Form 3160-3
(September 2001)

N.M. Oil Cons. Div. Dist. 2
1301 W. Grand Avenue
Artesia, NM 88210

FORM APPROVED
OMB No. 1004-0136
Expires January 31, 2004

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: ☑ DRILL ☐ REENTER	5. Lease Serial No. NM 14140 SHL NM 0556859-A SHL
1b. Type of Well: ☐ Oil Well ☑ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone	6. If Indian, Allottee or Tribe Name
2. Name of Operator 15363 Los Medanos; Morrow MURCHISON OIL & GAS, INC.	7. If Unit or CA Agreement, Name and No. NASH UNIT 8131
3a. Address 1100 MIRA VISTA BLVD., PLANO, TX. 75093-4698	8. Lease Name and Well No. NASH UNIT #53
3b. Phone No. (include area code) (972) 931-0700	9. API Well No. 30-015-32548
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 1663' FSL & 2185' FWL Unit K At proposed prod. zone 1980' FNL & 660' FEL UNIT H R-111-P Potash	10. Field and Pool, or Exploratory NASH DRAW 11. Sec., T., R., M., or Blk. and Survey or Area SEC. 12, T23S, R29E
14. Distance in miles and direction from nearest town or post office* 17 MILES SOUTHEAST OF CARLSBAD	12. County or Parish EDDY 13. State NM.
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 660' BHL	16. No. of Acres in lease 320
17. Spacing Unit dedicated to this well 320 N/2	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 2965' BHL	19. Proposed Depth 14000 TVD
20. BLM/BIA Bond No. on file ROTARY	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 2986' GL	22. Approximate date work will start* 9/1/02
23. Estimated duration 70 DAYS	

RECEIVED
OCD - ARTESIA
2002 JUN 28 P 2:30

Carlsbad Controlled Water Basin

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, shall 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 shall 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 authorized officer.

25. Signature Michael S Daugherty	Name (Printed/Typed) MICHAEL S. DAUGHERTY	Date 6/21/02
Title VICE PRESIDENT OPERATIONS		
Approved by (Signature) /S/ RICHARD A. WHITLEY	Name (Printed/Typed) /S/ RICHARD A. WHITLEY	Date NOV 29 2002
Title ACTING STATE DIRECTOR	Office NM STATE 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 1 YEAR

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.

*(Instructions on reverse)

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

DISTRICT I
P.O. Box 1980, Hobbs, NM 88241-1980

DISTRICT II
P.O. Drawer DD, Artesia, NM 88211-0719

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

DISTRICT IV
P.O. BOX 2088, SANTA FE, N.M. 87504-2088

State of New Mexico
Energy, Minerals and Natural Resources Department

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

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

Property Code	Property Name	Well Number
	NASH UNIT	53

OGRID No.	Operator Name	Elevation
015363	MURCHISON OIL & GAS INC.	2986'

Surface Location

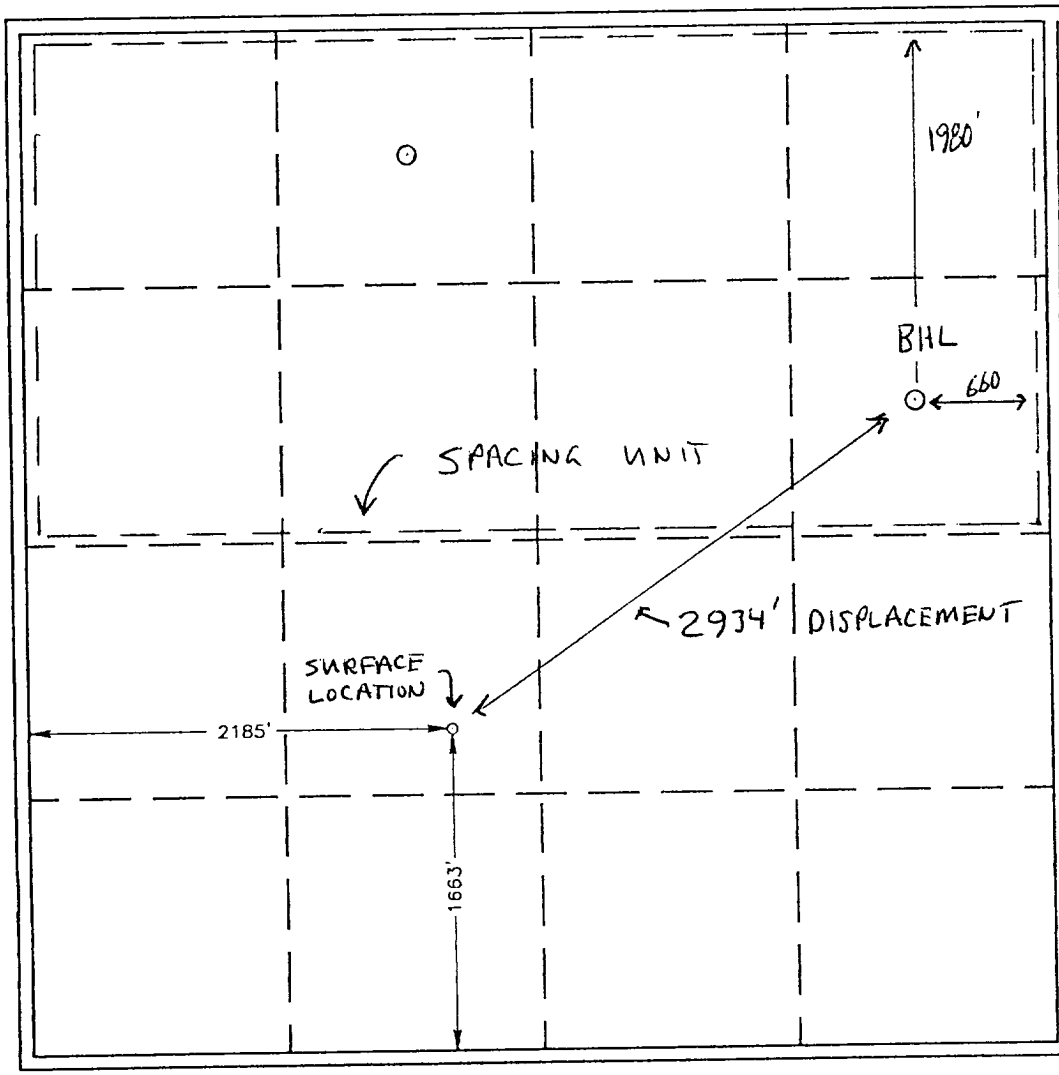
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
K	12	23-S	29-E		1663'	SOUTH	2185'	WEST	EDDY

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
H	12	23-S	29-E		1980'	NORTH	660'	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
320			

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 the the information contained herein is true and complete to the best of my knowledge and belief.

Signature

MICHAEL S. DAUGHERTY
Printed Name

VICE PRESIDENT OPERATIONS
Title

6/21/02
Date

SURVEYOR CERTIFICATION

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

MAY 28, 2002
Date Surveyed LA

Signature & Seal of Professional Surveyor

RONALD J. EIDSON
NEW MEXICO
REGISTERED PROFESSIONAL SURVEYOR

5/29/02

02.11.0394

Certificate No. RONALD J. EIDSON 3239
GARY EIDSON 12641

J.D. MURCHISON INTERESTS, INC.

MURCHISON OIL & GAS, INC.
MURCHISON PROPERTIES, INC.

June 21, 2002

United States Department of the Interior
Bureau of Land Management
Roswell District Office
2909 West Second Street
Roswell, New Mexico 88201
Attn: Linda Askawik

Re: Application for Permit to Drill
Murchison Oil & Gas, Inc.
Nash Unit #53
Eddy County, New Mexico
Lease No. NM-0556859-A

Gentlemen:

Murchison Oil & Gas, Inc. "MOGI" respectfully requests permission to drill our Nash Unit #53 with a surface location at 1663' FSL and 2185' FWL, and a bottom hole location at 1980' FNL and 660' FEL of Section 12, T23S, R29E, Eddy County, New Mexico, Federal Lease No. NM-0556859-A. The proposed well will be drilled to a TD of approximately 14,000' (TVD) and 14,600' MD. The location and work area have been staked. It is approximately 17 miles South East of Carlsbad, New Mexico.

In accordance with requirements stipulated in Federal Onshore Oil and Gas Order No. 1 under 43 CFR 3162.1, our Application for Permission to Drill and supporting evidence is hereby submitted.

I. Application for Permit to Drill:

1. Form 3160-3, Application for Permit to Drill.

2. Form C-102 Location and Acreage Dedication Plat certified by Gary Eidson Registered Land Surveyor No. 12641 in the State of New Mexico, dated May 28, 2002.

3. The elevation of the unprepared ground is 2986 feet above sea level.

4. The geologic name of the surface formation is Permian.

5. Rotary drilling equipment will be utilized to drill the well to a measured depth of 14,600', and run casing. This equipment will then be rigged down and the well will be completed with a pulling unit.

6. Proposed total depth is 14,000' TVD.

1100 MIRA VISTA BLVD., PLANO, TX 75093-4698 PHONE (972) 931-0700 FAX (972) 931-0701

7. Estimated tops of important geologic markers.

Lamar	3070' TVD
Delaware	3140' TVD
Cherry Canyon	4170' TVD
Bone Springs	6865' TVD
3rd BS SS	9786' TVD
Wolfcamp	10139' TVD
Strawn	12025' TVD
Atoka	12147' TVD
Morrow	12918' TVD

8. Estimated depths at which anticipated water, oil, gas or other mineral bearing formations are expected to be encountered:

Primary Objective:	Morrow	12918' TVD
Secondary Objectives:	Strawn	12025' TVD
	Atoka	12147' TVD

9. The proposed casing program is as follows:

Surface: 16" OD J-55 BUTT T&C casing set at 400' TVD 65 #/

1st Intermediate: 10-3/4" OD BUTT T&C casing set at 3100' TVD 45.5 #/

2nd Intermediate: 7-5/8" 33.7 #/FT N-80 and S-95 LT&C casing set @ 10330' TVD

Production Liner: 5-1/2" 20#/FT N-80 FL4S Liner set @ 10000-14000' TVD

10. Casing setting depth and cementing program:

A. 16" surface casing set at 400', in a 20" hole. Circulate cement with 550sx Class C with additives.

If cement does not circulate, a temperature survey will be run to find the TOC and then finish cementing to surface through 1" using Class C cement with additives.

B. 10-3/4" 1st intermediate casing set at 3100' in a 14-3/4" hole. Circulate cement with 1800sx 35:65 POZ/Class C and 200sx Class C cement with additives.

C. 7-5/8" 2nd intermediate casing set at 10330' TVD in 8-3/4" hole. Cement with 1500sx Class C cement with additives.

D. 5-1/2" production liner set from 10,000' to 14,000' TVD. Cement with 340sx Class C cement with additives.

Note: Cement volumes may need to be adjusted to hole caliper.

11. Pressure Control Equipment

0' – 400' None

400' – 3100' 20" Hydril and Divertor System.

3100' – 14000' TVD 13-3/8" 5000# ram type preventers with one set blind rams and one set pipe rams and a 3000# annular type preventer. A choke manifold and 120 gallon accumulator with floor and remote operating stations and auxiliary power system. Rotating head below 10330' TVD. See attached Sketch of BOP Equipment.

A kelly cock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.

After setting the 7-5/8" casing, the blowout preventers and related control equipment shall be pressure tested to 5000 psi and 3000 psi respectively. Any equipment failing to test satisfactorily shall be repaired or replaced. Results of the BOP test will be recorded in the Driller's Log. The BOP's will be maintained ready for use until drilling operations are completed.

BOP drills will be conducted as necessary to assure that equipment is operational and each crew is properly trained to carry out emergency duties.

Accumulator shall maintain a pressure capacity reserve at all times to provide for the close-open-

close sequence of the blind and pipe rams of the hydraulic preventers.

12. Mud Program:

0 – 350'	Spud with fresh water gel flocculated with lime and pretreated with 6-8 lbs/bbl cottonseed hulls, 2-4 lbs/bbl fiber, and 2 lbs/bbl paper for possible severe loss circulation zone 100-200'. If necessary drill without returns, or if full returns cannot be established at casing point mix 150 bbls viscous mud treated with LCM as above and spot on bottom before coming out of the hole to run casing.
350' – 3100'	Drill out with brine water through a controlled section of the reserve pit. Add paper for seepage control or to sweep hole, as needed. At casing point, sweep hole with 150± bbls viscous mud with 6-8 lbs/bbl LCM before coming out of the hole to run casing.
3100' – 10330' TVD	Drill out with fresh water through a controlled section of the reserve pit. Use paper, sea mud, and salt water gel slugs to sweep the hole and control seepage, as necessary. To control corrosion maintain ph 8.5 to 9.5 with caustic soda and use corrosion chemicals from 3100' to total depth.
10330' – 14000' TVD	Circulate steel pits and mud up to 36-40 sec/qt viscosity, 6 to 8cc API filtrate, and 3.0+% KCL.

13. A direction well plan prepared by Directional Drilling Contractors LLC is attached which represents the proposed well plan.

14. Testing, Logging and Coring Program:

    A. Testing program: None anticipated.

    B. Mud logging program: Two man unit from 8000' to TD.

    C. Electric logging program: CNL/LDT/CAL/GR, DLL/CAL/GR.

    D. Coring program: Possible sidewall rotary cores.

15. No abnormal temperatures, or H2S gas are anticipated. Adequate flare lines will be installed off the mud/gas separator where gas may be flared safely.

16. Anticipated starting date is September 1, 2002 subject to rig availability. It should take approximately 60 days to drill the well and another 10 days to complete.

17. The Multi-Point Surface Use & Operation Plan is attached.

18. If the Bureau of Land Management needs additional information to evaluate this application, please advise.

Very truly yours,

Michael S. Daugherty
Vice President, Operations

MSD/cb/NashUnit#53-BLM-APTD

Attachments

MULTI-POINT SURFACE USE AND OPERATIONS PLAN

MURCHISON OIL & GAS, INC.
NASH UNIT #53
EDDY COUNTY, NEW MEXICO
LEASE NO. NM-0556859-A

This plan is submitted with the Application for Permit to Drill the above described well. The purpose of the plan is to identify the location of the proposed well, the proposed construction activities and operations plan, the magnitude of necessary surface disturbance involved and the procedures to be followed in rehabilitating the surface after completion of the operation so that a complete appraisal may be made of the environmental effects associated with the operation.

The well, and work area have been staked by a registered New Mexico land surveyor. Mesa Field Services Archaeological Service has been engaged to make an archaeological reconnaissance of the work area. Their findings concerning cultural resources will be reported to the Bureau of Land Management.

1. Existing Roads

   A copy of a USGS "Remuda Basin, New Mexico" Topographic map is attached showing the proposed location. The well location is spotted on this map, which also shows the existing road system.

   Directions to location: Travel East from Loving, NM on State Highway 31 and turn southeast on State Highway 128 and go 4 miles, then east 1 mile on lease road then north 2/10 mile to the location.

2. Planned Access Road

   A. An existing lease access road will be used to gain access.

   B. Surfacing material: Six inches of caliche and water, compacted and graded.

   C. Maximum Grade: Less than 3%

   D. Turnouts: None needed.

   E. Drainage Design: N/A.

   F. Culverts: None needed.

   G. Cuts and Fills: Leveling the location will require minimal cuts or fills.

H. Gates or Cattleguards: None required.

3. Existing wells within a one mile radius of the proposed development well are shown on the attached map.

4. Location of Existing and/or Proposed Facilities

A. If the well is productive, production facilities will be constructed on the well pad. The facility will consist of a stack pack, one 300 bbl oil tank and one 300 bbl fiberglass water tank. All permanent above ground facilities will be painted in accordance with the BLM's painting guidelines simulating the color of sandstone brown.

B. All site security guidelines identified in 43 CFR 3162.7 regulations will be adhered to and a site security plan will be submitted for the Nash Unit #53 tank battery. All product lines entering and leaving hydrocarbon storage tanks will be effectively sealed.

5. Location and Type of Water Supply

Fresh water and brine water will be used to drill this well. It will be purchased from a supply in Carlsbad, NM vicinity and transported to the well site.

6. Source of Construction Materials

Caliche for surfacing the well pad will be obtained from a Federal pit located in Eddy County, New Mexico.

7. Method of Handling Waste Disposal

A. A closed loop mud system will be utilized for drilling operations and water for drilling will be stored in steel tanks.

B. Drill cuttings will be collected in steel bins and transported to a lined pit to be located approximately 685' from the north line and 1295' from the west line of Section 18, T23S, R30E. This is the location and drilling pad for the Nash Unit #7 which has been P&A'd and is approximately 1 mile from the rig. A sketch of the proposed land farm pit is attached.

C. Water produced during tests will be stored in test tanks and transported to authorized disposal facility. Oil produced during tests will be stored in test tanks until sold.

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

E. Trash, waste paper, garbage and junk will be collected in steel trash bins and removed after drilling and completion operations are completed. All waste material will be contained to prevent scattering by the wind.

F. All trash and debris will be removed from the wellsite within 30 days after finishing drilling and/or completion operations.

8. Ancillary Facilities

A. None needed.

9. Wellsite Layout

A. The location and dimensions of the well pad, steel mud pits and location of major rig components are shown on the attached well site layout sketch. If Patterson Drilling Company Rig #18 is not utilized a comparable rig will be substituted. The V-door will be to the North.

B. Leveling of the wellsite will be minimal since this is an existing wellsite.

C. A closed loop mud system will be utilized for drilling operations and water for drilling will be stored in steel tanks.

D. Drill cuttings will be collected in steel bins and transported to a lined pit to be located approximately 685' from the north line and 1295' from the west line of Section 18, T23S, R30E. This is the location and drilling pad for the Nash Unit #7 which has been P&A'd and is approximately 1 mile from the rig. A sketch of the proposed land farm pit is attached.

E. The pad has been staked and flagged.

10. Plans for Restoration of the Surface

A. After completion of drilling and/or completion operations, all equipment and other materials not needed for operations will be removed. The land farm pit will be filled. The location will be cleaned of all trash and junk to leave the well site in as aesthetically pleasing condition as possible.

B. After abandonment of the well, surface restoration will be in accordance with the land owner. This will be accomplished as expeditiously as possible. Barring unforeseen problems, all pits will be filled and leveled within 90 days after abandonment.

11. Other Information

A. Topography: The location is a flat plain. GL elevation is 2986'.

B. Soil: Sandy clay loams.

C. Flora and Fauna: The vegetative cover is generally sparse consisting of mesquite, yucca, shinnery oak, sandsage and perennial native range grasses. Wildlife in the area is also sparse consisting of coyotes, rabbits, rodents, reptiles, dove and quail.

D. Ponds and Streams: A Playa Lake is located within .2 miles to the north and west. See attached topographic map.

E. Residences and Other Structures: There are no occupied dwellings within a 1 mile radius of the location.

F. Archaeological, Historical and Cultural Sites: Cultural resources have been recorded in the area. Mesa Field Services Archaeological Service has been engaged to make an archaeological reconnaissance of the work area.

G. Land Use: Cattle ranching.

H. Surface Ownership: The surface is public land leased by the BLM to Hart M. Greenwood, Jr., P.O. Box 104, Carlsbad, NM. 88221. They will be notified of our intention to drill prior to any activity.

Upon completion of the well, any plastic material used to line the pits or sumps will be cut off below ground level as far as possible and disposed of before the pits are covered. All unattended pits containing liquid will be fenced and the liquid portion allowed to evaporate before the pits are broken and backfilled.

All waste associated with the drilling operation will be contained in steel bins and removed. All garbage and debris left on site will be removed within 30 days of the final completion. The well site, if a producer, will be maintained and kept clean of all trash and litter which detracts from the surrounding environment. Equipment will be maintained in accordance with good operating practice.

After the wellsite is cleaned and pits and sumps backfilled, any obstruction to the natural drainage will be corrected by ditching or terracing. All disturbed areas, including any access road no longer needed, will be ripped. Those areas will be reseeded with grass if, in the opinion of the land owner, it is required.

12. Operator's Representatives

The Field representatives responsible for assuring compliance with the approved surface use and operations plan are as follows:

Michael S. Daugherty
1100 Mira Vista Blvd.
Plano, TX. 75093-4698
Office Phone: (972) 931-0700
Home Phone: (972) 618-0792

Randy Ford
210 W. Wall St., Suite 600
Midland, TX. 79701
Office Phone: (915) 682-0440

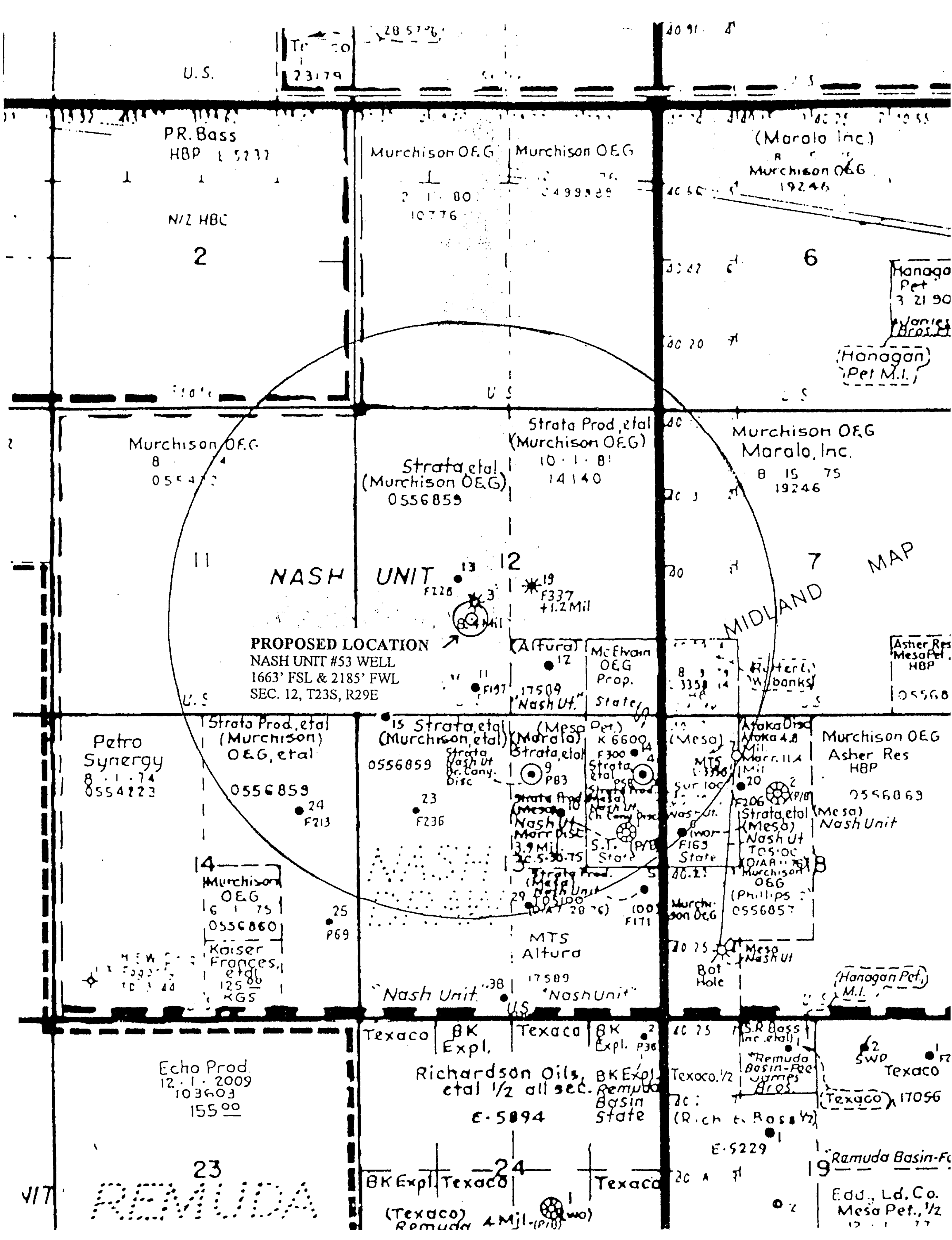
13. Certification

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 presently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and, that the work associated with the operations proposed herein will be performed by MOGI and its contractors and sub-contractors in conformity with this plan and the terms and conditions under which it is approved.

Michael S. Daugherty

6/21/02
Date

Vice President, Operations
Murchison Oil & Gas, Inc.



PROPOSED LOCATION
NASH UNIT #53 WELL
1663' FSL & 2185' FWL
SEC. 12, T23S, R29E
NASH UNIT
MIDLAND MAP
P.R. Bass
HBP
N/2 HBC
Murchison O&G
(Maralo Inc.)
Murchison O&G
19246
Hanagan Pet
(Hanagan Pet M.I.)
Strata Prod, etal
(Murchison O&G)
10 · 1 · 81
14140
Strata etal
(Murchison O&G)
0556859
Murchison O&G
Maralo, Inc.
19246
F337
+1.2 Mil
(Altura)
McElvain O&G Prop.
State
Hunter, Wilbanks
Asher Res
Petro Synergy
0554223
Strata Prod, etal
(Murchison)
O&G, etal
0556859
Strata, etal
(Murchison, etal)
(Mesa Pet.)
(Maralo)
Strata, etal
(Meso)
MTS
Murchison O&G
Asher Res
HBP
Strata, etal
(Mesa)
Nash Unit
Nash Ut
Murchison O&G
0556860
Kaiser Frances, etal
Murchison O&G
(Phillips)
MTS
Altura
17589
"Nash Unit"
"Nash Unit"
Bot Hole
Mesa Nash Ut
(Hanagan Pet, M.I.)
Texaco
BK Expl.
Texaco
BK Expl.
Echo Prod.
12 · 1 · 2009
103603
155.00
Richardson Oils, etal 1/2 all sec.
BK Expl
Remuda Basin State
E-5894
Texaco, 1/2
S.R. Bass Inc., etal
Remuda Basin-Fee
James Bros
(Texaco)
17056
SWD
Texaco
(Rich. t. Bass 1/2)
E-5229
Remuda Basin-Fe
BK Expl.
Texaco
Texaco
(Texaco)
Remuda
4 Mil
Edd., Ld. Co.
Mesa Pet., 1/2
REMUDA
NASH
2
6
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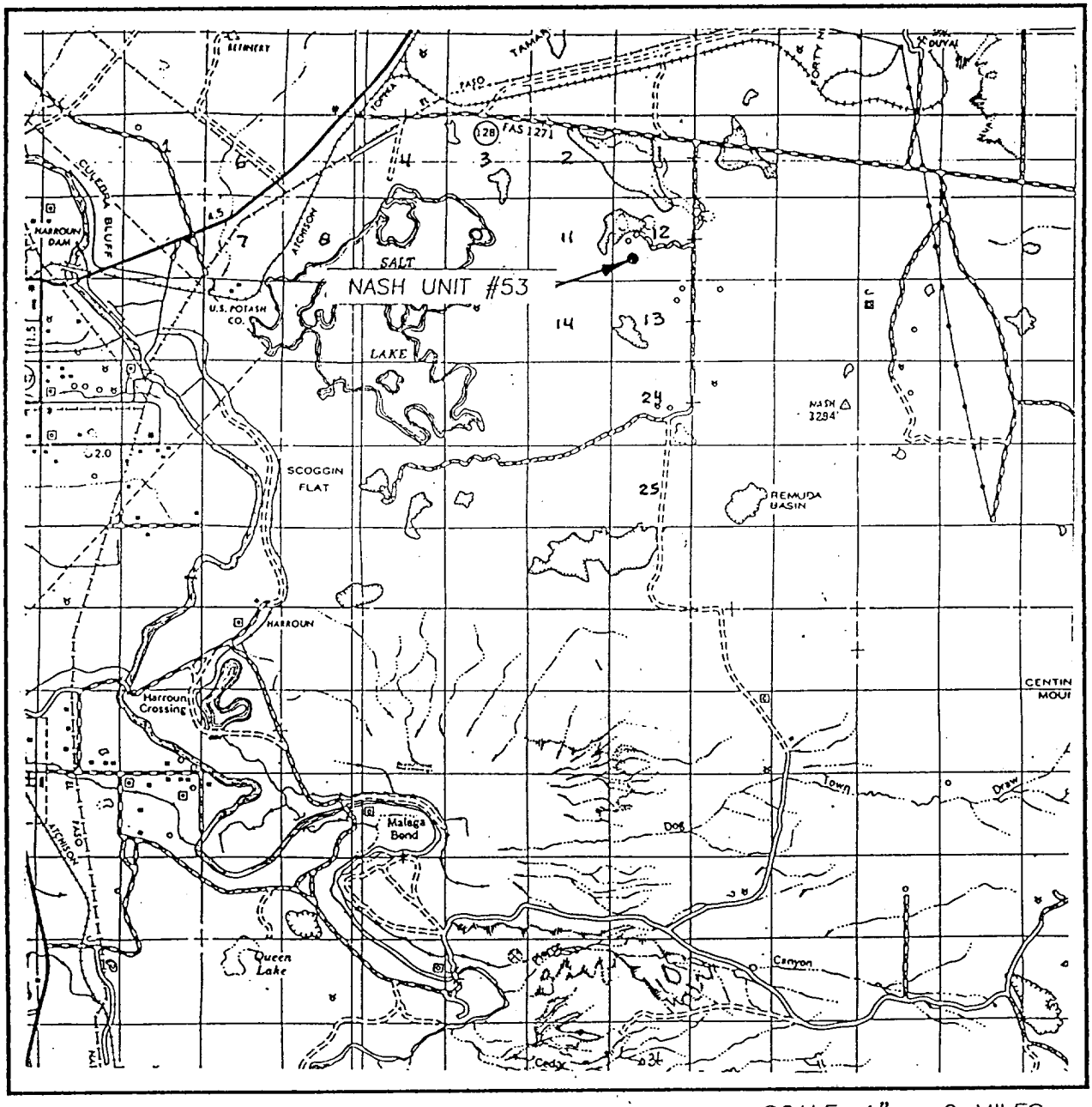
U.S.

VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 12 TWP. 23-S RGE. 29-E

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 1663' FSL & 2185' FWL

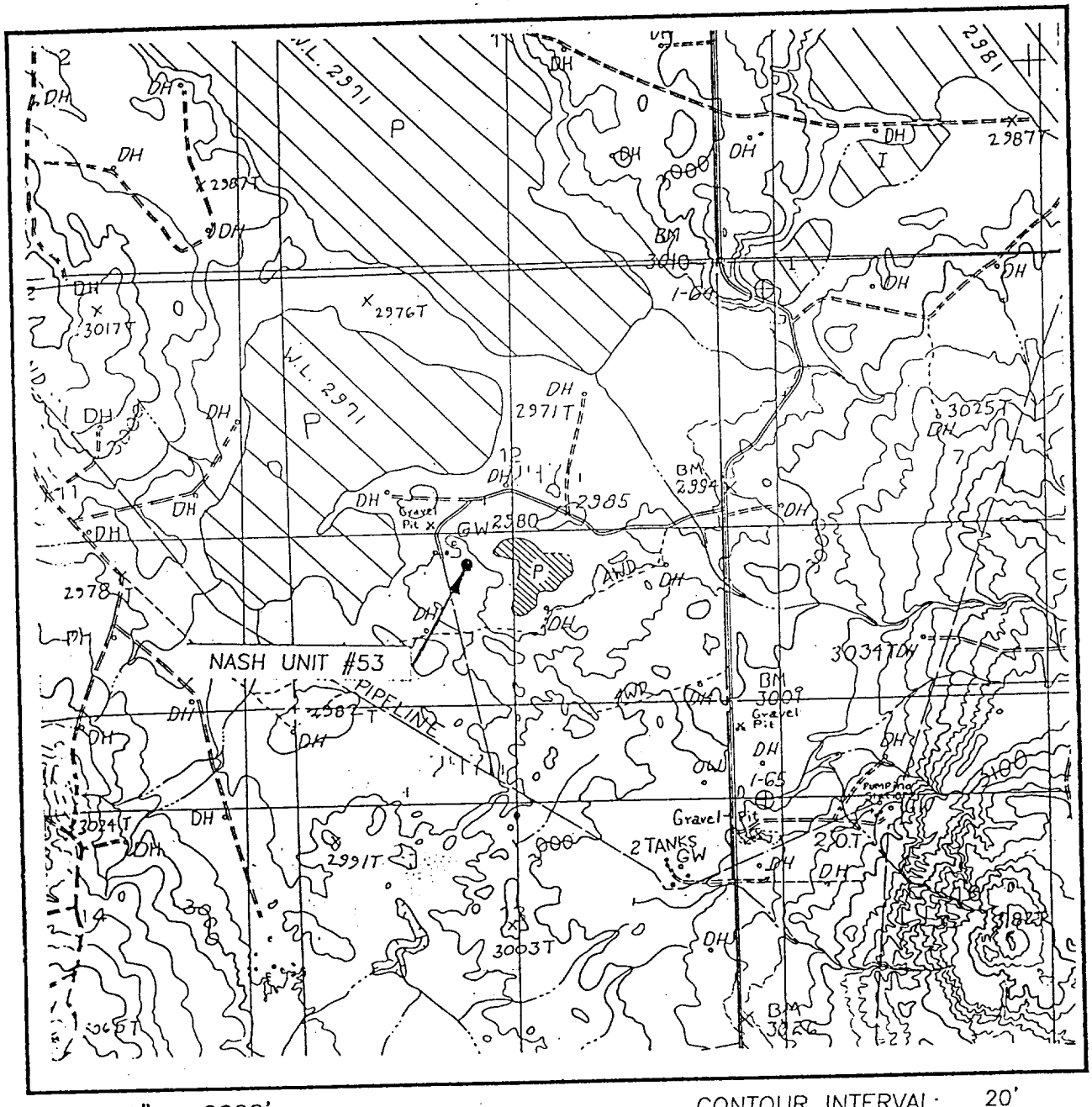
ELEVATION 2986'

OPERATOR MURCHISON OIL & GAS INC.

LEASE NASH UNIT

JOHN WEST SURVEYING
HOBBS, NEW MEXICO
(505) 393-3117

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL: 20'
REMADA BASIN, N.M.

SEC. 12 TWP. 23-S RGE. 29-E

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 1663' FSL & 2185' FWL

ELEVATION 2986'

OPERATOR MURCHISON OIL & GAS INC.

LEASE NASH UNIT

U.S.G.S. TOPOGRAPHIC MAP
REMADA BASIN, N.M.

JOHN WEST SURVEYING
HOBBS, NEW MEXICO
(505) 393-3117

MIDLAND, TX (915) 684-7446
OKLAHOMA CITY, OK (405) 810-0021
CORPUS CHRISTI, TX (361) 851-2473

AMBAR LONE STAR FLUID SERVICES

HOUSTON, TX (281) 877-120
LAFAYETTE, LA (337) 237-530
NEW ORLEANS, LA (504) 566-041

Subject	Page No.	of
File	By	Date

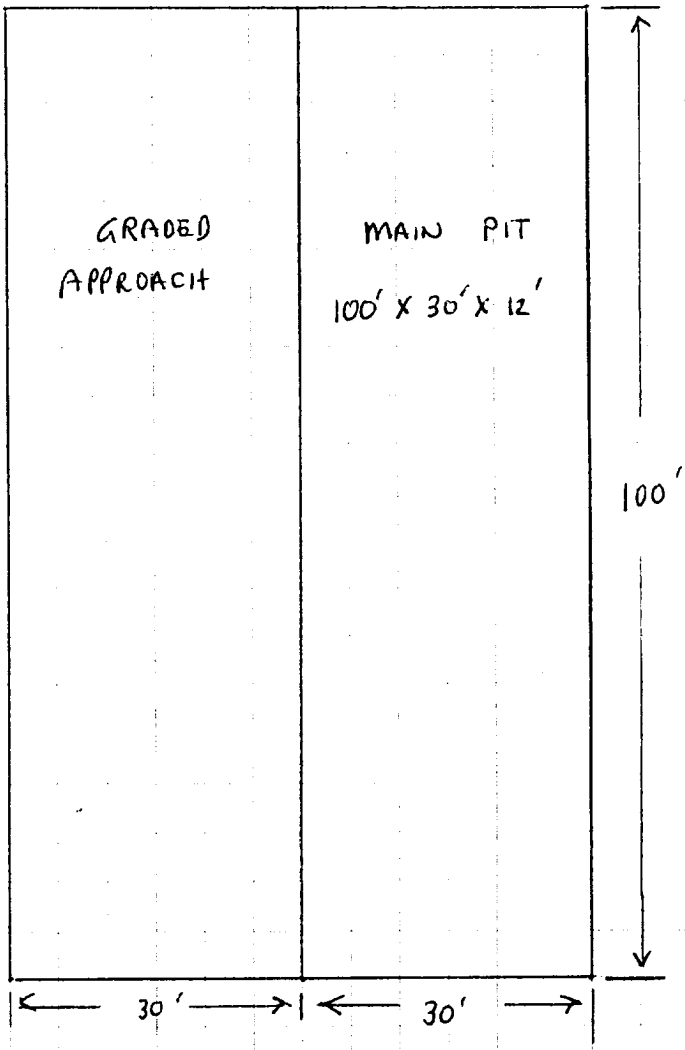
MURCHISON OIL & GAS INC

PROPOSED LAND FARM PIT

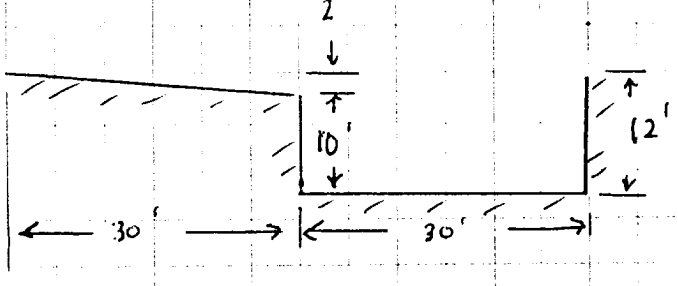
NASH UNIT # 53

SEC 12 T23S R29E
(WELL LOCATION)

PLAN VIEW



SIDE VIEW



DDC
Directional Drilling Contractors, LLC.

Job Number: Proposal
Company: MURCHISON OIL & GAS, INC.
Lease/Well: Nash #53
Location: Eddy County
Rig Name: N/A
RKB: Ground Level
G.L. or M.S.L.: 2987'

State/Country: New Mexico
Declination: 9.0
Grid: 1.8
File name: C:\WINSERVE\MURNA53.SVY
Date/Time: 04-Jun-02 / 11:13
Curve Name: Nash # 53 (ST @ 3200')

WINSERVE SURVEY CALCULATIONS
Minimum Curvature Method
Vertical Section Plane 56.09
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	Dogleg Severity Deg/100	CLOSURE Distance FT	CLOSURE Direction Deg
10-3/4" Csg Pt.									
3100.00	.00	.00	3100.00	.00	.00	.00	.00	.00	.00
ST Point w/Gradual Nudge to 400' V.S.									
3200.00	.00	8.57	3200.00	.00	.00	.00	.00	.00	.00
3300.00	.35	56.09	3300.00	.17	.25	.30	.35	.30	56.08
3400.00	.70	56.09	3400.00	.68	1.01	1.22	.35	1.22	56.08
3500.00	1.05	56.09	3499.98	1.53	2.28	2.74	.35	2.74	56.09
3600.00	1.40	56.09	3599.96	2.72	4.05	4.88	.35	4.88	56.09
3700.00	1.75	56.09	3699.92	4.25	6.33	7.62	.35	7.62	56.09
3800.00	2.10	56.09	3799.87	6.12	9.11	10.97	.35	10.97	56.09
3900.00	2.45	56.09	3899.79	8.33	12.40	14.94	.35	14.94	56.09
4000.00	2.79	56.09	3999.68	10.88	16.19	19.51	.35	19.51	56.09
4100.00	3.14	56.09	4099.55	13.77	20.49	24.69	.35	24.69	56.09
4200.00	3.49	56.09	4199.38	17.00	25.29	30.48	.35	30.48	56.09
4300.00	3.84	56.09	4299.18	20.57	30.60	36.88	.35	36.88	56.09
4400.00	4.19	56.09	4398.93	24.48	36.42	43.88	.35	43.88	56.09
4500.00	4.54	56.09	4498.64	28.73	42.74	51.50	.35	51.50	56.09
4600.00	4.89	56.09	4598.30	33.32	49.56	59.72	.35	59.72	56.09
4700.00	5.24	56.09	4697.91	38.24	56.89	68.55	.35	68.55	56.09
4800.00	5.59	56.09	4797.46	43.51	64.72	77.99	.35	77.99	56.09
4900.00	5.94	56.09	4896.96	49.11	73.06	88.03	.35	88.03	56.09
5000.00	6.29	56.09	4996.39	55.05	81.90	98.68	.35	98.68	56.09

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	Dogleg Severity Deg/100	CLOSURE Distance FT	CLOSURE Direction Deg
5100.00	6.64	56.09	5095.75	61.33	91.24	109.94	.35	109.94	56.09
5200.00	6.99	56.09	5195.05	67.95	101.08	121.80	.35	121.80	56.09
5300.00	7.34	56.09	5294.27	74.91	111.43	134.27	.35	134.27	56.09
5400.00	7.69	56.09	5393.41	82.20	122.28	147.34	.35	147.34	56.09
5500.00	8.04	56.09	5492.47	89.83	133.63	161.02	.35	161.02	56.09
5600.00	8.38	56.09	5591.44	97.80	145.48	175.30	.35	175.30	56.09
5700.00	8.73	56.09	5690.33	106.10	157.83	190.18	.35	190.18	56.09
5800.00	9.08	56.09	5789.12	114.74	170.68	205.67	.35	205.67	56.09
5900.00	9.43	56.09	5887.82	123.72	184.03	221.75	.35	221.75	56.09
6000.00	9.78	56.09	5986.42	133.03	197.89	238.44	.35	238.44	56.09
6100.00	10.13	56.09	6084.91	142.68	212.23	255.73	.35	255.73	56.09
6200.00	10.48	56.09	6183.30	152.66	227.08	273.62	.35	273.62	56.09
6300.00	10.83	56.09	6281.57	162.97	242.43	292.11	.35	292.11	56.09
6400.00	11.18	56.09	6379.73	173.62	258.27	311.20	.35	311.20	56.09
6500.00	11.53	56.09	6477.78	184.61	274.61	330.89	.35	330.89	56.09
6600.00	11.88	56.09	6575.70	195.92	291.44	351.18	.35	351.18	56.09
6700.00	12.23	56.09	6673.49	207.57	308.77	372.06	.35	372.06	56.09
6800.00	12.58	56.09	6771.16	219.56	326.60	393.54	.35	393.54	56.09
Target @ 6800' TVD w/400' V.S.									
6829.56	12.68	56.09	6800.00	223.16	331.96	400.00	.35	400.00	56.09
6859.56	13.58	56.09	6829.22	226.96	337.62	406.81	3.00	406.81	56.09
6889.56	14.48	56.09	6858.32	231.02	343.65	414.09	3.00	414.09	56.09
6919.56	15.38	56.09	6887.31	235.33	350.07	421.81	3.00	421.81	56.09
6949.56	16.28	56.09	6916.17	239.90	356.86	430.00	3.00	430.00	56.09
6979.56	17.18	56.09	6944.90	244.72	364.02	438.63	3.00	438.63	56.09
7009.56	18.08	56.09	6973.49	249.79	371.57	447.72	3.00	447.72	56.09
7039.56	18.98	56.09	7001.93	255.10	379.48	457.25	3.00	457.25	56.09
7069.56	19.88	56.09	7030.22	260.67	387.76	467.23	3.00	467.23	56.09
EOB w/20.2° Inc. @ 7079' MD/7039' TVD									
7078.84	20.16	56.09	7038.94	262.45	390.40	470.41	3.00	470.41	56.09
7178.84	20.16	56.09	7132.82	281.67	419.00	504.87	.00	504.87	56.09
7278.84	20.16	56.09	7226.69	300.90	447.60	539.34	.00	539.34	56.09
7378.84	20.16	56.09	7320.57	320.13	476.20	573.80	.00	573.80	56.09
7478.84	20.16	56.09	7414.44	339.35	504.80	608.26	.00	608.26	56.09
7578.84	20.16	56.09	7508.32	358.58	533.40	642.72	.00	642.72	56.09
7678.84	20.16	56.09	7602.19	377.81	562.00	677.18	.00	677.18	56.09
7778.84	20.16	56.09	7696.06	397.04	590.60	711.65	.00	711.65	56.09
7878.84	20.16	56.09	7789.94	416.26	619.20	746.11	.00	746.11	56.09
7978.84	20.16	56.09	7883.81	435.49	647.80	780.57	.00	780.57	56.09
8078.84	20.16	56.09	7977.69	454.72	676.40	815.03	.00	815.03	56.09
8178.84	20.16	56.09	8071.56	473.94	705.00	849.50	.00	849.50	56.09
8278.84	20.16	56.09	8165.43	493.17	733.60	883.96	.00	883.96	56.09

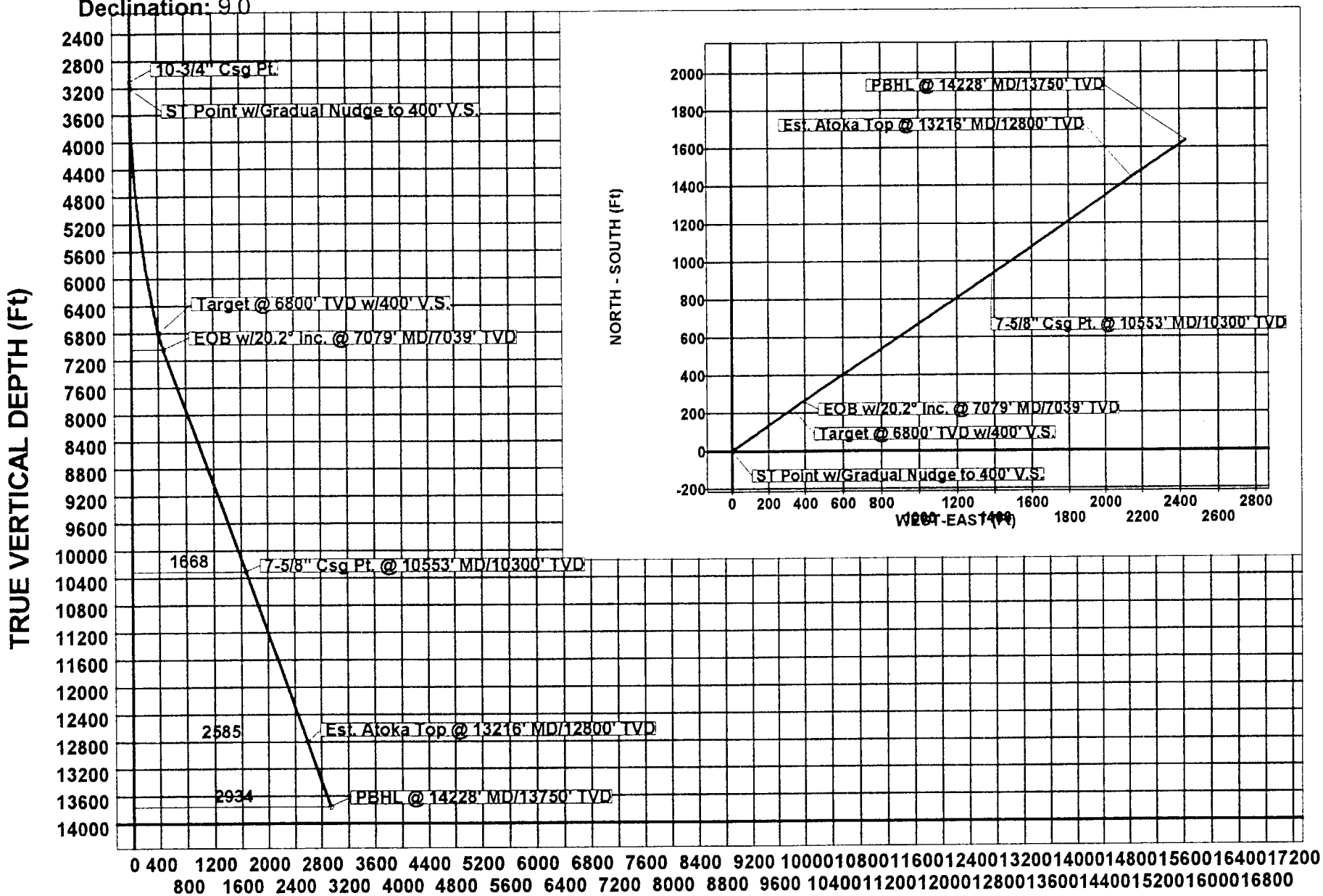
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	Dogleg Severity Deg/100	CLOSURE Distance FT	CLOSURE Direction Deg
8378.84	20.16	56.09	8259.31	512.40	762.19	918.42	.00	918.42	56.09
8478.84	20.16	56.09	8353.18	531.63	790.79	952.88	.00	952.88	56.09
8578.84	20.16	56.09	8447.06	550.85	819.39	987.34	.00	987.34	56.09
8678.84	20.16	56.09	8540.93	570.08	847.99	1021.81	.00	1021.81	56.09
8778.84	20.16	56.09	8634.81	589.31	876.59	1056.27	.00	1056.27	56.09
8878.84	20.16	56.09	8728.68	608.54	905.19	1090.73	.00	1090.73	56.09
8978.84	20.16	56.09	8822.55	627.76	933.79	1125.19	.00	1125.19	56.09
9078.84	20.16	56.09	8916.43	646.99	962.39	1159.65	.00	1159.65	56.09
9178.84	20.16	56.09	9010.30	666.22	990.99	1194.12	.00	1194.12	56.09
9278.84	20.16	56.09	9104.18	685.44	1019.59	1228.58	.00	1228.58	56.09
9378.84	20.16	56.09	9198.05	704.67	1048.19	1263.04	.00	1263.04	56.09
9478.84	20.16	56.09	9291.92	723.90	1076.79	1297.50	.00	1297.50	56.09
9578.84	20.16	56.09	9385.80	743.13	1105.39	1331.97	.00	1331.97	56.09
9678.84	20.16	56.09	9479.67	762.35	1133.99	1366.43	.00	1366.43	56.09
9778.84	20.16	56.09	9573.55	781.58	1162.59	1400.89	.00	1400.89	56.09
9878.84	20.16	56.09	9667.42	800.81	1191.19	1435.35	.00	1435.35	56.09
9978.84	20.16	56.09	9761.30	820.04	1219.79	1469.81	.00	1469.81	56.09
10078.84	20.16	56.09	9855.17	839.26	1248.39	1504.28	.00	1504.28	56.09
10178.84	20.16	56.09	9949.04	858.49	1276.99	1538.74	.00	1538.74	56.09
10278.84	20.16	56.09	10042.92	877.72	1305.59	1573.20	.00	1573.20	56.09
10378.84	20.16	56.09	10136.79	896.94	1334.19	1607.66	.00	1607.66	56.09
10478.84	20.16	56.09	10230.67	916.17	1362.79	1642.13	.00	1642.13	56.09
7-5/8" Csg Pt. @ 10553' MD/10300' TVD									
10552.70	20.16	56.09	10300.00	930.37	1383.92	1667.58	.00	1667.58	56.09
10578.84	20.16	56.09	10324.54	935.40	1391.39	1676.59	.00	1676.59	56.09
10678.84	20.16	56.09	10418.41	954.63	1419.99	1711.05	.00	1711.05	56.09
10778.84	20.16	56.09	10512.29	973.85	1448.59	1745.51	.00	1745.51	56.09
10878.84	20.16	56.09	10606.16	993.08	1477.19	1779.97	.00	1779.97	56.09
10978.84	20.16	56.09	10700.04	1012.31	1505.79	1814.44	.00	1814.44	56.09
11078.84	20.16	56.09	10793.91	1031.54	1534.39	1848.90	.00	1848.90	56.09
11178.84	20.16	56.09	10887.79	1050.76	1562.99	1883.36	.00	1883.36	56.09
11278.84	20.16	56.09	10981.66	1069.99	1591.59	1917.82	.00	1917.82	56.09
11378.84	20.16	56.09	11075.53	1089.22	1620.19	1952.28	.00	1952.28	56.09
11478.84	20.16	56.09	11169.41	1108.44	1648.79	1986.75	.00	1986.75	56.09
11578.84	20.16	56.09	11263.28	1127.67	1677.39	2021.21	.00	2021.21	56.09
11678.84	20.16	56.09	11357.16	1146.90	1705.99	2055.67	.00	2055.67	56.09
11778.84	20.16	56.09	11451.03	1166.13	1734.59	2090.13	.00	2090.13	56.09
11878.84	20.16	56.09	11544.90	1185.35	1763.19	2124.60	.00	2124.60	56.09
11978.84	20.16	56.09	11638.78	1204.58	1791.79	2159.06	.00	2159.06	56.09
12078.84	20.16	56.09	11732.65	1223.81	1820.39	2193.52	.00	2193.52	56.09
12178.84	20.16	56.09	11826.53	1243.04	1848.99	2227.98	.00	2227.98	56.09
12278.84	20.16	56.09	11920.40	1262.26	1877.59	2262.44	.00	2262.44	56.09

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	Dogleg Severity Deg/100	CLOSURE Distance FT	CLOSURE Direction Deg
12378.84	20.16	56.09	12014.28	1281.49	1906.19	2296.91	.00	2296.91	56.09
12478.84	20.16	56.09	12108.15	1300.72	1934.79	2331.37	.00	2331.37	56.09
12578.84	20.16	56.09	12202.02	1319.94	1963.39	2365.83	.00	2365.83	56.09
12678.84	20.16	56.09	12295.90	1339.17	1991.99	2400.29	.00	2400.29	56.09
12778.84	20.16	56.09	12389.77	1358.40	2020.59	2434.76	.00	2434.76	56.09
12878.84	20.16	56.09	12483.65	1377.63	2049.19	2469.22	.00	2469.22	56.09
12978.84	20.16	56.09	12577.52	1396.85	2077.79	2503.68	.00	2503.68	56.09
13078.84	20.16	56.09	12671.39	1416.08	2106.39	2538.14	.00	2538.14	56.09
13178.84	20.16	56.09	12765.27	1435.31	2134.99	2572.60	.00	2572.60	56.09
Est. Atoka Top @ 13216' MD/12800' TVD									
13215.83	20.16	56.09	12800.00	1442.42	2145.57	2585.35	.00	2585.35	56.09
13278.84	20.16	56.09	12859.14	1454.54	2163.59	2607.07	.00	2607.07	56.09
13378.84	20.16	56.09	12953.02	1473.76	2192.19	2641.53	.00	2641.53	56.09
13478.84	20.16	56.09	13046.89	1492.99	2220.79	2675.99	.00	2675.99	56.09
13578.84	20.16	56.09	13140.77	1512.22	2249.39	2710.45	.00	2710.45	56.09
13678.84	20.16	56.09	13234.64	1531.44	2277.99	2744.91	.00	2744.91	56.09
13778.84	20.16	56.09	13328.51	1550.67	2306.59	2779.38	.00	2779.38	56.09
13878.84	20.16	56.09	13422.39	1569.90	2335.19	2813.84	.00	2813.84	56.09
13978.84	20.16	56.09	13516.26	1589.13	2363.79	2848.30	.00	2848.30	56.09
14078.84	20.16	56.09	13610.14	1608.35	2392.39	2882.76	.00	2882.76	56.09
14178.84	20.16	56.09	13704.01	1627.58	2420.99	2917.23	.00	2917.23	56.09
PBHL @ 14228' MD/13750' TVD									
14227.83	20.16	56.09	13750.00	1637.00	2435.00	2934.11	.00	2934.11	56.09

Company: MURCHISON OIL & GAS, INC.
Lease/Well: Nash #53
Location: Eddy County
Rig Name: N/A
State/Country: New Mexico
Declination: 9.0

Grid: 1.8

DDC
Directional Drilling Contractors, LLC.



-- Nash # 53 (ST @ 3200')

VERTICAL SECTION (Ft) @ 56.09°

1/0/99

Patterson Drilling Company

Rig #10

14,500'

DRAWWORKS
Drewstor N-46
Drake: V80 Double Parmac
Twin Disc Torque Converter

ENGINES
Two Caterpillar 3408 Diesels, 475 HP ea

DERRICK
Pyramid 136', 800,000# Rated Capacity

SUBSTRUCTURE
Pyramid 18', 800,000# Setback Capacity
KB – 19', Rotary Clearance – 15'

MUD PUMPS
Pump #1: Idoco 700 w/Cat 379
Pump #2: Drewstor D-750 w/Cat 379

DRILL STRING
4-1/2" Grade E, New, 20# Drill Pipe
6-1/2" New Drill Collars
Other sizes of drill pipe and drill collars are available

BLOWOUT PREVENTERS
13 5/8" 5,000# Ram/Ram/Annular Shaffer SL

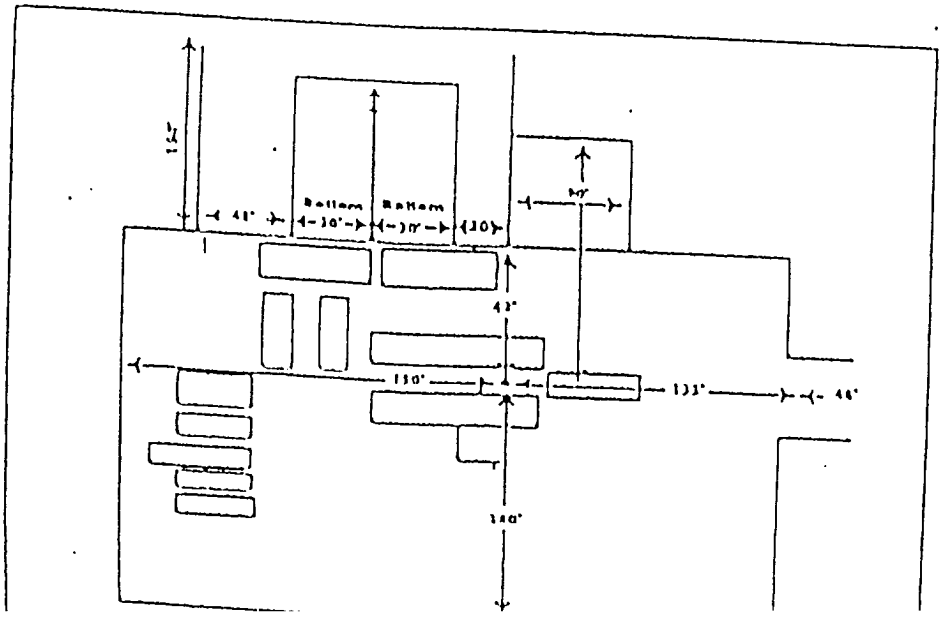
MUD SYSTEM
Shale pit, 560 bbls, suction pit, 560 bbls, 5 sub guns, 2 electric mud stirrers, 2 mud mixing pumps (6x8 centrifugal), two 70 HP electric motors, double screen high-speed vibrating shale shaker

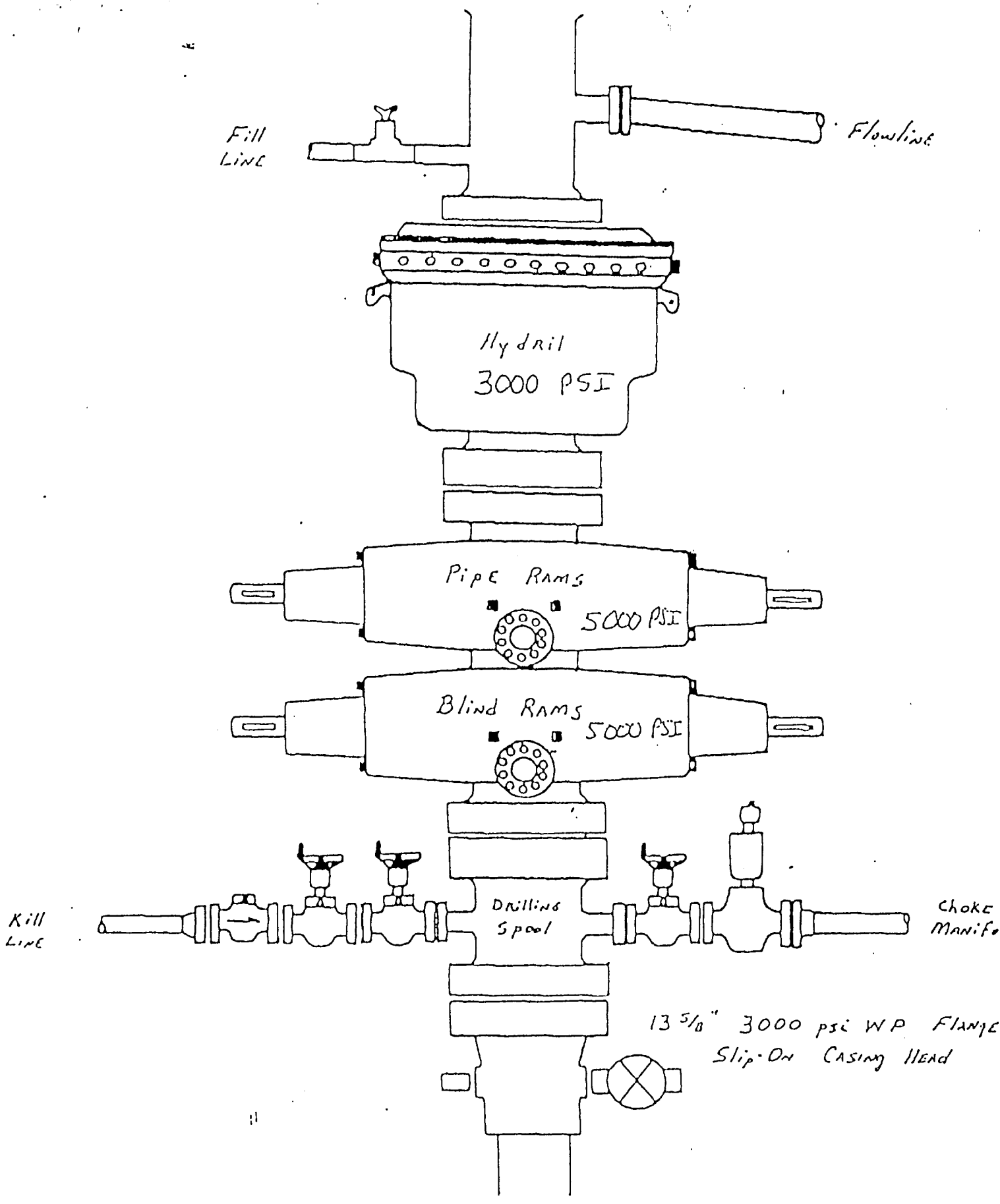
MUD HOUSE
None

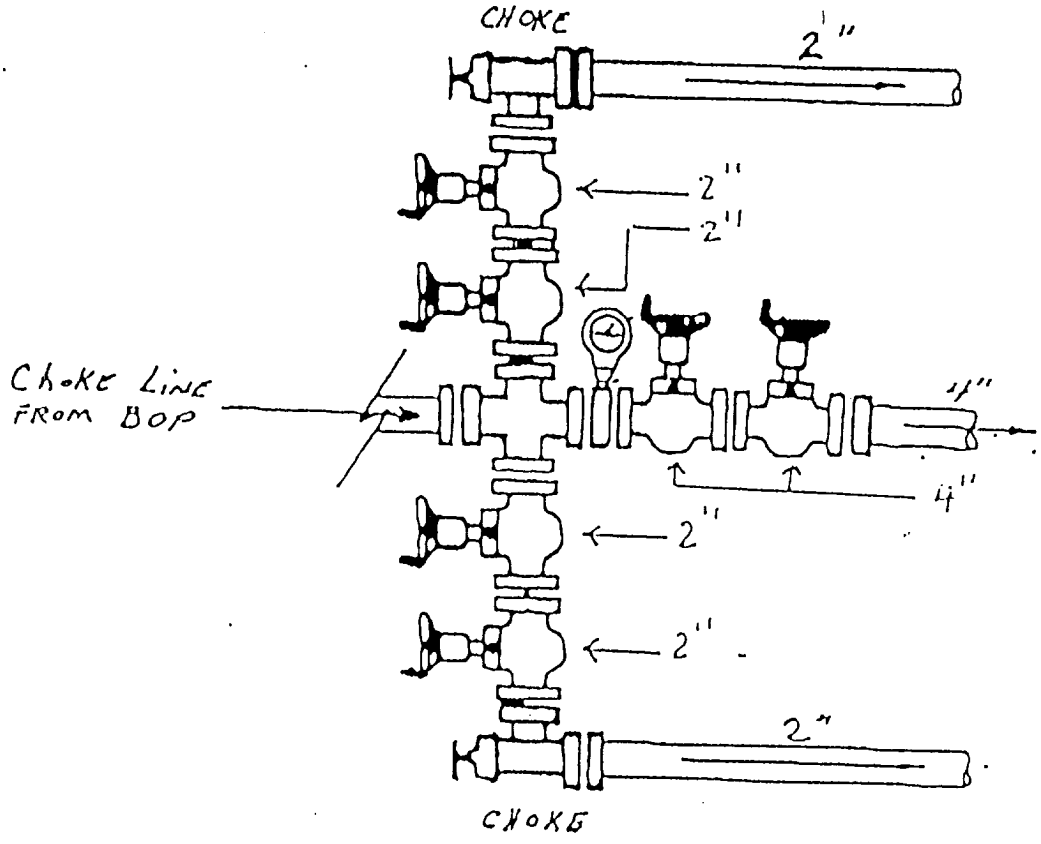
COMMUNICATIONS
24 hour direct cellular telephone

OTHER EQUIPMENT
Blocks, Gardner Denver 300 Ton
Hook, Gardner Denver 300 Ton
Swivel, 7 SX Drewstor 300 Ton
Rotary Table, Gardner Denver 27 ½"
Electrical Power, Two 275 kW Generators w/3408 Cat
Fresh Water Storage, 1000 bbls
Housing.

Hole Requirements will dictate actual Reserve Pit size (TOOLPUSHER SHOULD BE CONSULTED)




Fill Line
Flowline
Hydril
3000 PSI
Pipe Rams
5000 PSI
Blind Rams
5000 PSI
Kill Line
Drilling Spool
Choke Manifo
13 5/8" 3000 psi WP Flange
Slip-On Casing Head


CHOKE
2"
2"
2"
CHOKE LINE
FROM BOP
4"
4"
2"
2"
2"
CHOKE