JUN 21 1988

Docket Nos. 50-603
50-604

All Chemical Isotope Enrichment, Inc.
ATTN: Mr. William A. Pfeiffer
Pine Ridge Office Park, Suite 202-B
702 South Illinois Avenue
Oak Ridge, TN 37830

Gentlemen:

In order to complete our review related to your application for a construction permit and operating license for AlChemIE Facility-1 CPDF and Facility-2 Oliver Springs, additional information related to your environmental report is needed. We have enclosed a list of the additional information needed with this letter.

We would be pleased to meet with you if you have any questions concerning this request for additional information.

Sincerely,

Original Signed By:

A. Thomas Clark, Jr.
NRC Project Manager/AlChemIE
Fuel Cycle Safety Branch
Division of Industrial and
Medical Nuclear Safety

Enclosure: As stated

bcc: JHammelman, SAIC
JFowler, DOE
RDuncan, DOE
FScanlon, State of TN

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REQUEST FOR
ADDITIONAL INFORMATION
FROM
ALL CHEMICAL ISOTOPE ENRICHMENT, INC.
FOR
FACILITY-1 CPDF AND FACILITY-2 OLIVER SPRINGS
DOCKETS 50-603 AND 50-604

RE: Letter, dated June 9, 1988, from John H. Smelser, Jr., to the Nuclear Regulatory Commission, Attention: Mr. Hugh L. Thompson, Jr., on the subject of concerns of the Attorney General of the State of Tennessee.

In the reference letter an attachment is provided which lists elements for which naturally occurring radioisotopes occur. The list is incomplete in that several naturally occurring isotopes which undergo double beta transitions are not included. However, half-lives of these rare events are on the order of 10^{20} years and they may be safely neglected. Information is available, nevertheless, on the isotopic abundance of carbon-14 which is about 5 picocuries per gram of carbon* at the earth's surface. Carbon in petroleum, which has decayed over many half-lives, will have considerably fewer atoms of carbon-14.

Since AlChemIE intends to use several kinds of organic chemicals as a potential carrier in its separation process, an analysis should be provided to show the extent to which carbon-14 could be enriched in the centrifuge machines.

In addition, for the naturally occurring radioisotopes shown on the table attached to the reference letter, AlChemIE should demonstrate the extent to which the process could enrich each isotope. For example, since the abundance ratio of tellurium-122 is 2.92 times that of tellurium-123 (with a small quantity of tellurium-120 added), the theoretical maximum atom fraction which could be produced should not exceed 0.38.

Please provide the information described above as an amendment to your environmental report.

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*See, for example, Eisenbud, M., Environmental Radioactivity, Academic Press, 1973, pp.187-8, and NCRP Report No. 81, "Carbon-14 in the Environment," May 15, 1985, p.45.