

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0136
Expires November 30, 2000

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		CONFIDENTIAL	
1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone			
2. Name of Operator MALLON OIL COMPANY		Contact: DON ERICKSON E-Mail: dmerickson@aol.com	
3a. Address PO BOX 2797 DURANGO, CO 81302		3b. Phone No. (include area code) Ph: 505.382.9100 Fx: 303.293.3601	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface NENW 355FNL 1665FWL At proposed prod. zone NENW 355FNL 1665FWL		5. Lease Serial No. MDA 708-98-0013	
14. Distance in miles and direction from nearest town or post office* 57 MILES EAST OF BLOOMFIELD, NEW MEXICO		6. If Indian, Allottee or Tribe Name JICARILLA APACHE	
15. Distance from proposed location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 355 FEET		7. If Unit or CA Agreement, Name and No.	
16. No. of Acres in Lease 39360.00		8. Lease Name and Well No. JIC 29-02-29 2	
17. Distance from proposed location to nearest well, drilling, completed, applied for, on this lease, ft. 1.11 MILES - JIC 29-02-32		9. API Well No. 30-039-27065	
18. Proposed Depth 4000 MD		10. Field and Pool, or Exploratory E BLANCO/PICTURED CLIFFS	
19. Elevations (Show whether DF, KB, RT, GL, etc.) 7087 GL		11. Sec., T., R., M., or Blk. and Survey or Area C Sec 29 T29N R2W Mer NMP	
20. Approximate date work will start 08/20/2002		12. County or Parish RIO ARRIBA	
21. Estimated duration 45-60 DAYS		13. State NM	
22. Spacing Unit dedicated to this well 80.00 160 NW/4 A		23. BLM/BIA Bond No. on file 1318288	
24. Attachments		25. BLM/BIA Bond No. on file 1318288	

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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification |
| 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). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature (Electronic Submission)	Name (Printed/Typed) KATHY L. SCHNEEBECK Ph: 303.820.4480	Date 07/09/2002
Title AGENT		
Approved by (Signature) <i>[Signature]</i>	Name (Printed/Typed)	Date 8/13/02
Title	Office	

Application approval does not warrant or certify 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. ** Note Surface Comment needs to be*

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.

Additional Operator Remarks (see next page)

Increased to 100% excess

Electronic Submission #12564 verified by the BLM Well Information System
For MALLON OIL COMPANY, sent to the Rio Puerco
Committed to AFMSS for processing by Angie Medina-Jones on 07/10/2002 ()

** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL **

HOLD C104 FOR *NSL*

DISTRICT II
811 South First, Artesia, N.M. 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410

DISTRICT IV
2040 South Pacheco, Santa Fe, NM 87505

OIL CONSERVATION DIVISION

2040 South Pacheco
Santa Fe, NM 87505

Submit to Appropriate District Office
State Lease - 4 Copie
Fee Lease - 3 Copie

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

*API Number 30-039-27065		*Pool Code 72400	*Pool Name East Blanco Pool	
*Property Code 27065	*Property Name JICARILLA 29-2-29			*Well Number 2
*OGRID No. 13925	*Operator Name MALLON OIL CO.			*Elevation 7087'

¹⁰ Surface Location

Surface Location									County
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	
C	29	29-N	2-W		355	NORTH	1665	WEST	RIO ARRIBA

"Bottom Hole Location If Different From Surface

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
13 Dedicated Acres			13 Joint or Infill		14 Consolidation Code		15 Order No.		
160									

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

FD. 1/2" REBAR
PLAST. CAP LS 8894
1665'

355'

S 85-40-35 E 5295.0'

341'

983'

945'

LAT.=36-42-08 N.
LONG.=107-04-10 W

FD. MARKED
STONE

29

S 00-32-35 W 5200.8'

FD. 1/2" REBAR
PLAST. CAP LS 8894

17 OPERATOR CERTIFICATION

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

Signature _____

Robert Blaylock
Printed Name

District Manager
Title

8-27-02
Date

18 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.

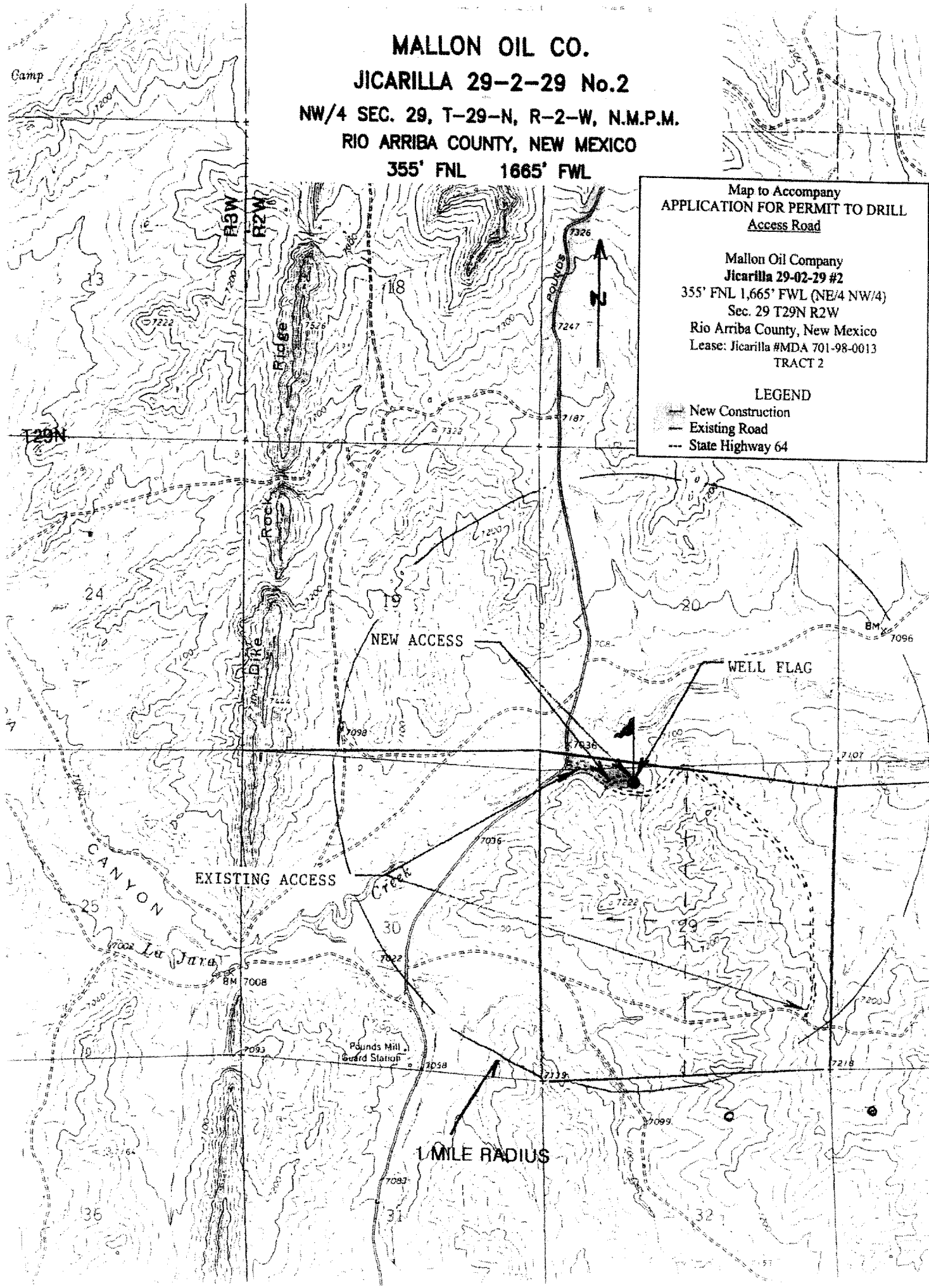
DAVID A. JOHNS
FBI MEET 1002

Signature and Seal of Professional Surveyor

Certificate Number

355' FNL 1665' FWL

- New Construction
- Existing Road
- State Highway 64



Mallon Oil Company
Jicarilla 29-02-29 #2
 355' FNL 1,665' FWL (NE/4 NW/4)
 Sec. 29 T29N R2W
 Rio Arriba County, New Mexico
 Lease: Jicarilla MDA 701-98-0013, TRACT 2

DRILLING PROGRAM
 (Per Rule 320)

This Application for Permit to Drill (APD) is filed under the APD process as stated in Onshore Order No. 1 and supporting Bureau of Land Management (BLM) documents. The process was changed to the "APD" process per Onshore Order No. 1. This APD process will include an on-site meeting as determined by BLM, at which time the specific concerns of Mallon Oil Company (Mallon) and BLM will be discussed. Best efforts have been made to address specific concerns of the BLM representatives.

SURFACE FORMATION – San Jose

GROUND ELEVATION – 7,087'

ESTIMATED FORMATION TOPS - (Water, oil, gas and/or other mineral-bearing formations)

San Jose	Surface	Sandstone, shales & siltstones
Nacimiento	2,531'	Sandstone, shales & siltstones
Ojo Alamo	2,961'	Sandstone, shales & siltstones
Kirtland	3,289'	Sandstone, shales & siltstones
Fruitland	3,399'	Sandstone, shales & siltstones
Pictured Cliffs	3,631'	Sandstone, shales & siltstones
Lewis	3,710'	Sandstone, shales & siltstones
Total Depth	4,000'	Sandstone, shales & siltstones

*1 ✓
 good -*

Estimated depths of anticipated fresh water, oil, or gas:

Tertiary

San Jose	1,321'	Gas
Nacimiento	2,561'	Gas
Ojo Alamo	3,651'	Gas
Fruitland	3,619'	Gas
Pictured Cliffs	3,719'	Gas

TOTAL DEPTH 4,000'

CASING PROGRAM

Depth	Hole Diameter	Casing Diameter	Casing Weight and Grade	Cement
0' – 500'	12-1/4"	8-5/8"	K-55 24# ST&C New	To surface (±175 sxs Class B)

2

*Increase 100%
 to 350 sxs*

0' - T.D.	7-7/8"	5-1/2"	K-55 15.5# LT&C New	TD to surface ($\pm 1,170$ sxs lite or 65:35 poz and ± 270 sxs 50:50 poz *
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* Actual cement volume to be determined by caliper log.

Yields: Class B yield = 1.18 ft³/sx
 65:35 Poz yield = 1.62 ft³/sx
 50:50 Poz yield = 1.26 ft³/sx

All fresh water and prospectively valuable minerals encountered during drilling, will be recorded by depth and protected.

PRESSURE CONTROL

BOP's and choke manifold will be installed and pressure tested before drilling out under surface casing (subsequent pressure test will be performed whenever pressure seals are broken), and then will be checked daily as to mechanical operating condition. BOP's will be pressure tested at least once every 30 days. Ram type preventors and related pressure control equipment will be pressure tested to rated working pressure of the stack assembly if a test plug is used. If a plug is not used, the stack assembly will be tested to the rated working pressure of the stack assembly or to 70% of the minimum internal yield of the casing, whichever is less. Annular type preventors will be pressure tested to 50% of their rated working pressure. All casing strings will be pressure tested to 0.22 psi/ft. or 1,500 psi, whichever is greater, not to exceed 70% of internal yield.

Statement on Accumulator System and Location of Hydraulic Controls

The drilling rig has not yet been selected for this well. Selection will take place after approval of this application. Manual and/or hydraulic controls will be in compliance with Onshore Order No. 2 for 2,000 psi systems.

A remote accumulator will be used. Pressures, capacities, location of remote hydraulic and manual controls will be identified at the time of the BLM supervised BOP test.

MUD PROGRAM

0' -	500'	Spud mud
500' -	TD	Low solids non-dispersed
		M.W. 8.5 - 9.2 ppg
		Vis - 28 - 50 sec
		W.L. 15cc or less

Sufficient mud materials to maintain mud properties, control lost circulation and to contain "kick" will be available at wellsite.

AUXILIARY EQUIPMENT

- A) Inside BOP or stab-in valve (available on rig floor)
- B) Mud monitoring will be visually observed.

LOGGING, CORING, TESTING PROGRAM

- A) Logging: DIL- CNL-FDC-GR - TD - BSC (GR to surface) (Triple Combo)
- B) Coring: None
- C) Testing: Possible DST - None anticipated. Drill stem tests may be run on shows of interest

ABNORMAL CONDITIONS

- A) Pressures: No abnormal conditions are anticipated
 Bottom hole pressure gradient - 0.31 psi/ft

Hydrogen Sulfide Drilling Operations Plan

I. Hydrogen Sulfide Training

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards and characteristics of hydrogen sulfide (H_2S).
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H_2S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of H_2S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H_2S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H_2S zone (within 3 days or 500 feet) and weekly H_2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H_2S Drilling Operations Plan and the Public Protection Plan. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received the proper training.

II. H_2S Safety Equipment and Systems

Note: All H_2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above or three days prior to penetrating the first zone containing or reasonably expected to contain H_2S .

A. Well control equipment:

1. Choke manifold with a minimum of one remote choke.
2. Blind rams and pipe rams to accomodate all pipe sizes with properly sized closing unit.

B. Protective equipment for essential personnel:¹

1. Mark II Surviveair 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.

MALLON OIL COMPANY

C. H₂S detection and monitoring equipment:

1. Two portable H₂S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H₂S levels of 10 ppm are reached.

D. Visual warning systems:

1. Wind direction indicators as shown on well site diagram.
2. Caution/Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used when appropriate. See example attached.

E. Mud program:

1. The mud program has been designed to minimize the volume of H₂S circulated to the surface. Proper mud weight, safe drilling practices, and the use of H₂S scavengers will minimize hazards when penetrating H₂S bearing zones.

F. Metallurgy:

1. All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H₂S service.
2. All elastomers used for packing and seals shall be H₂S trim.

G. Communication:

1. Cellular telephone communications in company vehicles.

H. Well testing:

1. 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.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0136
Expires November 30, 2000

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		CONFIDENTIAL	5. Lease Serial No. MDA 708-98-0013
1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone			6. If Indian, Allottee or Tribe Name JICARILLA APACHE
2. Name of Operator MALLON OIL COMPANY		Contact: DON ERICKSON E-Mail: dmerickson@aol.com	7. If Unit or CA Agreement, Name and No.
3a. Address PO BOX 2797 DURANGO, CO 81302	3b. Phone No. (include area code) Ph: 505.382.9100 Fx: 303.293.3601	9. API Well No. 30-039-27065	8. Lease Name and Well No. JIC 29-02-29 2
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface NENW 355FNL 1665FWL At proposed prod. zone NENW 355FNL 1665FWL		10. Field and Pool, or Exploratory E BLANCO/PICTURED CLIFFS	11. Sec., T., R., M., or Blk. and Survey or Area Sec 29 T29N R2W Mer NMP
14. Distance in miles and direction from nearest town or post office* 57 MILES EAST OF BLOOMFIELD, NEW MEXICO		12. County or Parish RIO ARRIBA	13. State NM
15. Distance from proposed location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 355 FEET	16. No. of Acres in Lease 39360.00	17. Spacing Unit dedicated to this well 1600 160 NW/4	
18. Distance from proposed location to nearest well, drilling, completed, applied for, on this lease, ft. 1.11 MILES - JIC 29-02-32	19. Proposed Depth 4000 MD	20. BLM/BIA Bond No. on file 1318288	
21. Elevations (Show whether DF, KB, RT, GL, etc.) 7087 GL	22. Approximate date work will start 08/20/2002	23. Estimated duration 45-60 DAYS	

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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
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| 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). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature (Electronic Submission)	Name (Printed/Typed) KATHY L. SCHNEEBECK Ph: 303.820.4480	Date 07/09/2002
Title AGENT		
Approved by (Signature) 	Name (Printed/Typed)	Date 8/23/02
Title	Office	

Application approval does not warrant or certify 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. ** Note Surface Cement needs to be*

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.

Additional Operator Remarks (see next page)

Increased to 100% excess
Electronic Submission #12564 verified by the BLM Well Information System
For MALLON OIL COMPANY, sent to the Rio Puerco
Committed to AFMSS for processing by Angie Medina-Jones on 07/10/2002 ()

** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL **

WELDING FOR NSL

DISTRICT I
1825 N. French Dr., Hobbs, N.M. 88240

DISTRICT II
811 South First, Artesia, N.M. 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410

DISTRICT IV
2040 South Pacheco, Santa Fe, NM 87606

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, NM 87506

Form C-10:
Revised August 15, 200.

Submit to Appropriate District Office
State Lease - 4 Copie
Fee Lease - 3 Copie

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-039-27065		Pool Code 72400	Pool Name East Blanco Pool
Property Code 27065	Property Name JICARILLA 29-2-29		Well Number 2
OCRID No. 13925	Operator Name MALLON OIL CO.		Elevation 7087'

10 Surface Location

UL or lot no. C	Section 29	Township 29-N	Range 2-W	Lot Idn	Feet from the 355	North/South line NORTH	Feet from the 1665	East/West line WEST	County RIO ARRIBA
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11 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 160			Joint or Infill		Consolidation Code		Order No.		

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

16 FD. 1/2" REBAR PLAST. CAP LS 8894 1665'		355'	S 85-40-35 E 5295.0'	FD. MARKED STONE
	341'	983'	LAT.=36-42-08 N. LONG.=107-04-10 W	
	945'			
S 00-32-35 W 5200.8'				
FD. 1/2" REBAR PLAST. CAP LS 8894				

17 OPERATOR CERTIFICATION

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

Robert Blaylock
Signature

Robert Blaylock
Printed Name

District Manager
Title

8-27-02
Date

18 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.

DAVID A. JOHNS
Date of Survey
Signature and Seal of Professional Surveyor:
14827
Certificate Number

MALLON OIL CO.

JICARILLA 29-2-29 No.2

NW/4 SEC. 29, T-29-N, R-2-W, N.M.P.M.

RIO ARriba COUNTY, NEW MEXICO

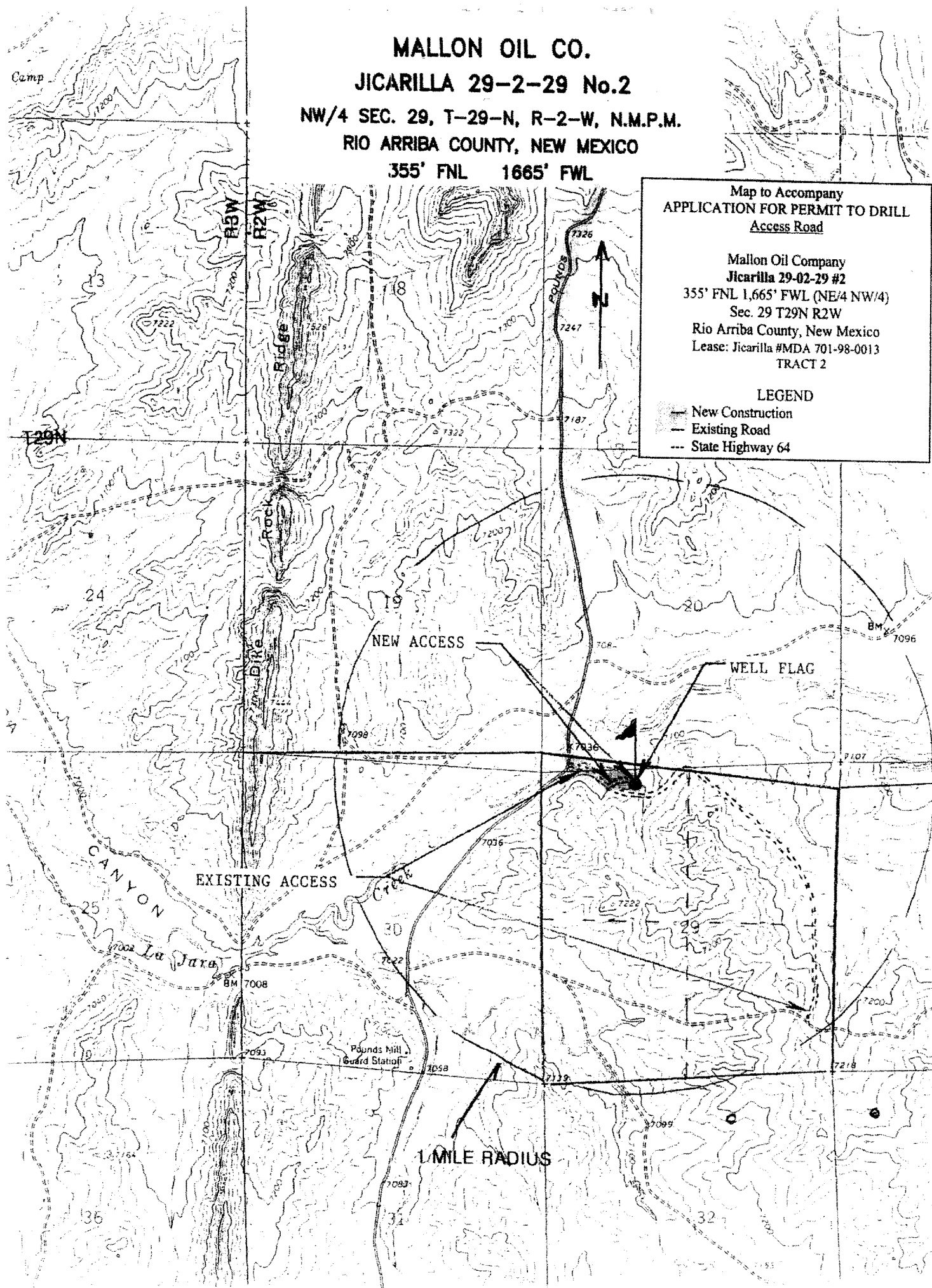
355' FNL 1665' FWL

Map to Accompany
APPLICATION FOR PERMIT TO DRILL
Access Road

Mallon Oil Company
Jicarilla 29-02-29 #2
355' FNL 1,665' FWL (NE/4 NW/4)
Sec. 29 T29N R2W
Rio Arriba County, New Mexico
Lease: Jicarilla #MDA 701-98-0013
TRACT 2

LEGEND

- New Construction
- - - Existing Road
- - - State Highway 64



Mallon Oil Company
Jicarilla 29-02-29 #2
355' FNL 1,665' FWL (NE/4 NW/4)
Sec. 29 T29N R2W
Rio Arriba County, New Mexico
Lease: Jicarilla MDA 701-98-0013, TRACT 2

DRILLING PROGRAM
(Per Rule 320)

This Application for Permit to Drill (APD) is filed under the APD process as stated in Onshore Order No. 1 and supporting Bureau of Land Management (BLM) documents. The process was changed to the "APD" process per Onshore Order No. 1. This APD process will include an on-site meeting as determined by BLM, at which time the specific concerns of Mallon Oil Company (Mallon) and BLM will be discussed. Best efforts have been made to address specific concerns of the BLM representatives.

SURFACE FORMATION – San Jose

GROUND ELEVATION – 7,087'

ESTIMATED FORMATION TOPS - (Water, oil, gas and/or other mineral-bearing formations)

San Jose	Surface	Sandstone, shales & siltstones
Nacimiento	2,531'	Sandstone, shales & siltstones
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Fruitland	3,399'	Sandstone, shales & siltstones
Pictured Cliffs	3,631'	Sandstone, shales & siltstones
Lewis	3,710'	Sandstone, shales & siltstones

Total Depth	4,000'	Sandstone, shales & siltstones
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Estimated depths of anticipated fresh water, oil, or gas:

Tertiary

San Jose	1,321'	Gas
Nacimiento	2,561'	Gas
Ojo Alamo	3,651'	Gas
Fruitland	3,619'	Gas
Pictured Cliffs	3,719'	Gas

TOTAL DEPTH 4,000'

CASING PROGRAM

Depth	Hole Diameter	Casing Diameter	Casing Weight and Grade	Cement
0' – 500'	12-1/4"	8-5/8"	K-55 24# ST&C New	To surface (±175 sxs Class B)

Increase 100%
to 350 sxs

0' - T.D.	7-7/8"	5-1/2"	K-55 15.5# LT&C New	TD to surface ($\pm 1,170$ sxs lite or 65:35 poz and ± 270 sxs 50:50 poz *)
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* Actual cement volume to be determined by caliper log.

Yields: Class B yield = $1.18 \text{ ft}^3/\text{sx}$
 65:35 Poz yield = $1.62 \text{ ft}^3/\text{sx}$
 50:50 Poz yield = $1.26 \text{ ft}^3/\text{sx}$

All fresh water and prospectively valuable minerals encountered during drilling, will be recorded by depth and protected.

PRESSURE CONTROL

BOP's and choke manifold will be installed and pressure tested before drilling out under surface casing (subsequent pressure test will be performed whenever pressure seals are broken), and then will be checked daily as to mechanical operating condition. BOP's will be pressure tested at least once every 30 days. Ram type preventors and related pressure control equipment will be pressure tested to rated working pressure of the stack assembly if a test plug is used. If a plug is not used, the stack assembly will be tested to the rated working pressure of the stack assembly or to 70% of the minimum internal yield of the casing, whichever is less. Annular type preventors will be pressure tested to 50% of their rated working pressure. All casing strings will be pressure tested to 0.22 psi/ft. or 1,500 psi, whichever is greater, not to exceed 70% of internal yield.

Statement on Accumulator System and Location of Hydraulic Controls

The drilling rig has not yet been selected for this well. Selection will take place after approval of this application. Manual and/or hydraulic controls will be in compliance with Onshore Order No. 2 for 2,000 psi systems.

A remote accumulator will be used. Pressures, capacities, location of remote hydraulic and manual controls will be identified at the time of the BLM supervised BOP test.

MUD PROGRAM

0' - 500'	Spud mud
500' - TD	Low solids non-dispersed
	M.W. 8.5 - 9.2 ppg
	Vis - 28 - 50 sec
	W.L. 15cc or less

Sufficient mud materials to maintain mud properties, control lost circulation and to contain "kick" will be available at wellsite.

AUXILIARY EQUIPMENT

- A) Inside BOP or stab-in valve (available on rig floor)
- B) Mud monitoring will be visually observed.

LOGGING, CORING, TESTING PROGRAM

- A) Logging: DIL- CNL-FDC-GR - TD - BSC (GR to surface) (Triple Combo)
- B) Coring: None
- C) Testing: Possible DST - None anticipated. Drill stem tests may be run on shows of interest

ABNORMAL CONDITIONS

- A) Pressures: No abnormal conditions are anticipated
 Bottom hole pressure gradient - 0.31 psi/ft

Hydrogen Sulfide Drilling Operations Plan

I. Hydrogen Sulfide Training

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards and characteristics of hydrogen sulfide (H_2S).
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H_2S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques for first aid and rescue procedures.

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1. The effects of H_2S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
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II. H_2S Safety Equipment and Systems

Note: All H_2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above or three days prior to penetrating the first zone containing or reasonably expected to contain H_2S .

A. Well control equipment:

1. Choke manifold with a minimum of one remote choke.
2. Blind rams and pipe rams to accomodate all pipe sizes with properly sized closing unit.

B. Protective equipment for essential personnel:

1. Mark II Surviveair 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.

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C. H₂S detection and monitoring equipment:

1. Two portable H₂S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H₂S levels of 10 ppm are reached.

D. Visual warning systems:

1. Wind direction indicators as shown on well site diagram.
2. Caution/Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used when appropriate. See example attached.

E. Mud program:

1. The mud program has been designed to minimize the volume of H₂S circulated to the surface. Proper mud weight, safe drilling practices, and the use of H₂S scavengers will minimize hazards when penetrating H₂S bearing zones.

F. Metallurgy:

1. All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H₂S service.
2. All elastomers used for packing and seals shall be H₂S trim.

G. Communication:

1. Cellular telephone communications in company vehicles.

H. Well testing:

1. 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.