

February 16, 1993



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P.O. Box 999  
Richland, Washington 99352  
Telephone (509) 376-8337

Allan T. Mullins  
Uranium Recovery Branch  
Office of Nuclear Material Safety  
and Safeguards  
U.S. Nuclear Regulatory Commission  
11555 Rockville Pike  
Rockville, MD 20852

TECHNICAL REVIEW--DRAFT EIS, ENVIROCARE OF UTAH 11 E(2)  
BYPRODUCT MATERIAL FACILITY  
NRC FIN L2093-1

Dear Mr. Mullins:

I am enclosing a photocopy of Iral Nelson's review of the NRC-revised South Clive EIS. I concur with Mr. Nelson. While we remain convinced that an independent dose assessment would best evaluate the issues, we believe that NRC's treatment of the radiological impacts is reasonable and technically sound. Since this resolution eliminates our last substantial peer review issue, PNL hereby issues our technical concurrence with the subject document and has no objection to partial authorship as per the Murphy/Skaggs to Bangart agreement, providing the attached comments are addressed in some form. Attached is a list of our presumed contributions to the document along with Iral Nelson's biography. Please examine this list for any errors or omissions.

At this point in time we are prepared to continue with the EIS process, as directed by the NRC. If there are to be any changes, please let us know as I am attempting to assess our new planning projection for the remainder of the effort. I acknowledge that this project has proven challenging to all parties. I feel that we have made substantial progress in the last few weeks and remain committed to assisting the NRC in any future effort required by this project.

Sincerely,

Mark T. Murphy  
Senior Research Scientist  
Geophysics Section  
GEOSCIENCES DEPARTMENT

MTM:spd

Enc.

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PDR FOIA  
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Internal Distribution

Date February 10, 1993

To Mark Murphy

From Iral Nelson

Subject Review and Comment on NRC DEIS for Envirocare License Action

WE Kennedy, Jr.  
K Rhoads  
RW Wallace  
File/LB

Kathy Rhoads and I reviewed the radiological consequences portion of the subject document and were agreeably surprised. NRC's use of a comparison with the Vitro site was expected to result in a very weak presentation of radiological consequences. However, following the presentation of the Vitro material, NRC discussed increases in dose results that would be expected from handling material high in thorium (that was not in the Vitro wastes). While there are still some differences of factors of three or four between NRC and PNL dose estimates, and we have a few concerns that are addressed below, by-and-large the DEIS presents a reasonably even-handed disclosure of potential radiological impacts. Resolution of some concerns as a result of a lack of information appear to be proposed as licensing requirements - a handy ploy.

We continue to believe that PNL's results are more defensible, but the NRC analysis may turn out to be adequate, particularly, if they address the concerns noted below.

Specific Comments:

*DONE cited*  
There are some unsubstantiated statements in the document such as the dust release estimate on page 5.19, respirable fraction of 35 percent on page 5.20, and factor of ten for worker shielding on page 5.21. We used 100 percent respirable fraction and information from EPA indicated that it should be about 50 percent - the 35 percent needs a basis. Our running of codes suggests a shielding factor more like two for one cm of steel - the NRC value of ten needs to be substantiated.

*DONE*  
On page 5.21 "fatal deaths" needs to be revisited. (I object to statements like there will be 0.007 excess deaths. Deaths come only by integers. If they want to say "mathematical expectation of 0.007 deaths," okay, but saying, "No fatalities would be expected" would be more straight forward.)

It is our understanding that EPA credits dust suppression with a factor of at most two in reduction of dust levels for heavy construction operations.

*Don't not make change*  
At the bottom of page 5.23 there is an awkwardness; suggest, "...radionuclides <sup>230</sup>Th and <sup>226</sup>Ra, <sup>232</sup>Th, and decay products in secular equilibrium." That puts things in their proper chains. *not technically needed*

*Can't straighten from DOE EIS.*  
On page 5.25 the concentrations in the Vitro material appear to be the EPA "model" concentrations, and if so, should be so stated. One wonders why the

Mark Murphy  
February 10, 1993  
Page 2

NRC model concentrations for thorium and radium are just half the presumed EPA model concentrations.

*\* NRC's is more conservative*  
On page 5.26 an increase of about 30 percent is noted. The weighted average ratio of thorium to radium in 11a(2) wastes is closer to 2-3 rather than 0.5. A basis needs to be provided for weighted average and the 80 percent. *illustrated*

*X*  
On page 5.29 the analysis based on yellow cake is unclear. It appears to be based only on uranium and neglects decay products that would be present in equilibrium with the higher activity associated with yellow cake and neglects the thorium-232 chain altogether.

*WRONG - EXTRACTION OF ~~THE~~ IS! NOT UNCLEAR*

February 16, 1993

MEMO

To: MT Murphy

From: RW Wallace

Subject: Draft Environmental Impact Statement to Construct and Operate a Facility to Receive, Store, and Dispose of 11E.(2) Byproduct Material near Clive, Utah. NUREG-1476.

Here are rough estimates of the amount of our DEIS contained in the subject NRC DEIS, excluding the Abstract, Summary, Foreword and Acknowledgements:

1.0 Purpose and Need for Action	0%, All NRC
2.0 Alternatives Including the Proposed Action	75%, Rearranged uses PNL Alts.
3.0 Description and Evaluation of Alternatives	95%, Rearranged
4.0 Affected Environment	95%, Hydrology rewritten, diff data
5.0 Environmental Consequences, Monitoring, and Mitigation	90%, Hyrol & Rad Conseq NRC's
6.0 NRC Benefit-Cost Summary	Mostly NRC's

A general comment:

2.1  
- It is not completely clear when and for what reasons Alternatives 3 (Skunk Ridge) and 4 (No Action) are dropped from further consideration; for example, Chapter 1 cites NEPA as calling for a detailed statement on ...alternatives to the proposed action..., Chapter 2 lists Alternatives 3 and 4 as selected and evaluated, Chapter 3 describes all alternatives and makes evaluations, but later chapters do not mention Alternatives 3 and 4. Perhaps a statement somewhere in Section 3.5 or 3.6 that states these alternatives would not be considered further would make this clearer.

#### Some Specific Comments

E.B. Moore, Jr.:

In Chapter 1.0-Purpose and Need for Action, the discussion on NEPA serves no useful purpose and could be deleted. Also, Section 1.3 could be shortened without

*in terms of a 200 page document.*

eliminating vital material; i.e., the discussion of UMTRCA could be shortened or deleted.

Chapter 1.0 states the need for the proposed action but omits the purpose of the proposed action.

In section 1.3.2, the reference to NORM material could be eliminated. "Low activity radioactive waste" is sufficient. See Section 2.4.

Most EIS's now have a chapter on regulatory requirements that supplements the required list of permits, licenses, and other entitlements. This serves to bring together in one place regulatory information that is otherwise scattered throughout the document. I suggest that NRC consider adding a chapter on regulatory requirements.

I.C. Nelson:

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with the higher activity associated with yellow cake and neglects the thorium-232 chain altogether.

Iral C. Nelson, Staff Scientist, Life Sciences Center

B.S. Mathematics, University of Oregon	1951
M.A. Physics, University of Oregon	1955
Diplomate of American Board of Health Physics	1962

Mr. Nelson has been at Hanford since 1955 and has over 35 years experience in the radiation and environmental protection field with 20 years of that in NEPA related activities. He lead PNL support to AEC Regulatory Staff in preparation of EISs supporting licensing for 6 commercial nuclear power reactors. He contributed to preparation of the Generic EIS on Management of Commercially Generated Radioactive Wastes, an EIS on Disposal of Hanford High Level, Transuranic, and Tank Wastes, and DOE's New Production Reactor. He also prepared EAs on food irradiators in Iowa and Florida, and prepared draft EAs on a Tritium Extraction Demonstration Task, Interim Storage of Plutonium Components at the Pantex Plant, and a Walk-in Radon/Thoron Experimental Chamber.

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*gm*  
*11:15*  
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DATE: \_\_\_\_\_

TO: ALLAN MULLINS

FROM: MARK MURPHY

COMPANY: NRC-NMSS

PHONE: ( ) \_\_\_\_\_

PHONE: ( ) \_\_\_\_\_

CITY/STATE: \_\_\_\_\_

FACSIMILE NO: 201 504-2259

VERIFICATION: ( ) \_\_\_\_\_

EARTH AND ENVIRONMENTAL SCIENCES CENTER  
3110 PORT OF BENTON  
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COMMENTS:

HARD COPY TO FOLLOW.

The facsimile number listed above is for the Earth & Environmental Sciences Center only. Materials for any other group should be sent to the main facsimile office (509) 375-2718 or (509) 375-3876; verify (509) 375-2580.

THIS TRANSMISSION CONSISTS OF 7 PAGES EXCLUDING COVER PAGE.

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