

0002



State of Utah  
DEPARTMENT OF HEALTH  
DIVISION OF ENVIRONMENTAL HEALTH

Norman H. Bangarter  
Governor  
Suzanne Dandoy, M.D., M.P.H.  
Executive Director  
Kenneth L. Alkema  
Director

Bureau of Water Pollution Control  
288 North 1460 West, P.O. Box 16690  
Salt Lake City, Utah 84116-0690  
(801) 538-6146

RECEIVED  
NOV 14 1988

November 8, 1988

DIVISION  
OIL, GAS & MINING

Mr. Richard Allison  
Castle Gate Coal Company  
P.O. Box 449  
Helper, Utah 84526

Re: Class V Coal Mine Backfill Injection Well  
Application

Dear Mr. Allison:

During our November 2, 1988 meeting you provided additional information regarding Castle Gate's proposed mine backfill project. As a result, we now understand:

- 1) Ground water samples which have been collected and analyzed were from the flooded portion of the abandoned mine .
- 2) The resin extraction plant has been constructed and the sample results of injection solids and wastewater you provided were collected from the process wastestream.

You also agreed to provide the following information:

- 1. A description and disclosure of all additives in the coal preparation and resin extraction processes that may effect wastewater quality. This will allow us to evaluate the completeness of analyses conducted.
- 2. An explanation for apparently high levels of chemical oxygen demand (COD) and total organic carbon (TOC) in the injection wastewater.

As you know, under the UIC program, Class V wells are required to obtain an injection permit if they may cause a violation of primary drinking water standards [40 CFR 144.12(c)]. For this reason, we have requested that Castle Gate obtain a Class V well permit. This is also the reason why primary drinking water standards will be applied to the injection water quality.

As we discussed, if the injection water quality is better than or meets drinking water standards, then "open-loop" type losses of injection water through the mine's roof or floor are allowable. However, if the injection water quality exceeds drinking water standards it will be imperative to ensure and maintain closed-loop conditions for the backfill process.

The current application does not demonstrate that closed-loop conditions exist in the abandoned mine. Extensive hydrogeologic studies would need to be conducted for this demonstration.

The current application apparently demonstrates that the injection water quality does meet drinking water standards. If this injection water quality is maintained, we see no need for further ground water investigations at this time and a Class V permit could be issued under the above conditions. As discussed, we would not oppose Castle Gate proceeding at their own risk with construction of pipelines and the injection well prior to issuance of the Class V permit in order to avoid delays caused by ground freeze. However, operation of the system may not begin until after receipt of the permit.

We anticipate that the permit will contain the following conditions:

1. Injection water quality shall not exceed maximum contaminant levels for Utah primary drinking water standards, as follows:

<u>Parameter</u>	<u>Limit (mg/l)</u>
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium	0.05
Lead	0.05
Mercury	0.002
Nitrate (as N)	10.0
Selenium	0.01
Silver	0.05
Sulfate	1,000.0
Total Dissolved Solids	2,000.0

2. Compliance monitoring of both the injection and recovery waters. Samples will be collected on a monthly basis for the first six months, and then quarterly thereafter for the life of the permit. All analyses shall be conducted by EPA approved methods, at laboratories certified by the State Health Laboratory. All monitoring results will be submitted on the following schedule:

<u>Quarter</u>	<u>Due Date</u>
1st: January, February, March	April 30
2nd: April, May, June	July 30
3rd: July, August, September	October 30
4th: October, November, December	January 30

Analysis parameters for injection fluid monitoring shall include as a minimum:

Arsenic  
Barium  
Cadmium  
Chromium  
Lead  
Mercury  
Nitrate  
Selenium  
Silver  
Sulfate  
Total Dissolved Solids

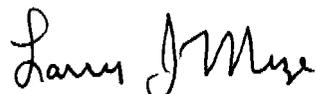
3. A proposed life of the permit of five years with provision to be renewable.
4. As area permit limited to the boundaries of the abandoned mine workings (D seam-Utah Fuels #3 mine) east of the Price River.
5. Provisions for constructing and operating additional injection or recovery wells within the boundaries of the area permit in accordance with the following requirements:
  - a) Submittal of written notice of planned construction to the Executive Secretary.
  - b) Well operation may commence after submittal of an "As-Built" report detailing the final well construction, for Executive Secretary approval.
  - c) Each well shall be constructed with a continuous cement sheath in the casing-borehole annulus, across the entire length of the casing. This casing grout will be constructed with API Class B or ASTM C 150 Type II cements, and emplaced in the annulus by displacement or tremie pipe methods.
6. Well abandonment under the authority of the area permit will need to be in accordance with the following requirements:
  - a) Prior submittal of written notice to the Executive Secretary.
  - b) Installation of a mechanical plug (bridge plug/packer) at the base of the casing.
  - c) Construction of a cement plug immediately above the mechanical plug, that extends to the surface. This cement will consist of API Class B or ASTM C 150 Type II cement, and shall be emplaced by the balance or dump bailer methods.
  - d) Submittal of an "As-Plugged" report for Executive Secretary approval.
7. Injection pressure will be monitored and recorded for quarterly reporting on at least a weekly basis at the injection wellhead. Injection pressure at the wellhead shall at no time exceed 100 psi.
8. The hydrostatic water level in the mine shall also be monitored in wells MC 110 and MC 113 at least weekly and recorded for quarterly reporting.
9. Within 30 days of the effective date of the permit, Castlegate Coal will submit evidence of financial responsibility (a bond for the plugging of the injection and recovery wells); as posted with the Utah Board of Oil, Gas, and Mining.
10. Any discharge of recovery well water to the Price River shall receive prior authorization under the UPDES program.

Mr. Richard Allison  
Page 4

11. Any noncompliance with the permit, including any excursion of the injectate water quality above drinking water limits shall be justification for the Executive Secretary to terminate, revoke, or modify the permit.

If you have any questions regarding the anticipated conditions of the permit please call Loren Morton at 538-6146. We look forward to your submittal of supplementary information.

Sincerely,



Larry J. Mize, Chief  
Municipal Permits and Compliance Section  
Bureau of Water Pollution Control

LBM:st

cc: Susan Linner, DOGM  
Mike Strieby, EPA Region VIII  
S.E. District Health Dept.  
Dave Ariotti

757-22