NATIONAL SCIENCE FOUNDATION

Advisory Committee for Physics:

Meeting

In accordance with the Federal Advisory Committee Act, Pub. L. 92-588, the National Science Foundation announces the following meeting:

Name: Advisory Committee for Physics

Date and time: January 31, February 1-2, 1980, 8:00 a.m. - 5:00 p.m. each day.


Room: 420 each day.

Type of meeting: Open.

Contact person: Dr. Laura P. Bautz, Deputy Director, Division of Physics, National Science Foundation, Washington, D.C. 20550. Telephone: (202) 334-2175.

Summary of minutes: Minutes of previous meeting are available for distribution to members of the Advisory Committee for Physics.

Purpose of meeting: To consider and make recommendations concerning support for research in physics.


Further discussion of FY 1980 and FY 1981 budgets and of priorities for subsequent years. Discussion of follow-up of recommendations of the Advisory Committee for Physics.

Advisory Committee for Science and Society: Renewal

In accordance with the Federal Advisory Committee Act, Pub. L. 92-588, it is hereby determined that the renewal of the Advisory Committee for Science and Society is necessary and is in the public interest, in connection with the performance of duties imposed upon the National Science Foundation by the National Science Foundation Act of 1950, as amended, and other applicable law. This determination follows consultation with the Committee Management Secretariat, Office of General Services Administration, pursuant to section 18(a)(1) of the Federal Advisory Committee Act and OMB Circular No. A-112, Revised.

Authority for this Advisory Committee shall expire on January 16, 1980. Unless the Director of the National Science Foundation formally determines that continuation is in the public interest,

Richard C. Atkinson,

Director

January 7, 1980.

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NUCLEAR REGULATORY COMMISSION

Abnormal Occurrence: Mill Tailings Impoundment Dam Failure

Section 206 of the Energy Reorganization Act of 1974, as amended, requires the NRC to disseminate information on abnormal occurrences (i.e., unanticipated incidents or events which the Commission determines are significant from the standpoint of public health and safety). The following incident was determined to be an abnormal occurrence under the criteria published in the Federal Register on February 19, 1979 (44 FR 6215), Appendix A (Example U.I.3.1) of the Policy Statement notes that an event which seriously compromises the ability of a confinement system to perform its designated function can be considered an abnormal occurrence. The following description of the event contains the remedial action taken.

The incident occurred on July 10, 1979, at the uranium mill tailings impoundment dam failed at the United Nuclear Church of Rock Uranium Mill, located near Gallup, New Mexico. This United Nuclear Corporation facility is licensed by the State of New Mexico under the provisions of the NRC's Site Agreement Procedures. At the time of the incident, the uranium mill tailings at the Church Rock Uranium Mill were under general control of the NRC pursuant to the Uranium Mill Tailings Radiation Control Act of 1978.

Nuclear and Probable Cause:

As a result of the dam failure, mill tailings and water flowed through the break in the, confinement pond below the dam. The embankment was subsequently breached and tailings solution flowed into an arroyo (water-curved gully) and on into the Rio Puerro River which flows past Gallup, New Mexico.

The breach in the dam allowed approximately 100 million gallons of tailings solution and 11,000 tons of tailings solids (sand) to flow out of the impoundment before it could be closed. Most of the solids were deposited in an area very near the impoundment in a backup containment area on United Nuclear Corporation property and in an adjacent stream, the "Pueblo. Arroyo." The tailings solutions travelled in the Pueblo Arroyo to the Rio Puerro which flows through Gallup, New Mexico, about 20 miles of the tailing site, and into Arizona. The spilled solutions eventually dissipated at a point estimated to be about 30 miles into Arizona. (See Figure 1.)

The radioactive isotopes in the mill tailings solutions are those which naturally occur in the area but which have been concentrated by the milling process. These isotopes primarily thorium-230 and radium-226. The potential for impact dose rate of 140 millicurie/minute is about 1000 to 2000 times larger than in the area.

The immediate health hazard arose from the accidental nature of the tailings solutions of the uranium mill, and was due to the ingestion of the solution by the contact with skin. The potential for acute effects persisted for approximately 2 days until water from the stream was released into the stream and the natural alkalinity of the stream neutralized the tailings solutions. The chemical contamination in the stream (e.g., elevated iron concentrations) of groundwater presents a long-term problem.

Cause of Occurrence:

The tailings impoundment dam failure as a result of differential settlement and direct exposure of the tailings solutions. The first factor was the result of the movement in which the dam was constructed, the second factor was the result of the failure of the operator to maintain a buffer of tailings.
New Mexico amended its July 18 order on October 23, 1979 to allow operation of the facility subject to conditions for monitoring tailings solutions, settlement levels, and embankment damage. The October 22 amendment also required a study of alternative sites for long-term disposal of tailings solution and solids.

On November 8, 1979, a State engineer again ordered the facility to stop the generation of tailings because the license was not maintaining the required level of tailings solids between the tailings solution and the embankment. Operations were allowed to resume on November 13, 1979.

NRC—The NRC has worked in conjunction with numerous State and Federal organizations in analyzing the accident and formulating long-term corrective action, including cleanup of coals, establishment of ground water quality monitoring, and maintaining ground water quality. The NRC issued an order on October 12, 1979 allowing the generation of additional tailings. This order provided additional guidance to the public and the environment.

The State of New Mexico and the NRC: Cleanup of contamination has been completed in the most heavily affected areas near the mill. Cleanup in the remaining sections of the Arroyo will probably take several more months to complete.

On July 16, the Environmental Protection Division (EPD) issued an order requiring the termination of operations. The EPD issued a second order on July 18 requiring the licensee to cease operations. The EPD also issued an order on July 19 requiring an investigation of the cause of the dam failure prior to any reuse and resumption of tailings discharge to the embankment. New Mexico officials subsequently met on July 20 with representatives of the NRC, the Army Corps of Engineers, and USC to discuss the dam failure.