

U. S. NUCLEAR REGULATORY COMMISSION
NOTICE OF ISSUANCE OF ENVIRONMENTAL ASSESSMENT
RELATED TO THE CONSTRUCTION AND OPERATION
OF THE ALCHEMIE FACILITY - 1 CPDF
AND
FINDING OF NO SIGNIFICANT IMPACT
DOCKET NO. 50-603
ALL CHEMICAL ISOTOPE ENRICHMENT, INC.

The U. S. Nuclear Regulatory Commission (the Commission) has issued an Environmental Assessment and a Finding of No Significant Impact related to the application, dated November 17, 1987, for a license to construct and operate the AlChemIE Facility-1 CPDF. All Chemical Isotope Enrichment, Inc. (AlChemIE or applicant) intends to use the facility to enrich stable isotopes.

Environmental Assessment

Identification of Proposed Action: The proposed action would authorize the applicant to utilize the Centrifuge Plant Demonstration Facility (CPDF), which is owned by the U.S. Department of Energy and is located on the Federally owned Oak Ridge Gaseous Diffusion Plant (ORGDP) site. In order to enrich stable isotopes, AlChemIE is purchasing centrifuge machines and will lease the CPDF from

the Department of Energy (DOE). The centrifuge machines were originally designed and manufactured to enrich uranium, but AlChemIE will not use them for that purpose.

Although the enriching of stable isotopes is not ordinarily within the regulatory authority of the Commission, any equipment or device capable of enriching uranium, if intended for commercial use, must be licensed by the Commission. Since the centrifuge machines AlChemIE will obtain from DOE are capable of enriching uranium, their possession and use must be licensed. The Commission rule which governs the licensing of production facilities is 10 CFR Part 50.

AlChemIE Facility-1 CPDF was previously used by the Department of Energy as a Centrifuge Plant Demonstration Facility (hence, CPDF) located at the site of the Oak Ridge Gaseous Diffusion Plant. Therefore, the facility has been completely constructed and operated. In fact, in addition to tests conducted with uranium (as the hexafluoride), the machines have been used to enrich some stable isotopes. As a result of the tests conducted by the Department of Energy, the centrifuge machines and associated piping have been slightly contaminated with uranium. Because the purpose of the tests, in part, was to demonstrate enrichment, some of the uranium contamination is enriched in the uranium-235 isotope. Although some building modifications are necessary, the construction period is expected to be very short.

The Need for the Proposed Action: The proposed construction permit and license will allow the applicant to utilize the CPDF previously used by DOE to enrich stable isotopes. AlChemIE will not use the centrifuge machines obtained from DOE to enrich uranium; however, any equipment or device capable of enriching uranium, if intended for commercial use, must be licensed by the Commission.

Environmental Impacts of the Proposed Action: The NRC staff's Environmental Assessment has concluded that the local environment is a well characterized, industrialized area with an established buffer zone. The industrialized area has utilities and waste management services to support the major facility needs for steam, sanitary water, and electric power.

The exterior of the CPDF facility will be modified only slightly to meet AlChemIE's requirements. Existing centrifuge equipment will be used to process various chemical compounds, some of which are considered toxic or hazardous.

AlChemIE has filed for an air emissions permit with the Tennessee Department of Health and Environment (TDHE). While the feed material and processing rate information is not completely defined, the NRC used available information to perform a conservative analysis which indicates that material releases due to normal operations are expected to be environmentally acceptable.

AlChemIE waste water (primarily sanitary water) will be discharged through the existing Oak Ridge Gaseous Diffusion Plant waste water treatment plant which is currently covered by an NPDES permit. The NPDES limits will not have to be

modified to accommodate the AlChemIE waste water. AlChemIE's non-hazardous and hazardous/toxic solid and liquid wastes will be transferred to appropriate existing DOE, municipal, and commercial waste management operations which already have the necessary permits.

The NRC staff's analysis of potential accidental releases of material from the process indicates that the off-site concentrations of toxic materials will be less than the time-weighted average threshold limit values (TWA-TLV) which have been established by the American Conference of Governmental Industrial Hygienists (ACGIH). Exposure of the population to toxic material emissions in concentrations below these limits will not result in any adverse health and safety effects.

The NRC staff assessed the potential consequences of using the contaminated equipment and concluded that even under the unexpected conditions where the uranium would be released to the environment, the consequences would be minimal with a 50-year body equivalent dose commitment of less than $1.4E-5$ mrem.

Conclusion: On the basis of the NRC staff's evaluation of the environmental report submitted by AlChemIE and upon further independent analysis of the environmental impacts of the proposed action, as set forth in the staff's Environmental Assessment, the staff has concluded that the actions proposed will not result in any significant environmental impacts.

Alternative to the Proposed Action: The principal alternative to the proposed action is that of no action. In view of the NRC staff's conclusion that the proposed action will not result in any significant impact, the preference of this action over the proposed action cannot be justified.

Alternative Use of Resources: Since the facility proposed by AlChemIE has been constructed and operated by the Department of Energy, most of the resources which would be deviated to its construction have already been expended. In addition, the quantity of feed materials which AlChemIE will process are in the kilogram per year range and yield no waste streams, since both separated streams are useful products. Because of the expected efficiency of the centrifuge machines, the use of energy resources should be effective compared with other separation methods.

Agencies and Persons Contacted: The Commission's staff contacted the following: Roane County Executive; Oak Ridge City Manager; Oak Ridge Mayor; Anderson County Executive; Oliver Springs Town Administrator; Tennessee Department of Health and Environment, Division of Air Pollution Control; and Tennessee Department of Health and Environment, Division of Solid Waste Management.

Finding of No Significant Impact: The Commission's staff has prepared an Environmental Assessment related to the proposed licensing action. On the basis that the environmental impacts created by the proposed licensing action would not be significant, the proposed action does not warrant the preparation of an Environmental Impact Statement. Accordingly, it has been determined that a Finding of No Significant Impact is appropriate.

The Environmental Assessment and the November 17, 1988 application related to this proposed action are available for public inspection and copying at the Commission's Public Document Room, 2120 L Street, NW., Washington, DC. Copies of the Environmental Assessment may be obtained by calling (301) 492-3358 or by writing to the Fuel Cycle Safety Branch, Division of Industrial and Medical Nuclear Safety, U. S. Nuclear Regulatory Commission, Washington, DC 20555.

Dated at Rockville, Maryland, this 8th day of September 1988.

FOR THE NUCLEAR REGULATORY COMMISSION

~~ORIGINAL SIGNED BY~~

Leland C. Rouse, Chief
Fuel Cycle Safety Branch
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see previous concurrence*

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