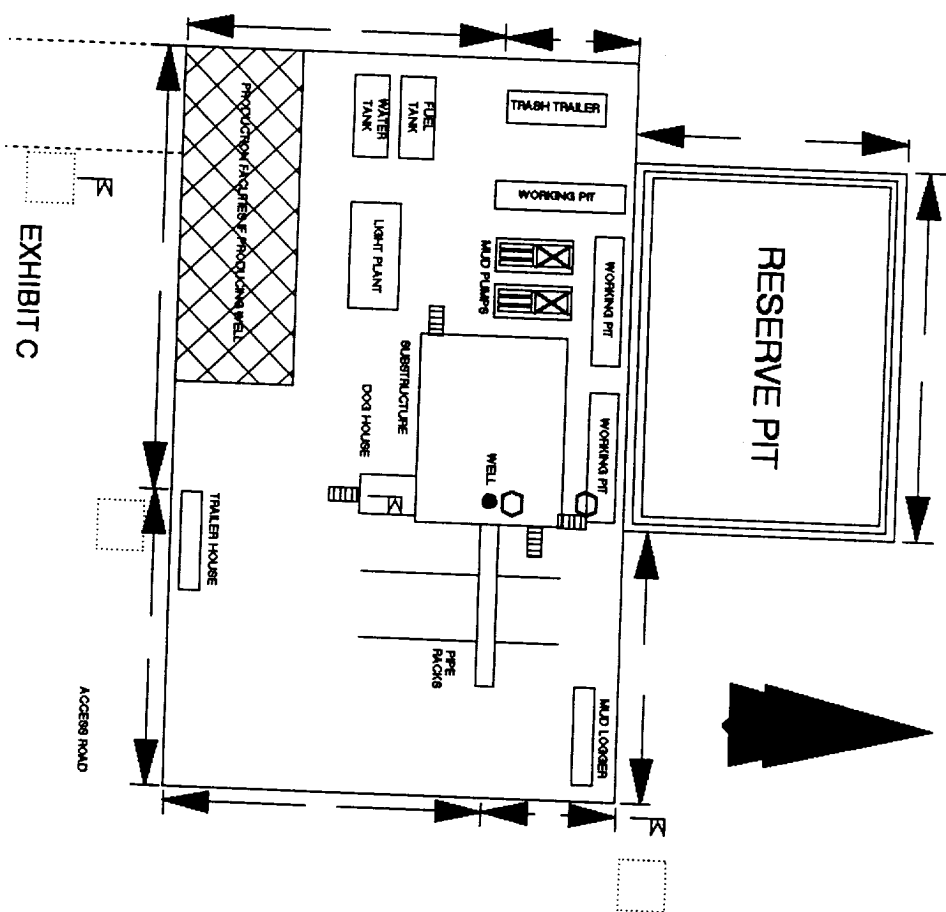
HACKBERRY S

BIG EDDY 10

Produce for facilities



- 
 WIND DIRECTION INDICATORS
- 
 H2S MONITORS WITH ALARMS AT THE BELL NIPPLE AND THE SHALE SHAKER
- 
 SAFE BRIEFING AREA WITH CAUTION SIGNS AND PROTECTIVE BREATHING EQUIPMENT (MIN. 150 FEET FROM WELLHEAD)



118 EDDY UNIT NO. 22 SURFACE CASING

TAPER CASING PARAMETERS

LE (inches) 1.750
 LGHT (lbs/ft) 42.00
 ADE 4-40
 NG OR SHORT THREAD ST&C
 T DIAMETER (inches) 11.084
 FT DIAMETER (inches) 10.928
 GION (lbs) 307,000
 LAPSE (psi) 1,070
 ST (psi) 1,980

TOTAL DEPTH 900

TOP DEPTH OF TAPER(ft) 0
 BOTTOM DEPTH OF TAPER(ft) 900
 MAX FLUID GRADIENT (ppg) 10
 AXIAL LOAD FACTOR "X" 0.000
 AXIAL LOAD FACTOR "Y" 1.000
 ANTICIPATED PSI @ SETTING 457.1

NET FOOTAGE = 900

GION-1.5 design factor 9.122
 VSION/(DEPTH*WEIGHT)
 LAPSE-1.0 design factor 2.291
 LLLAPSE * Y)/(PSI/FT * DEPTH)
 T-1.0 design factor 4.239
 ST/(.75*BHP+2.5 #/gal)

DESIGN EXCEEDS SAFETY FACTOR REQUIREMENT

DESIGN EXCEEDS SAFETY FACTOR REQUIREMENT

DESIGN EXCEEDS SAFETY FACTOR REQUIREMENT

EXHIBIT 'D-1'

BIG EDDY UNIT NO. 122 INTERMEDIATE CASING

1st TAPER CASING PARAMETERS TOTAL DEPTH 4,200

SIZE (inches)	3.625	TOP DEPTH OF TAPER(ft)	0
WEIGHT (lbs/ft)	24.00	BOTTOM DEPTH OF TAPER(ft)	2,300
GRADE	K-55	MAX FLUID GRADIENT (ppg)	10
LCNG OR SHORT THREAD	ST&C	AXIAL LOAD FACTOR "X"	0.231
INT. DIAMETER (inches)	8.097	AXIAL LOAD FACTOR "Y"	0.915
DRIFT DIAMETER (inches)	7.972	ANTICIPATED PSI @ SETTING	1193.7
TENSION (lbs)	263,000		
COLLAPSE (psi)	1,370		
BURST (psi)	2,950	NET FOOTAGE =	2300

TENSION-1.6 design factor	2.267	DESIGN EXCEEDS SAFTEY FACTOR REQUIREMENT	
TENSION/(DEPTH*WEIGHT)			
COLLAPSE-1.0 design factor	1.050	DESIGN EXCEEDS SAFTEY FACTOR REQUIREMENT	
(COLLAPSE * Y)/(PSI/FT * DEPTH)			
BURST-1.0 design factor	1.526	DESIGN EXCEEDS SAFTEY FACTOR REQUIREMENT	
BURST/((.75*BHP-2.5 #/gal)			

2nd TAPER CASING PARAMETERS

SIZE (inches)	8.625	TOP DEPTH OF TAPER(ft)	2300
WEIGHT (lbs/ft)	32.00	BOTTOM DEPTH OF TAPER(ft)	4200
GRADE	K-55	MAX FLUID GRADIENT (ppg)	10
LCNG OR SHORT THREAD	ST&C	AXIAL LOAD FACTOR "X"	0.000
INT. DIAMETER (inches)	7.921	AXIAL LOAD FACTOR "Y"	1.000
DRIFT DIAMETER (inches)	7.796	ANTICIPATED PSI @ SETTING	2179.8
TENSION (lbs)	402,000		
COLLAPSE (psi)	2,530		
BURST (psi)	3,930	NET FOOTAGE =	1900

TENSION-1.6 design factor	6.612	DESIGN EXCEEDS SAFTEY FACTOR REQUIREMENT	
TENSION/(DEPTH*WEIGHT)			
COLLAPSE-1.0 design factor	1.161	DESIGN EXCEEDS SAFTEY FACTOR REQUIREMENT	
(COLLAPSE * Y)/(PSI/FT * DEPTH)			
BURST-1.0 design factor	1.803	DESIGN EXCEEDS SAFTEY FACTOR REQUIREMENT	
BURST/((.75*BHP+2.5 #/gal)			

EXHIBIT 'D-2'

03/08/93

WIG EDDY UNIT NO. 122

PRODUCTION CASING

TAPER CASING PARAMETERS

OD (inches)	5.500
WT (lbs/ft)	17.00
END SHORT THREAD	N-80
OD DIAMETER (inches)	LT&C
ID DIAMETER (inches)	4.892
WT (lbs)	4.767
APSE (psi)	348,000
IPSE (psi)	6,280
	7,740

1.6 design factor	1.735
W/(DEPTH*WEIGHT)	
1.0 design factor	1.088
APSE * Y)/(PSI/FT * DEPTH)	
1.0 design factor	1.286
WT/(.75*BHP-2.5 #/gal)	

TAPER CASING PARAMETERS

OD (inches)	5.500
WT (lbs/ft)	17.00
END SHORT THREAD	S-95
OD DIAMETER (inches)	LT&C
ID DIAMETER (inches)	4.892
WT (lbs)	4.767
APSE (psi)	392,000
IPSE (psi)	8,580
	9,190

1.6 design factor	28.824
W/(DEPTH*WEIGHT)	
1.0 design factor	1.401
APSE * Y)/(PSI/FT * DEPTH)	
1.0 design factor	1.501
WT/(.75*BHP-2.5 #/gal)	

TOTAL DEPTH 11,300

TOP DEPTH OF TAPER(ft)	0
BOTTOM DEPTH OF TAPER(ft)	11,000
MAX FLUID GRADIENT (ppg)	10
AXIAL LOAD FACTOR "X"	0.039
AXIAL LOAD FACTOR "Y"	0.989
ANTICIPATED PSI @ SETTING	5709.0

NET FOOTAGE = 11000

DESIGN EXCEEDS SAFTEY FACTOR REQUIREMENT

DESIGN EXCEEDS SAFTEY FACTOR REQUIREMENT

DESIGN EXCEEDS SAFTEY FACTOR REQUIREMENT

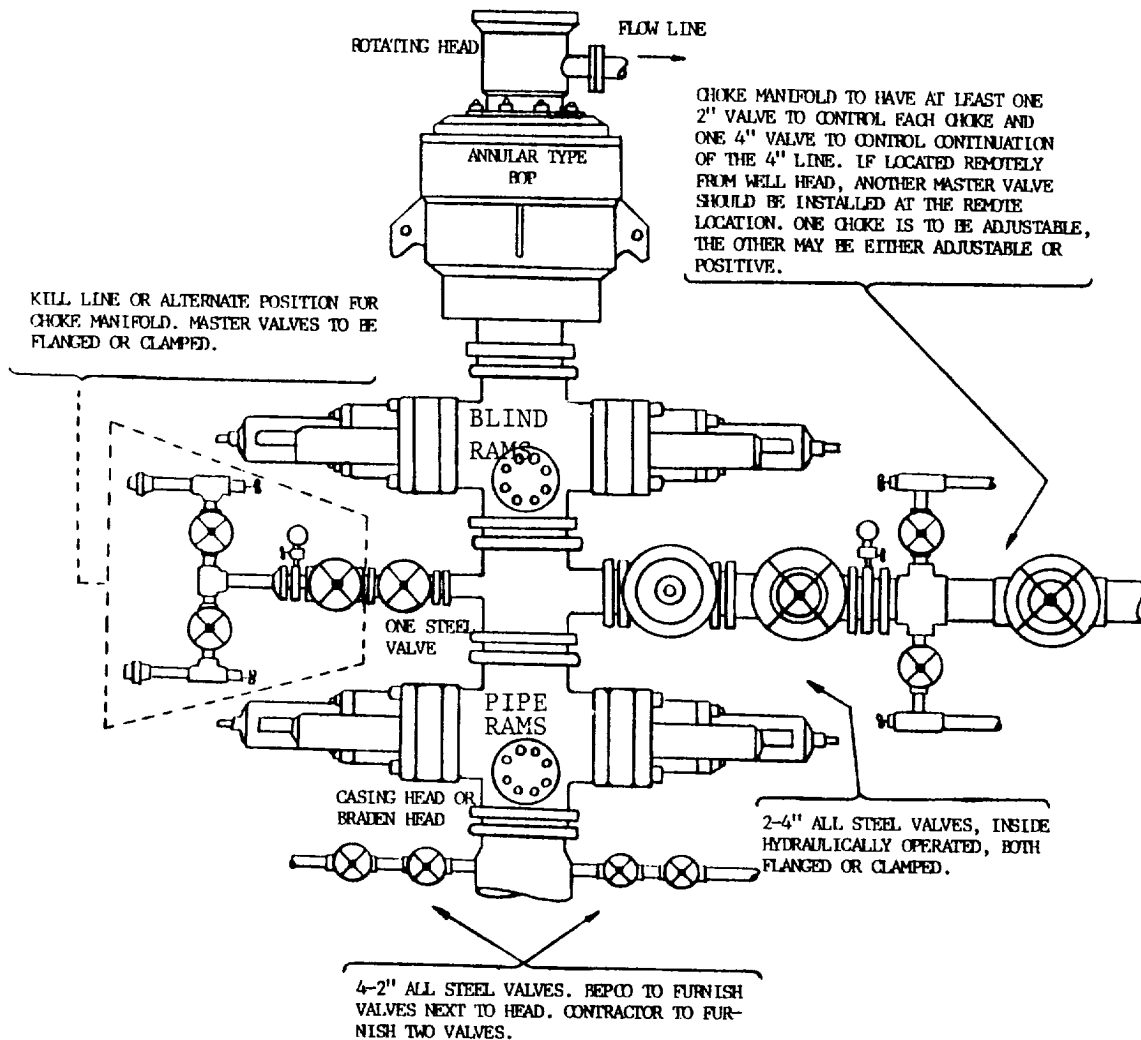
TOP DEPTH OF TAPER(ft)	11000
BOTTOM DEPTH OF TAPER(ft)	11800
MAX FLUID GRADIENT (ppg)	10
AXIAL LOAD FACTOR "X"	0.000
AXIAL LOAD FACTOR "Y"	1.000
ANTICIPATED PSI @ SETTING	6124.2

NET FOOTAGE = 800

DESIGN EXCEEDS SAFTEY FACTOR REQUIREMENT

DESIGN EXCEEDS SAFTEY FACTOR REQUIREMENT

DESIGN EXCEEDS SAFTEY FACTOR REQUIREMENT



THE FOLLOWING CONSTITUTE MINIMUM BLOWOUT PREVENTER REQUIREMENTS

- A. Conditions may be met with an annular type blowout preventer and pipe ram type blowout preventer above a choke spool, and a blind ram below the choke spool.
- B. Opening on choke spool to be flanged, studded or clamped.
- C. All connections from operating manifolds 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 preventer to have a pressure rating equivalent to that of the BOP's.
- F. Manual controls to be installed before drilling cement plug.
- G. Kelly cock to be installed on kelly.
- H. Inside blowout preventer to be available on rig floor.
- I. Dual operating controls: one located by drillers position and the other located a safe distance from the rig floor.

BEPCO IV

THREE CLOSURE HYDRAULIC BLOWOUT PREVENTERS

H₂S DRILLING OPERATIONS PLAN

A. H₂S Training

All personnel involved in this drilling operation, whether assigned, contracted or employed on a regular basis, will receive training from a qualified instructor prior to commencing drilling operations on this well.

B. Well Site Diagram

- 1) Drilling Rig orientation: See Exhibit "C"
- 2) Prevailing wind direction: SW
- 3) Terrain of surrounding area: See Point 11
- 4) Location of briefing areas: See Exhibit "C"
- 5) Location of access road: See Exhibit "B" & "C"
- 6) Location of flare line and pits: See Exhibit "C"
- 7) Location of caution or danger signs: See Exhibit "C"

C. Description of H₂S Safety Equipment/Systems

- 1) Well control equipment: See BOP Diagram
 - a. Flare line and means of ignition: NA
 - b. Remote controlled choke: NA
 - c. Flare gun/flares: NA
 - d. Mud-gas separator and rotating head: NA
- 2) Protective Equipment for Essential Personnel
 - a. Location, type, storage and maintenance of all working and escape breathing apparatus: Scott breathing packs located at briefing areas shown on Exhibit "C" and on the floor. Stored in water-proof container and maintained on a monthly basis by third party safety company.
 - b. Means of communication when using protective breathing apparatus: Hand signals or microphones in the breathing packs are used for communication.
- 3) H₂S Detection and Monitoring Equipment
 - a. H₂S sensors and associated audible/visual alarm(s): Otis sensors are used with a visual light @ 10 ppm and siren @ 20 ppm.
 - b. Portable H₂S and SO₂ monitor(s): Bendix Pumps

- 4) Visual Warning Systems
 - a. Wind direction indicators: See Exhibit "C"
 - b. Caution/danger sign(s) and flag(s): See Exhibit "C"
- 5) Mud Program
 - a. Mud systems and additives: See Point 5
 - b. Mud degassing system: NA
- 6) Metallurgy
 - a. Metallurgical properties of all tubular goods and well control equipment which could be exposed to H₂S: All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H₂S service.
- 7) Means of Communication from Wellsite: Phones in trailer and on rig floor.

D. Plans for Well Testing

Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity which are necessary to safely and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill stem testing operations conducted in an H₂S environment will use the closed chamber method of testing.