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	;	NEW MEXICO OIL Co - Enginee 1220 South St. Francis	ering Bureau -	é	
		ADMINISTRATIV	E APPLICATI	ON CHEC	KLIST
THIS	CHECKLIST IS		ATIVE APPLICATIONS FOR I		IVISION RULES AND REGULATIONS
	[DHC-Dow [PC-Pc	ndard Location] [NSP-Non nhole Commingling] [CT ool Commingling] [OLS - [WFX-Waterflood Expansio [SWD-Salt Water Disp lified Enhanced Oil Recove	B-Lease Commingling Off-Lease Storage] on] [PMX-Pressure oosal] [IPI-Injection	g] [PLC-Pool [OLM-Off-Leas Maintenance E Pressure Incre	/Lease Commingling) se Measurement]
[1]	TYPE OF AI [A]	PPLICATION - Check The Location - Spacing Unit -			ease] roduction Response]
	Check [B]	k One Only for [B] or [C] Commingling - Storage - [] DHC [] CTB [Measurement] OLS []	OLM HEAR
r	[C]	Injection - Disposal - Pre	ssure Increase - Enhar	iced Oil Recove	ery PPR
	[D]	Other: Specify			
[2]	NOTIFICAT [A]	TION REQUIRED TO: - C			
	[B]	Offset Operators, Le	aseholders or Surface	Owner	
	[C]	Application is One V	Which Requires Publis	hed Legal Noti	ce
	[D]	Notification and/or (U.S. Bureau of Land Manageme	Concurrent Approval b ent - Commissioner of Public Land	by BLM or SLC)
	[E]		Proof of Notification		
	[F]	Waivers are Attache	d		
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Note: 5	Statement must be compl	eted by an individual	with managerial and/or superv	visory capacity.
Iosh Hegg Print or Type Name	Signature	At >	Reservoir F	Engineer I
		\searrow	e-mail Address	1.hegg@apachecorp.com

н. Таралар 6120 SOUTH YALE / SUITE 1500 / TULSA, 0K 74136-4224

6500he CORPORATION

> Telephone (918) 491-4900 WWW.APACHECORP.COM

August 11, 2008

Mr. William V. Jones New Mexico Oil Conservation Division 20 South St. Francis Drive Santa Fe, New Mexico 87505

RE: WFX Application North Monument Grayburg San Andres Waterflood Unit Two wells to convert from Production to Injection NMGSAU Well #s 511, 515 RECEIVED

Mr. Jones,

You should find attached a complete copy of Apache Corporation's NMOCD form C-108 "Application to Inject" for two (2) wells in the reference waterflood unit. It is necessary to convert these two wells from production to injection in order to better balance injection patterns and pattern voidage.

Notifications are being mailed today. Copies of return receipts and affidavit of publication will be forwarded as they are returned to Apache.

Thank you in advance for your attention to this matter. If you have any questions or comments please contact me at (918) 491-4918 or e-mail at josh.hegg@apachecorp.com.

Respectfully Submitted, Josh Hegg Reservoir Engineer I

STATE OF NEW MEXICO ENERGY, MINERALS AND NATURAL **RESOURCES DEPARTMENT**

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

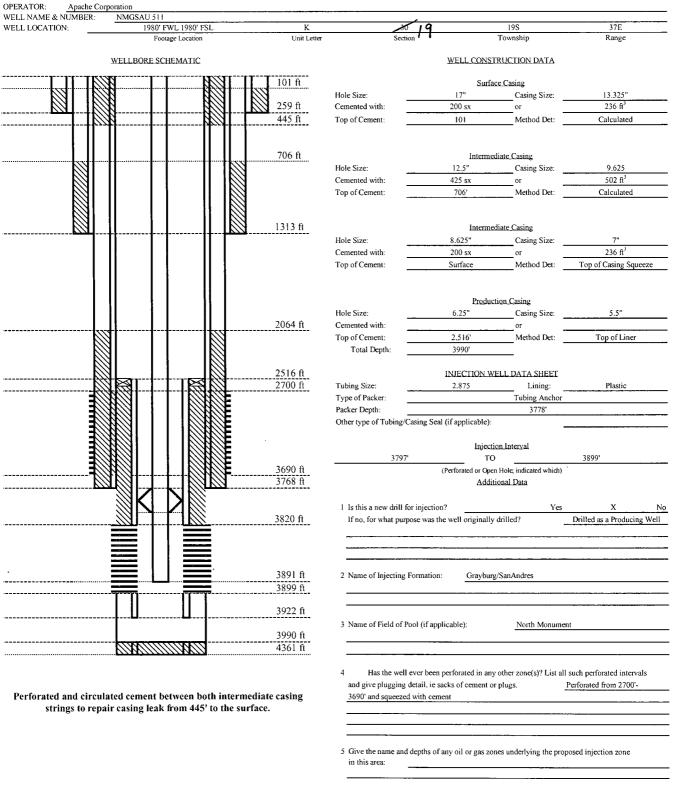
	APPLICATION FOR AUTHORIZATION TO INJECT
I.	PURPOSE: X Secondary Recovery Pressure Maintenance Disposal Storage Application qualifies for administrative approval? X Yes No
Н.	OPERATOR:Apache Corporation
	ADDRESS: 6120 S. Yale Ave., Suite 1500, Tulsa, OK 74136
	CONTACT PARTY: Josh Hegg PHONE: (918) 491-4918
III.	WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.
IV.	Is this an expansion of an existing project? X Yes If yes, give the Division order number authorizing the project: WFX-716
V.	Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
VI.	Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
VII.	Attach data on the proposed operation, including:
	 Proposed average and maximum daily rate and volume of fluids to be injected; Whether the system is open or closed; Proposed average and maximum injection pressure; Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and, If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
*VIII.	Attach appropriate geologic data on the injection zone including appropriate lithologic detail; geologic name, thickness, and

- depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10.000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.

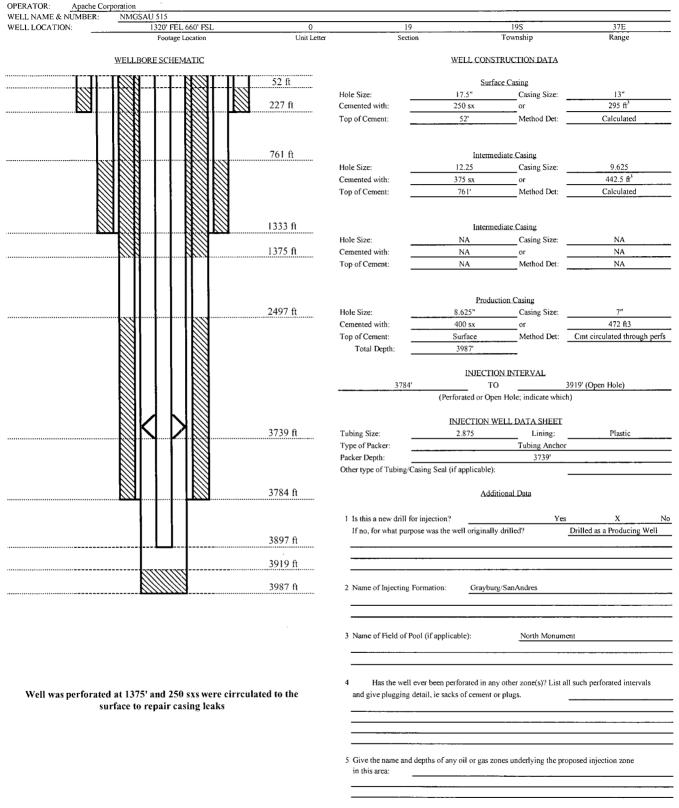
- *X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).
- *XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering XII. data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

NAME: Josh Hegg	TITLE: <u>Reservoir Engineer I</u>
SIGNATURE: Charles	DATE: August 11, 2008
E-MAIL ADDRESS: josh.hegg@apachecorp.com	

If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal:



Note: All calculations assume a 25% excess diameter in openhole due to borehole washouts and irregularities. Also Cement volumetrics are based upon 1.18ft3/sx unless otherwise mentioned

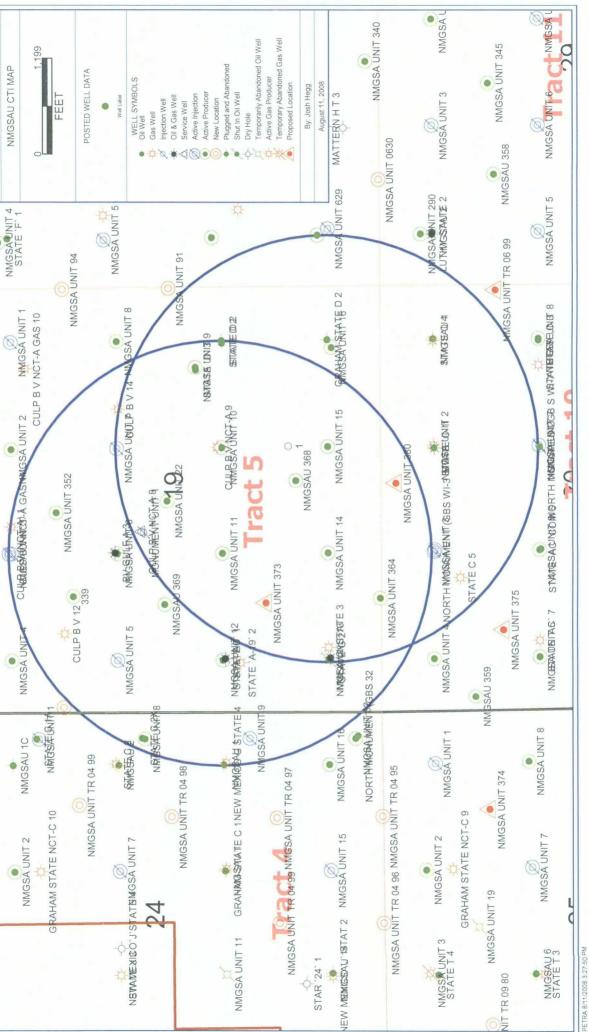


Note: All calculations assume a 25% excess diameter in openhole due to borehole washouts and irregularities. Also Cement volumetrics are based upon 1.18ft3/sx unless otherwise mentioned

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APACHE CORPORATION

NMGSAU CTI MAP

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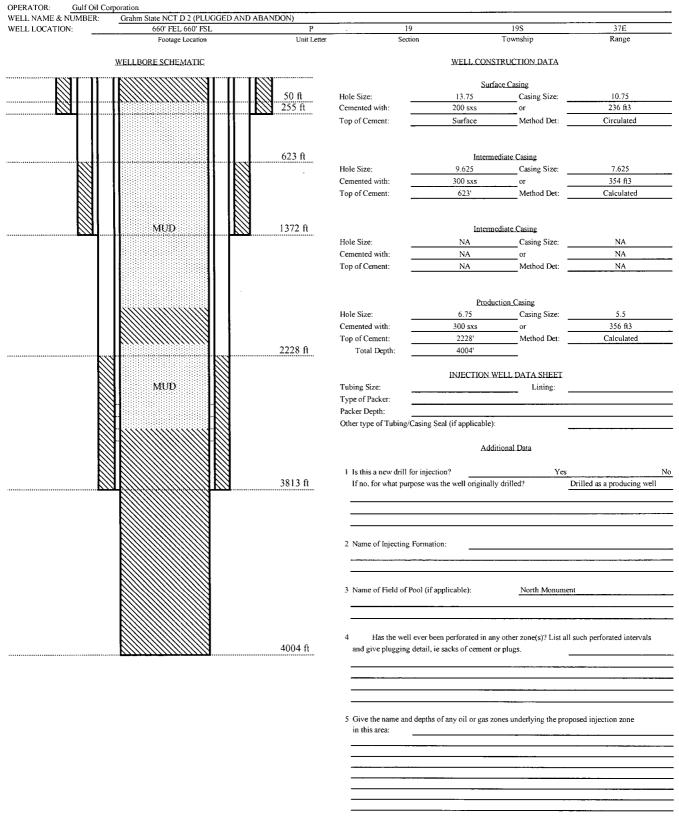
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PERATOR: <u>Amerada He</u> /ELL NAME & NUMBER:	ess Corporation					
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EVI EVI				Surf	ace Casing	
			Hole Size:	17.5"	Casing Size:	12.5"
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······································			Top of Cement:	Surface	Method Det:	Circulated
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<u></u>	¥4	11 C+06	n no, tot what purp	ose was the wen originally		offied as a producing wen
						
			2 Name of Injecting	Formation:		
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			4 H	1		- 1
		3970 ft		ever been perforated in an detail, ie sacks of cement (such perforated intervals
		2277011	and Stropping		-	
			5 Give the name and	depths of any oil or gas z	ones underlying the prop	osed injection zone
			in this area:			
				· · ·		

Note: All calculations assume a 25% excess diameter in openhole due to borehole washouts and irregularities. Also Cement volumetrics are based upon 1.18ft3/sx unless otherwise mentioned



Note: All calculations assume a 25% excess diameter in openhole due to borchole washouts and irregularities. Also Cement volumetrics are based upon 1.18ft3/sx unless otherwise mentioned

ITEM VII OF NEW MEXICO OCD FORM C-108 DATA ON PROPOSED OPERATIONS NMGSAU #511 & #515

- 1) Proposed average initial injection rate is 600 bwpd. Maximum injection rate should not exceed 1,000 bwpd.
- 2) The injection system will be operated as a closed system.
- Proposed average initial injection pressure is 750 psi (0.2 psi/ft). Proposed maximum pressure will not exceed the pressure limitations ordered by the Division.
- 4) Source water will come from the San Andres Formation via the NMGSAU injection system.
- 5) Not Applicable.

ITEM VIII OF NEW MEXICO OCD FORM C-108 GEOLOGIC DATA ON THE INJECTION ZONE & UNDERGROUND DRINKING WATER NMGSAU #511 & #515

The Formation being targeted for water injection is the Grayburg at depths ranging from approximately 3784' to 3990'. The formation is Guadalupian in age and is a sequence of shallow marine carbonates, which have for the most part been dolomatized. A six percent porosity cut off is used to determine "pay" as porosity less than this is considered non-productive at the existing and proposed reservoir pressures and reservoir fluid regimes. Net pay isopach maps show the areal extent of the targeted reservoir. The vertical extent of the reservoir is limited top and bottom by impermeable shales and carbonates. All injected fluids should remain in the reservoir with the exception of cycling to the surface through producing wellbores in the same formation.

Based on communications with the New Mexico States Engineer's Roswell office and a review of online files there are 46 fresh water wells (see attached) in the area of review. The deepest of these wells is 150', which is the assumed base of fresh water. All wellbores involved with the proposed injection program are constructed to not allow injection water into this fresh water source.

ITEMS IX THROUGH XII OF NEW MEXICO OCD FORM C-108 NMGSAU #511 & #515

IX The NMGSAU #511 wellbore is perforated from 3820'-3891' and openhole completed from 3922'-3990' and has been acidized numerous times since completion. The NMGSAU #515 wellbore is openhole completed from 3784'-3919'. The openhole sections will be cleaned out and acidized again during conversion.

X All logging and test data for the existing wellbores already exists on file with the State of New Mexico Oil Conservation Division and will not be resubmitted with this application.

XI It appears the only strata within one mile of our proposed unit which contains water of possible drinking quality is confined to 150' and shallower. No contamination of this drinking water should occur as all existing wellbores which penetrate the Grayburg are constructed as to not allow injection water to escape the system. As a result, no chemical analysis is submitted with this application.

XII After reviewing the geology in a one and one-half mile radius around the proposed injector there appears no evidence of fractures or any hydrologic connection between the zone of injection and any overlying or underlying strata.

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Affidavit of Publication

STATE OF NEW MEXICO

COUNTY OF LEA

)) ss.)

Joyce Clemens being first duly sworn on oath deposes and says that she is Advertisting Director of **THE LOVINGTON LEADER**, a daily newspaper of general paid circulation published in the English language at Lovington, Lea County, New Mexico; that said newspaper has been so published in such county continuously and uninterruptedly for a period in excess of Twenty-six (26) consecutive weeks next prior to the first publication of the notice hereto attached as hereinafter shown; and that said newspaper is in all things duly qualified to publish legal notices within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico.

That the notice which is hereto attached, entitled

Legal Notice

was published in a regular and entire issue of THE LOV-INGTON LEADER and not in any supplement thereof, for One(1) day, beginning with the issue of <u>august 14</u>, 2008 and ending with the issue of <u>august 14</u>, 2008.

And that the cost of publishing said notice is the sum of 35.83 which sum has been (Paid) as Court Costs.

Subscribed and sworn to before me this 20th day of

Debbie Schilling Notary Public, Lea County, New Mexico My Commission Expires June 22, 2010

LEGAL NOTICE

NOTICE OF APPLICATION FOR FLUID INJECTION WELL PERMIT APACHE CORPORATION 6120 S. Yale Ave., Suite 1500 Tutsa; OK 74136 ATTN: Josh Hegg (918) 491-4900

has applied to the State of New Mexico, Oli Conservation Division, Santa Fe, New Mexico, for a permit to inject fluid into a formation that is produc-

tive of oil or gas. The application proposes to inject fluid into the Grayburg formation in the North Monument GSA Waterflood Unit. The proposed injection wells are the NMGSAU 511 and 515 located 1980' FWL and 1980' FSL, and 1320' FEL and 660' FSL of Section 19, Township Section 19, 19S, Range 37E respectively. Fluid will be injected into the NMGSAU 511 strata correlative to subsurface depth interval from 3,820 feet to 3,891 and 3,922 feet to 3,990 feet. Fluid will be injected into the NMGSAU 515 strata correlative to subsurface depth interval from 3,784 feet to 3,919 feet. Fluid will be injected at a maximum injection rate or 1,000 barrels of water per day and at a maximum surface injection pressure of 700 psi.

Interested parties must file objections or requests for hearing with the State of New Mexico, Oil Conservation Division, 1220 South St. Francis Drive, Santa, Fe, New Mexico 87505, Telephone (505) 476-3486, within 15 days of publication. Published in the Lovington Leader August 14, 2008.

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 ENDER: COMPLETE THIS SECTION Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired. Print your name and address on the reverse so that we can return the card to you. Attach this card to the back of the mailpiece, or on the front if space permits. 	A. Signatore Image: Agent X Image: Addressee B. Received by (Printed Name) C. Date of Delivery Image: Address different from item 1? Yes
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New Mexico Oil Conservation Div 20 S. St. Francis Drive Santa Fe, NM 87505	
ATTN: William V. Jones	3. Service Type D Certified Mail D Registered D Insured Mail D C.O.D.
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ATTN: Joe Mraz	3. Service Type S Certified Mall Registered Insured Mail C.O.D.
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2002	Sent To DAVID H. AP. RING TON Street, Apt. No.; or PO Box No. City, State, ZIP+4 PS Form 3800, August 2006	See Reverse for Instructions	•

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	 SENDER: COMPLETE THIS SECTION Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired. Print your name and address on the reverse so that we can return the card to you. Attach this card to the back of the mailpiece, or on the front if space permits. Article Addressed to: David H. Arrington 0il & Gas P.O. Box 2071 Midland, TX 79702-2071 	COMPLETE THIS SECTION ON DELIVERY. A. Signature X Agent Addressee B. Received by (Printed Name) C. Date of Delivery S ZaChery D. Is delivery address different from item 1? Yes If YES, enter delivery address below: No
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r-	Street, Apl. No.; P.O. Box 4294 or PO Box No.; P.O. Box 4294 City, State, ZIP+4 HOUSTON, TX 77210-4294	
	PS Form 3800; August 2006 See Reverse for Instruction	tions

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 ATTN" Land Dept.	3. Service Type Service Type Certified Mail Express Mail Registered Return Receipt for Merchandise Insured Mail C.O.D. 4. Restricted Delivery? (Extra Fee) Yes
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XTO Energy, Inc. 810 Houston Street Fort Worth, TX 76102-6298	
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Hegg, Josh

From:	Hanson	Michelle
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Sent: Wednesday, September 03, 2008 9:54 AM

To: Hegg, Josh

Subject: Confirmation of Conoco's receipt of Apache's C-108 packet

Michelle,

ConocoPhillips Company is in receipt of Apache's C-108 application regarding the North Monument GSA Unit # 511 and # 515 wells. Our technical team has reviewed the C-108 and has no opposition to this application.

Please let me know if you have additional questions in this regard.

Tom Scarbrough Staff Landman ConocoPhillips C 600 N. Dairy Ash		3 8029	U.S. Postal Service TM CERTIFIED MAIL (Domestic Mail Only; No Insurance Co For delivery information visit our website a OFFICIAL	overage Provided)
Houston, Texas		다 다 다	Postage \$	1
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Footages		Uhit_OSe	39 19 TSP 195	Rge 37E County	Loa	
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	₽ RULE 40 Compliance (N	Wells)	(Finan Assi			
Operator Address: 612	20 S. Yole	AVE SI	17E 1500	TULSA O	K, 74136	
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Well File Reviewed		·				
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Above (Name and Top)	(51) 6 1 (55)			Euria "		
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