Form 3160-3
(December 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE* (See other instructions on reverse side)

N. M. Oil Cons. Division
811 S. 1st St.
ARTESIA, NM 88210-2834

Form approved.

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1a. TYPE OF WORK: DRILL ☒ DEEPEN ☐

b. TYPE OF WELL: OIL WELL ☒ GAS WELL ☐ Other ____ SINGLE ZONE ☐ MULTIPLE ZONE ☒

2. NAME OF OPERATOR
DEVON ENERGY CORPORATION (NEVADA)

3. ADDRESS AND TELEPHONE NO.
20 N. BROADWAY, SUITE 1500, OKC, OK 73102 (405) 235-3611

4. LOCATION OF WELL (*Report location clearly and in accordance with any State requirements*)*
At surface 660' FNL & 710' FWL, Unit D, Section 22, T23S, R31E, Eddy County, NM

At top proposed prod. zone (Same)

RECEIVED
JUL 2003
OCD-ARTESIA

R-111-P POTASH

5. LEASE DESIGNATION AND SERIAL NO.: NM-NM0405444-A
6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A
7. UNIT AGREEMENT NAME: N/A
8. FARM OR LEASE NAME, WELL NO.: Todd "22D" Federal #~~17~~4
9. API WELL NO.: 30-015- 32880
10. FIELD AND POOL, OR WILDCAT: INGLE WELLS DELAWARE ~~Sand Dunes (Wolfcamp)~~
11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Unit D, Section 22-T23S-R31E

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 35 miles WNW of Jal, New Mexico
12. COUNTY OR PARISH: Eddy County
13. STATE: New Mexico

15. DISTANCE FROM PROPOSED LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line if any): 660'
16. NO. OF ACRES IN LEASE: 1240.00
17. NO. OF ACRES ASSIGNED TO THIS WELL: 40.00
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.:
19. PROPOSED DEPTH: ~~12,000'~~ 8350'
20. ROTARY OR CABLE TOOLS*: Rotary
21. ELEVATIONS (Show whether DF, RT, GR, etc.): 3404' GL
22. APPROX. DATE WORK WILL START*: First quarter, 1999

CARLSBAD CONTROLLED WATER BASIN

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17 1/2"	H-40 13 3/8"	48#	WITNESS 850'	500 sx Poz C + 200 sx Class C
12 1/4"	J-55 9 5/8"	40#	WITNESS 4400'	1400 sx Poz C + 200 sx Class C
7 7/8"	~~K-55 L-80~~ 5 1/2"	17# & ~~20#~~ 15.5#	8350' ~~12,000'~~ DV Tool +/- 5500'	~~Stg #1: 250 sx Class H + 400 sx Poz~~ ~~Stg #2: 420 sx Class C + 425 sx Cla~~

Devon Energy proposes to drill to approximately 8350' ~~12,000'~~ to test the Delaware ~~Wolfcamp~~ for commercial quantities of oil. If ~~the Wolfcamp is~~ deemed non-commercial, the wellbore will be plugged and abandoned as per Federal regulations. Programs to adhere to onshore oil and gas regulations are outlined in the following exhibits and attachments.

per sundry dated 12/13/02, acs

Drilling Program
Surface Use and Operating Plan
Exhibits #1 = Blowout Prevention Equipment
Exhibit #2 = Location and Elevation Plat
Exhibits #3 = Road Map and Topo Map
Exhibit #4 = Wells Within 1 Mile Radius
Exhibits #5 = Production Facilities Plat
Exhibit #6 = Rotary Rig Layout
Exhibit #7 = Casing Design
Archaeological Clearance Report

The undersigned accepts all applicable terms, conditions, stipulations and restrictions concerning operations conducted on the leased land or: portions thereof, as described below
Lease #: NM-NM0405444-A
Legal Description: All of Section 22-T23S-R31E, Eddy Cnty, NM

Bond Coverage: Nationwide
BLM Bond #: CO-1104

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACH

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 Candace R. Graham TITLE Engineering Technician DATE January 29, 1999

Candace R. Graham

*(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/ Richard A Whitley TITLE Acting STATE DIRECTOR DATE 7-3-03

See Instructions On Reverse Side

APPROVED FOR 1 YEAR

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

DRILLING PROGRAM

Attached to Form 3160-3
Devon Energy Corporation (Nevada)
TODD "22D" FEDERAL #17
660' FNL & 710' FWL
Section 22-T23S-R31E, Unit D
Eddy County, New Mexico

1. Geologic Name of Surface Formation

   Permian

2. Estimated Tops of Important Geologic Markers

Rustler	800'
Top of Salt	1100'
Base of Salt	3900'
Bell Canyon	4400'
Cherry Canyon	5600'
Brushy Canyon	7000'
Bone Spring Lime	8300'
Third Bone Spring	10700'
Wolfcamp	11600'
Total Depth	12000'

3. Estimated Depths of Possible Fresh Water-, Oil-, or Gas-Bearing Formations

Upper Permian Sands	above 800'	fresh water
Delaware (Bell Canyon)	4400'	oil
Delaware (Cherry Canyon)	6000'	oil
Delaware (Brushy Canyon)	8000'	oil
Third Bone Spring	10700'	oil
Wolfcamp	11600'	oil

No other formations are expected to yield oil, gas or fresh water in measurable volumes. The surface fresh water sands will be protected by setting 13 3/8" casing at 850' and circulating cement back to surface. The Potash and Salt intervals will be protected by setting 9 5/8" casing at 4400' and circulating cement to surface. The lower producing intervals will be isolated by setting 5 1/2" casing to total depth and circulating cement above the base of the 9 5/8" casing.

4. Casing Program

Hole Size	Interval	Casing OD	Weight	Grade	Type
30"	0-40'	20"		Conductor	0.30" wall
17 1/2"	0-850'	13 3/8"	48#	H-40	ST&C, new R-3
12 1/4"	0-4400'	9 5/8"	40#	J-55	ST&C, new R-3
7 7/8"	0'-TD (~~12,000'~~±)	5 1/2"	17# & ~~20#~~ 15.5#	~~L-80~~ ~~K-55~~	LT&C, new R-3

Cementing Program

20" Conductor Casing	Cement with Ready-mix to surface.
13 3/8" Surface Casing	Cement to surface using 500 sx Poz (35% Poz, 65% Class C) with 6% Bentonite, 2% $CaCl_2$ and 1/4 lb/sx Cellophane flakes + 200 sx Class C with 2% $CaCl_2$ and 1/4 lb/sx Cellophane flakes.
9 5/8" Intermediate Casing	Cement to surface using 1400 sx Poz (35% Poz, 65% Class C) with 6% Bentonite, 3% $NaCl_2$ and 1/4 lb/sx Cellophane flakes + 200 sx Class C with 2% $CaCl_2$ and 1/4 lb/sx Cellophane flakes.
5 1/2" Production Casing with DV tool at ±5500'	Cement 1st stage with 250 sx Class H with 12lbs/sx BA-0, 2#/sx $NaCl_2$, 0.5% FL-52, 0.25% CD-32 and 1/4 lb/sx Cellophane flakes. Cement 2nd stage with 420 sks Class C with 4% Bentonite, 6.5% $NaCl_2$ and 1/4 lb/sx Cellophane flakes.

The above cement volumes could be revised pending the caliper measurement from the open hole logs. The top of cement is designed to reach 450'± above the 9 5/8" casing seat at 4400'.

5. Minimum Specifications for Pressure Control

The blowout preventer equipment (BOP) shown in Exhibit #1 will consist of a (3M system) double ram type (2000 psi WP) preventer and a bag-type (Hydril) preventer (2000 psi WP). Both units will be hydraulically operated and the ram type preventer will be equipped with blind rams on top and 4 1/2" drill pipe rams on bottom. Both BOP's will be installed on the 13 3/8" surface casing and utilized continuously until total depth is reached. All BOP's and associated equipment will be tested to 1200 psi before drilling

out the 13 3/8" casing shoe (70% of 48# H-40 casing). Prior to drilling out the 9 5/8" casing shoe, the BOP's and Hydril will be function tested as per BLM drilling Operations Order #2.

Pipe rams will be operated and checked each 24 hour period and each time the drill pipe is out of the hole. These functional tests will be documented on the daily drillers log. A 2" kill line and 3" choke line will be incorporated in the drilling spool below the ram-type BOP. Other accessory BOP equipment will include a kelly cock, floor safety valve, choke lines and choke manifold having 3000 psi WP rating.

6. Types and Characteristics of the Proposed Mud System

The well will be drilled to total depth using brine, cut brine and polymer mud systems. Depths of systems are as follows.

Depth	Type	Weight (ppg)	Viscosity (1/sec)	Water Loss (cc/30 mins)
0-850'	Fresh water	8.8	34-36	No control
850-4400'	Brine water	10.0	28	No control
4400'-TD	Brine water polymer	10.0	32-36	10-20

The necessary mud products for weight addition and fluid loss control will be on location at all times.

7. Auxiliary Well Control and Monitoring Equipment

A. A kelly cock will be in the drill string at all times.

B. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.

C. Hydrogen Sulfide detection equipment (Compliance Package) will be in operation from drilling out the 9 5/8" casing shoe until the 5 1/2" casing is cemented.

8. Logging, Testing and Coring Program

A. Drill stem tests will be based on geological sample shows.

B. The open hole wireline logging program will be as follows.

TD to intermediate casing: Induction / Gamma Ray / Neutron / Density Log.

TD to surface: Neutron with Gamma Ray.

C. Rotary sidewall cores will be based on geological sample shows.

D. Additional testing will be initiated subsequent to setting the 5 1/2" production casing. Specific intervals will be targeted based on geological sample shows, drill stem tests log evaluation and core analysis.

9. Abnormal Pressures, Temperatures and Potential Hazards

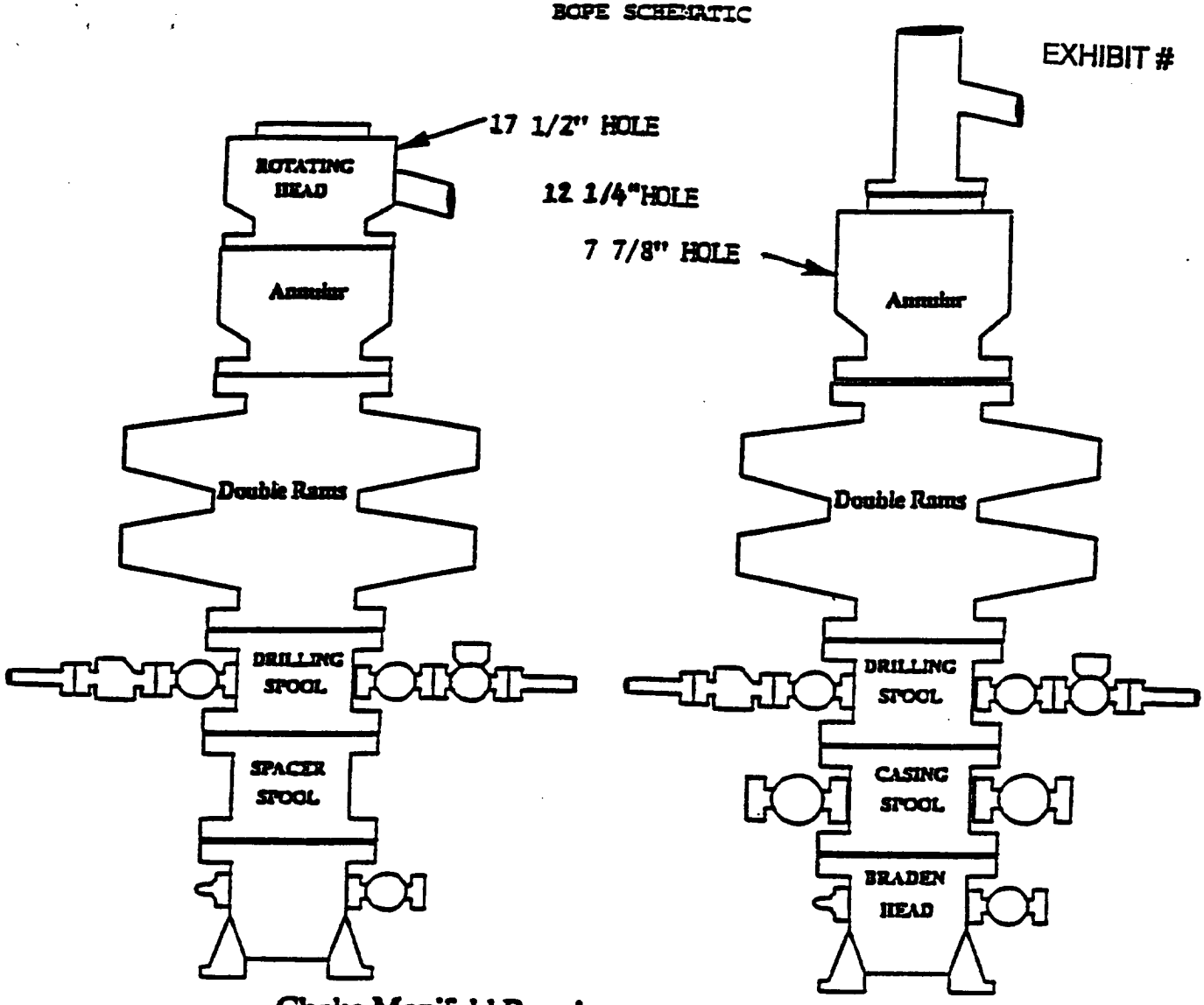
No abnormal pressures or temperatures are foreseen. The anticipated bottom hole temperature at total depth is approximately 175 degrees and maximum bottom hole pressure is approximately 3500 psig. No hydrogen sulfide gas has been reported or is known to exist at these depths in this area. No major lost circulation intervals have been encountered in adjacent wells.

10. Anticipated Starting Date and Duration of Operations

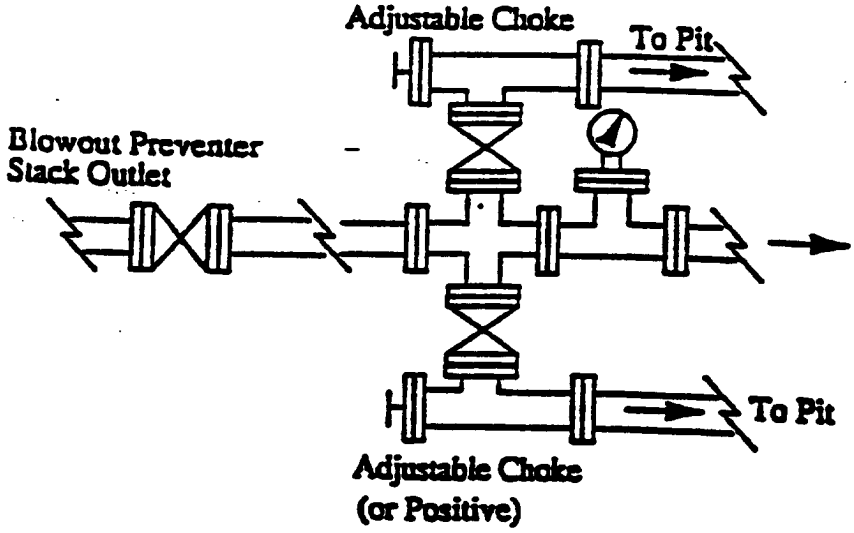
A Cultural Resources Examination will be completed by Don Clifton Archaeological Consultant and submitted to the BLM. Road and location preparation will not be undertaken until approval has been received from the BLM. If approved, the anticipated spud date for the well will be in the first quarter, 1999. The drilling operation should require approximately 21 days. If the well is deemed productive, completion operations will require, at minimum, an additional 30 days of testing to ascertain whether permanent production facilities will be constructed.

BOPE SCHEMATIC

EXHIBIT # 1



Choke Manifold Requirement (3000 psi WP)



Minimum 4" Nominal choke and kill lines

MINIMUM BLOWOUT PREVENTER REQUIREMENTS

3,000 psi Working Pressure

3 MWP

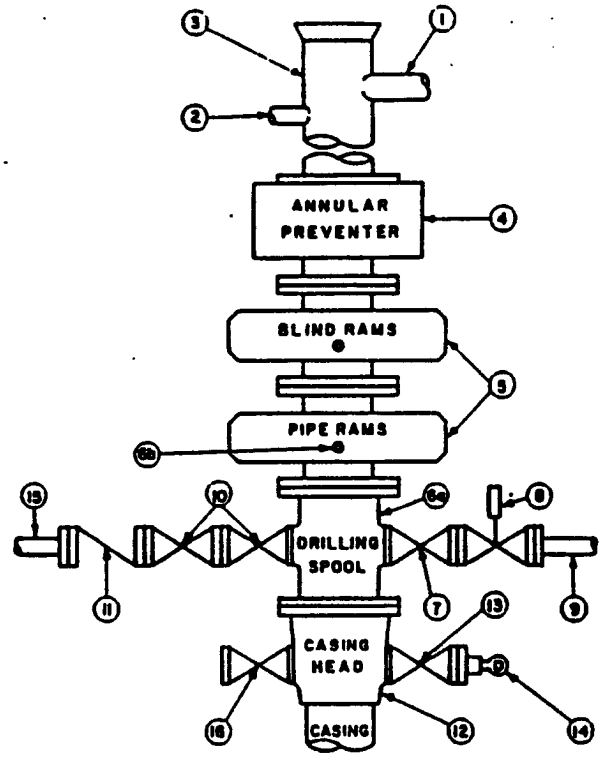
EXHIBIT # 1

STACK REQUIREMENTS

No.	Item	Min. I.D.	Min. Nominal
1	Flowline		
2	Fill up line		2"
3	Drilling nipple		
4	Annular preventer		
5	Two single or one dual hydraulically operated rams		
6a	Drilling spool with 2" min. kill line and 3" min choke line outlets		
	—or—		
6b	2" min. kill line and 3" min. choke line outlets in ram. (Alternate to 6a above.)		
7	Valve Gate ☐ Plug ☐	3-1/8"	
8	Gate valve—power operated	3-1/8"	
9	Line to choke manifold		3"
10	Valves Gate ☐ Plug ☐	2-1/16"	
11	Check valve	2-1/16"	
12	Casing head		
13	Valve Gate ☐ Plug ☐	1-13/16"	
14	Pressure gauge with needle valve		
15	Kill line to rig mud pump manifold		2"

OPTIONAL			
16	Flanged valve	1-13/16"	

CONFIGURATION A



CONTRACTOR'S OPTION TO FURNISH:

1. All equipment and connections above bradenhead or casinghead. Working pressure of preventers to be 3,000 psi, minimum.
2. Automatic accumulator (80 gallon, minimum) capable of closing BOP in 30 seconds or less and, holding them closed against full rated working pressure.
3. BOP controls, to be located near drillers position.
4. Kelly equipped with Kelly cock.
5. Inside blowout prevventer or its equivalent on derrick floor at all times with proper threads to fit pipe being used.
6. Kelly saver-sub equipped with rubber casing protector at all times.
7. Plug type blowout preventer tester.
8. Extra set pipe rams to fit drill pipe in use on location at all times.
9. Type RX ring gaskets in place of Type R.

MEC TO FURNISH:

1. Bradenhead or casinghead and side valves.
2. Wear bushing, if required.

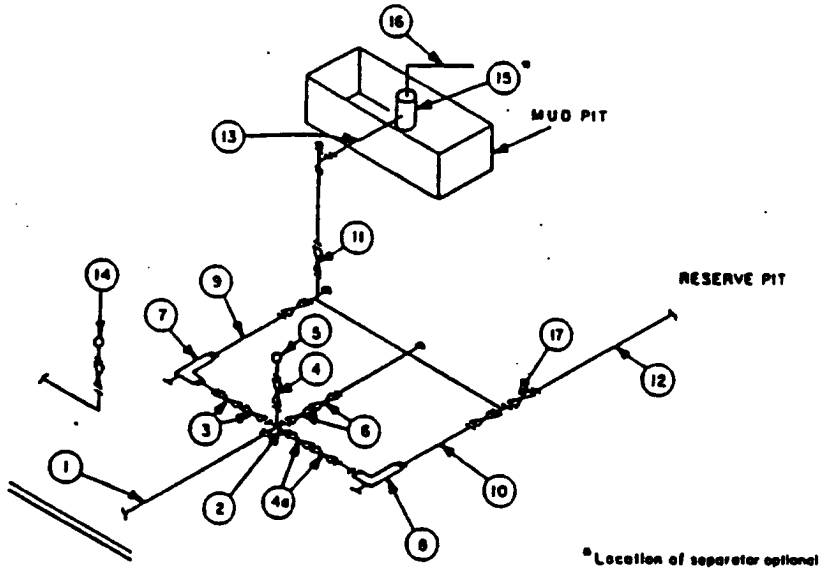
GENERAL NOTES:

1. Deviations from this drawing may be made only with the express permission of MEC's Drilling Manager.
2. All connections, valves, fittings, piping, etc., subject to well or pump pressure must be flanged (suitable clamp connections acceptable) and have minimum working pressure equal to rated working pressure of preventers up through choke. Valves must be full opening and suitable for high pressure mud service.
3. Controls to be of standard design and each marked, showing opening and closing position.
4. Chokes will be positioned so as not to hamper or delay changing of choke beans. Replaceable parts for adjustable choke, other bean sizes, retainers, and choke wrenches to be conveniently located for immediate use.
5. All valves to be equipped with handwheels or handles ready for immediate use.
6. Choke lines must be suitably anchored.
7. Handwheels and extensions to be connected and ready for use.
8. Valves adjacent to drilling spool to be kept open. Use outside valves except for emergency.
9. All seamless steel control piping (3000 psi working pressure) to have flexible joints to avoid stress. Hoses will be permitted.
10. Casinghead connections shall not be used except in case of emergency.
11. Do not use kill line for routine fill-up operations.

MINIMUM CHOKE MANIFOLD
3,000, 5,000 and 10,000 PSI Working Pressure

3 MWP - 5 MWP - 10 MWP

EXHIBIT # 1



BEYOND SUBSTRUCTURE

MINIMUM REQUIREMENTS										
		3,000 MWP			5,000 MWP			10,000 MWP		
No.		I.D.	NOMINAL	RATING	I.D.	NOMINAL	RATING	I.D.	NOMINAL	RATING
1	Line from drilling spool		3"	3,000		3"	5,000		3"	10,000
2	Cross 3"x3"x3"x2"			3,000			5,000			
	Cross 3"x3"x3"x3"									10,000
3	Valves(1) Gate ☐ Plug ☐(2)	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		10,000
4	Valve Gate ☐ Plug ☐(2)	1-13/16"		3,000	1-13/16"		5,000	1-13/16"		10,000
4a	Valves(1)	2-1/16"		3,000	2-1/16"		5,000	3-1/8"		10,000
5	Pressure Gauge			3,000			5,000			10,000
6	Valves Gate ☐ Plug ☐(2)	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		10,000
7	Adjustable Choke(3)	2"		3,000	2"		5,000	2"		10,000
8	Adjustable Choke	1"		3,000	1"		5,000	2"		10,000
9	Line		3"	3,000		3"	5,000		3"	10,000
10	Line		2"	3,000		2"	5,000		3"	10,000
11	Valves Gate ☐ Plug ☐(2)	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		10,000
12	Lines		3"	1,000		3"	1,000		3"	2,000
13	Lines		3"	1,000		3"	1,000		3"	2,000
14	Remote reading compound standpipe pressure gauge			3,000			5,000			10,000
15	Gas Separator		2'x5'			2'x5'			2'x5'	
16	Line		4"	1,000		4"	1,000		4"	2,000
17	Valves Gate ☐ Plug ☐(2)	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		10,000

(1) Only one required in Class 3M.

(2) Gate valves only shall be used for Class 10M.

(3) Remote operated hydraulic choke required on 5,000 psi and 10,000 psi for drilling.

EQUIPMENT SPECIFICATIONS AND INSTALLATION INSTRUCTIONS

1. All connections in choke manifold shall be welded, studded, flanged or Cameron clamp of comparable rating.
2. All flanges shall be API 6B or 6BX and ring gaskets shall be API RX or BX. Use only BX for 10 MWP.
3. All lines shall be securely anchored.
4. Chokes shall be equipped with tungsten carbide seats and needles, and replacements shall be available.
5. Choke manifold pressure and standpipe pressure gauges shall be available at the choke manifold to assist in regulating chokes. As an alternate with automatic chokes, a choke manifold pressure gauge shall be located on the rig floor in conjunction with the standpipe pressure gauge.
6. Line from drilling spool to choke manifold should be as straight as possible. Lines downstream from chokes shall make turns by large bends or 90° bends using bull plugged tees.
7. Discharge lines from chokes, choke bypass and from top of gas separator should vent as far as practical from the well.

Attachment to Exhibit #1
NOTES REGARDING BLOWOUT PREVENTERS
Devon Energy Corporation (Nevada)
TODD "22D" FEDERAL #17
660' FNL & 710' FWL
Section 22-T23S-R31E, Unit D
Eddy County, New Mexico

1. Drilling nipple will be constructed so it can be removed mechanically without the aid of a welder. The minimum internal diameter will equal BOP bore.

2. Wear ring will be properly installed in head.

3. Blowout preventer and all associated fittings will be in operable condition to withstand a minimum 3000 psi working pressure.

4. All fittings will be flanged.

5. A full bore safety valve tested to a minimum 3000 psi WP with proper thread connections will be available on the rotary rig floor at all times.

6. All choke lines will be anchored to prevent movement.

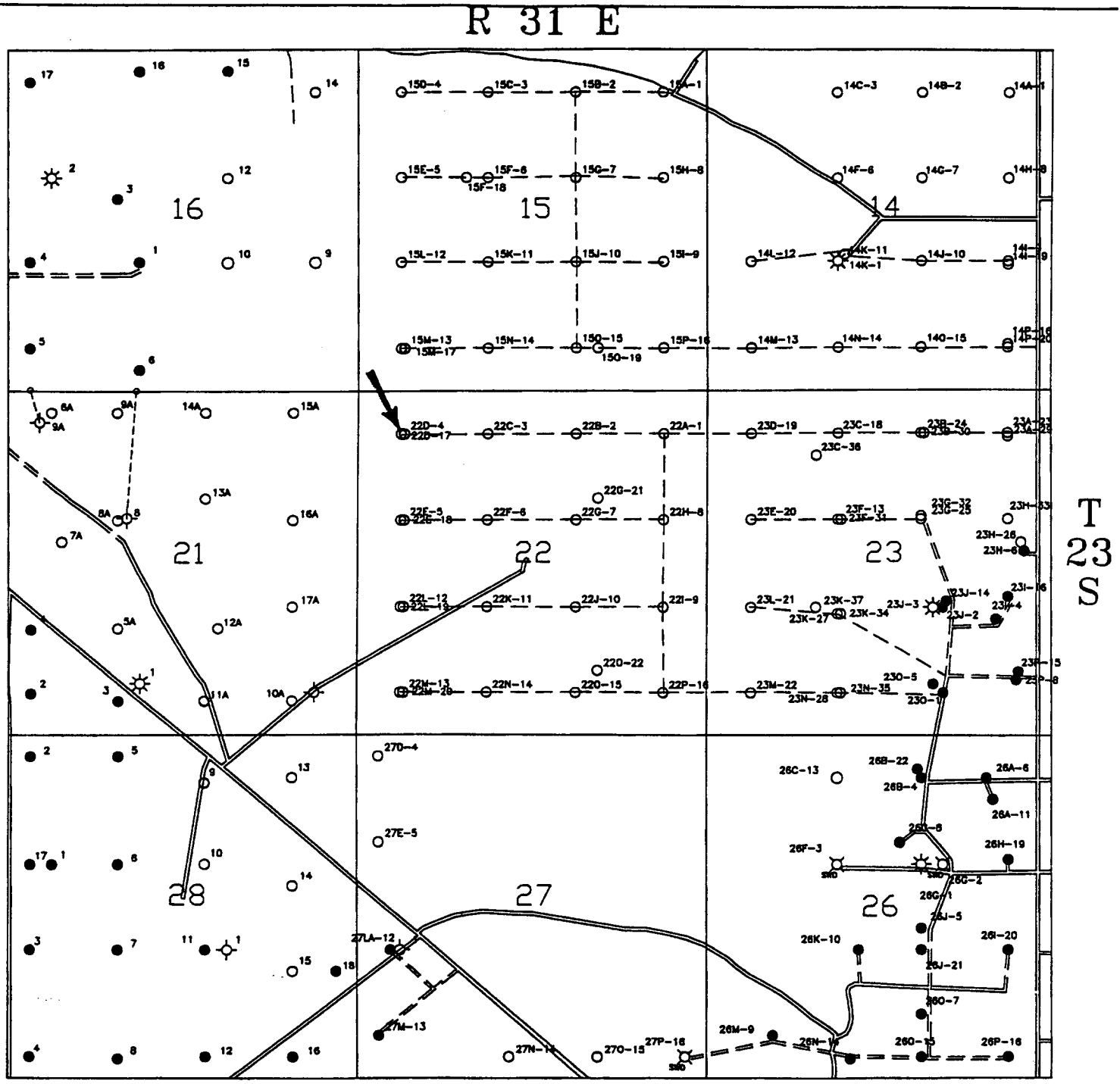
7. All BOP equipment will be equal to or larger in bore than the internal diameter of the last casing string.

8. Will maintain a kelly cock attached to the kelly.

9. Hand wheels and wrenches will be properly installed and tested for safe operation.

10. Hydraulic floor control for blowout preventer will be located as near in proximity to driller's controls as possible.

11. All BOP equipment will meet API standards and include a minimum 40 gallon accumulator having two independent means of power to initiate closing operation.


R 31 E
T 23 S
16
15
14
21
22
23
28
27
26
N
devon
SAND DUNES FIELD
EDDY COUNTY, NEW MEXICO
TODD-22D FEDERAL-17
EXHIBIT 3
Scale in Feet
2000
0
2000
File: 22D-17
12/98

Well name: **Typical Well Surface**
Operator: Devon Energy Corporation (Nevada)
String type: Surface

Location: T23S, R31E, Eddy County, New Mexico

Design parameters:

Collapse
Mud weight: 8.500 ppg
Design is based on evacuated pipe.

Burst
Max anticipated surface pressure: 468 psi
Internal gradient: 0.021 psi/ft
Calculated BHP 486 psi

Annular backup: 8.50 ppg

Minimum design factors:

Collapse:
Design factor 1.125

Burst:
Design factor 1.00

Tension:
8 Round STC: 1.80 (J)
8 Round LTC: 1.80 (J)
Buttress: 1.60 (J)
Premium: 1.50 (J)
Body yield: 1.50 (B)

Tension is based on buoyed weight.
Neutral point: 744 ft

Environment:
H2S considered? No
Surface temperature: 75 °F
Bottom hole temperature: 82 °F
Temperature gradient: 0.80 °F/100ft
Minimum section length: 850 ft
Minimum Drift: 2.559 in

Non-directional string.

Re subsequent strings:
Next setting depth: 4,400 ft
Next mud weight: 10.000 ppg
Next setting BHP: 2,286 psi
Fracture mud wt: 11.000 ppg
Fracture depth: 850 ft
Injection pressure 486 psi

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Internal Capacity (ft³)
1	850	13.375	48.00	H-40	ST&C	850	850	12.59	79.8

Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (Kips)	Tension Strength (Kips)	Tension Design Factor
1	375	740	1.97	468	1730	3.70	36	322	9.01 J

Prepared by: W. M. Frank
Devon Energy
Phone: (405) 552-4595
FAX: (405) 552-4621
Date: November 24,1998
Oklahoma City, Oklahoma

Remarks:
Collapse is based on a vertical depth of 850 ft, a mud weight of 8.5 ppg The casing is considered to be evacuated for collapse purposes. Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Engineering responsibility for use of this design will be that of the purchaser.

EXHIBIT #

Well name:	**Wolfcamp Well Production**
Operator:	Devon Energy Corporation (Nevada)
String type:	Production
Location:	T23S, R31E, Eddy County, New Mexico

Design parameters:

Collapse
Mud weight: 9.500 ppg
Design is based on evacuated pipe.

Burst
Max anticipated surface pressure: 5,922 psi
Internal gradient: 0.000 psi/ft
Calculated BHP 5,922 psi

Annular backup: 9.50 ppg

Packer fluid details:
Fluid density: 8.400 ppg
Packer depth: 11,500 ft

Minimum design factors:

Collapse:
Design factor 1.125

Burst:
Design factor 1.00

Tension:
8 Round STC: 1.80 (J)
8 Round LTC: 1.80 (J)
Buttress: 1.60 (J)
Premium: 1.50 (J)
Body yield: 1.50 (B)

Tension is based on buoyed weight.
Neutral point 10,481 ft

Environment:
H2S considered? No
Surface temperature: 75 °F
Bottom hole temperature: 171 °F
Temperature gradient: 0.80 °F/100ft
Minimum section length: 850 ft

Non-directional string.

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Internal Capacity (ft³)
2	10500	5.5	17.00	L-80	LT&C	10500	10500	4.767	361.8
1	1500	5.5	20.00	L-80	LT&C	12000	12000	4.653	60.7

Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (Kips)	Tension Strength (Kips)	Tension Design Factor
2	5182	6290	1.21	5922	7740	1.31	178	338	1.89 J
1	5922	8830	1.49	5322	9190	1.73	0	416	99.99 J

Prepared by: W. M. Frank
Devon Energy
Phone: (405) 552-4595
FAX: (405) 552-4621
Date: November 24,1998
Oklahoma City, Oklahoma

Remarks:
Collapse is based on a vertical depth of 12000 ft, a mud weight of 9.5 ppg The casing is considered to be evacuated for collapse purposes. Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

Burst strength is not adjusted for tension.

Well name: **Typical Well Intermediate**
Operator: Devon Energy Corporation (Nevada)
String type: Intermediate

Location: T23S, R31E, Eddy County, New Mexico

Design parameters:

Collapse
Mud weight: 9.500 ppg
Design is based on evacuated pipe.

Burst
Max anticipated surface pressure: 2,286 psi
Internal gradient: 0.000 psi/ft
Calculated BHP 2,286 psi

Annular backup: 10.00 ppg

Minimum design factors:

Collapse:
Design factor 1.125

Burst:
Design factor 1.00

Tension:
8 Round STC: 1.80 (J)
8 Round LTC: 1.80 (J)
Buttress: 1.60 (J)
Premium: 1.50 (J)
Body yield: 1.50 (B)

Tension is based on buoyed weight.
Neutral point: 3,778 ft

Environment:

H2S considered? No
Surface temperature: 75 °F
Bottom hole temperature: 110 °F
Temperature gradient: 0.80 °F/100ft
Minimum section length: 850 ft
Minimum Drift: 8.500 in

Non-directional string.

Re subsequent strings:
Next setting depth: 12,000 ft
Next mud weight: 9.500 ppg
Next setting BHP: 5,922 psi
Fracture mud wt: 10.000 ppg
Fracture depth: 4,400 ft
Injection pressure 2,286 psi

Run Seq	Segment Length (ft)	Size (in)	Nominal Weight (lbs/ft)	Grade	End Finish	True Vert Depth (ft)	Measured Depth (ft)	Drift Diameter (in)	Internal Capacity (ft^3)
1	4400	9.625	40.00	J-55	LT&C	4400	4400	8.75	350

Run Seq	Collapse Load (psi)	Collapse Strength (psi)	Collapse Design Factor	Burst Load (psi)	Burst Strength (psi)	Burst Design Factor	Tension Load (Kips)	Tension Strength (Kips)	Tension Design Factor
1	2171	2570	1.18	2286	3950	1.73	151	520	3.44 J

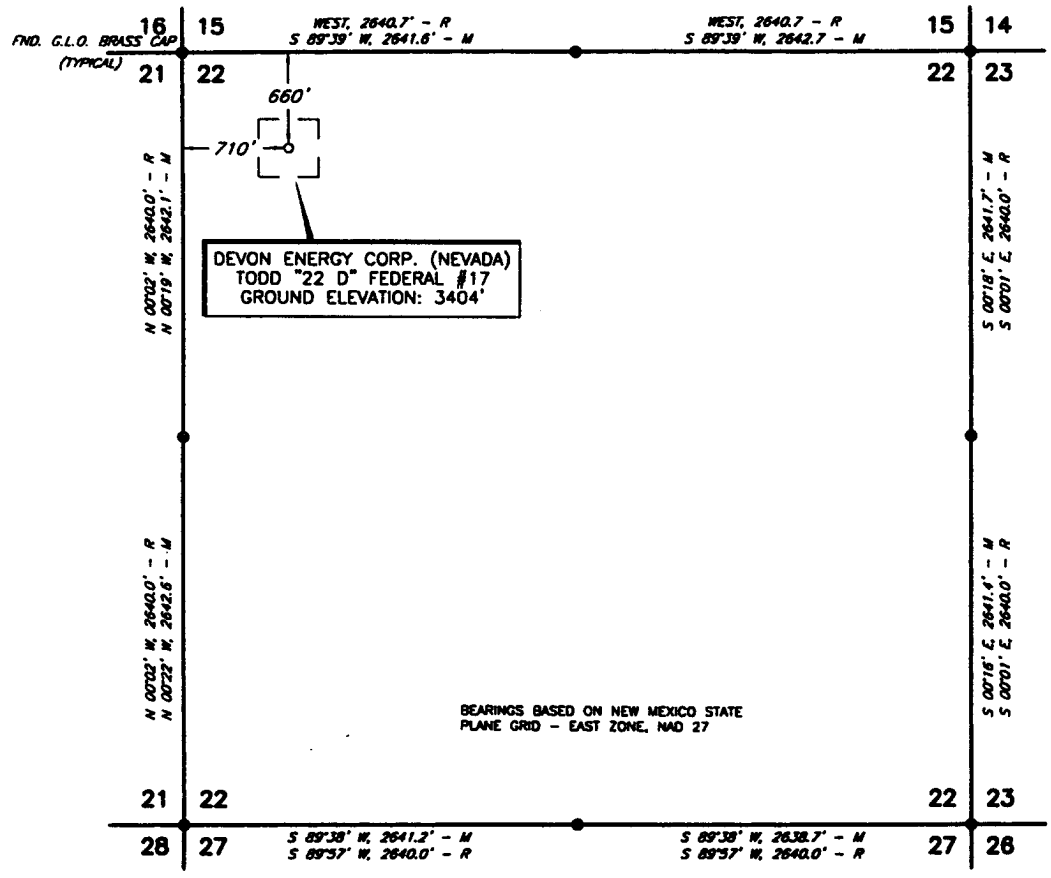
Prepared by: W. M. Frank, Devon Energy
Phone: (405) 552-4595
FAX: (405) 552-4621
Date: November 24,1998
Oklahoma City, Oklahoma

Remarks:
Collapse is based on a vertical depth of 4400 ft, a mud weight of 9.5 ppg The casing is considered to be evacuated for collapse purposes. Collapse strength is based on the Westcott, Dunlop & Kemler method of biaxial correction for tension.

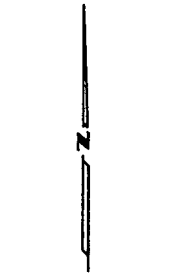
Burst strength is not adjusted for tension.

Engineering responsibility for use of this design will be that of the purchaser.

PLAT SHOWING PROPOSED
WELL LOCATION AND LEASE ROAD IN
SECTION 22, T-23-S, R-31-E, N.M.P.M.
EDDY COUNTY, NEW MEXICO

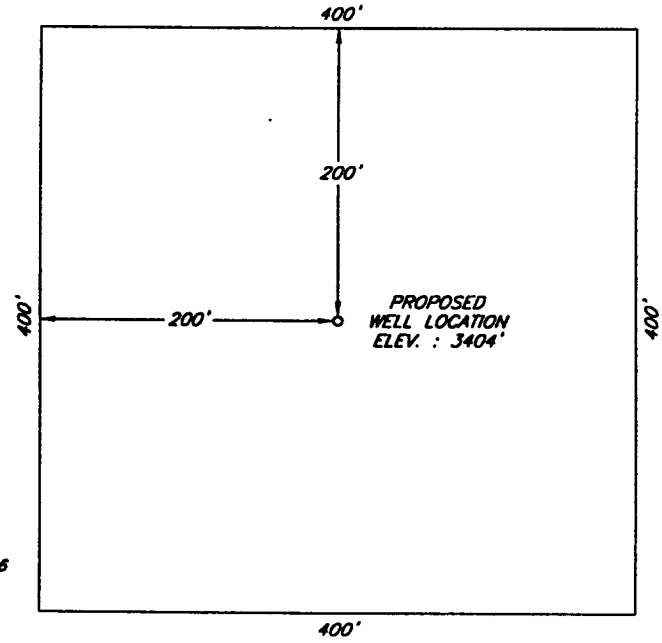


-R=RECORD
-M=MEASURED



1" = 1000'

DATE OF FIELD WORK: MARCH 16, 1999



DETAIL VIEW
1" = 100'

I, ROGER M. ROBBINS, A PROFESSIONAL SURVEYOR IN THE STATE OF NEW MEXICO AND AUTHORIZED AGENT OF TOPOGRAPHIC LAND SURVEYORS, HEREBY CERTIFY THIS PLAT TO BE A TRUE REPRESENTATION OF A SURVEY PERFORMED IN THE FIELD UNDER MY SUPERVISION, THAT I AM RESPONSIBLE FOR THIS SURVEY, THAT THIS SURVEY IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND THAT THIS PLAT AND FIELD SURVEY UPON WHICH IT IS BASED MEET THE MINIMUM STANDARDS FOR SURVEYING IN NEW MEXICO, RULE 500.6 EASEMENT SURVEYING.

NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR 12128

ROGER M. ROBBINS, P.S. NO. 12128

NO.	REVISION	DATE	BY

SURVEYED BY: D.Y.
DRAWN BY: V.H.B.
APPROVED BY: R.M.R.

DEVON ENERGY CORPORATION (NEVADA)

SURVEYING AND MAPPING BY
TOPOGRAPHIC LAND SURVEYORS
2903 N. BIG SPRING, MIDLAND, TEXAS 79705

SCALE: AS SHOWN
DATE: MARCH 16, 1999
JOB NO.: 62792-F
QUAD NO.: 48 SE
SHEET : 1 OF 1