# **Facsimile Cover Sheet**

To: Michael Stogner

Company: NMOCD, Santa Fe

Phone: 505-827-8185

Fax: 505-827-1389

From: Dave Pearcy

Company: ARCO Permian Phone: 915-688-5355

Fax: 915-688-5246

**Date:** July 30, 1998

Pages including this 2

cover page:

Dear Michael:

Re: Washigton 33 NSLs

ARCO will be requesting a revision of NSL-4060 (that you had kindly obtained for us for San Andres drilling) to enable us to drill and case Washington #19 to the 4200' Yeso. We are preparing a package similar to the one we submitted for the Artesia (Q-G-SA) applications, and ask for your comments if the attached Geologic Discussion for #19 would be adequate. If it is, we will do similar packages for the other two whorthodox wells, #12 (NSL-4003) and #23 (NSL-4060). Fortunately, the nine other new wells we plan to drill deeper are orthodox.

We will also plan to resubmit: ammended C-102 Structure map, Top Glorieta Type log, Glorieta and Yeso.

Are there any other exhibits required?If you will need unchanged exhibits we sent for the earlier NSL (the topo map, engineers field sketch, and plat showing adjoining spacing units), please advise. I will be in the office today, Thursday, until 5 pm, but out Friday,7/31. Will be back next week every day. How is your schedule to discuss this?

Thank you. Dave

TANK TO SERVICE STATES

Draft

NSL-4060

Geologic and Engineering Discussion for Amended Washington 33 State #10 (NSL-4060), Unit K of Section 33, T17s, R 28E, Eddy Co, NM

ARCO Permian requests administrative approval for an unorthodox location for Washington 33 State # 19, a new well we now propose to drill to the Undesignated-Artesia (Yeso) Pool. This well is required for geologic reasons, and may be simultaneously dedicated to either San Andres or Yeso production along with Washington #31 (Yeso orthodox location being applied for) in Unit Letter K of Section 33. ARCO had been granted NSL-4060 approval for #19 for the Queen-Grayburg-San Andres pool, but modest new Yeso completions at Washington #9 and #14 now demonstrate that all remaining new wells in this section should be cased through the Yeso to allow for a low-cost completion in this deeper zone.

ARCO attempted to obtain an orthodox location for #19 at 2310 FS & WL, but was prevented access by a major Empire Abo tank battery and numerous flowlines. We have wrifted the location for #19 to the NW (to 2360 FSL, 2165 FWL) to allow adequate and a setback for the small United rig we will use.

ARCO will require 2 strategically spaced wells in each 40-acre tract to recover reserves in the Artesia (Q-G-SA) and Undesignated Artesia (Yeso) pools. Analog Yeso fields in Eddy County indicate high variability in pay count and oil rate from one 20-acre location to the next. ARCO and the State of New Mexico would be best served if all wells were eased to enable a Yeso completion. In most cases, we expect to complete first in the San Andres dolomite, unless logs or neighboring well performance indicates the Yeso is more prolific. As San Andres producing rates decline, we would plan to apply to co-mingle Yeso (expected reserves 50 MB per well) to keep the wells economic. At some later date, we anticipate the San Andres would be isolated and waterflooded.

The Artesia District Office is expected to approve our revised application for Yeso TD at an orthodox location for #31 in the SW corner of Unit K. No orthodox location for #19 is available in this area due to topographical obstructions. Any shift south would place #19 too close to other wells to effectively drain the in-place oil. Directional drilling of these wells is untenable, since this would add approximately \$100,000 to the cost, and would not be economically justified with the modest reserves.

Since this unorthodox location is completely surrounded by other ARCO tracts in the same lease, there will be no impact on any other party.

Was19yeso



ARCO Permian 600 North Marienfeld Midland TX 79701-4373 Post Office Box 1610 Midland TX 79702-1610 Telephone 915 688 5570

Elizabeth A. Casbeer Regulatory/Compliance Analyst

August 20, 1998

Oil Conservation Division Attn: Michael Stogner 2040 South Pacheco Santa Fe, New Mexico 87505



#### Gentlemen:

Under the provisions of NMOCD Rule 104.F(d), ARCO Permian requests administrative approval for unorthodox locations for its Washington "33" State #16, 17, 27, and 30, recompletions of previously drilled wells in the Empire Abo Unit, to the Artesia (Glorieta-Yeso) or Artesia (Queen-Grayburg-San Andres) Pools. All wells are located in Section 33, T17S, R28E, Eddy County, New Mexico. We requests an amendment to Administrative Order NSL-4060 dated 6/19/98, to include Artesia (Glorieta-Yeso) Pool.

NSL-4060

The following exhibits are submitted in support of our request for administrative approval:

- 1. Amended C-101s
- 2. Amended C-102s
- 3. Geologic and Engineering Discussion
- 4. A Glorieta-Yeso type log (Washington "33" State #9).
- 5. San Andres type log (Washington "33" State #9)
- 6. Structure Map, Top Glorieta Sand.
- 7. Structure Map, Top San Andres.
- 8. Gross Pay, San Andres Dolomite.
- 9. Plat showing adjoining and diagonal spacing units.

All wells are 330' or more from the outside boundary of the lease, therefore ARCO Permian deemed the offset operators as unaffected parties and no offset owners were notified.

Should you have any questions, please do not hesitate to call me at 915-688-5570 or Dave Pearcy at 915-688-5355. Thank you for your assistance in this matter.

Sincerely, Elizalent a. Cashees

Elizabeth A. Casbeer

Regulatory/Compliance Analyst

EAC:lc

cc:

NMOCD, Artesia, New Mexico

**Enclosures** 

District I PO Box 1980, Hobbs, NM 88241-1980 District II 811 S. 1st Street, Artesia, NM 88210-2834 District III 1000 Rio Brazos Rd., Aztec, NM 87410 District IV 2040 South Pacheco, Santa Fe, NM 87505

# State of New Mexico Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION 2040 South Pacheco Santa Fe, NM 87505 Form C-101 Revised October 18, 199 Instructions on bac Submit to Appropriate District O State Lease - 6 Copie Fee Lease - 5 Copie

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23I hereby certify that the information given above is true and complete to the bof my knowledge and belief.  Signature:  Printed name: ELIZABETH A. CASBEER									oved by:		ONSERV	ATI	ON D	IVISI	ON	
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DISTRICT I P.O. Box 1980, Hobbs, NM 88241-1980

# 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

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

## OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

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REG./COMP. ANALYST

#### State of New Mexico Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION 2040 South Pacheco Santa Fe, NM 87505

Form C-101 Revised October 18, 199 Instructions on bac Submit to Appropriate District O State Lease - 6 Copie Fee Lease - 5 Copie

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

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DISTRICT III

DISTRICT II

# OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

M AMENDED REPORT

1000 Rio Brazos Rd., Aztec, NM 87410 DISTRICT IV P.O. BOX 2088, SANTA FE, N.M. 87504-2088

## WELL LOCATION AND ACREAGE DEDICATION PLAT

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District I PO Box 1980, Hobbs, NM 88241-1980 District II 811 S. 1st Street, Artesia, NM 88210-2834 District III 1000 Rio Brazos Rd., Aztec, NM 87410 District IV 2040 South Pacheco, Santa Fe, NM 87505

### State of New Mexico Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION 2040 South Pacheco Santa Fe, NM 87505 Form C-101 Revised October 18, 199 Instructions on bac Submit to Appropriate District O State Lease - 6 Copie Fee Lease - 5 Copie

		LX	AMENDED REPOR

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Energy, Minerals and Natural Resources Department

Revised February 10, 1994

Submit to Appropriate District Office

State Lease - 4 Copies Fee Lease - 3 Copies

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

#### OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

AMENDED REPORT

# WELL LOCATION AND ACREAGE DEDICATION PLAT

	WELL LOCATION AND ACREAGE DEDICATION PLAT											
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NO ALLO	WABLE Y		LL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION									
			of ol Operator Certification									

I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief. 02 ماه 04 013 EUZABETH 9 011 ر. Printed Name 010 Date 04 014 012 SURVEYOR CERTIFICATION 910 021 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 supervisor, and that the same is true and 17 correct to the best of my belief. 022 016 ر3 م MARCH 3, 1998 Date Surveyed Minimum Signators Desicon Desicon Desicon Desicon Digital Professional Surveyor Digital Desicon DMCC 013 2525 815 Certificate No. RONALD EIDSON

CARNEDS EIDSON ·14 3239 12641 12185

District I PO Box 1980, Hobbs, NM 88241-1980 District II
811 S. 1st Street, Artesia, NM 88210-2834
District III 1000 Rio Brazos Rd., Aztec, NM 87410 District IV

2040 South Pacheco, Santa Fe, NM 87505

# State of New Mexico Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION 2040 South Pacheco Santa Fe, NM 87505

Form C-101 Revised October 18, 199 Instructions on bac Submit to Appropriate District O State Lease - 6 Copie Fee Lease - 5 Copie

APPLIC	APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE													
			<sup>1</sup> Opera	ator name ar	nd Address	s							<sup>2</sup> OGR	ID Number
ARCO PERMIAN	I		•										0.0	00990
P.O.BOX 1610	)													I Number
MIDLAND, TX	79702											30-0	15-2	22465
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2	2954					1	WASHINGT	ON "33" S	STATE					30
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ARTESIA (GLORIETA-YESO) 96830 ARTESIA (Q-G-SA) 3230														
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		-												
		+			<del>,</del>					<del></del>				
<sup>22</sup> 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 Describe the blowout prevention program, if any. Use additional sheets if necessary  ORIGINALLY DRILLED AND COMPLETED AS THE EMPIRE ABO UNIT H-322 IN 1978.  TD @ 6290'OH. TESTED ABO @ 6262-6290' OH & 6150-6230' PERFS. TA'D W/ CIBP @ 6147' ON 6-19-91. PROPOSE TO DUM 35'CEMENT ON CIBP @ 6147', RUN CNL-GAMMA RAY-CCL AND PERF THE GLORIETA-YESO OR Q-G-SA AS INDICATED ON LOG. TEST AND FRAC AS NEEDED.														
<sup>23</sup> I hereby certify of my knowledge Signature:			on give	en above is t	rue and co	omplete be		pproved by:		ONSERV	ATIO	ON D	IVIS	ION
Printed name: El	LIZABETH	A. C	ASBEE	R			T	itle:						
Title: REG./COMP. ANALYST Approval Date: Expiration Date:														

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

#### 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

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

# OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

M AMENDED REPORT

# WELL LOCATION AND ACREAGE DEDICATION PLAT

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OGRID N	o.				Operator Nam			Elevatio			
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40											
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		OR A N	NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION								
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	. ' }		05	of OPERATOR CERTIFICATION							
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I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief. 04 02 ماه 013 MURIE 9 اله Printed Name RE6 (bund) Title 010 Date 09 014 012 SURVEYOR CERTIFICATION 019 021 150 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 17 supervison, and that the same is true and correct to the best of my belief. 022 В ه ال MARCH 3, 1998 031 DMCC 290 013 30 • 28 · 24 Cethysica No. RONALD EIDSON

OF THE PROPERTY O RONALDS EIDSON 3239 12641 12185

# Geologic Discussion for Amended NSL-4060 at Artesia (Glorieta-Yeso) Field (ARCO's Washington "33" State #16, 17, 27, and 30) Section 33, T17S, R 28E, Eddy Co, NM

#### Summary:

ARCO Permian requests an amendment of NSL-4060 to allow recompletion of four unorthodox Washington 33 State wells into the Artesia (Glorieta-Yeso) Pool. We now plan to recomplete these wells first in the Artesia (Glorieta-Yeso) Pool, rather than the Artesia (Q-G-SA) Pool as authorized by the current NSL. These unorthodox recompletions are required for geologic and engineering reasons. All interests on this 600-acre State Land Office Lease No. X-00647 lease are common, and ARCO holds 100% of all rights down to the top of Abo shale.

#### Background of ARCO NSL Requests in the area:

ARCO was granted blanket NSL-4060 on June 19,1998 for completing these wells (and three additional ones) to the Artesia (Queen-Grayburg-San Andres) Pool. Division Administrative Orders NSL-915-A, NSL 915-B, NSL 809-A, NSL 999-A, NSL-4003, NSL-4007, NSL-4035, and NSL-4036 have also been granted for other unorthodox Artesia (Queen-Grayburg-San Andres) locations on the same lease. Recent testing (documented below) now indicates that recompletion of the Glorieta-Yeso zone FIRST would be more economically feasible than completing first in the San Andres and adding the deeper Yeso later. We are therefore requesting an amended NSL-4060 to enable us to complete in the Yeso in any unorthodox well that is no closer than 330' to the outer boundary of the lease. We also request that three other unorthodox wells cited in NSL-4060 (#18, 19 and 23) also be approved for Glorieta-Yeso completion under the "blanket" provisions of an amended NSL-4060.

#### Washington #9 and #14 Results:

In June 1998, ARCO completed Washington #9 in unit letter F of Section 33 for 28 BOPD, 65 MCFD and 716 BWPD, but the well has declined to about 10 BOPD. A copy of this log showing the Yeso dolomite pay is attached. Washington #14 in Unit letter H was also completed in June from the Yeso, and potentialed for 9 BOPD, 25 MCFD, and 863 BWPD, and now pumping around 40 BOPD. This new field has been designated the Artesia (Glorieta-Yeso) Pool. These wells also have uphole San Andres pay, as shown on the second attached log.

#### Geology:

The Yeso (the upper part of which is sometimes called the Paddock Formation) is a fine-crystalline, anhydritic, slightly vuggy dolomite that lies under the Glorieta sand. The lower Yeso (which we are not producing from) is sometimes called the Blinebry, Tubb, and Drinkard in Lea County. A structure map of the top Glorieta sand, which is a better geologic marker than the Yeso, has been provided. This map shows up to 5-degree dip to the SE in Section 33, with the "crest" of the structure plunging due east, one mile north of us in Section 28. The gross 250' of Yeso pay we produce from is the same dolomite interval as found at Atoka (Glorieta/Yeso) Field, East Empire (Yeso) Field, and is the deeper Grayburg-Jackson (4000' San Andres) pay. This dolomite rarely produces without a major frac job.

The San Andres dolomite is an established pay from offset wells adjacent to our Washington lease, and maps showing top San Andres Structure and Gross Pay are included. The San Andres structure dips SE and is similar to the Glorieta structure. Gross San Andres pay interval across Section 33 ranges from 500 to 600°.

# Engineering Justification for Revised NSL Request:

ARCO will need 2 strategically spaced wells in each 40-acre tract to recover 50 MBO per well in the Artesia (Q-G-SA) Field. The Glorieta-Yeso pay, with about 35 MBO per 20-acre location, is marginally economic, but only if completion cost is minimized. Completing and fracking first in the Glorieta-Yeso, and later in the San Andres will save us approximately \$30,000 compared to completing the Yeso after the San Andres. We will also avoid the substantial risk of sticking a packer with San Andres perforations open, if we fracture-treat the lower (Yeso) zone first. ARCO and the State of New Mexico would be best served if recompletions in the Glorieta-Yeso were authorized and performed first.

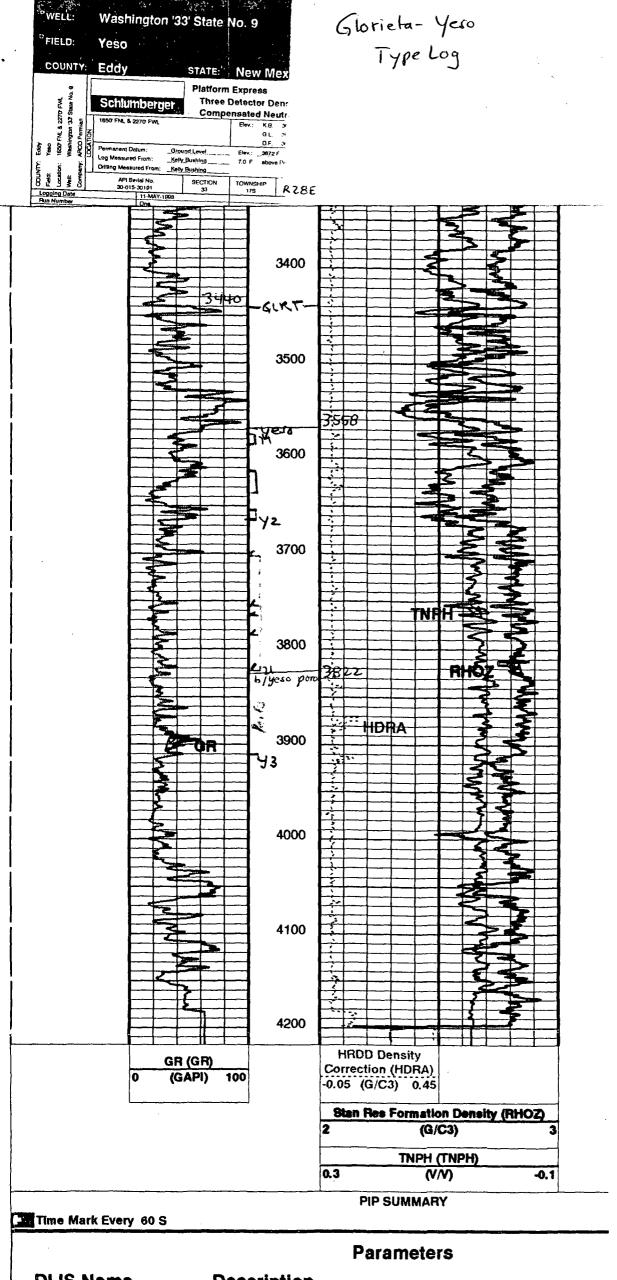
### **Production Planning:**

Since the Glorieta-Yeso appears productive over most of the lease, we now expect to complete first in this interval, unless logs or neighboring well performance indicates the Yeso is not prospective. We plan to soon apply to vertically expand the Artesia (Q-G-SA) Field to include the Yeso, and thus enable co-mingling Yeso with San Andres to keep the wells economic, as was done at Grayburg-Jackson Field by Marbob.

#### Conclusion

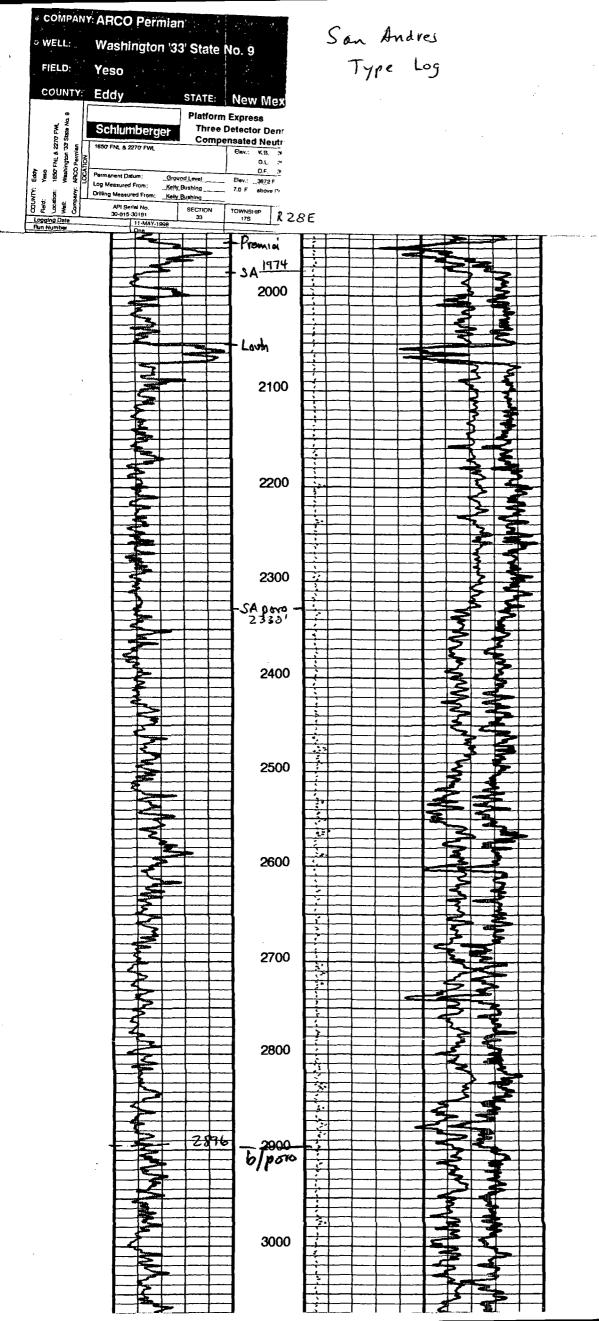
ARCO respectfully requests approval to recomplete these four wells to the Glorieta-Yeso pay as soon as possible. All wells cited in NSL-4060 are at least 330' from the outside boundary of the lease, and no offset owner notification is required.

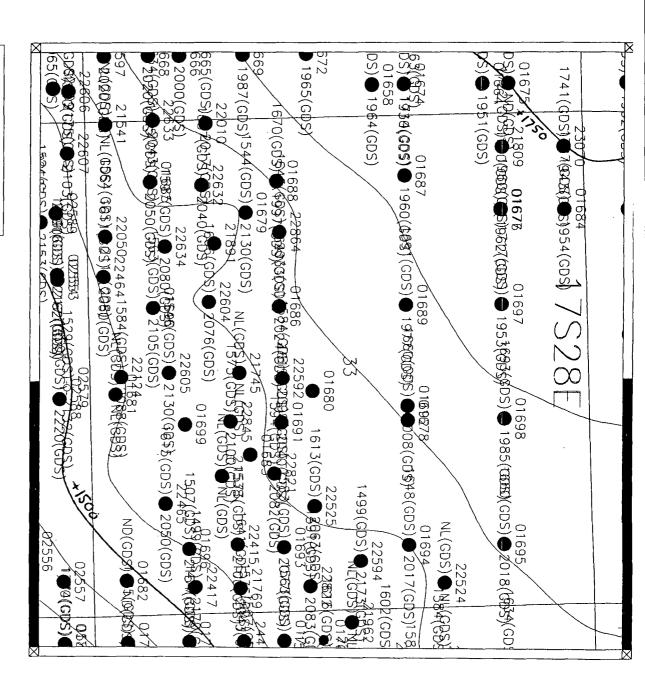
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**DLIS Name** 

**Description** 





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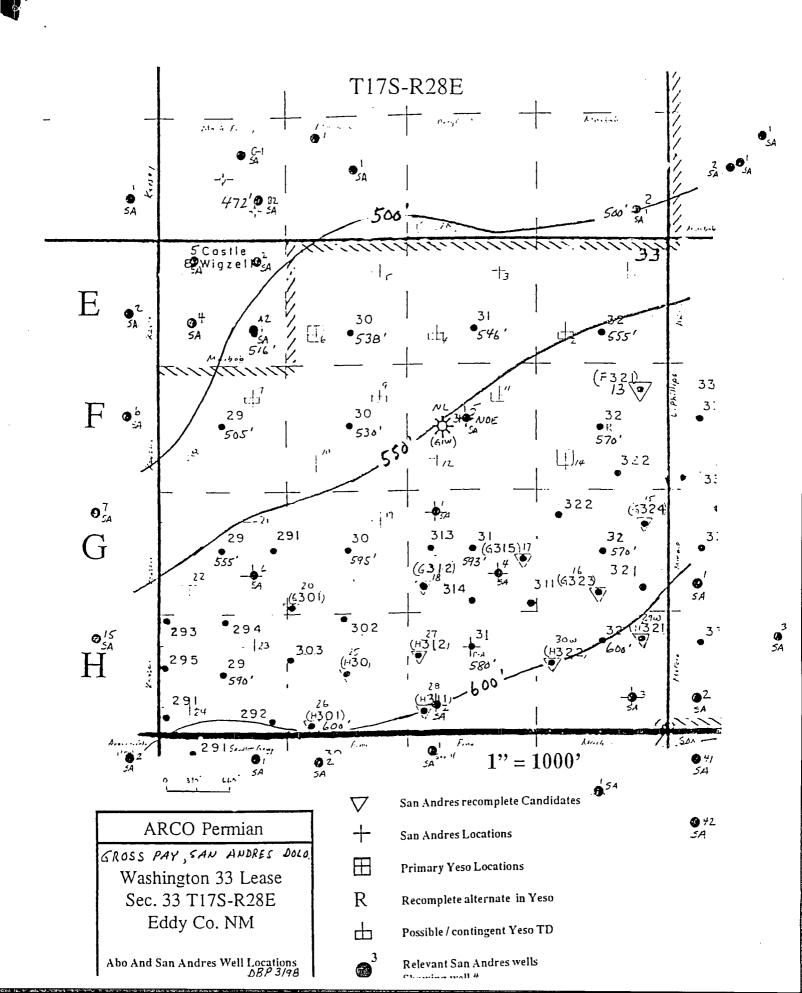
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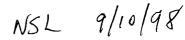


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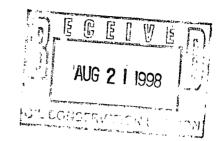


ARCO Permian 600 North Marienfeld Midland TX 79701-4373 Post Office Box 1610 Midland TX 79702-1610 Telephone 915 688 5570

Elizabeth A. Casbeer Regulatory/Compliance Analyst NSL-4060

August 20, 1998

Oil Conservation Division Attn: Michael Stogner 2040 South Pacheco Santa Fe, New Mexico 87505



#### Gentlemen:

Under the provisions of NMOCD Rule 104.F(d), ARCO Permian requests administrative approval for unorthodox locations for its Washington "33" State #16, 17, 27, and 30, recompletions of previously drilled wells in the Empire Abo Unit, to the Artesia (Glorieta-Yeso) or Artesia (Queen-Grayburg-San Andres) Pools. All wells are located in Section 33, T17S, R28E, Eddy County, New Mexico. We requests an amendment to Administrative Order NSL-4060 dated 6/19/98, to include Artesia (Glorieta-Yeso) Pool.

The following exhibits are submitted in support of our request for administrative approval:

- 1. Amended C-101s
- 2. Amended C-102s
- 3. Geologic and Engineering Discussion
- 4. A Glorieta-Yeso type log (Washington "33" State #9).
- 5. San Andres type log (Washington "33" State #9)
- 6. Structure Map, Top Glorieta Sand.
- 7. Structure Map, Top San Andres.
- 8. Gross Pay, San Andres Dolomite.
- 9. Plat showing adjoining and diagonal spacing units.

All wells are 330' or more from the outside boundary of the lease, therefore ARCO Permian deemed the offset operators as unaffected parties and no offset owners were notified.

Should you have any questions, please do not hesitate to call me at 915-688-5570 or Dave Pearcy at 915-688-5355. Thank you for your assistance in this matter.

Sincerely, Elizabeth a. Caslees

Elizabeth A. Casbeer

Regulatory/Compliance Analyst

EAC:lc

cc:

NMOCD, Artesia, New Mexico

**Enclosures** 

District I PO Box 1980, Hobbs, NM 88241-1980 District II 811 S. 1st Street, Artesia, NM 88210-2834 1000 Rio Brazos Rd., Aztec, NM 87410 District IV 2040 South Pacheco, Santa Fe, NM 87505

# State of New Mexico Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION 2040 South Pacheco Santa Fe, NM 87505

Form C-101 Revised October 18, 199 Instructions on bac Submit to Appropriate District O State Lease - 6 Copie Fee Lease - 5 Copie

A AMENIDED REPORT	-

APPLIC	CATION	I FOF	R PE	RMIT 1	O DRI	LL, RE-1	ENTE	ER, DE	EEPEN,	PLUGB	ACK	, OR	AD	D A ZONE	
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<sup>23</sup> I hereby certiff of my knowledg Signature:	e and belief.		,	en above is t	7	mplete to the		oved by:		ONSERV.	ATIO	N DI	VIS	ION	
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DISTRICT I
P.O. Box 1980, Hobbs, NM 88241-1980

# State of New Mexico

Energy, Minerals and Natural Resources Department

Form C-102
Revised February 10, 1994
bmit to Appropriate District Office

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Pool Name

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

DISTRICT IV

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

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

API Number

# OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

M AMENDED REPORT

# WELL LOCATION AND ACREAGE DEDICATION PLAT

Pool Code

30-01	<u>5-22</u>	415			Arts	sia (Glovieta-	Yeso) or Art	rsia (Q.G.SA)						
Property (	Code				Property Nam			Well Num						
2295	4			WASH	INGTON 33	16								
OGRID N	o.				Operator Nam	Elevation								
00090	10	<u> </u>		<i></i>	ARCO PERMIA	366	4'							
	Surface Location													
UL or lot No.	Section	Township	Range	Lot ldn	Feet from the	North/South line	Feet from the	East/West line	County					
I	33	17 S	28 E		1500	300TH	700	EAST	EDDY					
			Bottom	Hole Lo	cation If Diffe	erent From Sur	face							
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County					
Dedicated Acre	s Joint	or Infill	Consolidation	Code Or	der No.									
40														
NO ALLO	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													

	OR A NON-STAN			
	.5	.3	01	OPERATOR CERTIFICATION
	1	_		I hereby certify the the information contained herein is true and complete to the
				best of my knowledge and belief.
		· ;	07	Elizabet G. Ceshe
	ماه	34		Signature ()
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021	.19			I hereby certify that the well location shown on this plat was plotted from field notes of
		17	,	actual surveys made by me or under my supervison, and that the same is true and
		0		correct to the best of my belief.
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		l		"Management

District I PO Box 1980, Hobbs, NM 88241-1980 District II 811 S. 1st Street, Artesia, NM 88210-2834 District III 1000 Rio Brazos Rd., Aztec, NM 87410 District IV 2040 South Pacheco, Santa Fe, NM 87505

# State of New Mexico Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION 2040 South Pacheco Santa Fe, NM 87505 Form C-101 Revised October 18, 199 Instructions on bac Submit to Appropriate District O State Lease - 6 Copie Fee Lease - 5 Copie

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APPLIC	CATION	I FOI	R PE	ERMIT T	O DR	ILL, RE-E	NTER, D	EEPEN	, PLUGBAC	CK, OR AI	DD A ZONE	
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DISTRICT I P.O. Box 1980, Hobbs, NM 88241-1980

State of New Mexico Energy, Minerals and Natural Resources Department

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East/West line

County

Pool Name

Feet from the

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

API Number

Section

UL or lot No.

Dedicated Acres

40

Township

Joint or Infill

Range

Consolidation Code

# OIL CONSERVATION DIVISION

P.O. Box 2088 Santa Fe, New Mexico 87504-2088

M AMENDED REPORT

#### WELL LOCATION AND ACREAGE DEDICATION PLAT

Pool Code

Lot Idn

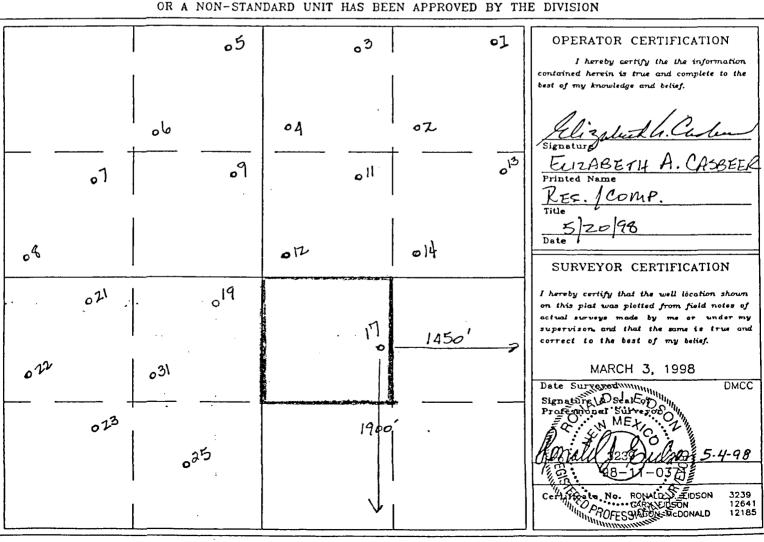
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Order No.

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED

North/South line



District I PO Box 1980, Hobbs, NM 88241-1980 District II 811 S. 1st Street, Artesia, NM 88210-2834 District III 1000 Rio Brazos Rd., Aztec, NM 87410 District IV

Title:

REG./COMP. ANALYST

## State of New Mexico Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION 2040 South Pacheco Santa Fe, NM 87505

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Expiration Date:

Revised February 10, 1994 Submit to Appropriate District Office

Pool Name

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#### 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

API Number

## OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

X AMENDED REPORT

# WELL LOCATION AND ACREAGE DEDICATION PLAT

Pool Code

30-019	5-22	605		Artesia (Glorieta- Yeso) or Artesia (Q-G-SA)									
Property (	Code	I			Property Nam	ie .		Well Num	ber				
2295	54			WASH	HINGTON 33	STATE		27					
OGRID N	D.				Operator Nam	ie		Elevatio	n				
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Dedicated Acre	s Joint o	or Infill Co	nsolidation	Code Or	der No.			<u> </u>					

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

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District I PO Box 1980, Hobbs, NM 88241-1980 District II 811 S. 1st Street, Artesia, NM 88210-2834 District III 1000 Rio Brazos Rd., Aztec, NM 87410 District IV 2040 South Pacheco, Santa Fe, NM 87505

# State of New Mexico Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION 2040 South Pacheco Santa Fe, NM 87505

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.. DISTRICT I . P.O. Box 1980, Hobbs, NM 88241-1980 State of New Mexico

Energy, Minerals and Natural Resources Department

Form C-102 Revised February 10, 1994 Submit to Appropriate District Office

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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

## OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

**E** AMENDED REPORT

# WELL LOCATION AND ACREAGE DEDICATION PLAT

API	Number			Pool Code		Pool Name						
30-015-	- 2246	<u> </u>			Arte	sia (Glorieta-	resolor Arte	sia (Q-G-SA)_				
Property					Property Nam	Well Num						
2295	54			WASH	IINGTON 33	STATE		30				
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#### Bottom Hole Location If Different From Surface

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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

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	, 					· 		REG COMP. ASST.  Title 6/16/98
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	,				. 17			correct to the best of my belief.
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# Geologic Discussion for Amended NSL-4060 at Artesia (Glorieta-Yeso) Field (ARCO's Washington "33" State #16, 17, 27, and 30) Section 33, T17S, R 28E, Eddy Co, NM

#### Summary:

ARCO Permian requests an amendment of NSL-4060 to allow recompletion of four unorthodox Washington 33 State wells into the Artesia (Glorieta-Yeso) Pool. We now plan to recomplete these wells first in the Artesia (Glorieta-Yeso) Pool, rather than the Artesia (Q-G-SA) Pool as authorized by the current NSL. These unorthodox recompletions are required for geologic and engineering reasons. All interests on this 600-acre State Land Office Lease No. X-00647 lease are common, and ARCO holds 100% of all rights down to the top of Abo shale.

#### Background of ARCO NSL Requests in the area:

ARCO was granted blanket NSL-4060 on June 19,1998 for completing these wells (and three additional ones) to the Artesia (Queen-Grayburg-San Andres) Pool. Division Administrative Orders NSL-915-A, NSL 915-B, NSL 809-A, NSL 999-A, NSL-4003, NSL-4007, NSL-4035, and NSL-4036 have also been granted for other unorthodox Artesia (Queen-Grayburg-San Andres) locations on the same lease. Recent testing (documented below) now indicates that recompletion of the Glorieta-Yeso zone FIRST would be more economically feasible than completing first in the San Andres and adding the deeper Yeso later. We are therefore requesting an amended NSL-4060 to enable us to complete in the Yeso in any unorthodox well that is no closer than 330' to the outer boundary of the lease. We also request that three other unorthodox wells cited in NSL-4060 (#18, 19 and 23) also be approved for Glorieta-Yeso completion under the "blanket" provisions of an amended NSL-4060.

#### Washington #9 and #14 Results:

In June 1998, ARCO completed Washington #9 in unit letter F of Section 33 for 28 BOPD, 65 MCFD and 716 BWPD, but the well has declined to about 10 BOPD. A copy of this log showing the Yeso dolomite pay is attached. Washington #14 in Unit letter H was also completed in June from the Yeso, and potentialed for 9 BOPD, 25 MCFD, and 863 BWPD, and now pumping around 40 BOPD. This new field has been designated the Artesia (Glorieta-Yeso) Pool. These wells also have uphole San Andres pay, as shown on the second attached log.

#### Geology:

The Yeso (the upper part of which is sometimes called the Paddock Formation) is a fine-crystalline, anhydritic, slightly vuggy dolomite that lies under the Glorieta sand. The lower Yeso (which we are not producing from) is sometimes called the Blinebry, Tubb, and Drinkard in Lea County. A structure map of the top Glorieta sand, which is a better geologic marker than the Yeso, has been provided. This map shows up to 5-degree dip to the SE in Section 33, with the "crest" of the structure plunging due east, one mile north of us in Section 28. The gross 250' of Yeso pay we produce from is the same dolomite interval as found at Atoka (Glorieta/Yeso) Field, East Empire (Yeso) Field, and is the deeper Grayburg-Jackson (4000' San Andres) pay. This dolomite rarely produces without a major frac job.

The San Andres dolomite is an established pay from offset wells adjacent to our Washington lease, and maps showing top San Andres Structure and Gross Pay are included. The San Andres structure dips SE and is similar to the Glorieta structure. Gross San Andres pay interval across Section 33 ranges from 500 to 600'.

#### Engineering Justification for Revised NSL Request:

ARCO will need 2 strategically spaced wells in each 40-acre tract to recover 50 MBO per well in the Artesia (Q-G-SA) Field. The Glorieta-Yeso pay, with about 35 MBO per 20-acre location, is marginally economic, but only if completion cost is minimized. Completing and fracking first in the Glorieta-Yeso, and later in the San Andres will save us approximately \$30,000 compared to completing the Yeso after the San Andres. We will also avoid the substantial risk of sticking a packer with San Andres perforations open, if we fracture-treat the lower (Yeso) zone first. ARCO and the State of New Mexico would be best served if recompletions in the Glorieta-Yeso were authorized and performed first.

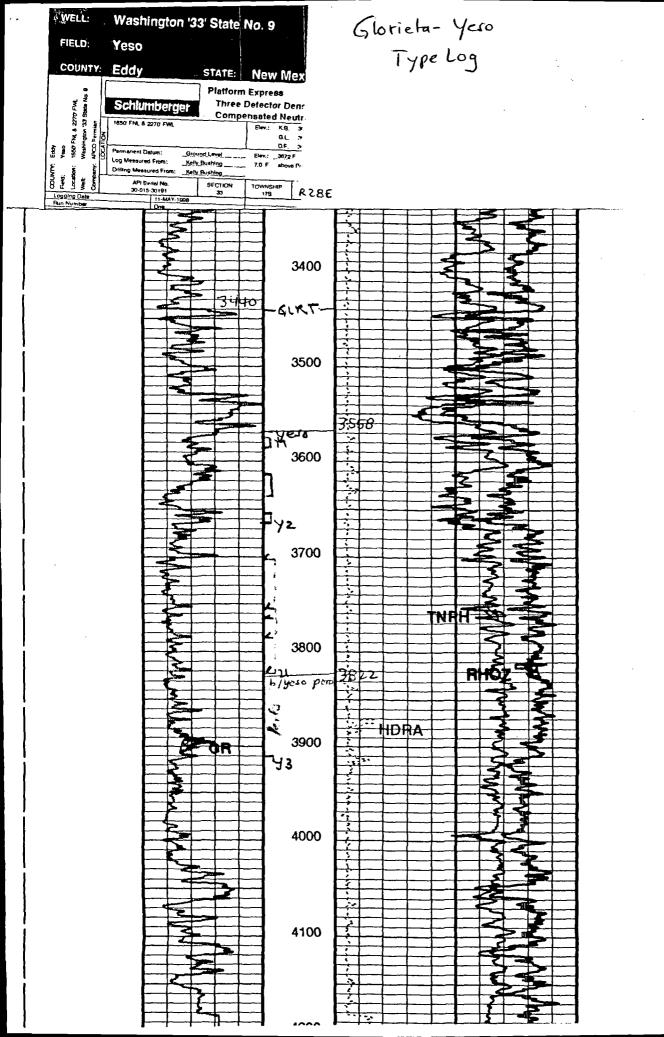
#### Production Planning:

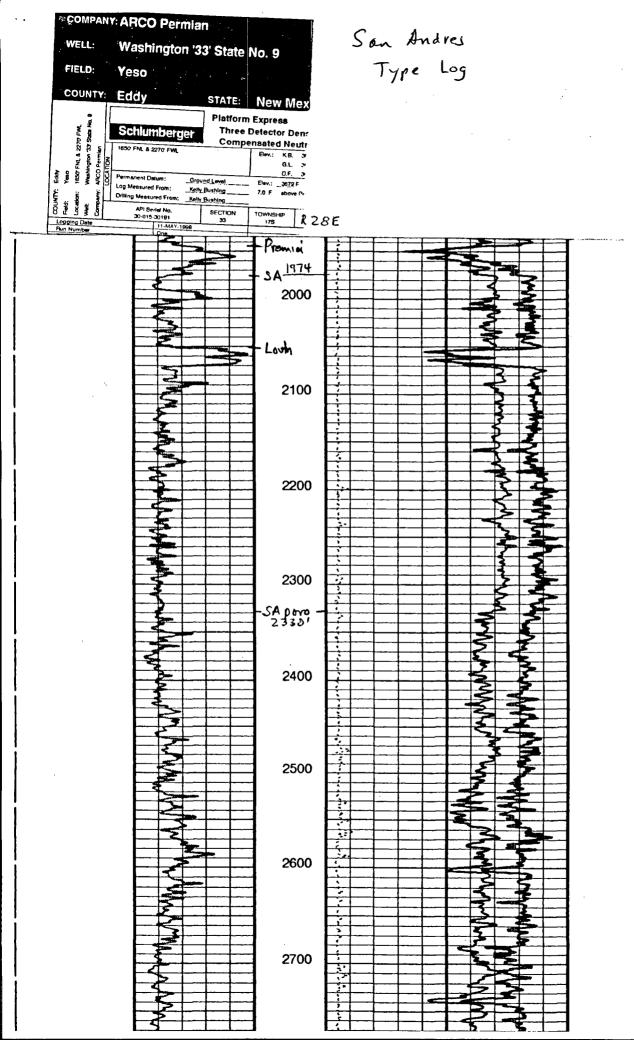
Since the Glorieta-Yeso appears productive over most of the lease, we now expect to complete first in this interval, unless logs or neighboring well performance indicates the Yeso is not prospective. We plan to soon apply to vertically expand the Artesia (Q-G-SA) Field to include the Yeso, and thus enable co-mingling Yeso with San Andres to keep the wells economic, as was done at Grayburg-Jackson Field by Marbob.

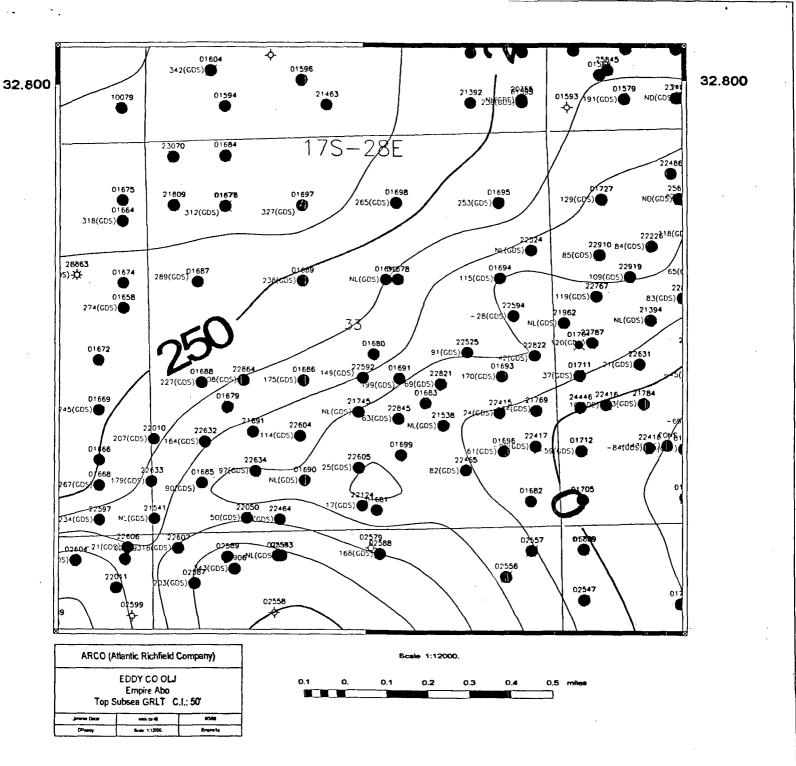
#### Conclusion

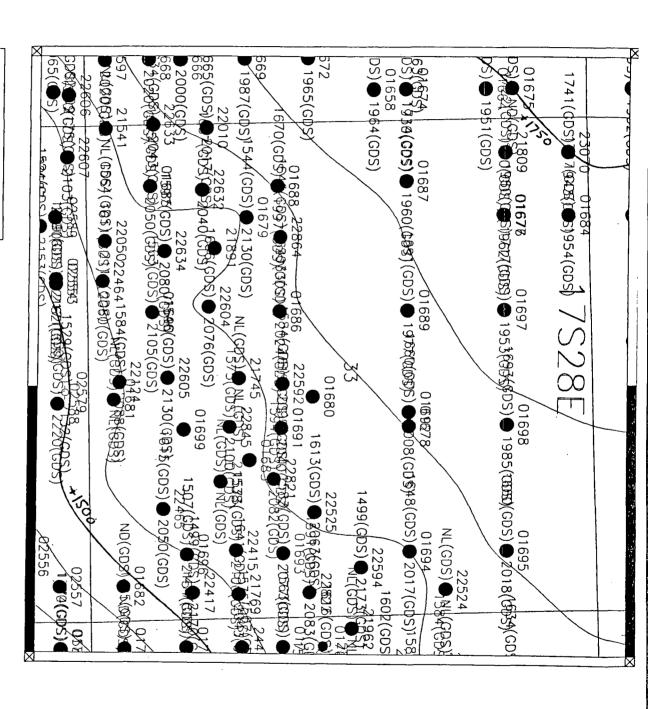
ARCO respectfully requests approval to recomplete these four wells to the Glorieta-Yeso pay as soon as possible. All wells cited in NSL-4060 are at least 330' from the outside boundary of the lease, and no offset owner notification is required.

WasRCyeso









ARCO PERMIAN

EDDY CO NM
EMPIRE ABO
SNDR STRUCTURE

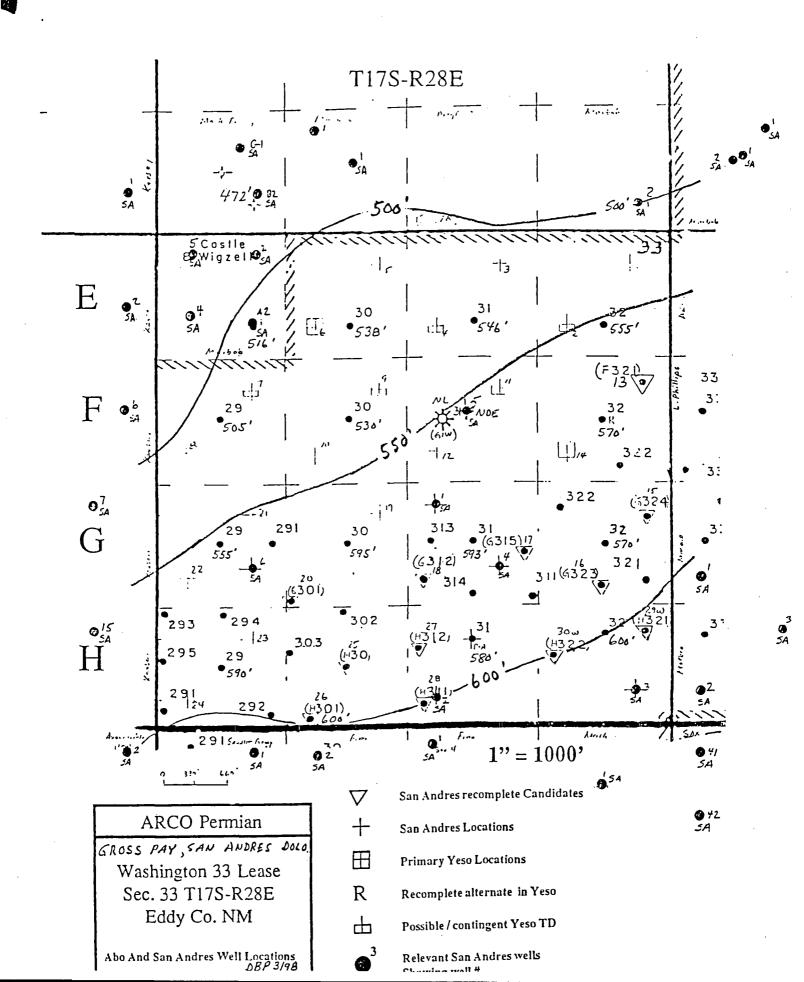
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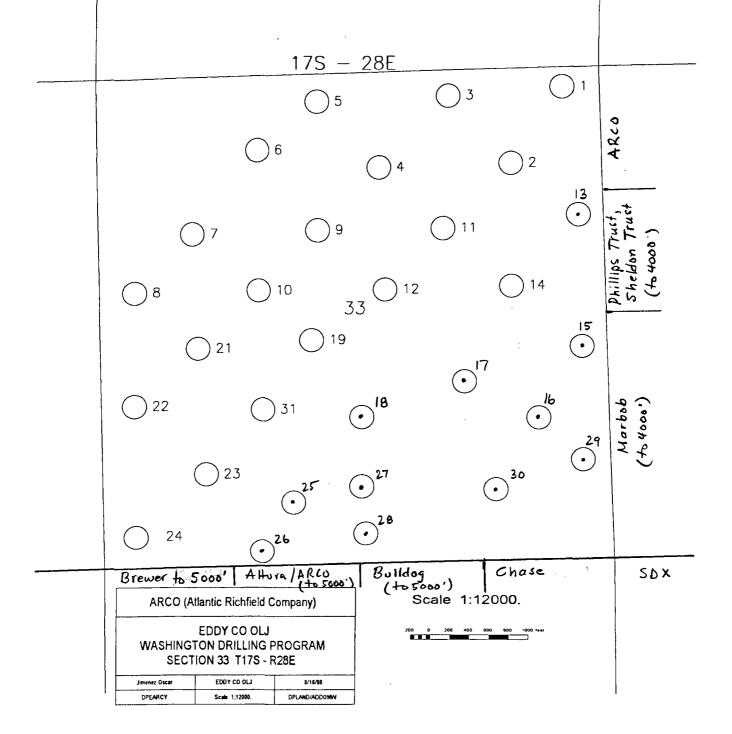
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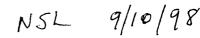
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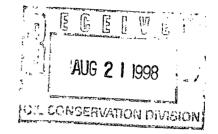
ARCO Permlan 600 North Marienfeld Midland TX 79701-4373 Post Office Box 1610 Midland TX 79702-1610 Telephone 915 688 5570

Elizabeth A. Casbeer
Regulatory/Compliance Analyst

NSL-4060

August 20, 1998

Oil Conservation Division Attn: Michael Stogner 2040 South Pacheco Santa Fe. New Mexico 87505



#### Gentlemen:

Under the provisions of NMOCD Rule 104.F(d), ARCO Permian requests administrative approval for unorthodox locations for its Washington "33" State #16, 17, 27, and 30, recompletions of previously drilled wells in the Empire Abo Unit, to the Artesia (Glorieta-Yeso) or Artesia (Queen-Grayburg-San Andres) Pools. All wells are located in Section 33, T17S, R28E, Eddy County, New Mexico. We requests an amendment to Administrative Order NSL-4060 dated 6/19/98, to include Artesia (Glorieta-Yeso) Pool.

The following exhibits are submitted in support of our request for administrative approval:

- 1. Amended C-101s
- 2. Amended C-102s
- 3. Geologic and Engineering Discussion
- 4. A Glorieta-Yeso type log (Washington "33" State #9).
- 5. San Andres type log (Washington "33" State #9)
- 6. Structure Map, Top Glorieta Sand.
- 7. Structure Map, Top San Andres.
- 8. Gross Pay, San Andres Dolomite.
- 9. Plat showing adjoining and diagonal spacing units.

zaluit G. Cashess

All wells are 330' or more from the outside boundary of the lease, therefore ARCO Permian deemed the offset operators as unaffected parties and no offset owners were notified.

Should you have any questions, please do not hesitate to call me at 915-688-5570 or Dave Pearcy at 915-688-5355. Thank you for your assistance in this matter.

Sincerely,

Elizabeth A. Casbeer

Regulatory/Compliance Analyst

EAC:lc

cc:

NMOCD, Artesia, New Mexico

**Enclosures** 

#### State of New Mexico Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION 2040 South Pacheco Santa Fe, NM 87505

Form C-101 Revised October 18, 199 Instructions on bac Submit to Appropriate District O State Lease - 6 Copie Fee Lease - 5 Copie

	AMENDED REPORT

APPLIC	CATION	1 FO	R PE	RMIT T	O DR	ILL, RE-E	NTER, D	EEPEN	, PLUGBAC	CK, OR	AD.	D A ZONE	
			1Opera	ator name ar	nd Addres	s					<sup>2</sup> OGR	ID Number	
ARCO PERMIA	N										0	0099 <b>0</b>	
P.O.BOX 161	0										<sup>3</sup> AP	I Number	
MIDLAND, TX	79702							·····		30-0	15	5-22415	
<sup>4</sup> Pro	perty Code		•			5	Property Nam	e			6	Well No.	
	22954						NGTON "33"	STATE				16	
		·		,			Location		<del>,</del>				
UL or lot no.	Section	Town	ship	Range	Lot. Idn	Feet from			Feet from the	East/We	st line	County	
I	33	1	7S	28 <b>E</b>		150		OUTH	700	EAST		EDDY	
			* ]	Proposed	d Botton	m Hole Lo	cation If D	ifferent	From Surfac	e			
UL or lot no.	Section	Town	ship	Range	Lot. Idn	Feet from	the North,	/South Line	Feet from the	East/We	st line	County	
		9 Prop	osed P	Pool 1					10 Proposed P	ool 2			
	ARTESI <b>A</b>	GLC	RIETA	A-YESO) 9	683 <b>0</b>				ARTESIA (Q-G-	SA) 323	0		
11 Work T	ype Code		12	Well Type C	ode	13 Cable	e/Rotary	<sup>14</sup> Lea	se Type Code	15 Gr	ound L	evel Elevation	
	P			0			R S			3664'			
16 Mu	ltiple		17	Proposed De	p <b>th</b>	18 Forr	nation 19 Contractor				<sup>20</sup> Spud Date		
	NO			4200		YI	50				7	/98	
					21 Prop	osed Casii	ng and Cer	nent Pro	ogram				
Hole S	ize		Casin	g Size	Casing	g weight/foot	Setting I	Depth	Sacks of Ceme	nt	Esti	mated TOC	
11			8-5	./8		24#	600, 300					SURF	
7-7/	8	ļ	_5-1	/2		15_5	6197' 1225			SURF			
		-											
		-											
ORIGINALL' PRODUCED	Wout prevention  Y DRILLED  ABO IN OF  M/2 SXS OF  SAN ANDRE	ntion pr O AND PEN HO CEMENT ES. F	COMPI COMPI OLE 6: ON CI	, if any. Use LETED AS 197' - 6219 TOP 2-11-	THE EMF UNTIL 98. IT	PIRE ABO UN 1991. TE IS PROPOS	essary IT G-323 II STED ABO PI	N 197 <b>8.</b> ERF 586 <b>6</b> THE GLO	TD @ 6219'. '-5880' 2-4-9 RIETA-YESO OF	98.		osed new productiv	
<sup>23</sup> I hereby certif of my knowledg	y that the in	formati	on give	en above is t	rue and co	omplete to the			ONSERVAT	ION D	IVIS	ION	
Signature:	liz	rlu	d	ac	lest	heen	Approved by	:					
Printed name: E	LIZABETH	A. C	ASBEE	R			Title:						
Title: R	EG./COMP	. ANAI	_YST				Approval Da	te:	Ex	piration D	ate:		

DISTRICT I P.O. Box 1980, Hobbs, NM 88241-1980 State of New Mexico

Energy, Minerals and Natural Resources Department

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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

#### OIL CONSERVATION DIVISION

P.O. Box 2088 Santa Fe, New Mexico 87504-2088

M AMENDED REPORT

#### WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code		Pool Name				
30-015-224	115	Artesia (Glorieta - Yeso) or Artesia (Q.C					
Property Code		Property Name	Well Number				
22954	WASH	HINGTON 33 STATE					
OGRID No.		Operator Name	Elevation				
000990		ARCO PERMIAN	3664				

#### Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
エ	33	17 S	28 E		1500	500TH	700	EAST	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
Dedicated Acre	s Joint o	r Infill Co	nsolidation (	Code Ore	der 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

·····				<del></del>
	<i>。</i> 5	. 3	01	OPERATOR CERTIFICATION  I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.
	ماه	•4 ————————————————————————————————————	07	Signature D ELIZABETH A. CASDEER
07	.9	الم	013	Printed Name REG COMP.  Title  5/20/98
٥٩		012	014	SURVEYOR CERTIFICATION
021	019	17		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.
	o31 ———	B	9 16 700's	MARCH 3, 1998  Date Surveyod\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
013	<b>3</b> 5.		1500'	MEX 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	. 20			Certain No. RONALD EIDSON 3239 CARNEDSON 12641 NOTES SANDER MCDONALD 12185

## State of New Mexico Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION 2040 South Pacheco Santa Fe, NM 87505 Form C-101 Revised October 18, 199 Instructions on bac Submit to Appropriate District O State Lease - 6 Copie Fee Lease - 5 Copie

tio Brazos Rd., Aztec, NM 87410	Santa Fe, NM 87505	Fe
outh Pacheco, Santa Fe, NM 87505		X AMEN

APPLIC	CATION	I FO	R PE	RMIT	O DR	ILL, R	E-ENTI	ER, DI	EEPEN,	, PLUGB	BACI	K, OR A	DI	D A ZONE
			<sup>1</sup> Opera	ator name a	nd Addres	s		·				2 (	OGR	ID Number
ARCO PERMIA	N		•										οc	0099 <b>0</b>
P.O.BOX 1610	0											3		I Number
MIDLAND, TX	79702													
<sup>4</sup> Pro	perty Code						5 Prope	rty Name	?				6	Well No.
	229 <b>54</b>					WA	SHINGTON	I "33"	STATE					17
	<sup>7</sup> Surface Location													
UL or lot no.	Section	Town	ship	Range	Lot. Idn		from the	<del></del>	South Line	Feet from th	ne :	East/West l	ine	County
J	33	1	7S	28E			190 <b>0</b>	sc	UTH	1450		EAST		EDDY
	<del></del>				d Bottor					From Su	rface			
UL or lot no.	Section	Town	ship	Range	Lot. Idn	Feet	from the	North/	South Line	Feet from th	he	East/West	line	County
	<b>1</b>	9 Prop	osed P	rool 1		l		L.		10 Propos	sed Po	ol 2		
		_		ETA-YESC	, 96	830	)			ARTESI <i>A</i>			32	230
<b></b>									,					
11 Work T	ype Code		12	Well Type C	Code	13 (	Cable/Rota	ry	<sup>14</sup> Lea	se Type Code	e	<sup>15</sup> Grou	nd L	evel Elevation
	Р			. 0			R			S		3663,		663
<sup>16</sup> Mu	ltiple		17]	Proposed D	epth	18	Formation		19 (	Contractor		<sup>20</sup> Spud Date		
!	NO			4200			YESO					7/98		
					21 Prop	osed C	asing ar	nd Cen	nent Pro	ogram				
Hole S	ize		Casing	g Size	Casing	g weight/f	foot	Setting D	epth	Sacks of C	Cement		Esti	mated TOC
11		ļ <u>.</u>	8-5	/8		24#		751' 400			l	SURF		
7-7/	88	ļ	5-1	/2	1	155		6370 1900			0			SURF
				·										
		-												·
<sup>22</sup> Describe the p Describe the blo	proposed prowout prever	ogram. ntion pr	If this ogram	application , if any. Use	is to DEEF additiona	PEN or PL I sheets if	UG BACK necessary	give the d	ata on the	present prod	luctive	zone and p	горо	esed new productive a
ORIGINALLY 5794'-6280 SET CIBP 0 AS NEEDED.	0'. PROP 0 5750' W	OSED	TO AE	BANDON TH	IE ABO A	ND TEST	THE GLO	RIETA-	YESO OR	TD @ 637 THE QUEE S INDICATI	N - GRA	TESTED A YBURG-SA 'LOG. T	N A	NDRES. AND FRAC
<sup>23</sup> I hereby certify of my knowledge	y that the inte	formatio	on give	en above is t	rue and co	mplete to	the best		OIL C	ONSERV	ATI	ON DIV	'ISI	ON
Signature:	lix	sli	wl	! ({ .C	ast	in	App	roved by:						
Printed name: E	LIZABETH	A. CA	SBEEF	₹			Title							
Title: RI	EG./COMP.	ANAL	YST				Арр	roval Dat	e:		Exp	iration Date	2:	

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

#### State of New Mexico

Energy, Minerals and Natural Resources Department

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

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

#### OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

M AMENDED REPORT

#### WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name				
30-015-22921		Artesia (Glorista- Yeso)	or Artesia (Q-G-SA)			
Property Code	Ргод	erty Name	Well Number			
22954	WASHINGTO	17				
OGRID No.	-	ator Name	Elevation			
000990	ARCO	PERMIAN	3663			
	Surfa	ce Location				

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	33	17 S	28 E		1900	SOUTH	1450	EAST	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
Dedicated Acres	Joint o	r Infill Co	nsolidation	Code Or	der No.			<u> </u>	

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED

OR A NON-STAN	DARD UNIT HAS BEE	N APPROVED BY TH	E DIVISION
.5	o <sup>3</sup>	0]	OPERATOR CERTIFICATION  I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.
هاه ا	<i>о</i> Д	07	Signatury A Carlon
.1 .9	الم	013	Signature  ELIZABETH A. CASBEER  Printed Name  REC. J COMP.  Title
٥٩	017	014	5/20/98  SURVEYOR CERTIFICATION
021	Ţ	1450'	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.
012 031			MARCH 3, 1998  Date Surveyed Minimum  Signature to State of Minimum  Professional Surveyor March
013	1940	•	MEXIC 12 1 5-4-98
	<u> </u>		CENTRAL No. ROLLIO EIDSON 3239  CARN CIDED 12641  ROLLIO ROLLIO 12185

## State of New Mexico Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION 2040 South Pacheco Santa Fe, NM 87505 Form C-101 Revised October 18, 199 Instructions on bac Submit to Appropriate District O State Lease - 6 Copie Fee Lease - 5 Copie

LXJ	AMENDED REPORT

APPLIC	ATION	FOI	R PE	RMITT	O DR	ILL, RI	E-ENTI	ER, DE	EEPEN,	PLUGBA	CK, OI	RAD	D A ZONE
			<sup>1</sup> Opera	ator name ar	nd Addres	s						<sup>2</sup> OGF	UD Number
ARCO PERMIAN	l											0	00990
P.O.BOX 1610	)											3 AF	PI Number
MIDLAND, TX	797 <b>02</b>		_		_						30-0	15-2	22605
4 Proj	erty Code				-		<sup>5</sup> Prope	rty Name	:			6	Well No.
	2954						<u>SHINGTON</u>		STATE				27
						<sup>7</sup> Surfa	ace Loca						
UL or lot no.	Section	Towns	ship	Range	Lot. ldn	Feet f	rom the	the North/South Line Feet from the			East/W	est line	County
0	33	17	7S				815		DUTH	25 <b>25</b>	EAS	<u>T  </u>	EDDY
			8 ]	Proposed	l Bottoi	n Hole	Locatio	n If Di	ifferent	From Surfa	ce		
UL or lot no.	Section	Town	ship	Range	Lot. Idn	Feet f	rom the	North/	South Line	Feet from the	East/W	est line	County
<del> </del>		Prop	and D	Pool 1						10 Proposed	Pool 2		
		-								-			
	<u>ARTESIA</u>	(GLOF	RIETA	<u>-YESO) 9</u>	9683 <b>0</b>			<del></del>		ARTESIA (Q-0	i-SA) 32	30	
11 Work T	11 Work Type Code 12 Well Type Code 13 Cab						able/Rota	rv	14 Lea	se Type Code	15 G	round I	Level Elevation
	Well Type Code			out		_	- 9		oc 1) pe code				
	P 0				19	<u>R</u> Formation	ion S 19 Contractor				3668'		
16 Mul	пріє		17 .	<sup>17</sup> Proposed Depth			rormation		Contractor			<sup>20</sup> Spud Date	
	10			4200	21 —		YESO				<u> </u>	8	3/98
					21 Prop	osed Ca	asing ar	nd Cem	nent Pro	ogram			
Hole S	ze	ļ	Casin	g Size	Casing	gweight/fe	oot	Setting Depth Sacks of Cemer			ent	Est	imated TOC
11_			_8-5	5/8		24#				550			SURF
7-7/	3	-	5-1	./2	15.5			6405 1555				5	50' CBL
		-											
							<del>-</del>	-					
ORIGINALLY 6058' - 6283	woutprever 'DRILLEC L'. TA'C MMMARAY-	ntion pr ) AND ) W/CI CCL A	ogram COMPI BP @ .ND PI	i, if any. Use LETED AS 6042°6/	additiona THE EMP 20/91.	I sheets if: IRE ABO PROPOS	necessary UNIT H ED TO DI	-312 IN JMP 35'	197 <b>8.</b> CEMENT	present product TD @ 6405°. ON CIBP @ 6 ES AS INDICA	TESTE	D ABO	osed new producti
23 I hereby certify that the information given above is true and complete to the bof my knowledge and belief.  Signature:  Printed name: ELIZABETH A. CASBEER							App Title			ONSERVA			ION
Title: R	G./COMP	ANAL	YST				App	Approval Date: Expiration Date:					

Decide of Fig. 19 Energy, Minerals and Natural Resources Department

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

#### 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								
30-019	5-22	605			Artes	ia (Glorista )	leso) or Arte	sia (Q-G-SA)				
Property (	Code				Well Number							
2295	54			WASH	1 27							
OGRID No	o		Operator Name Elev									
000990	>		ARCO PERMIAN 34.65									
	Surface Location											
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County			
0	33	17 S	28 E	<u></u>	815	500TH 2525		EAST	EDDY			
			Bottom	Hole Loc	cation If Diffe	rent From Sur	face					
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County			
		<u> </u>	<u> </u>									
Dedicated Acres	s Joint o	r Infill Co	nsolidation (	Code Or	der No.			•				
40						_						

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

			<del></del>	<del></del>
	.5	03	0]	OPERATOR CERTIFICATION  I hereby certify the the information
		ļ		contained herein is true and complete to the best of my knowledge and belief.
	ماه	04	02	Elizabert G. Cashen
.1	.9	ااه	o <sup>13</sup>	I Finited Name
	·			REG Comp. ANALYST 1613198
04	.10	on	014	SURVEYOR CERTIFICATION
021	. 019			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
		17	•	supervisor, and that the same is true and correct to the best of my belief.
on	031	18	0 16	Date Surveyed William DMCC
013		21 2525		Professional Surveyor
,	35	815'	<del></del>	Mariell 1239 1/20 5-4-98
· 24	210	VI.3		Certificate No. RONALDS EIDSON 3239  CARNEDSON 12641  CARNEDSON 12641  CARNEDSON 12185

### State of New Mexico Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION 2040 South Pacheco Santa Fe, NM 87505 Form C-101 Revised October 18, 199 Instructions on bac Submit to Appropriate District O State Lease - 6 Copie Fee Lease - 5 Copie

$\lfloor X \rfloor$	AMENDED REPORT

APPLIC	LATION	1 FO	KPI	EKMIT	O DK	ILL, KE-E	NIE	K, DE	EPEN	, PLUGB	ACI	K, OR	AL	DD A ZONE
		_	<sup>1</sup> Oper	ator name a	nd Addres	s							<sup>2</sup> OGI	RID Number
ARCO PERMIA	N												(	000990
P.O.BOX 161													3 A	PI Number
MIDLAND, TX	79702	_										30-0	15-	22465
<sup>4</sup> Pro	perty Code					5	Prope	rty Name	•			6 Well No.		
<del></del>	22954						INGTON "33" STATE						<u> </u>	30
	1	_				<sup>7</sup> Surface	Loca							
UL or lot no.	Section	Towr	nship				the	North/	South Line	Feet from th	ne   ]	East/We	est line	County
Р	33	1	.7S	28E		750			UTH	1150	L	EAS		EDDY
			8	Proposed	d Bottoi	n Hole Lo	catio	n If Di	fferent	From Su	rface	<u> </u>		
UL or lot no.	Section	Towi	nship	Range	Lot. Idn	Feet from	the	North/	South Line	Feet from th	ne	East/We	est line	e County
		1 9  Proj	posed l	Pool 1	ool 1 10 Propose						sed Poo	ol 2		
	ARTESTA	· (GLC	DRIET.	A-YESO) 9	683 <b>0</b>				Į.	ARTESIA (C	)-G-S/	A) 32	30	
11 Work 7	ype Code		12 Well Type Code 13			13 Cable	/Rotar	у	<sup>14</sup> Lea	se Type Code	2	15 G1	ound	Level Elevation
	Р			0	ı	R			S				3662	
16 Mı	ıltiple		17	Proposed D	18 Formation			<sup>19</sup> Contractor			20 Spud Date			
	NO			4000			-50					_	00.70	
	NO			<u>4200</u>	<sup>21</sup> Prop	osed Casir		d Cen	nent Pro	ogra <b>m</b>				28-78
Hole S	Size		Casir	ng_Size		weight/foot		Setting D		Sacks of C	2eme <b>nt</b>	:	Est	timated TOC
11			8-1	5/8		24#	1# 600		300					SURF
_7.7./	/88	ļ	5-	1/2	15.5			6262		1275				SURF
		-												
		<u> </u>					ļ							
ORIGINALL TD @ 6290 CIBP @ 61	Y DRILLED OH. TES 47' ON 6- RAY-CCL	AND STED / 19-9: AND I	rogran COMP ABO @ 1. P PERF	n, if any. Use LETED AS 6262-629 ROPOSE TO	eadditiona THE EMP 90'OH & DUM 35	PEN or PLUG E I sheets if nece IRE ABO UN 6150-6230 CEMENT ON O OR Q-G-SA	ssary IT H- ' PER CIBP	322 IN FS. T. @ 614	1978. A'D W/ 7', RUN		luctive	zone an	d prop	oosed new productive
<sup>23</sup> I hereby certif of my knowledg	y that the in ge and belief	format.	ion giv	en above is t	rue and co	mplete to the b	est		OIL C	ONSERV	ATI	ON D	IVIS	ION
Signature:	Eliz	se	ia	Lac	las	bu	Appr	oved by:						
Printed name: E	LIZABETH	A. C.	ASBEE	R			Title:							
Title: R	EG./COMP	. ANA	LYST				Approval Date: Expiration Date:							

DISTRICT I . P.O. Box 1980, Hobbs, NM 88241-1980 State of New Mexico

Energy, Minerals and Natural Resources Department

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DISTRICT III 1000 Rio Brazos Rd., Aztec. NM 67410

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

#### 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	P	ool Name
30-015-27-465		Artisia (Glorista-4850)	er Artesia (Q-G-SA)
Property Code		Property Name	Well Number
22954	WASHING	30	
OGRID No.		Operator Name	Elevation
000990	ARC	D PERMIAN	3662
		A 7	

#### Surface Location

UL or lot No.	Section	Township	Range	Lot ldn	Feet from the	North/South line	Feet from the	East/West line	County
Ι Ρ Ι	33	17 S	28 E		750	SOUTH	1150	EAST	EDDY

#### Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot ldn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres	Joint o	r Infill Co	nsolidation (	Code Or	der 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

			<b>.</b> 5		ంప		0]	OPERATOR CERTIFICATION  I hereby cortify the the information contained herein is true and complete to the
		ماه		04		07		best of my knowledge and belief.
			<u>.</u> 9		اام	-	013	Signature  LAURIE CHERRY  Printed Name  REG COMP. ASST.
04		010	•	OT	ļ	014		Title  6 16 98  SURVEYOR CERTIFICATION
	021		019		17		150	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.
022		o31	. !	18			016	MARCH 3, 1998  Date Surveyedmining Signature & State of Dilling
	013	6	<i>S</i> .	27		30	290	Professional Surveyor 11, MEX. 1 MEX.
24		210		· 28			paraula dia Jistia hi di Challada	Certificate No. RONALDS EIDSON 3239  CARMEDSON 12641  INTERPORES OF THE PROPERTY OF THE PROPER

# Geologic Discussion for Amended NSL-4060 at Artesia (Glorieta-Yeso) Field (ARCO's Washington "33" State #16, 17, 27, and 30) Section 33, T17S, R 28E, Eddy Co, NM

#### Summary:

ARCO Permian requests an amendment of NSL-4060 to allow recompletion of four unorthodox Washington 33 State wells into the Artesia (Glorieta-Yeso) Pool. We now plan to recomplete these wells first in the Artesia (Glorieta-Yeso) Pool, rather than the Artesia (Q-G-SA) Pool as authorized by the current NSL. These unorthodox recompletions are required for geologic and engineering reasons. All interests on this 600-acre State Land Office Lease No. X-00647 lease are common, and ARCO holds 100% of all rights down to the top of Abo shale.

#### Background of ARCO NSL Requests in the area:

ARCO was granted blanket NSL-4060 on June 19,1998 for completing these wells (and three additional ones) to the Artesia (Queen-Grayburg-San Andres) Pool. Division Administrative Orders NSL-915-A, NSL 915-B, NSL 809-A, NSL 999-A, NSL-4003, NSL-4007, NSL-4035, and NSL-4036 have also been granted for other unorthodox Artesia (Queen-Grayburg-San Andres) locations on the same lease. Recent testing (documented below) now indicates that recompletion of the Glorieta-Yeso zone FIRST would be more economically feasible than completing first in the San Andres and adding the deeper Yeso later. We are therefore requesting an amended NSL-4060 to enable us to complete in the Yeso in any unorthodox well that is no closer than 330' to the outer boundary of the lease. We also request that three other unorthodox wells cited in NSL-4060 (#18, 19 and 23) also be approved for Glorieta-Yeso completion under the "blanket" provisions of an amended NSL-4060.

#### Washington #9 and #14 Results:

In June 1998, ARCO completed Washington #9 in unit letter F of Section 33 for 28 BOPD, 65 MCFD and 716 BWPD, but the well has declined to about 10 BOPD. A copy of this log showing the Yeso dolomite pay is attached. Washington #14 in Unit letter H was also completed in June from the Yeso, and potentialed for 9 BOPD, 25 MCFD, and 863 BWPD, and now pumping around 40 BOPD. This new field has been designated the Artesia (Glorieta-Yeso) Pool. These wells also have uphole San Andres pay, as shown on the second attached log.

#### Geology:

The Yeso (the upper part of which is sometimes called the Paddock Formation) is a fine-crystalline, anhydritic, slightly vuggy dolomite that lies under the Glorieta sand. The lower Yeso (which we are not producing from) is sometimes called the Blinebry, Tubb, and Drinkard in Lea County. A structure map of the top Glorieta sand, which is a better geologic marker than the Yeso, has been provided. This map shows up to 5-degree dip to the SE in Section 33, with the "crest" of the structure plunging due east, one mile north of us in Section 28. The gross 250' of Yeso pay we produce from is the same dolomite interval as found at Atoka (Glorieta/Yeso) Field, East Empire (Yeso) Field, and is the deeper Grayburg-Jackson (4000' San Andres) pay. This dolomite rarely produces without a major frac job.

The San Andres dolomite is an established pay from offset wells adjacent to our Washington lease, and maps showing top San Andres Structure and Gross Pay are included. The San Andres structure dips SE and is similar to the Glorieta structure. Gross San Andres pay interval across Section 33 ranges from 500 to 600'.

#### Engineering Justification for Revised NSL Request:

ARCO will need 2 strategically spaced wells in each 40-acre tract to recover 50 MBO per well in the Artesia (Q-G-SA) Field. The Glorieta-Yeso pay, with about 35 MBO per 20-acre location, is marginally economic, but only if completion cost is minimized. Completing and fracking first in the Glorieta-Yeso, and later in the San Andres will save us approximately \$30,000 compared to completing the Yeso after the San Andres. We will also avoid the substantial risk of sticking a packer with San Andres perforations open, if we fracture-treat the lower (Yeso) zone first. ARCO and the State of New Mexico would be best served if recompletions in the Glorieta-Yeso were authorized and performed first.

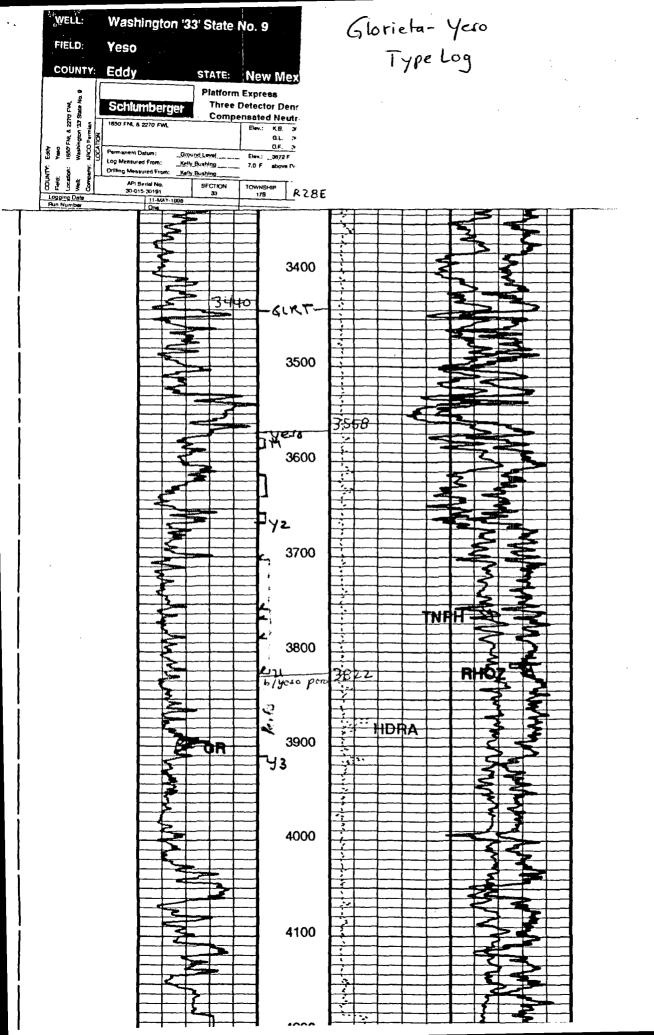
#### **Production Planning:**

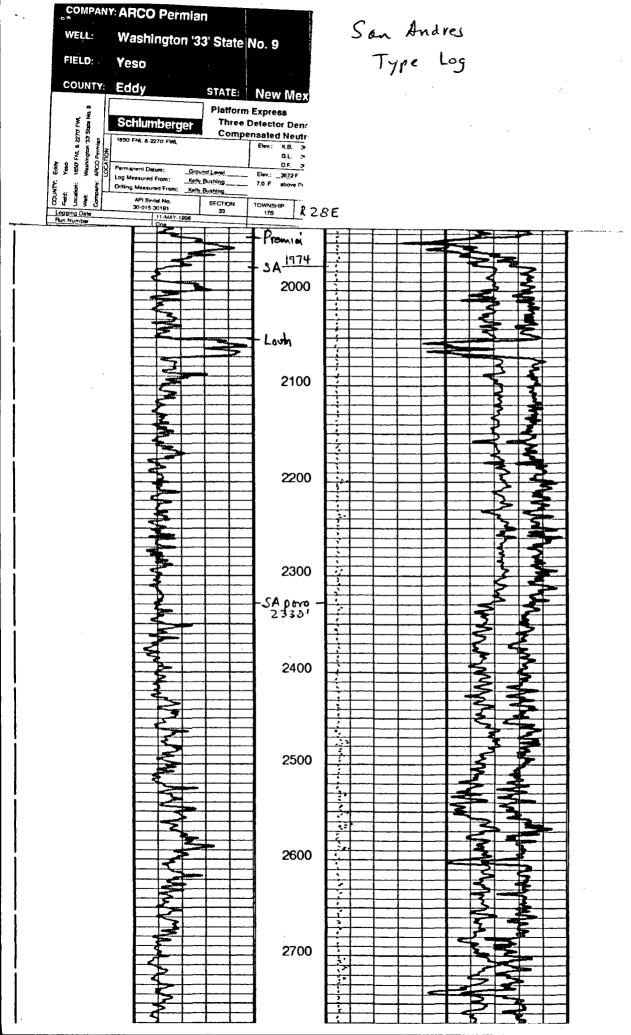
Since the Glorieta-Yeso appears productive over most of the lease, we now expect to complete first in this interval, unless logs or neighboring well performance indicates the Yeso is not prospective. We plan to soon apply to vertically expand the Artesia (Q-G-SA) Field to include the Yeso, and thus enable co-mingling Yeso with San Andres to keep the wells economic, as was done at Grayburg-Jackson Field by Marbob.

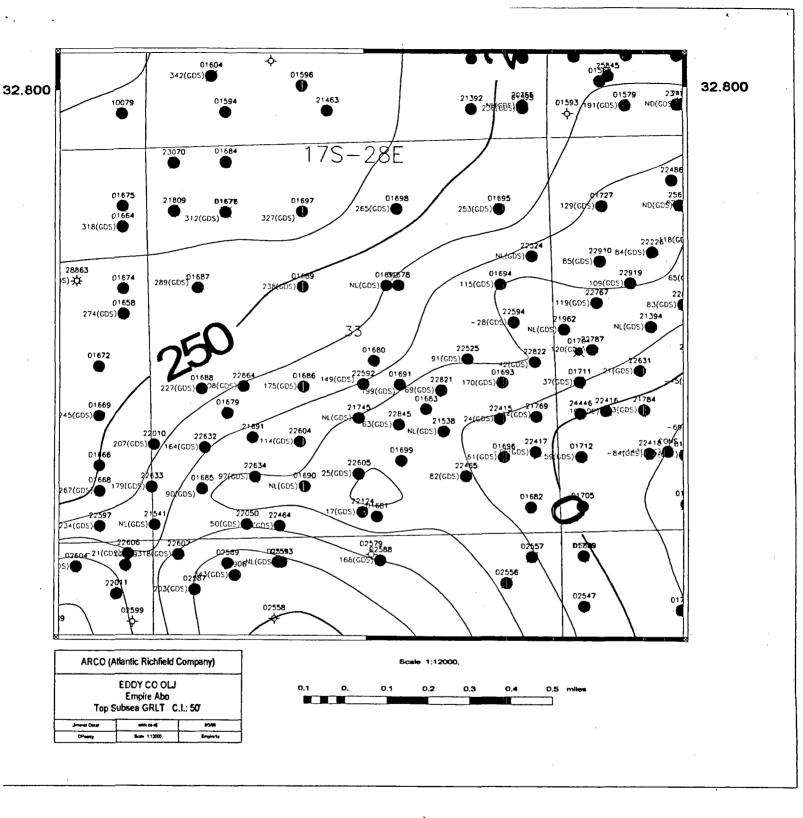
#### Conclusion

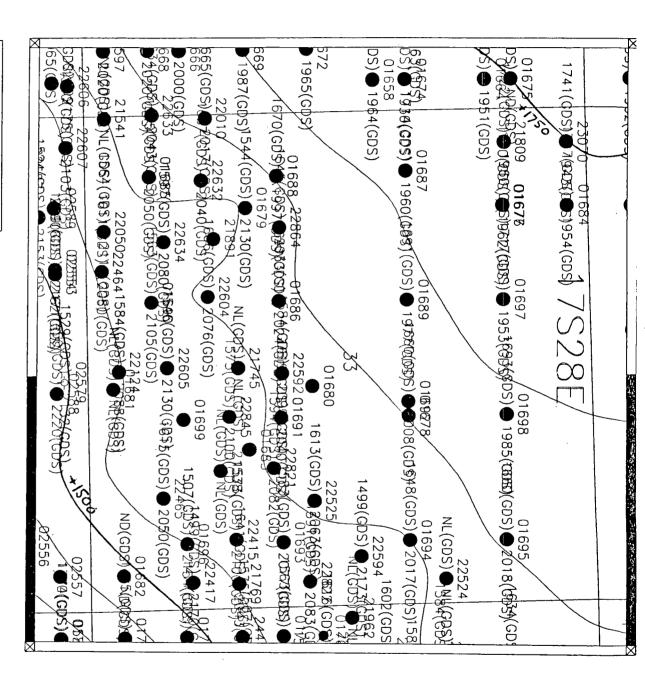
ARCO respectfully requests approval to recomplete these four wells to the Glorieta-Yeso pay as soon as possible. All wells cited in NSL-4060 are at least 330' from the outside boundary of the lease, and no offset owner notification is required.

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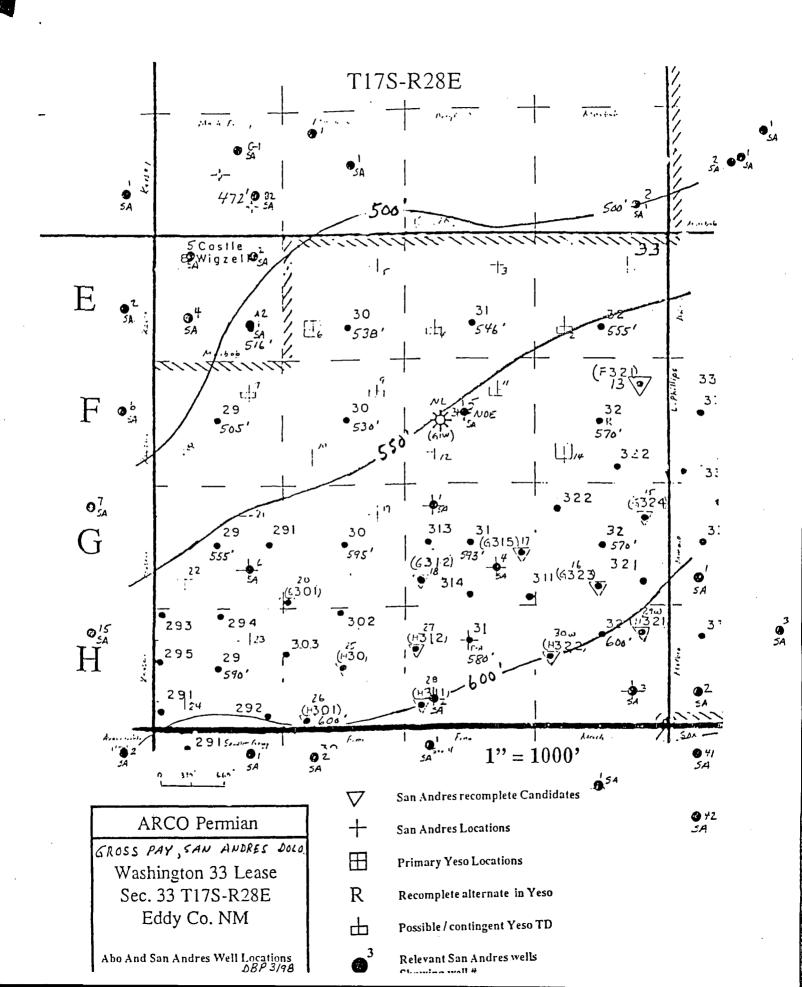






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ARCO Permian 600 North Marienfeld Midland TX 79701-4373 Post Office Box 1610 Midland TX 79702-1610 Telephone 915 688 5570

Elizabeth A. Casbeer Regulatory/Compliance Analyst NSL-4060

August 20, 1998

Oil Conservation Division Attn: Michael Stogner 2040 South Pacheco Santa Fe, New Mexico 87505



#### Gentlemen:

Under the provisions of NMOCD Rule 104.F(d), ARCO Permian requests administrative approval for unorthodox locations for its Washington "33" State #16, 17, 27, and 30, recompletions of previously drilled wells in the Empire Abo Unit, to the Artesia (Glorieta-Yeso) or Artesia (Queen-Grayburg-San Andres) Pools. All wells are located in Section 33, T17S, R28E, Eddy County, New Mexico. We requests an amendment to Administrative Order NSL-4060 dated 6/19/98, to include Artesia (Glorieta-Yeso) Pool.

The following exhibits are submitted in support of our request for administrative approval:

- 1. Amended C-101s
- 2. Amended C-102s
- 3. Geologic and Engineering Discussion
- 4. A Glorieta-Yeso type log (Washington "33" State #9).
- 5. San Andres type log (Washington "33" State #9)
- 6. Structure Map, Top Glorieta Sand.
- 7. Structure Map, Top San Andres.
- 8. Gross Pay, San Andres Dolomite.
- 9. Plat showing adjoining and diagonal spacing units.

All wells are 330' or more from the outside boundary of the lease, therefore ARCO Permian deemed the offset operators as unaffected parties and no offset owners were notified.

Should you have any questions, please do not hesitate to call me at 915-688-5570 or Dave Pearcy at 915-688-5355. Thank you for your assistance in this matter.

Sincerely, Elizabeth Carbons

Elizabeth A. Casbeer

Regulatory/Compliance Analyst

EAC:lc

CC:

NMOCD, Artesia, New Mexico

**Enclosures** 

#### State of New Mexico Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION 2040 South Pacheco Santa Fe, NM 87505

Form C-101 Revised October 18, 199 Instructions on bac Submit to Appropriate District O State Lease - 6 Copie Fee Lease - 5 Copie

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

#### State of New Mexico

Energy, Minerals and Natural Resources Department

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

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

#### OIL CONSERVATION DIVISION

P.O. Box 2088 Santa Fe, New Mexico 87504-2088

M AMENDED REPORT

#### WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name	ool Name				
30-015-22415	5	Artesia (Glovieta - YESO) or Ar					
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22954	WASHINGTO	N 33 STATE	16				
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#### Surface Location

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#### 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	Joint o	r Infill Co	nsolidation (	Code Or	der 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

	.5	აშ	0]	OPERATOR CERTIFICATION  I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.
	ماه	· 4	07	Signature A Cashe
01	. ۹	الم	013	REG Comp.
٥٩	·	OT	<b>0</b> 14	Date SURVEYOR CERTIFICATION
021	۱۹	lΠ		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.
022	o31		0 10 700'	MARCH 3, 1998  Date Surveyed DMCC Signature Detailed DMCC
013	àS.		1500'	MEX. 2.1 MEX. 5.4-98
	. 260			Certificate No. RONALD EIDSON 3239 GARNEDSON 12641 HILLINGSON 12185

Title:

REG./COMP. ANALYST

#### State of New Mexico Energy, Minerals & Natural Resources Department

#### OIL CONSERVATION DIVISION 2040 South Pacheco Santa Fe, NM 87505

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

DISTRICT III

State of New Mexico

Energy, Minerals and Natural Resources Department

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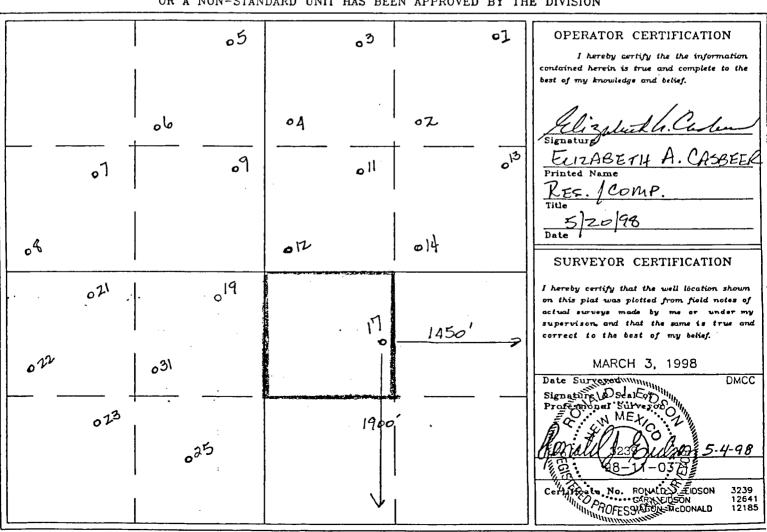
DISTRICT IV P.O. BOX 2088, SANTA FE. N.M. 87504-2088 Santa Fe. New Mexico 87504-2088

M AMENDED REPORT

#### WELL LOCATION AND ACREAGE DEDICATION PLAT

API	Number			Pool Code		Pool Name						
30-015	- 229	121.			Artes	ia (Glorista-	leso) or Arte	ы (Q-G-S	5A)			
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2295	+	WASHINGTON 33 STATE							17			
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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



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UL or lot no. Section Township Range Lot. Idn Feet from the North/South Line Feet from the East/West line County  9 Proposed Pool 1  ARTESIA (GLORIETA-YESO) 96830  10 Proposed Pool 2  ARTESIA (GLORIETA-YESO) 96830  11 Work Type Code 12 Well Type Code 13 Cable/Rotary 14 Lease Type Code 15 Ground Level Elevation P Q R S 3668'  10 Multiple 17 Proposed Depth 18 Formation 19 Contractor 20 Spud Date NO 4200 YESO 8/98  10 Multiple 17 Proposed Depth 18 Formation 19 Contractor 20 Spud Date NO 4200 YESO 8/98  11 Hole Size Casing Size Casing weight/foot Setting Depth Sacks of Cement Estimated TOC 11 8.5.5/8 24# 778 550 SURF 7-7/8 5-1/2 15.5 6405 1555 550' CBL  11 8.5.6/8 24# 778 550 SURF 7-7/8 5-1/2 15.5 6405 1555 550' CBL  12 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 Describe the blowout prevention program, if any. Use additional sheets if necessary  ORIGINALLY DRILLED AND COMPLETED AS THE EMPIRE ABO UNIT H-312 IN 1978. TO @ 6405'. TESTED ABO @ 6058' -6281'. Ta'D W/CIBP @ 6042' 6/20/91. PROPOSED TO DUMP 35' CEMENT ON CIBP @ 6042'. RUN CNL -64MA RAY-CCL AND PERF GLORIETA-YESO OR QUEEN-GRAYBURG-SAN ANDRES AS INDICATED ON LOG.  12 Thereby certify that the information given above is true and complete to the test OIL CONSERVATION DIVISION Approved by: Printed name: ELIZABETH A. CASBEER  17 Title:	0	33	175	28E		815	S	OUTH	25 <b>25</b>	EAS	т	EDDY	
Proposed Pool 1  ARTESIA (GLORIETA-YESO) 96830  ARTESIA (Q-G-SA) 3230  11 Work Type Code  P  O  R  S  3668'  16 Multiple  17 Proposed Depth  18 Formation  19 Contractor  20 Spud Date  NO  4200  YESO  8/98  21 Proposed Casing and Cement Program  Hole Size  Casing Size  Casing weight/foot  11 8-5/8  24#  778  5-1/2  15 5  6405  1555  550' CBL  27 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 bescribe the blowout prevention program, if any. Use additional sheets if necessary  ORIGINALLY DRILLED AND COMPLETED AS THE EMPIRE ABO UNIT H-312 IN 1978. TD @ 6405' . TESTED ABO @ 6058' -6281' . Ta') W/CIBP @ 6042' 6/20/91. PROPOSED TO DUMP 35' CEMENT ON CIBP @ 6042' RIND CMI-6AMMA RAY-CCL AND PERF GLORIETA-YESO OR QUEEN-GRAYBURG-SAN ANDRES AS INDICATED ON LOG.  TEST AND FRAC AS NEEDED.  Title:  Printed name: ELIZABETH A. CASBEER  Title:				<sup>8</sup> Propose	d Botto	m Hole Lo	cation If D	ifferent	From Surfa				
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ARTESIA (GLORIETA-YESO) 96830  ARTESIA (Q-G-SA) 3230  11 Work Type Code P O R S 3668' 16 Multiple 17 Proposed Depth 18 Formation 19 Contractor 20 Spud Date 8/98  21 Proposed Casing and Cement Program  Hole Size Casing Size Casing weight/foot Setting Depth Sacks of Cement Estimated TOC 11 8.5/8 24# 778 5-1/2 15.5 6405 1555 550' CBL  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 Describe the blowout prevention program, if any. Use additional sheets if necessary ORIGINALLY DRILLED AND COMPLETED AS THE EMPIRE ABO UNIT H-312 IN 1978. TD @ 6405'. TESTED ABO @ 6058'-6281'. TA'D W/CIBP @ 6042' 6/20/91. PROPOSED TO DUMP 35' CEMENT ON CIBP @ 6042'. RIN CNL-GAMMA RAY-CCL AND PERF GLORIETA-YESO OR QUEEN-GRAYBURG-SAN ANDRES AS INDICATED ON LOG. TEST AND FRAC AS NEEDED.  23 Thereby certify that the information given above is true and complete to the lost of my knowledge and belief.  3 CASBEER  Title:  Title:				.									
11 Work Type Code  P O O O O O O O O O O O O O O O O O O			9 Propos	ed Pool 1	I	1,	1		10 Proposed	Pool 2			
11 Work Type Code  P O O O O O O O O O O O O O O O O O O		ARTESIA	(GLORI	ETA-YESO)	9683 <b>0</b>			,	ARTESIA (0-	G-SA) 32	30		
P 0 R S 3668'  16 Multiple 17 Proposed Depth 18 Formation 19 Contractor 20 Spud Date  NO 4200 YESO 8/98  Proposed Casing and Cement Program  Hole Size Casing Size Casing weight/foot Setting Depth Sacks of Cement Estimated TOC  11 8.5/8 24# 778 550 SURF  7-7/8 5-1/2 15.5 6405 1555 550' CBL  20 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 Describe the blowout prevention program, if any. Use additional sheets if necessary  ORIGINALLY DRILLED AND COMPLETED AS THE EMPIRE ABO UNIT H-312 IN 1978. TD @ 6405'. TESTED ABO @ 6058'-6281'. TA'D W/CIBP @ 6042' 6/20/91. PROPOSED TO DUMP 35' CEMENT ON CIBP @ 6042'. RUN CNL-GAMMA RAY-CCL AND PERF GLORIETA-YESO OR QUEEN-GRAYBURG-SAN ANDRES AS INDICATED ON LOG.  TEST AND FRAC AS NEEDED.  31 hereby certify that the information given above is true and complete to the best of my knowledge and belief.  Signature: Use August As A CASBEER  Title:  Title:			•										
16 Multiple 17 Proposed Depth 18 Formation 19 Contractor 20 Spud Date 8/98  21 Proposed Casing and Cement Program  14 Sesses Casing Size Casing weight/foot Setting Depth Sacks of Cement Estimated TOC 11 8-5/8 24# 778 550 SURF 7-7/8 5-1/2 15.5 6405 1555 550' CBL  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 Describe the blowout prevention program, if any. Use additional sheets if necessary  ORIGINALLY DRILLED AND COMPLETED AS THE EMPIRE ABO UNIT H-312 IN 1978. TD @ 6405'. TESTED ABO @ 6058'-6281'. TA'D W/LIBP @ 6042' 6/20/91. PROPOSED TO DUMP 35' CEMENT ON CIBP @ 6042'. RUN CNL-GAMMA RAY-CCL AND PERF GLORIETA-YESO OR QUEEN-GRAYBURG-SAN ANDRES AS INDICATED ON LOG. TEST AND FRAC AS NEEDED.  23 I hereby certify that the information given above is true and complete to the test OIL CONSERVATION DIVISION  24 Approved by:  Title:  Title:	11 Work T	ype Code		Well Type (	Code	<sup>13</sup> Cable	/Rotary	<sup>14</sup> Lea	se Type Code	15 G	round L	evel Elevation	
16 Multiple 17 Proposed Depth 18 Formation 19 Contractor 20 Spud Date 8/98  21 Proposed Casing and Cement Program  14 Sesses Casing Size Casing weight/foot Setting Depth Sacks of Cement Estimated TOC 11 8-5/8 24# 778 550 SURF 7-7/8 5-1/2 15.5 6405 1555 550' CBL  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 Describe the blowout prevention program, if any. Use additional sheets if necessary  ORIGINALLY DRILLED AND COMPLETED AS THE EMPIRE ABO UNIT H-312 IN 1978. TD @ 6405'. TESTED ABO @ 6058'-6281'. TA'D W/LIBP @ 6042' 6/20/91. PROPOSED TO DUMP 35' CEMENT ON CIBP @ 6042'. RUN CNL-GAMMA RAY-CCL AND PERF GLORIETA-YESO OR QUEEN-GRAYBURG-SAN ANDRES AS INDICATED ON LOG. TEST AND FRAC AS NEEDED.  23 I hereby certify that the information given above is true and complete to the test OIL CONSERVATION DIVISION  24 Approved by:  Title:  Title:		D		Λ		ŗ	>		c		36	.6g'	
Proposed Casing and Cement Program    Hole Size   Casing Size   Casing weight/foot   Setting Depth   Sacks of Cement   Estimated TOC		<u> </u>			epth	18 Form	ation						
Printed name: ELIZABETH A. CASBEER  Casing Size Casing weight/foot Setting Depth Sacks of Cement Estimated TOC  11 8-5/8 24# 778 550 SURF  7-7/8 5-1/2 15-5 6405 1555 550' CBL  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 Describe the blowout prevention program, if any. Use additional sheets if necessary  ORIGINALLY DRILLED AND COMPLETED AS THE EMPIRE ABO UNIT H-312 IN 1978. TD @ 6405'. TESTED ABO @ 6058'-6281'. TA'D W/CIBP @ 6042' 6/20/91. PROPOSED TO DUMP 35' CEMENT ON CIBP @ 6042', RUN CNL-GAMMA RAY-CCL AND PERF GLORIETA-YESO OR QUEEN-GRAYBURG-SAN ANDRES AS INDICATED ON LOG.  TEST AND FRAC AS NEEDED.  23 I hereby certify that the information given above is true and complete to the lost of my knowledge and belief.  Signature: Approved by:  Title:		•		•	•						-		
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of my knowledge and belief.  Signature:  Printed name: ELIZABETH A. CASBEER  OIL CONSERVATION DIVISION  Approved by:  Title:	6058'-6281 RUN CNL-GA	.'. TA'D MMA RAY-	) W/CIBF CCL AND	@ 6042' 6	/20/91.	PROPOSED 1	O DUMP 35'	CEMENT	ON CIBP @	6042'.		@ 	
of my knowledge and belief.  Signature:  Printed name: ELIZABETH A. CASBEER  OIL CONSERVATION DIVISION  Approved by:  Title:													
Printed name: ELIZABETH A. CASBEER  Title:	<sup>23</sup> I hereby certify of my knowledge	that the int	formation	given above is	true and co	mplete to the b	oe best OIL CONSERVATION DIVISION					ON	
	Signature:	liz	slu	xl lle	Mes	been	Approved by:						
Title: REG./COMP. ANALYST Approval Date: Expiration Date:	Printed name: El	IZABETH	A. CASE	BEER			Title:						
	Title: RE	G./COMP.	ANALYS	T			Approval Dat	e:	1	Expiration I	Date:		

Revised February 10, 1994

Submit to Appropriate District Office

State Lease - 4 Copies Fee Lease - 3 Copies

DISTRICT II

P.O. Drawer DD. Artesia, NM 86211-0719

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

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

### OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

X AMENDED REPORT

#### WELL LOCATION AND ACREAGE DEDICATION PLAT

API	Number			Pool Code Pool Name									
30-019	5-22	605			Actes	ia (Glorista )	leso) or Arte	sia (Q-G-S	A)				
Property (	Code				Property Nam	ne		Well Num	ber				
229	54			WASH	IINGTON 33	STATE		27	Ì				
OGRID N	0.				Operator Nan			Elevatio	n				
000990	>	<u></u>		Δ	RCO PERMI	AN		36.65	5′				
	Surface Location												
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County				
0	33	17 S	28 E		815	SOUTH	2525	EAST	EDDY				
			Bottom	Hole Loc	cation If Diffe	erent From Sur	face						
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County				
Dedicated Acre	s Joint o	or Infill   Co	nsolidation	Code Ord	der No.			•					
40	40												
NO ALLO	NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED												

<del></del>				
	.5	03	•1	OPERATOR CERTIFICATION
	1			I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.
	00	04	02	Elizabeth a. Cashen
.1	9	ااه	013	EUZABETH A. CASBEEK Printed Name
	1			REG COMP. ANALYST 16/3/98
۰4	010	on	014	Date SURVEYOR CERTIFICATION
021	. . 019			I hereby certify that the well location shown
		. 17		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.
022	031	18	ه ال	MARCH 3 1998
		O		Date Surveyed Million DMCC Signature Description
013	ટ્રેડ	21 a525	<del></del>	MEXICON MEXICON S-4-98
024	210	815'		Certain No. ROMIN EIDSON 3239  GARNETOSON 12641  HILLINGSON 12185

#### State of New Mexico Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION 2040 South Pacheco Santa Fe, NM 87505 Form C-101 Revised October 18, 199 Instructions on bac Submit to Appropriate District O State Lease - 6 Copie Fee Lease - 5 Copie

	LXJ	AMENDED REPORT

APPLIC	AHON	FO.	K PE	KMII I	O DK	LL, KE-E.	NIEK, D	EEPEN,	<u>, PLUGBAC</u>			
			<sup>1</sup> Oper	ator name a	nd Address	5					<sup>2</sup> OGR	ID Number
ARCO PERMIA	N										0	00990
P.O.BOX 1610											3 AP	I Numbe <b>r</b>
MIDLAND, TX									<u> </u>	30-0		2465
	perty Code					5	Property Nam	e			6	Well No.
	22954						NGTON "33" STATE 30					30
		Γ		1		<sup>7</sup> Surface				<del>,</del>		
UL or lot no.	Section	Town	•	Range	Lot. Idn	Feet from	1		Feet from the	East/We		County
P	33	1	7S 8	28E	1.5	750		OUTH	1150	EAST		EDDY
			· ·	Proposed	Botton	n Hole Lo	cation If D	itterent	From Surfac	ce		·
UL or lot no.	Section	Towr	ship	Range	Lot. Idn	Feet from	the North,	South Line	Feet from the	East/We	st line	County
	Prop	osed I	Pool 1					<sup>10</sup> Proposed F	Pool 2	!_		
ARTESIA (GLORIETA-YESO) 96830								ļ	ARTESIA (Q-G-	SA) 32	30	
THE CONTRACT OF STREET OF												
11 Work T	ype Code		12	Well Type C	ode	13 Cable	/Rotary	14 Lea	se Type Co <b>de</b>	15 Gr	ound L	evel Elevation
	P	ĺ		0	ľ	F	}	ĺ	S		366 <b>2</b>	
16 Mu	ltiple	_	17	Proposed De	pth	18 Form		19 (			d Date	
	٧٥			4200_		YF	co				2 0	28 - 78
<del></del>	¥U	1			<sup>21</sup> Prop	osed Casin		nent Pro	ogra <b>m</b>			.0/0
Hole S	ize		Casin	g Size		weight/foot	Setting I		Sacks of Ceme	ent	Esti	mated TOC
11				5/8		24#	600 300				SURF	
7-7/	8		5-1			5.5	6262				SURF.	
		ļ									_	
	<del></del>	-									_	
<sup>22</sup> 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 Describe the blowout prevention program, if any. Use additional sheets if necessary  ORIGINALLY DRILLED AND COMPLETED AS THE EMPIRE ABO UNIT H-322 IN 1978.  TD @ 6290'OH. TESTED ABO @ 6262-6290' OH & 6150-6230' PERFS. TA'D W/ CIBP @ 6147' ON 6-19-91. PROPOSE TO DUM 35'CEMENT ON CIBP @ 6147', RUN CNL-GAMMA RAY-CCL AND PERF THE GLORIETA-YESO OR Q-G-SA AS INDICATED ON LOG. TEST AND FRAC AS NEEDED.												
<sup>23</sup> I hereby certify of my knowledge Signature:	e and belief.		on giv	1/	rue and co	mplete to the b	est Approved by		ONSERVAT	ΓΙΟΝ D	IVISI	ON
Printed name: F	inted name: ELIZABETH A. CASBEER						Title:					
-	EG./COMP.						Approval Date: Expiration Date:					

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

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

#### 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			
30-015-22465			Artisia (Glorista-Yeso) or Artesia (O-G-SA)							
Property Code			Property Name						Well Number	
22954				WASH	30					
OGRID No.					Operator Nam	ne		Elevatio		
00099	0			Δ	RCO PERMIA	AN		3662		
				·-	Surface Loc	ation				
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County	
P	33	17 S	28 E		750	SOUTH	1150	EAST	EDDY	
			Bottom	Hole Loc	eation If Diffe	erent From Sur	face			
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County	
Dedicated Acres   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										
			ODERATOR CERTIFICATION							

NO A	LLOWABLE			N UNTIL ALL INTERE EN APPROVED BY TH	STS HAVE BEEN CONSOLIDATED IE DIVISION
		<b>,</b> 5	ంర	01	OPERATOR CERTIFICATION  I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.
	· -	ماه	<i>04</i>	07	Laure Cherry Signature
	ا ٦،	.9	الم	0 <sup>13</sup>	Printed Name  REG COMP. ASST.  Title
08	:	.10	OT	014	SURVEYOR CERTIFICATION
	021	. 019	. 17	150	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.
on_		o31 ————————————————————————————————————	18	016	Date Surveyodullullullullullullullullullullullullull
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## Geologic Discussion for Amended NSL-4060 at Artesia (Glorieta-Yeso) Field (ARCO's Washington "33" State #16, 17, 27, and 30) Section 33, T17S, R 28E, Eddy Co, NM

#### Summary:

ARCO Permian requests an amendment of NSL-4060 to allow recompletion of four unorthodox Washington 33 State wells into the Artesia (Glorieta-Yeso) Pool. We now plan to recomplete these wells first in the Artesia (Glorieta-Yeso) Pool, rather than the Artesia (Q-G-SA) Pool as authorized by the current NSL. These unorthodox recompletions are required for geologic and engineering reasons. All interests on this 600-acre State Land Office Lease No. X-00647 lease are common, and ARCO holds 100% of all rights down to the top of Abo shale.

#### Background of ARCO NSL Requests in the area:

ARCO was granted blanket NSL-4060 on June 19,1998 for completing these wells (and three additional ones) to the Artesia (Queen-Grayburg-San Andres) Pool. Division Administrative Orders NSL-915-A, NSL 915-B, NSL 809-A, NSL 999-A, NSL-4003, NSL-4007, NSL-4035, and NSL-4036 have also been granted for other unorthodox Artesia (Queen-Grayburg-San Andres) locations on the same lease. Recent testing (documented below) now indicates that recompletion of the Glorieta-Yeso zone FIRST would be more economically feasible than completing first in the San Andres and adding the deeper Yeso later. We are therefore requesting an amended NSL-4060 to enable us to complete in the Yeso in any unorthodox well that is no closer than 330' to the outer boundary of the lease. We also request that three other unorthodox wells cited in NSL-4060 (#18, 19 and 23) also be approved for Glorieta-Yeso completion under the "blanket" provisions of an amended NSL-4060.

#### Washington #9 and #14 Results:

In June 1998, ARCO completed Washington #9 in unit letter F of Section 33 for 28 BOPD, 65 MCFD and 716 BWPD, but the well has declined to about 10 BOPD. A copy of this log showing the Yeso dolomite pay is attached. Washington #14 in Unit letter H was also completed in June from the Yeso, and potentialed for 9 BOPD, 25 MCFD, and 863 BWPD, and now pumping around 40 BOPD. This new field has been designated the Artesia (Glorieta-Yeso) Pool. These wells also have uphole San Andres pay, as shown on the second attached log.

#### Geology:

The Yeso (the upper part of which is sometimes called the Paddock Formation) is a fine-crystalline, anhydritic, slightly vuggy dolomite that lies under the Glorieta sand. The lower Yeso (which we are not producing from) is sometimes called the Blinebry, Tubb, and Drinkard in Lea County. A structure map of the top Glorieta sand, which is a better geologic marker than the Yeso, has been provided. This map shows up to 5-degree dip to the SE in Section 33, with the "crest" of the structure plunging due east, one mile north of us in Section 28. The gross 250' of Yeso pay we produce from is the same dolomite interval as found at Atoka (Glorieta/Yeso) Field, East Empire (Yeso) Field, and is the deeper Grayburg-Jackson (4000' San Andres) pay. This dolomite rarely produces without a major frac job.

The San Andres dolomite is an established pay from offset wells adjacent to our Washington lease, and maps showing top San Andres Structure and Gross Pay are included. The San Andres structure dips SE and is similar to the Glorieta structure. Gross San Andres pay interval across Section 33 ranges from 500 to 600'.

#### Engineering Justification for Revised NSL Request:

ARCO will need 2 strategically spaced wells in each 40-acre tract to recover 50 MBO per well in the Artesia (Q-G-SA) Field. The Glorieta-Yeso pay, with about 35 MBO per 20-acre location, is marginally economic, but only if completion cost is minimized. Completing and fracking first in the Glorieta-Yeso, and later in the San Andres will save us approximately \$30,000 compared to completing the Yeso after the San Andres. We will also avoid the substantial risk of sticking a packer with San Andres perforations open, if we fracture-treat the lower (Yeso) zone first. ARCO and the State of New Mexico would be best served if recompletions in the Glorieta-Yeso were authorized and performed first.

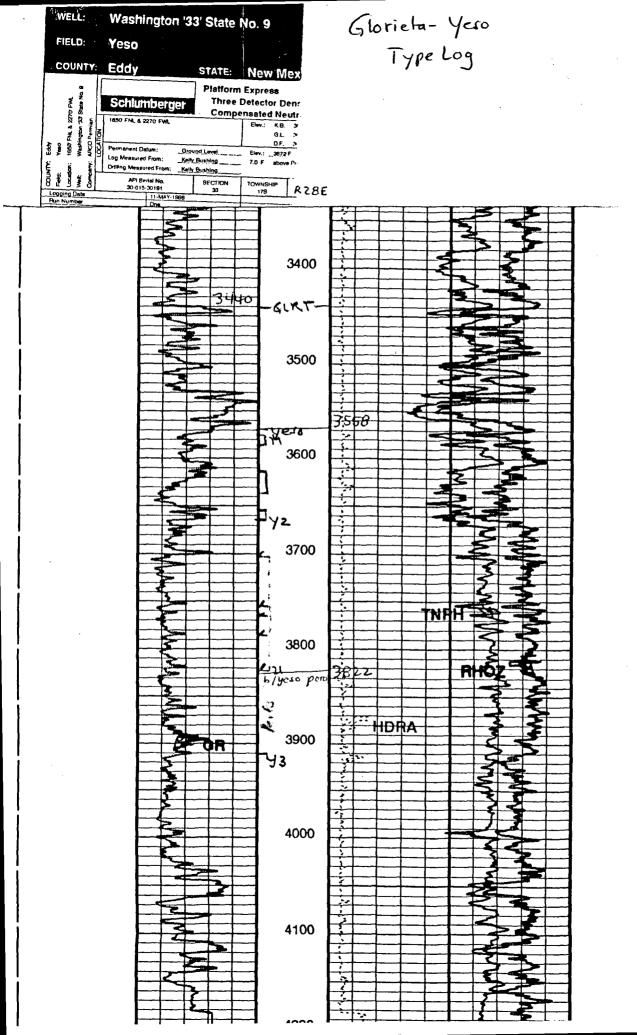
#### **Production Planning:**

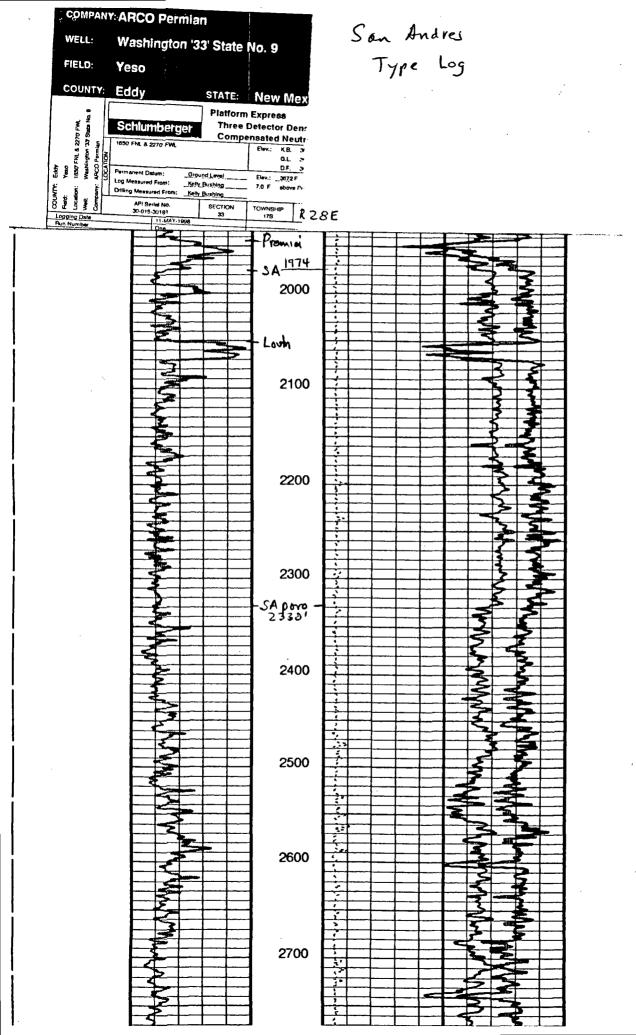
Since the Glorieta-Yeso appears productive over most of the lease, we now expect to complete first in this interval, unless logs or neighboring well performance indicates the Yeso is not prospective. We plan to soon apply to vertically expand the Artesia (Q-G-SA) Field to include the Yeso, and thus enable co-mingling Yeso with San Andres to keep the wells economic, as was done at Grayburg-Jackson Field by Marbob.

#### Conclusion

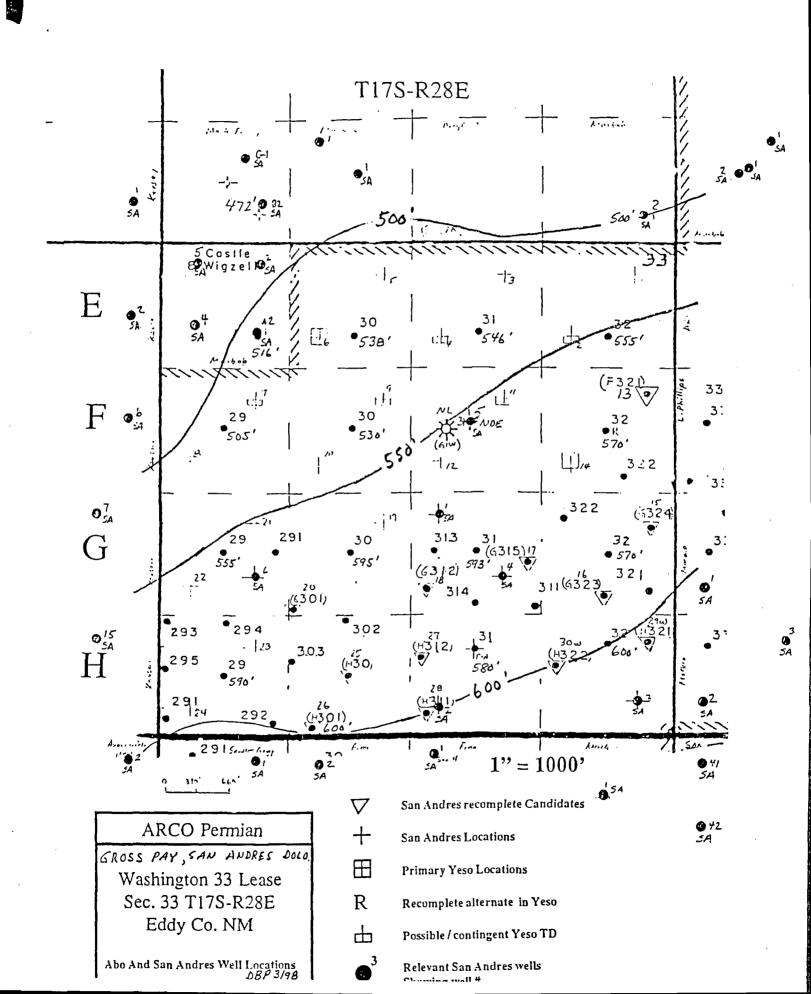
ARCO respectfully requests approval to recomplete these four wells to the Glorieta-Yeso pay as soon as possible. All wells cited in NSL-4060 are at least 330' from the outside boundary of the lease, and no offset owner notification is required.

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