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PDR

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Gentleman:

Re: Water Quality Division Permit No. 79-682
Land Quality Division Research and Development
License No. 3RD
U. S. Nuclear Regulatory Commission
Source Material License No. SUA-1352
Docket No. 040-08714

Cleveland-Cliffs applied for and received authorization from your respective agencies to construct and operate a process wastewater drain field at the Collins Draw Project. The drain field was operated from June 19, 1980, until March 11, 1981. Monitoring per Permit No. 79-682 was conducted from the start of operation until January, 1982, without any indication of potential contamination of the groundwater or the surrounding soils.

During licensing of the process drain field with the Land Quality Division, numerous written review comments and reports were exchanged. The following comments and responses were contained in a February 28, 1980, report that was submitted to the LQD.

Question IV-E: A post-mortem monitoring program is needed. Soil and subsoil should be tested pre- and post-operation for at least arsenic, molybdenum, selenium, sodium absorption

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ratio, exchangeable sodium percentage, electrical conductivity, calcium, magnesium, nitrogen, radium and pH. The zone of soil and subsoil testing should be based on the extent of the wetting front or a halo of 15-20 feet around the edge of the leach field (both laterally and vertically). If elevated concentrations occur within this halo, DEQ should be contacted for further sampling locations. The post-operation monitoring program for upward salt movement should continue until approval is received from the Land Quality Division.

Answer:

A post-mortem monitoring program to confirm the stability of the drain field residues is given below.

1. Prior to operation, the subsoil overlying the drain field (topsoil has been removed and stockpiled to prevent any possible contamination) and the subsoil overlying the predicted wetted area will be sampled and analyzed for arsenic, molybdenum, selenium, sodium absorption ratio, exchangeable sodium percentage, electrical conductivity, calcium, magnesium, nitrogen, radium, and soil pH.

The surface subsoil sample will be a composite sample made up of seven individual samples spread radially out from the center of the drain field in the shape of a cross. See Figure 14.

2. After the drain field operation is terminated, the subsoil on the surface will be sampled and analyzed again as above in (1). At the same time a subsoil sample from approximately 3-4 feet below surface will be collected on the same pattern and analyzed for the same constituents as in (1) above.
3. Three months after termination of the drain field operation, another sample from the surface and from 3-4 feet below surface elevation will be collected and analyzed. The sample location and assay criteria will be the same as previously used. Care will be taken to offset the location slightly to avoid sampling material disturbed in previous sample collections.

If no contamination was measured at the surface elevation, this sample will be omitted and the assay of the deeper samples used to determine stability.

If contamination of the surface subsoil is detected, the sample from the 3-4 foot deep zone will be omitted on all future sampling. The salt migration will then be monitored by surface samples.

4. Six months after termination of the drain field, the same procedure as described in (3) above will be followed.

5. Twelve to fifteen months after termination of the drain field, the same procedure as described in (3) above will be followed.
6. If at any time salt migration is detected, the DEQ will be contacted to review the sample frequency and monitor program.

If significant upward movement is detected, remedial action will be proposed to the DEQ within ninety days.

If no upward migration of salts is indicated, topsoil will be replaced after (5) above and the area reclaimed in accordance with Research and Development License 3RD.

Question IV-F:

Cleveland-Cliffs should commit to total cleanup of the leach field area should unacceptable contamination occur. Cleanup may involve removal and proper disposal of the toxic materials and/or contaminated soils.

Answer:

Should unacceptable contamination occur, all contaminated soil and/or toxic materials will be removed from the drain field area and disposed of in a manner acceptable to DEQ and the Nuclear Regulatory Commission.

Toxic materials and/or contaminated soil being defined as an increase of 5 pCi/g (baseline to depth 6 feet is 0.77 pCi/g - see license 3RD) radiation content of the subsoil or topsoil, or an increase in the salt content of the topsoil so that it exceeds a conductivity (Ec) of 8 mmhos/cm (LQD, DEQ Guideline 3), or an increase of 20% of baseline conditions should baseline be greater than 8 mmhos/cm.

Baseline conditions for the subsoil will be defined from samples collected in Question IV-E. Baseline conditions for topsoil will be determined from the topsoil pile.

In order to prevent topsoil contamination, all topsoil from the drain field area has been removed and stored in accordance with Research and Development License 3RD. Topsoil will not be replaced on top of the drain field until subsoil assay indicates there is no upward salt movement, or the DEQ authorizes topsoil placement.

Subsoil baseline samples were collected from the seven locations on and around the drain field. The sample depths were 0 to 6 inches below the exposed surface of the subsoil after topsoil removal. Topsoil samples were collected from the topsoil stockpile. The subsoil and topsoil samples were separately composited and analyzed. This baseline data has been provided to the Land Quality Division.

Post operational drain field soil samples were collected on January 28, 1982, (after approximately 10 months shutdown) and on August 19, 1982, (after approximately 17 months shutdown), from the seven sample locations at the

surface and at the three-foot depth. Three-month and six-month post operational soil samples were not collected because there was a possibility at those times that we would again need to discharge to the drain field. After 10 months of shutdown, we realized that we would not again discharge to the drain field.

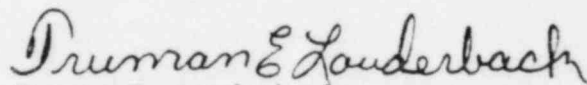
The January 28, 1982, and the August 18, 1982, composite soil samples were analyzed and the results of these analyses are shown in the attached Table 1, along with the baseline subsoil analyses. As can be seen by comparing the baseline analyses to the post operation analyses, there has been no detectable capillary upward movement of the discharged wastewater into the soils. The soils have not been contaminated by drain field operation.

Operational and post operational monitoring of the process wastewater drain field has demonstrated that this wastewater treatment alternative did not cause significant environmental harm at Collins Draw. Cleveland-Cliffs requests that Water Quality Division Permit No. 79-682 be terminated and that the Land Quality Division, Wyoming DEQ and the Nuclear Regulatory Commission approve decommissioning of and authorize Cleveland-Cliffs to proceed with final surface reclamation of the drain field area.

Your timely consideration of this request would be appreciated. If you should have any questions or require additional information, please contact me personally at your earliest convenience.

Sincerely,

CLEVELAND-CLIFFS


Truman E. Louderback
Director of Environmental Affairs

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C: Water Quality Division, Cheyenne
Land Quality Division, Cheyenne
Region IV Office of Inspection and Enforcement, NRC

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TABLE 1

Process Wastewater Drain Field
Composite Soil Analyses

Parameter	<u>Baseline</u>	<u>January 28, 1982</u> 10 Months Post Shutdown		<u>August 19, 1982</u> 17 Months Post Shutdown	
		<u>Surface</u>	<u>Surface</u>	4-feet	4-feet
				Below	Below
		<u>Surface</u>	<u>Surface</u>	<u>Surface</u>	<u>Surface</u>
pH	7.7	7.3	7.1	7.5	7.6
Conductivity mmhos/cm	4.40	3.51	4.88	3.44	3.29
Sodium meq/l	8.83	7.52	8.05	0.83	2.13
Calcium meq/l	26.38	26.16	29.18	35.88	32.78
Magnesium meq/l	30.87	23.89	37.01	15.12	14.06
Selenium ppm	0.65	0.20	0.60	0.10	0.40
Sodium Absorption Ratio	1.65	1.50	1.39	0.16	0.44
Exchangeable Sodium %	1.16	0.90	0.80	0.00	0.00
Nitrate ppm	3.68	4.80	3.90	2.20	0.40
Arsenic ppm	51.0	6.6	6.0	2.8	3.1
Molybdenum ppm	8.2	3.2	2.1	0.1	0.1
Radium 226 pCi/gram	0.5	0.8	1.3	1.0	0.9