

DCS



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

AUG 18 1980

WMUR:JER  
Docket No. 40-8692  
SUA-1370, Amendment No. 1

DOCKET NO: 40-8692

APPLICANT: Cotter Corporation

FACILITY: Willow Creek R&D Thin Layer Leach (TL) Test Project,  
Johnson County, Wyoming

SUBJECT: SAFETY/ENVIRONMENTAL EVALUATION OF REQUEST FOR LICENSE  
AMENDMENT TO AUTHORIZE A SECOND PILOT PLANT SCALE TEST

Proposed License Amendment

By letter and supporting information dated June 26, 1980, Cotter Corporation requested that Source Material License No. SUA-1370 be amended to authorize reactivation and operation of the TL leach pilot plant facility for an additional test period. For this second test, the licensee proposes to process a total of 625 tons of crushed Charlie pit ore at a rate of about 25 tons per day for 25 days over a 45 day period following operating procedures substantially the same as those used previously. The purpose of the second test is to obtain additional data required for conclusive evaluation of the TL process and design of a commercial scale facility.

Background

Source Material License SUA-1370 was issued to Cotter Corporation on September 19, 1979 authorizing a pilot scale study of the Holmes and Narver TL (thin layer) acid leach uranium recovery process at the Willow Creek Project site adjacent to the company's Charlie ore body test pit in Johnson County, Wyoming. The objectives of the test program were to determine the effectiveness of the TL leaching process in extracting uranium and vanadium from ore mined in the Charlie ore body and to evaluate the feasibility of using this process on a commercial scale. In addition, the licensee proposed to conduct a laboratory study directed toward determining the feasibility of disposing of the process tailings by burial in a compacted clay disposal cell constructed in the backfilled mine pit about 110 feet below the original ground level.

8009190 781

C

AUG 18 1980

A total of seventeen 25-ton batches of ore were treated by the TL leach process during the period November 4, 1979, to December 20, 1979, with uranium recovery ranging from about 36 percent to about 91 percent and vanadium recovery ranging from about 25 percent to about 74 percent.

Uranium feed and tails concentrations for the 17 tests ranged from 0.0323 to 0.0943%  $U_3O_8$  and from 0.005 to 0.045 %  $U_3O_8$  respectively while vanadium feed and tails concentrations ranged from 0.032 to 0.081%  $V_2O_5$  and from 0.016 to 0.049%  $V_2O_5$  respectively. Additional studies are required to provide the data needed for final process evaluation and optimization.

Laboratory column leach studies conducted using the tailings produced in the pilot plant tests suggested the need for an additional rinse cycle in the recovery process to remove solubilized potentially harmful constituents from the tailings prior to disposal. The licensee plans to incorporate this wash cycle procedure in the proposed second test and to repeat the column leach studies with the tailings generated in this test series.

#### Discussion

Based on the NRC staff review of the original Source Material License Application dated March 24, 1978 and supplements, it was concluded that the proposed operation would provide adequate protection of worker and public health and safety and the environment and Source Material License SUA-1370 was issued. Under this license, Cotter Corporation was authorized to recover uranium from about 1500 tons of Charlie Test Pit ore by processing crushed ore at an average rate of 25 tons per day for sixty days over a ninety day period using the Holmes and Narver TL Leach Process.

Cotter Corporation now proposes to conduct a second test campaign at the same facility following substantially the same operating procedure, those used in the first series of tests. For this second test, the licensee proposes to process an additional 625 tons of ore at a rate of 25 tons per day for twenty-five days over a forty-five day period. The only process change proposed, which consists of providing an additional rinse step, has no potential for producing a significant change in the environmental impact from that encountered previously.

Due to the shorter operating period for the second test, the licensee proposes to modify the radiological monitoring program to provide coverage comparable to that provided during the first test campaign (more frequent urine sampling). The staff concurs with the proposed modified personnel sampling schedules and considers the overall program to be adequate for monitoring personnel radiological exposures with the additional general air samples indicated in License Condition No. 17 recommended below.

AUG 18 1980

Based on the staff's review it is concluded that issuance of a license amendment authorizing the proposed resumption of operations will not result in undue risk to the public health and safety and will not produce any increase in adverse environmental impacts over those produced during previous operation of the facility. Because issuance of this amendment is not deemed a major federal action significantly affecting the quality of the environment, pursuant to 10 CFR 51.5(d)(4), no environmental impact statement, negative declaration or environmental appraisal need be prepared.

In the course of reviewing the amendment application the staff determined that Cotter Corporation was in technical violation of their license as a consequence of failing to provide NRC with official notification that part of the pilot plant facility had been enclosed within a temporary structure. To remedy this oversight, it is recommended that the licensee be required to modify both the revised Source Material License Application (per 8/30/79) as well as Exhibit A of the amendment application of June 26, 1980 to correct the facility description and to provide a plan view of the pilot plant structure and adjacent area showing all equipment and monitoring locations.

Approval of the requested amendment is recommended subject to the indicated revision and addition of the following license conditions:

11. Authorized Use: For recovery of uranium from a total of about 2125 tons of Charlie Test Pit ore processed during two separate test periods using the Holmes and Narver Thin Layer Leach (TL) Process in accordance with the statements, representations and conditions contained in (1) the licensee's application dated March 24, 1978 and revised supportive information dated September 25, 1978; (2) additional information transmittals dated February 7, May 23, August 14, and September 6, 1979; and (3) the licensee's amendment application and supportive information dated June 26, 1980.

Notwithstanding the above, the following conditions shall override any conflicting statements contained in the licensee's applications and supplements:

- 12: The experimental uranium recovery activities during the first test shall consist of processing crushed uranium ore at an average rate of approximately 25 tons per day for sixty days over a ninety day period. For the second test, approximately 25 tons per day will be processed for twenty-five days over a forty-five day period.

AUG 18 1980

17. An in-plant radiological safety and monitoring program shall be conducted during normal pilot plant operations as described in Section 5.5 of Exhibit A submitted with the amendment application by letter dated June 26, 1980 except that all General Air Monitoring samples shall be taken at least twice during the second test period. In addition, an environmental monitoring program shall be conducted as indicated in Table 5.5-3, page 5-13 (Rev. 8/30/79), of the amendment to the Revised Source Material License Application submitted with letter dated September 6, 1979, except that sampling for radon-222 at the upwind and downwind site boundaries shall be conducted prior to startup as well as at monthly intervals during operation of the pilot plant and until the tailings have been moved to a permanent disposal site.
  
21. The licensee shall submit a detailed completion report of the entire pilot plant test program no later than 45 days following completion of the operating period for the second test. This report shall describe both pilot plant tests and shall include operating data and results covering both test periods. The information submitted shall include supporting analytical data and all results of the radiological and environmental sampling programs as well as the licensee's analysis and interpretation of the test results.
  
22. The licensee shall submit a detailed report of the results of the Column Leaching Test described in his February 7, 1979 transmittal within 30 days of the date of issuance of this license amendment. This report shall describe the test procedures and results along with the licensee's analysis and interpretation of the test results and the conclusions drawn from them.

All other conditions shall remain the same.

*J. E. Rothfleisch*

J. E. Rothfleisch  
Uranium Recovery Licensing Branch  
Division of Waste Management

Approved by *H. J. Miller*

Hubert J. Miller, Section Leader