

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Form C-101
May 27, 2004

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit to appropriate District Office

☐ AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

¹ Operator Name and Address MAR Oil & Gas Corp PO Box 5155, Santa Fe, New Mexico 87502		² OGRID Number 151228
³ Property Code 30415	⁴ Property Name Malmar Unit	⁵ API Number 30 - 025-36881
⁹ Proposed Pool 1 Maljamar - Grayburg - San Andres		¹⁰ Proposed Pool 2

7 Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
4	7	17S	33E		330	South	1320	West	Lea

8 Proposed 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

Additional Well Information

¹¹ Work Type Code N	¹² Well Type Code O	¹³ Cable/Rotary R	¹⁴ Lease Type Code P S	¹⁵ Ground Level Elevation 4235
¹⁶ Multiple NA	¹⁷ Proposed Depth 4700	¹⁸ Formation Graybury San Andres	¹⁹ Contractor Paterson	²⁰ Spud Date October, 2004
Depth to Groundwater 140'		Distance from nearest fresh water well 5280'		Distance from nearest surface water 10 miles
Pit: Liner: Synthetic Plastic 40 mils thick Clay <input type="checkbox"/> Pit Volume: 4500 bbls Drilling Method: Closed-Loop System <input type="checkbox"/> Fresh Water X Brine X				

21 Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
12 1/4"	8 5/8"	20-24 #	1300'	1087	Surface
7 7/8"	5 1/2"	15-15.5 #	4700'	905	500' in Surf Csg

²² Describe the proposed program. If this application is to DEEPEN or PLUG BACK, give the data on the present productive zone and proposed new productive zone. Describe the blowout prevention program, if any. Use additional sheets if necessary.

Infill drill Grayburg-San Andres to proposed depth of 4700', Surface: drill 12 1/4" hole to 1300' or 25' into top of the Salt, no blow out preventer will be used while drilling surface hole, Run 8 5/8" surface casing and cement back to surface

NU BOP, drill 7 7/8" hole to proposed TD, Run Logs, Run 51/2" casing to surface, cement production casing 500' into bottom of surface casing

Attachments: A-BOP Schematic

Attachment B - Rig Layout

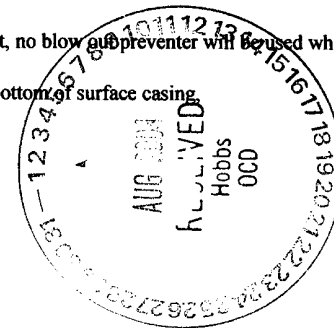
Attachment C - Cement Procedure

Attachment D - Mud Program

Attachment E - Location Plat

Attachment F - Map of Unit Boundary

Permit Expires 1 Year From Approval
Date Unless Drilling Underway



²³ I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify that the drilling pit will be constructed according to NMOCD guidelines X, a general permit ☐, or an (attached) alternative OCD-approved plan ☐.

OIL CONSERVATION DIVISION

Approved by:

Paul G. Winkler

Title:

PETROLEUM ENGINEER

Printed name: Duane C. Winkler

Title: V.P. Operations

Approval Date:

SEP 24 2004

Expiration Date:

E-mail Address: duanecwinkler@earthlink.net

Date: August 1, 2004

Phone: 505-989-1977

Conditions of Approval Attached ☐

DISTRICT I

1625 N. FRENCH DR., ROSS, NM 88240

DISTRICT II

1301 W. GRAND AVENUE, ARTESIA, NM 88210

DISTRICT III

1000 Rio Brazos Rd., Artec, NM 87410

DISTRICT IV

1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

State of New Mexico

Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102

Revised JUNE 10, 2003

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-025-36881	Pool Code 43329	Pool Name Maljanar GB/SR
Property Code 30415	Property Name MALMAR UNIT	Well Number 515
OGRID No. 151228	Operator Name MAR OIL & GAS CORPORATION	Elevation 4235'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
4	7	17-S	33-E		330'	SOUTH	1320'	WEST	LEA

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

Dedicated Acres 40	Joint or Infill	Consolidation Code	Order No.
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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

LOT 1			
41.33 AC LOT 2			
41.43 AC LOT 3			
41.53 AC LOT 4			
41.63 AC			

GEODETIC COORDINATES
 NAD 27 NME
 Y=670816.9 N
 X=692519.1 E
 LAT.=32°50'33.33" N
 LONG.=103°42'23.40" W

1320'

330'

OPERATOR CERTIFICATION

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

[Signature]
 Signature
Duane C Winkler
 Printed Name
VP Operations
 Title
7/8/04
 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 supervision, and that the same is true and correct to the best of my belief.

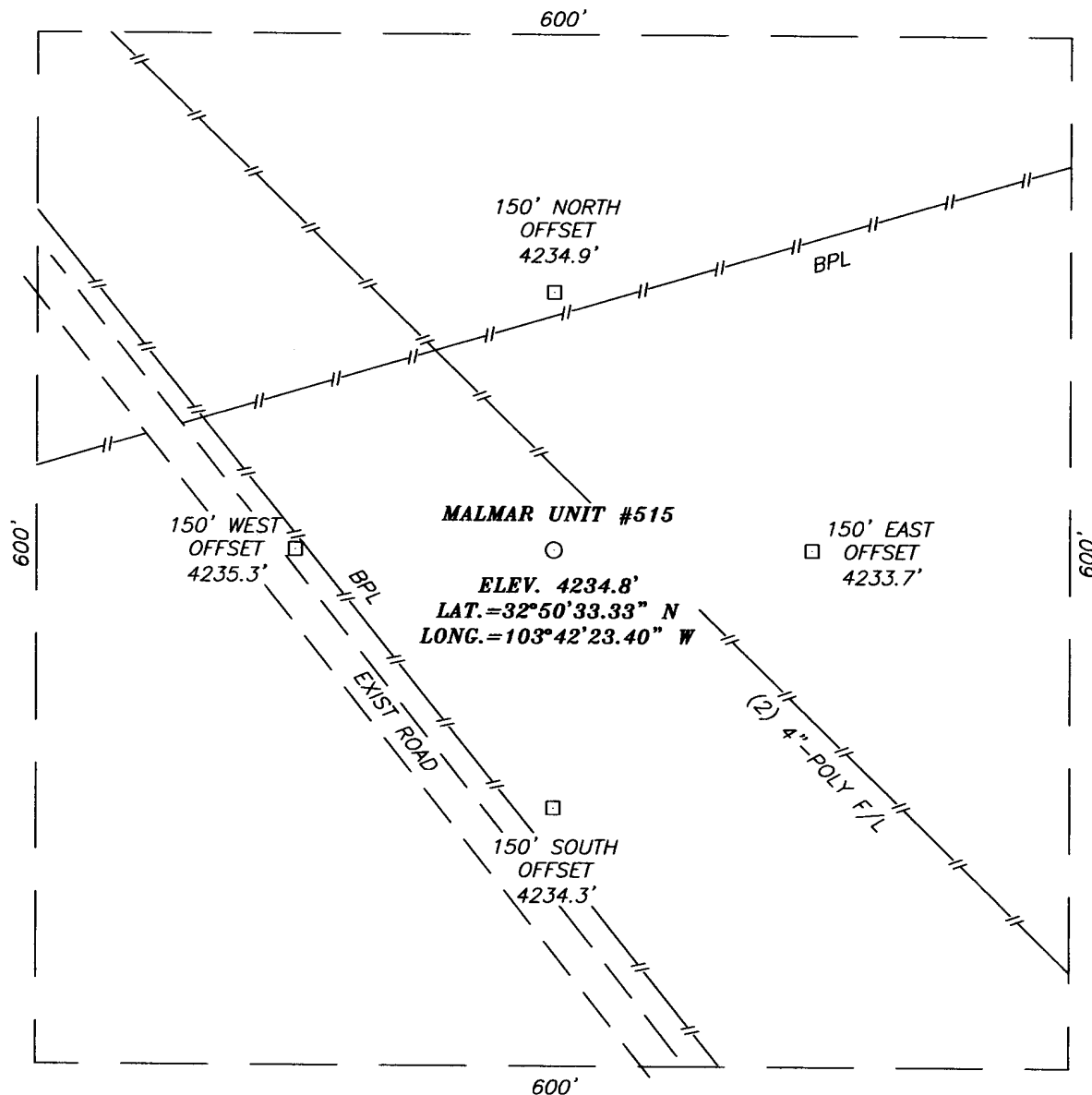
JULY 8, 2004

Date Surveyed JR

Signature & Seal of Professional Surveyor
[Signature]
GARY K. EDSON
04.11.0841

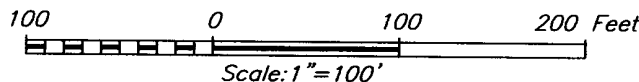
Certificate No. **GARY EDSON** 12841

SECTION 7, TOWNSHIP 17 SOUTH, RANGE 33 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

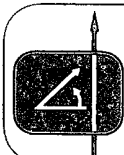
FROM THE INTERSECTION OF U.S. HWY #82 AND CO. RD. L-122 (HUMMINGBIRD RD.) GO SOUTH ON HUMMINGBIRD RD. FOR APPROX. 3.1 MILES TO A CALICHE ROAD ON THE RIGHT, TURN RIGHT (WEST) AND GO APPROX. 2.0 MILES TO CALICHE ROAD ON THE LEFT, TURN LEFT (SE) AND GO 0.4 MILES TO PROPOSED LOCATION.



MAR OIL & GAS CORPORATION

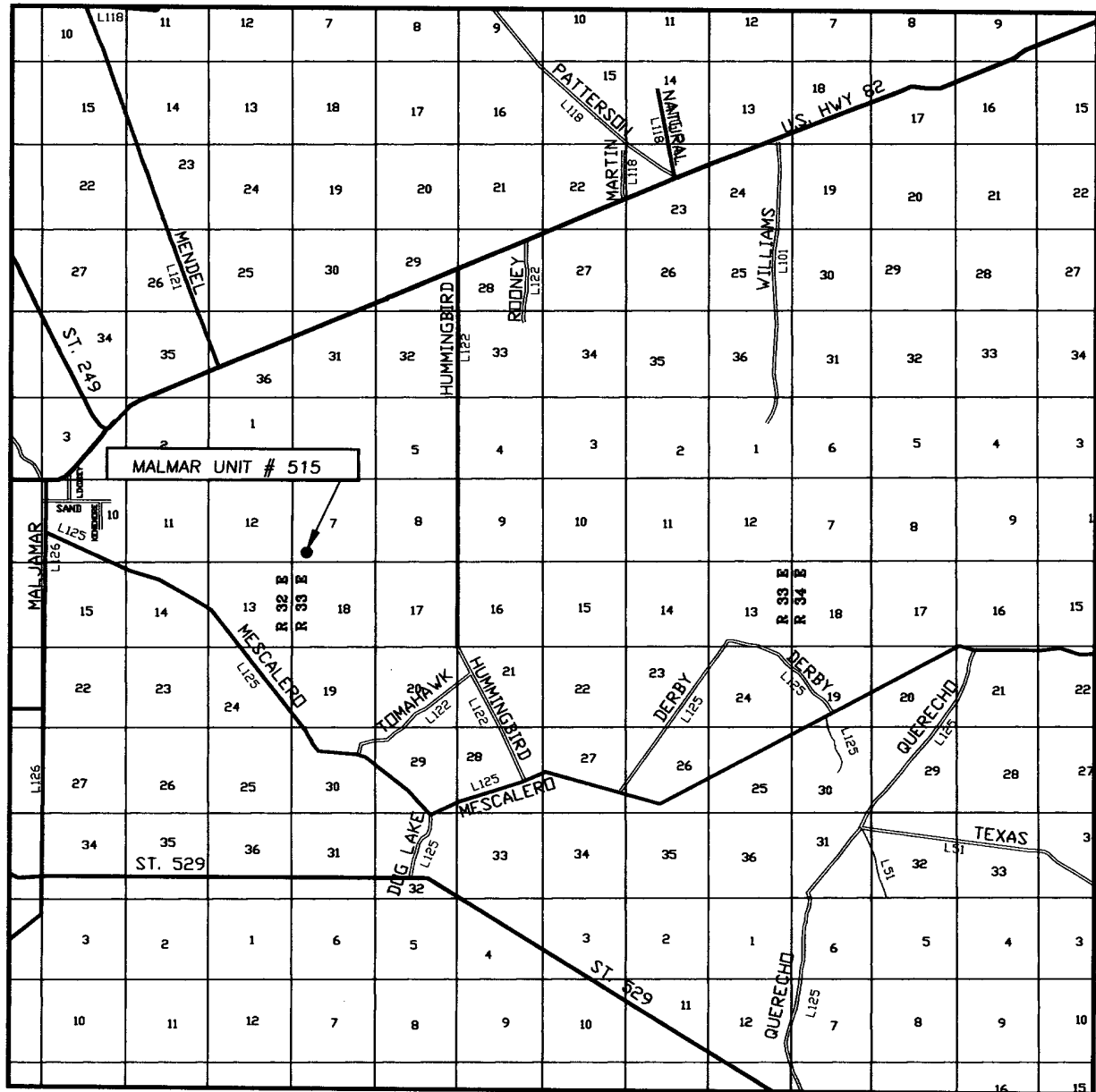
MALMAR UNIT # 515 WELL
LOCATED 330 FEET FROM THE SOUTH LINE
AND 1320 FEET FROM THE WEST LINE OF SECTION 7,
TOWNSHIP 17 SOUTH, RANGE 33 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO.

Survey Date: 07/08/04	Sheet 1 of 1 Sheets
W.O. Number: 04.11.0841	Dr By: J. RIVERO Rev 1:N/A
Date: 07/12/04	Disk: CD#10 04110841 Scale: 1"=100'



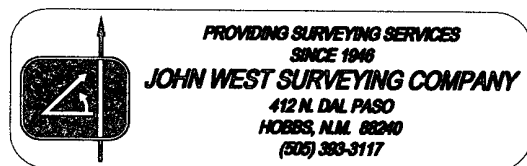
PROVIDING SURVEYING SERVICES
SINCE 1948
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(505) 383-3117

VICINITY MAP

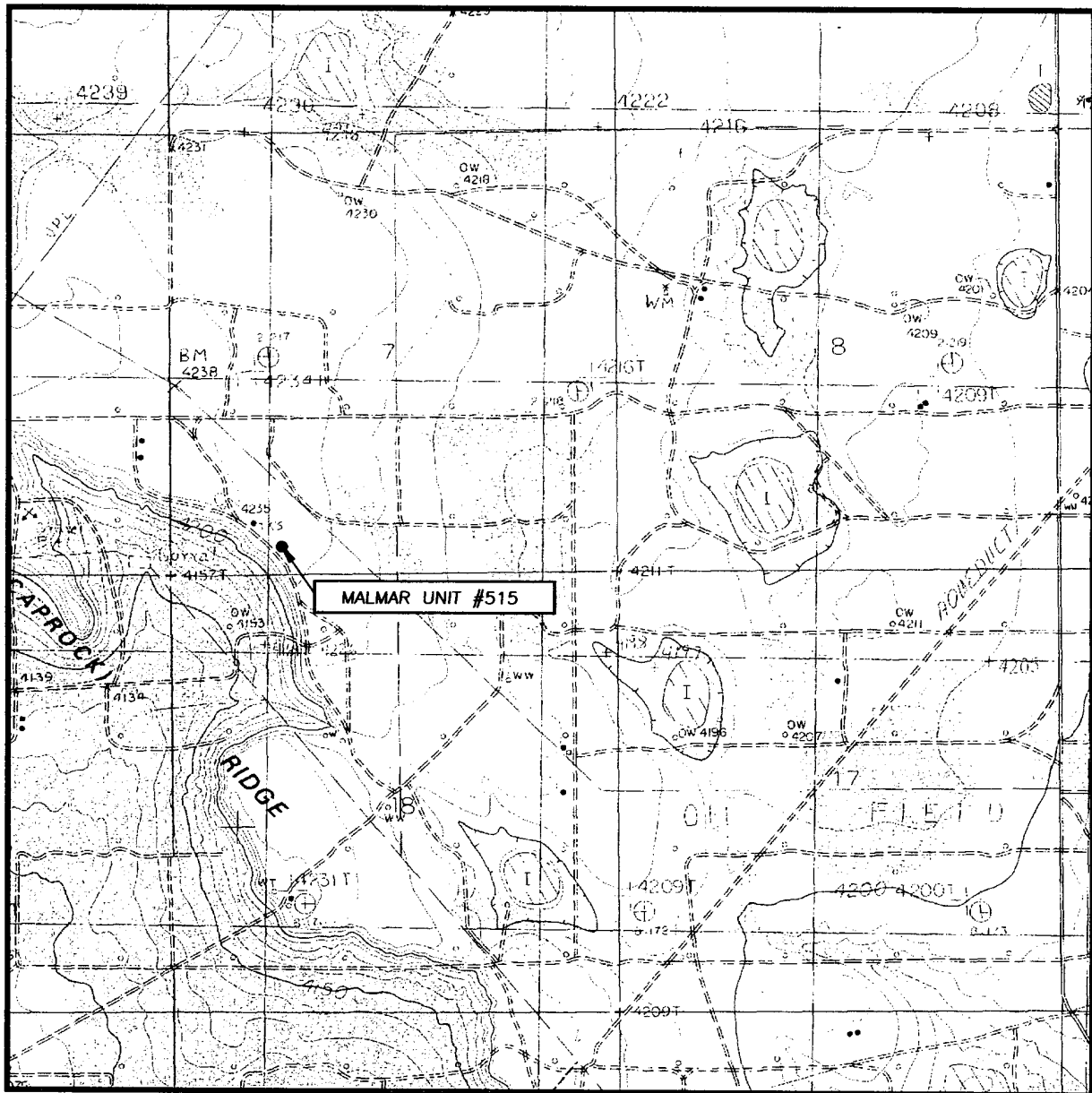


SCALE: 1" = 2 MILES

SEC. 7 TWP. 17-S RGE. 33-E
 SURVEY N.M.P.M.
 COUNTY LEA
 DESCRIPTION 330' FSL & 1320' FWL
 ELEVATION 4235'
 OPERATOR MAR OIL & GAS CORPORATION
 LEASE MALMAR UNIT



LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
DOG LAKE, N.M. - 5'

SEC. 7 TWP. 17-S RGE. 33-E

SURVEY N.M.P.M.

COUNTY LEA

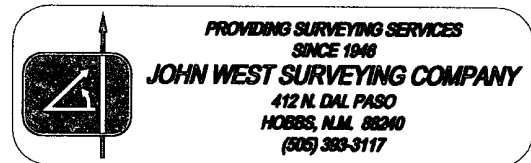
DESCRIPTION 330' FSL & 1320' FWL

ELEVATION 4235'

OPERATOR MAR OIL & GAS CORPORATION

LEASE MALMAR UNIT

U.S.G.S. TOPOGRAPHIC MAP
DOG LAKE, N.M.

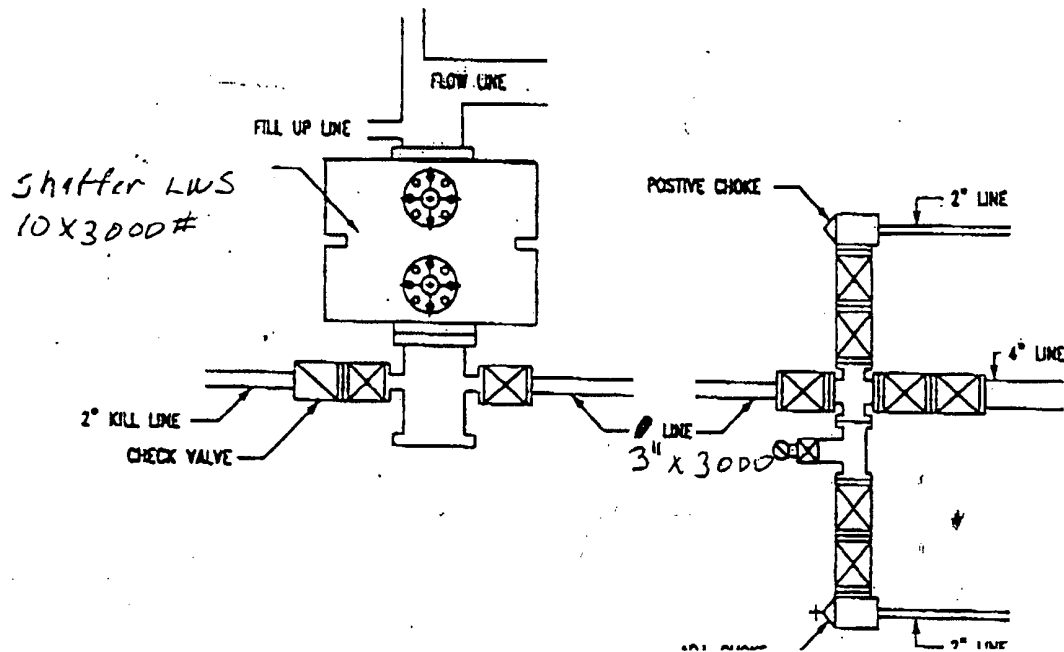


PROVIDING SURVEYING SERVICES
SINCE 1946

JOHN WEST SURVEYING COMPANY

412 N. DAL PASO
HOBBES, N.M. 88240
(505) 389-3117

Attachment A



8-01-02

Attachment B

Patterson Drilling Company

Rig #65

8,000'

DRAWWORKS

Weiss W-45

ENGINES

Two Cat 3406 diesel, 375 HP with twin disc torque converters

DERRICK

Lee C. Moore 100', 280,000# Rated Capacity

SUBSTRUCTURE

12' high, 17' wide, 40' long, 380,000# Setback Capacity, Rotary Clearance - 9.4', KB - 13'

MUD PUMPS

Pump #1: Emsco D-550 w/Cat 379
Pump #2: Tri-service 500 w/Cat 353

DRILL STRING

8,000' 4-1/2" with X-hole
20 Drill Collars 6-1/4" with 4-1/4" X-hole
8 Drill Collars 8" with 6-5/8" reg

BLOWOUT PREVENTERS

One Shaffer LWS 10" x 3000# with closing unit,
Choke Manifold 3" x 3000#

MUD SYSTEM

One 350 bbl pit (total) including a 60 bbl slug suction pit section.

MUD HOUSE

None

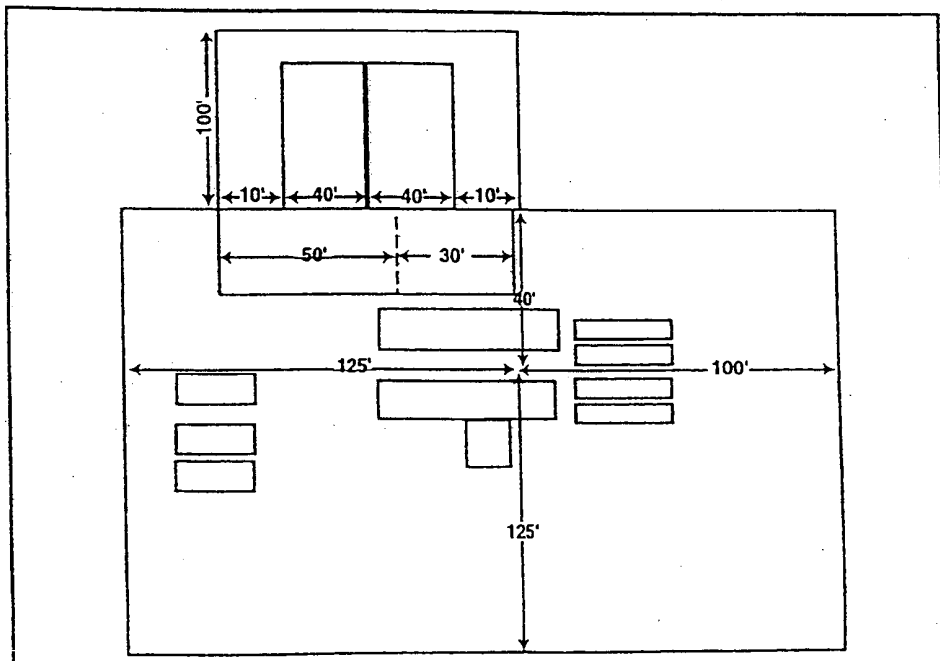
COMMUNICATIONS

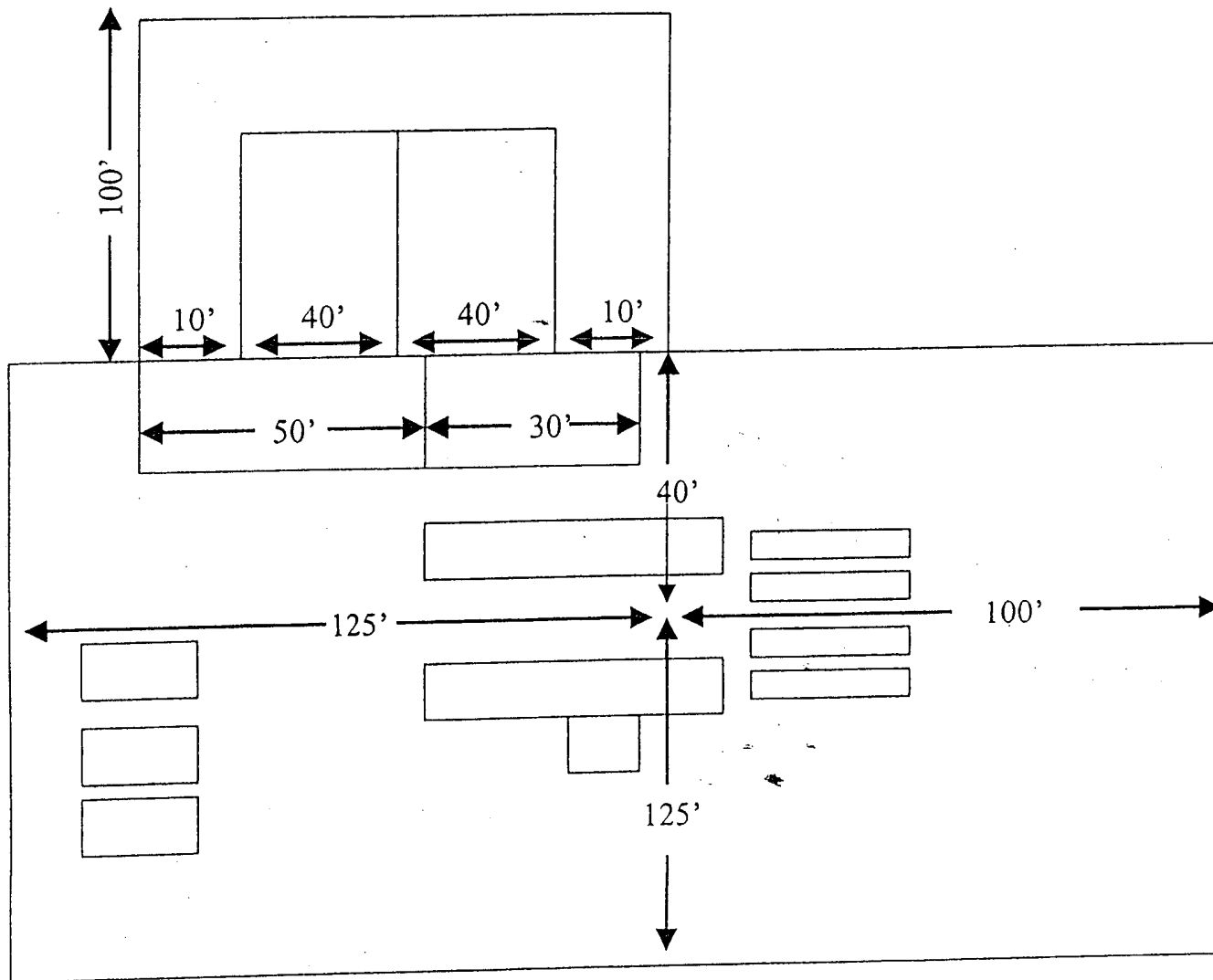
Cellular Phone

OTHER EQUIPMENT

Blocks. Emsco 150 Ton
Hook. BJ 460 150 Ton
Swivel. Oilwell PC 150, 150 Ton
Rotary Table. BDW 17-1/2" x 44" 150 Ton
Shale Shaker. Single Screen
Electrical Power. One Cat 3406 w/234 kW
Generator & One Cat 3306 w/100 kW Generator
Fresh Water Storage. 500 bbl tank
Housing.

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





RIG 65

Attachment B

Attachment C



Proposal No: 180052027B

Mar Oil & Gas Corp.
MALMAR #417

Sec7-T17S-R33E
Lea County, New Mexico
September 11, 2003

Well Recommendation

Prepared for:

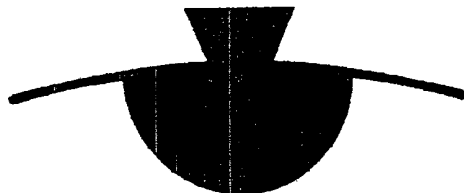
Duane Winkler
VP Operations

Fax: 505-989-1988
Bus Phone: 505-989-1977

Prepared by:

JJ McGlasson
District Technical Supervisor
Hobbs, New Mexico

Bus Phone: 505-392-5556
Mobile: 505-390-3704



POWERVISION™

Service Point:

Hobbs

Bus Phone: (505) 392-5556

Fax: (505) 392-7307

Service Representatives:

Bill Caperton

Senior Sales Rep

Hobbs, New Mexico

Mobile: (505)-746-7166

Bus Phone: (505) 392-5556

Operator Name: Mar Oil & Gas Corp.
 Well Name: MALMAR #417
 Job Description: Set Surface @ 1300
 Date: September 11, 2003

Attachment C



Proposal No: 180052027B

WELL DATA

ANNULAR GEOMETRY

ANNULAR I.D. (in)	DEPTH(ft)	
	MEASURED	TRUE VERTICAL
12.250 HOLE	1,300	1,300

SUSPENDED PIPES

DIAMETER (in)		WEIGHT (lbs/ft)	DEPTH(ft)	
O.D.	I.D.		MEASURED	TRUE VERTICAL
8.625	8.097	24	1,300	1,300

Float Collar set @ 1,260 ft
 Mud Density 8.34 ppg
 Mud Type Water Based
 Est. Static Temp. 88 ° F
 Est. Circ. Temp. 83 ° F

VOLUME CALCULATIONS

994 ft	x	0.4127 cf/ft	with	100 % excess	=	820.3 cf
306 ft	x	0.4127 cf/ft	with	100 % excess	=	252.7 cf
40 ft	x	0.3576 cf/ft	with	0 % excess	=	14.3 cf (inside pipe)
TOTAL SLURRY VOLUME					=	1087.4 cf
					=	194 bbls

Operator Name: Mar Oil & Gas Corp.
Well Name: MALMAR #417
Job Description: Set Surface @ 1300
Date: September 11, 2003

Attachment C



Proposal No: 180052027B

FLUID SPECIFICATIONS

<u>FLUID</u>	<u>VOLUME CU-FT</u>	<u>VOLUME FACTOR</u>	<u>AMOUNT AND TYPE OF CEMENT</u>
Lead Slurry	820	/ 1.99	= 413 sacks (35:65) Poz (Fly Ash):Class C Cement + 0.25 lbs/sack Cello Flake + 6% bwoc Bentonite + 105.5% Fresh Water
Tail Slurry	267	/ 1.34	= 200 sacks Class C Cement + 1% bwoc Calcium Chloride + 56.3% Fresh Water
Displacement			80.2 bbls Displacement @ 8.34 ppg

CEMENT PROPERTIES

	SLURRY NO. 1	SLURRY NO. 2
Slurry Weight (ppg)	12.40	14.80
Slurry Yield (cf/sack)	1.99	1.34
Amount of Mix Water (gps)	11.01	6.34

Attachment C



Proposal No: 180052027B

WELL DATA

ANNULAR GEOMETRY

ANNULAR I.D. (in)	DEPTH(ft)	
	MEASURED	TRUE VERTICAL
8.097 CASING	1,300	1,300
7.875 HOLE	4,700	4,700

SUSPENDED PIPES

DIAMETER (in)		WEIGHT (lbs/ft)	DEPTH(ft)	
O.D.	I.D.		MEASURED	TRUE VERTICAL
5.500	4.892	17	4,700	4,700

STAGE: 2	Stage Collar set @	3,000 ft.
	Mud Density	8.34 ppg
	Mud Type	Water Based
	Est. Static Temp.	100 ° F
	Est. Circ. Temp.	93 ° F

VOLUME CALCULATIONS

500 ft	x	0.1926 cf/ft	with	0 % excess	=	96.3 cf
1,700 ft	x	0.1733 cf/ft	with	35 % excess	=	397.6 cf
TOTAL SLURRY VOLUME					=	493.9 cf
					=	88 bbls

<u>STAGE:</u> 1	Float Collar set @	4,660 ft
	Mud Density	8.34 ppg
	Mud Type	Water Based
	Est. Static Temp.	111 ° F
	Est. Circ. Temp.	102 ° F

VOLUME CALCULATIONS

1,700 ft	x	0.1733 cf/ft	with	35 % excess	=	397.6 cf
40 ft	x	0.1305 cf/ft	with	0 % excess	=	5.2 cf (inside pipe)
TOTAL SLURRY VOLUME					=	402.8 cf
					=	72 bbls

Operator Name: Mar Oil & Gas Corp.
 Well Name: MALMAR #417
 Job Description: Set Longstring @ 4700-2 Stage
 Date: September 11, 2003

Attachment C



Proposal No: 180052027B

FLUID SPECIFICATIONS

STAGE NO.: 1

FLUID	VOLUME CU-FT	VOLUME FACTOR	AMOUNT AND TYPE OF CEMENT
1st Lead Slurry	403	/ 1.63	= 248 sacks (15:61:11) Poz (Fly Ash):Class C Cement:CSE + 5% bwow Sodium Chloride + 3 lbs/sack LCM-1 + 0.6% bwoc FL-25 + 0.6% bwoc FL-52 + 0.1% bwoc Sodium Metasilicate + 76.4% Fresh Water
Displacement			108.3 bbls Displacement @ 8.4 ppg

CEMENT PROPERTIES

SLURRY NO. 1

Slurry Weight (ppg)	13.20
Slurry Yield (cf/sack)	1.63
Amount of Mix Water (gps)	7.97

STAGE NO.: 2

2nd Lead Slurry	494	/ 1.94	= 255 sacks (35:65) Poz (Fly Ash):Class C Cement + 6% bwoc Bentonite + 0.25 lbs/sack Cello Flake + 102.1% Fresh Water
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FLUID	VOLUME CU-FT	VOLUME FACTOR	AMOUNT AND TYPE OF CEMENT
Displacement			69.7 bbls Displacement @ 8.34 ppg

CEMENT PROPERTIES

SLURRY NO. 1

Slurry Weight (ppg)	12.50
Slurry Yield (cf/sack)	1.94
Amount of Mix Water (gps)	10.65



Attachment D

PROPOSED MUD PROGRAM

CASING DESIGN

8 5/8" Surface Casing at 1,400'
7 7/8" Open Hole to 4,700'

RECOMMENDED MUD PROPERTIES

<u>DEPTH</u>	<u>MUD WEIGHT</u>	<u>VISCOSITY</u>	<u>FLUID LOSS</u>
Spud	8.3- 8.6	28-30	No Control
400'	8.6- 8.7	30-32	No Control
1,000'	9.2- 9.4	32-34	No Control
1,400'	9.2-9.4	32-34	No Control

Set 8 5/8" Intermediate Casing at 1,400'. Drill out with Brine Water.

1,500'	9.8-10.0	28-29	No Control
2,500'	10.0-10.2	30-32	<10
3,500'	10.0-10.2	30-32	<10
4,200'	10.1-10.2	30-32	<10
4,700'	10.2-10.3	30-32	<10

RECOMMENDED MUD PROGRAM BY CASING INTERVAL

Intermediate Hole 0'-1,400'

Spud the surface hole with fresh water circulating through the reserve pit to allow maximum time for settling drilled-solids. Allow the native solids to build and maintain a viscosity of **32-34 seconds**. While drilling the **Red Bed**, it is important to maintain a stable viscosity with constant additions of fresh water at the Floline. **Lime** will flocculate the red bed clays causing difficulty in maintaining a stable viscosity; therefore we recommend that **Lime** not be used for Ph.



Attachment D

Production Interval 1,400'-4,700'

Drill out from under surface casing with brine, circulating the reserve.

It is always possible in this general area to encounter lost circulation. Utilize **Paper** material to control seepage loss. Should complete loss of returns occur while drilling, we recommend pulling a few stands off bottom to avoid differential sticking and spotting a 100-200 barrel pill containing fibrous-type lost circulation material. Spot the pill from above at a reduced pump rate before returning to bottom to commence drilling.

At a depth of approximately **2,400'**, we recommend returning to the working pits and mudding up by **2,500'** with a **Starch/DCS** system to achieve the following properties:

Mud Weight	10.0-10.2
Viscosity	30-32
Water Loss	<10

While using **Starch** for fluid loss control, it is important that the Ph of the fluid remain below 10.0 to avoid burning the **Starch**.

Maintain a 9.0-9.5 Ph with **Caustic**.

We use **DCS** surfactant as a mud additive to provide the following benefits:

- ⇒ minimize the usage of Mud Products
- ⇒ help drop solids providing a cleaner mud, lower mud weight and a thinner filter cake
- ⇒ improve clean-up of the pay zone should whole mud losses be encountered

Lost of fluid could occur after mud-up. Follow the same procedure described earlier should losses occur. Allow hole conditions to dictate the need for any sweeps prior to total depth.

This fluid, adjusted as shown in the "**RECOMMENDED MUD PROPERTIES**" section, or as hole conditions dictate, should provide good hole conditions for logging and casing operations.

MAR OIL & GAS CORP
MALMAR Field
Lease Boundary

