

11/3/80

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	
)	
NUCLEAR ENGINEERING COMPANY, INC.)	Docket No. 27-39
)	
(Sheffield, Illinois Low-Level)	
Radioactive Waste Disposal Site))	

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NRC STAFF'S ANSWERS TO INTERROGATORIES FILED BY INTERVENOR, CHICAGO SECTION, AMERICAN NUCLEAR SOCIETY

In accordance with the Licensing Board's "Prehearing Conference Order and Order Setting Time for Discovery," dated September 9, 1980, the NRC Staff herein files its answers to Interrogatories 1, 2, 3, 5, 6, 8, 11, 12, 13, 14, 16, 17, 18 and 19 propounded to the Staff by the Chicago Section, American Nuclear Society.^{1/}

Interrogatory No. 1:

Identify by name, business address and telephone number every individual who has been consulted, given advice, corresponded, contributed or otherwise been involved in the preparation of the NRC staff position on conditions for the termination of the operating license of Nuclear Engineering Company ("NECO") for the low-level radioactive waste disposal site at Sheffield, Illinois.

^{1/}By a document entitled "Objections of the NRC Staff to Interrogatories Filed by Intervenor, Chicago Section, American Nuclear Society" dated October 20, 1980, the Staff objected to Interrogatories 4, 7, 9, 10 and 15.

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Answer:

John B. Martin, Director Division of Waste Management NMSS, NRC, Washington, DC 20555	301-427-4069
R. Dale Smith, Chief Low-Level Waste Licensing Branch NRC	301-427-4433
Kitty S. Dragonette Low-Level Waste Licensing Branch, WM NRC	301-427-4433
Ross A. Scarano, Chief Uranium Recovery Licensing Branch, WM NRC	301-427-4103
Gale P. Turi Low-Level Waste Licensing Branch, WM NRC	301-427-4433
Sandra Wastler Waste Management Standards Branch, SD, NRC	301-443-5981
Owen Thompson Hydrological and Geotechnical Engineering Branch, NRR, NRC	301-492-8186
Robert L. Fomier Office of the Executive Legal Director, NRC	301-492-8692
Edwin J. Reis Office of the Executive Legal Director, NRC	301-492-7505
Michael J. Bell, Chief High Level Waste Technical Development Branch, WM, NRC	301-427-4177
Lyman W. Heller Hydrological and Geotechnical Engineering Branch, NRR, NRC	301-492-8005
William S. Bivins Hydrological and Geotechnical Engineering Branch, NRR, NRC	301-492-8003

Jim Shaffner Low-Level Waste Licensing Branch, NRC	301-427-4340
Roy P. Lessy Office of the Executive Legal Director, NRC	401-492-7992
Ed Hawkins Low-Level Waste Licensing Branch, NRC	301-427-4173

Interrogatory No. 2

Identify by title, author and publication (if any) every article, book, paper or other document which has been consulted or relied on in the preparation of the staff position on each condition proposed by the staff for the termination of NECO's license for the Sheffield site.

Answer:

The primary specific references used were:

- (1) USNRC, "Branch Position - Uranium Mill Tailings Management, Fuel Processing and Fabric tion Branch," May 13, 1977, and
- (2) Colorado State University, "Evaluation of Long-Term Stability of Uranium Mill Tailings Disposal Alternatives," April 1978.

The conditions were developed for the most part based on the professional judgment of the Staff. Staff experience in general and knowledge of the specific problems and conditions at Sheffield and other sites were used. The technical staff most directly involved were:

Kitty Dragonette, Low-Level Waste Licensing Branch

Gale P. Turi, Low-Level Waste Licensing Branch

Sandra Wastler, Waste Management Standards Branch

Owen Thompson, Hydrological and Geotechnical Engineering Branch

Interrogatory No. 3

List the location and custodian of every document identified in answer to Interrogatory 2.

Answer:

- (1) Copy of Branch Position - Attachment A.
- (2) Ross A. Scarano, NRC, Willste Building

Interrogatory No. 5:

Name every person who may be called as a witness by the staff in any hearing or proceeding regarding the termination of NECO's license for the Sheffield site.

Interrogatory No. 6:

Identify by name, business address and telephone number every person consulted or to be consulted by the staff as an expert, whether or not they may be called as a witness.

Answers to Interrogatory Nos. 5 and 6:

A list of names and addresses of people who may be called as witnesses by the Staff or may be consulted as experts by the Staff is included in the answer to Interrogatory No. 1. Other persons may be identified as witnesses at a later time.

Interrogatory No. 8:

Describe in detail each and every condition, if any, the staff may seek to have the Commission impose in order to protect (a) the public health (b) the public safety, or (c) the environment, before the operator, NECO may quit the site, and designate for each condition identified, the specific risks to be protected against.

Answer:

Site Stabilization and Closure Conditions were submitted to the Atomic Safety and Licensing Board on July 17, 1980. The NRC Staff has not done a risk analysis for the site closure conditions.

Interrogatory No. 11:

Unless the answer to Interrogatory 10 is an unqualified affirmative, state every legal authority to be relied on in preparation of the answer to Interrogatory 10.

Answer:

The answer to Interrogatory No. 11 is dependent upon the answer to Interrogatory No. 10 which was objected to by the Staff.^{2/} Accordingly, the Staff will not answer Interrogatory No. 11 unless it receives an adverse ruling on its objection.

Interrogatory No. 12:

Identify all active and closed low-level radioactive waste disposal sites in the United States.

^{2/}See n. 1.

Answer:

There are six commercial low-level radioactive waste disposal sites in the United States. The sites at Beatty, Barnwell, South Carolina, and Hanford, Washington, are currently accepting wastes for disposal. The sites at Morhead, Kentucky (Maxey Flats), West Valley, New York, and Sheffield, Illinois, are no longer accepting waste. None of the commercial low-level radioactive waste disposal sites have been closed and stabilized for the long term.

Interrogatory No. 13:

For each site identified in Interrogatory 12, list every condition concerning the disposal of waste or closure of that site which has not been fully met at the Sheffield site.

Answer:

No study has been made of the conditions concerning the disposal of waste and site closure compared with conditions met at the Sheffield site. Further, such a study is not considered to be very meaningful because of the differences in the sites.

Interrogatory No. 14

For each condition imposed on closure of a site identified in Interrogatory 12, list all sources of information obtained by the staff concerning the cost of compliance thereunder, giving the location and the custodian (name, business address and telephone number) of such information.

Answer:

The only information that the NRC Staff has on the cost of compliance with closure conditions are cost estimates made by the following licensees in the referenced memos.

- (1) Barnwell letter from D. G. Ebenhack to Kitty Dragonette, dated 5/28/80, Docket No. 27-47.
- (2) Hanford letter from Vincent P. de Poix to R. Dale Smith dated 8/20/80, Docket No. 27-48.

The custodian of these documents is the NRC Division of Waste Management, Low-Level Waste Management Licensing Branch.

Interrogatory No. 16:

Identify each and every person named in response to Interrogatory 15 with whom the staff have corresponded or discussed these proceedings.

Answer:

The answer to Interrogatory No. 16 is dependent on the answer to Interrogatory No. 15 which was objected to by the Staff. Accordingly, the Staff will not answer Interrogatory No. 16 unless it receives an adverse ruling on its objection.

Interrogatory No. 17:

List every note, letter, written communication or other staff document relating to any person identified in Interrogatory 15 and Interrogatory 16.

The answer to Interrogatory No. 17 is dependent on the answer to Interrogatory No. 15 and Interrogatory No. 16 which were objected to by the Staff. Accordingly, the Staff will not answer Interrogatory No. 17 unless it receives an adverse ruling on its objections.

Interrogatory No. 18:

State whether the natural geology of the Sheffield site necessitates any of the conditions sought to be imposed by the staff on NECO.

Answer:

Yes.

Interrogatory No. 19:

Unless the answer to Interrogatory 18 is an unqualified negative, identify any scientific reports, papers, books, articles or other documents by title, author, custodian and location relied upon to support such condition.

Answer:

The conditions were developed for the most part based on the professional judgment of the Staff. Staff experience in general and knowledge of the specific problems and conditions at Sheffield and other sites were used.

UNITED STATES NUCLEAR REGULATORY COMMISSION

MAY 13 1977

BRANCH POSITION - URANIUM MILL TAILINGS MANAGEMENT
Uranium Recovery Licensing Branch

Background

A major expansion in the uranium industry is taking place. Many times more uranium will be extracted in the upcoming decades than has been extracted so far. This requires that the NRC examine very closely the past problem areas encountered in the uranium industry and make sure they are not compounded on an even larger scale.

The first major portion of the industry within the licensing jurisdiction of the NRC is uranium milling. The major problem encountered in past milling operations is the management of tailings generated by the milling process. Although the concentration of radioactivity in the tailings is relatively low, control measures are necessary because of the large quantities involved and because of the long half-life of the parent radionuclides that are present.

The management of mill tailings has received increasing attention and interest in recent years from involved federal and state agencies and from environmental conservation groups. This interest has resulted from studies carried out during the last decade which have indicated that uranium mill tailings, if not properly managed and controlled, could present a potential public health hazard. The most vivid example, of course, is the situation that occurred in Grand Junction. The remedial actions determined necessary to correct the misuse of tailings in the construction of homes, schools, and other public structures are continuing at substantial cost to the Federal Government and the State of Colorado.

In addition, final technical resolution and financial responsibility for the disposition of tailings at the 22 "inactive" sites being evaluated by ERDA will further increase public, state, and local as well as congressional concern with prevention of similar problems in the future.

It is incumbent on NRC and the uranium industry to assure that current and future licensed milling operations do not result in similar situations.

Towards this end, the NRC staff has developed performance objectives for an acceptable tailings management program based on the most up-to-date technology available today.

Position

The staff is of the opinion that an acceptable tailings management program will vary depending on site or region specific parameters, such as geology, hydrology, and meteorology. Viable methods of tailings

POOR ORIGINAL

management for a specific mill location may include classic impoundment behind a dam, deep mine burial, open pit mine burial, specially excavated pit burial, or even elimination of radioactive waste by process variations.

Considering the many variables involved, the staff will use the following performance objectives to determine the adequacy of proposed site specific tailings management programs.

Siting and Design

1. Locate the tailings isolation area remote from people such that population exposures would be reduced to the maximum extent reasonably achievable.
2. Locate the tailings isolation area such that disruption and dispersion by natural forces is eliminated or reduced to the maximum extent reasonably achievable.
3. Design the isolation area such that seepage of toxic materials into the groundwater system would be eliminated or reduced to the maximum extent reasonably achievable.

During Operations

4. Eliminate the blowing of tailings to unrestricted areas during normal operating conditions.

Post Reclamation

5. Reduce direct gamma radiation from the impoundment area to essentially background.
6. Reduce the radon emanation rate from the impoundment area to about twice the emanation rate in the surrounding environs.
7. Eliminate the need for an ongoing monitoring and maintenance program following successful reclamation.
8. Provide surety arrangements to assure that sufficient funds are available to complete the full reclamation plan.

Implementation

All objectives will be considered and satisfied during the review of proposed tailings management programs for new milling operations.

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Current licensees' tailings management programs will be reviewed to determine the best way to apply objectives 4 through 8 to the extent practicable.

During the course of license renewal reviews, the locations of existing tailings areas will be reviewed considering objectives 1 through 3 to determine if sufficient cause exists to require an alternate disposal location for tailings generated by future milling operations and the relocation of existing tailings at the time of mill decommissioning.

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AFFIDAVIT OF GALE P. TURI

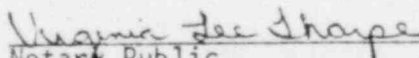
Now comes Gale P. Turi and being duly sworn, deposes and says as follows:

1. I am employed by the U.S. Nuclear Regulatory Commission as a Hydrologist, Site Suitability and Design Section, Low-Level Waste Licensing Branch.
2. I am duly authorized to answer interrogatories 8, 12, 13, 14, 16, 17, 18 and 19. I hereby certify that the answers given are true and correct to the best of my knowledge.



Gale P. Turi

Subscribed and sworn to before me
this 31st day of October, 1980.



Notary Public

My Commission Expires: July 1, 1982

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

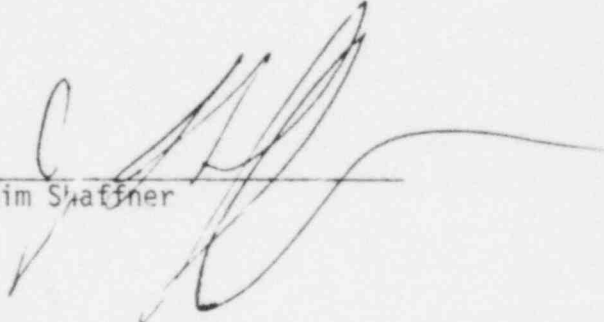
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(Sheffield, Illinois Low-Level)
Radioactive Waste Disposal Site))

AFFIDAVIT OF JIM SHAFFNER

Now comes Jim Shaffner and being duly sworn, deposes and says as follows:

1. I am employed by the U.S. Nuclear Regulatory Commission as a Project Manager, Project Management and Operations Section, Low-Level Waste Licensing Branch.
2. I am duly authorized to answer interrogatories 5 and 6 and I hereby certify that the answers given are true and correct to the best of my knowledge.



Jim Shaffner

Subscribed and sworn to before me
this 31st day of October, 1980.

Virginia Lee Sharpe
Notary Public

My Commission expires: July 1, 1982

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

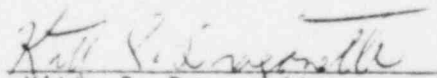
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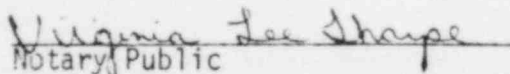
AFFIDAVIT OF KITTY S. DRAGONETTE

Now comes Kitty S. Dragonette and being duly sworn, deposes and says as follows:

1. I am employed by the U.S. Nuclear Regulatory Commission as a Section Leader, Project Management and Operations Section, Low-Level Waste Licensing Branch.
2. I am duly authorized to answer interrogatories 1, 2 and 3. I hereby certify that the answers given are true and correct to the best of my knowledge.


Kitty S. Dragonette

Subscribed and sworn to before me
this 5th day of October, 1980.


Notary Public

My Commission Expires: July 1, 1982

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

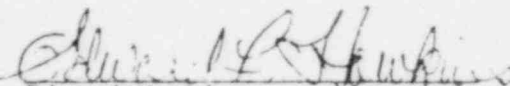
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AFFIDAVIT OF EDWARD HAWKINS

Now come Edward Hawkins and being duly sworn, deposes and says as follows:

1. I am employed by the U.S. Nuclear Regulatory Commission as a Section Leader, Site Suitability and Design Section, Low-Level Waste Licensing Branch.
2. I am duly authorized to answer interrogatories 5 and 6, and I hereby certify that the answers given are true and correct to the best of my knowledge.


Edward Hawkins

Subscribed and sworn to before me
this 31st day of October, 1980.

Virginia Lee Sharpe
Notary Public

My Commission expires: July 1, 1982.

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CERTIFICATE OF SERVICE

I hereby certify that copies of "NRC STAFF'S ANSWERS TO INTERROGATORIES FILED BY INTERVENOR, CHICAGO SECTION, AMERICAN NUCLEAR SOCIETY" and Affidavits of Gale P. Turi, Jim Shaffner, Kitty S. Dragonette and Edward Hawkins, in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class, or as indicated by an asterisk by deposit in the Nuclear Regulatory Commission internal mail system, this 3rd day of November, 1980:

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Board Panel*
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Atomic Safety and Licensing
Appeal Panel*
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

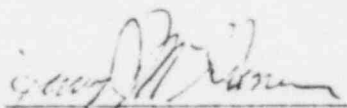
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Chairman of the Board
for Nuclear Engineering Co.
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