



TONEY ANAYA  
GOVERNOR

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION



1935 - 1985

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SANTA FE, NEW MEXICO 87501  
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M E M O R A N D U M

TO: OCD STAFF, ATTORNEYS PRACTICING BEFORE  
THE DIVISION, APPLICANTS

FROM: R. L. STAMETS, DIRECTOR *RLS*

SUBJECT: HEARINGS FOR EXCEPTIONS TO ORDER NO. R-3221,  
SOUTHEAST NEW MEXICO, "NO-PIT" ORDER

DATE: OCTOBER 22, 1985

Background

On May 1, 1967, the Oil Conservation Commission entered Order No. R-3221 which prohibits disposal of water produced in conjunction with the production of oil or gas on the surface of the ground, or in any other place or manner which will constitute a hazard to fresh water supplies in the area encompassed by Lea, Eddy, Chaves, and Roosevelt Counties. The order was amended by Order No. R-3221-B on July 25, 1968, to define a large area in the vicinity of Clayton Basin and Nash Draw where high concentrations of chloride exist and where produced water could be disposed of while providing reasonable protection against contamination of fresh water supplies designated by the State Engineer. Since then 25 cases requesting exceptions to Order No. R-3221 have been approved while several others have been denied for various reasons. It is the purpose of this memorandum to outline some of the relevant concerns and provide a standardized procedure for applicants and hearing officers to follow in hearing and deciding such cases.

Legal Considerations

- (1) The Division is authorized by Section 70-2-12 B (15) of the Oil and Gas Act to make rules, regulations, and orders for the purpose of

regulating "the disposition of water produced or used in connection with the drilling for or producing of oil or gas, or both, and to direct surface or subsurface disposal of such water in a manner that will afford reasonable protection against contamination of fresh water supplies designated by the State Engineer".

- (2) The State Engineer by letter dated April 13, 1967, and pursuant to the above-named Section designated all underground water containing 10,000 milligrams per liter or less of total dissolved solids as water to be protected, "except that this designation shall not include any water for which there is no present or reasonably foreseeable\* beneficial use that would be impaired by contamination."
- (3) By letter dated July 10, 1985, the State Engineer reaffirmed the designation regarding groundwater and further designated all surface waters of all streams within the state for protection regardless of the quality of the water within any given reach. The letter also directed that no lakes or playas be contaminated although they may contain greater than 10,000 mg/l TDS unless it can be shown that contamination of the lake or playa will not adversely affect ground water hydrologically connected to the lake or playa.
- (4) In finding (4) of Order No. R-3221, the OCC determined that fresh water supplies as designated by the State Engineer exist in substantially all areas where there is surface pit disposal and in substantially all the area encompassed by Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico.

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\*Although not formally defined, the term "reasonably foreseeable" has been taken to mean a time period of not less than 200 years in the future, and in other instances to mean much longer times (thousands of years).

- (5) Findings (5) and (6) of Order No. R-3221 determined that the disposal of water produced in conjunction with the production of oil or gas, or both, on the surface of the ground, or in any pit, pond, lake, depression, draw, streambed, or arroyo, or in any other watercourse, constitutes a hazard to existing fresh water supplies, as designated by the State Engineer, in the vicinity of such disposal; and that such disposal, or any other disposal in any other place or manner which will constitute a hazard to any fresh water supplies should be prohibited in the above listed counties so as to afford reasonable production of fresh water supplies.
- (6) Finding (12) of Order No. R-3221 determined that produced water surface disposal of not more than one barrel per day per 40-acre tract served by the pits presented little hazard to fresh water.
- (7) Paragraph No. (3) of Order No. R-3221 prohibited the disposal of produced water in the manner described in paragraph (5) above in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico.
- (8) As an amendment to Order No. R-3221, Order No. R-3221-B excepted major portions of Clayton Basin and Nash Draw in Lea and Eddy Counties based (1) on the existence of a number of large surface ponds, or lakes, containing extremely high concentrations of chlorides within the area [Finding (8)] and (2) on the determination that the reasonable protection against contamination of fresh water supplies by surface disposal of produced water would not be advanced by the enforcement of Order No. R-3221 in that area [Finding (11)].

#### Exception Procedures

An exception will be granted only if an applicant demonstrates that potentially usable ground water will not be affected. The following procedures should be followed in review of application for exceptions to Order No. R-3221 as amended:

- (1) Based upon the Findings in Order No. R-3221, the Division must assume groundwater to be present at shallow depths throughout the area defined in

said order unless the applicant specifically documents otherwise. The absence of wells does not necessarily indicate lack of groundwater, since wells are drilled only when a water supply is needed. Likewise, the lack of a sufficient water supply to provide for commercial or industrial use does not mean that a supply sufficient to provide domestic or stock water does not exist. Also, the lack of groundwater at a site does not mean that the surface discharge could not impair other groundwater, since the discharged water could move down dip in the subsurface so as to commingle in the reasonably foreseeable future with an uncontaminated water supply and impair its use. The applicant must show that discharge in an area containing no groundwater will not cause impairment in an adjacent area with groundwater.

- (2) The Division must assume that any groundwater present that could be affected by surface disposal has 10,000 mg/l or less of total dissolved solids unless otherwise documented by the applicant. This includes shallow groundwater at the site, or groundwater that could be impaired by movement of contaminated groundwater.
- (3) The Division must further assume, unless the applicant demonstrates otherwise, that present or reasonably foreseeable beneficial use of water that has 10,000 mg/l or less of total dissolved solids would be impaired by contamination due to surface disposal of produced water. An applicant has several options to attempt to demonstrate lack of beneficial use:
  - (a) If water is of very poor quality nearing 10,000 mg/l, the applicant can present current water use, future projected use, availability of alternative supplies, etc., in an attempt to demonstrate that there is no reasonable relationship between the economic and social costs of failure to grant the exception and benefits to be gained from continuing to protect the water for domestic or agricultural use now or in the future. The water would be considered or judged to be already so contaminated that it would be economically or technologically impractical to treat the

water for use at present or in the reasonably foreseeable future using treatment methods reasonably employed in public water supply systems. Methods in common use include aeration, air stripping, carbon adsorption, chemical precipitation, chlorination, flotation, fluoridation and granular filtration. Methods known to be used under special circumstances include desalination, ion exchange, and ozonation.

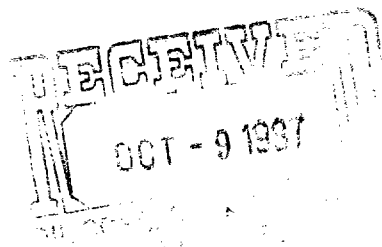
- (b) The applicant can attempt to demonstrate for water currently contaminated, either by natural processes or human activity such that it cannot be beneficially used now or in the future, that the further addition of types and volumes of contaminants will not cause impairment of uncontaminated waters, beyond what would occur through natural movement.
- (c) The applicant can attempt to demonstrate that the groundwater present is not of sufficient volume to provide a reliable water supply for beneficial use, including domestic or stock use. This could occur if the shallow water was located in a discontinuous stratigraphic zone or lens of limited areal extent.

The above options are only examples; other alternatives can be considered as long as water that has future beneficial use is protected.

#### Summary

The burden of proof to demonstrate that an exception should be granted is on the applicant. It may be necessary for the applicant to prepare and submit a complete hydrologic report for the vicinity of the proposed surface disposal site. This has been done previously and successfully for sites near Eunice, Loco Hills and Laguna Plata. No application is ever to be granted simply because it is not opposed.

Exceptions to Order No. R-3221 granted pursuant to these procedures may be administratively rescinded by the Division Director whenever it reasonably appears to the director that such rescission would serve to protect fresh water supplies from contamination.



Box 743  
Hobbs, New Mexico 88240  
October 7, 1987

Oil Conservation Division  
P. O. Box 2088  
Santa Fe, New Mexico 87501

RE: Case #9235

Gentlemen:

We are protesting the granting of Conoco's application, listed under Case #9235 for permission to use unlined pits in connection with drilling oil wells in Sections 18 and 19, Township 18 South, Range 32 East, Lea County, New Mexico.

We own 320 acres of land in the South  $\frac{1}{2}$  of Section 7, Township 18, Range 32, which adjoins Section 18, immediately to the north. We have several sections of B. L. M. grazing permits adjacent, which includes Sections 18 and 19. We have a water well in the  $SE\frac{1}{4}SE\frac{1}{4}$  of Section 7, the only water well we have for this area.

This is all loose sandy terrain. We are fearful that the salt water absorbed into the soil would contaminate our water. The other oil companies drilling in this vicinity are lining their pits. We feel that Conoco should not be excepted.

Very truly yours,

*Thelma Linam Webber*

Thelma Linam Webber,  
Owner, Permittee

*Faye Linam Klein*

Faye Linam Klein,  
Heir, Operator



Production Department  
Hobbs Division  
North American Production

Conoco Inc.  
P.O. Box 460  
726 East Michigan  
Hobbs, NM 88240  
(505) 393-4141

OCT 22 1987

October 19, 1987

Mr. Michael Stogner  
New Mexico Oil Conservation Division  
P.O. Box 2088  
Santa Fe, New Mexico 87501

Dear Mr. Stogner:


Case No. 9235 - Exception to Order R-3221 - Buffalo Federal Lease,  
Conoco Inc.

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As requested at the Examiner Hearing on October 7, 1987, attached is a copy of a water analysis from the Delaware formation water which will be disposed into pits on our subject lease. We are now recovering load water from the Buffalo Federal Well No. 1, so a formation water sample is not yet available. This sample, however, being from an offset well in the same formation should be approximately the same as one from our well.

In the interest of time, we trust that this sample will be acceptable.

Yours very truly,

  
H. A. Ingram  
Conservation Coordinator

tm

cc/enc: Tom Kellahin

## VISCO Water Analysis

Prepared for SIETE OIL AND GAS  
LOCO HILLSParker, David T.  
NALCO Chemical Company  
9-OCT-87Well Number : INCA FEDERAL  
Water Source : BATTERY

## DISSOLVED SOLIDS

Cations		mg/l	meq/l		mg/l
=====		=====	=====		=====
Sodium	Na+	84,647.10	3,680.31	as NaCl	
Calcium	Ca++	16,400.00	820.00	as CaCO3	41,000.00
Magnesium	Mg++	3,645.00	299.98	as CaCO3	15,000.00
Barium	Ba++			as CaCO3	
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Total Cations		104,692.10	4,800.29		

Anions		mg/l	meq/l		mg/l
=====		=====	=====		=====
Chloride	Cl-	169,960.00	4,792.87	as NaCl	280,000.00
Sulfate	SO4=	202.80	4.22	as Na2SO4	300.00
Carbonate	CO3=			as CaCO3	
Bicarb.	HCO3-	195.20	3.20	as CaCO3	160.00
-----		-----	-----		
Total Anions		170,358.00	4,800.29		

Total Solids 275,050.10

Total Iron, Fe	1.60	as Fe	1.60
Acid to Phen, CO2	255.20	as CaCO3	580.00

## SCALING INDICES

Temp	CaCO3	CaSO4	BaSO4
-----	-----	-----	-----
50 F	-0.05	-12.21	
77 F	+0.22		
95 F	+0.46	-12.15	
122 F	+0.91	-12.12	
149 F	+1.47		
176 F	+2.13	-12.51	
203 F	+2.89		

Positive values indicate scaling is likely.  
Scaling Indices calculated using ASTM standard practices.

## OTHER PROPERTIES

pH	5.90
Specific Gravity	1.25
Turbidity	
Oxygen, as O2 ppm	
Sulfide as H2S ppm	
Temperature F	80.00



November 23, 1987

Oil Conservation Division  
P.O. Box 2088  
Santa Fe N. M. 87504-2088

*Re: Case 9231  
(reopened)*

Gentleman,

I am writing in protest to the application of Conoco Inc. who is asking for exception to the provision of Division order No R-3221 on their Buffalo Federal Lease in The NW $\frac{1}{4}$  SW $\frac{1}{4}$  Sec 18 T 18 R 32 E, where they are asking permission to dispose of salt water in unlined pits.

We hold grazing permits on this land and several sections adjacent to it, water is very scarce in this vicinity and our only water well is less than one mile from their production. This could pollute our water.

The ruling or law on using lined pits is good but if exceptions are made the law is useless.

I am asking you NOT to grant this application.

Very respectfully,

*Thelma A. Webber*  
Thelma A. Webber

Box 743

Hobbs, N. M. 88240



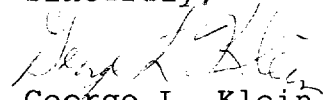
P. O. Box 1503  
Hobbs, NM 88240  
24 November 1987

Mr. Jeff Taylor  
P. O. Box 2088  
Santa Fe, NM 87501

Dear Mr. Taylor:

I am writing in response to Conoco Oil Company's petition #9235 to allow an unlined pit at a drilling location. It is my hearty conviction that expediency should never justify the compromise the land itself. I can imagine the pressure which will be brought to bear against you, but it is my hope that you will do the courageous and proper thing and deny this request.

Sincerely,



George L. Klein

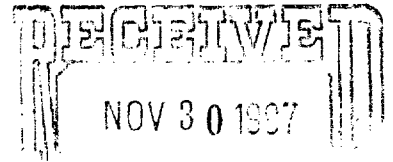
Box 1503  
Hobbs, N.M. 88240

Nov. 23, 1987

Oil Conservation Division

Box 2088

Santa Fe, N.M. 87504-2088



Attn: Jeff Taylor

Re: Case # 9235

Dear Sir:

Concerning case #9235 — application by Conaco, Inc. for exception of provision in Division Order # K-3221 to permit disposal of water produced in conjunction with oil and gas production into an unlined pit — from its Buffalo Federal Lease located in Sec. 18, T. 18 S., R. 32 E. — or even in Sec. 19, which they plan to develop — Lea County, N.M..

Please deny this application. I have water wells in SE/4 SE/4 7-18-32 — a little over 1/2 mile away. This is the only well water I have for this allotment, and I don't want even a remote possibility of polluting it with salt or chemicals.

Thank you.

Faye L. Klein  
Operator on heir on  
J. Virgil Linam Estate  
Box 1503 + # 6008