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STATE OF SOUTH DAKOTA  
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES  
BOARD OF MINERALS AND ENVIRONMENT

Division of Financial  
& Technical Assistance

**IN THE MATTER OF THE APPLICATION OF PETER K. ROOSEVELT, DENVER, CO, FOR APPROVAL OF A PERMIT TO INJECT PRODUCTION WATER INTO THE EXISTING 2-33 ALKALI FEDERAL WELL LOCATED IN THE NW¼ NE¼ SECTION 33, TOWNSHIP 11 SOUTH, RANGE 1 EAST, IN FALL RIVER COUNTY, ABOUT EIGHTEEN MILES SOUTHWEST OF EDMONT, SD, TO INJECT PRODUCTION WATER IN THE UNCONSOLIDATED SAND OF THE MINNELUSA FORMATION FOR SALT WATER DISPOSAL.**

**OIL AND GAS  
CASE NO. 5-2017**

**FINDINGS OF FACT,  
CONCLUSIONS OF LAW  
AND ORDER**

A contested case hearing was held before the South Dakota Board of Minerals and Environment ("Board") on October 18, 2018, in Pierre, South Dakota, on the above-captioned application of Peter K. Roosevelt ("Roosevelt").

Prior to the commencement of the hearing, the Chairman of the Board appointed Gregg Greenfield to act as Hearing Chair. Assistant Attorney General Steven R. Blair appeared on behalf of the Department of Environment and Natural Resources ("Department"). Attorney Max Main appeared on behalf of Roosevelt. Petitioners Eckard Water Company, Quinto Ranch, LLC, Susan R. Henderson and Fall River County Board of Commissioners (collectively the "Petitioners") did not appear at the hearing.

Based upon the application, the recommendation of the Secretary of the Department, and the testimony, evidence and arguments presented at the hearing, the Board makes and enters the following:

**FINDINGS OF FACT**

1. Roosevelt's application was filed with the Department on October 19, 2015.
2. Roosevelt's application and supporting documentation are complete in all respects and contain all required and requested information.
3. The Department caused due and proper Notice of Recommendation for a Permit to Inject to be given and published as required by law. The Notice recommended approval of the application, with conditions.
4. Petitioners all submitted documents that were accepted by the Department as petitions requesting a hearing on the application.
5. The hearing on the application was scheduled for October 18, 2018. Roosevelt gave proper and timely notice of the time, date and location of the hearing to all persons whose property may be affected by the hearing by mailing copies of the Notice of Contested Case Hearing, and copies of the Notice of Recommendation, by certified mail, return receipt requested, to such persons. An affidavit declaring that the Notice of Contested Case Hearing and the Notice of Recommendation were mailed, with the certified mail return receipts attached, was filed with the Department.
6. The Notice of Recommendation was published in the Fall River County Herald on April 12, 2018, and in the Hot Springs Star on April 11, 2018. Affidavits of publication were filed with the Department.
7. Petitioners did not appear at the hearing or present any evidence at the hearing.
8. Roosevelt's application requests a permit to inject production water into the existing 2-33 Alkali Federal well located in the NW1/4NE1/4 of Section 33, T11S, R1E, B.H.M., Fall River County.

9. The 2-33 Alkali Federal well was completed with 268 feet of 8 5/8-inch steel surface casing, cemented to protect underground sources of drinking water, and 3,679 feet of 5 1/2-inch steel production casing, cemented to protect underground sources of drinking water. The injection zone will be in the Unconsolidated Sand of the Minnelusa Formation.

10. Injection water will be produced water from the 3-33R Alkali Federal well producing from the 2nd Leo Member of the Minnelusa Formation.

11. There are no active or plugged water wells in the one-half mile area of review, or the calculated radius of influence, around the 2-33 Alkali Federal well.

12. All plugged and abandoned oil and gas wells within the one-half mile area of review around the 2-33 Alkali Federal well are constructed such that injection into the 2-33 Alkali Federal well will not affect any underground sources of drinking water.

13. The Secretary of the Department recommends granting a 3,150 foot radius aquifer exemption in the Minnelusa Formation around the proposed injection well.

14. The proposed aquifer exemption does not currently serve as a source of drinking water.

15. The proposed aquifer exemption has a total dissolved solids content of more than 3,000 and less than 10,000 milligrams per liter, and is not expected to supply a public water supply system.

16. The proposed aquifer exemption cannot now, and will not in the future, serve as a source of drinking water because it is situated at a location which makes recovery of water for drinking water purposes economically or technologically impractical.

17. The Department calculated the radius of influence of the proposed injection to be 3,066.8 feet, which is less than the requested 3,150 foot radius aquifer exemption.

18. The proposed aquifer exemption is approximately 34.82 miles southwest of Hot Springs, South Dakota, where the Minnelusa recharge area is located.

19. The proposed aquifer exemption is approximately 18 miles southwest of Edgemont, South Dakota, the nearest city of significant population.

20. The proposed aquifer exemption is approximately 12 miles southwest of the nearest public water supply system.

21. The proposed aquifer exemption is approximately 2.8 miles north of the nearest identified water well.

22. The 2-33 Alkali Federal well is located on USDA Forest Service property, making the area unlikely to be developed for residential use.

23. The Madison Formation is the principal underground source of drinking water in the area of the proposed aquifer exemption, and is estimated to have 9,811,200 acre-feet of recoverable water in Fall River County.

24. The estimated cost of drilling a Madison water well is approximately \$92,840 more than drilling a Minnelusa water well in Fall River County, however, the superior water quality in the Madison makes it the preferred drinking water aquifer in the county.

25. If a drinking water well were drilled at the location of the proposed aquifer exemption, the cost to build a pipeline to transport the water to the nearest residential location would be \$839,520. The cost to build a pipeline to transport the water to the nearest public water supply would be \$3,352,800.

26. Based on the Fall River County population trends and the amount of available water in the Madison aquifer, there is a sufficient quantity of water available in the Madison aquifer to serve the current and estimated future population of Fall River County without the development of the exempted portion of the Minnelusa Formation.

27. The proposed injection will not cause any degradation of fresh water resources or other mineral resources.

28. The Secretary of the Department recommends approval of the application, with the following conditions:

- 1) Injection operations authorized under the permit to inject must be conducted in accordance with SDCL Chapter 45-9, ARSD 74:12 and any applicable orders or rules promulgated by the Board;
- 2) Total number of barrels injected during the life of the permit may not exceed 8,212,500 barrels of water;
- 3) The maximum injection rate must not exceed 750 barrels of water per day;
- 4) The life of the permit may not exceed 30 years or such time as the quantity limitations in 28(2) above are reached, whichever is earlier;
- 5) The maximum pressure must not exceed 550 pounds per square inch surface pressure during injection operations;
- 6) Prior to the commencement of injection, the Secretary's recommended Aquifer Exemption for this operation must be approved by the United States Environmental Protection Agency;
- 7) A mechanical integrity test must be successfully conducted prior to the commencement of injection activity. The well must pass the mechanical integrity test at 1,000 pounds per square inch surface pressure. The operator is required to notify the Secretary a minimum of 72 hours prior to running a mechanical integrity test;
- 8) Once mechanical integrity is established, the well must be retested at least once every five years to ensure that mechanical integrity is maintained, unless the Department indicates differently;
- 9) If an unsuccessful pressure test occurs, the operator must cease operations immediately if it is determined the injection will threaten any underground source of drinking water. If the failure is not threatening ground water, the operator must

cease operations within 48 hours after receipt of the Department Secretary's notice, and take corrective action as soon as feasible. Corrective action options include repairing the well so that a successful test result can be obtained, plugging and abandoning the well, or any other action mandated or approved by the Department;

- 10) At all times, the injection well shall have an accurate, operating pressure gauge or pressure recording device and injection volume totalizer or volume recording device. The operator shall keep and maintain an accurate log of monitoring equipment readings which may be subject to review by the Department at any time.

Based on the foregoing Findings of Fact, the Board hereby makes and enters the following:

### **CONCLUSIONS OF LAW**

1. The Board has jurisdiction over the parties to and the subject matter of this proceeding.
2. Roosevelt's application is complete.
3. All notices of the application and the hearing thereon, and all other notices required by law, were properly and timely given.
4. By not appearing at the hearing, Petitioners are in default.
5. By not appearing at the hearing, Petitioners waived and forfeited all due process rights they could have exercised at the hearing.
6. ARSD 74:12:07:24 grants the Secretary authority to grant an aquifer exemption under the administrative approval process found in ARSD ch. 74:12:09. Because this matter was heard by the Board as a contested case hearing, the Board is required to grant state approval of the aquifer exemption.

Based on the foregoing Findings of Fact and Conclusions of Law, and good cause appearing therefor, it is hereby:



**ORDERED**, that Roosevelt's application be, and the same hereby is, granted, with the following conditions:

- 1) Injection operations authorized under the permit to inject must be conducted in accordance with SDCL Chapter 45-9, ARSD 74:12 and any applicable orders or rules promulgated by the Board;
- 2) Total number of barrels injected during the life of the permit may not exceed 8,212,500 barrels of water;
- 3) The maximum injection rate must not exceed 750 barrels of water per day;
- 4) The life of the permit may not exceed 30 years or such time as the quantity limitations in 28(2) above are reached, whichever is earlier;
- 5) The maximum pressure must not exceed 550 pounds per square inch surface pressure during injection operations;
- 6) Prior to the commencement of injection, the Secretary's recommended Aquifer Exemption for this operation must be approved by the United States Environmental Protection Agency;
- 7) A mechanical integrity test must be successfully conducted prior to the commencement of injection activity. The well must pass the mechanical integrity test at 1,000 pounds per square inch surface pressure. The operator is required to notify the Secretary a minimum of 72 hours prior to running a mechanical integrity test;
- 8) Once mechanical integrity is established, the well must be retested at least once every five years to ensure that mechanical integrity is maintained, unless the Department indicates differently;
- 9) If an unsuccessful pressure test occurs, the operator must cease operations immediately if it is determined the injection will threaten any underground source of drinking water. If the failure is not threatening ground water, the operator must cease operations within 48 hours after receipt of the Department Secretary's notice, and take corrective action as soon as feasible. Corrective action options include repairing the well so that a successful test result can be obtained, plugging

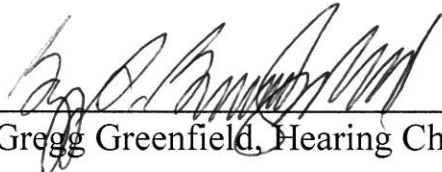
and abandoning the well, or any other action mandated or approved by the Department;

- 10) At all times, the injection well shall have an accurate, operating pressure gauge or pressure recording device and injection volume totalizer or volume recording device. The operator shall keep and maintain an accurate log of monitoring equipment readings which may be subject to review by the Department at any time.

**IT IS FURTHER ORDERED**, that the Secretary's proposed aquifer exemption be, and the same hereby is, approved and granted.

Dated and signed this 15<sup>th</sup> day of November, 2018.

**SOUTH DAKOTA BOARD OF  
MINERALS AND ENVIRONMENT**

By   
Gregg Greenfield, Hearing Chairman



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THE EXISTING 2-33 ALKALI FEDERAL  
WELL LOCATED IN THE NW¼ NE¼  
SECTION 33, TOWNSHIP 11 SOUTH,  
RANGE 1 EAST, IN FALL RIVER  
COUNTY, ABOUT EIGHTEEN MILES  
SOUTHWEST OF EDMONT, SD, TO  
INJECT PRODUCTION WATER IN THE  
UNCONSOLIDATED SAND OF THE  
MINNELUSA FORMATION FOR SALT  
WATER DISPOSAL.**

**OIL AND GAS  
CASE NO. 5-2017**

**CERTIFICATE OF  
SERVICE**

The undersigned hereby certifies that the original of FINDING OF FACT, CONCLUSIONS OF LAW AND ORDER was filed with:

Brenda Binegar  
DENR Minerals & Mining Program  
523 E. Capital Ave.  
Pierre, SD 57501

Further, the undersigned certifies that a true and correct copy of the above-referenced document was served by United States Mail, first class, postage prepaid upon the following:

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Dated this 26<sup>th</sup> day of November, 2018.

**SOUTH DAKOTA BOARD OF  
MINERALS AND ENVIRONMENT**

By   
Gregg Greenfield, Hearing Chairman