

**STATE OF NEW MEXICO
ENERGY MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION**

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**APPLICATION OF OWL SWD OPERATING, LLC FOR
AUTHORIZATION TO INJECT, LEA COUNTY, NEW MEXICO.**

CASE NO. 15723

**OIL CONSERVATION DIVISION'S WRITTEN SUMMATION AND
PROPOSED FINDINGS AND CONCLUSIONS**

The Oil Conservation Division ("OCD") presents this Written Summation and Proposed Findings and Conclusion pursuant to the examiners' request.

The OCD urges that Applicant's request to permit its proposed Bobcat well for injection of large quantities of highly saline produced water should be denied because the evidence shows that (1) water in the Yates and Seven Rivers Formations into which injection is proposed can be put to beneficial uses, and may be degraded by Applicant's proposed operation, and (2) the proposed operation will probably affect producing wells in the Jalmat Field, and may reduce production overall, or from some wells, thereby causing waste or impairing correlative rights. Applicant has the burden of proof on both issues.

Section I below consists of proposed findings on each of the foregoing issues together with record references, and where necessary, supporting arguments.

Section II consists argues UIC issues which are relevant if the Examiners find that the proposed operation may affect the Capitan Reef Aquifer.

Section III discusses further proceedings that OCD believes are necessary if the examiners are disposed to grant the application.

I. The Application should be denied under the Oil and Gas Act.

A Protection of Fresh Water under the Oil and Gas Act

(1) As Applicant concedes, the Division may not issue an injection permit for disposal of produced water unless the applicant establishes that its proposed operation will be conducted in a manner that affords reasonable protection against contamination of fresh water supplies designated by the State Engineer. NMSA 1978, Section 70-2-12(B)(15) and 70-2-12.B(21). OWL's Opening Legal Brief ("OWL's Brief") at 3-4, 6.

(2) The State Engineer has designated as protectible "[a]ll underground water in the State of New Mexico containing 10,000 parts per million or less of dissolved solids . . .; except . . . water for which there is no present or reasonably foreseeable beneficial use that would be impaired by contamination." April 13 letter from the State Engineer to OCD, attached as Exhibit A to OCD's Post-Hearing Brief, and referenced in OWL's Brief at 4.

(3) Water from the Seven Rivers formation (the proposed injection formation) tested at locations less than two miles from the proposed injection well contained between 1500 and 2800 parts per million (ppm) chlorides. OCD Exhibit 3. It is reasonable to conclude that the water so tested contained 10,000 ppm or less total dissolved solids (TDS). Testimony of Chad Kronkoski, Tr. 117, lines 15-23.

(4) Although tests at other locations showed much higher chloride concentrations, Applicant did not present evidence that would provide a basis for delineation of the areas within the Seven Rivers Formation where this aquifer is demonstrably not protectible.

(5) Applicant's form C-108, submitted with its permit application, indicates the injected water will have a TDS concentration in excess of 140,000, OCD Exhibit 6, a number that

dwarfs the concentrations indicated by most of the Seven Rivers water tests in the vicinity. OCD Exhibit 3, Figure 3B.

(6) Because of the large discrepancy in water quality thus indicated, it is reasonable to conclude that the proposed injection operation will further contaminate the Yates/Seven Rivers Aquifer.

(7) Historical injection into the adjacent Maralo Shoals B Well No. 2 (“the Maralo Sholes well”) is not relevant to assessment of the probable effect of the proposed operation injection prior to 2016 was limited to produced water from the Yates and Seven Rivers Formations and because injection into that well prior to 2014 involved substantially less water than the 30,000 barrels per day now proposed (OCD Ex. 5).

(8) Water from the Yates and Seven Rivers Formations has been, and can be, used in oil and gas operations, a “beneficial use” that brings these waters within the protection of the State Engineer’s designation.

(9) Applicant offered no evidence as to whether the injection of the quantity and quality of water it proposes will contaminate the Yates and Sever Rivers to such an extent as to impair this beneficial use.

(10) Accordingly, Applicant’s request to permit injection into its proposed Bobcat SWD Well No. 1 should be denied.

B Prevention of Waste and Protection of Correlative Rights

(11) Under the Oil and Gas Act, the Division may not issue an injection permit for disposal of produced water unless the applicant establishes that its proposed operation will be conducted in a manner that prevents waste of oil and gas and protects correlative rights. NMSA 1978 Sections 70-2-11; OWL’s Opening Legal Brief (“OWL’s Brief”) at 3-4, 6.

(12) Evidence from both parties indicates that water injected into the proposed well will predictably affect an area that includes currently producing oil and gas wells.

Argument: Applicant's witness, Thomas Neil Blandford calculated an estimated the dispersal area of the fluids Applicant proposes to inject based on computer modeling over a projected 20-year injection period. OCD witness, Philip Goetze prepared separate a map of the predicted dispersal area identifying wells within that area. OCD Exhibit 13. In rebuttal, Mr. Blandford predicted a somewhat different dispersal area. OWL Ex. 15. However, both projected areas include producing oil or gas wells – 11 per OCD Ex. 13 and 17 per OWL Ex. 15.

(13) OCD presented evidence indicating direct correlation between significant increases in injection into the Maralo Sholes well and reported water production from the Sholes B 25 Well No. 5, the closest producing well. OCD Ex. 5. Although the operator of that well later amended its production reports, drastically reducing reported water production, no non-hearsay evidence was offered to explain or justify the amended reports. OCD Ex. 5.

(14) Speculation that, in view of water scarcity in the Yates and Seven Rivers, encroachment of injected water would increase production as a waterflood operation is not a substitute for proof of non-impact. Such unplanned encroachment could just as easily sweep hydrocarbons out of the draw area of particular wells, thus impairing correlative rights.

(15) Applicant's evidence is insufficient either to prove that its proposed injection into a productive reservoir will not cause or impair correlative rights.

(16) Accordingly, Applicant's request to permit its proposed Bobcat SWD Well No. 1 for injection of produced water should be denied.

II. The application should be denied if there is a danger to the Capitan Reef Aquifer.

A. Will the Reef be affected? The Division and the Office of the State Engineer have been zealous to protect the Capitan Reef Aquifer, a valuable source of drinking water. Applicant presented computer models designed to show that the Capitan Reef Aquifer will not be affected. OCD did not present direct rebuttal to this evidence, but urges that it should be considered with appropriate skepticism. Computer modeling has certain limitations, including some that Mr. Blandford, Applicant's modeling witness, acknowledged. Tr. V. II, pp. 8-15. Specifically, he acknowledged that modeling must be based on reasonable factual assumptions and that results are not precise, Tr. V. II, pp. 8-9. Further Mr. Blandford indicated that he had conducted limited sensitivity analysis to test the possible effects of variations of the facts from those he assumed. Tr. V. II, pp. 16-17.

Two assumptions Mr. Blandford made have implications significant implications for the reliability of his testimony. First, he did not consider possible effects of future injection wells that might be drilled near the proposed well. Tr. V. II, pp. 13-14. Second, he based his modeling on an assumed 20-year injection period. Tr. V. I, p. 194. Mr. Kronkosky's testimony that the Yates/Seven Rivers is a highly desirable injection zone suggests that the first assumption is questionable, and Mr. Goetze testified that, in his opinion, the second assumption was likely unrealistic. Tr. V. II, p. 129. This second questionable assumption is particularly troubling since OCD issues injection permits with unlimited duration.

We accordingly recommend that if the examiners are disposed to grant this application, they provide for permit expiration after 20 years, and include the following proposed findings:

- (17) The conclusion that granting of this permit will not affect water quality in the Capitan Reef Aquifer is based on analysis that did not consider the effects of possible

future injection wells in the back-reef area, and should not be considered precedent for approval of future applications without further analysis of effects on the Reef water.

(18) Applicant has not demonstrated that its proposed operation would protect the Capitan Reef Aquifer (a known Underground Source of Drinking Water) if injection were continued beyond 20 years. Therefore, any permit should be limited to a term of 20 years.

Although OCD did not present direct evidence that the Capitan Reef Aquifer will likely be impacted, the State Land Office did, through their witness Anchor Holm. We will leave to the SLO's counsel the analysis of Mr. Holm's testimony.

B. If Applicant has not proven that injection will not affect the Capitan Reef Aquifer, the examiners must consider issues arising under the federal Safe Drinking Water Act ("SDWA") and New Mexico's federally approved Underground Injection Control ("UIC") program. That program mandates protection of Underground Sources of Drinking Water ("USDWs"), which the Reef undoubtedly in in some places. USDWs are all aquifer that contain waters with a TS concentration exceeding 10,000 ppm, except exempt aquifers. Applicant has not delineated any portion of the Reef that can be safely be exempted consistently with the federal or OCD definition of an "exempt aquifer." It is true that OCD rules do not specifically require that an exempt aquifer be designated in a separate proceeding if a permit is granted after hearing. However, OCD injection rules must be interpreted consistently with the intent of the SDWA, which is to authorize state programs that are at least as protective of the environment as the federal program. Thus, to the extent that state primacy allows OCD to approve injection into a USDW which has not been designated in the state plan as an exempt aquifer and without express federal approval, that authority is necessarily limited to those cases in which OCD makes findings after hearing that are equivalent to those be necessary to designate the affected portion of the USDW as an exempt

aquifer. In view of the wide variation of water quality within the Reef in the vicinity of the proposed injection well, the evidence is not sufficient to permit such findings.

III. Even if the examiners decide to grant the permit, addition review is needed.

A. The Sholes B 30 Well No. 1 has not be sufficiently investigated. This well is in the one-half mile area of review. Mr. Goetze testified that there was essentially no information in the well file concerning this well, Tr. V. II, pp. 89-90, and it is accordingly not possible to determine if the plugs have been properly cemented. Tr. V. II, pp 115-16. Mr. Goetze further testified that in such cases it has been division policy to require the applicant to re-enter such wells to determine if they have been properly plugged. Tr. V. II, pp. 119-20. If this application is granted OCD requests that the examiners require appropriate remedial action.

B. The Area of Review should be expanded to include the predicted area of dispersal.

As described in detail above, Applicant's computer modeling predicts dispersal of the injected fluids into an area significantly larger than the one-half mile Area of Review (AOR). There are at least 49 additional wells, either producing or plugged, in the Yates/Seven Rivers within the area of dispersal as originally calculated by Mr. Blandford and plotted by Mr. Goetze (OCD Exhibit 13), and 59 such wells if Mr. Blandford's re-determined dispersal area (OWL Exhibit 15) is used. These additional wells are not within the half-mile AOR and were not studied in the preparation of the form C-108 filed with the application.

If the examiners decide that this application should be granted, OCD requests that they either re-open the hearing in this case or remand it to the administrative process, and order filing of an amended form C-108 so that the wells within the expanded area of review can be studied.

Conclusion

OCD requests that OWL's application for a permit to inject into the its proposed Bobcat SWD Well No. 1 for the reasons described above, or alternatively that any permit be limited to 20 years, and further review be ordered as indicated.

Respectfully submitted,

A handwritten signature in black ink, reading "David K. Brooks". The signature is fluid and cursive, with a horizontal line drawn underneath it.

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Certificate of Service

I hereby certify that the above pleading was served on the following parties by electronic mail on September 26, 2017.

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A handwritten signature in black ink, reading "David K. Brooks", written over a horizontal line.

David K. Brooks