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Princeton, New Jersey 08540

September 29, 1988

Mr. Robert E. Browning, Director
Division of High-Level Waste Management
Mail Stop 4H3
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Browning:

I would like to offer some thoughts about resource assessment as an element in licensing a geologic repository for high-level radioactive waste.

As you know, 10 CFR 60.21(c)(13) calls for an assessment of natural resources by the license applicant. Such an assessment includes undiscovered resources, as specified in 10 CFR 60.122(c)(17).

For years, the minerals industry has prepared assessments of mineral resources for various purposes. Numerous methods have been developed, and some are widely used. However, these methods are largely directed toward known mineral deposits that have been discovered through exploration, drilling or mining. At present, we have no generally accepted methods for the assessment of undiscovered deposits or for the assessment required for repository licensing. A methodology suitable for licensing remains to be developed.

In recent years a large amount of attention has been given to undiscovered mineral resources in two major government programs: the assessment of undiscovered oil and gas resources by the U.S. Geological Survey (USGS) and the National Uranium Resource Evaluation (NURE) by the U.S. Department of Energy (DOE). Together, these programs represent a major effort costing several hundred million dollars.

The USGS first assessed undiscovered oil and gas resources of the nation in 1975. Earth science data is coupled with expert judgment to form probabilistic estimates of the resources. This year, the USGS is nearing completion of a new national assessment, one that uses revised methodologies and assumptions. To further public understanding and acceptance, the USGS has released, for comment, "National Assessment of Undiscovered Oil and Gas Resources", Open-File Report 88-373 (511) pages. The

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National Academy of Sciences, the National Petroleum Council and the Association of American State Geologists will provide formal reviews.

NURE, the national uranium assessment, was carried out by DOE between 1974 and 1982. It, too, combines field and laboratory data with expert judgment to form probabilistic estimates of uranium resources.

I suggest that a review and analysis of these two programs can provide to the NRC staff a useful frame of reference against which it can evaluate assessment methods proposed by a license applicant. Such background information can be used by the NRC staff in evaluating: the technical quality of the procedures; the soundness of the assumptions; the practical aspects of organization and implementation; and the problems of peer group and public acceptance.

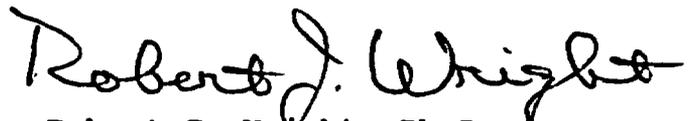
I propose to prepare such a review and analysis, one that is tailored to NRC staff usage.

My interest in resource assessment covers a number of years. While with the NRC, I was instrumental in preparing 10 CFR 60.21(c)(13) and 10 CFR 60.122(c)(17). Before joining the NRC I was, for 4 years, Chief Geologist in DOE's Division of Uranium Resources and Enrichment. I participated in the design and execution of the NURE program and consulted with the USGS on its oil and gas assessments. Before 1975, I worked for many years in mineral exploration and was involved in numerous resource assessments.

If you are interested in this suggestion, please let me know whom I should contact for further discussion.

Thank you for your consideration.

Very truly yours,



Robert J. Wright, Ph.D.
Geologist