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Description of document: Sixteen (16) Nonpublic Nuclear Regulatory Commission (NRC) SECY Documents - several dealing with the Three Mile Island incident, 1979

Requested date: 2016

Release date 1: 07-December-2016

Release date 2: 13-March-2017

Posted date: 21-January-2019

Note: Material released 13-March-2017 starts on PDF page 255

Source of document: FOIA Request
U.S. Nuclear Regulatory Commission
FOIA Officer
Mailstop: T-2 F43
Washington, DC 20555-0001
Fax: 301-415-5130
Email: FOIA.resource@nrc.gov

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RESPONSE TO FREEDOM OF
INFORMATION ACT (FOIA) REQUEST

2017-0034

1

RESPONSE
TYPE

INTERIM



FINAL

REQUESTER:

DATE:

12/07/2016

DESCRIPTION OF REQUESTED RECORDS:

Copies of 16 specified SECY Papers.

PART I. -- INFORMATION RELEASED

- ☒ Agency records subject to the request are already available in public ADAMS or on microfiche in the NRC Public Document Room.
- ☒ Agency records subject to the request are enclosed.
- ☐ Records subject to the request that contain information originated by or of interest to another Federal agency have been referred to that agency (see comments section) for a disclosure determination and direct response to you.
- ☐ We are continuing to process your request.
- ☒ See Comments.

PART I.A -- FEES

AMOUNT*

\$

*See Comments for details

☐

You will be billed by NRC for the amount listed.

☐

None. Minimum fee threshold not met.

☐

You will receive a refund for the amount listed.

☐

Fees waived.

PART I.B -- INFORMATION NOT LOCATED OR WITHHELD FROM DISCLOSURE

- ☐ We did not locate any agency records responsive to your request. *Note:* Agencies may treat three discrete categories of law enforcement and national security records as not subject to the FOIA ("exclusions"). 5 U.S.C. 552(c). This is a standard notification given to all requesters; it should not be taken to mean that any excluded records do, or do not, exist.
- ☐ We have withheld certain information pursuant to the FOIA exemptions described, and for the reasons stated, in Part II.
- ☒ Because this is an interim response to your request, you may not appeal at this time. We will notify you of your right to appeal any of the responses we have issued in response to your request when we issue our final determination.
- ☐ You may appeal this final determination within 30 calendar days of the date of this response by sending a letter or email to the FOIA Officer, at U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001, or FOIA.Resource@nrc.gov. Please be sure to include on your letter or email that it is a "FOIA Appeal."

PART I.C COMMENTS (Use attached Comments continuation page if required)

In conformance with the FOIA Improvement Act of 2016, the NRC is informing you that you have the right to seek assistance from the NRC's FOIA Public Liaison.

See Comments continuation page for more information.

SIGNATURE - FREEDOM OF INFORMATION ACT OFFICER

Nina Argent, Acting

2017-0034

1

**RESPONSE TO FREEDOM OF INFORMATION
ACT (FOIA) REQUEST Continued**

RESPONSE
TYPE



INTERIM



FINAL

REQUESTER:

DATE:

12/07/2016

PART I.C COMMENTS (Continued)

This first interim response is the full release of the following 9 SECY reports in your request: SECY-79-235, SECY-79-246, SECY-79-253, SECY-79-274, SECY-79-298, SECY-79-313, SECY-79-344, SECY-79-608, and SECY-79-669. These documents are all enclosed.

These 9 reports are also publicly available on microfiche in the NRC Public Document Room. One of the reports is now also publicly available in ADAMS at ML041960029 (SECY-79-0669). Per SECY, Tab G is missing in SECY-79-313.

We are continuing to work with SECY and other NRC program offices on the remaining 7 SECY reports in your request.

April 2, 1979

SECY-79-235

COMMISSIONER ACTION

For:

The Commissioners

From:

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Howard K. Shapar
Executive Legal Director

Thru:

Lee V. Gossick ~~with~~ *for*
Executive Director for Operations

Subject:

POSSIBLE DETERMINATION OF AN EXTRAORDINARY
NUCLEAR OCCURRENCE AT THREE MILE ISLAND UNIT 2

Purpose:

To advise the Commission of some decisions that will need to be made in the immediate future regarding the application of the Price Anderson Act to the Three Mile Island Unit 2 accident.

Discussion:

Any claims for offsite personal or property damages resulting from the Three Mile Island accident will generally be governed by the Price Anderson Act (principally section 170 of the Atomic Energy Act). Liability for damages is governed by State law, and traditional legal defenses against liability (such as contributory negligence) would ordinarily, if applicable under State law, be available to the defendant (most likely, the licensee and its vendors). However, in the event the Commission should determine that the accident is an "extraordinary nuclear occurrence" (ENO) (defined in section 11j of the Act), then the so-called "waivers of defenses" provisions of section 170n of the Act come into play. The ENO provisions of the Act were added in 1966 but since then there have been no occasions for either NRC or AEC to make any ENO determinations.

Contact:
Ira Dinitz
492-8336
or
Lakel

SECY NOTE: This paper is identical to advance copies which were distributed to Commission offices on 4/2/79.

In implementing section 170n the Commission has incorporated provisions in its indemnity agreements executed with its reactor licensees and required incorporation of provisions in insurance policies furnished by these licensees as proof of financial protection, which waive (1) any issue or defense as to conduct of the claimant or fault of persons indemnified; (2) any issue or defense as to charitable or governmental immunity; and (3) any issue or defense based on any statute of limitations if suit is instituted within three years from the date on which the claimant first knew, or reasonably could have known, of his injury, but in no event more than twenty years after the nuclear incident. The net effect is that if the Commission determines that the Three Mile Island accident is an ENO, certain possible legal obstacles to successful offsite personal or property damage claims will be removed.

However, even if a determination is made that an ENO has taken place, the waiver of defenses provisions have certain limitations in their applicability. The waivers do not preclude a defense based upon a claimant's failure to take reasonable steps to mitigate damages, nor do they apply to injury or damage to a claimant or to a claimant's property which is intentionally sustained by the claimant or which results from a nuclear incident intentionally and wrongfully caused by the claimant. The waivers also do not apply to injury to a claimant who is employed at the site of and in connection with the activity where the extraordinary nuclear occurrence takes place if benefits therefor are either payable or required to be provided under any workmen's compensation or occupational disease law. Finally, an ENO determination does not prevent the defendant from contesting the nature and extent of the claimant's damages or whether the damages were in fact sustained as a result of the accident.

The Commission's determination as to whether an ENO has taken place would be dependent upon the following two findings: (1) that there has been a substantial discharge of radioactive material or substantial radiation levels offsite, and (2) that substantial damages to persons or property offsite have occurred. Sections 140.84 and 140.85 of the NRC's regulations provide in detail the criteria for making these findings.

These criteria are quantitative in nature. The first finding would be made if one or more persons offsite were, could have been or might be exposed to doses in excess of specified values (e.g., 20 rem to the whole body or 30 rem to the thyroid) or if there has been offsite surface contamination of at least 100 square meters characterized by radiation levels in excess of specified values (e.g., 4 millirads/hour at one cm, beta or gamma, at offsite property not owned or leased by the licensee). The second finding would be made based on specified levels of damages (e.g., death or hospitalization within 30 days of five or more offsite people showing objective clinical evidence of injury from exposure to hazardous properties of radioactive materials, or \$5 million or more of damage offsite has been or will probably be sustained on the aggregate). These criteria, as well as entire Subpart E of Part 140 of the regulations dealing with the determination of an ENO, are included in Attachment "A." The Commission's determination as to whether an ENO has taken place is not subject to judicial review.

The regulations in 10 CFR 140.82 provide that the Commission may initiate, on its own motion, the making of a determination as to whether or not there has been an ENO. In the event the Commission does not initiate the making of a determination, any affected person, or any licensee with whom an indemnity agreement is executed, or any person providing financial protection may petition the Commission for a determination of whether or not there has been an ENO.

10 CFR 140.82 states that if the Commission does not have, or does not expect to have, within 7 days after it has received notification of an "alleged" event, enough information available to make a determination that there has or has not been an ENO, the Commission will publish a notice in the Federal Register setting forth the date and place of the "alleged" event and requesting any persons having knowledge thereof to submit their information to the Commission. However, these regulations are unclear as to the exact circumstances under which the Commission must publish the notice in the Federal Register. The better reading seems to be that the obligation to publish notice in 7 days only applies when the Commission receives notice of an alleged event it had not previously been informed about, and does not apply when the Commission knows of the event from the onset. Thus, the better reading is that no notice is required in the case of the Three Mile Island accident. Nevertheless, the regulations could be read to require notice in all cases where the Commission is uncertain after 7 days whether an ENO has taken place. The determination is not subject to judicial review.

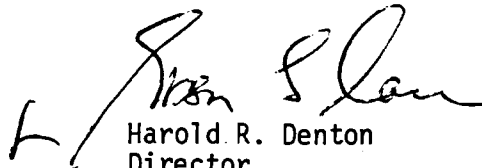
There are a number of options here. The Commission could publish the notice within 7 days, (this Wednesday, April 4) that it is considering making an ENO determination, and requesting data and comment within a specified period (say, 60 days). This would begin the process early and facilitate an early ENO determination while still providing for public input. Some of the data that would be useful in making an ENO determination would need to be gathered during or shortly after the accident, and an early notice would alert people to this fact. On the other hand, such an early notice could cause some confusion, or get "lost" in the course of other news concerning the accident. Also, such an early notice might be regarded as premature if the accident has not fully run its course.

Alternatively, the Commission could delay publication of any notice until a short period of time after the accident has run its course. This would reduce confusion and focus greater attention on the precise nature of the notice. On the other hand, there are obvious advantages to informing the public early of the kinds of data that are relevant to an ENO determination. Also, an earlier notice is arguably required by the regulations (as indicated, this does not appear to be the better reading of the regulations). The Commission could also publish no notice, and simply make an ENO determination itself after gathering the necessary data.

At present (Monday, April 2), the data is limited and the accident has not run its course. This suggests that the information now available is insufficient to enable the Commission to determine now whether an ENO has occurred. The insurance pools have already set up an office in Harrisburg and are making emergency claims payments, notwithstanding any ENO determination by the Commission.

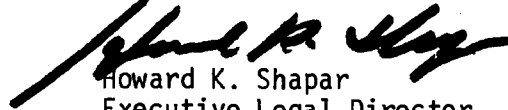
Recommendation:

NRR and ELD recommend that the Commission consider these options at an early Commission meeting.*



Harold R. Denton
Director

Office of Nuclear Reactor Regulation



Howard K. Shapar
Executive Legal Director

SECY NOTE: The General Counsel subscribes to the alternative course of action of delay by the Commission until an appropriate time in the future. He will prepare an additional paper for the Commission's consideration.

Commissioners' comments should be provided directly to the Office of the General Counsel by c.o.b. Wednesday, April 4, 1979.

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§ 140.81 Scope and purpose.

(a) Scope. This subpart applies to applicants for and holders of licenses authorizing operation of production facilities and utilization facilities, and to other persons indemnified with respect to such facilities.

(b) Purpose. One purpose of this subpart is to set forth the criteria which the Commission proposes to follow in order to determine whether there has been an "extraordinary nuclear occurrence." The other purpose is to establish the conditions of the waivers of defenses proposed for incorporation in indemnity agreements and insurance policies or contracts furnished as proof of financial protection.

(1) The system is to come into effect only where the discharge or dispersal constitutes a substantial amount of source, special nuclear or byproduct material, or has caused substantial radiation levels off-site. The various limits in present NRC regulations are not appropriate for direct application in the determination of an "extraordinary nuclear occurrence," for they were arrived at with other purposes in mind, and those limits have been set at a level which is conservatively arrived at by incorporating a significant safety factor. Thus, a discharge or dispersal which exceeds the limits in NRC regulations, or in license conditions, although possible cause for concern, is not one which would be expected to cause substantial injury or damage unless it exceeds by some significant multiple the appropriate regulatory limit. Accordingly, in arriving at the values in the criteria to be deemed "substantial" it is more appropriate to adopt values separate from NRC health and safety regulations, and, of course, the selection of these values will not in any way affect such regulations. A substantial discharge, for purposes of

the criteria, represents a perturbation of the environment which is clearly above that which could be anticipated from the conduct of normal activities. The criteria are intended solely for the purposes of administration of the Commission's statutory responsibilities under Public Law 89-645, and are not intended to indicate a level of discharge or dispersal at which damage to persons or property necessarily will occur, or a level at which damage is likely to occur, or even a level at which some type of protective action is indicated. It should be clearly understood that the criteria in no way establish or indicate that there is a specific threshold of exposure at which biological damage from radiation will take place. It cannot be emphasized too frequently that the levels set to be used as criteria for the first part of the determination, that is, the criteria for amounts offsite or radiation levels offsite which are substantial, are not meant to indicate that, because such amounts or levels are determined to be substantial for purposes of administration, they are "substantial" in terms of their propensity for causing injury or damage.

(2) It is the purpose of the second part of the determination that the Commission decide whether there have in fact been or will probably be substantial damages to persons offsite or property offsite. The criteria for substantial damages were formulated, and the numerical values selected, on a wholly different basis from that on which the criteria used for the first part of the determination with respect to

substantial discharge were derived. The only interrelation between the values selected for the discharge criteria and the damage criteria is that the discharge values are set so low that it is extremely unlikely the damage criteria could be satisfied unless the discharge values have been exceeded.

(3) The first part of the test is designed so that the Commission can assure itself that something exceptional has occurred; that something untoward and unexpected has in fact taken place and that this event is of sufficient significance to raise the possibility that some damage to persons or property offsite has resulted or may result. If there appears to be no damage, the waivers will not apply because the Commission will be unable, under the second part of the test, to make a determination that "substantial damages" have resulted or will probably result. If damages have resulted or will probably result, they could vary from de minimis to serious, and the waivers will not apply until the damages, both actual and probable, are determined to be "substantial" within the second part of the test.

(4) The presence or absence of an extraordinary nuclear occurrence determination does not concomitantly determine whether or not a particular claimant will recover on his claim. In effect, it is intended primarily to determine whether certain potential obstacles to recovery are to be removed from the route the claimant would ordinarily follow to seek compensation for his injury or damage. If there has not been an

extraordinary nuclear occurrence determination, the claimant must proceed (in the absence of settlement) with a tort action subject to whatever issues must be met, and whatever defenses are available to the defendant, under the law applicable in the relevant jurisdiction. If there has been an extraordinary nuclear occurrence determination, the claimant must still proceed (in the absence of settlement) with a tort action, but the claimant's burden is substantially eased by the elimination of certain issues which may be involved and certain defenses which may be available to the defendant. In either case the defendant may defend with respect to such of the following matters as are in issue in any given claim: The nature of the claimant's alleged damages, the causal relationship between the event and the alleged damages, and the amount of the alleged damages.

§ 140.82 Procedures.

(a) The Commission may initiate, on its own motion, the making of a determination as to whether or not there has been an extraordinary nuclear occurrence. In the event the Commission does not so initiate the making of a determination, any affected person, or any licensee or person with whom an indemnity agreement is executed or a person providing financial protection may petition the Commission for a determination of whether or not there has been an extraordinary nuclear

occurrence. If the Commission does not have, or does not expect to have, within 7 days after it has received notification of an alleged event, enough information available to make a determination that there has been an extraordinary nuclear occurrence, the Commission will publish a notice in the FEDERAL REGISTER setting forth the date and place of the alleged event and requesting any persons having knowledge thereof to submit their information to the Commission.

(b) When a procedure is initiated under paragraph (a) of this section, the Commission will designate members of the principal staff to begin immediately to assemble the relevant information and prepare a report on which the Commission can make its determination.

§ 140.83 Determination of extraordinary nuclear occurrence.

If the Commission determines that both of the criteria set forth in §§ 140.84 and 140.85 have been met, it will make the determination that there has been an extraordinary nuclear occurrence. If the Commission publishes a notice in the FEDERAL REGISTER in accordance with § 140.82(a) and does not make a determination within 90 days thereafter that there has been an extraordinary nuclear occurrence, the alleged event will be deemed not to be an extraordinary nuclear occurrence. The time for the making of a determination may be extended by the Commission by notice published in the FEDERAL REGISTER.

§ 140.84 Criterion I--Substantial discharge of radioactive material or substantial radiation levels offsite.

The Commission will determine that there has been a substantial discharge or dispersal of radioactive material offsite, or that there have been substantial levels of radiation offsite, when, as a result of an event comprised of one or more related happenings, radioactive material is released from its intended place of confinement or radiation levels occur offsite and either of the following findings are also made:

(a) The Commission finds that one or more persons offsite were, could have been, or might be exposed to radiation or the radioactive material, resulting in a dose or in a projected dose in excess of one of the levels in the following table:

TOTAL PROJECTED RADIATION DOSES

<u>Critical organ</u>	<u>Dose (rems)</u>
Thyroid.....	30
Whole body.....	20
Bone Marrow.....	20
Skin.....	60
Other organs or tissues.....	30

Exposures from the following types of sources of radiation shall be included:

- (1) Radiation from sources external to the body;
- (2) Radioactive material that may be taken into the body from its occurrence in air or water; and
- (3) Radioactive material that may be taken into the body from its occurrence in food or on terrestrial surfaces.

(b) The Commission finds that--

(1) Surface contamination of at least a total of any 100 square meters of offsite property has occurred as the result of a release of radioactive material from a production or utilization facility and such contamination is characterized by levels of radiation in excess of one of the values listed in column 1 or column 2 of the following table, or

(2) Surface contamination of any offsite property has occurred as the result of a release of radioactive material in the course of transportation and such contamination is characterized by levels of radiation in excess of one of the values listed in column 2 of the following table:

TOTAL SURFACE CONTAMINATION LEVELS¹

Type of emitter	Column 1 Offsite property, contiguous to site, owned or leased by person with whom an indemnity agreement is executed	Column 2 Other offsite property
Alpha emission from transuranic isotopes	3.5 microcuries per square meter.	0.35 microcuries per square meter
Alpha emission from isotopes other than transuranic isotopes	35 microcuries per square meter.	3.5 microcuries per square meter.
Beta or gamma emission	40 millirads/hour @ 1 cm. (measured through not more than 7 milligrams per square centimeter of total absorber).	4 millirads/hour @ 1 cm. (measured through not more than 7 milligrams per square centimeter of total absorber).

¹The maximum levels (above background), observed or projected, 8 or more hours after initial deposition.

§ 140.85 Criterion II--Substantial damages to persons offsite or property offsite.

(a) After the Commission has determined that an event has satisfied Criterion I, the Commission will determine that the event has resulted or will probably result in substantial damages to persons offsite or property offsite if any of the following findings are made:

(1) The Commission finds that such event has resulted in the death or hospitalization, within 30 days of the event, of five or more people located offsite showing objective clinical evidence of physical injury from exposure to the radioactive, toxic, explosive, or other hazardous properties of source, special nuclear, or byproduct material; or

(2) The Commission finds that \$2,500,000 or more of damage offsite has been or will probably be sustained by any one person, or \$5 million or more of such damage in the aggregate has been or will probably be sustained, as the result of such event; or

(3) The Commission finds that \$5,000 or more of damage offsite has been or will probably be sustained by each of 50 or more persons, provided that \$1 million or more of such damage in the aggregate has been or will probably be sustained, as the result of such event.

(b) As used in paragraphs (a) (2) and (3) of this section, "damage" shall be that arising out of or resulting from the radioactive, toxic, explosive, or other hazardous properties of source, special nuclear, or byproduct material, and shall be based upon estimates of one or more of the following:

(1) Total cost necessary to put affected property back into use,

- (2) Loss of use of affected property,
- (3) Value of affected property where not practical to restore to use,
- (4) Financial loss resulting from protective actions appropriate to reduce or avoid exposure to radiation or to radioactive materials.

UNITED STATES
NUCLEAR REGULATORY COMMISSION

April 5, 1979

INFORMATION REPORT ECY-79-246


For: The Commissioners
From: T. A. Rehm, Assistant to the Executive Director for Operations
Subject: WEEKLY INFORMATION REPORT - WEEK ENDING MARCH 30, 1979

A summary of key events is included as a convenience to those Commissioners who may prefer a condensed version of this report.

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T. A. Rehm, Assistant to the
Executive Director for Operations

Contact:
T. A. Rehm
49-27781

*No input this week
**Deleted from Commissioners and PDR copy

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WEEKLY INFORMATION SUMMARY

Week Ending March 30, 1979

10 CFR 20.205

On March 23, the EDO denied a petition for rulemaking that requested the NRC to revise 10 CFR 20.205(c)(2) to specify radiation levels at 5 centimeters from the external surface of a package (instead of on the surface of the package) of radioactive material and specify an area over which the radiation levels may be averaged. Denial was based on the grounds that adoption of the request would lead to cost increases without corresponding benefits of improving public health and safety and, in fact, would result in a higher collective hand dose for package handlers.

Integrated Safeguards Information System (ISIS)

On March 26, a Commission paper treating proposed action on ISIS was sent to the Safeguards Information Group for coordination. The paper is expected to be forwarded to the EDO next week.

Trojan Nuclear Plant (Control Building Proceeding)

On March 27, the Trojan Appeal Board (Control Building) issued a decision summarily affirming the Atomic Safety and Licensing Board's partial initial decision (PID) which authorizes interim operation prior to modifications to upgrade the seismic capability of the Control Building.

Technical Notification

Foreign nuclear regulatory authorities are being fully apprised of the Three Mile Island situation which has generated intense interest abroad.

Hearings Suspended

Governor Carey of New York has asked the New York siting board to suspend its hearings on the Long Island Lighting Company's applications for two nuclear facilities at Jamesport.

Response to Congressional Budget Questions

Revised responses to questions from Dingell and the February 5 Hart and Simpson budget review hearings have been completed and sent to the Office of Congressional Affairs.

Caseload Planning Projections

Caseload Planning Projections for FY 1981-85 were sent to Office Directors for their use in the FY 81 budget process.

OFFICE OF ADMINISTRATION

Week Ending March 30, 1979

ADMINISTRATION OF THE FREEDOM OF INFORMATION ACT

STATUS OF REQUESTS

	<u>Initial Request</u>	<u>Appeal of Initial Decision</u>
Received	123	11
Granted	56	2
Denied	16	4
Pending	51	5

ACTIONS THIS WEEK

Received

Ellyn R. Weiss,
Sheldon, Harmon, Roisman
and Weiss, Counsel for
UCS
(79-86)

Requests documents relating to Task Action Plans A-40 and A-41 and documents written by H.R. Denton and Carl Stepp on seismic issues and inspection reports for Beaver Valley.

William F. Lee,
Hale and Door
(79-87)

Requests correspondence between NRC and Marshall E. Deutsch, Louis W. Mead, Mead Diagnostics and/or Thyroid Diagnostics, and documents relating to any inspection, investigation or failure to comply with NRC regulations.

Lawrence W. Plitch,
New England Regional
Energy Project
(79-88)

Requests documents pertaining to the March 13 shutdown of 5 nuclear power plants, including a copy of a LER report submitted by Beaver Valley and information supporting NRC contention that Stone & Webster erred in its analysis.

Thomas Lookabill,
NUS Corporation
(79-89)

Requests a list of contracts dealing with low level waste management, including name of contractor, contract number, and brief description of scope or purpose of the contract.

William G. Margetts,
Government R&D Report
(79-90)

Requests a copy of a mailing list maintained by the NRC for public announcements to the research and development community.

CONTACT: J. M. Felton
492-7211

ENCLOSURE A

Received, Cont'd

Barbara J. Bensei,
FOI Services, Inc.
(79-91)

Requests a list of the names and addresses of "companies doing radiation sterilization in Puerto Rico".

Barbara J. Bensei,
FOI Services, Inc.
(79-92)

Requests a copy of a list of companies "license to build facilities for radiation sterilization in Puerto Rico".

Granted

Betty J. Rivers,
(79-49)

In response to a request for documents related to losses, material unaccounted for, and/or inventory differences of source and special nuclear material at the Babcock & Wilcox facility at Apollo, Pennsylvania, informed the requester records relating to this request are already located in the PDR.

Frazier Bronson,
Radiation Management
Corporation
(79-52)

In response to a request for a copy of the docket file on four licensees, made available the records at 7915 Eastern Avenue, Silver Spring (Willste Building).

Thomas B. Cochran,
Natural Resources Defense
Council, Inc.
(79-68)

In response to a request for copies of the exchange of correspondence between KMC and the NRC related to the "two-man rule" referenced in the Weekly Information Report of January 12, made available nine documents.

David Perkins,
Libre School, Inc.
(79-71)

In response to a request for a copy of Dr. Hanauer's "nugget file", the Draft EIS on the Gas Hills Uranium Mill, NUREG-CR-0308, and documents on radioactive waste disposal areas in the U.S., made available 10 documents. Informed the requester Dr. Hanauer's "nugget file" may be purchased by writing directly to the PDR.

W. H. Bundy, Jr.
Howe & Howe
(79-73)

In response to a request for a list of individuals and organizations involved with nuclear material at the Charleston, South Carolina Naval Shipyard, informed the requester the NRC has no such listing, but it may be obtained from the Department of Navy, Charleston Naval Shipyard, Charleston, SC.

ENCLOSURE A

Granted, Cont'd

Gary Wallin,
Citizens United for
Responsible Energy
Utility Action Project
(79-74)

In response to a request for a copy of the
Pipe Crack Study Group Report, made available
three documents.

(An individual requesting
information about himself)
(79-80)

Made available to the requester documents
concerning his Reactor Operator License
written and oral examinations.

Denied

Thomas B. Cochran,
Natural Resources
Defense Council, Inc.
(79-67)

In response to a request for the first Annual
Report to Congress on Domestic Safeguards
(FY 78), denied portions of Appendix G of the
report which contains classified information.

DIVISION OF CONTRACTS

Week Ending March 30, 1979

PROPOSALS UNDER EVALUATION

1. RFP RS-NMS-79-028
Title - Development of Improved Techniques for Analyzing Material Control and Accounting Data
Description - Assist the NRC in applying the inventory difference simulation model to two major operating strategic special nuclear material fuel cycle facilities designated by the NRC.
Period of Performance - Eight and one-half months
Sponsor - Office of Nuclear Material Safety and Safeguards
Status - Best and Final Offers due April 3, 1979.

ADMINISTRATIVE MATTERS

Negotiations have been completed with the Canadian Commercial Corporation, an agency of the Canadian government, to establish a contract under which the Commission will have access to the Eastern Canadian Telemetered Network (ECTN) and which will provide for increased seismic information exchanges between the U.S. and the Canadian governments. This will be of benefit in evaluating the causes of eastern North America seismicity, as many of the geologic structures and areas of earthquake occurrence are common to both the U.S. and Canada. The Canadian seismic monitoring system, the ECTN is operated by the Canadian Department of Energy, Mines and Resources (CDER).

NRC offices involved in the negotiations were:

1. Office of Nuclear Regulatory Research
2. Office International Programs
3. Office of the Executive Legal Director
4. Division of Contracts

The Canadian government has established the Canadian Commercial Corporation to handle foreign contract arrangements such as the proposed contract and business matters and administrative contact with the Canadian government must be through this agency. The technical scope of work, however, will be performed by the Canadian Department of Energy, Mines and Resources.

Status - A fixed price contract is now being prepared for transmittal to the Contractor. The start date for this new contract is April 1, 1979. The fixed cost to the Commission for this program is \$150,000.00 Canadian per year over a five year period.

ENCLOSURE A

ITEMS OF INTEREST
DIVISION OF SECURITY
WEEK ENDING MARCH 30, 1979

Control of Official Use Only Information

Procedures governing the protection of official use only information withheld from public disclosure under exemptions of the Freedom of Information Act and Privacy Act have been forwarded to MPA for publication.

JNAI-NRC Classification Security Agreement

Division of Security, Office of the Executive Legal Director, and Division of Fuel Cycle and Material Safety personnel met and discussed a proposed Jersey Nuclear-Avco Isotopes (JNAI)/Nuclear Regulatory Commission Classification and Security Agreement. JNAI is performing independent, private funded research, development and experimental work to develop a commercial laser isotope separation system, principally for production of low-enriched uranium for use as fuel in civilian light water reactor nuclear electric power plants.

ENCLOSURE A

DIVISION OF TECHNICAL INFORMATION AND DOCUMENT CONTROL*

Week Ending March 30, 1979

TRANSLATIONS

The following translations were received by the Division of Technical Information and Document Control during the week of March 26-30, 1979. Copies of these translations will be available in the Library.

German

37/65. Corrosion Phenomena on Stainless and acid-Resistant Steels. Dr. Heinz Jesper and Günter Grützner, Stahlwerke Sudwestfalen AG, F. R. Germany. April 1965. 37 pages.
Cost of translation: \$366.45. (TIDC 525)

Italian

CNEN-RT/RISP(78)2. Safety Criteria for Large Industrial Plants. R. Mezzanotte, C. Silvi, G. Tenaglia. Report submitted to the XXIII Nuclear Congress - "Le Tecniche Nucleari per il Progresso Industriale", (Nuclear Techniques for Industrial Progress), held in Rome on March 16-17, 1978. 27 pages.
Cost of translation: \$545.00. (TIDC 506)

Individual Decision-Making Analysis and Balance Sheet of the Costs and Social Benefits: Similarities and Differences. R. Mezzanotte and G. Tenaglia. National Nuclear Energy Committee. CNEN, Direzione Centrale Sicurezza Nucleare Protezione Sanitaria, Rome. May 1978. 31 pages.
Cost of translation: \$522.00. (TIDC 524)

RT/Disp(77)7. Safety of Light-Water Nuclear Power Plants: A method for Estimating the Consequences of Low-Probability accidents. F. Felicetti, R. Galvagni. Comitato Nazionale Energia Nucleare, Rome. November 1977. 45 pages. Cost of translation: \$477.60. (TIDC 523).

Japanese

JAER-M 7315. Radiation Damage of Polymer Materials. I. Simulation Studies on Distribution of Oxygen Concentration in Polymer Film under Irradiation in Oxygen. Tadao Seguchi, Shoji Hasimoto, Waichiso Kawakami, Esamu Kuriyama. Japan Atomic Energy Research Institute, Tokai Mura, Naka-gun, Ibaraki-Ken, Japan. October 1977. 41 pages.
Cost of translation: \$ 480.00. (TIDC 535).

DIVISION OF TECHNICAL INFORMATION AND DOCUMENT CONTROL CONTINUED...

DOCUMENT CONTROL SYSTEM

2683 documents were placed into the DCS this week. This includes 782 documents which were enclosures to the basic documents. Entering enclosure documents as separate documents is a first step toward solving the backfit problem.

*This entry deleted from PDR copy.

ENCLOSURE A

OFFICE OF STANDARDS DEVELOPMENT

IMPORTANT EVENTS FOR THE WEEK ENDING MARCH 30, 1979

1. Meeting with House Subcommittee on Labor Standards Staff: On March 26, 1979, NRC representatives met at his request with Mr. Earl Pasbach, Staff Director-Counsel of the House Subcommittee on Labor Standards for the Committee on Education and Labor. The meeting was apparently one of the first this Subcommittee's staff is holding in preparation for a hearing the Subcommittee has scheduled for May 23 and 24, 1979. The hearing will be on the health effects of occupational exposure to all forms of radiation, with particular emphasis on worker care and compensation considerations. The staff member was briefed on NRC's authority, responsibilities and current activities in this area. The HEW-chaired Interagency Task Force on Ionizing Radiation was discussed and copies of its recently released draft Work Group Reports were provided to Mr. Pasbach, along with pertinent NRC publications. Mr. Pasbach indicated that they plan to meet with other Federal agencies, that they may ask to meet with the NRC representatives again before the hearing, and that they will certainly be asking the NRC to testify at the hearing.

[Karl Goller]

2. Meeting with EPA - March 27, 1979: Another in a series of meetings between EPA and NRC:SD staff regarding a public hearing on occupational radiation exposure standards was held on March 27, 1979. Staff members from the Department of Labor, Occupational Safety and Health Administration (OSHA) also participated in the meeting.

EPA staff members presented a preliminary draft of an advance notice of hearing. The draft was discussed briefly and it was agreed that EPA would circulate a revised draft notice by March 30, to be finalized at another meeting on April 4. EPA is now projecting that their new draft guidance will not be ready for publication in the Federal Register until "mid-summer." This is a change from the May 15 date previously estimated.

OSHA staff members recommended the inclusion of HEW as a cosponsor of the hearing, primarily because of the role of NIOSH as OSHA's research arm. After considerable discussion, it was agreed that EPA would send a letter inviting HEW to participate in the hearing by presently testimony, but not as a cosponsor.

There was some discussion of the composition of the hearing panel. It was agreed that the Chairman should be an EPA hearing officer with legal background. EPA, NRC and OSHA would assign technical members. There was no decision regarding further composition of the hearing panel.

[R. A. Purple]

ENCLOSURE C

3. On March 23, 1979, the Executive Director for Operations denied a petition for rulemaking (PRM 20-9) that requested the NRC to revise 10 CFR 20.205(c)(2) to specify radiation levels at 5 centimeters from the external surface of a package (instead of on the surface of the package) of radioactive material and specify an area over which the radiation levels may be averaged. The purpose was to minimize inconsistencies in radiation levels recorded for the same package by different persons. By letter dated March 23, the EDO informed the petitioner, Tech/Ops, of the denial on the grounds that adoption of the request would lead to cost increases without corresponding benefits of improving public health and safety and, in fact, would result in a higher collective hand dose for package handlers. The NRC staff is now developing a regulatory guide explaining the requirements in 10 CFR 20.205(c)(2) and proposing a surface radiation level measurement method acceptable to NRC.
[Robert Barker]

4. SD staff met with representatives of the Department of Transportation, NMSS, RES, and IE on March 28, 1979, to discuss preliminary proposals for NRC advice to DOT on highway routing of radioactive material shipments. Proposals were explored for avoiding heavily populated areas while using the safest types of roads. NMSS-Safeguards staff discussed preliminary ideas on protection of spent fuel shipments from sabotage in heavily populated areas.

Plans were also confirmed for DOT and NRC to participate in a briefing on April 20, 1979 by Sandia Laboratories on current developments in the NRC-funded Urban Area Environmental Impact Analysis. The briefing was planned to provide current input to the development of highway routing proposals. Prior to the briefing, the same NRC and DOT personnel are participating in a Department of Energy seminar in Albuquerque on the current activities and goals of its Transportation Technology Center at Sandia Laboratories.
[Robert Barker]

5. On March 28, R. Bernero, SD, testified at the Federal Energy Regulatory Commission (FERC) rate hearing for Connecticut Yankee. The subject of the testimony was NRC regulations, policies and analyses regarding decommissioning of power reactors. Mr. Bernero was accompanied by M. Staenberg of ELD. He testified at the request of the pending administrative law judge.

Regulatory Guides to be Issued in the Near Future

1. Title: Atmospheric Dispersion Models for Potential Accident
Consequence Assessments at Nuclear Power Plants

Expected Issuance Date: July 1979

Description: Describes atmospheric dispersion models to be used in assessing potential accident consequences for nuclear power plants, for the determination of site acceptability as set forth in 10 CFR Part 100.

Contact: R. Kornasiewicz

2. Title: Applications of Bioassay for I-125 and I-131
(Reg. Guide 8.20, Rev. 1)

Expected Issuance Date: June 1979

Description: This guide provides criteria acceptable to the NRC staff for the development and implementation of a bioassay program for any licensee handling or processing I-125 or I-131.

Contact: A. Brodsky

OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

Items of Interest

Week Ending March 30, 1979

Export of Research and Test Reactors

A representative of the Fuel Cycle Division attended a meeting called by the Department of State, Office of Export Studies, to discuss the environmental impacts of U.S. exports of research and test reactors. The meeting was also attended by representatives of DOE and ACDA. DOS requested that all assignments be completed by the next meeting, which is scheduled for April 13, 1979.

Integrated Safeguards Information System (ISIS)

On March 26, 1979, a Commission paper treating proposed action on the Integrated Safeguards Information System (ISIS) was completed and sent out for coordination by the Safeguards Information Group. The paper is scheduled for submission to the EDO next week.

Material Control, LEMUF and MUF Simulation (MCLAMS)

Members of the Safeguards Material Control and Accountability Development Branch presented a briefing on March 26, to the staff on the Application of Material Control, LEMUF and MUF Simulation (MCLAMS) Model to NFS-Erwin facility data. The briefing reviewed the results of application of the model to inventory difference data for the period February 1977 thru November 1978. This analysis developed a hypothesis, supported by the simulation results, of the causative agents for the inventory differences experienced by the facility.

Meeting with Dupont (SR) and Sandia Personnel Regarding AFR Spent Fuel Storage Safeguards

Members of the Division of Safeguards met with representatives of Dupont and Sandia to discuss safeguards issues related to DOE's proposed construction of a spent fuel storage basin at Savannah River. Existing NRC requirements for physical protection and potential impacts of 10 CFR Part 75 (U.S. Implementation of IAEA Safeguards) were discussed.

ENCLOSURE D

Industry/NRC Seminar on Upgrade Rule Guidance

An Industry/NRC Seminar on Upgrade Rule Guidance products was conducted on March 27 and 28 at the Defense Industrial Security Institute of Richmond, Virginia. The seminar focused on the products of the Upgrade Rule Guidance Development Working Group, which prepared three major volumes of technical guidance for public comment.

OFFICE OF THE EXECUTIVE LEGAL DIRECTOR

ITEMS OF INTEREST

FOR THE WEEK ENDING MARCH 30, 1979

Trojan Nuclear Plant (Control Building Proceeding)

On March 27, the Trojan Appeal Board (Control Building) issued a decision (ALAB-534) summarily affirming the Atomic Safety and Licensing Board's partial initial decision (PID) of December 21, 1978. The PID authorizes interim operation prior to modifications to upgrade the seismic capability of the Control Building. Such interim operation is subject to conditions which reduce the OBE level for the operation period, prohibit modifications which would weaken the Control Building shear walls and require prior minor modifications to pipe supports and restraints. The Appeal Board adhered to its determination in ALAB-524 denying a stay of the effectiveness of the PID that there was no showing by intervenors on appeal that the Licensing Board erred in finding that, given the conditions it was imposing upon interim operation, there was the requisite reasonable assurance that such operation would not produce a seismic-related danger to the public health and safety. The Appeal Board also noted a patent lack of merit to the intervenor's challenges to a number of ancillary rulings of the Licensing Board.

ENCLOSURE G

ITEMS OF INTEREST
OFFICE OF INTERNATIONAL PROGRAMS
WEEK ENDING MARCH 30, 1979

INTERNATIONAL COOPERATION

Technical Notification

IP, through Department of State and GSA channels, has been keeping foreign nuclear regulatory authorities fully apprised of the Three Mile Island situation which has, of course, generated intense interest abroad. It has apparently been headlined by all major foreign newspapers. We have also fielded many telephone requests for the absolute latest available information from both local and American Embassies overseas. We have assured all that the information is being passed just as soon as we receive it.

EXPORT/IMPORT AND INTERNATIONAL SAFEGUARDS

U.S. Action Plan Working Group Meeting (APWG)

On March 23 members of the staff (Ken Cohen, IP, Ted Sherr, and Ben Easterling, NMSS) attended a meeting at the State Department of the APWG. The principal focus of the meeting centered on the review of several work plans and the status of others. An information paper providing a more detailed description of the two APWG meetings held in March is being forwarded to the Commission. The next scheduled meeting will be on April 24.

ALI-ABA Meeting on Export Controls

On March 28-29, members of the IP staff attended a meeting in Washington organized by the American Law Institute and the American Bar Association (ALI-ABA) on the subject of nuclear export controls. Presentations were given by U.S. and foreign attendees who focused in general on the results of the first year's experience in implementing the export control provisions of the Nuclear Non-Proliferation Act of 1978. Major addresses were given by Commissioner Kennedy and Assistant Secretary of State Thomas Pickering.

Upgrade Rule Guidance Seminar

An IP representative participated in the NRC Upgrade Rule Guidance Seminar March 27-28 in Richmond, Virginia.

ENCLOSURE H

OFFICE OF STATE PROGRAMS

ITEMS OF INTEREST

WEEK ENDING MARCH 30, 1979

General

Governor Carey of New York has asked the New York siting board to suspend its hearings on the Long Island Lighting Company's applications for two nuclear facilities at Jamesport. The hearings have been in progress since 1974. During the recent campaign, Governor Carey promised that "Jamesport will never be built."

Program Development

Frank Young met with officials in Michigan on Tuesday, March 27, to discuss water quality and general agreements on memorandum of understanding. They seem interested and are proceeding with active consideration.

State Agreements

A training course on Safety Aspects of Industrial Radiography will be given at Louisiana State University during the week of April 9, 1979. This will be a cooperative program with 9 State personnel and 7 NRC-IE personnel attending.

W. Kerr will meet with Utah officials on April 10, 1979 to discuss the Agreement State Program.

ENCLOSURE I

OFFICE OF MANAGEMENT AND PROGRAM ANALYSIS

Items of Interest

Week Ending - March 30, 1979

Research Project Control System (RPCS)

Completed General Requirements Document for Research Project Control System (RPCS). This document outlines plans for development of a project control system for the Office of Research. While greatly alleviating present manual efforts, the system will provide more information in a more efficient manner for project control. The system will interface with the Decision Unit Tracking System and the Buff Books.

Decision Unit Tracking System (DUTS)

Completed the General Requirements Document which outlines plans for development of an automated system to aid in eliminating the unnecessary manual effort in producing the DUTS reports as well as providing additional information reports.

U.S. vs Japanese Construction Time

Began statistical analyses on duration of construction stages of nuclear reactors to allow unbiased comparisons of U.S. and Japanese construction time.

Response to Questions from Senators Hart and Simpson

Revised responses to questions from the February 5 Hart and Simpson budget review hearings have been completed and sent to the Office of Congressional Affairs.

Caseload Planning Projections

Caseload Planning Projections for FY 1981-85 were sent to Office Directors for their use in the FY 81 budget process.

Response to Questions from Representative Dingell

Forwarded complete package of responses to Representative Dingell's FY 80 authorization questions to the Office of Congressional Affairs.

ENCLOSURE J

Office of the Controller
Items of Interest
Week Ending March 30, 1979

FY 1979 Reprogramming

The initial reprogramming request to Congress (use of FY 1978 unobligated balance carryover) still requires concurrence from the Senate Authorization and Appropriations Committees.

The second reprogramming paper has received responses from four Commissioners.

FY 1979 Financial Review

A review of FY 1979 resource activity with the purpose of arriving at a projected year-end position will take place in May.

FY 1980 Budget

Udall Subcommittee markup was scheduled this week but has been postponed. Hart Subcommittee markup is tentively scheduled for April 27. By law the Authorization Committees are to have their bills reported out by May 15, however, in the past this has not been met.

House Appropriations Committee mark is scheduled for June and Senate Appropriations Committee mark is scheduled for July.

FY 1981-FY 1985 Budget/Plan

The Call for the formulation of this budget/plan was issued on March 30. The due dates are similar to last year; information to ADM by April 27 and the budget/plan to CON by May 25.

Enclosure K

CALENDAR OF SIGNIFICANT EVENTS

For Two Week Period Ending April 16, 1979

April 2-5	Sequoyah - ACRS meeting
April 6	Palo Verde 4 & 5 - ACRS Full Committee meeting to be held

ENCLOSURE L

ITEMS APPROVED BY THE COMMISSION - RECEIVED WEEK ENDING MARCH 30, 1979

A. SECY-79-95 - NON-PROLIFERATION LANGUAGE IN NRC INTERNATIONAL AGREEMENTS
(Commissioner Action Item) (Memo, Chilk to Gossick dated 3/23/79)

With reference to my memorandum of March 21, 1979 to you on this subject you are requested to defer action for several days while the Commission considers recently obtained information.

B. SECY-79-2A - APPROVAL OF A PROPOSED LICENSE TO EXPORT MIXED OXIDE FUEL TO
FRANCE (LICENSE APPLICATION NO. XSNM-744, SECY-79-2) (Commissioner Action Item)
(Memo, Chilk to Gossick dated 3/23/79)

This is to advise you that the Commissioners have reviewed the subject license to General Electric Company. The Commission (with four Commissioners concurring and Commissioner Gilinsky noting without objection) has accepted your recommendation to export to France 2.48 kilograms of plutonium and 61 kilograms of natural uranium in the form of mixed uranium oxide and plutonium oxide as scrap powder and pellets.

In connection with his concurrence, Commissioner Bradford has provided the following comments: "I want to be informed of the physical security regimen that will cover the transporting of this material."

The Office of International Programs was informed of this action by telephone on March 22, 1979.

It is requested that you accomplish the following actions:

1. Provide notification of the issuance and delivery of this license to General Electric by c.o.b. March 26, 1979.
2. Forward a response to Commissioner Bradford's request through the Office of the Secretary by c.o.b. April 6, 1979.

ENCLOSURE M

C. SECY-79-76 - GENERIC ISSUES PRIORITIES (Memo, Chilk to Gossick dated 3/23/79)

The Commission notes the Director of Nuclear Reactor Regulation's report on recent actions to establish priorities for the resolution of generic issues. In seeking a valid system for establishing priorities, the actions are likely to improve assurance that NRR's resources are used more effectively. Requesting public comment will be a useful safeguard to assure the process is realistic. The Commission commends these efforts.

Public comment should be requested as soon as reasonably possible. The public announcement of the rating system used for establishing generic issue priorities and soliciting comments on the rating system should include as much information as possible about the system and how it was applied. In particular, and if possible, further description and/or definition of the various rating categories shown in Table 1 of the staff paper and of the process whereby the various issues were rated in each category would be appropriate. Further, when the public announcement is made, it should note that, although both the point value for each category and the point value assigned to each issue in each category are subjective, the resulting total point values for the issues were sufficient to make a meaningful rating, i.e., the relative ratings of the issues were used to identify those issues to which resources should be committed immediately, those to which resources should be committed on a discretionary basis, and those to which commitment of resources should be deferred. Finally, the public announcement should emphasize that the rating system resulted in all issues previously determined to be unresolved safety issues being placed in the highest of these three priority classes.

In view of continuing Congressional interest, the staff is requested to prepare for Commission approval appropriate letters to the Congressional oversight committees outlining the approach being taken to establish priorities for the resolution of generic issues. (SECY Suspense: 4/27/79)

D. STAFF REQUIREMENTS - AFFIRMATION SESSION 79-7, 11:25 A.M., THURSDAY, MARCH 22, 1979, COMMISSIONERS' CONFERENCE ROOM, D.C. OFFICE (Open to Public Attendance) (Memo, Chilk to Gossick, Kammerer, Fouchard dated 3/23/79)

I SECY-79-129 - Proposed Amendment to 10 CFR Part 35, "Human Uses of Byproduct Material," Institutional Radiation Safety Committee

The Commission, by a vote of 4-0*:

1. approved the Notice of Proposed Rule Making that would change the requirement to appoint a medical isotopes committee to a requirement to appoint a radiation safety committee. This proposed amendment is to be published in the Federal Register for a 60-day comment period; (SD) (SECY Suspense: 4/5/79)

*Commissioner Gilinsky noted this item without objection

2. requested that a public announcement be issued when the proposed amendment is filed with the Office of the Federal Register; (OPA) (SECY Suspend: 4/5/79)
3. requested that appropriate Congressional Committees and all medical licensees be informed of this action.
(OCA/SD) (SECY Suspend: 4/5/79)

II. SECY-79-148 - Amendments to 10 CFR Part 140 - Increase in Maximum Amount of Financial Protection Available

The Commission, by a vote of 5-0:

1. approved the proposed Notice of Rule Making to increase the level of the primary layer of financial protection required of certain indemnified licensees from \$140 to \$160 million. This amendment, which is to be published in the Federal Register, is to become effective May 1, 1979;
(NRR) (SECY Suspend: 4/5/79)
2. requested that the Subcommittee on Nuclear Regulation, Senate Committee on Environment and Public Works, the Subcommittee on Energy and the Environment, House Committee on Interior and Insular Affairs; and the Subcommittee on Energy and Power, House Committee on Interstate and Foreign Commerce be informed of this action by letter; (OCA) (SECY Suspend: 4/5/79)
3. requested that a public announcement be issued upon filing of the Notice with the Office of the Federal Register.
(OPA) (SECY Suspend: 4/5/79)

III. SECY-79-128 - Implementation of Certain Provisions of Public Law 94-197 - Modification of the Price-Anderson Act

The Commission, by a vote of 5-0:

1. approved the proposed Notice of Rule Making amending 10 CFR Part 140 to complete the implementation of PL 94-197. This Notice is to be published in the Federal Register for a 60-day comment period; (NRR) (SECY suspend: 4/5/79)
2. requested that the Subcommittee on Nuclear Regulation of the Committee on Environment and Public Works; the Subcommittee on Energy and the Environment of the Committee on Interior and Insular Affairs, and the Subcommittee on Energy and Power of the Committee on Interstate and Foreign Commerce be informed of this action by letter. (OCA) (SECY Suspend: 4/5/79)

- E. STAFF REQUIREMENTS - DISCUSSION OF SECY-79-34A - STAFF'S FINAL REPORT, "REGULATION OF FEDERAL RADIOACTIVE WASTE ACTIVITIES", 9:50 A.M., THURSDAY, MARCH 22, 1979, COMMISSIONERS' CONFERENCE ROOM DC OFFICE (Open to Public Attendance) (Memo, Chilk to Gossick dated 3/23/79)

The Commission discussed the status of the draft report to Congress. The Commission also was addressed by Dale Myers, Under Secretary of Energy; John Deutch, Assistant Secretary of Energy for Energy Technology; and Duane Sewell, Assistant Secretary of Energy for Defense Programs, on DOE views of the report.

The Commission requested:

1. that the revised pages of the staff's final draft report be provided to the Commission. (NMSS) (SECY Suspense: 3/23/79)

Commissioner Bradford indicated that he would submit his revisions to the draft early in the week of March 26. The Chairman noted that further discussion of the report was scheduled for March 29, and that the Commission should be prepared to reach a decision on the report at that time.

- F. STAFF REQUIREMENTS - COMMISSION MEETING ON TARAPUR EXPORT LICENSE NO. XSNM-1222 (IN THE MATTER OF EDLOW INTERNATIONAL COMPANY, AGENT FOR THE GOVERNMENT OF INDIA ON APPLICATION TO EXPORT SPECIAL NUCLEAR MATERIAL) (DOCKET NO. 70-2738), 2:25 P.M., FRIDAY, MARCH 23, 1979, COMMISSIONERS' CONFERENCE ROOM, DC OFFICE (Open to Public Attendance) (Memo, Chilk to the Record)

The Commission, by a vote of 3-2, with Commissioners Gilinsky and Bradford dissenting, found that license application no. XSNM-1222 meets all the requirements relevant for issuance under the Atomic Energy Act of 1954, and directed the Director of International Programs to issue XSNM-1222 to the Edlow International Company (EDO)

(Subsequently, the license was issued later in the day on March 23, 1979.)

By a vote of 3-0, with Commissioners Gilinsky and Bradford abstaining, the Commission approved the issuance of an Order reflecting the above finding.

(The Order and separate concurring and dissenting Opinions were issued later in the day on March 23, 1979.)

ENCLOSURE M

G. SECY-79-151 - APPROVAL OF PROPOSED LICENSES TO EXPORT AND REIMPORT HIGH ENRICHED URANIUM (APPLICATIONS XSNM01354 AND ISNM78009) (Commissioner Action Item) (Memo, Chilk to Gossick dated 3/26/79)

This is to advise you that the Commissioners have reviewed the subject licenses to Union Carbide Corporation. The Commissioners (with all Commissioners concurring) have accepted your recommendation to export to France 7.33 kilograms of uranium, enriched to 93% U-235, in the form of uranium metal, for fabrication of fuel and reimport to the United States in the form of reactor fuel elements.

The Office of International Programs was informed of this action by telephone on March 26, 1979.

It is requested that you provide notification of the issuance and delivery of these licenses to Union Carbide by c.o.b. March 28, 1979.

H. CLASSIFICATION REVIEW OF TRANSCRIPT OF: DISCUSSION OF EXPORT MATTER, MARCH 8, 1979; DISCUSSION OF TARAPUR, FEBRUARY 15, 1979 (Memo, Chilk to Gossick dated 3/26/79)

Attached are the transcripts of the subject meetings which were closed to public attendance pursuant to Exemption 1 of the Sunshine Act. You are requested to conduct a classification review of these transcripts to determine whether any portions of the texts may be released to the public.

Please provide your written determination regarding classification of these documents by C.O.B., Friday, March 30, 1979. (Attachment not included)

I. SECY-79-121 - PROPOSED LICENSE TO EXPORT LOW-ENRICHED URANIUM TO MEXICO (XSNM-1194) (Commissioner Action Item) (Memo, Chilk to Gossick dated 3/27/79)

This is to advise you that the Commissioners have reviewed the subject license to General Electric Company. The Commission (with all Commissioners concurring) has accepted your recommendation to export to Mexico 377,600 kilograms of uranium, enriched to 4% U-235, in the form of uranium dioxide.

The Director of International Programs was authorized by telephone on March 2, 1979 to issue this license.

ENCLOSURE M

J. REVIEW OF TRANSCRIPT OF COMMISSION MEETING: DISCUSSION OF TESTIMONY BEFORE THE HOUSE FOREIGN AFFAIRS COMMITTEE, FEBRUARY 7, 1979 (Memo, Chilk to Gossick dated 3/28/79)

Attached is a memo from the General Counsel indicating that the subject transcript, in the General Counsel's view, is unclassified, but recommending a further classification review by OIP.

Therefore, we request that OIP conduct a classification review of this document and provide a written determination regarding its classification to the Office of the Secretary by c.o.b., Wednesday, April 4, 1979. (Attachment not included)

K. SECY-79-150A - PENDING RETRANSFER FROM SWEDEN TO THE UNITED KINGDOM FOR REPROCESSING (SECY-79-150) (Commissioner Action Item) (Memo, Chilk to Gossick dated 3/28/79)

This is to advise you that the Commission (with all Commissioners concurring) has approved your recommendation that NRC not object to the subject retransfer. However, the proposed response to the Department of Energy (DOE) has been revised with the following additions: (1) a Commission view (with Commissioners Gilinsky, Bradford, and Ahearne concurring) pertaining to the lack of information concerning the terms of a relevant contract; (2) a dissent by Chairman Hendrie and Commissioner Kennedy from this view; and (3) an additional view of Commissioner Bradford.

A final draft of the response to DOE reflecting the Commission's decision on this matter is attached for typing, signature and dispatch by the Director of International Programs.

The Office of International Programs was informed of the Commission decision concerning NRC non-objection to the retransfer by telephone on March 26, 1979 and of the revised letter to DOE by telephone on March 28.

It is requested that you forward to the Office of the Secretary a copy of the letter to DOE after signature and dispatch.
(Attachment not included)

ENCLOSURE M

CALENDAR OF SPEAKING ENGAGEMENTS

APRIL

- 1-4 AIF Environmental Conference: Regulation of Radiation in the Nuclear Industry, Mayflower Hotel, Washington, DC - Regulatory Trends in Radiation Protection - Robert Minogue
- 2 Nuclear Power Safety Course, Georgia Institute of Technology, Atlanta, GA - Definition of Class of Accidents, Safety and Design Base Accident Concept - S. H. Hanauer
- American Association of Petroleum Geologists, Houston, TX - Environmental Assessment of In Situ Leaching of Uranium - Glen Terry
- 2-4 American Society for Nondestructive Testing Annual Meeting, San Diego, CA - Use of Alarming Pocket Dosimeters in Industrial Radiography - S. A. McGuire
- 2-6 Nuclear Power Safety Course, Georgia Institute of Technology (School of Nuclear Engineering), Atlanta, GA - Nuclear Regulatory Commission Regulations and Licensing - Robert Minogue
- 3 AIF Environmental Conference: Regulation of Radiation in the Nuclear Industry, Mayflower Hotel, Washington, DC - NRC Studies and Efforts on Health Effects - M. Parsont
- 4 Environmental Health Conference, Park City, UT - Health Impacts of Uranium Mining and Milling for Commercial Nuclear Power - E. F. Branagan

ENCLOSURE N

- 7 First Western Energy Quality Assurance Seminar (ASQC), San Francisco, CA - QA Requirements for the Design and Construction of Nuclear Power Plants - T. W. Bishop
- 12 NJ Chapter of the Health Physics Society, Saddlebrook, NJ - Radiation Incidents and NRC RI Public Affairs Practices - K. Abraham
- 19-20 Second Biennial EEI Standards Conference - Theme: Government Interface with the Voluntary Consensus Standards Organizations and EEI's New Posture in the Standards World - Robert Minogue

MAY

- 1 State of South Carolina Advanced Management Seminar, Greenwood, SC - NRC Concurrence Program for Fixed Nuclear Facilities - J. W. Hufham
- 17 National Classification Management Society Seminar, Jack Tar Hotel, San Francisco, CA - Development of NRC's Classification Guide for Safeguards Information - Raymond Brady
- 21 Radioactive Waste Management for Nuclear Power Reactors - Rules, Regulations and Standards, Alexandria, VA - I. C. Roberts
- 23 Annual Records Management Conference of the National Archives, Fredericksburg, VA - Automation of Records Management at NRC - R. Stephen Scott

April 11, 1979

UNITED STATES
NUCLEAR REGULATORY COMMISSION

SECY-79-253

For:

The Commissioners

INFORMATION REPORT

From:

T. A. Rehm, Assistant to the Executive Director for Operations

Subject:

WEEKLY INFORMATION REPORT - WEEK ENDING APRIL 6, 1979

A summary of key events is included as a convenience to those Commissioners who may prefer a condensed version of this report.

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T. A. Rehm, Assistant to the
Executive Director for Operations

Contact:

T. A. Rehm
49-27781

*No input this week

**Deleted from Commissioners and PDR copy

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WEEKLY INFORMATION SUMMARY
Week Ending April 10, 1979

Zion Station, Units 1 and 2

With regard to the proposed expansion of capacity of the Zion Station spent fuel pool, the staff has completed and issued its safety evaluation and environmental impact appraisal. A hearing on this matter will be held at a time and place to be fixed by the ASLB.

US/IAEA Safeguards Agreement Implementation

NRC staff met with Dr. Ferraris of the IAEA on March 29 to discuss future IAEA needs for export of inspection samples and import of calibration standards. Dr. Farrairs confirmed present thinking that several years will be required to completely implement the US/IAEA Agreement.

Foreign Interest in Three Mile Island Incident

On April 3, IP arranged, and D. Thompson of IE presented, a 1½ hour briefing on the Three Mile Island incident. It was attended by 30 foreign representatives from 18 countries and international organizations. IP arranged a trip on April 5 for foreign safety experts to visit Middletown and be briefed by H. Denton on the Three Mile Island situation.

Statistical Analysis of Power Plant Capacity Factor (NUREG-CR 0382)

Distributed a report entitled "Statistical Analysis and Power Plant Capacity Factors". This report examines the use of statistical methods for analysis of possible trends and patterns associated with a plant's age, size and type.

FY 1979 Reprogramming

The initial reprogramming request for use of FY 1978 unobligated balance carryover was approved by all five Congressional Committees. Revised financial plans and allotments will be issued early next week to reflect these changes.

OFFICE OF ADMINISTRATION

Week Ending April 6, 1979

ADMINISTRATION OF THE FREEDOM OF INFORMATION ACT

STATUS OF REQUESTS

	<u>Initial Request</u>	<u>Appeal of Initial Decision</u>
Received	130	11
Granted	59	2
Denied	21	4
Pending	50	5

ACTIONS THIS WEEK

Received

Carol S. Perlmutter
(79-93)

Requests a copy of all materials regarding the promulgation and possible future revisions of Regulatory Guide 1.3, Revision 2 and Regulatory Guide 1.4, Revision 2.

L. Alan Kenton,
(79-94)

Requests the name, present and past position titles, present and past grades, and present duty stations of all employees employed by the NRC.

Gerald Merigold,
Science Applications, Inc.
(79-95)

Requests a copy of the winning proposal for RFP No. RS-RES-78-193.

James W. Scouten,
Attorney-At-Law
(79-96)

Requests any information which would justify the "failure" to use Boron at Three Mile Island plant.

Kathryn Burkett Dickson,
Energy Resources Conservation
& Development Commission
(79-97)

Requests a copy of the staff report and recommendations on PIRG's petition for rulemaking to require plant operators to post bond for decommissioning (SECY-78-13-C).

Anthony Z. Roisman,
Natural Resources
Defense Council, Inc.
(79-98)

Requests all documents and communications of any kind received by or in the possession of the NRC relating to Three Mile Island Unit 2.

CONTACT: J. M. Felton
492-7211

ENCLOSURE A

Received, Cont'd

Peggy Strain,
The Denver Post
(79-99)

Requests all documents relating to environmental impacts and health effects resulted from nuclear tests conducted in connection with the Project Plowshare program during the 1960s and early 1970s.

Granted

Lawrence F. Roberge,
(79-4)

In response to a request for a copy of the reports on Abnormal Occurrences for 1977 and 1978, made available the reports.

Lucille Parkerson,
Kinetic Research, Inc.
(79-66)

In response to a request for a copy of the technical proposals on the successful awards resulting from RFP #01-78-011, "Health Effects of Low-Level Ionizing Radiation", made available these proposals.

Mark T. Hebner,
Pharmatopes, Inc.
(79-79)

In response to a request for copies of all documents on file in the NRC concerning Radiology Associates, P.C., NRC License Number 21-16754-01, made available these documents.

Denied

Thomas B. Cochran,
Natural Resources
Defense Council, Inc.
(78-264)

In response to a request for documents regarding the adequacy of safeguards at NFS, Erwin, Tennessee facility since 1/1/78, made available 21 documents. Denied, in whole or in part, 32 documents under exemptions 1, 4, and 5.

Anthony Z. Roisman,
Natural Resources
Defense Council, Inc.
(78-295)

In response to a request for documents relating to the environmental effects of the uranium fuel cycle and the disposal of nuclear wastes, made available 73 documents. Denied portions of four documents containing advice, opinions and recommendations. Also informed the requester 13 documents relating to this request are already located in the PDR.

ENCLOSURE A

Denied, Cont'd

Gerald Merigold,
Science Applications, Inc.
(79-84)

In response to a request for a copy of the winning technical proposal for RFP RS-NMS-78-067, denied portions of the technical proposal containing confidential business (proprietary) information.

ENCLOSURE A

DIVISION OF CONTRACTS

Week Ending April 6, 1979

PENDING COMPETITIVE REQUIREMENTS

1. RFP RS-NMS-79-043

Title - Bulk Material Control

Description - This requirement is a three-phase effort. The first phase is conceived to have one contractor or several contractors formulate material control systems. The Phase I contractor(s) will submit, at the end of Phase I, proposals for a possible development and demonstration phase, Phase II and III, respectively.

Sponsor - Office of Nuclear Material Safety and Safeguards

Period of Performance - Phase I - 8 months

Phase II - 7 months

Phase III - 12 months

Status - Solicitation being developed.

2. RFP RS-NRR-118

Title - Engineering Support for Operating Reactor Licensing Actions

Description - The NRC is seeking assistance with its review and evaluation of pending operating reactor licensing actions. Assistance is needed to: (1) review licensee submittal, (2) perform comparative evaluations relative to established regulatory guides, (3) provide a report documenting conclusions reached and (4) provide a definition of additional information needed to complete the action.

Period of Performance - Three to five years

Sponsor - Office of Nuclear Reactor Regulation

Status - The Source Evaluation Panel has completed their review of the 49 qualification statements received, and the Contracting Officer has advised all submitters of the results. The Evaluation Panel is presently developing a Request for Proposal and the Division of Contracts intends to issue it during the month of April.

RFP'S ISSUED

RFP RS-OIE-79-256

Title - General and Refresher Courses in Non-Destructive Examinations

Description - This technical assistance is required by the Office of Inspection and Enforcement to provide NRC personnel a working level knowledge of practices, procedures and practical work of non-destructive examinations as related to nuclear power plant construction.

Period of Performance - Twenty-eight months

Sponsor - Office of Inspection and Enforcement

Status - RFP issued April 3, 1979. Proposals due May 3, 1979.

ENCLOSURE A

PROPOSALS UNDER EVALUATION

1. RFP RS-ADM-79-362
Title - Cataloging Support Services
Description - Cataloging, processing, data conversion and related activities for backlog of approximately 9650 titles in the NRC Library.
Period of Performance - Seven months
Sponsor - Office of Administration
Status - Competitive range approved March 28, 1979. Offerors in/out of competitive range notified. Negotiations to be conducted during week beginning April 16, 1979.

2. RFP RS-OIE-79-253
Title - Independent Assessment: Destructive Testing and Analysis
Description - This technical assistance is required by the Office of Inspection and Enforcement to provide independent assessments, including destructive testing and analysis of samples from licensees' facilities which will serve as independent measurements and verifications that reactor construction and vendor materials and workmanship meet prescribed codes, standards and specifications in the mechanical, chemical, concrete, and electrical areas.
Period of Performance - Two years
Sponsor - Office of Inspection and Enforcement
Status - The Source Selection Board met on April 4, 1979 to determine the competitive range.

3. RFP RS-OIE-79-254
Title - Evaluation of NRC's Revised Inspection Program
Description - This technical assistance is required by the Office of Inspection and Enforcement to determine the effectiveness and efficiency of the Revised Inspection Program and its concurrent impacts on the Commission, licensees, and the public. The Contractor will develop the methodology for evaluation of all elements of the Revised Inspection Program: Resident Inspection, Performance Appraisal, Independent Measurements, and Career Management and Training. The results of this work effort will be used to prepare reports for OMB and the Congress in FY 1979 and 1980.
Period of Performance - Two years
Sponsor - Office of Inspection and Enforcement
Status - Proposals received March 28, 1979, and distributed to the Source Selection Board on March 29, 1979.

4. RFP RS-NRR-79-102
Title - Technical Assistance Program for Two-Phase Flow Aspects of
Reactor Safety
Description - Provide licensing support in the area of two-phase
flow, consisting of a review of existing tests,
experiments, and analytical methods used in this
area.
Period of Performance - Three years
Sponsor - Office of Nuclear Reactor Regulation
Status - Final Evaluation Report approved on March 30, 1979.

DIVISION OF SECURITY
ITEMS OF INTEREST
WEEK ENDING APRIL 6, 1979

The Facilities and Systems Security Branch (FSSB) provided for and arranged additional protective measures for H Street during public meetings held by the Commission and ACRS in response to public interest over the Three Mile Island nuclear incident. Additional security support has also been provided for East-West Towers in support of the 24 hour operations of the NRC staff. Security support, in coordination with Region I, was provided for the Middletown, Pa. NRC Press Center also.

FSSB coordinated and arranged for protective service for the Atomic Safety and Licensing Board prehearing conference in the Allens Creek proceeding scheduled for Houston, Texas, April 18-19, 1979.

ENCLOSURE A

DIVISION OF TECHNICAL INFORMATION AND DOCUMENT CONTROL*

Week Ending April 6, 1979

TRANSLATIONS

The following translations were received by the Division of Technical Information and Document Control during the week of April 2 - 6, 1979. Copies of these translations will be available in the Library.

German

RE 23, Research Program On Reactor Safety (Final Report). Research Project BMFT RS 93/A. Kraftwerk Union, Reaktortechnik, Erlangen, F. R. Germany. January 1978. 95 pages.
Cost of translation: \$313.00. (TIDC 539).

Japanese

78-RG-01. Examination Guidelines for the Safety Evaluation of Light Water Power Reactors. Atomic Energy Committee, Japan. September 1978. 75 pages.
Cost of translation: \$1,102.00. (TIDC 542)

NUREG REPORTS

Number of NUREG reports printed and/or distributed by TIDC in March.

<u>Report</u>	<u>Quantity</u>
SER's	2
Periodicals	5
Staff	4
Contractor	69

A listing of these reports is contained in "U.S. Nuclear Regulatory Commission Publications" (NUREG - 0304), issued monthly and available from TIDC.

* This entry deleted from PDR copy

OFFICE OF NUCLEAR REACTOR REGULATION

WEEKLY ITEMS OF INTEREST
(Week Ending April 6, 1979)

H. B. Robinson 2

The staff's Supplement No. 2 to the Safety Evaluation for the H. B. Robinson Unit 2 Power Increase was issued for information on March 30, 1979. This supplement is being sent to the ASLB and ACRS. The power increase is 100 MWt from 2200 MWt to 2300 MWt.

Zion Station, Units 1 and 2

With regard to the proposed expansion of capacity of the Zion Station spent fuel pool, the staff has completed its safety evaluation (SER) and environmental impact appraisal (EIA) and on March 29, 1979 issued these documents for the information of the licensee, the Atomic Safety and Licensing Board (ASLB) and to the interested parties in this proceeding. On March 23, 1979, the ASLB had issued a notice that a hearing on this matter will be held at a time and place to be fixed by the ASLB. Members of the public may request permission to make limited appearance statements at that hearing.

Salem Unit No. 1

On March 29, 1979, the ASLB for the proposed expansion of the Salem Unit No. 1 spent fuel pool capacity, issued an Order announcing that a hearing, if it is to be held (decisions on summary disposition are still pending) will commence at 9:00 a.m. on Wednesday, May 2, 1979 in Salem, New Jersey.

Peach Bottom

On March 23, 1979 the Atomic Safety and Licensing Appeal Board issued its decision with respect to water quality issues at Peach Bottom. This decision approved the stipulation among the parties and the proposed Environmental Technical Specifications on the thermal component of effluent discharge. DOR will initiate an amendment to implement the Board's Decision.

OFFICE OF STANDARDS DEVELOPMENT

IMPORTANT EVENTS FOR THE WEEK ENDING APRIL 6, 1979

1. Meeting with Dr. Andrew McLean, U.K. - April 4, 1979: On April 4, 1979, members of the staff met with Dr. A. McLean, Director of the United Kingdom National Radiological Protection Board, in response to a request from the British Embassy. Dr. McLean wanted to discuss the staff's position with respect to the new ICRP recommendations on occupational protection (ICRP Publication 26), and to discuss with Mr. Minogue certain aspects of a talk he made at the Atomic Industrial Forum Conference on April 2. Most of Dr. McLean's concerns about the ICRP recommendations had arisen from his recent reading of an article in Nucleonics Week which attempted to summarize a paper by R. E. Alexander and W. Cool which was recently presented at an international meeting in Vienna, Austria. (See SECY 79-138). The discussion of Mr. Minogue's speech centered around ALARA concepts and the feasibility of establishing de minimus levels with respect to radiation protection.

Dr. McLean said that in the U.K. personnel dosimetry processing inaccuracies had been recognized several years ago and that the government has recognized certified laboratories that are required to be used by users of personnel dosimeters or in some cases does the processing itself.

Dr. McLean also noted that one of the most significant shortcomings and frustrating problem areas following the major incident at the Windscale facility some years ago was the establishment of lines of communication; the existing commercial telephone system was quickly swamped. He noted that the U.S. seemed to have a similar problem at the Three Mile Island incident.

Publications Issued

Draft Regulatory Guide and Value/Impact Statement - Proposed Revision 4 to Regulatory Guide 8.8 - Information Relevant to Ensuring That Occupational Radiation Exposures at Nuclear Power Stations Will Be As Low As Is Reasonably Achievable (ALARA) - Task OH 507-4 [Comments requested by June 8, 1979]

ENCLOSURE C

OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

Items of Interest

Week Ending April 6, 1979

Review of NUS Contract Status and Proposed Additions

The staff of Fuel Cycle Division reviewed the progress of all work under the NUS Corporation's contract for updating Table S-3 and for providing a technical report to support a rule making on radon-222. Proposals are being considered to expand the scope of work under the contract to include development of information on socio-economic impacts, as recommended by the S-3 Hearing Board, and to include evaluating various population dose integration periods and recommending one for NRC use in environmental impact assessments.

Report on Transportation of Nuclear Material through Fairfax County, Virginia

A survey was completed on the movement of nuclear material during CY 1978 through Fairfax County, Virginia. The survey was undertaken in response to a request received by NMSS from Mr. Mallard, a member of the Fairfax County Board of Supervisors.

Direct Assistance to IAEA Safeguards Evaluation Section

Mr. Lawrence Wirfs, Division of Safeguards, is scheduled to provide technical support to the IAEA Safeguards Evaluation Section in Vienna, Austria during April 30 - May 11, 1979, as part of the U.S. direct assistance program to that organization. The purpose of the trip is to develop methods and general procedures for the evaluation of inspection performance in the examination of facility operating and accounting records. A preliminary meeting will be attended at Battelle in Seattle on April 5-6.

US/IAEA Safeguards Agreement Implementation

Messrs. Partlow and Wirfs from NMSS and Mr. Kessler from IP met with Dr. Ferraris of the IAEA on March 29 to discuss implementation topics of common interest. One of the main topics was the discussion of future IAEA needs for export of inspection samples and import of calibration standards. Dr. Ferraris confirmed that the present thinking of the IAEA is that several years will be required to completely implement the US/IAEA Agreement.

ENCLOSURE D

International Safeguards

On March 26-29, 1979, representatives of the Department of State, ACDA, DOE, and NRC met at Brookhaven National Laboratory with IAEA representatives to discuss the U.S. program for technical assistance to IAEA safeguards. In addition to the 12 tasks related to the Tokai Advanced Safeguards Technology Exercise (TASTEX), some 129 ongoing or proposed new tasks for providing direct assistance to the IAEA were reviewed. This program provides assistance to IAEA safeguards activities in the areas of measurement technology, training, systems studies, information processing, containment and surveillance, and in support of field operations.

OFFICE OF INSPECTION AND ENFORCEMENT

Items of Interest

Week Ending April 6, 1979

1. Nuclear Incident at Three Mile Island Unit 2 - The NRC Operations Center was activated on the morning of March 28, 1979 and has been in continuous use since that time. The incident has been the subject of numerous Preliminary Notifications, press dispatches, press conferences and other releases of information. NRC efforts are expected to continue for an extended period of time.
2. Preliminary Notifications relating to the following actions were dispatched since March 23, 1979:
 - a. PNO-79-59 North Anna Unit 2 - Cracked Flow Splitter - Cracks were found in each end of the flow splitter for one of three reactor main coolant pumps. Westinghouse representatives assisted VEPCO in determining the cause of failure and proposed corrective action. Unit 2 is undergoing preoperational testing and is not licensed to operate. (Closed)
 - b. PNO-79-60 Errors in Calculations for First LOFT Nuclear Test - During preparations for the pretest calculations of the second nuclear test in LOFT, Idaho Nuclear Engineering Laboratory personnel discovered two errors in the input data for the first nuclear test. In addition, personnel from Los Alamos Scientific Laboratory discovered a second error in the input data. New calculations are underway using correct input data. This Preliminary Notification was issued for information only. (Closed)
 - c. PNO-79-61 Surry Units 1 & 2 - Potential Emergency Electrical Loads Exceed the Design Rating - A preliminary reanalysis by the licensee indicated that existing loads could exceed the design rating for some 4160/480 volt transformers and circuit breakers. Additional analyses are being made by the architect-engineer (Stone and Webster) to determine the extent of the problem and corrective action required. The licensee intends to modify the electrical system to handle the required loads. Additional testing will be required to demonstrate the ability to carry the required loads. (Closed)
 - d. PNO-79-62 EXXON Company, U.S.A., Converse County, Wyoming - Airborne Exposure to Members of the Public - Two welders at a shop in Glen Rock, Wyoming were exposed to airborne concentrations of natural uranium during the period March 1 - 16, 1979. The exposure resulted from sandblasting a contaminated filter press that had been inadvertently shipped from the Highland Uranium Mill located in Converse County, Wyoming. Preliminary investigation by the licensee showed that urine concentrations were 29 and 5 micrograms uranium per liter, respectively, for the two welders compared to the NRC recommended control level of 130 micrograms per liter. (Closed)

ENCLOSURE E

- e. PNO-79-63 Zion Units 1 & 2 - News Media Interest in Spent Fuel Pool Leakage - Pollution and Environmental Problems, a Chicago-area environmental group, issued a news announcement regarding leakage from the spent fuel pool at Zion. Minor leakage through the stainless steel liner has occurred since the pool was placed into service. The leakage has averaged about three quarts per hour and has been gradually decreasing. This matter is routinely checked during inspections. This Preliminary Notification was issued because of the media coverage. (Closed)
- f. PNO-79-64 North Anna Unit 1 - Potential Overstress of Safety Related Piping Caused by Actual Weight of 6-Inch Velan Valves (Actual Weight Double Design Weight) - A reanalysis of safety related piping using correct weights for the 6-inch Velan check valves showed that low head safety injection piping to the hot leg of one of the three primary reactor coolant loops could be overstressed during a design basis earthquake. The licensee is making adjustments to piping supports of affected piping and will complete work prior to resuming plant operation. (Closed)
- g. PNO-79-65 La Crosse - Spent Fuel Shipment - Because of limited spent fuel storage space, the licensee shipped some fuel to G.E.'s Morris, Illinois facility. This Preliminary Notification was issued because of the extensive news coverage expected. (Closed)
- h. PNO-79-66 Seabrook Units 1 & 2 - Petition to Revoke Construction Permit - A petition signed by 25 persons was received requesting that the construction permits for Seabrook Unit 1 & 2 be revoked. This Preliminary Notification was issued for information only. (Closed)
- i. PNO-79-67 through 67L Three Mile Island Unit 2 - Nuclear Incident at Three Mile Island Unit 2 - These Preliminary Notification were issued to provide updated status information regarding the incident.
- j. PNO-79-68 North Anna Unit 1 - Potential Overstress of Safety Related Piping Caused by Actual Weight of 6-Inch Velan Valves (Actual Weight Double Design Weight) - See Item 2.f above. (Closed)
- k. PNO-79-69 Peach Bottom Unit 3 - Radioactive Release In Excess of Regulatory Limits - A release of radioactive materials which exceeded a Technical Specification occurred on March 26, 1979. The total release is estimated at 47.8 curies, principally noble gases. The release occurred due to operator error in line-up of valves between equipment drains, floor drains, and the recombiner. The resident inspector will monitor the licensee's corrective actions. (Closed)

1. PNO-79-70 Kerr-McGee Chemical Corp., West Chicago, Illinois - Planned Action by the Mayor of West Chicago, Illinois - The Mayor of West Chicago, Illinois informed Region III (Chicago) that he planned to demand that the Illinois Attorney General's Office sue Kerr-McGee and the NRC regarding the burial of radioactive wastes in West Chicago. The suit will demand that the material be removed from the West Chicago area within 60 days. As of April 6, 1979, the NRC had received no additional information regarding the planned suit. (Closed)
- m. PNO-79-71 North Anna Unit 1 - Foreign Material in Secondary Coolant System - Following a reactor shutdown, the licensee determined that foreign material had jammed in the stop valve of a Main Steam Reheater (MSR). The MSR is a large heat exchanger located between the high and low pressure stages of the turbine. The reactor shutdown was not related to the MSR problem. The licensee removed debris from the MSR stop valve and recovered operation of the valve. (Closed)
- n. PNO-79-72 Babcock and Wilcox Co., Copley, Ohio - Apparent Overexposure to Three Radiographers at the Midland Nuclear Plant Site - Three radiographers received apparent overexposures while performing radiography at the Midland Unit 2 site. The licensee, Babcock and Wilcox, calculated the exposure to each individual to be 14 rems. The cause of the exposure was the apparent failure to fully retract the 75-curie iridium-192 source and to perform a survey to verify that the source had been retracted. Region III (Chicago) has initiated an investigation. (Closed)
- o. PNO-79-73 Turkey Point Units 3 & 4 - Local Blackouts Due to Loss of Power from Turkey Point - On April 4, 1979, all distribution lines from Turkey Point opened due to faults on the distribution system. All plant systems performed as designed. The resulting loss of power caused local blackouts in south Florida. Electrical power was returned to most customers within two hours. (Closed)
- p. PNO-79-74 Comanche Peak Units 1 & 2 - News Articles Reporting Failure to Perform Selected Quality Control Testing for Concrete - A Fort Worth newspaper reported that their investigations had identified problems in the quality control testing program for Comanche Peak construction project. The newspaper investigations covered the same subjects and times as two NRC investigations conducted during 1977 and 1978. Region IV (Dallas) will resolve any newly identified allegations. (Closed)
- q. PNS-79-24 Diablo Canyon Units 1 & 2 - Bomb Threat - No bombs were found and none exploded. (Closed)
- r. PNS-79-25 Diablo Canyon Units 1 & 2 - Bomb Threat - No bombs were found and none exploded. (Closed)

- s. PNS-79-26 General Atomic Co., San Diego, California - Bomb Threat - No bombs were found and none exploded. (Closed)
 - t. PNS-79-27 Susquehanna Units 1 & 2 - Bomb Threats - No bombs were found and none exploded. (Closed)
 - u. PNS-79-28 Diablo Canyon Units 1 & 2 - Bomb Threat - No bombs were found and none exploded. (Closed)
3. The following IE Bulletins were issued:
- a. IE Bulletin 79-04, "Incorrect Weights for Swing Check Valves Manufactured by Velan Engineering Corporation," was issued on March 30, 1979 to all power reactor facilities with an operating license or a construction permit.
 - b. IE Bulletin 79-05, "Nuclear Incident at Three Mile Island," was issued on April 1, 1979 to all Babcock and Wilcox power reactor facilities with an operating license.
 - c. IE Bulletin 79-05A, "Nuclear Incident at Three Mile Island," was issued on April 5, 1979 to all Babcock and Wilcox power reactor facilities with an operating license.
4. The following Information Notices were issued:
- a. IE Information Notice No. 79-06, "Stress Analysis of Safety-Related Piping," was issued on March 23, 1979 to all power reactor facilities with an operating license or a construction permit.
 - b. IE Information Notice No. 79-07, "Rupture of Radwaste Tanks," was issued on March 26, 1979 to all power reactor facilities with an operating license or a construction permit.
 - c. IE Information Notice No. 79-08, "Interconnection of Contaminated Systems with Service Air Systems Used As the Source of Breathing Air," was issued on March 28, 1979 to all power reactor facilities with an operating license and to plutonium processing facilities.
 - d. IE Information Notice No. 79-09, "Spill of Radioactively Contaminated Resin," was issued on March 30, 1979 to all power reactor facilities with an operating license.

OFFICE OF THE EXECUTIVE LEGAL DIRECTOR

ITEMS OF INTEREST

FOR THE WEEK ENDING APRIL 6, 1979

St. Lucie Nuclear Power Plant, Unit No. 2

On April 5, 1979, the Appeal Board in St. Lucie 2 issued a Memorandum and Order concerning (1) the soundness of the St. Lucie 2 steam generator tubes, and (2) the stability of the Applicant's electrical grid and the adequacy of the St. Lucie emergency power systems generally. The Appeal Board followed the same approach as in Seabrook in finding that (1) the Applicant is taking positive measures to deal with the problem of maintaining steam generator tube integrity, and (2) these measures are appropriate ones, given the present understanding of the nature and root of the problem. The Appeal Board reminded all parties that if the steam generator tube issue is not resolved to the satisfaction of all concerned, a further opportunity to examine the question at a hearing will occur when the application for operating licensing is filed. With respect to the question of the electrical grid stability and emergency power systems, the Appeal Board indicated its intent to conduct an evidentiary hearing on this issue in south Florida. Prior to establishing a schedule for that hearing, the Appeal Board instructed the Staff and the Applicant to prepare answers to a number of questions set forth in their Memorandum and Order.

North Anna Nuclear Power Station, Units 1 and 2

On April 5, the Appeal Board denied a petition to intervene filed by the Union of Concerned Scientists in connection with an evidentiary hearing before the Appeal Board regarding North Anna 1 and 2. The Appeal Board found that UCS lacked standing since it failed to particularize how interests of members might be adversely affected by the outcome of the hearing. Without deciding the separate issue of whether the Appeal Board has the authority to grant to a non-party full participational rights in a hearing as an amicus curiae, it ruled that such relief was not warranted for UCS in this case since an existing party had indicated that it would participate fully on all issues.

ENCLOSURE G

ITEMS OF INTEREST
OFFICE OF INTERNATIONAL PROGRAMS
WEEK ENDING APRIL 6, 1979

INTERNATIONAL COOPERATION

Foreign Interest High in Three Mile Island Incident

Several foreign technical expert teams have come to NRC and more are on the way to learn what they can about the Three Mile Island Incident. IP has been advising callers that such teams will be welcomed and will be given as much information as possible, but that we believe it is unlikely that detailed conclusions from the incident investigations will be available for a matter of weeks.

To date, teams from the following countries and international organizations have arrived at NRC:

FRG (2 representatives)	Italy (3)
France (3)	EC (2)
The Netherlands (3)	Spain (3)
Denmark (2)	Belgium (9)
Canada (1)	Japan (4)
IAEA (2)	Taiwan (2)

IP has also been notified that Argentina and Korea can be expected later.

Additionally, the following local Embassies, aware of the import of the incident and in conjunction with, or in lieu of, visits by technical teams from their own countries, have initiated and maintained close contact with IP:

Japan	Belgium	South Africa
France	Taiwan	India
FRG	Canada	Korea
Sweden	Australia	Finland
UK	Austria	Argentina
Italy	The Netherlands	Denmark
Spain		

On April 3, IP arranged, and D. Thompson of IE presented, a 1½ hour briefing on the Three Mile Island incident. It was attended by 30 foreign representatives from 18 countries and international organizations. Arrangements were also made for briefings at 10:00 a.m. April 6 on Emergency Planning Operations for the TMI incident (by H. Collins, SP) and at 2:00 a.m. April 6 on design and operation of the B&W reactor systems (by R. Benedict of NRR).

ENCLOSURE H

In coordination with the NRC center at Three Mile Island, IP arranged a trip on April 5 for foreign safety experts to visit Middletown and be briefed by H. Denton on the Three Mile Island situation. Administrative assistance was also provided by Metropolitan Edison public relations. IP staff accompanied the bus load of about 35 persons from 12 countries and two international organizations including foreign experts sent here especially because of the incident, as well as representatives from the local Embassies.

Nuclear Sabotage

The Associated Press has reported from France that on April 6, at 3:00 a.m., saboteurs set off three plastic charges at a nuclear industrial plant near the Mediterranean town of Toulon. The blasts destroyed a metallic block to hold atomic batteries; equipment that had been fabricated for Belgium to load nuclear fuel into a reactor; and a cover for a storage container for radioactive materials that was ordered for a West German nuclear power plant.

Foreign Reports

The following foreign reports were received by IP during the week of April 2-6. For further information, contact Ann McLaughlin (X27788).

(** indicates report is available in English.)

From Canada:

New Pages on the Safety Report for Pickering Generating Station B.**

From France:

Operating Data for French Reactors - January 1979.

EXPORT/IMPORT AND INTERNATIONAL SAFEGUARDSWestinghouse's Views Concerning Implementation of President's Executive Order

Mr. Mort Hersch of Westinghouse Power Systems Division (Pittsburgh, Pa.) visited IP on April 3 to inform NRC of Westinghouse's views regarding the implementation of the President's January 5, 1979 Executive Order regarding the international reach of NEPA. Also participating in the discussion were T. Norris and V. Moore of NRR.

The first interagency coordinating meeting aimed at developing implementation procedures is being convened by State Department for April 6.

Meeting of IAEA Safeguards Officials with State and ACDA Representatives

On Friday March 30 IAEA Safeguards officials Hans Gruemm and Marco Ferraris participated in a meeting at the State Department with representatives from State and ACDA. IP (Ken Cohen) attended the meeting as NRC's representative. The purpose of the meeting, which was one of a series held with various US agencies, including NRC, was to exchange views on matters associated with International Safeguards. Generally speaking, except for some elaborating, Professor Gruemm (who was the principal spokesman) focused on the same topics which had been discussed during his morning visit at NRC. We understand that State is drafting a summary of the meeting, a copy of which will be provided to other interested NRC offices and the Commission upon receipt.

ENCLOSURE H

OFFICE OF MANAGEMENT AND PROGRAM ANALYSIS

Items of Interest

Week Ending - April 6, 1979

Hart Committee Hearing on Shutdown of Five Reactors

Coordinated responses to 20 questions from minority members of Hart Committee and corrected transcript of its hearing on shutdown of five reactors. Sent to the Office of Congressional Affairs for Commission review.

Transcripts of Glenn Committee Hearing and Bevill Committee Hearing

Edited transcripts of Glenn Committee Hearing of March 14 on Waste Management and Bevill Committee Hearing on Reactor shutdowns as well as coordinated inserts for record of Bevill hearing of March 21. Forwarded to the Office of Congressional Affairs for Commission review.

Statistical Analysis of Power Plant Capacity Factors (NUREG-CR 0382)

Distributed a report entitled "Statistical Analysis of Power Plant Capacity Factors" (NUREG-CR 0382). This report examines the use of statistical methods for analysis of possible trends and patterns associated with a plant's age, size and type.

LERs for Three Mile Island

Provided numerous LER printouts on events pertaining to Three Mile Island to NRR, RES, IE and Commissioner Gilinsky's staff.

Response to Administrative Conference BARAM Report

Prepared letter for Chairman's signature to Administrative Conference commenting on the BARAM Report on the use of cost/benefit analysis by regulatory agencies which was forwarded to the Commission by the EDO.

ENCLOSURE J

OFFICE OF THE CONTROLLER

ITEMS OF INTEREST

FOR THE WEEK ENDING APRIL 6, 1979

FY 1979 Reprogramming

The initial reprogramming request to Congress (use of FY 1978 unobligated balance carryover) has been approved by all five Congressional Committees. (House Appropriations Committee approved everything except the additional travel funds and the other four Committees approved everything.) Revised financial plans and allotments will be issued early next week to reflect these changes.

FY 1979 Operating Plans

The FY 1979 Operating Plans reflecting the resources identified in the second reprogramming paper (SECY-79-53 and 53a) were forwarded to the Commission.

FY 1980 Budget

The Udall Subcommittee markup scheduled for March 29, and then postponed, has not been rescheduled as of this week. The Hart Subcommittee markup is still tentatively scheduled for April 27.

FY 1981-1985 Budget/Plan

As a reminder, your administrative requirements (Section D of Budget Call) are due to ADM by April 27 and the budget/plan to CON by May 25.

Enclosure K

CALENDAR OF SIGNIFICANT EVENTS

For Two Week Period Ending April 23, 1979

April 18	Allens Creek - Prehearing conference
April 19	Susquehanna 1 & 2 - Meeting to discuss physical security plan
April 20	Salem 2 - SER Supplement No. 4 to be issued

ENCLOSURE L

ITEMS APPROVED BY THE COMMISSION - RECEIVED WEEK ENDING APRIL 6, 1979

- A. SECY-79-172 - RESPONSE TO RECOMMENDATIONS IN GAO REPORT ENTITLED "AUTOMATED SYSTEMS SECURITY -- FEDERAL AGENCIES SHOULD STRENGTHEN SAFEGUARDS OVER PERSONAL AND OTHER SENSITIVE DATA " (Commissioner Action Item) (Memo, Chilk to Gossick dated 3/30/79)

This is to advise you that the Commission (with four Commissioners concurring and Commissioner Gilinsky noting without objection) has concurred in the staff's recommendations in the subject paper, subject to modifications as noted below and in the attached pages:

1. The attachment titled "NRC General Response to the Report" should be re-titled "The NRC Computer Security Program" and re-worded as attached.
2. The NRC Manual Chapter 2101, "NRC Security Program," should be included as an attachment as indicated in the attached pages.
3. The letter of transmittal should be modified as attached.

The staff is requested to prepare the letter of transmittal and attachments for the Chairman's signature. (Attachments not included)

- B. STAFF REQUIREMENTS - DISCUSSION OF SECY-79-82 - STAFF COMMUNICATIONS WITH THE COMMISSION, 11:30 A.M., THURSDAY, MARCH 15, 1979, COMMISSIONERS' CONFERENCE ROOM, DC OFFICE (Open to Public Attendance) (Memo, Chilk to Gossick and Kenneke)

The Commission discussed SECY-79-82, but deferred final action pending a further Commission discussion of general organizational matters and a review of existing delegations of authority.

(EDO/OPE) (SECY SUSPENSE: June 14, 1979)

ENCLOSURE M

- C. STAFF REQUIREMENTS - DISCUSSION OF SECY-79-154 AND 79-154A - REPORT TO THE CONGRESS: MEANS FOR IMPROVING STATE PARTICIPATION IN THE SITING, LICENSING AND DEVELOPMENT OF FEDERAL WASTE FACILITIES, 4:45 P.M., THURSDAY, MARCH 29, 1979, COMMISSIONERS' CONFERENCE ROOM, D.C. OFFICE (Open to Public Attendance) (Memo, Chilk to Gossick and Kammerer dated 4/2/79)

The Commission, by a vote of 3-0*, approved the revised report contained in SECY-79-154A, subject to the editorial changes discussed at the meeting, and requested that the final version be transmitted to the President of the Senate, the Speaker of the House, and the NRC Oversight Committees.

(SP/OCA) (SECY Suspense: April 9, 1979)

*Commissioners Gilinsky and Kennedy were not present when this vote was taken; Commissioner Gilinsky had expressed reservations concerning the creation of an Executive Planning Council; Commissioner Kennedy had indicated his prior approval of the Report.

- D. SECY-79-168-- BOARD NOTIFICATION CONCERNS RAISED BY ANTHONY ROISMAN (Commissioner Action Item) (Memo, Chilk to Gossick dated 4/5/79)

This is to advise you that the Commission (with four Commissioners concurring) has approved the proposed response (Enclosure 1 of the subject staff paper) to inquiries from Anthony Roisman on Board Notification Matters, subject to the following changes:

1. Page 2, last paragraph, last sentence - revise sentence to read: "The lack of timeliness in the instances you cited tells us we can do better in putting this policy into practice."
2. Page 3, last paragraph - revise paragraph to read: "In order to improve performance in the near term, however, the Office of Nuclear Reactor Regulation will issue a memorandum to its staff to summarize the facts surrounding the two instances you have cited. In addition, that memorandum will instruct the staff that information requiring more than four weeks to evaluate for processing under the Office Letter No. 19 should be sent to the relevant Boards prior to completing a determination that it puts a new or different light upon an issue before the Boards."

Commissioner Bradford did not participate in this action.

The Office of Nuclear Reactor Regulation was informed of this action by telephone on April 5, 1979.

It is requested that you forward a copy of the letter to the Office of the Secretary after signature and dispatch by the Director of Nuclear Reactor Regulation.

ENCLOSURE M

CALENDAR OF SPEAKING ENGAGEMENTS

APRIL

- 7 First Western Energy Quality Assurance Seminar (ASQC), San Francisco, CA - QA Requirements for the Design and Construction of Nuclear Power Plants - T. W. Bishop
- 12 New Jersey Chapter of the Health Physics Society, Saddlebrook, NJ - Radiation Incidents and NRC RI Public Affairs Practices - K. Abraham
- 19-20 Second Biennial EEI Standards Conference - Theme: Government Interface with the Voluntary Consensus Standards Organizations and EEI's New Posture in the Standards World - Guy Arlotto
- 26 Westinghouse Research Laboratory, Pittsburgh, PA, - The Rasmussen Report Revisited: The Lewis Report on Reactor Safety Assessment - Robert J. Budnitz

MAY

- 1 State of South Carolina Advanced Management Seminar, Greenwood, SC - NRC Concurrence Program for Fixed Nuclear Facilities - J. W. Hufham
- 17 National Classification Management Society Seminar, Jack Tar Hotel, San Francisco, CA - The NRC Security Program - Classification Management in a Regulatory Agency - Raymond J. Brady
- 21 Radioactive Waste Management for Nuclear Power Reactors - Rules, Regulations and Standards, Alexandria, VA - I. C. Roberts
- 23 Annual Records Management Conference of the National Archives, Fredericksburg, VA - Automation of Records Management at NRC - R. Stephen Scott

ENCLOSURE N

April 18, 1979

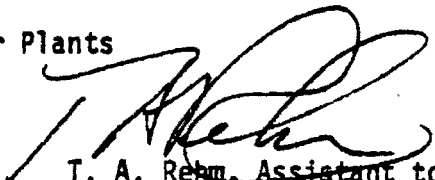
UNITED STATES
NUCLEAR REGULATORY COMMISSION SECY-79-274

INFORMATION REPORT

For: The Commissioners
From: T. A. Rehm, Assistant to the Executive Director for Operations
Subject: WEEKLY INFORMATION REPORT - WEEK ENDING APRIL 13, 1979

A summary of key events is included as a convenience to those Commissioners who may prefer a condensed version of this report.

<u>Contents</u>	<u>Enclosure</u>
Administration	A
Nuclear Reactor Regulation	B
Standards Development	C
Nuclear Material Safety and Safeguards	D
Inspection and Enforcement	E
Nuclear Regulatory Research	F
Executive Legal Director	G
International Programs	H
State Programs	I
Management and Program Analysis	J
Controller	K*
Calendar of Significant Events	L
Items Approved by the Commission	M*
Calendar of Speaking Engagements	N
Status of Nuclear Power Plants	O


T. A. Rehm, Assistant to the
Executive Director for Operations

Contact:
T. A. Rehm
49-27781

DISTRIBUTION:
Commissioners
Commission Staff Offices
Exec. Dir. for Ops.
Regional Offices
ACRS

*No input this week

**Deleted from Commissioners and PDR copy

WEEKLY INFORMATION SUMMARY

Week Ending April 13, 1979

Point Beach Units 1 and 2

Authorization was granted April 4 to increase the storage capacity of the spent fuel pool from 351 to 1502 spent fuel assemblies.

La Crosse

The licensee notified NRC that they discovered some failed fuel during the current reload outage. The licensee is inspecting all assemblies and will notify us in a few days of their findings.

Epidemiologic Studies Related to Three Mile Island

NRC met with HEW, the Pennsylvania Department of Health and the National Cancer Institute to discuss possible epidemiologic studies related to the incident at Three Mile Island. It was agreed that since the reported radiation exposures to the population were so small, there may be little value for a radiation epidemiology study.

Uranium Mine and Mill FES Completed

The Final Environmental Statement for the proposed Pitch Project Uranium Mine and Mill in Colorado has been completed by NRC.

Kerr-McGee West Chicago, Illinois Facility

Kerr-McGee is redoing their decommissioning plan for the West Chicago, Illinois Facility because NRC found the initial plan unacceptable. The Mayor of West Chicago stated that a petition was being sent to Washington, D.C. (possibly NRC) demanding that some action be taken.

Issuance of Order

An Order to Show Cause (Immediately Effective) was issued on April 6 to 18 owners/users of the Model No. NFS-4 packagings believed to be defective.

Emergency Preparedness

On April 16, SP will testify at a hearing on emergency response to nuclear power plant accidents. The hearing is being held by the California Legislature Subcommittee on Energy.

OFFICE OF ADMINISTRATION

Week Ending April 13, 1979

ADMINISTRATION OF THE FREEDOM OF INFORMATION ACT

STATUS OF REQUESTS

	<u>Initial Request</u>	<u>Appeal of Initial Decision</u>
Received	146	13
Granted	66	2
Denied	23	4
Pending	57	7

ACTIONS THIS WEEK

Received

Ellyn R. Weiss,
Sheldon, Harmon, Roisman
and Weiss, on behalf of UCS
(79-100)

Requests all communications between NRC Headquarters, Region I, and Metropolitan Edison, regarding the Three Mile Island Unit 2 accident, and copies of the project managers' log books.

Michael Petruska,
State College, PA
(79-101)

Requests a copy of a report describing nature of work performed in the Breazeale reactor at Penn State University, a summary of precautions taken to ensure safe operation, and any accident evacuation plans.

Ellyn R. Weiss,
Sheldon, Harmon, Roisman
and Weiss, on behalf of UCS
(79-102)

Requests transcripts of all closed Commission meetings from March 28, 1979.

Theodore J. Lowi and
Kathleen A. Selvaggio
New York Civil Liberties
Union
(79-103)

Requests all files maintained under the name of Cornell University or any of its personnel, including all documents relating to past or present contractual agreements or arrangements from 1968.

Thomas B. Cochran,
Natural Resources
Defense Council, Inc.
(79-104)

Requests all documents related to the development, construction, manufacture, sale, or export of high explosive implosion devices and related hardware for research, development, and commercial purposes, other than those related exclusively to weapons research and development, since 1950.

CONTACT: J. M. Felton
492-7211

ENCLOSURE A

Received, Cont'd

Robert Schakne,
CBS News
(79-105)

Requests copies of the examinations and test scores for two named Reactor Operators and two named Senior Reactor Operators at Three Mile Island.

Peter G. Gosselin,
The Transcript
(79-106)

Requests that reportable events or abnormal occurrences reports for the Yankee Rowe plant from 1960 to 1966 be placed in the LPDR.

Martin O. Cohen,
Mathematical Applications
Group, Inc.
(79-107)

Requests a copy of the proposal by Science Applications, Inc. submitted to the NRC in response to RFP RS-RES-78-193, Amendment 1, and any modifications.

Dennis Sanders,
(79-108)

Requests a copy of Dr. Hanauer's "nugget file".

Ellyn R. Weiss,
Sheldon, Harmon, Roisman
and Weiss, on behalf of UCS
(79-109)

Requests each document in Dr. Hanauer's "chron file" from April, 1976 to present.

Stephen M. Feldman,
Feldman & Feldman
(79-110)

Requests information regarding "Thorotrast" (thorium dioxide), its licensing, manufacturers, and licensees.

Richard Ben Cramer,
Knight-Ridder Newspapers
(79-111)

Requests all transcripts and/or reports of NRC staff interviews with personnel at Three Mile Island, and the text and attachments to report by Metropolitan Edison's Internal Investigation Committee, as provided to the NRC.

Rex Hunter,
(79-112)

Requests the final report on the SL-1 accident at the U.S. National Reactor Testing Station, in Idaho Falls, Idaho in January, 1961.

Dean Hansell,
State of Illinois
(79-113)

Requests all documents regarding the decommissioning of the Elk River, Minnesota reactor and the shipment of the decommissioned material to the Sheffield, Illinois low-level nuclear waste site.

Neil Robinson,
Deseret News
(79-114)

Requests all documents regarding nuclear reactors and/or other nuclear projects at the University of Utah.

ENCLOSURE A

Received, Cont'd

(An individual requesting
information about himself)
(79-115)

Requests the results of the tests and examinations as a result of an accident involving radiation exposure at the Nevada Test Site in 1963.

A. Kranish,
Trends Publishing, Inc.
(79-A-6-77-106)

APPEAL TO THE COMMISSION AND TO THE EDO the denial of portions of documents 7, 9, and 99 of the Task Force on Allegations by James Conran, except statistical and other numerical data which may have been withheld.

(An NRC employee)
(79-A-7-79-78)

APPEAL TO THE COMMISSION the denial of a document concerning the disposition of the investigation of [an NRC employee] by OIA.

Granted

Elaine B. Schwelm,
Nuclear Engineering
Company, Inc.
(79-65)

In response to a request for documents relating to the development of Section 20.302(b) of the Commission's regulations, made available 11 documents.

George R. Zachar,
Critical Mass Journal
(79-72)

In response to a request for documents pertaining to attempted and/or successful sabotage efforts at nuclear facilities, made available a list of threats to licensed nuclear facilities and informed the requester other documents subject to this request are located in the PDR.

Winnifred F. Sullivan,
Keck, Mahin & Cate
(79-75)

In response to a request for documents concerning delays in construction of the LaSalle plant, and information regarding contracts to reload fuel, made available 20 documents, and informed the requester other documents subject to this request are available at the Region III office.

Nancy Kesler,
The News-Journal Company
(79-83)

In response to a request for access to licensee event reports, inspection reports, and the evacuation plan for the Salem plant, informed the requester the documents subject to this request are located at the NRC Local Public Document Room in the Salem Free Public Library, Salem, New Jersey.

ENCLOSURE A

Granted, Cont'd

William G. Margetts,
Government R&D Report
(79-90)

In response to a request for a copy of a mailing list maintained by the NRC for public announcements to the research and development community, sent a copy of NUREG-0550, Revision 1, "Standard Distribution for Unclassified U.S. NRC Publications", January 1979.

Barbara J. BenseI,
FOI Services, Inc.
(79-91 & 79-92)

In response to requests for a list of the names and addresses of "companies doing radiation sterilization in Puerto Rico" and a list of companies "licensed to build facilities for radiation sterilization in Puerto Rico", informed the requester the NRC has no records subject to her requests.

Denied

(An NRC employee)
(79-78)

In response to a request for a copy of the disposition of the investigation of [an NRC employee] by OIA, and the final action taken by the Commission on this matter, denied one document in its entirety, disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

ENCLOSURE A

DIVISION OF CONTRACTS

Week Ending April 13, 1979

PENDING COMPETITIVE REQUIREMENTS

1. RFP RS-RES-79-193
Title - Steam Generator Tube Rupture Iodine Transport Mechanisms
Description - Under Task I, the contractor shall experimentally measure the amount of atomization and characterize the drop size distribution of superheated water flashing through a crack-like orifice into a saturated steam environment.
Period of Performance - One year
Sponsor - Office of Nuclear Regulatory Research
Status - Solicitation to be issued on or about April 30, 1979.
Due date for submission of proposals - May 31, 1979.
2. RFP RS-OIE-79-261
Title - General and Refresher Courses in Concrete Technology and Codes
Description - This technical assistance is required by the Office of Inspection and Enforcement to provide NRC personnel the detailed training in concrete technology and the applicable codes necessary to permit them to conduct in-depth inspection at NRC licensed facilities under construction or modification.
Period of Performance - Eighteen months
Sponsor - Office of Inspection and Enforcement
Status - Solicitation being developed.

PROPOSALS UNDER EVALUATION

1. RFP RS-NMS-79-028
Title - Development of Improved Techniques for Analyzing Material Control and Accounting Data
Description - Assist the NRC in applying the inventory difference simulation model to two major operating strategic special nuclear material fuel cycle facilities designated by the NRC.
Period of Performance - Eight and one-half months
Sponsor - Office of Nuclear Material Safety and Safeguards
Status - Best and Final Offers received April 3, 1979. Revised proposals sent to panel members for evaluation April 4, 1979.

ENCLOSURE A

2. RFP RS-NRR-79-134

Title - Tearing Stability Analyses for Light Water Reactor Piping

Description - The contractor shall perform elastic-plastic tearing stability analyses for LWR piping using various anticipated and postulated flow sizes and stress conditions. The NRC will use the results of this program to determine if unstable ductile crack extension will occur for the anticipated and postulated flow and stress conditions for LWR piping.

Period of Performance - One and one-half years

Sponsor - Office of Nuclear Reactor Regulation

Status - Proposals submitted to panel for evaluation on April 10, 1979.

CONTRACTS CLOSED OUT

(All administrative action complete and final payment made)

<u>Contract No.</u>	<u>Organization</u>	<u>Close Out Date</u>
AT(49-24)-0128	Rand Corp.	04/06/79
AT(49-24)-0228	Lulejian & Assoc.	04/06/79
AT(49-24)-0040	Charles River Assoc.	03/21/79
AT(49-24)-0001	Charles River Assoc.	03/21/79
NRC-02-77-150	TRW, Inc.	01/29/79
NRC-02-77-086	R&D Assoc.	01/29/79

ENCLOSURE A

ITEMS OF INTEREST
DIVISION OF SECURITY
WEEK ENDING APRIL 13, 1979

On April 9, 1979, a representative of the Division of Security accompanied representatives of the Office of Nuclear Reactor Regulation (NRR) to Fort St. Vrain, Denver, Colorado in order to discuss proposed 10CFR Parts 95 and 25 and their potential impact on the Licensee and their security program.

During the first quarter of 1979, the Information Security Branch expended over 800 manhours conducting classification/declassification of over 8,500 pages of information. A major portion of these 8,500 pages of information was subject to Freedom of Information Act Requests.

ENCLOSURE A

DIVISION OF TECHNICAL INFORMATION AND DOCUMENT CONTROL*

Week Ending April 13, 1979

TRANSLATIONS

The following translations were received by the Division of Technical Information and Document Control during the week of April 9 - 13, 1979. Copies of these translations will be available in the Library.

German

Compilation of the Safety Technology Design of A Nuclear Power Plant with Boiling Water Reactor Type 72 and of the Radiation Exposure During Operation. Phase 1. Published by the Bundesminister des Innern, F. R. Germany. June 1976. 29 pages. Cost of translation: \$1,000.00. TIDC 526.

PHDR 2 - 78. High Pressure Reactor -- Safety Program. "Non-Destructive Testing and Material Studies for the Determination of the Initial Status of the High Pressure Reactor Pressure Vessel." W. Schmulling. (HDR Safety Project). Nuclear Research Center, Karlsruhe, F.R. Germany. July 1978. 116 pages. Cost of translation: \$364.00. TIDC 541.

Japanese

JAERI-M 7982. Preliminary Calculation for Fission Products Generation and Accumulation in Different Types of Fuel Rods by Computer Code FPRM-1. Nasumi, Ishiwatar. Japan Atomic Energy Research Institute, Tokai-Mura, Naka-gun, Ibaraki-Ken, Japan. November 1978. 21 pages. Cost of translation: \$651.04. TIDC 551.

JAERI-M 7983. Release of Fission Products from a Fuel Rod with an Artificial Hole Through Cladding Irradiated in an In-Pile Water Loop (No.2). Nasumi, Ishiwatar. Japan Atomic Energy Research Institute, Tokai-Mura, Naka-gun, Ibaraki-Ken, Japan. November 1978. 23 pages. Cost of translation: \$540.00. TIDC 552.

*This entry deleted from PDR copy.

ENCLOSURE A

OFFICE OF NUCLEAR REACTOR REGULATION

WEEKLY ITEMS OF INTEREST
(Week Ending April 13, 1979)

Point Beach Units 1 and 2

Authorization was granted April 4, 1979 to increase the storage capacity of the spent fuel pool from 351 to 1502 spent fuel assemblies. A hearing was originally scheduled on this matter, but was dismissed when a settlement agreement was entered into among intervenor (Lakeshore Citizens for Safe Energy), licensee (Wisconsin Electric Power Company) and the NRC staff.

St. Lucie Unit 1

Contrary to earlier plans, Florida Power & Light Company has notified us that they do not plan to chemically clean the St. Lucie steam generators during the upcoming refueling outage. They believe that further testing is required to support the feasibility and to justify the expense of chemical cleaning.

La Crosse

OI&E Region III notified the Project Manager on 4/6/79 that the licensee has discovered some failed fuel during the current reload outage. The first fuel assembly removed from the core had a six inch length of a fuel pin missing. The licensee thought it was damaged during removal. The missing piece is thought to be retrievable. The assembly has a relatively high burnup (~14,500 MWD/MTU); it was scheduled to be removed from the core this refueling. Several other assemblies show some signs of degradation. The licensee is continuing to inspect all assemblies and will notify us in a few days of their findings.

ENCLOSURE B

OFFICE OF STANDARDS DEVELOPMENT

IMPORTANT EVENTS FOR THE WEEK ENDING APRIL 13, 1979

1. Epidemiologic Studies Related to Three Mile Island Incident: On April 5, 1979, Robert Goldsmith and Robert Baker met with Dr. Gary Stein of the Center for Disease Control, HEW, and Dr. George Tokuata of the Pennsylvania Department of Health to discuss possible epidemiologic studies related to the incident at Three Mile Island. The preliminary plan developed by Dr. Tokuata includes the following aspects:
 - A. Development of an "impact area population registry" including all persons residing within a five-mile radius of the plant. A "control registry" including persons residing some 50 miles upstream will also be developed.
3. Planned observational studies of health impacts including:
 - (1) pregnancy outcome
 - (2) mortality among the aged
 - (3) cytogenetic studies of fetal wastage
 - (4) follow-up of infants
 - (5) possible psychological/stress effects.

It was stressed that the doses received by the population were too low to be able to detect radiation-related health effects. However, the proposed studies would assess health effects due to the incident, per se, with potential application of future emergency planning. Additional funding is required for these studies and the possibility of financial backing from the Federal government (particularly HEW or NRC) was discussed.

On April 6, 1979 another meeting was held at the National Cancer Institute's (NCI) offices in Bethesda to discuss the possible followup studies. The meeting was requested by Mark Nelson, CDC. Attending were Mark Nelson, CDC; Marvin Rosenstein, FDA/BRH; Charles Land and John Boice, NCI; and Michael Parsont and Robert Goldsmith, SD.

It was the consensus of the attendees that, since the reported radiation exposures to the population in the area were so small, that there may be little value for a radiation epidemiology study. If any radiation studies were to be performed, however, the emphasis should be on dosimetry.

[Contact: R. Goldsmith]

ENCLOSURE C

2. Meeting of NRC/DOT/FHWA/FERC Staff on Seismic Criteria for LNG Facilities: On April 9, 1979, at the request of the Department of Transportation, a meeting was held between NRC, DOT, Federal Highway Administration, and the Federal Energy Regulatory Commission staff. The purpose of the meeting was to open staff level exchange of technical information on seismic issues. The meeting focused on the seismic aspects of a proposed DOT regulation on Liquefied Natural Gas (LNG) facilities published in the Federal Register on February 8, 1979. Several major differences exist between the DOT and NRC rules. The most substantive being the emphasis given in the DOT rule on the use of probabilistic analysis. A major concern expressed by the NRC staff in using such analysis is the need for adequate data and more rigorous guidance to implement the procedures in the rule. The DOT staff expressed a desire for additional meetings with the NRC staff and indicated that they plan to request through appropriate channels official NRC comments on their proposed rule.
[Contact: G. Robbins]

3. Publication of Proposed Rule on Radiation Safety Committees for Hospitals: On April 9, 1979 a proposed amendment to Part 35 was published in the Federal Register that would require hospitals to appoint a radiation safety committee rather than the presently required medical isotopes committee. the proposed radiation safety committee would focus on radiation safety and have a simplified membership which would be easier to recruit for smaller hospitals. The 60-day comment period ends on June 8, 1979.
[Contact: Ed Podolak]

4. On April 10, 1979, staff from SD and NMSS, together with representatives from the Department of Energy and Department of Transportation, met with Dr. Rudi Neider, principal organizer of the 6th International Symposium on Packaging and Transportation of Radioactive Material (PATRAM '80) to be held in Berlin, FRG on November 10-14, 1980. Dr. Neider is from the Bundesanstalt fur Material Prufung (BAM), the German equivalent of our National Bureau of Standards. Both DOE and DOT expect to actively participate in the planning, preparation, and operation of the Symposium. NRC representatives tentatively declined the informal invitation to actively participate in the planning phase.

SD staff met April 11, 1979, with Mary Daly, U. S. Attorney representing NRC and other Federal agencies in a 1975 lawsuit brought by New York State to halt the air transportation of special nuclear material. Ms. Daly is the new principal attorney on this case, and was seeking background information on the case and details concerning areas at issue.

ENCLOSURE C

Publications Issued During the Week of April 9-13, 1979

Reg. Guide 3.43, Rev. 1 - Nuclear Criticality Safety in the Storage of Fissile Materials [Issued to Reflect Comments]

Division 2 - Research and Test Reactors - Table of Contents

Regulatory Guides to be Issued in the Near Future

1. Title: Qualification Tests of Electric Cables and Field Splices for Light-Water-Cooled Nuclear Power Plants (Reg. Guide 1.131, Rev. 1)

Expected Issuance Date: June 1979

Description: Describes a method acceptable to the NRC staff for complying with the Commission's regulation with regard to qualification testing of electric cables and field splices for service in light-water-cooled nuclear power plants to assure that the cables, and connections can perform their safety-related functions. The fire test provisions of this guide do not apply to qualification for an installed configuration.

Contact: A. S. Hintze
443-5913

2. Title: A-C Power Systems (Onsite) - Rev. 2 to SRP Section 8.3.1

Expected Issuance Date: June 1979

Description: Standard Review Plan (SRP) 8.3.1, "A-C Power Systems (Onsite)" includes those power sources, distribution systems, and vital supporting systems provided to supply power to safety-related equipment and capable of operating independently of the offsite power system.

Contact: A. S. Hintze
443-5913

ENCLOSURE C

3. Title: Selection, Design, and Qualification of Diesel-Generator Units Used As Standby (Onsite) Electric Power Systems at Nuclear Power Plants (Reg. Guide 1.9, Rev. 2)

Expected Issuance Date: August 1979

Description: This guide describes a method acceptable to the NRC staff for complying with the Commission's requirements that diesel-generator units intended for use as onsite power sources in nuclear power plants be selected with sufficient capacity and be qualified for this service.

Contact: A. S. Hintze
443-5913

ENCLOSURE C

OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

Items of Interest

Week Ending April 13, 1979

Homestake FES Completed

The Final Environmental Statement for Homestake Mining Company's proposed Pitch Project Uranium Mine and Mill, Saguache County, Colorado, has been completed by the Uranium Recovery Licensing Branch and sent to the U.S. Forest Service who will publish the statement. The statement was prepared by NRC staff in response to requests by the Forest Service and the state of Colorado. The proposed 600-ton per day mill will use a carbonate leach process to extract the uranium. The mill tailings will be buried on-site at the head end of a natural valley. The statement includes recommended conditions for stabilization and reclamation of the tailings area and decommissioning of the mill site as well as other conditions for the protection of the environment.

Meeting re Draft NRC High-Level Waste Program Plan

On April 6, 1979, J. B. Martin and J. C. Malaro met with Dave Moeller and Steve Larowski (ACRS) to discuss the draft NRC High-Level Waste Management Program Plan. The discussion was in preparation of a presentation of the plan to the ACRS Waste Management Subcommittee at their April 18-20, 1979, meeting in Richland, Washington. Copies of the draft plan have been sent to members of the ACRS Subcommittee for their review and comments.

Maxey Flats Site

The state of Kentucky has advised NECO that they do not wish to renew their contract to operate the Maxey Flats site (expires June 30, 1979). The Finance Resource Department of Kentucky contacted the Low-Level Waste Licensing Branch for a list of our BOA contractors. The names of the firms on the list qualified for all tasks were provided, however, specific recommendations relative to the quality of each firms' work performance was not. Kentucky plans to solicit bids from NECO, Chem Nuclear, Dames & Moore, NUS, and some of the firms on our BOA list within the next few weeks.

ENCLOSURE D

Kerr-McGee West Chicago, Illinois Facility

A meeting was held on April 10, 1979, with representatives of Kee-McGee Chemical Corporation (led by Mr. J. L. Reiney, President) to discuss the decommissioning plan for the West Chicago, Illinois site submitted to us in December 1978. Kerr-McGee was informed that the decommissioning plan was unacceptable and would have to be redone. A schedule for resubmission of the plan will be developed after Kerr-McGee has time to review the comments and to define the work needed to meet our requirements.

The Mayor of West Chicago, Illinois, was informed of the status of the Kerr-McGee submittal and he stated that he had instructed the city attorney to take appropriate legal action against Kerr-McGee. He also stated that a petition signed by approximately 1,000 concerned citizens was being sent to Washington, D. C., demanding that some action be taken. He did not know whether it was going to Congress, EPA or NRC, but he assumed it would end up at NRC.

Visit by FRG Representatives (April 10-11, 1979)

Members of the Division of Safeguards met with two representatives of the FRG Ministry of the Interior to discuss areas of mutual interest regarding transportation of spent reactor fuel and research related to sabotage vulnerability of spent fuel shipping casks. Additional discussions were held pertaining to the broader areas of material accounting, physical protection, and international safeguards.

Peer Review of Use of Strategic Analysis

Dr. Ralph Lumb, NUSAC, presented the findings and recommendations of the Peer Review Panel on application of Strategic Analysis to material control and accounting. Dr. Lumb distributed a draft copy of the conclusions and recommendations of a consensus report of the Peer Review Group. The final report will be delivered to the NRC on April 15 for publication. The conclusion of the Review Group was that game-theory should have broad utility in the safeguards program. The present formulation, however, is not sufficiently convincing in composition and behavior to be suitable for application at this time. There needs to be a research, development, test and evaluation effort oriented toward the

ENCLOSURE D

development of a convincing game-theoretic approach with an understanding of the sensitivity of each component in the formulation that contributes to the solution. The Peer Review Group recommended that NRC take steps to improve the game theory as a decision making tool. The group felt even if the attempt to develop game theoretic approach fails to yield a fully operational method, the effort will at least force the systematic and logical assessment of how NRC should employ information from material accounting in determining what action to take in response to an inventory difference.

Issuance of Order

An Order to Show Cause (Immediately Effective) was issued on April 6, 1979, to eighteen (18) owners/users of the Model No. NFS-4 packagings suspending the general license for their use. During a meeting on March 28, 1979, NMSS was informed by Nuclear Assurance Corporation (NAC) that a cask NAC sold to Duke Power Company has one or more shells which is warped or bowed in an apparent violation of NRC Certificate of Compliance No. 6698. The safety implications of this reported defect are not known; however, this could represent a substantial reduction in the effectiveness of the packaging. The order also requires the owner/user to evaluate deviations from the approved design, and Commission approval prior to returning of the packagings to service. A meeting has been scheduled for April 17, 1979, to discuss planned physical measurements with NAC, Nuclear Fuel Services, Duke Power Company, I&E, and NMSS.

Misadministration

On April 6, 1979, NMSS received a telephone report from a consultant/physicist that a patient being treated for bone metastases had been given 3 millicuries of phosphorus-32 as colloidal chromic phosphate, rather than the intended soluble phosphate. The absorbed dose to the liver, the organ in which the colloid form concentrates, is estimated to be about 900 rads. The patient has been informed of the misadministration. The radioactive drug was properly labeled by the manufacturer. The physicist would not identify the name of the hospital.

On April 11, 1979, an NRC staff member telephoned the hospital at which it was believed the incident occurred and the hospital staff confirmed that a misadministration had occurred. On April 13, 1979, an NRC staff member visited the hospital. The initial telephone report to Headquarters on the morning of April 13 was that the hospital personnel denied the misadministration occurred at the hospital and that a review of the records does not indicate a misadministration. The NRC staff member is continuing to look into the matter.

ENCLOSURE D

OFFICE OF INSPECTION AND ENFORCEMENT

Items of Interest

Week Ending April 13, 1979

1. Preliminary Notifications relating to the following actions were dispatched during the past week:
 - a. PNO-79-67K through 67T Three Mile Island Unit 2 - Nuclear Incident at Three Mile Island Unit 2 - These Preliminary Notifications were issued to provide updated status information regarding the incident.
 - b. PNO-79-75 LaCrosse - Abnormal Fuel Cladding Degradation - During removal of a fuel assembly, a 6-inch section of fuel pin fell out of the assembly and lodged upon another fuel assembly. (Closed. See PNO-79-80, below)
 - c. PNO-79-76 Farley Unit 1 - Injury to Workman in Containment Building - A pipe engineer working in the Unit 1 containment building fell 38 feet. Unit 1 has been in cold shutdown for refueling for about 30 days. The worker was taken to a hospital and was subsequently released. He has returned to work. (Closed)
 - d. PNO-79-70 (Misnumbered) Crystal River Unit 3 - Unanticipated Load Reduction - While operating at 100% power, leakage from one reactor coolant pump increased. The pump was shut down and power reduced to 75%. When the licensee subsequently attempted to change the turbine load limiter control from 100% to 75%, the load limiter instantaneously dropped to zero demand. This resulted in an unexpected down-ramp of turbine control valves and electrical output decreased from 600 to 150 Mwe. Reactor pressure rose to 2250 psig and was quickly reduced to 1970 psig by the pressurizer relief valves. The pressurizer stabilized at 2100 psig in about two minutes. The main steam safety valves opened to relieve excess secondary steam pressure. During the transient, a 65-inch swing in pressurizer level was experienced. All safety features functioned as expected. The licensee plans to continue operation at 75% power until the refueling outage on April 24, 1979 when the turbine load limiter and the pump seal will be repaired. (Closed)
 - e. PNO-79-77(NRR) Review of Operational and System Problems Identified During the Three Mile Island Incident - It has been determined that in some Westinghouse designed facilities, coincident low pressurizer pressure and low pressurizer level signals are required to actuate safety injection. In addition, preliminary analyses of a small break in the pressurizer indicate that pressurizer level may remain high while pressurizer pressure continues to decrease. In such a case, safety injection would not automatically occur, and reliance by the operator on pressurizer level could possibly lead to erroneous actions. On April 7, 1979, Westinghouse advised owners of plants of this information. (Closed)

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- f. PNO-79-78 Indian Point Unit 3 - Unit Shutdown Due to a Feedwater Valve Malfunction - On April 10, 1979, Unit 3 shut down due to a feedwater regulating valve malfunction which caused the reactor to trip as a result of low steam generator water level. All systems functioned normally. The cause of the valve malfunction was a crack in the 1/4" instrument air line between the signal converter and the valve positioner. Repairs were made and the unit was restarted. (Closed)
 - g. PNO-79-79 Abbott Laboratories, North Chicago, Illinois - Lost Source of Nominal 0.992 Millicuries of Iodine-125 During Shipment - The licensee reported that a shipment of about one millicurie of iodine-125 in liquid form was apparently lost. The material was shipped from the licensee's facilities on March 19, 1979. The material was consigned to the Charleston Area Medical Center, Charleston, West Virginia. It is suspected that the shipment was delivered to another hospital in the Charleston, West Virginia area and has not been reported. Efforts to locate the shipment have been unsuccessful. (Closed)
 - h. PNO-79-80 LaCrosse - Abnormal Fuel Cladding Degradation - A second section of a fuel pin fell out of an fuel assembly when removing the fuel assembly. (See PNO-79-75.) Both fuel pin sections have been recovered. Six other assemblies had visual indications of cracking and three had possible cracking indications. All fuel with defects will not be reinstalled in the core. The licensee plans to meet with NRR to discuss this matter. (Closed)
 - i. PNS-79-29 Diablo Canyon Units 1 & 2 - Bomb Threat - No bombs were found and none exploded. (Closed)
 - j. PNS-79-30 Hartsville Nuclear Plant - Bomb Threat - No bombs were found and none exploded. (Closed)
 - k. PNS-79-31 LaSalle - Bomb Threat - No bombs were found and none exploded. (Closed)
 - l. PNS-79-32 Diablo Canyon Units 1 & 2 - Bomb Threat - No bombs were found and none exploded. (Closed)
2. IE Bulletin 79-06, "Review of Operations Errors and System Misalignments Identified During the Three Mile Island Incident," was issued on April 11, 1979, to all pressurized water power reactor facilities with an operating license except B&W facilities.

ENCLOSURE E

OFFICE OF NUCLEAR REGULATORY RESEARCH

Important Items - Week Ending April 14, 1979

Power Burst Facility

The Power Burst Facility performed three nuclear blowdown tests to scope the expected behavior of LOFT reactor fuel elements in planned LOFT tests L2-3, L2-5 and L2-4. Pretest predictions suggested increasingly severe clad overheating and collapse of the unpressurized LOFT fuel rod cladding during the blowdown portions of the three LOFT tests, but measured peak clad temperatures were 180°F to 360°F below predicted peak clad temperatures. There was very little evidence of clad damage to the unpressurized rods even at the most severe test conditions. The three PBF tests are described as follows:

- . PBF test LLR-3 was run at peak rod powers of 40kW/m (12 kW/ft) and with the same peak rod power, loop depressurization cycle and reactor scram time that is planned for LOFT test L2-3. The peak clad temperatures of the four LLR-3 test fuel rods ranged from 1230°F to 1305°F, about 180°F lower than pretest calculations had predicted. Based on these test results, the unpressurized LOFT fuel rods would undergo little, if any, damage at this peak clad temperature for the planned LOFT loop depressurization cycle.
- . PBF test LLR-5 was then run at peak rod powers of 40kW/m (12 kW/ft), but reactor scram was delayed until two seconds after the initiation of blowdown, in order to increase the fuel rod stored energies and peak clad temperatures. This is the same set of test conditions planned for LOFT test L2-5. The peak clad temperatures of the four LLR-5 test fuel rods ranged from 1340°F to 1375°F also about 180°F lower than predicted and low enough that an unpressurized LOFT rod subjected to the same loop pressure-clad temperature cycle would undergo very little clad damage.

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PBF test LLR-4 was run at peak rod powers of 53kW/m (16kW/ft) and with reactor scram delayed until three seconds after the initiation of blowdown. PBF test LLR-4 is the companion test to the planned LOFT test L2-4, but without delayed scram in L2-4. The peak clad temperatures of the LLR-4 test rods were from 1565°F to 1665°F, about 270°F lower than had been predicted. There was, however, an unplanned coolant valve cycling that caused the four LLR-4 test rods to quench early and keep the peak clad temperatures from rising perhaps an additional 90°F. At these temperatures and associated loop pressures, some LOFT fuel rod cladding collapse would be likely.

LOFT

Preparations are continuing for the second nuclear experiment in LOFT (L2-3) scheduled for May 1. This test will simulate an accident involving the sudden rupture of a coolant inlet pipe when the reactor is operating at a power level of about 38MWt, which corresponds to the nominal power density in a commercial LWR (12kW/ft linear heat generation rate).

The plant is being raised to operating temperature and pressure, and while hot the reactor will be taken critical and the secondary system will be checked out. After these checkout tests, the plant will be shut down for additional maintenance before the L2-3 experiment.

ENCLOSURE F

OFFICE OF THE EXECUTIVE LEGAL DIRECTOR

ITEMS OF INTEREST

FOR THE WEEK ENDING APRIL 13, 1979

EPA Proceeding on Health Effects of Radioactive Pollutants

On April 11, 1979 EPA published in the Federal Register a notice requesting members of the public and Federal agencies to submit information and data on the possible health effects of radioactive air pollutants to enable the Administrator to determine whether or not radioactive pollutants may reasonably be anticipated to endanger public health. The notice provides an opportunity to request an informal public hearing. Such requests must be received by EPA by April 23, 1979. If an informal public hearing is called, it will be held on May 16, 1979. Written responses to the notice are due on May 22, 1979.

ENCLOSURE G

ITEMS OF INTEREST
OFFICE OF INTERNATIONAL PROGRAMS
WEEK ENDING APRIL 13, 1979

INTERNATIONAL COOPERATION

Foreign Response to TMI Situation

IP is making arrangements for eight official delegations (from the Governments of the FRG, Spain, Sweden, Italy, Switzerland, Denmark, Japan and Taiwan) to be briefed by NRR, IE, and SP on Thursday, April 19, on the course and status of the Three Mile Island incident. Several of the groups are investigative teams who will have to submit reports to their respective Parliaments by the first and second weeks of May. Twenty to twenty-five representatives are expected to attend. A visit to Middletown for a short briefing by onsite NRC personnel is also being planned.

Meetings with German Physical Security and Safeguards Experts

Dr. Dietrich Leven and Dr. Wolfgang Wurtinger met with NRC (RES, NMSS, NRR and IP) staff on April 10 and 11 for discussions on two subjects: (a) possible German participation in proposed research at Battelle-Columbus on radioactive releases from spent fuel transportation casks and (b) NRC regulations and experience in safeguards and physical security compared to current and proposed regulations and practice in Germany. Leven and Wurtinger are employees of the GRS in Cologne, FRG, and are under contract to the Ministry of Interior, the ministry with which NRC has its regulatory exchange agreement. Arrangements were made by IP and DOE for Leven and Wurtinger to visit LLL, LASL and Sandia following their visit to NRC.

Foreign Reports

The following foreign reports were received at IP during the week of April 9-13. For further information contact Ann McLaughlin (X27788). (** indicates report is in English.)

From West Germany

1. GRS-13 Safety Container From Nuclear Power Plants
2. GRS-23 Policy Statement Regarding Nuclear Energy Questions. The Nuclear Fuel Cycle Including Essential Safety Aspects.

ENCLOSURE H

OFFICE OF STATE PROGRAMS

ITEMS OF INTEREST

WEEK ENDING APRIL 13, 1979

State Agreements

A State Agreements staff member and representatives of NMSS will meet with Kansas officials on April 17 and 18 to discuss technical assistance NRC may provide to the State in evaluating a pending application for a low level waste storage facility.

Emergency Preparedness

The California Legislature Subcommittee on Energy will hold a hearing on Monday, April 16, on emergency response to nuclear power plant accidents. Robert DeFayette, SP will testify at this hearing for NRC.

On April 11th Hal Gaut met with representatives of Maryland State Emergency Services and Department of Health to discuss development of the final version of the State Radiological Plan. On Monday, April 16th, he will meet with the State of Minnesota for the same purpose. IE Region III staff working with SP on Radiological Emergency Response Planning, met with the Governor of Illinois and his key staff on April 9, 1979 to determine the future assistance required by the State in upgrading their planning effort.

ENCLOSURE I

OFFICE OF MANAGEMENT AND PROGRAM ANALYSIS

Items of Interest

Week Ending - April 13, 1979

Three Mile Island Chronology

Prepared a chronology for EDO and Chairman describing the Three Mile Island incident and NRC's response. Provided additional support to the Executive Management Team.

Questions from Commissioner Gilinsky

Responded to questions from Commissioner Gilinsky's office on population distribution at nuclear power plants and other subjects.

Question from Commissioner Ahearne

Analyzed U.S. and Japan data on time-to-issuance of nuclear reactor construction permits and construction durations. The purpose of the paper was to quantify and compare practices in the two countries with respect to patterns and trends in the time required to license and construct nuclear power reactors.

Questions from Senator Glenn

Edited and coordinated answers to questions on low-level radiation from March 6-7 hearings.

ENCLOSURE J

CALENDAR OF SIGNIFICANT EVENTS

For Two Week Period Ending April 30, 1979

April 18	Allens Creek - Prehearing Conference
April 19	Susquehanna 1 & 2 - Meeting to discuss physical security plan
April 20	Salem 2 - SER Supplement No. 4 to be issued
April 24	New Haven 1 & 2 - Meeting to discuss reactor safeguards
April 25-26	Palo Verde 1, 2 & 3 - Caseload Forecast Panel Site Visit

ENCLOSURE L

ITEMS APPROVED BY THE COMMISSION - RECEIVED WEEK ENDING APRIL 13, 1979

A. SECY-79-235 - POSSIBLE DETERMINATION OF AN EXTRAORDINARY NUCLEAR OCCURRENCE AT THREE MILE ISLAND UNIT 2 (Commissioner Action Item) (Memo, Chik to Gossick dated 4/9/79)

This is to advise you that the Commission (with all Commissioners in agreement) has decided that any determination concerning an extraordinary nuclear occurrence should be deferred and that the Commission should not meet at this time to consider Price-Anderson Act implications.

Attached for your information is a copy of a memorandum on this subject from the General Counsel to the Commissioners, dated April 3, 1979. The Commissioners agree with the recommendation and course of action outlined in this memorandum.

The Offices of Nuclear Reactor Regulation and Executive Legal Director were informed of this action by telephone on April 6, 1979.
(Attachment not included)

B. SECY-78-640A - APPROVAL OF A PROPOSED LICENSE TO EXPORT HIGH-ENRICHED URANIUM TO FRANCE (LICENSE APPLICATION NO. XSNMO1232, SECY-78-640) (Commissioner Action Item) (Memo, Chik to Gossick dated 4/9/79)

This is to advise you that the Commissioners have reviewed the subject license to Transnuclear Incorporated. The Commission (with all Commissioners concurring) has accepted your recommendation to export to France 23.058 kilograms of uranium, enriched to 93.3% U-235, in the form of uranium hexafluoride.

In connection with his concurrence, Commissioner Gilinsky noted that Page 4 of the subject paper mentions the possibility of lower enrichment and asked this question: "How low can it go without appreciably degrading performance of the reactor?"

Commissioner Bradford would like a brief description of the physical security measures required for this export.

The Office of International Programs was informed of this action by telephone on April 9, 1979.

It is requested that you accomplish the following:

1. Provide notification of the issuance and delivery of this license to Transnuclear by c.o.b. April 11, 1979.
2. Provide a response to the requests of Commissioners Gilinsky and Bradford through the Office of the Secretary by c.o.b. April 20, 1979.

ENCLOSURE M

C. SECY-79-132 - PROPOSED EXCHANGE OF LWR SAFETY AND REGULATORY INFORMATION AND COOPERATION IN LWR SAFETY RESEARCH WITH THE U.S.S.R. (Commissioner Action Item) (Memo, Chilk to Gossick dated 4/9/79)

This is to advise you that the Commission (with four Commissioners concurring and Commissioner Gilinsky noting without objection) has noted the status of the proposed NRC-Soviet LWR safety exchange and cooperation arrangement, and approved dispatch of the letter, with its accompanying enclosure, to Dr. L. Voronin.

The Office of International Programs was informed of this action by telephone on April 9, 1979.

It is requested that you forward to the Office of the Secretary a copy of the letter after signature and dispatch by the Deputy Director of International Programs.

D. SECY-79-102A - PROPOSED LICENSE TO EXPORT SOURCE MATERIAL TO CANADA (XU-8434, SECY-79-102) (Commissioner Action Item) (Memo, Chilk to Gossick dated 4/10/79)

This is to advise you that the Commissioners have reviewed the subject license to Mitsubishi International Corporation. The Commission (with all Commissioners concurring) has accepted your recommendation to export to Canada 538,511 kilograms of natural uranium concentrates in the form of U_3O_8 .

The Office of International Programs was informed of this action by telephone on April 9, 1979.

It is requested that you provide notification of the issuance and delivery of this license to Mitsubishi by c.o.b. April 12, 1979.

ENCLOSURE M

E. SECY-79-120A - APPROVAL OF PROPOSED LICENSE TO IMPORT LOW ENRICHED URANIUM AS UO_2 (LICENSE APPLICATION ISNM79004) (Commissioner Action Item) (Memo, Chilk to Gossick dated 4/10/79)

This is to advise you that the Commissioners have reviewed the subject license to Exxon Nuclear Company, Inc. The Commission (with all Commissioners concurring) has accepted your recommendation to import from West Germany 27,000 kilograms of uranium, enriched to 5% U-235, in the form of UO_2 pellets.

The Office of International Programs was informed of this action by telephone on April 9, 1979.

It is requested that you provide notification of the issuance and delivery of this license to Exxon by April 12, 1979.

F. SECY-79-639A - APPROVAL OF A PROPOSED LICENSE TO EXPORT HIGH-ENRICHED URANIUM TO THE NETHERLANDS (LICENSE APPLICATION NO. XSNM01212, SECY-78-639) (Commissioner Action Item) (Memo, Chilk to Gossick dated 4/11/79)

This is to advise you that the Commissioners have reviewed the subject license to Transnuclear, Incorporated. The Commission (with all Commissioners concurring) has accepted your recommendation to export to the Netherlands 19.8 kilograms of uranium, enriched to 93.3% U-235, in the form of U_3O_8 .

In connection with his concurrence, Commissioner Gilinsky provided the following comments: "Is the research presently going on in DOE or contractor facilities or anywhere else directly relevant to the conversion of this facility to LEU? Is it absolutely out of the question technically to convert this reactor to lower enriched uranium? It would be useful if the Commission expressed its concern about the need to complete facility attachments."

Commissioner Bradford would like a brief description of the physical security measures required for this export.

The Office of International Programs was informed of this action by telephone on April 10, 1979.

It is requested that you accomplish the following:

1. Provide notification of the issuance and delivery of this license to Transnuclear by c.o.b. April 13, 1979.
2. Provide a response to the comments/requests of Commissioners Gilinsky and Bradford by c.o.b. April 27, 1979.

ENCLOSURE M

G. SECY-78-643A - APPROVAL OF A PROPOSED LICENSE TO EXPORT HIGH ENRICHED URANIUM TO SWEDEN (LICENSE APPLICATION NO. XSNM01248, SECY-78-643) (Commissioner Action Item) (Memo, Chilk to Gossick dated 4/11/79)

This is to advise you that the Commissioners have reviewed the subject license to Transnuclear, Incorporated. The Commission (with all Commissioners concurring) has accepted your recommendation to export to Sweden 17.043 kilograms of uranium, enriched to 93.3% U-235, in the form of uranium hexafluoride.

In connection with his concurrence, Commissioner Gilinsky posed the following questions: "Is the research presently going on in DOE or contractor facilities or anywhere else directly relevant to the conversion of this facility to LEU? Is it absolutely out of the question technically to convert this reactor to lower enriched uranium?"

The Office of International Programs was informed of this action by telephone on April 10, 1979.

It is requested that you accomplish the following:

1. Provide notification of the issuance and delivery of this license to Transnuclear by c.o.b. April 13, 1979.
2. Provide a response to Commissioner Gilinsky's questions through the Office of the Secretary by c.o.b. April 25, 1979.

H. SECY-79-196 - ISSUANCE OF FEDERAL REGISTER NOTICE OF PROPOSED RULEMAKING TO IMPLEMENT SECTION 504 OF THE REHABILITATION ACT OF 1973 TO PREVENT DISCRIMINATION AGAINST THE HANDICAPPED IN FEDERALLY ASSISTED COMMISSION PROGRAMS (Commissioner Action Item) (Memo, Chilk to Gossick dated 4/11/79)

This is to advise you that the Commission (with four Commissioners concurring and Commissioner Gilinsky noting without objection) has approved the staff's recommendations in the subject paper. In connection with his concurrence Commissioner Bradford requested that the staff perform a review of Appendix A to Part 4 to ensure that all NRC grant programs are included. Subsequent to the requested review the staff should prepare the FRN for publication and inform OCA to notify the appropriate Congressional committees.

ENCLOSURE M

I. SECY-79-164 - ABNORMAL OCCURRENCE RECOMMENDATION - EXTORTION ATTEMPT INVOLVING ALLEGED THEFT OF LICENSED MATERIAL (Commissioner Action Item) (Memo, Chilk to Gossick dated 4/11/79)

This is to advise you that the Commission has reviewed the subject paper and (with four Commissioners concurring and Chairman Hendrie non-concurring) concurs with staff's recommendations subject to modification as attached.

The staff should prepare a Federal Register Notice in accordance with the attached comments. OCA will notify the appropriate Congressional Committees.

In his non-concurrence Chairman Hendrie commented in part as follows: "I class this as an appropriate 'Other Event'... Abnormal occurrences, by statute, are 'significant from the standpoint of public health and safety.' This event, to my mind, does not meet that standard. The event does meet one of the subsidiary criteria (theft of SNM) and thus should be included in the Other Events section."

Commissioner Gilinsky commented in his concurrence that it was a marginal decision to classify this as an abnormal occurrence.

Commissioner Kennedy commented in his concurrence in part, "My concurrence in this matter should not be regarded as setting a precedent for the use of criterion example I.C.2 in the future; but rather, it should be regarded as an endorsement of reporting this event as an AO due to the particular circumstances and visibility associated with it. Under other circumstances and in consideration of criterion example I.C.1, I believe that this event would be best characterized as an 'Other Event of Interest'."

Commissioner Ahearne noted in his concurrence, "I agree this is a reasonable description of what happened. I don't understand how this was 'significant from the standpoint of public health and safety.' See e.g., 2nd paragraph of p. 4."

ENCLOSURE M

J. SECY-78-642A - APPROVAL OF A PROPOSED LICENSE TO EXPORT HIGH-ENRICHED URANIUM TO SWEDEN (LICENSE APPLICATION NO. XSNM 01247 SECY-78-642)
(Commissioner Action Item) (Memo, Chilk to Gossick dated 4/11/79)

This is to advise you that the Commissioners have reviewed the subject license to Transnuclear, Incorporated. The Commission (with all Commissioners concurring) has accepted your recommendation to export to Sweden 22.055 kilograms of uranium, enriched to 93.3% U-235, in the form of uranium oxide.

In connection with his concurrence, Commissioner Gilinsky posed the following questions: "Is the research presently going on in DOE or contractor facilities or anywhere else directly relevant to the conversion of this facility to LEU? Is it absolutely out of the question technically to convert this reactor to lower enriched uranium?"

The Office of International Programs was informed of this action by telephone on April 10, 1979.

It is requested that you accomplish the following:

1. Provide notification of the issuance and delivery of this license to Transnuclear by c.o.b. April 13, 1979.
2. Provide a response to Commissioner Gilinsky's questions through the Office of the Secretary by c.o.b. April 25, 1979.

ENCLOSURE M

- K. SECY-78-641A - APPROVAL OF A PROPOSED LICENSE TO EXPORT HIGH-ENRICHED URANIUM TO THE NETHERLANDS (LICENSE APPLICATION NO. XSNM01238, SECY-78-641) (Commissioner Action Item) (Memo, Chilk to Gossick dated 4/11/79)

This is to advise you that the Commissioners have reviewed the subject license to Transnuclear, Incorporated. The Commission (with all Commissioners concurring) has accepted your recommendation to export to the Netherlands 20.5 kilograms of uranium, enriched to 93.3% U-235, in the form of uranium hexafluoride.

In connection with his concurrence, Commissioner Gilinsky provided the following comments: "Is the research presently going on in DOE or contractor facilities or anywhere else directly relevant to the conversion of this facility to LEU? Is it absolutely out of the question technically to convert this reactor to lower enriched uranium? It would be useful if the Commission expressed its concern about the need to complete facility attachments."

Commissioner Bradford would like a brief description of the physical security measures required for this export.

The Office of International Programs was informed of this action by telephone on April 10, 1979.

It is requested that you accomplish the following:

1. Provide notification of the issuance and delivery of this license to Transnuclear by c.o.b. April 13, 1979.
2. Provide a response to the comments/requests of Commissioners Gilinsky and Bradford by c.o.b. April 27, 1979.

ENCLOSURE M

CALENDAR OF SPEAKING ENGAGEMENTS

APRIL

- 19-20 Second Biennial EEI Standards Conference - Theme: Government Interface with the Voluntary Consensus Standards Organizations and EEI's New Posture in the Standards World - Guy Arlotto
- 26 Westinghouse Research Laboratory, Pittsburgh, PA, - The Rasmussen Report Revisited: The Lewis Report on Reactor Safety Assessment - Robert J. Budnitz

MAY

- 1 State of South Carolina Advanced Management Seminar, Greenwood, SC - NRC Concurrence Program for Fixed Nuclear Facilities - J. W. Hufham
- 17 National Classification Management Society Seminar, Jack Tar Hotel, San Francisco, CA - The NRC Security Program - Classification Management in a Regulatory Agency - Raymond J. Brady
- 21 Radioactive Waste Management for Nuclear Power Reactors - Rules, Regulations and Standards, Alexandria, VA - I. C. Roberts
- 23 Annual Records Management Conference of the National Archives, Fredericksburg, VA - Automation of Records Management at NRC - R. Stephen Scott

STATUS OF NUCLEAR POWER PLANTS — MARCH 31, 1979

<u>Number Of Units</u>	<u>Rated Capacity (MWe)</u>
* 70 LICENSED TO OPERATE	51,000
** 92 CONSTRUCTION PERMIT GRANTED	101,000
37 Under Operating License Review	40,000
55 Operating License Not Yet Applied For	61,000
28 UNDER CONSTRUCTION PERMIT REVIEW	32,000
** 4 Site Work Authorized, Safety Review in Process	4,000
24 Other Units Under CP Review	28,000
4 ORDERED	5,000
2 PUBLICLY ANNOUNCED	2,000
196 TOTAL	191,000

*To date there have been 449 reactor years of operation. Not included are two operable DOE-owned reactors with a combined capacity of 940 MWe.

**Total of units authorized construction (Construction Permit Granted plus Site Work Authorized): 96 units, 105,000 MWe.

ENCLOSURE 0

April 27, 1979

UNITED STATES
NUCLEAR REGULATORY COMMISSION

SECY-79-298

INFORMATION REPORT

For: The Commissioners
From: T. A. Rehm, Assistant to the Executive Director for Operations
Subject: WEEKLY INFORMATION REPORT - WEEK ENDING APRIL 20, 1979

A summary of key events is included as a convenience to those Commissioners who may prefer a condensed version of this report.

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T. A. Rehm, Assistant to the
Executive Director for Operations

Contact:
T. A. Rehm
49-27781
*No input this week
**Deleted from Commissioners and PDR copy

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SUMMARY OF KEY EVENTS

Week Ending April 20, 1979

McGuire Units 1 & 2

On 4/18 the ASLB issued an Initial Decision that requires the staff to address the status of the ALAB-444 type generic issues before issuing the operating license.

Evaluation of Health Impact

SD staff met with members of the State Health Department in Harrisburg, Pennsylvania to discuss the State's strategy for the evaluation of the public health impact on the TMI incident. The proposed approach involves development of population registries in affected areas. NRC, among others, was asked by State personnel if they could provide funds for prompt initiation of the registry.

Ionizing Radiation Report

On 4/7 the Interagency (Libassi/HEW) Task Force on Ionizing Radiation report on "Institutional Arrangements" was published for public comment. One of the report's recommendations is to establish an Interagency Radiation Research Committee to coordinate all Federal research on low-level radiation effects, that NIH, HEW, should chair this committee and that NIH (rather than DOE) should assume a major role in research into the biological effects of ionizing radiation. In anticipation of the President's authorizing establishing an interagency committee, NIH is establishing an "HEW" Radiation Research Committee in which other Federal agencies will participate.

Study Group Established

A study group has been established to prepare a Headquarters Radiological and Industrial Safety Plan, license-specific incident response procedures, and a guide to development of FC capabilities for participation in the NRC Incident Response Program as specified in NRC-0502.

Generic Environmental Impact Statement on Uranium Milling

NRC issued the draft generic environmental impact statement (GEIS) on uranium milling for public comment. The document focuses primarily on the problems of uranium mill tailings management and disposal.

Emergency Preparedness

NRC staff attended California Assembly subcommittee hearings. The purpose of the hearings was to take testimony on the Three Mile Island accident and its consequences and to discuss NRC's role in emergency planning.

OFFICE OF ADMINISTRATION

Week Ending April 20, 1979

ADMINISTRATION OF THE FREEDOM OF INFORMATION ACT

STATUS OF REQUESTS

	<u>Initial Request</u>	<u>Appeal of Initial Decision</u>
Received	158	14
Granted	72	2
Denied	27	4
Pending	59	8

ACTIONS THIS WEEK

Received

(An NRC employee) (79-116)	Requests all documents concerning Vacancy Announcement No. 78-523.
Robert Ruby, The Baltimore Sun (79-117)	Requests all documents relating to Three Mile Island 1 and 2 since March 28, 1979.
James R. Mann, Law Offices (79-118)	Requests the diary, calendar, and telephone log of Commissioner Gilinsky for 1978.
Pat Minarcin, Pennsylvania Illustrated Inc. (79-119)	Requests transcripts of investigatory interviews conducted with control room personnel at the Three Mile Island Unit 2.
Mary E. Conley, Bentley College (79-120)	Requests the outline of the organization of the NRC, the basic health and safeguard standards, and any important cases involving the NRC.
Darryl W. Doss, Pilot Life Insurance Company (79-121)	Requests the names and other available information on NRC employees working in the Tidewater, Virginia area.
Jeffrey D. Littlejohn, (79-122)	Requests daily release rate data for all gaseous and liquid radioactive isotopes for the Three Mile Island Plant and the results of the Confirmatory Measurement Program.
Coral Rose Ryan, Citizens Concerned About Nuclear Power (79-123)	Requests a copy of Prehearing Conference Order Ruling Upon Intervention Petitions served April 4, 1979 and a copy of 10 CFR Part 2.

CONTACT: J. M. Felton
492-7211

ENCLOSURE A

Received, Cont'd

W. Alexander Williams,
(79-124)

Requests a copy of an internal memo referred to in Newsweek alleging that the SL-1 nuclear reactor accident in Idaho Falls, Idaho may have involved a "lover's triangle".

Senator Michael C. Kendall,
State of Indiana
(79-125)

Requests a copy of a 3/69 ACRS report on reactor safeguards, a 6/69 internal staff study by AEC regarding safety of large nuclear reactors, a 11/12/69 ACRS report on reactor safeguards, and a copy of a letter to the AEC Chairman Seaborg regarding safety questions.

Sheila Allee,
United Press International
(79-126)

Requests all documents on radiation levels in and surrounding the Kerr-McGee plant and the town of Crescent, Oklahoma.

Lloyd Etheredge,
Massachusetts Institute
of Technology
(79-127)

Requests transcripts of NRC meetings, public statements, and testimony of NRC officials and other documents dealing with the Three Mile Island accident.

Michael Hungerford,
Syracuse University
(79-A-8-79-47)

APPEAL TO THE COMMISSION the denial of a memo to Shapar from Kelley concerning the meaning of the term "material alteration of a licensed facility" as contained in 10 CFR 50.91.

Granted

Anthony Z. Roisman,
Natural Resources
Defense Council, Inc.
(79-81)

In response to a request for communications between the NRC and any person regarding the report of the Interagency Review Group on Nuclear Waste Management since October 1, 1978, made available four documents in the PDR, informed the requester one document was already in the PDR, and made arrangements for the requester to review other documents in the Willste Building.

Susan Baumann,
(79-85)

In response to a request for all documents regarding plant accidents and safety defects at reactor sites owned by Carolina Power & Light Company and the Duke Power Company, and information regarding emergency evacuation plans, made available a printout of Licensee Event Reports and informed the requester other pertinent information is available at the LPDR for each plant.

ENCLOSURE A

Granted, Cont'd

L. Alan Kenton,
(79-94)

In response to a request for the name and present duty stations of all employees located in the Southeast, made available a computer printout of NRC employees in Headquarters and Regions 1 and 2.

Dennis Sanders,
(79-108)

In response to a request for a copy of Dr. Hanauer's "nugget file", made available a list of the documents contained in the file and informed the requester he may write directly to the PDR to purchase a copy.

(An individual requesting
information about himself)
(79-115)

In response to a request for the results of the tests and examinations as a result of an accident involving radiation exposure at the Nevada Test Site in 1963, informed the requester that the NRC has no records relating to the accident and that he should write to the DOE.

Darryl W. Doss,
Pilot Life Insurance
Company
(79-121)

In response to a request for the names and other available information on NRC employees working in the Tidewater, Virginia area, informed the requester there are no employees working in this area.

Denied

Citizens for a Better
Environment
(78-268)

In response to a request for documents relating to the Pipe Cracking Study Group Report, and documents relating to GE's Boiling Water Reactor pipe cracking problems occurring since 1975, made available 1,006 documents. Denied 72 documents in total or in part under exemptions 1 and 4.

Michael Hungerford,
Syracuse University
(79-47)

In response to a request for interpretations made regarding the meaning of the term "material alteration of a licensed facility" as contained in 10 CFR 50.91, made available four documents and denied one document under Exemption 5.

Denied, Cont'd

Eric Schulman,
(79-56)

In response to a request for documents relating to the Big Rock Point facility, made available the requested documents in the LPDR located in Charlevoix, Michigan. Denied portions of two documents, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

John W. Sullivan,
(79-61)

In response to a request for documents pertaining to the operation of Metals and Controls, Texas Instruments, Makepiece, Inc., and Englehard, Inc., informed the requester these documents may be purchased from the NRC Public Document Room. Denied portions of one document containing commercial or financial (proprietary) information.

ENCLOSURE A

DIVISION OF CONTRACTS

Week Ending April 20, 1979

PENDING COMPETITIVE REQUIREMENTS

RFP RS-RES-79-183

Title - Limiting Conditions for Operations (LCO)

Description - Develop a methodology to calculate allowable ratio's of LCO's based on probabilistic approaches. To apply the methodology, system logic models such as fault trees will be constructed for specific safety systems in nuclear power plants and the allowable values for the LCO's will be calculated using available reliability data.

Period of Performance - Anticipated to be two years.

Sponsor - Office of Nuclear Regulatory Research

Status - Solicitation to be issued May 3, 1979 with a closing date of June 19, 1979.

RFP'S ISSUED

1. RFP RS-NMS-79-039

Title - SECOM Test

Description - Participation of a commercial transporter of special nuclear material in an extended field test to determine the increase in transportation safeguards capability which might result from the use of the SECOM Communications System.

Period of Performance: Eighteen months

Sponsor - Office of Nuclear Material Safety and Safeguards

Status - RFP issued April 10, 1979. Closing date, May 10, 1979.

2. RFP RS-OIE-79-261

Title - General and Refresher Courses in Concrete Technology and Codes

Description - This technical assistance is required by the Office of Inspection and Enforcement to provide NRC personnel the detailed training in concrete technology and the applicable codes necessary to permit them to conduct in-depth inspection at NRC licensed facilities under construction or modification.

Period of Performance - Eighteen months

Sponsor - Office of Inspection and Enforcement

Status - RFP issued April 19, 1979. Proposals due May 17, 1979.

ENCLOSURE A

PROPOSALS UNDER EVALUATION

RFP RS-NMS-79-029 (formerly 78-065)

Title - Synthesis for Physical Security and Material Control and Accounting Assessment Results

Description - Develop methods for combining observations of MC&A Assessment Team members, develop a method for synthesizing the results of the Physical Security and MC&A assessments, and develop a draft handbook that explains the methodology for deriving the measures of effectiveness and synthesizing them into the final statement of adequacy.

Period of Performance - Ten months

Sponsor - Office of Nuclear Material Safety and Safeguards

Status - Discussions scheduled for April 20-23, 1979 with offerors in the competitive range.

CONTRACTS AWARDED

1. RFP RS-ADM-79-378

Title - Design of NRC Supply and Maintenance Modules of the Property and Supply System

Description - This was an SBA Section 8(a) procurement. The contractor shall provide ADP Systems Analysis and Design services to the NRC in support of the Supply and Maintenance Subsystems - Modules II and III of PASS. The Functional and Data Requirements Document (DFSR) plus Work Orders for System Maintenance since September 25, 1978, shall be used as the basis for this work. The resulting design document will be of sufficient detail to provide maximum guidance for future development.

Period of Performance - Four months

Sponsor - Office of Administration

Status - A firm fixed price contract (No. NRC-10-79-378) in the amount of \$45,129.60 was executed with Rehab Group, Inc., an eligible 8(a) minority concern, on April 3, 1979.

2. RFP RS-ADM-79-372

Title - System Maintenance Programming

Description - This was an SBA 8(a) procurement. The contractor shall provide services to accomplish corrections, changes, and enhancements required to support selected NRC administrative, financial, and management reporting systems.

Period of Performance - One year

Sponsor - Office of Administration

Status - A labor-hour contract (No. NRC-10-79-372) was executed with International Business Services, an eligible 8(a) minority concern, in the amount of \$96,949.00 on April 10, 1979.

CONTRACTS CLOSED OUT

(All administrative action complete and final payment made)

<u>Contract No.</u>	<u>Organization</u>	<u>Close-Out Date</u>
NRC-02-78-075	Coolfont Re-Creation	04/10/79
AT(49-24)-0125	Environmental Protection Agency	04/17/79

DIVISION OF SECURITY

Items of Interest
Week Ending April 20, 1979

Bulletin on Transfer of Classified Non-military information to Foreign Governments by NRC, which relates to access by foreign government personnel to classified information in the custody of NRC and to the transmission of classified documents to foreign governments, has been forwarded to MPA for publication.

ENCLOSURE A

OFFICE OF NUCLEAR REACTOR REGULATION

WEEKLY ITEMS OF INTEREST
(Week Ending April 20, 1979)

McGuire Units 1 & 2

See Enclosure G for complete write up on McGuire Units 1 & 2.

Maine Yankee

The licensee has informed the staff that four different versions of the SHOCK-I computer code were used to analyze piping systems at the Maine Yankee plant. The licensee is currently performing a more detailed review to define the differences in these methods.

Beaver Valley

By letter dated April 20, 1979 the licensee has informed the staff that they will use soil structure interaction techniques for developing amplified response spectra (ARS) to be used in the reevaluation of the piping at Beaver Valley. In support of this, they have submitted a comparison of ARS based on both the original set of FSAR spectra and damping values and the set of input parameters based on Regulatory Guides 1.60 and 1.61. This information is currently under review by the staff.

FitzPatrick

Twelve piping reanalyses have been completed. A modelling change has increased the total number of piping reanalyses to be performed from 95 to 96. Analyses of 151 pipe supports have been completed out of a total of 1156. The results are within allowables.

Surry

No change in status.

ENCLOSURE B

OFFICE OF STANDARDS DEVELOPMENT

IMPORTANT EVENTS FOR THE WEEK ENDING APRIL 20, 1979

1. Guy Arlotto will participate in the Second Biennial EEI Standards Conference on April 20. The theme of the conference is "Government Interface with the Voluntary Consensus Standards Organizations and EEI's New Posture in the Standards World." Mr. Arlotto, who will appear on a panel with representatives from other Federal agencies, will focus his remarks on "NRC Interfaces with the National Consensus Standards Program."
2. Cayuhoga Falls, Ohio is considering a city ordinance to require a permit for rail and truck shipments of 20 grams or 20 curies of fissile material, reactor fuel and large-quantities according to Steve Hoffman, a reporter from the Akron Beacon Journal who called Robert Barker, SD, on April 17.

He indicated Shaker Heights and perhaps 30 other towns in the Cleveland area have adopted similar ordinances. He was particularly interested in DOT's pre-emption authority and was given Mr. Crockett's phone number for information on the DOT routing rule.

3. On April 12, 1979, Robert Purple and Robert Goldsmith attended a meeting at the State Health Department in Harrisburg, Pennsylvania to discuss the state's strategy for the evaluation of the public health impact on the TMI incident. Their proposed approach involves the development of population registries in the "impact" area and in an area about 50 miles away in which exposures were negligible. The size of the population included in the overall registry will depend upon the level of funding provided. The HEW is apparently committed to supporting this effort, but because of delays expected in obtaining funds, other Federal agencies, including the NRC, were asked by state personnel if they might be able to assist by providing funds for prompt initiation of the registry.
(R. Goldsmith)
4. Interagency Task Force Report on Institutional Arrangements: The Interagency (Libassi/HEW) Task Force on Ionizing Radiation report on "Institutional Arrangements" was published for public comment on April 17, 1979. Copies of this report were provided to the Commission on April 18, 1979. The report is being widely distributed.

ENCLOSURE C

as were the Task Force's five work group reports, with a request for comments and suggestions by March 18, 1979. The draft Institutional Arrangements report and the comments thereon will provide a major input to the Task Force's final report to the White House. The draft Institutional Arrangements report differs from the work group reports in that it generally does not make specific recommendations on issues. Rather, it presents alternatives on issues and invites comments and suggestions thereon. Notable exceptions to this are that the report does recommend establishing an Interagency Radiation Research Committee to coordinate all Federal research on low-level radiation effects, that NIH, HEW, should chair this committee and that NIH (rather than DOE) should assume a major role in research into the biological effects of ionizing radiation. Related to this, NIH is proceeding to establish an "HEW" Radiation Research Committee with the invited participation of other Federal agencies, including the NRC, in anticipation of the President's authorizing establishing an interagency committee. (See report on 4/18/79 meeting of this committee in the RES section of this Weekly Events Report).
(Karl Goller)

Publications Issued

Reg. Guide 3.11.1 - Operational Inspection and Surveillance of Embankment Retention Systems for Uranium Mill Tailings
(Issued for Comment)

OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

Items of Interest

Week Ending April 20, 1979

Table S-3 Radon Value

Preliminary drafts of a Commission Paper and Federal Register notice covering the inclusion of an upgraded value for radon in Table S-3 have been forwarded to NRR, ELD and PA for review.

Table S-3 Occupational Exposure

The occupational exposure task for the Table S-3 update is proceeding on schedule. Representatives of NUS Corporation visited the Continuous Melting Facility for Commercial High Level Waste at Battelle Pacific Northwest Laboratories, the Waste Calcination Facility at Idaho National Engineering Laboratory and Kerr-McGee's mine and mill. This tour is part of a data gathering task which includes a visit to the Chem-Nuclear Company at Barnwell, S. C., and the Hot Laboratory used in support of the design of the Defense Waste Processing Facility at Savannah River.

Study Group Established

A study group has been established to prepare a Headquarters Radiological and Industrial Safety Plan, license-specific incident response procedures, and a guide to development of FC capabilities for participation in the NRC Incident Response Program as specified in NRC-0502. Schedule and staffing planning is now in progress.

Tc-99 Source Terms

Development of Tc-99 source terms for testimony in individual reactor licensing cases is about three-fourths completed.

Export of Fuel for Research Reactors

A representative of the Division of Fuel Cycle and Material Safety attended a meeting at the Department of State on the Environmental Impact of U.S. Export of Research Reactors. The preliminary results of an FCTA analysis of the radiological impact to the U.S. and the global commons resulting from mining, milling, converting, enriching, fabricating and transporting a one year supply of fuel for U.S. exported research and test reactors was presented.

ENCLOSURE D

Evaluation of Spent Fuel Shipping Casks

On April 11, 1979, NRC and DOE representatives met with their respective contractors, Battelle Columbus Laboratories (BCL) and Sandia Laboratories, Albuquerque (SLA), to discuss their programs to evaluate the vulnerability of spent fuel shipping casks to explosive attack and their potential health consequences. Agency and contractor personnel presented briefings on the scope and technical approach to be used. Working level discussions focused on work done to date and the establishment of project advisory groups to provide for information exchange.

Generic Environmental Impact Statement on Uranium Milling

The Uranium Recovery Licensing Branch has issued the draft generic environmental impact statement (GEIS) on uranium milling for public comment. Because of the intense interest in this report, an extended comment period of 90 days has been allotted. In the document, which focuses primarily on the problems of uranium mill tailings management and disposal, the staff draws conclusions regarding both technical and institutional aspects of mill operations. In addition, the staff recommends specific changes to NRC regulations governing mill operations.

The staff will hold several public meetings in Albuquerque, New Mexico, and Denver, Colorado, this summer on the GEIS and associated proposed rule changes that will be shortly submitted to the Commission for approval to issue.

Atlas Uranium Mill License Renewal

Following publication of a Final Environmental Statement and the required 30-day waiting period, the Uranium Recovery Licensing Branch issued a renewal source material license to Atlas Minerals Corporation on April 19, 1979, authorizing processing of uranium ore at their Moab uranium mill in Grand County, Utah. The mill will have an alkaline leach circuit and a typical acid leach circuit designed to process about 1600 tons of ore per day and produce about 850 MT of yellowcake per year over its anticipated 15-year operating life.

OFFICE OF INSPECTION AND ENFORCEMENT

Items of Interest

Week Ending April 20, 1979

1. Preliminary Notifications relating to the following actions were dispatched during the past week:
 - a. PNO-79-67U through 67AA Three Mile Island Unit 2 - Nuclear Incident at Three Mile Island Unit 2 - These Preliminary Notifications were issued to provide updated status information regarding the incident.
 - b. PNO-79-81 H. B. Robinson Unit 2, Turkey Point Units 3 & 4 - Safety Related Pipe Stress Methodology Concern - A potential problem was identified during review of information received by NRR concerning methods utilized by the licensees in determination of pipe stresses. This concern related to the Westinghouse method of summing pipe stresses for these facilities. An Immediate Action Letter was issued by Region II (Atlanta) to both licensees confirming that the units will not be returned to power until authorized by NRC. (Closed. See Item 1.c below.)
 - c. PNO-79-82 H. B. Robinson Unit 2, Turkey Point Units 3 & 4 - Safety Related Pipe Stress Methodology Concern - A meeting was held on April 13, 1979 among representatives of NRR, Florida Power and Light Co. and Westinghouse. The meeting achieved satisfactory resolution of the concerns relating to Florida Power and Light Co. facilities - Turkey Point Units 3 and 4. Restrictions were lifted for these facilities. Robinson 2 is presently in a refueling shutdown which is expected to last until early June 1979. (Closed)
 - d. PNO-79-83 Surry Unit 2 - Personnel Overexposure - A shift supervisor investigating a water leak in the space beneath the Unit 2 reactor vessel received an apparent whole body exposure of 10.09 Rems. Upon exit, it was found that the employee's direct-reading pocket dosimeter was off-scale. His thermoluminescent dosimeter was then evaluated and indicated the 10.109 Rems exposure. An IE radiation specialist was dispatched to the site to review this occurrence. (Closed)
 - e. PNO-79-84 Bellefonte Units 1 & 2 - Allegations of Inadequate QA/QC Program for Welding - An individual made allegations to Region II (Atlanta) regarding the adequacy of the quality control program at Bellefonte. The specific example cited was that installed piping which had been inspected and accepted by QC inspectors was subsequently cut out and replaced without the knowledge of the QC inspectors or construction management. Although the individual was unable to identify specific welds or individuals, Region II plans to conduct appropriate followup. (Closed)

ENCLOSURE E

- f. PNO-79-85 Oconee Units 1, 2 and 3 - Injury to Employee - A contractor employee fell about 10 feet while working in the auxiliary building and received possible back injuries. His clothing was contaminated and was removed prior to being transferred to a Greenville, South Carolina hospital. The employee was held overnight at the hospital and released the next day. (Closed)
- g. PNO-79-86 Three Mile Island Unit 1 - In Service Inspection - The news media reported on certain irregularities in inspection records related to nondestructive examinations performed on welds and other components in Unit 1. Preliminary review of licensee records indicates some validity to the news article although it appears to contain several inconsistencies. A Region I (Philadelphia) inspector is examining this matter. (Closed)
- h. PNO-79-87 Surry Unit 2 - Three Men Become Ill While Working in Containment - Three Daniels Construction Co. personnel were taken to the hospital when they became ill while working in the Unit 2 containment building. The men were working in a tent and were wearing fresh air hoods. The air in the tent and the fresh air supply were sampled and found satisfactory. Initial diagnosis indicated that illness was due to heat exhaustion. The men have been released from the hospital. (Closed)
- i. PNS-79-33 Indian Point Units 1, 2 and 3 - Planned Peaceful Demonstration - On April 14, 1979, a planned peaceful demonstration took place without incident at the Indian Point Nuclear Generating Station. Extensive publicity was given to the demonstration. (Closed)
- j. PNS-79-34 & 34A - Nuclear Fuel Services, Inc., Erwin, Tennessee - Operators Strike - On April 14, 1979, plant operating personnel went on strike. Limited operations are being conducted by management personnel. The contract guard force and NRC officials have been allowed to cross picket lines. Inspectors are on site monitoring security, health and safety requirements. (Closed)
- k. PNS-79-35 Diablo Canyon Units 1 & 2 - Bomb Threat - No bombs were found and none exploded. (Closed)

2. The following IE Bulletins were issued:

- a. IE Bulletin No. 79-06A, "Review of Operational Errors and System Misalignments Identified During the Three Mile Island Incident," was issued on April 14, 1979 to all utilities with an operating pressurized water reactor of a Westinghouse design. Revision 1 to the Bulletin was issued on April 18, 1979.

ENCLOSURE E

- b. IE Bulletin No. 79-06B, "Review of Operational Errors and System Misalignments Identified During the Three Mile Island Incident," was issued on April 14, 1979 to all utilities with an operating pressurized water reactor of a Combustion Engineering design.
 - c. IE Bulletin No. 79-07, "Seismic Stress Analysis of Safety-Related Piping," was issued on April 14, 1979 to all power reactor facilities with an operating license or a construction permit.
 - d. IE Bulletin No. 79-08, "Events Relevant to Boiling Water Power Reactors Identified During the Three Mile Island Incident," was issued on April 14, 1979 to all BWR power reactor facilities with an operating license.
 - e. IE Bulletin No. 79-09, "Failures of GE Type AK-2 Circuit Breaker in Safety Related Systems," was issued on April 17, 1979 to all power reactor facilities with an operating license or a construction permit.
3. IE Circular No. 79-06, "Failure to Use Syringe and Bottle Shields in Nuclear Medicine," was issued on April 19, 1979 to all holders of medical licenses except teletherapy licenses.
4. IE Information Notice No. 79-10, "Nonconforming Pipe Support Struts," was issued on April 16, 1979 to all power reactor facilities with a construction permit.

OFFICE OF NUCLEAR REGULATORY RESEARCH

Important Items - Week Ending April 21, 1979

Interagency Meeting on Research on the Biological Effects of Ionizing Radiation

Representatives of RES and SD participated in the second interagency meeting at the National Institutes of Health (NIH) on April 17, 1979. Dr. T. Frederickson, Director of NIH, HEW announced the formation of an HEW Committee on Research into the Biological Effects of Ionizing Radiation, by authority of Secretary Joseph A. Califano, Jr., HEW. Dr. Fredrickson is Chairman of this Committee and he appointed Dr. Arthur C. Upton, Director, National Cancer Institute, NIH as Vice Chairman. Under the Charter of this Committee, representation was offered to DOD, DOE, DOL, EPA, NASA, NRC and VA in addition to several constituent agencies of HEW. The participating agencies would agree under the Charter to "consult" with the Committee and to take the Committee comments into account before making commitments to fund research into the biological effects of ionizing radiation." RES is the lead NRC office on this Committee, with active participation of OSD.

Pending White House action resulting from recommendations contained in the Report of the Interagency Task Force on Ionizing Radiation on Institutional Arrangements (Libassi/HEW: See OSD input in this Information Report), this HEW Committee will most likely be reconstituted as an Interagency Committee on Federal Research into the Biological Effects of Ionizing Radiation. It appears that NIH/HEW will almost certainly retain the Chairmanship.

Dr. Frederickson decided to form a Subcommittee under the Chairmanship of Dr. Upton to make recommendations regarding possible epidemiological studies of population living in the vicinity of Three Mile Island Nuclear Station. NRC is to be represented on this Subcommittee. He also instructed Dr. J. G. Perpich, Associate Director for Program Planning and Evaluation, NIH and the General Counsel, NIH to contact the offices of the General Counsel of participating agencies in order to determine the statutory responsibilities of various agencies in the subject areas.

Future meetings of the Committee will be convened by Dr. Fredrickson.

ENCLOSURE F

OFFICE OF THE EXECUTIVE LEGAL DIRECTOR

ITEMS OF INTEREST

FOR THE WEEK ENDING APRIL 20, 1979

McGuire Nuclear Station, Units 1 & 2

On April 18, 1979, the Licensing Board, after making findings of fact and conclusions of law on matters actually put into controversy, issued an Initial Decision (Operating License Proceeding) authorizing the Director, Office of Nuclear Reactor Regulation, upon his making of appropriate findings in accordance with the Commission's regulations with respect to matters not embraced in the Initial Decision, to issue operating licenses for McGuire Units 1 and 2. The Licensing Board, however, stayed the effect of the Initial Decision until further order by the Board following the issuance of a supplement to the NRC Staff's Safety Evaluation Report addressing the significance of any unresolved generic safety issues.

ENCLOSURE G

ITEMS OF INTEREST
OFFICE OF INTERNATIONAL PROGRAMS
WEEK ENDING APRIL 20, 1979

INTERNATIONAL COOPERATION

TMI Activities

During the week of April 15 IP made arrangements for newly-arrived official delegations from Japan, Sweden, Denmark, the FRG, Italy, the Philippines Taiwan, and the EC to receive information on the TMI accident. The 21 local Embassy scientific counselors and attaches who have followed TMI closely from the beginning were also invited to participate. A total of 65 representatives from 20 foreign countries and one international organization were involved (Austria, Israel, Australia, Mexico, the Netherlands, Finland, Switzerland, the U.K., Korea, France, Spain, and South Africa, in addition to those named above). NRC activities included (1) a day of briefings on April 19 on TMI emergency plans, the development and course of the incident, research projects attendant to the incident, and technical details of TMI and (2) a bus trip to Middletown, Pennsylvania for brief presentations by NRC and Pennsylvania personnel on April 20. All sessions were followed by question and answer periods to allow the delegations to address their most immediate information needs.

EXPORT/IMPORT AND INTERNATIONAL SAFEGUARDS

Rulemaking on Minor Exports

The staff has forwarded to the Commission for review a draft final rulemaking proposal regarding the export of minor quantities of nuclear material. The proposed rule would establish or expand general licenses for the export of minor quantities and should result in a 5-10% reduction in the staff's export licensing workload.

US-IAEA Safeguards Agreement Implementation Group Meeting.

The Safeguards Agreement Implementation Group for the US offer met on April 19. Chris Kessler of IP attended. Preparation of the list of Eligible Facilities was the principal topic covered.

Capitol Hill Workshop

Marvin Peterson and Hans Schechter of IP attended a Capitol Hill Workshop on April 17, 18 and 19. The workshop focused on providing NRC officials with insights on how the Congress functions and inter-relates with the Executive Branch agencies.

ENCLOSURE H

OFFICE OF STATE PROGRAMS

ITEMS OF INTEREST

WEEK ENDING APRIL 20, 1979

Emergency Preparedness

Hal Gaut, State Programs and Bill Axelson (IE), Region III, participated in a State interagency emergency planning session in St. Paul, Minnesota. Key members of involved State agencies were involved as well as an observer from WCCO (CBS) Radio. The meeting was held with a view toward Minnesota seeking an NRC concurrence in their emergency plan.

Letters were prepared for the Chairman's signature to 18 governors of States with operating nuclear power plants where NRC has not been able to concur in the State's radiological emergency response plan. These letters gave a brief status of the plan in each State and an offer of NRC help in moving the plan quickly to a point where it is eligible for concurrence.

On April 12, 1979, Andy Robart, the Region V State Liaison Officer attended a California Assembly subcommittee hearing in Los Angeles and again on April 16, 1979 in Sacramento. The purpose of these hearings was to take testimony on the Three Mile Island accident and its consequences and to discuss NRC's role in emergency planning. Personnel from both RV and Headquarters also participated in the hearings. The subcommittee on Energy hearings were chaired by Assemblyman Mel Levine (D-Los Angeles). In addition to Daryll Eisenhut, DOR, Bob DeFayette, OSP, Harry North, Ray Fish, Phil Morrill and Bob Engelken, Region V. Other witnesses included: Dr. Frank Van Hipple from Princeton University; Dr. Richard Hubbard, MHB Associates; Dr. Hal Lewis, University of California; Robert Pollard, Union of Concerned Scientists and Rusty Schweikart, Chairman Governors' Nuclear Power Emergency Review Panel. Witnesses from Southern California Edison and Pacific Gas and Electric also testified. The Sacramento hearing on the 16th also included State witnesses from the California Office of Emergency Services, Radiologic Health and Sacramento County.

Program Development

Nebraska has advised that they are ready to enter into a water quality agreement with NRC similar to those with Indiana, Virginia and South Carolina.

State Agreements

Kathleen N. Schneider will join the State Agreements staff on April 23, 1979. Ms. Schneider is a graduate of Youngstown State University and University of Florida with degrees in physics and nuclear engineering and is coming on board as an intern.

ENCLOSURE I

A training course in Medical Use of Radionuclides for State Regulatory Personnel will be presented at Baylor University, Texas, April 23-27, 1979. Eight State personnel will attend. In addition, six NRC regional inspectors and one NRC license reviewer will attend.

State Agreement staff, including the Assistant Director, will meet with Rhode Island representatives April 26 and 27 to review the final draft of a request for a section 274b Agreement.

ENCLOSURE I

OFFICE OF MANAGEMENT AND PROGRAM ANALYSIS

Items of Interest

Week Ending - April 20, 1979

TMI Support

Provided support to the EDO and the DEDO in planning for the agency response to TMI.

Briefed on LOEB Operational Safety Data Gathering & Analysis

Responded to Commission for summary of NRC efforts in gathering and analyzing operating experience data.

Responses to Rep. Dingell and Sen. Glenn

Completed letters to Rep. Dingell transmitting 37 Q's & A's, and to Sen. Glenn on March 6-7 Hearing on Low-level Radiation.

ENCLOSURE J

OFFICE OF THE CONTROLLER

ITEMS OF INTEREST

Week Ending April 20, 1979

FY 1979 REPROGRAMMING SECY-79-53 AND SECY-79-53A

The majority of the Commission has now voted in favor of increasing Waste Management funding over and above the amount identified in SECY-79-53A. A memorandum has been sent to the Commission responding to this change.

INITIAL FY 1979 REPROGRAMMING TO CONGRESS

As reported earlier, all five Congressional Subcommittees had approved this except the House Appropriations had disapproved the increase to NRR travel. As a result of heavy travel due to Three-Mile Island, the Subcommittee staff was contacted and approved the use of additional funds for travel associated with Three-Mile Island.

FY 1980 BUDGET

The tentative dates for Congressional Subcommittee mark-up of NRC's budget are as follows:

Senate Authorization (Hart)	May 3, 1979
House Appropriation (Bevill)	May 10, 1979
House Authorization (Udall)	May 15, 1979

OMB SPRING PREVIEW

OMB held their annual Spring Review on the upcoming budget (FY 1981). The Controller and Director, Division of Budget met with OMB officials and discussed resource impacts on the FY 1979, FY 1980 and FY 1981-1985 budgets as identified by the Offices. Also, recent reactor incidents (5-plant closing and Three-Mile Island) were identified as having potential resource impacts.

RESOURCE IMPACT OF THREE-MILE ISLAND AND 5-PLANT CLOSINGS

A call was issued to all Office Directors to identify "best estimate" resources changes for the remainder of FY 1979 and FY 1980 due to these recent reactor incidents. This information is to be submitted by Thursday, April 26, 1979.

BUDGET REVIEW GROUP (BRG)

The first BRG meeting under the new Chairman, Kevin Cornell, was held to discuss organization and the FY 1981-1985 budget review process.

Enclosure K

CALENDAR OF SIGNIFICANT EVENTS

April 23	TMI-2 - Meeting to discuss physical security plan
April 24	New Haven 1 & 2 - Meeting to discuss reactor safeguards
April 25-26	Palo Verde 1, 2 & 3 - Caseload Forecast Panel Site Visit
April 27	North Anna 1 & 2 - Testimony regarding pump house settlement and turbine missiles to be submitted to Board
May 1	Midland - Prehearing conference
May 4	Salem 2 - SER Supplement No. 4 to be issued
	NEP 1 & 2 - SER Supplement No. 1 to be issued
	Carroll County - Orientation meeting for reviewers and their supervisors (which was postponed because of TMI efforts) will be held during the week ending May 4
	Summer - A visit to the Plant to review fire protection features will be made during the week ending May 4

ITEMS APPROVED BY THE COMMISSION - RECEIVED WEEK ENDING APRIL 20, 1979

- A. SECY-79-73A - PROPOSED LICENSE TO EXPORT LOW-ENRICHED URANIUM TO JAPAN (XSNM-1285, SECY-79-73) (Commissioner Action Item) (Memo, Chilk to Gossick dated 4/13/79)

This is to advise you that the Commissioners have reviewed the subject license to Mitsui and Company. The Commission (with five Commissioners concurring) has accepted your recommendation to export to Japan 1,897 kilograms of uranium, enriched to 3.85% U-235, in the form of uranium hexafluoride.

In his concurrence Commissioner Bradford stated: "I concur in this export pending resolution of issues I have previously raised regarding criteria 4 and 5. The oral assurances on criteria 4 and the Tokai experience are helpful, but they do not fully solve the problem."

The Office of International Programs was informed of this action by telephone on April 13, 1979.

It is requested that you provide notification of the issuance and delivery of this license to Mitsui by c.o.b. April 19, 1979.

- B. SECY-78-645A - APPROVAL OF A PROPOSED LICENSE TO EXPORT HIGH-ENRICHED URANIUM TO THE FEDERAL REPUBLIC OF GERMANY (LICENSE APPLICATION NO. XSNM01241, SECY-78-645) (Commissioner Action Item) (Memo, Chilk to Gossick dated 4/16/79)

This is to advise you that the Commissioners have reviewed the subject license to Transnuclear, Incorporated. The Commission (with five Commissioners concurring) has accepted your recommendation to export to the Federal Republic of Germany 22.0 kilograms of uranium, enriched to 93.3% U-235, in the form of U₃O₈.

Commissioner Gilinsky, in his concurrence, asked: "Is the research presently going on in DOE or contractor facilities or anywhere else directly relevant to the conversion of the FRJ-1 facility and other facilities receiving this fuel to LEU? Is it absolutely out of the question technically to convert this reactor to lower enriched uranium? It would be useful if the Commission expressed its concern about the need to complete facility attachments. "

Commissioner Bradford would like a brief description of the physical security measures required for this export.

The Office of International Programs was informed of this action by telephone on April 16, 1979.

ENCLOSURE M

It is requested that you accomplish the following:

1. Provide notification of the issuance and delivery of this license to Transnuclear by c.o.b. April 20, 1979.
2. Provide a response to Commissioner Bradford's request through the Office of the Secretary by c.o.b. April 25, 1979.
3. Provide a response to Commissioner Gilinsky's questions through the Office of the Secretary by c.o.b. April 30, 1979.

C. SECY-79-10A - FURTHER INFORMATION ON THREE FY 1979 RESEARCH PROJECTS UNDER REVIEW BY THE COMMISSION (Commissioner Action Item) (Memo, Chilk to Gossick dated 4/18/79)

This is to advise you that the Commission (with all Commissioners concurring) approves the three programs, PNL/B2043, BNL/A3014 and ORNL/B0125, as in the subject paper.

The Office of Nuclear Regulatory Research was informed of this action by telephone on April 18, 1979.

D. SECY-79-65A - INTERAGENCY TASK FORCE ON IONIZING RADIATION (Commissioner Action Item) (Memo, Chilk to Gossick dated 4/19/79)

This is to advise you that the Commission (with four Commissioners concurring, Commissioner Gilinsky did not participate) has approved the staff's responses to the Summary Report as modified in the attachment. The staff is requested to incorporate the Commission's comments in their response and provide the completed set of comments to HEW.
(Attachment not included)

E. SECY-79-175A - PROPOSED RETRANSFERS FOR REPROCESSING FROM JAPAN TO THE U.K. (TEPCO), JAPAN TO U.K. (JAPCO), JAPAN TO FRANCE (KANSAI) (Commissioner Action Item) (Memo, Chilk to Gossick dated 4/19/79)

This is to advise you that the Commission (with four Commissioners concurring) has approved your recommendation that NRC not object to the subject retransfers. However, the proposed response to the Department of Energy (DOE) has been revised by the Commissioners in accordance with the attached final draft. Commissioner Gilinsky did not participate in this action.

Commissioner Bradford requested that copies of the MB-10 applications be forwarded in future analyses.

The Office of International Programs was informed of this action by telephone on April 19, 1979.

It is requested that you forward to the Office of the Secretary a copy of the letter to DOE after signature and dispatch by the Director of International Programs.

(Attachment not included)

CALENDAR OF SPEAKING ENGAGEMENTS

APRIL

- 26 Westinghouse Research Laboratory, Pittsburgh, PA, - The Rasmussen Report Revisited: The Lewis Report on Reactor Safety Assessment - Robert J. Budnitz

MAY

- 1 State of South Carolina Advanced Management Seminar, Greenwood, SC - NRC Concurrence Program for Fixed Nuclear Facilities - J. W. Hufham
- 6 11th Annual National Conference on Radiation Control, Sheraton-Century Center Hotel, Oklahoma City, OK - Report on Current and Projected Federal Radiation Protection Activities with EPA and FDA - Robert G. Ryan
- 17 National Classification Management Society Seminar, Jack Tar Hotel, San Francisco, CA - The NRC Security Program - Classification Management in a Regulatory Agency - Raymond J. Brady
- 21 Radioactive Waste Management for Nuclear Power Reactors - Rules, Regulations and Standards - Alexandria, VA - I. C. Roberts
- 23 Annual Records Management Conference of the National Archives, Fredericksburg, VA - Automation of Records Management at NRC - R. Stephen Scott

ENCLOSURE N

May 1, 1979

UNITED STATES
NUCLEAR REGULATORY COMMISSION

SECY-79-313

INFORMATION REPORT

For: The Commissioners
From: T. A. Rehm, Assistant to the Executive Director for Operations
Subject: WEEKLY INFORMATION REPORT - WEEK ENDING APRIL 27, 1979

A summary of key events is included as a convenience to those Commissioners who may prefer a condensed version of this report.

<u>Contents</u>	<u>Enclosure</u>
Administration	A
Nuclear Reactor Regulation	B
Standards Development	C
Nuclear Material Safety and Safeguards	D
Inspection and Enforcement	E
Nuclear Regulatory Research	F
Executive Legal Director	G
International Programs	H
State Programs	I
Management and Program Analysis	J
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Calendar of Significant Events	L
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Exec Dir for Operations
Regional Offices
ACRS
Secretariat

Contact:
T. A. Rehm
49-27781

*No input this week

**Deleted from Commissioners and PDR copy


T. A. Rehm, Assistant to the
Executive Director for Operations

SUMMARY OF KEY EVENTS

Week Ending April 27, 1979

Texas A&M University

License No. R-23 for the Texas A&M nuclear research reactor was renewed for a period of 20 years.

NRC/DOE Meeting on Waste Management

A meeting was held to provide the NRC staff and our contractors with a better understanding of the geological exploration program being implemented by DOE to identify sites for nuclear waste repositories. DOE's program includes: (1) identifying geologic formations of interest, (2) performing reconnaissance studies on favorable geologic formations, and (3) preparing detailed site specific confirmation studies on areas of no more than a few square miles. By 1984, DOE will be able to determine the feasibility of developing a repository at specific sites. DOE is starting a program to examine geologic media other than salt, but it will not be completed until 1985.

Waste Shipment from TMI

The Washington Radiation Control Program staff indicated that Three Mile Island waste shipments to the commercial low-level waste site near Richland have renewed interest in House Bill 675. The bill would forbid storage or disposal in Washington of all wastes generated outside the state except defense wastes.

New Fuel Fabrication Plant

Westinghouse announced plans to build a new low-enriched uranium fuel manufacturing facility near Montgomery, Alabama. An application will be submitted to NRC in late 1979. Fuel fabrication is expected to begin in 1983.

LOFT

The second nuclear test in LOFT is scheduled for May 7. This test will simulate an accident involving the sudden rupture of a coolant inlet pipe while the reactor is operating at a power level of about 38 MWt.

TMI Action Plan

At EDO's request, MPA developed an inventory of actions underway in response to TMI incident. The list will provide the basis for the agency's action plan.

OFFICE OF ADMINISTRATION

Week Ending April 27, 1979

ADMINISTRATION OF THE FREEDOM OF INFORMATION ACT

STATUS OF REQUESTS

	<u>Initial Request</u>	<u>Appeal Initial Decision</u>
Received	169	14
Granted	81	2
Denied	27	4
Pending	61	8

ACTIONS THIS WEEK

Received

John R. Emshiviller
The Wall Street Journal
(79-128)

Requests copies of tests and answers given to operators and other licensed personnel by NRC at Three Mile Island Units 1 and 2; Indian Point 1 & 2; Dresden 1 & 2; Peach Bottom 3; Rancho Seco; Palisades; Millstone 2 and Oconee 3. Also requests studies that evaluate quality of nuclear plant personnel.

Lisabeth Tator Downes
(79-129)

Requests a map and other information pertaining to the location of nuclear power plants planned to be built by the year 2000.

William A. Webb
Rolf Jensen & Assoc.
(79-130)

Requests a copy of Basic Ordering Agreement NRC-03-78-131, Technical Assistance for Fire Protection Program Review and Evaluation which was awarded to Gage Babcock & Associates of Elmhurst, IL.

Laurie Burt
Commonwealth of Mass.
(79-131)

Requests copies of certain documents identified in a memo from Harold R. Denton to Lee V. Gossick dated December 11, 1978, subject: Review of Regulatory Actions and Staff Positions which rely on WASH-1400.

Kathleen M. Ragan
Kinetic Research, Inc.
(79-132)

Requests a copy of the winning Technical Proposal for the "Study of ALARA FOR RADIOPHARMACEUTICAL MANUFACTURERS" Contract NRC-02-79-037.

CONTACT: J. M. Felton
492-7211

ENCLOSURE A

J. D. Thomas
NRC-NTEU Chapter 208
(79-133)

Requests information on grade of an NRC employee at three different dates.

Aldo P. Osti
PFIZER, Inc.
(79-134)

Requests all information regarding the March 28, 1979 Three Mile Island incident.

Catherine Quigg
Pollution & Environmental
Problems, Inc.
(79-135)

Requests all records referring or relating to the leaks in the spent fuel pool of the Zion Nuclear Station built which is operated by Commonwealth Edison Co.

Clifton E. Curtis
Natural Resources
Defense Council
(79-136)

Referral by DOE of request related to the export of special nuclear material to India.

James J. Slocum
Milwaukee Sentinel
(79-137)

Request for access to all internal files for the Genoa, the Point Beach and the Kewaunee Nuclear plants in Wisconsin.

Weson Vivian
University of
Michigan
(79-138)

Requests an internal report relating to the Fermi I accident in October 1966 as referred to in the book "We Almost Lost Detroit."

Granted

Thomas Lookabill
NUS Corporation
(79-89)

Made available two documents concerning NRC contracts for low-level radioactive waste.

James W. Souten
Baltimore, MD
(79-96)

Made available documents relating to the non-use of Boron to flood Three Mile Island Unit 2.

Ellyn R. Weiss
Sheldon, Harmon, Roisman
& Weiss
(79-102)

Made available transcripts of closed Commission meetings regarding Three Mile Island Unit 2.

Robert Schakne
CBS News
(79-105)

Made available the test scores for all reactor operators at Three Mile Island Unit 2 (names of the individuals were deleted from the test scores).

Rex Hunter
Richton Park, IL
(79-112)

Made available a copy of the final report on the cause of the SL-1 accident.

(An NRC Employee)
(79-116)

Made available documents concerning the selection for Vacancy Announcement No. 78-523.

Ms. Mary E. Conley
Waltham, MA
(79-120)

Made available documents concerning NRC's organization and its health and safeguards functions.

Ms. Coral Rose Ryan
Citizens Concerned About
Nuclear Power
(79-123)

Made available copies of the Prehearing Conference Order Ruling Upon Intervention Petitions, Dockets 50-498 and 50-499 and 10 CFR, Part 2.

Ms. Lisabeth Tator Downes
Tucson, AZ
(79-129)

Made available a chart showing the proposed construction of nuclear power plants by the year 2000.

DIVISION OF CONTRACTS

Week Ending April 27, 1979

PENDING COMPETITIVE REQUIREMENTS

1. RFP RS-NMS-79-050
Title - Enhancement of the Nuclear Materials Management and Safeguards System
Description - The project will provide for the implementation of previously developed recommendations concerning data inconsistencies discovered in the Nuclear Materials Management and Safeguards System (NMMSS), as well as providing improvements to other portions of NMMSS.
Period of Performance - Eight months
Sponsor - Office of Nuclear Material Safety and Safeguards
Status - Solicitation being developed
2. RFP RS-NMS-79-047
Title - Licensing Technical Assistance
Description - Provide technical assistance to the Division of Fuel Cycle and Material Safety for safety and environmental reviews of license applications for the construction, operation or decommissioning of fuel cycle facilities.
Period of Performance - Two and one-half years
Sponsor - Office of Nuclear Material Safety and Safeguards
Status - Solicitation being developed
3. RFP RS-NMS-79-049
Title - Radiological Evaluation of Burial Grounds
Description - Technical assistance to determine and define the radiological conditions existing at on-site burial grounds used by licensees and for sites, not presently licensed, which are known to contain burial radioactive materials.
Period of Performance - Two and one-half years
Sponsor - Office of Nuclear Material Safety and Safeguards
Status - Solicitation being developed

RFP'S ISSUED

RFP RS-ADM-79-387
Title - Career Counseling
Description - A four-hour course in four individual sessions for approximately 100 NRC employees.
Period of Performance - One year
Sponsor - Office of Administration
Status - Solicitation issued April 24, 1979. Proposals are due May 23, 1979.

ENCLOSURE A

PROPOSALS UNDER EVALUATION

1. RFP RS-NMS-79-029
Title - Synthesis for Physical Security and Material Control and Accounting Assessment Results
Description - Develop methods for combining observations of MC&A Assessment Team members, develop a method for synthesizing the results of the Physical Security and MC&A assessments, and develop a draft handbook that explains the methodology for deriving the measures of effectiveness and synthesizing them into the final statement of adequacy.
Period of Performance - Ten months
Sponsor - Office of Nuclear Material Safety and Safeguards
Status - Best and Final offers due May 8, 1979.
2. RFP RS-NRR-79-102
Title - Technical Assistance Program for Two-Phase Flow Aspects of Reactor Safety
Description - Provide licensing support in the area of two-phase flow, consisting of a review of existing tests, experiments, and analytical methods used in this area.
Period of Performance - Three years
Sponsor - Office of Nuclear Reactor Regulation
Status - Contract mailed for signature on April 10, 1979.
3. RFP RS-NRR-79-107
Title - Reactor Coolant Pump/Motor Structural Integrity Following Sudden Seizure
Description - The contractor will provide expert technical assistance in evaluating the load carrying capability of the pump-to-motor hold-down bolts to withstand sudden motor seizure of a physical reactor coolant pump.
Period of Performance - Three months
Sponsor - Office of Nuclear Reactor Regulation
Status - Competitive range established on April 18, 1979.
4. RFP RS-NRR-79-110
Title - Decision Analysis Methodology Applications to the Reactor Licensing Process
Description - Application of decision analysis methodology within the Office of Nuclear Reactor Regulation in order to develop a more orderly and more structured process to arrive at regulatory decisions
Period of Performance - Fourteen months
Sponsor - Office of Nuclear Reactor Regulation
Status - Proposals received and were forwarded to Source Evaluation Panel (SEP) on April 25, 1979 for their review and evaluation.

ENCLOSURE A

CONTRACT AWARDS

1. RFP RS-NMS-79-028
Title - Development of Improved Techniques for Analyzing Material Control and Accounting Data
Description - Assist the NRC in applying the inventory difference simulation model to two major operating strategic special nuclear material fuel cycle facilities designated by the NRC.
Period of Performance - Eight and one-half months
Sponsor - Office of Nuclear Material Safety and Safeguards
Status - Cost Plus Fixed Fee Contract awarded to Science Applications, Inc., April 20, 1979. Estimated cost plus fixed fee of \$47,402.00.
2. RFP RS-ADM-79-362
Title - Cataloging Support Services
Description - Cataloging, processing, data conversion and related activities for backlog of approximately 9650 titles in the NRC Library.
Period of Performance - Seven months
Sponsor - Office of Administration
Status - Cost Plus Fixed Fee Contract No. NRC-10-79-362 awarded to Informatics, Inc., on April 24, 1979 in the amount of \$77,138.00.

CANCELLATIONS

RFP NMS-79-034
Title - Tests of Safeguards System Evaluation Methods
Description - The contractor will assist in planning and conducting tests of various new analytical methods for evaluating the effectiveness of safeguards systems.
Period of Performance - One year
Sponsor - Office of Nuclear Material Safety and Safeguards
Status - Cancelled at the request of the program office.

CONTRACTS CLOSED OUT

(All administrative action complete and final payment made)

<u>Contract No.</u>	<u>Organization</u>	<u>Close-Out Date</u>
AT(49-24)-0124	Nuclear Assurance Corp.	04/19/79
NRC-03-77-010	Associated Consultants International	04/19/79

ENCLOSURE A

DIVISION OF SECURITY
ITEMS OF INTEREST
WEEK ENDING APRIL 27, 1979

A Bulletin on the Protection of Limited Official Use Information (a category of unclassified information originated by the Department of State and given limited protection and distribution) has been prepared and distributed to Headquarters Offices and Divisions for comment or concurrence.

The Facilities and Systems Security Branch conducted on-site reviews of two Congressional subcommittee offices which retain NRC classified matter in coordination with the Office of Congressional Affairs.

On April 24, 1979, an initial security survey was conducted of the Resident Inspector's office at B&W, Apollo, Pa., for the purpose of receiving, storing and safeguarding of information classified no higher than Confidential, Restricted Data.

The Facilities and Systems Security Branch coordinated security support assistance for ASLBP conferences to be held in Miami, Florida on May 2, 1979 and in Salem, N. J. on May 2-4, 1979, and provided additional security coverage for Commission and ACRS meetings regarding the Three Mile Island incident which were held at 1717 H Street, Washington, D.C.

A representative of the Division of Security attended a meeting of Special Committee on Compromising Emanations at the National Security Agency.

ENCLOSURE A

OFFICE OF NUCLEAR REACTOR REGULATION

WEEKLY ITEMS OF INTEREST
(Week Ending April 27, 1979)

Carroll County 1 & 2

An orientation meeting was held on April 24, 1979, with dedicated reviewers and their supervisors. The review is to be conducted using the recommendations of NUREG-0292.

Greene County

At the request of the applicant, the Atomic Safety and Licensing Board has canceled all scheduled hearings.

Texas A&M University

License No. R-23 for the Texas A&M AGN-201M nuclear research reactor was renewed for a period of 20 years, authorizing continued operation until August 26, 1997.

ENCLOSURE 3

OFFICE OF STANDARDS DEVELOPMENT

IMPORTANT EVENTS FOR THE WEEK ENDING APRIL 27, 1979

1. James A. Norberg is attending the IAEA, TRC-Design Committee meeting which is being held in Tokyo, Japan, April 23-27, 1979. While in Japan Mr. Norberg will visit nuclear power plants in the Kyoto area and also research facilities in Tokai.
2. Publication of Proposed Rule on Addition of Veterinarians to the General License for In Vitro Clinical Testing: On April 26, 1979 proposed amendments to Parts 31 and 32 were published in the Federal Register under the signature of the Executive Director for Operations. These amendments are in response to a petition and would add veterinarians to the groups already authorized to use byproduct material under general license for in vitro clinical or laboratory testing. The 60-day comment period ends on June 25, 1979.
[Deborah A. Bozik]
3. Known Effects of Low-Level Radiation Exposures: On April 25, 1979, Deborah Bozik and Edward Podolak attended an educational seminar titled, "Known Effects of Low-Level Radiation Exposures" which was sponsored by the Mideast Center for Radiological Physics and Allegheny General Hospital. The seminar, which was given in Pittsburgh, Pennsylvania, was related to the Three Mile Island incident and was intended to provide up-to-date information in simple and accurate terms to local physicians who may be required to handle inquiries from their patients. At the seminar, Gordon K. MacLeod, M.D., Secretary of Health, Commonwealth of Pennsylvania, discussed the Pennsylvania State Bureau of Health Research plan for surveillance of the population contiguous to the plant for health effects which may be related to TMI. They plan a wide variety of studies and surveys to determine the immediate and long-term impact of radiation and psychoemotional stress upon human health.
[Deborah A. Bozik]
4. Meeting of a Subcommittee of the HEW Interagency Task Force on Ionizing Radiation Research: On April 23, 1979, Karl Goller, Hal Peterson, and Mike Parsont of SD attended a meeting of a Subcommittee of the HEW Interagency Task Force on Ionizing Radiation Research to discuss the desirability of conducting epidemiologic follow-up studies of plant workers and the general

ENCLOSURE C

public in the vicinity of the Three Mile Island site. This Subcommittee was chaired by Dr. Arthur Upton, the Director of the National Cancer Institute (NCI). It was convened at the request of Dr. Donald Fredrickson, Director of the National Institutes of Health. Tony Robbins of NIOSH and numerous members of NCI's Epidemiology Branch were present.

The following individuals participated by conference call: Henry Falk, Glyn Caldwell and Mark Nelson of the HEW Center for Disease Control - National Institute for Occupational Safety and Health; John Villforth, Director of the Bureau of Radiological Health, FDA; William Ellett, Chief of EPA's Radiation Bioeffects Branch, and William Burr of DOE.

On the basis of existing dose projections, the group almost unanimously agreed that the potential radiation-induced health consequences of the accident would be undetectable. Dr. Marvin Schneiderman of NCI suggested that if anything were done it should be limited to a registry of the residents including time spent in the vicinity of TMI and social security numbers. This could permit automatic tracking of the population to be done at some time in the future through death certificates. Dr. Schneiderman also indicated that some short-term studies of abortions and birth defects might be carried out. This could allay public concerns regarding Dr. Ernest Sternglass's allegations of significant genetic injury and birth defects, and also provide a measure of the psychological impact of the incident. Mr. Goller raised the question of whether one could distinguish the radiation effects from the possible psychologically-induced effects; Dr. Schneiderman said that he believed that they were indistinguishable. Dr. Ellett of EPA provided an upper bound analysis that confirmed the minor health significance, even if all existing cancers were caused by radiation. He showed that, if the higher risks from the 1977 BEIR Report were used, there should be 3 times as many cancers in the existing population as are now present. Despite the scientific opinions to the contrary, it appears that CDC may still propose to do a 20- to 50- year study at a cost of \$1,000,000 to \$2,000,000 a year. However, they were requested by Dr. Upton to prepare a range of options with their costs for further consideration by the Subcommittee. The NIOSH representatives also requested from NRC, information on the dosimeter readings and bioassay results on the in-plant workers.

Dr. Parsont, NRC, raised the point that if prompt action is not taken, some valuable data might be lost.

[Harold T. Peterson]

Regulatory Guides to be Issued in the Near Future

1. Title: Quality Assurance Program Requirements (Operation)(Reg. Guide 1.33, Rev. 3)

Expected Issuance Date: September 1979

Description: This guide provides guidance on quality assurance program requirements for the operation phase of nuclear power plants.

Contact: T. Scarbrough
443-5913

2. Title: Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel (Reg. Guide 1.58, Rev. 1)

Expected Issuance Date: September 1979

Description: This guide provides guidance concerning the qualification of personnel who perform inspections, examinations, and tests at nuclear power plants.

Contact: T. Scarbrough
443-5913

3. Title: Assumptions Used for Evaluating the Potential Radiological Consequences of Accidental Criticality in a Uranium Fuel Fabrication Plant (Reg. Guide 3.34, Rev. 1)

Expected Issuance Date: July 1979

Description: Provides guidance for modeling, source terms and potential dose estimation for evaluating criticality in a U fab plant.

Contact: W. R. Pearson
443-5910

4. Title: Assumptions Used for Evaluating the Potential Radiological Consequences of Accidental Criticality in a Plutonium Processing and Fuel Fabrication Plant (Reg. Guide 3.35, Rev. 1)

Expected Issuance Date: July 1979

Description: Provides guidance for modeling, source terms, and dose estimation for evaluating criticality in a Pu plant.

Contact: W. R. Pearson
443-5910

5. Title: Design Guidance for Radioactive Waste Management Structures, Systems, and Components Installed in Light-Water-Cooled Nuclear Power Plants (Reg. Guide 1.143, Rev. 1)

Expected Issuance Date: June 1979

Description: Provides design guidance related to seismic, quality classification, and quality assurance provisions for radwaste systems, structures, and components.

Contact: W. R. Pearson
443-5910

Publications Issued During the Week of April 23-27, 1979

List of Regulatory Guides Under Development - published titles and scopes of regulatory guides under development as of March 16, 1979, and, where appropriate, the related national standards such as those of the American National Standards Institute, American Nuclear Society, Institute of Electrical and Electronics Engineers, and the American Society of Mechanical Engineers. The list was developed before the recent accident at Three Mile Island Nuclear Station. It did not include any new guides or revisions to existing guides that may be found to be necessary as a result of the ongoing investigations of that accident.

OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

Items of Interest

Week Ending April 27, 1979

Guard Force Strike at B&W Parks Township and Apollo Sites

The management of the Babcock and Wilcox Nuclear Material Division has notified licensing personnel of the likelihood that the guard force will strike at its Parks Township and Apollo sites on April 30, 1979. The licensee intends to provide equal plant protection measures through the use of non-striking security supervisors and salaried personnel. Specific compensatory measures were proposed by the licensee and modified during discussions with members of the licensing staff. Formal commitments to the agreed upon measures will be made a condition of the license prior to the strike deadline.

Enhancement of the Nuclear Materials Management and Safeguards System (NMMSS)

A request for procurement action has been forwarded to the Division of Contracts seeking a RFP for further work in clarifying and enhancing the data contained in the NMMSS. This contract will run approximately eight months and will (a) implement recommendations, from a previous contract, to improve inventory difference and authorized possession limit data and (b) examine and resolve data and reporting problems such as shipper/receiver differences, limits of error, safeguards thresholds and action code analysis.

NRC Upgrade of Type E Seals

Senators John Glenn and Abraham Ribicoff recently wrote Cyrus Vance, Secretary of State, raising certain questions concerning the adequacy of Type E seals as used by the IAEA. As a result of this request for information, NMSS initiated a review of Type E seal use by domestic licensees and Office of Inspection and Enforcement (IE) inspectors. Following a preliminary review, NMSS recommended to IE that NRC initiate use of soldering and fingerprinting techniques for Type E seals used for sealing SNM transport containers.

ENCLOSURE D

Meeting with Staff of Subcommittee of Energy and Nuclear Non-Proliferation

Representatives of NMSS, DOE and DOT met with a subcommittee staff member on April 25, 1979, to discuss means for enabling the IAEA to ship plutonium samples and standards by aircraft. As a result of the meeting, Senator Glenn will probably request NRC, DOE and DOT to examine and pursue possible approaches to alleviate the IAEA safeguards problem.

NRC/DOE Meeting

On April 11, 1979, the second in a series of meeting was held with the U.S. Department of Energy (DOE) and their contractors. The purpose of this meeting was to provide the NRC staff and our contractors with a better understanding of the geological exploration program being implemented by DOE to identify sites for nuclear waste repositories. NRC staff members from NMSS, SD, NRR, and RES attended. A copy of the meeting notice was placed in the NRC public document room at 1717 H Street and was sent to those individuals who had requested that they be notified of NRC/DOE meetings on waste management matters. The total attendance at the meeting was about 100 persons including several individuals from the public, other government agencies, and congressional staffs.

DOE briefly described their program for selecting a repository site. The sequence of geologic investigations in this process is to (1) identify geologic formations of interest, (2) perform regional reconnaissance studies on favorable geologic formations, (3) perform more detailed studies on smaller areas ($\sim 1000 \text{ mi}^2$) within a favorable geologic formation, and (4) prepare detailed site specific confirmation studies on areas of no more than a few square miles.

The geologic exploration work in both salt and non-salt media by DOE is taking place in seven areas in the United States. These include the Gulf Interior Region (Texas, Louisiana, Mississippi), the Paradox Basin (Colorado, Utah), the Permian Basin (Oklahoma, Texas, New Mexico), the Salina Basin (Ohio, New York), the WIPP site. By 1984, work should have progressed in these areas to the point where DOE will be able to determine the feasibility of developing a repository at specific sites within these regions, Hanford, and the Nevada Test Site.

DOE is starting a program to examine geologic media other than salt, but DOE has not yet defined geographic regions of interest. This work will focus primarily on argillaceous and crystalline rocks. The geologic exploration program in non-salt media will not be completed until 1985.

The next meeting between DOE and NRC on waste management matters is tentatively scheduled for late May, when the topic of criteria development will be discussed.

LLL Paper re Waste Disposal in Deep Geologic Repositories

In response to a recent NRC change to our contract with Lawrence Livermore Lab, the lab has submitted a draft working paper entitled, "Regulatable Elements in the Waste Management Program," which includes lists of elements that they feel are important to the problem of waste disposal in deep geologic repositories. The NRC staff will meet with LLL to discuss this working paper the week of May 1, 1979.

Meeting re 10 CFR 60

During the week of May 1, 1979, NMSS will conduct a meeting with SD and LLL to discuss the Livermore report and the preliminary draft of subpart B to 10 CFR Part 60 to decide on the content for the initial draft for public comment.

Presentation by Witherspoon, Lawrence Berkeley Labs

Professor Witherspoon from the Lawrence Berkeley Labs will give a presentation on the "Stripa Mine Experience on High-Level Waste Disposal in Sweden." This presentation will be given in Room 150 of the Willste Building on May 1, 1979, at 9:00 a.m.

Waste Shipment from TMI

Waste Management was informed by Washington Radiation Control Program staff that Three Mile Island waste shipments to the commercial low-level waste site near Richland have renewed interest in House Bill 675. The Washington legislature is holding hearings on the bill Thursday evening, April 26, 1979. The bill would forbid storage or disposal in Washington of all wastes generated outside the state except defense wastes. Waste Management referred the matter to the Office of State Programs for follow-up.

Low-Level Waste Burial Ground at Sheffield

Nuclear Engineering Company's (NECO) attorney and OGC signed an agreement on the Sheffield, Illinois, low-level waste burial ground. When NECO's management consents, the agreement will provide for compliance with NRC's order dated March 20, 1979, in that requirements for site security, monitoring, and maintenance, etc., in the site license will be met.

ACRS Waste Management Subcommittee Meeting

Members of the Waste Management Division attended the ACRS Waste Management Subcommittee meeting in Richland, Washington, on April 18-20, 1979. The draft High-Level Waste Management Program (copies of which had earlier been mailed to Subcommittee members and consultants) was discussed with the Subcommittee in some detail. The Plan is being reviewed in light of Subcommittee comments prior to submittal to the Commission.

Meeting with Swedish Representatives

Messrs. Bo Aler and Ragnar Nilson of Studsvik A.B. along with Mr. Lars Larson of the Swedish Embassy visited NRC for discussions on reactor safety, fuel cycle safety and future research cooperation. Research and reactor aspects were handled by the RES staff. The Swedish visitors indicated that they have two alternative routes for handling spent fuel from reactors. Authority for two reactors has been based upon reprocessing of fuel by COGEMA (France) with subsequent disposal of high level wastes in Sweden. The disposition of plutonium is not established at this time. The additional nine reactors have been justified by interim spent fuel storage at an AFR for several decades. For subsequent actions, consideration will be given to either reprocessing based on experience to that date or spent fuel disposal. Present Swedish studies on the latter option include encapsulation in a thick copper canister and burial in rock formations.

The Swedish representatives indicated that they have adequate indigenous uranium supply to fuel about a dozen LWR's for their projected operating life (30 years) and feel that their independence in this regard is significantly different from most countries in western Europe.

ENCLOSURE D

NASAP

FC comments on DOE document "Nuclear Energy System Characterization Data" were finalized. The more significant items were that: (a) for many cases considered, the uranium needs through 2025 far exceed the projected U.S. resources and this was not indicated in any way; (b) all cases except the introduction of the breeder indicate the build-up of large (hundreds to thousands of tonnes) quantities of fissile materials; (c) no cases were designed to minimize such build-ups to aid proliferation resistance; and (d) technological fixes such as dilution and spiking are apparently considered in the study to be an adequate means for achieving proliferation resistance upgrading.

Incident Response Group

A planning group of senior staff headed by F. D. Fisher has begun preparation of a charter, tasks breakdowns, schedules, and estimates of staffing and other resources requirements for an appropriate capability for responses to incidents involving Fuel Cycle and Material Safety licensees.

Amendment of Table S-3 for Radon

Revised estimates of the radon releases from the front end of the uranium fuel cycle have been developed for Table S-3. These estimates are based on recent measurements of radon releases at mines and mills and are lower in total than the estimates given in testimony by the staff at individual reactor hearings. The new radon-222 values proposed for Table S-3 are 4860 Ci/AFR during operation of the mines and mills, plus 9 Ci/AFR/year during the first 100 years after shutdown and 17 Ci/AFR/year during the period between 100 and 1,000 years after shutdown. The projections are not extended beyond 1,000 years because uncertainties become too large. Drafts of the Commission paper, Federal Register notice, and press release on the proposed amendment of Table S-3 are being prepared for internal review.

Assessment of Radionuclide Capture, Retention and Disposal Technology

OECD-NEA draft Chapter 7, Assessment of Radionuclide Capture, Retention and Disposal Technology was reviewed and commented upon. This report suggests a methodology for evaluating whether radionuclide capture, retention and disposal systems are cost effective. It compares costs with dose commitments averted to a world population of 100 billion

persons over a 10,000-year period for long-life radionuclides such as ^{14}C and ^{129}I . This report, however, avoids the principal issue of how much is a man-rem, dose commitment, to a world population worth? Thus the ability to make a finding as to whether the radionuclide capture, retention and disposal systems are cost effective is still uncertain.

Fuel Cycle Facility Accident Research Projects

FC staff members attended a coordination meeting for Fuel Cycle Facility Accident Research Projects. Representatives from PNL, LASL and ORNL were briefed by RES on the general scope of the research activities required by each contractor. The contractors outlined their approach and tentative schedules for their programs.

The first phase, literature search and accident and incident categorization, will be completed in three months. NRC will review with contractors and set up a priority for Phase II, experimental work in establishing models and aerosols to study release behaviors for eventual source term formulation.

SD provided an interim report prepared by ANL entitled, "Externally and Internally Caused Accidents and Incidents in the Nuclear Fuel Cycle Facilities." This interim report is a rather comprehensive listing of incidents that occurred in the United States and foreign countries from 1942 to 1978 and a copy was turned over to E. D. Fisher for his use in the planning of the Fuel Cycle Incident Response Study Program being launched.

New Fuel Fabrication Plant

Westinghouse announced on April 11, 1979, that it plans to build a new low-enriched uranium fuel manufacturing facility near Montgomery, Alabama. An application for this plant will be submitted to NRC in late 1979. The Westinghouse timetable calls for fabrication of fuel to begin in 1983.

OFFICE OF INSPECTION AND ENFORCEMENT

Items of Interest

Week Ending April 27, 1979

1. Preliminary Notifications relating to the following actions were dispatched during the past week:
 - a. PNO-79-67AB through 67AH Three Mile Island Unit 2 - Nuclear Incident at Three Mile Island Unit 2 - These Preliminary Notifications were issued to provide updated status information regarding the incident.
 - b. PNO-79-88 North Anna Units 1 & 2 - Problem in Reanalysis of Piping Stresses - During reanalysis of main steam piping, Stone and Webster found that stress analysis assumptions used for Unit 1 were also used for Unit 2. Since Unit 2 main steam valve housing has a soil foundation while Unit 1 is founded on rock, response characteristics are different and more severe for Unit 2 piping in the main steam valve housing. Subsequently, four pipe hangers were identified that required modification. Corrective action is in progress. (Closed)
 - c. PNO-79-89 Rancho Seco - Loss of Inverter Power Supply - Automatic Reactor Trip - On April 22, 1979, the reactor sustained an automatic shutdown from high reactor coolant system pressure caused by a failure of the "A" inverter power supply. There were no anomalies in the reactor protection system or plant operator performance during the event. The licensee completed repairs to the failed inverter and returned the unit to operation. (Closed)
 - d. PNO-79-90 Big Rock Point - Reactor Coolant Pressure Boundary Leak - The licensee reported the discovery of a small primary system leak while hydrotesting the pressure vessel in preparation for startup following an extended refueling outage. The leak was located on a control rod drive thimble at the weld joining the thimble to the reactor vessel. No estimate of delay in startup has been made; however, the repair may require defueling of the reactor. An IE inspector is at the site. (Closed)
 - e. PNO-79-91 Millstone Point Unit 2 - Vapor Binding of Shutdown Cooling System Pump - While operating the Shutdown Cooling System (SDC) in a degraded mode, the LPSI pump became air bound resulting in a loss of SDC flow. The licensee took safety measures and restored flow. The planned restoration activities resulted in the spillover of approximately 15,000 gallons of water through an open steam generator manway to the containment. There was no release of radioactive material to the environs. (Closed)

- f. PNO-79-92 Crystal River Unit 3 - Industrial Death in Spent Fuel Pool - On April 25, 1979, a contractor employee fell into the spent fuel pool and was killed. The man fell about 40 feet to the bottom of the pool which had been drained for maintenance. The State of Florida and OSHA have been informed. (Closed)
- g. PNO-79-93 North Anna Units 1 & 2 - Electrical Transfer Bus Overloads - Licensee review of electrical requirements during combined operation of Units 1 & 2 revealed that the 4160 volt common transfer bus and transfer feeder breakers are not capable of carrying full load current under certain circumstances. This problem involves power supplies to general plant systems and does not affect emergency equipment power supplies. The licensee is preparing to rearrange transfer bus loads to alleviate this problem prior to Unit 2 startup. (Closed)
- h. PNO-79-94 Indiana University Medical Center, Indianapolis, IN - Fire at Licensee's Facility - On April 25, 1979, a fire occurred in the basement of the licensee's facility because of a shooting when one of the shots struck a flask of volatile liquid. One person was killed from the shooting and the person doing the shooting attempted suicide. The fire occurred in an area where 1.9 microcuries of iodine-125 was stored; however, it is believed that the fire did not reach the radioactive material. (Closed)
- i. PNS-79-36 Duane Arnold - Threat Letters - A local radio/TV station in Cedar Rapids, Iowa and Mr. Duane Arnold received letters from the Eastern Iowa Anti-Nuke Vigilantes claiming to have 100 grams of plutonium which they threaten to use to cause contamination of the Iowa Electric Light and Power Co. corporate headquarters and the residence of Mr. Duane Arnold, president of the utility, unless the plant is closed down by May 4, 1979. The matter was turned over to the appropriate Federal agency. (Closed)
- j. PNS-79-37 Diablo Canyon Unit 1 & 2 - Bomb Threats - Bomb threats were received on April 20 and 25, 1979. In each instance, the licensee conducted a search of the facilities with negative results. (Closed)

OFFICE OF NUCLEAR REGULATORY RESEARCH

Import Items - Week Ending April 27, 1979

LOFT

The new schedule for the second nuclear test in LOFT (L2-3) is May 7, 1979. This test will simulate an accident involving the sudden rupture of a coolant inlet pipe when the reactor is operating at a power level of about 38 MWt, which corresponds to the nominal power density in a commercial LWR (12 Kw/ft. linear heat generation rate).

In recent preparations for the test, the LOFT reactor was filled with water, pressurized and brought to criticality. After zero power physics tests, the power was raised to 10 percent to check the secondary system for leaks. The plant is now cooled down while preparations for the L2-3 test are completed..

ENCLOSURE F

ITEMS OF INTEREST
OFFICE OF INTERNATIONAL PROGRAMS
WEEK ENDING APRIL 27, 1979

INTERNATIONAL COOPERATION

Foreign Visits

Six members of the Chinese Nuclear Energy Society delegation which visited NRC on March 27 returned on April 23 for a follow-up session with IP and RES staff members to discuss the ground rules for bilateral agreements, including personnel and information exchanges.

Mr. Pierre Audigier, Deputy to the Executive Officer of the French Interministerial Committee for Nuclear Safety and Mr. Guy Jeanpierre, Head of the Nuclear Materials Security Department of the Institut de Protection et de Surete Nucleaire, met with SP staff on Tuesday to discuss emergency preparedness, NMSS staff Wednesday to discuss waste management, material control and physical security protection, and SD staff on Thursday to discuss low level radiation.

*

Foreign Reports

The following foreign reports were received at IP during the week of April 23-27. For further information contact Ann McLaughlin (27788). (** indicates report is in English.)

From Sweden

1. Vacuum Treatment Deoxidation and Desulphurization of 13 Cr-, Ni-, 1, 5 Mo-steel. **
2. Metallographic Studies of Steels Containing Vanadium and Chromium After Simulated Stress-Relief-Cracking. **
3. Investigation of the Plasma Hot-Wire Process for Corrosion-Resistant Cladding of Nuclear Components. **
4. Effects of Impurities on the Hot Ductility of Austenitic Stainless Steels. **
5. UNIDOSE - A Computer Program for the Calculation of Individual and Collective Doses From Airborne Radioactive Pollutants (Studsvik) **
6. KBS-Safe Handling and Storage of High Level Radioactive Waste. **

ENCLOSURE H

EXPORT IMPORT AND INTERNATIONAL SAFEGUARDS

The Action Plan Working Group met Tuesday morning at the Department of State. NRC was represented by Chris Kessler (IP) and Ted Sherr (NMSS). The principal topic of discussion was the development of an effective management process for the implementation of work plans which have been reviewed and accepted by the Working Group.

An interagency meeting on the subject of exchanging information regarding material control and accounting with other countries was held at NMSS Thursday morning. In addition to NRC (NMSS and IP), DOE and ACDA were represented.

ENCLOSURE H

OFFICE OF STATE PROGRAMS

ITEMS OF INTEREST

WEEK ENDING APRIL 27, 1979

Emergency Preparedness

Federal Interagency Regional Advisory Committee reviews of State Emergency plans for Vermont and Pennsylvania were initiated this week.

H. E. Collins, SP, briefed the Commission on the status of Emergency Preparedness Program activities with Federal, State and local governments. The current status of State plans was covered in brief.

State Agreements

The Georgia Department of Natural Resources regulatory program for agreement materials will be reviewed on April 30 and May 1.

The New York Department of Labor regulatory program for agreement materials will be reviewed during the week of April 30.

Program Development

NUREG-CR/0756, "Transportation of Radioactive Material in Illinois -- June 6, 1977 to June 6, 1978," was published this week, reporting on the State's first-year's monitoring program, performed under an agreement with NRC and DOT. The monitoring was conducted by State Police troopers in cruisers equipped with radiation detection instrumentation provided by NRC.

The Office of State Programs and the Denver Research Institute of the University of Denver held a public meeting in Jackson, Wyoming, April 24-25, to gather information and ideas on the socio-economic aspects of the transportation of low specific activity radioactive materials, and to examine the present lines of communication between NRC, the uranium industry and the general public.

ENCLOSURE I

OFFICE OF MANAGEMENT AND PROGRAM ANALYSIS

Items of Interest

Week Ending - April 27, 1979

TMI FOIA

Prepared with ADM the procedures for agency control and release of TMI documents under the FOIA. Documents will be entered in NRC's document control system and added to the TMI docket forming the official file of the accident.

TMI Action Plan

At EDO's request developed an inventory of actions underway in response to TMI accident. List will be used to exchange information between offices and with the Commission. It will provide the basis for the agency's action plan and should prove valuable in the ensuing investigations.

Congressional Transcripts

Edited transcripts and coordinated inserts for records of the following hearings: (1) Senator Hart's hearing on Three Mile Island accident on April 10; (2) Representative Dingell's subcommittee on NRC authorization; and (3) Senator Hart's hearing of March 27 on the shutdown of five reactors due to seismic design.

PAO on Three Mile Island-2

Sent Proposed Abnormal Occurrence on Three Mile Island-2 to staff for review and comment.

ENCLOSURE J

OFFICE OF THE CONTROLLER

ITEMS OF INTEREST

Week Ending April 27, 1979

FY 1979 REPROGRAMMING SECY-79-53 AND SECY-79-53A

The Commission concurred in the proposed reprogramming actions and transmitted them to Congress for approval.

RESOURCE IMPACT OF THREE MILE ISLAND AND 5 PLANT CLOSINGS

A call issued to all Office Directors to identify "best estimate" resources changes for the remainder of FY 1979 and FY 1980 due to the recent reactor incidents, requested submissions by Thursday, April 26, 1979. Some submissions have been received. Remaining submissions are promised to be submitted by next week.

FY 1979 MID-YEAR RESOURCES REVIEW

CON issued a call for the staff to complete a FY 1979 Mid-Year Review of resource requirements by mid May. This review will be incorporated into the Commission-requested Second Thirdly program review planned for late in May.

Enclosure K

CALENDAR OF SIGNIFICANT EVENTS

May 1 Midland - Prehearing conference

May 4 Salem 2 - SER Supplement No. 4 to be issued
NEP 1 & 2 - SER Supplement No. 1 to be issued
Carroll County - Orientation meeting for reviewers
and their supervisors (which was postponed because
of TMI efforts) will be held during the week
ending May 4
Summer - A Visit to the Plant to review fire
protection features will be made during the week
ending May 4

May 7-9 New Haven 1 & 2 - Site visit - Public meeting will
be held on May 8, 1979 in Mexico, NY

ENCLOSURE L

ITEMS APPROVED BY THE COMMISSION - RECEIVED WEEK ENDING APRIL 27, 1979

- A. SECY-79-142A - PROPOSED LICENSE TO IMPORT LOW ENRICHED URANIUM FROM SWEDEN (WESTINGHOUSE APPLICATION ISNM 79006) (Commissioner Action Item) (Memo, Chilk to Gossick dated 4/20/79)

This is to advise you that the Commissioners have reviewed the subject license to Westinghouse Electric Corporation. The Commission (with all Commissioners concurring) has accepted your recommendation to import from Sweden 92, 281 kilograms of uranium, enriched to 3.3% U-235, in the form of UO₂ pellets contained in zircaloy fuel rods.

The Office of International Programs was informed of this action by telephone on April 20, 1979.

It is requested that you provide notification of the issuance and delivery of this license to Westinghouse by c.o.b. April 24, 1979.

- B. STAFF REQUIREMENTS - AFFIRMATION SESSION 79-8, 11:50 A.M, THURSDAY, APRIL 19, 1979, COMMISSIONERS' CONFERENCE ROOM, D.C. OFFICE (Open to Public Attendance) (Memo, Chilk to Bickwit and Fraley)

- I. SECY-79-207 - Kranish FOIA Appeal 79-A-3 (Consent Calendar Item)

The Commission, by a vote of 4-0*, denied the subject appeal. In taking this action the Commission requested that the Secretary inform Mr. Kranish of its decision in this matter. (OGC/SECY)

- II. SECY-79-203 - Appointment of ACRS Member (Consent Calendar Item)

The Commission, by a vote of 4-0**, approved the appointment of Dr. Harold W. Lewis to the ACRS. In taking this action the Commission requested that a letter offering Dr. Lewis an appointment with the ACRS be dispatched over the signature of Chairman Hendrie. (ACRS)

* Although not in attendance, Chairman Hendrie had previously indicated his approval of the recommendation to deny this appeal.

** Although not in attendance, Chairman Hendrie had previously indicated his approval of this appointment.

C. SECY-79-211 - WRITTEN PHYSICAL SECURITY ASSURANCE FROM ITALY (Commissioner Action Item) (Memo, Chilk to Gossick dated 4/20/79)

This is to advise you that the Commission (with four Commissioners concurring) has concurred in the recommendation of the staff to approve the Italian assurance letter as adequate under 10 CFR 110.43; and noted that written physical assurances have now been received from all member states of EURATOM, and that exemptions to §110.43(a)(2) and (b), as amended, are no longer necessary. Commissioner Bradford did not concur in this action.

In connection with his non-concurrence, Commissioner Bradford noted: "If the informal translation, as suggested, fails to convey a prospective intent, please get a correct translation. If the problem is more serious, please so advise us. I cannot agree that the Italian 'applies' looks to the future the way the Belgian 'ensures' does."

The Office of International Programs was informed of this action by telephone on April 19, 1979.

It is requested that you provide a response to Commissioner Bradford's comment through the Office of the Secretary by May 21, 1979.

D. SECY-79-254 - PROPOSED LICENSE TO IMPORT HIGH ENRICHED URANIUM FROM FRANCE (ISNM 79003) (Commissioner Action Item) (Memo, Chilk to Gossick dated 4/20/79)

This is to advise you that the Commissioners have reviewed the subject license to Transnuclear, Incorporated. The Commission (with all Commissioners concurring) has accepted your recommendation to import from France 22.701 kilograms of uranium, enriched to 73.12% U-235, in the form of UF₆.

The Office of International Programs was informed of this action by telephone on April 20, 1979.

It is requested that you provide notification of the issuance and delivery of this license to Transnuclear by c.o.b. April 24, 1979.

E. SECY-79-255 - PROPOSED AMENDMENT TO IMPORT LICENSE ISNM78004 LEU FROM WEST GERMANY (Commissioner Action Item) (Memo, Chilk to Gossick dated 4/20/79)

This is to advise you that the Commissioners have reviewed the subject license to Exxon Nuclear Company, Incorporated. The Commission (with all Commissioners concurring) has accepted your recommendation to amend the license to increase the quantity of material to be imported from West Germany from 43,340 kilograms of uranium, enriched to 2.9% U-235, to 86,480.1 kilograms of uranium, enriched to 3.2% U-235, in the form of UO_2 .

The Office of International Programs was informed of this action by telephone on April 20, 1979.

It is requested that you provide notification of the issuance and delivery of this license to Exxon by c.o.b. April 24, 1979.

F. SECY-79-256 - PROPOSED LICENSE FOR IMPORT OF LEU UF_6 FROM THE USSR (IMPORT APPLICATION ISNM79005) (Commissioner Action Item) (Memo, Chilk to Gossick dated 4/20/79)

This is to advise you that the Commissioners have reviewed the subject license to Exxon Nuclear Company, Incorporated. The Commission (with all Commissioners concurring) has accepted your recommendation to import from the USSR 40,000 kilograms of uranium, enriched to 3.1% U-235, in the form of UF_6 .

The Office of International Programs was informed of this action by telephone on April 20, 1979.

It is requested that you provide notification of the issuance and delivery of this license to Exxon by c.o.b. April 24, 1979.

G. EMERGENCY CONTACT WITH LICENSEES (Memo, Chilk to Gossick dated 4/23/79)

When we get to the lessons learned phase of Three Mile Island would you please consider the following additions to the emergency communications network.

- a. A street address (not post office box) suitable for telegram delivery.
- b. An emergency telephone contact at corporate headquarters.
- c. A compatible network of low-speed or high-speed facsimile transmission equipment.

ENCLOSURE M

H. SECY-79-95 - NON-PROLIFERATION LANGUAGE IN NRC INTERNATIONAL AGREEMENTS (Memo, Chilk to Gossick dated 4/25/79)

Reference is made to the memorandum to the Commissioners from the Director of International Programs, subject as above, dated April 17, 1979.

This is to advise you that the Commissioners (with four Commissioners concurring and Commissioner Ahearne non-concurring in part) have agreed to the dispatch of the proposed letter to the Department of State. Commissioner Ahearne non-concurred in inclusion in the letter of the question as to whether the Executive Branch recommends that Option 2 be adopted. However, in the interest of expediting receipt of Executive Branch views, he did not object to dispatch of the letter.

The Office of International Programs was informed of this action by telephone on April 24, 1979.

It is requested that you forward a copy of the letter to the Office of the Secretary after signature and dispatch by the Deputy Director of International Programs.

I. UCS EMERGENCY PETITION (Memo, Chilk to Gossick dated 4/25/79)

On March 28, 1979, the Union of Concerned Scientists (UCS) filed the attached petition with the Commission entitled, "Emergency Petition for the Reanalysis of the Capacity of Operating Plants to Withstand Earthquakes." The Commission believes that this should be treated as a petition filed under 10 CFR 2.206 and that the initial response to the UCS should come from the Director, Office of Nuclear Reactor Regulation. The Commission will have the opportunity sua sponte to review the staff decision under 10 CFR 2.206(c). The Commission has requested that, consistent with available staff resources, the staff should promptly respond to the petition. Please advise the Commission within one week of an approximate staff schedule. (Attachment not included)

ENCLOSURE M

CALENDAR OF SPEAKING ENGAGEMENTS

MAY

- 1 State of South Carolina Advanced Management Seminar, Greenwood, SC - NRC Concurrence Program for Fixed Nuclear Facilities - J. W. Hufham
- 6 11th Annual National Conference on Radiation Control, Sheraton-Century Center Hotel, Oklahoma City, OK - Report on Current and Projected Federal Radiation Protection Activities with EPA and FDA - Robert G. Ryan
- 17 National Classification Management Society Seminar, Jack Tar Hotel, San Francisco, CA - The NRC Security Program - Classification Management in a Regulatory Agency - Raymond J. Brady
- 21 Radioactive Waste Management for Nuclear Power Reactors - Rules, Regulations and Standards - Alexandria, VA - I. C. Roberts
- 23 Annual Records Management Conference of the National Archives, Fredericksburg, VA - Automation of Records Management at NRC - R. Stephen Scott

JUNE

- 3-8 American Nuclear Society Annual Meeting, Atlanta, GA - Status of Pertinent Regulations and Regulatory Guides for Independent Spent Fuel Storage Installations - Russell E. L. Stanford
- 4-15 Lecture the IE inspectors on concrete and other structural defects experienced in Nuclear Power Plant Construction - L. L. Beratan

May 19, 1979

SECY-79-344

COMMISSIONER ACTION

The Commissioners

To:

Thru:

Lee V. Gossick
Executive Director for Operations

From:

Harold R. Denton, Director
Office of Nuclear Reactor Regulation



Subject:

INTERIM NRR ORGANIZATION TO DEAL WITH IMPACTS OF TMI-2
AND OTHER NRR PRIORITY TASKS

Purpose:

To obtain Commission approval of NRR plan to formalize an interim organizational structure to deal with the impacts of TMI-2 on resources and priorities within that office.

Category:

This paper contains a major policy question.

Discussion:

The accident at TMI-2 which occurred on March 28, 1979 has and is continuing to divert significant managerial and technical resources of NRR from its principal FY 79 work priorities (Operating Reactors including SEP and Safeguards, Unresolved Safety Issues and Casework). It is clear that certain TMI-related activities (TMI Direct Support, Bulletins/Orders and "Lessons Learned") which have evolved since the accident require such priority attention.

As a result, we have examined our pre- and post-TMI activities and have determined that our current and near-term (six to eight months) priority tasks should be as follows:

1. TMI Direct Support
2. Bulletins/Orders
3. Lessons Learned
4. Operating Reactors, including the five shutdown facilities
5. Unresolved Safety Issues (USI's)
6. Casework (as resources permit)

contact:

Denton, NRR

A short description of each of the above tasks is contained in Enclosure 1.

Examination of the tasks in Enclosure 1 suggested the interim organizational structure to best accomplish these tasks. The first three priority tasks (TMI Support, Bulletins and Lessons Learned) are three efforts requiring immediate attention and an initiation of immediate task force efforts for these tasks appears to be in order. The last three priority tasks (Operating Reactors, Unresolved Safety Issues and Casework) are now being worked within the current NRR organizational structure and should remain there.

Since the first three priority tasks will require substantive resources (approximately 70 professionals from the NRR staff), reassignment of NRR personnel to these tasks will require a realignment of managerial and some technical personnel. In addition, one NRR Division Director has been assigned to the Commission Investigation and we anticipate the loss of an additional 6-8 senior staff to that effort. Enclosure 2 contains the interim NRR organizational and managerial structure and essentially formalizes the ad hoc efforts which are now ongoing.

The efforts of the interim Divisional structure (DOR, DPM, DSE and DSS) will be directed toward maintaining the FY 79 and FY 80 goals in the Operating Reactors and Unresolved Safety Issues Decision Units.

As a result of the realignment of resources and priorities, the expected accomplishments in the Casework task will be severely limited. The priority of casework reviews will be:

- Near Term OLs
- Completion of CPs in hearing
- Other OLs where completion of construction is anticipated by January 1981
- CPs and OLs having special review considerations (i.e., Bailly, Midland)

A preliminary and optimistic identification of specific reviews that will be continued is contained in Enclosure 3. A final and more realistic assessment of the expected casework accomplishments can only be made after resource allocations to other higher priority tasks and assignments to the Commission investigation have been made. At this point in time the available resources can be matched against the resources required to continue the reviews identified in Enclosure 3 on a "best-effort basis." It is our expectation that the casework accomplishments in Enclosure 3 are the most we can expect to accomplish and that it is highly likely

that our accomplishments in this area would be less than that identified.

In addition to the identified impacts on Casework, the following FY 79 and FY 80 efforts will be severely restricted in that these efforts will continue only as available resources permit:

- Generic Issues (other than USI's)
- Licensing Improvements
- Topical Reports
- Contract Management
- Research Coordination
- Non-NRR Support
- SRP Revisions
- Audit Calculations
- Advanced Reactors*
- Standards Assistance
- Training

Several alternative approaches to address the post-TMI efforts were considered. A potential alternative is to utilize the technical staff in other NRC program offices to supplement NRR resources. These offices are already providing assistance to NRR in the Unresolved Safety Issues program and SRP revisions. They are also involved in post-TMI 2 analyses and investigations. To further divert substantive resources for six to eight months may have serious adverse impact on their programs. However, assistance, from these Offices, in several severely impacted disciplines could mitigate the impact on some of the diverted efforts identified above.**

It is our view that a realignment of NRR resources and priorities is required to effectively and expeditiously perform the post-TMI activities and continue efforts in our major programs. The proposed alignment (shown in Enclosure 2) combines the best of the advantages of several alternatives to this interim organization. The range of alternatives available included maintaining the existing organization intact and accomplishing these tasks within the existing structure, or establishing task forces for all these efforts (which would result in essentially a complete abandonment of the current organization). The advantages of the former include (1) maintenance of the existing managerial and organizational structure; (2) assurance of quality control of review product;

* Support efforts for Ft. St. Vrain and FFTF will be maintained.

** IE is and will continue to provide assistance to NRR in reviewing responses to Bulletins. RES is and will continue to provide assistance to NRR in the seismic design review area.

and (3) minimum disruption of the staff. The disadvantages of the former include (1) no clear responsibility for task assigned, and (2) progress of tasks on expedited bases may be impeded because of conflicting priorities.

The advantages of the latter include (1) clear responsibility for each task, and (2) clear assignment of priority and resources to assure expedited effort. The disadvantages are (1) a complete disruption of the current organization; (2) limited assurance of quality control of the review product; and (3) competing priorities for limited resources could restrict progress on other important NRR efforts.

It is our view that the proposed organizational structure shown in Enclosure 2 provides the best basis for performing the identified tasks within the next six to eight months. The interim organization retains the integrity of the current Divisional structure. Thus, an orderly transition to normal operations following completion of the TMI-2 tasks can be effectively accomplished.

Coordination

Since this matter affects NRR solely, there was no coordination with the other program offices.



Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Enclosures:

1. Post-TMI Task Descriptions
2. Interim NRR Organizational Structure
3. Identification and Summary and Casework
Impacts

DISTRIBUTION

Commissioners
Commission Staff Offices
Exec Dir for Operations
ACRS
Secretariat

Commissioners' comments should be provided directly to the Office of the Secretary by c.o.b. Friday, June 1, 1979.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT May 25, 1979, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional time for analytical review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

Enclosure 1

POST-TMI

TASK DESCRIPTIONS

TMI-2 DIRECT SUPPORT

This TMI-2 Support Task includes core cooling, cleanup and recovery operations. The support effort will include:

- Analysis, as appropriate, of plant conditions and proposed changes in system design or operating mode.
- Performance of independent analysis of dose to public via all pathways for proposed releases of gaseous or liquid activity and evaluation of solid storage.
- Analysis of plant activities in conformance with ALARA objectives, to include evaluation of plant organization, personnel training and procedures.
- Review and analysis of proposed operating plans and procedures to accomplish major operations such as long term cooling, containment cleanup and entry, and core removal.

- Preparation of Technical Specifications appropriate to the plant conditions and activities.
- Interfacing with the licensee, IE, and all government agencies involved in reactor safety and environmental issues.
- Preparation of presentations and correspondence appropriate to the TMI accident such as green tickets, briefings of State, local and Federal agencies and the Commission as well as international officials.

The scope of this task will include all TMI-2 site activities. Approvals and SERs for various stages and modes of core cooling, cleanup and recovery operations will be the principal end-products of this task.

Bulletin/Orders

This Task includes review responses to orders and I&E Bulletins.

The support effort will include:

- Orders - Perform the necessary reviews of licensee and vendor supplied information to support a decision regarding plant operations.

- I&E Bulletins - Assure that (a) licensees are informed of accident sequence and contributors, (b) minimum procedural and administrative actions are taken for continued safe operation, (c) plant designs are examined, (d) results are promptly reported to NRC, and (e) necessary short-term measures are implemented.

The scope of review for the order will be as defined for each facility. With respect to the I&E Bulletins, the scope will be limited to short-term measures to assure safe operation of restarted B&W plants and continued safe operation of operating Westinghouse, Combustion Engineering and General Electric designed plants. The end-products for this task will include: (1) Safety evaluations and authorizations to resume or continue operations; (2) Licensing positions regarding the implementation of short-term measures on operating B&W, W, CE and GE designed plants, and (3) Recommendations for further improvements in the areas of: design and operation/and administrative procedures.

Lesson Learned

This Task for the TMI-2 accident includes the review and evaluation of investigative information, staff evaluations of responses to I&E Bulletins and orders, staff recommendations and recommended actions from outside of the NRC; to identify, analyze and recommend changes to licensing requirements and the licensing process for nuclear power plants based on the lessons learned and provide recommendations for interim requirements for new operating licenses prior to completion of long-term activities. There is a range of area of immediate interest to NRR in which possible regulatory improvements are suggested by the TMI accident. These include:

- (1) Reactor operator training and licensing.
- (2) Reactor transient and accident analysis.
- (3) Licensing requirements for safety and process equipment, instrumentation, and controls.
- (4) Offsite and onsite emergency preparations and procedures.
- (5) Reactor siting.
- (6) Licensee technical qualification.

- 2 -

- (7) NRR accident response role, capability and management.
- (8) Reactor operating experience
- (9) Environmental Effects
- (10) Licensing requirements for post-accident monitoring and controls.
- (11) Post-Accident Cleanup and Recovery.
- (12) NRR engineering evaluation of the TMI-2 event sequence.

End-products may take the form of proposals for changes in legislation, policy, regulations, staff technical positions, review procedures, or NRR organizational structure and responsibilities. All information developed by the Task Force will be made public and submitted to others investigating the TMI-2 accident. The Task Force will serve as the focal point for NRR interaction with these groups.

Operating Reactors

The Task for Operating Reactors is to assure the continued safe operation of operating plants. All routine DOR activities with the exception of those specifically included in other tasks, are included in the scope of this task. Review and authorization of restart of the five plants shutdown for seismic design reanalysis, continued support of Unresolved Safety Issues, the Systematic Evaluation Program and Safeguards are also included. Routine licensing approvals, orders, etc., and authorizations for restart of Maine Yankee, Beaver Valley 1, FitzPatrick, Surry 1 and 2 are the end products for this task.

Unresolved Safety Issues

This Task is to continue to perform those reviews and analyses necessary to complete generic tasks that address "Unresolved Safety Issues" with minimum impact on current schedules. Initially this Task will include the 19 generic tasks identified in NUREG-0510 that address "Unresolved Safety Issues." Several of these 19 generic tasks will likely be expanded to address issues identified as a result of the TMI-2 accident. In addition, new "Unresolved Safety Issues" will likely be identified as a result of the TMI-2 accident. This "Unresolved Safety Issues" Task will be expanded to include generic tasks to address these new issues as they are identified. The end products will be NUREG reports describing the staff's evaluation of and conclusions for each issue. More specific end products are described in the Task Action Plan for each generic task.

Casework

This Task includes:

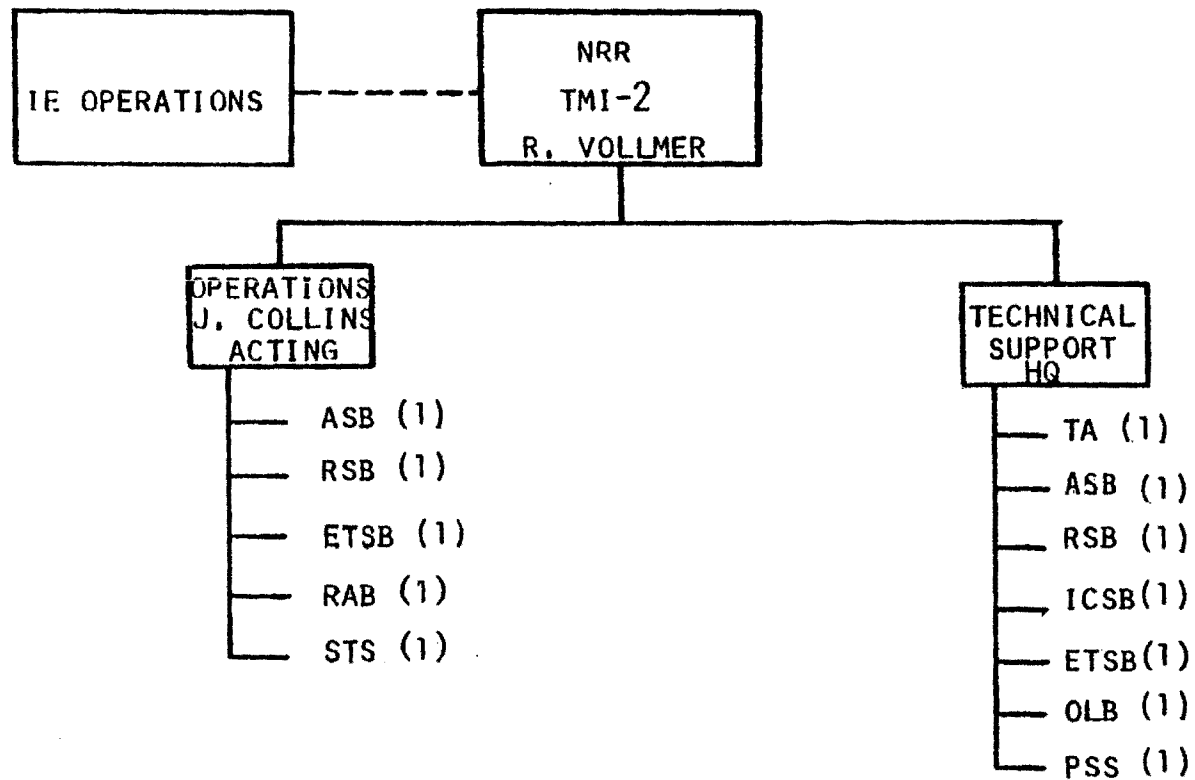
- Completion of review of near term OL's and coordinate "TMI Lessons Learned" for these plants. Plants in this group include Salem 2, North Anna 2, Sequoyah 1 and 2, Diablo Canyon 1 and 2, McGuire 1 and 2, Zimmer, and LaSalle 1 and 2.
- The continuing of ongoing OL reviews with priority based on NRC estimates of construction completion dates up to January 1981. Plants in this group include Watts Bar 1 and 2, Fermi 2, Summer, Shoreham, San Onofre 2 and 3, Susquehanna 1 and 2, and WPPS 2.
- Completion of CP's now active in hearing process. Plants in this group include Perkins, Pebble Springs 1 and 2, Skagit 1 and 2, Pilgrim 2, Allens Creek, New England 1 and 2 and Black Fox 1 and 2.
- Completion of environmental reviews for the identified projects to proceed with corresponding priorities.

The end products for this task includes the issuance of SER's and EIS for the projects identified.

ENCLOSURE 2

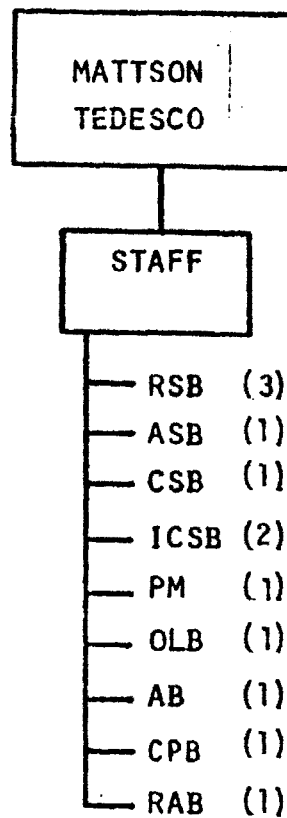
INTERIM NRR ORGANIZATIONAL STRUCTURE

TMI-2 SUPPORT



TOTAL STAFFING: 14 PROFESSIONALS
AND MANAGERS

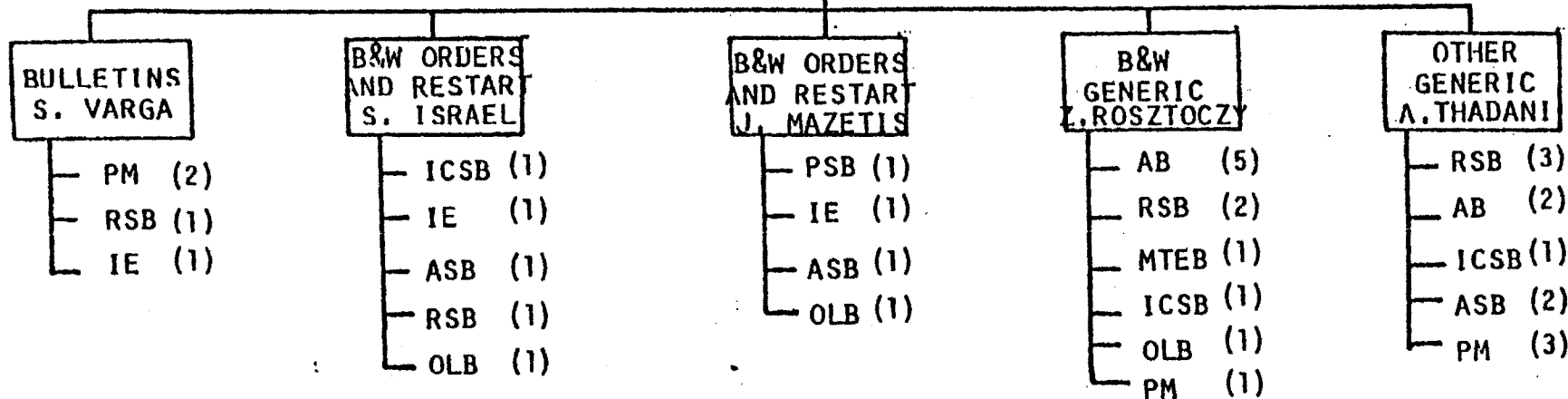
LESSONS LEARNED



TOTAL STAFFING: 14 PROFESSIONALS
AND MANAGERS

BULLETINS/ORDERS

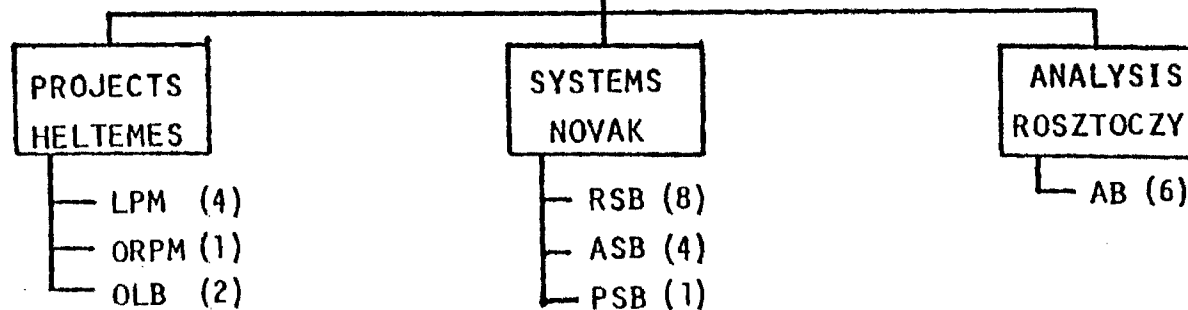
D. ROSS



Total Staffing: 39 Professionals and Managers

UNTIL JUNE 1

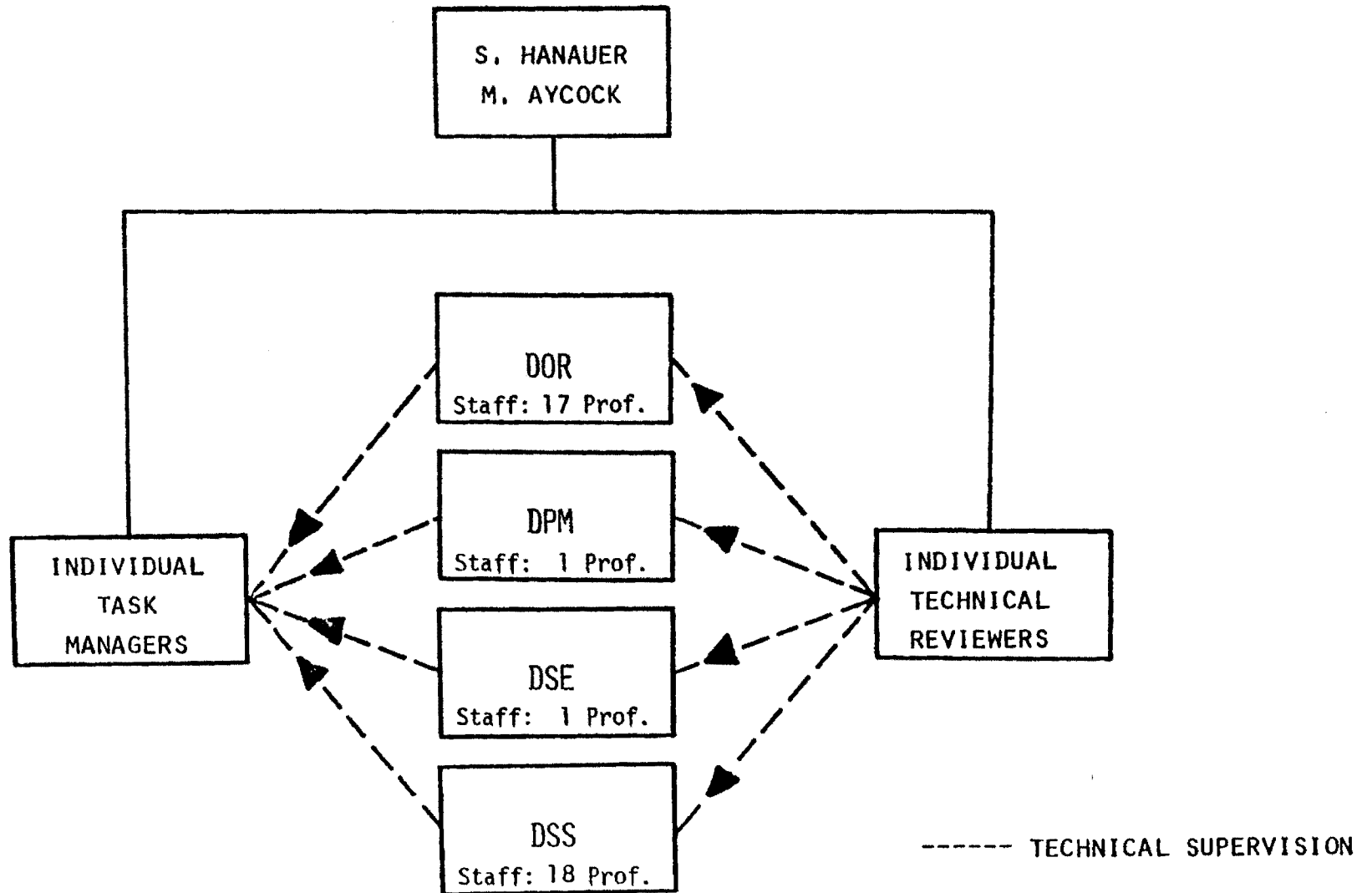
D. ROSS
DEPUTY
(TO BE NAMED)



Total Staffing: 33 Professionals and Managers

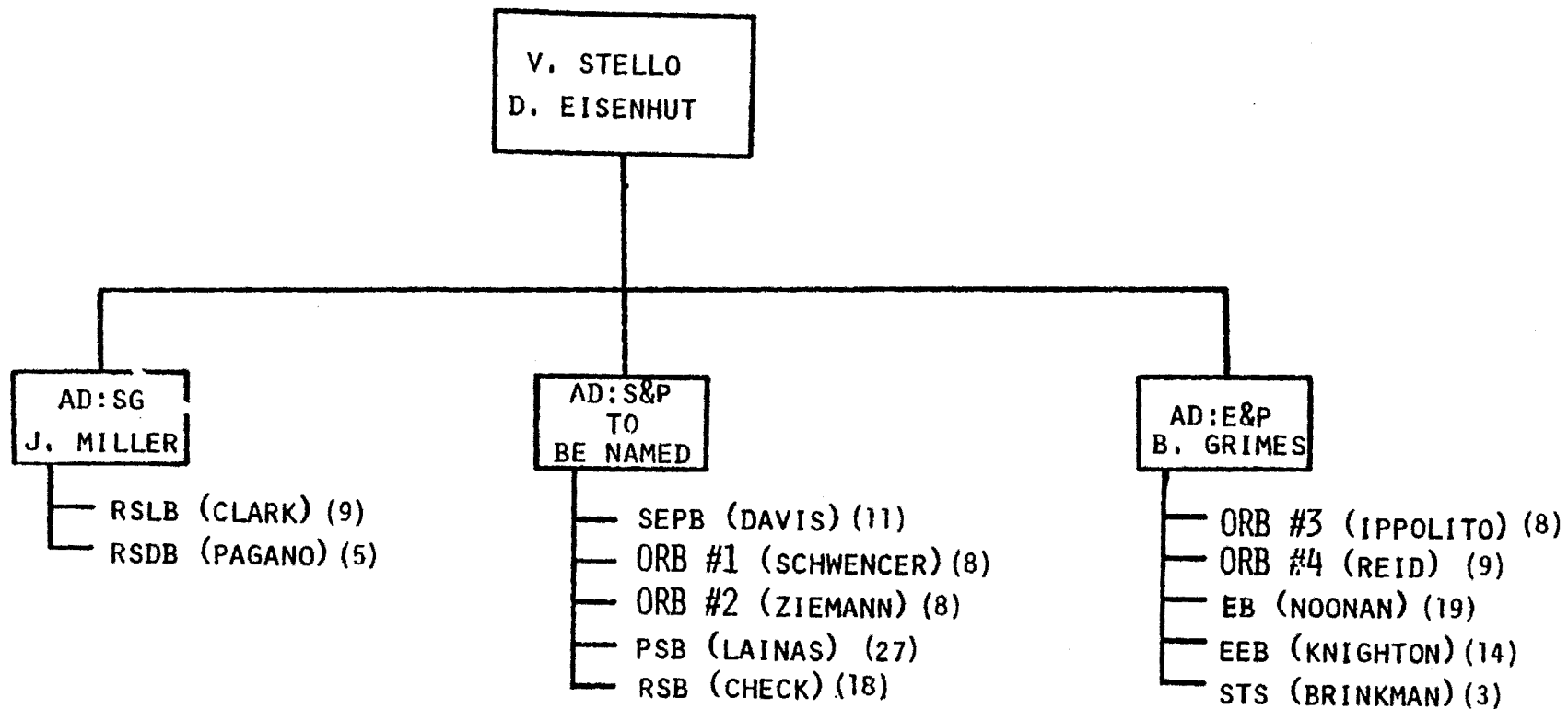
AFTER JUNE 1

UNRESOLVED SAFETY ISSUES



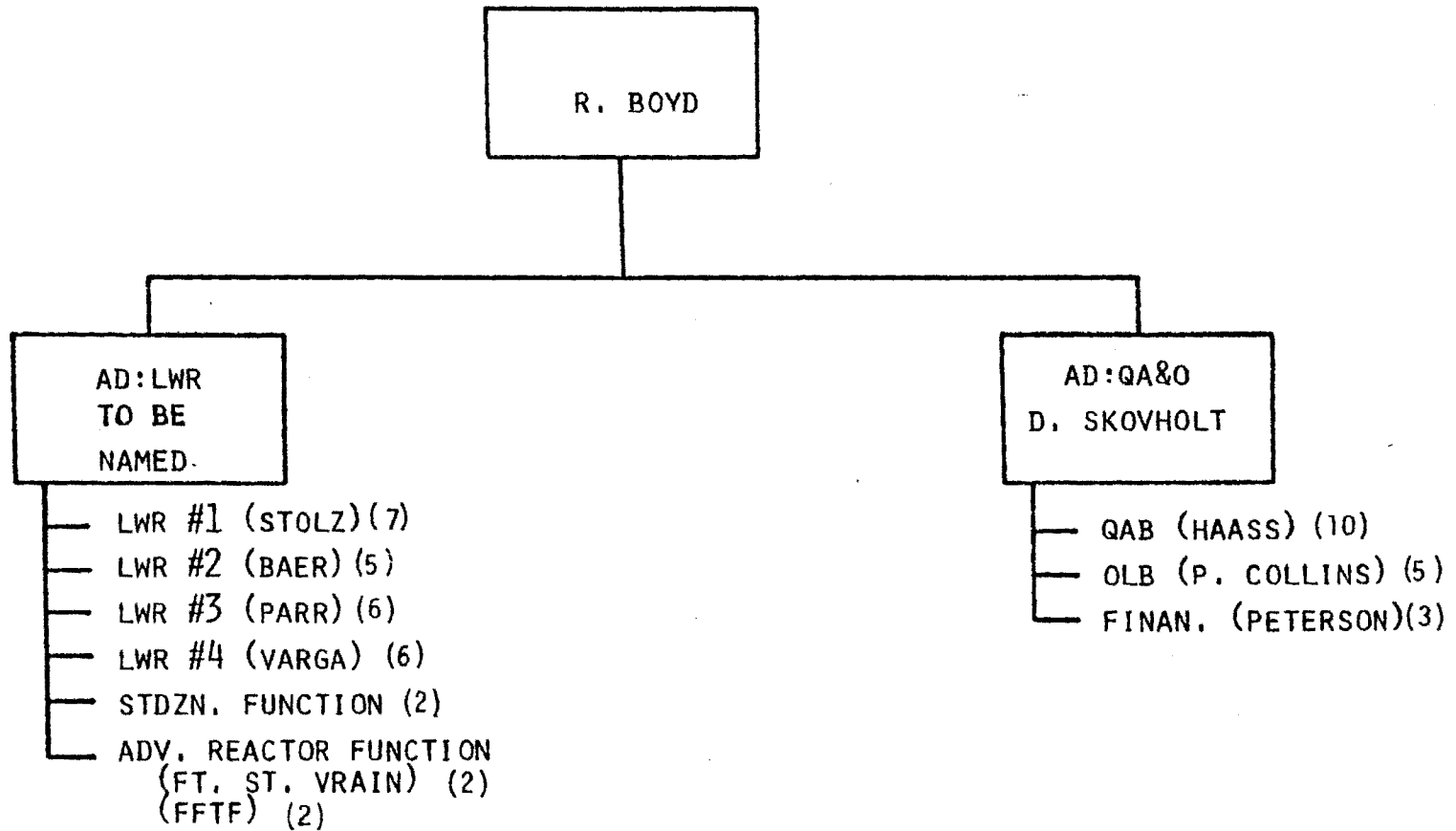
TOTAL STAFFING: 39 PROFESSIONALS AND MANAGERS

DIVISION OF OPERATING REACTORS



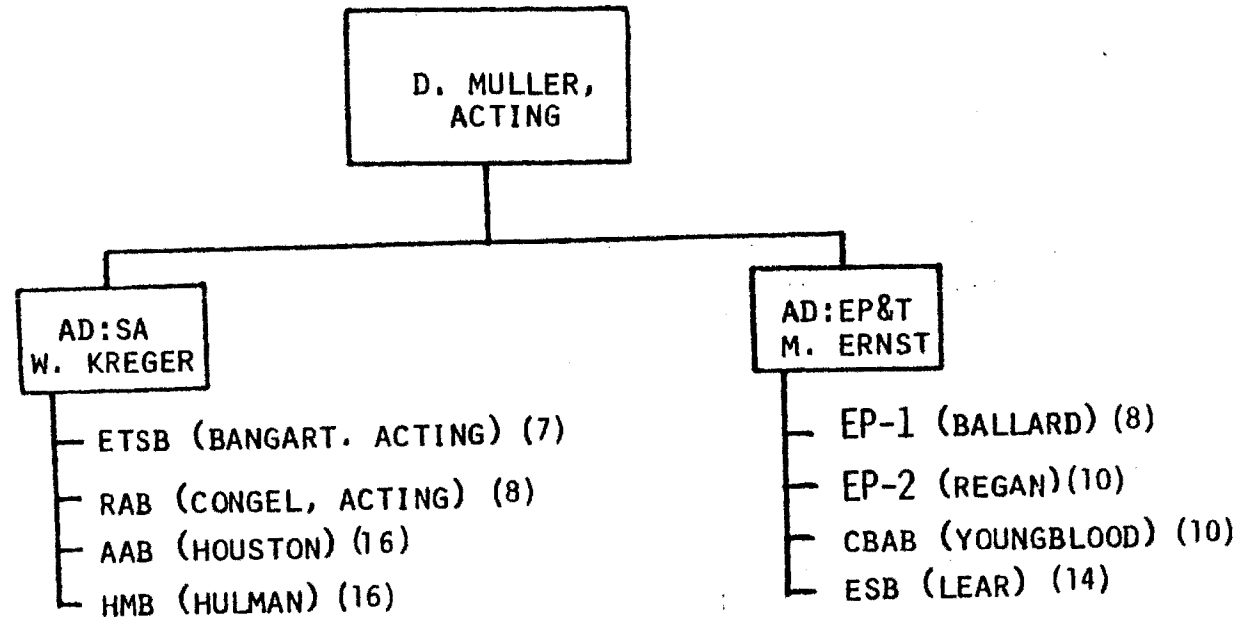
TOTAL STAFFING: 143 PROFESSIONALS AND MANAGERS

DIVISION OF PROJECT MANAGEMENT



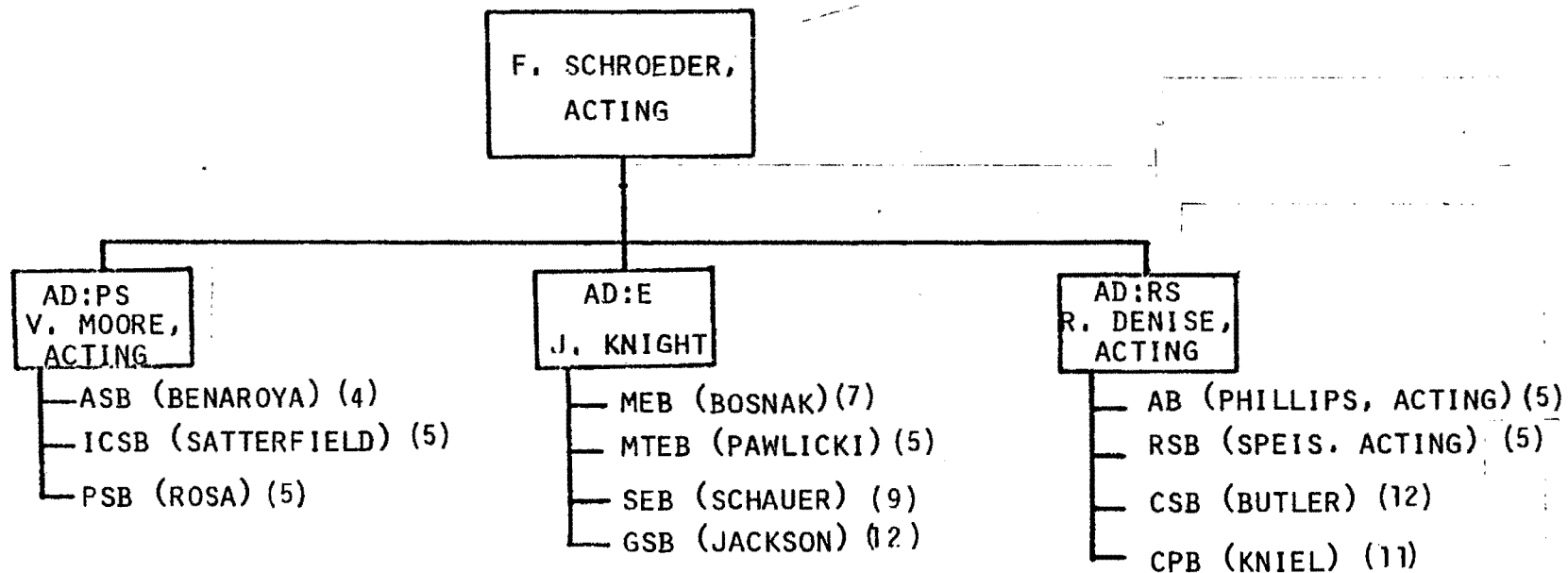
TOTAL STAFFING: 51 PROFESSIONALS AND MANAGERS

DIVISION OF SITE SAFETY AND ENVIRONMENTAL ANALYSIS



TOTAL STAFFING: 92 PROFESSIONALS AND MANAGERS

DIVISION OF SYSTEMS SAFETY



TOTAL STAFFING: 84 PROFESSIONAL AND MANAGERS

Enclosure 3

IDENTIFICATION AND SUMMARY

AND

CASEWORK IMPACTS

Identification of Continued and Suspended Casework Reviews

The completion of reviews of near term Ols including the coordination and implementation of input from Lessons Learned and Bulletins groups for these plants:

Salem 2	(May 1979)*
North Anna 2	(June 1979)
Diablo Canyon 1	(June 1979)
Sequoyah 1	(July 1979)
McGuire 1	(October 1979)
Zimmer	(December 1979)
LaSalle 1	(December 1979)

*Construction completion dates are shown in ().

The completion of CP's for which the reviews are essentially complete and are already active in the hearing process:

Perkins	Pebble Springs 1 and 2
Skagit 1 and 2	Pilgrim 2
Allens Creek	New England 1 and 2
Black Fox 1 and 2	

The resulting Board actions could adversely impact staff efforts to complete these reviews in a timely manner.

The review of OL's for which construction is expected to be completed prior to January 1981 include will continue. These reviews include:

Watts Bar 1	(June 1980)
Fermi 2	(June 1980)
Summer	(October 1980)
Shoreham	(October 1980)
San Onofre 2	(November 1980)
Susquehanna 1	(December 1980)
WPPSS 2	(December 1980)

In spite of recently announced delays in Fermi 2 (now June 1981) and WPPSS 2 (now March 1981) these reviews will continue due to the considerable amount of effort already expended.

Suspended Activities

As a result of realignment resources and new priorities the following in the Casework Decision Unit will be suspended:

1. Suspend OL reviews until January 1980:

Grand Gulf 1 and 2	(March 1981)
Farley 2	(June 1981)
Waterford 3	(September 1981)
Byron/Braidwood	(September 1981)
Midland 1 and 2	(November 1981)*
Comanche Peak 1 and 2	(November 1981)
Bellefonte 1 and 2	(March 1982)
Catawba 1 and 2	(September 1982)
South Texas 1 and 2	(October 1982)

*Except for work on structural/foundation problems

2. CP reviews to be suspended until January 1980:

Erie 1 and 2	Davis-Besse 2 and 3
Haven 1	
New Haven 1 and 2	Greenwood 2 and 3

(Preapplication Review for Carroll County will be postponed; however, Early Site Review efforts will continue.)

3. Other activities:

a. Standardization Reviews

- (1) All seven BOP reviews
- (2) FDA review of CESSAR-80
- (3) RESAR-412 PDA (for Carroll County)
will be delayed well into 1980

(FNP, if possible, will be continued
but with no essential priority).

b. NASAP and INFCE activities

Summary of Casework Impacts

The following summarizes the Casework Impacts resulting from the realignment of resources and priorities:

o Near term OL applications delays:

Salem	3 months
North Anna 2	2 months
Diablo Canyon 1	2 months
Sequoyah 1	1 month

Reopened hearing for Three Mile Island 2 issues could cause further delays

o Suspended OL review delays:

Grand Gulf	12 months
Waterford 3	6 months
Byron/Braidwood	6 months
Comanche Peak	4 months

Other minor delays may occur in Bellefonte, Catawba and Comanche Peak reviews

o CP Delays

Carroll County 12 months

Haven 1

Central Virginia 12 months

Erie*

Davis Besse*

* If applicant proceeds on schedule - 12 months delay

o Suspend Standardization Reviews

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

INFORMATION REPORT

November 7, 1979

SECY-79-608

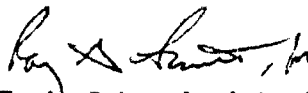
For: The Commissioners
From: T. A. Rehm, Assistant for Operations, Office of the EDO
Subject: WEEKLY INFORMATION REPORT - WEEK ENDING NOVEMBER 2, 1979

A summary of key events is included as a convenience to those Commissioners who may prefer a condensed version of this report.

Contents

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Nuclear Regulatory Research	F
Executive Legal Director	G
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State Programs	I
Management and Program Analysis	J
Controller	K *
Analysis & Evaluation of Operational Data	L *
Items Approved by the Commission	M**
Calendar of Significant Events	N
Calendar of Speaking Engagements	O


T. A. Rehm, Assistant for Operations
Office of the Executive Director
for Operations

Contact:
T. A. Rehm
49-27781

*No input this week.

**Deleted from Commissioners and PDR copy.

SUMMARY OF KEY EVENTS

WEEK ENDING NOVEMBER 2, 1979

Trojan

Oregon recently enacted a state law requiring the Oregon Department of Energy to maintain a state inspector at Trojan Nuclear Plant at least 40 hours per week. The state inspector's duties and responsibilities parallel those of NRC resident inspectors. Trojan now has two resident inspectors.

Davis-Besse 1

On October 25, 1979, while operating at 70% power, Davis-Besse 1 experienced a reactor trip. Plant personnel were conducting unloading and isolation procedures of a 480 V Bus to allow a new security system power supply hook-up when one of the three operating RCPs tripped resulting in a unit trip. Attempt to restart the tripped RCP was unsuccessful due to blown fuses in the component cooling water (CCW) pump permissive interlock. These same fuses had blown in the trip of October 15, 1979. Toledo Edison plans to keep the unit shutdown to allow replacement of the RCP seals. Region III is following up on the recurrence of the CCW interlock fuse problem.

Arkansas Nuclear One, Unit No. 2

Arkansas Power & Light Company has chosen to replace the engine for Diesel Generator No. 2 for ANO-2 rather than repair the original engine. The original engine recently failed due to a main bearing failure, has experienced two similar failures since its installation and had a record of similar failures in the factory before installation at ANO-2. Operability of the diesel generator and the plant is not expected until late December 1979.

Generic Task A-7, Mark I Containment Long Term Program

In a letter dated October 31, 1979, the staff issued the "NRC Acceptance Criteria for the Mark I Containment Long Term Program", to the affected operating BWR facilities. This action represents a key milestone in the NRC staff's resolution of Generic Task A-7, which was reported to Congress as an "Unresolved Safety Issue" in the 1978 NRC Annual Report.

SAFER

A subsurface survey of the low level waste disposal site at Beatty, Nevada was conducted by RES through its contractor Geo Centers, Inc as noted in the October 26 Weekly Information Report. Preliminary results from the unanalyzed data indicate the presence of subsurface anomalies typical of large buried objects and disturbed soils in the vicinity of the 12 older trenches. However, there were also indications of such subsurface anomalies at locations suggesting an extension of four of the trenches 30 feet beyond the north boundary fence. Additionally, several of the observed anomalies suggested that some trenches may be laterally offset by 15 or 20 feet from their markers.

OFFICE OF ADMINISTRATION

Week Ending November 2, 1979

ADMINISTRATION OF THE FREEDOM OF INFORMATION ACT

STATUS OF REQUESTS

	<u>Initial Request</u>	<u>Appeal of Initial Decision</u>
Received	503	30
Granted	347	10
Denied	82	15
Pending	74	5

ACTIONS THIS WEEK

Received

Janice Merrill,
Kinetic Research
(79-459)

Requests a copy of the Proposal and Request for Proposal for NRC-07-79-312, "Statistical Review and Methodology Development, Automated Sciences Group."

Diane E. Findley,
Science Applications, Inc.
(79-460)

Requests a copy of the technical proposal submitted in response to RFP No. RS-NRR-79-118, "Review and Evaluation of Approximately 500 Pending Operating Reactors Licensing Actions."

Susan Baumann
(79-461)

Requests a copy of NUREG 538 and information on emergency response plans for Jackson County, North Carolina.

Ellen Flynn,
National Evaluation Systems, Inc.
(79-462)

Requests information on RFP No. RS-OSD-79-002, "Standards for Psychological Assessment of Security Personnel."

Virginia B. Foote,
Center for Development Policy
(79-463)

Requests the review by J. Kelleher Consultants and the NRC staff of the IAEA Report concerning the proposed Philippine nuclear reactor.

David S. Fleischaker,
Attorney-At-Law
(79-464)

Requests all documents pertaining to a meeting held on October 19, 1979 on the Diablo Canyon nuclear power plant and all records pertaining to Joseph M. Hendrie's participation in the review of the Diablo Canyon license application prior to becoming Chairman of the NRC.

CONTACT: J. M. Felton
492-7211

ENCLOSURE A

Received, Cont'd

Steve Gannis
(79-465)

Requests information on the power and duties of the NRC.

Charles L. Gysi, III
(79-466)

Requests information on radio frequencies used by the NRC during the incident at Three Mile Island during March-April.

Ginger Rutland,
Chronicle Broadcasting
Company
(79-467)

Requests all documents compiled by the Mechanical Engineering Branch for IE Bulletins 78-12, 78-12A, 78-12B, a copy of the report prepared by Babcock and Wilcox on the possible presence and effects of atypical weld materials and all documents pertaining to possible atypical weld materials in the reactor pressure vessel at Rancho Seco Unit 1.

R. Lee Armbruster,
Nuclear Engineering Company, Inc.
(79-468)

Requests all documents relating to the low-level radioactive waste disposal facility located near Beatty, Nevada.

Janice F. Rutherford,
The BDM Corporation
(79-469)

Requests the winning technical proposal entitled, "Behavioral Observation Program to Assure Continued Reliability to Employees."

S. P. Carfagno,
Franklin Research Center
(79-470)

Requests IE Bulletins and IE Circulars for 1975 and IE Information Notices for 1975 through 1979.

William Reynolds,
American Friends Service
Committee
(79-471)

Requests all documents relating to the determination of a route for the shipment of spent nuclear fuel from foreign sources to the Savannah River Plant.

Beverly Real
(79-472)

Requests information regarding a proposed regulation pursuant to 29 U.S.C. 794 dealing with NRC policy of nondiscrimination in the hiring of handicapped persons.

Granted

Gian Richard Cassarino
(79-390)

In response to a request for documents regarding the systems for the disposal of radioactive wastes, made available 21 documents.

Granted, Cont'd

Victor M. Glasberg,
Attorney-At-Law
(79-409)

In response to a request for documents relating to the discharge of radioactive gas from the North Anna nuclear power plant, made available 11 documents.

Betty Johnson,
League of Women Voters
(79-415)

In response to a request for documents relating to unresolved generic issues for the Byron, Illinois nuclear power plant, made available 10 documents.

Andrew B. Reid
(79-420)

In response to a request for information pertaining to possible citations or investigations by the NRC of seven listed companies and organizations, informed the requester that, after careful consideration, we have determined that this request is a broad, sweeping, indiscriminate request and does not "reasonably describe" the records sought.

Andrew B. Reid
(79-421)

In response to a request for documents relating to NRC licenses issued to any person or organization in the States of South Dakota and Wyoming, made available a computer print-out list of NRC licensees located within the borders of South Dakota and Wyoming.

(An NRC employee)
(79-422)

Made available a copy of the letter supporting the high quality increase for a named NRC employee.

Jean M. Galloway,
Attorney-At-Law
(79-426)

In response to a request for documents showing the price per page charged to the public for copies of transcripts of proceedings before the NRC under stenographic reporting, transcription and micrographic services contracts for fiscal years 1978-1980 and the name of each contractor, made available a copy of the only NRC contract.

Ellyn R. Weiss,
Sheldon, Harmon,
Roisman & Weiss
(79-437)

In response to a request for a copy of a September 26, 1979 letter from the Council on Environmental Quality to Howard Shapar stating CEQ's position on NRC's regulations for environmental review under the National Environmental Policy Act, made available this document.

Ronald J. Oberle,
Attorney-At-Law
(79-442)

Informed the requester the NRC has no contracts dealing with executive placement, counseling or other employee related services from January 1, 1978 to the present.

Granted, Cont'd

James M. Moore,
Attorney-At-Law
(79-446)

Informed the requester the NRC has no information pertaining to his clients' deceased husband in its personnel, security, or radiation exposure records.

Frank Askin,
Rutgers University
(79-447)

Made available eight documents indexed or maintained under the name of SEA Alliance.

Stanley Fleishman,
Attorney-At-Law
(79-453)

Made available a copy of a proposed regulation implementing Section 504 of the Rehabilitation Act of 1973.

Diane E. Findley,
Science Applications, Inc.
(79-456)

In response to a request for a copy of the technical proposal which resulted in the award modification No. 8 to NRC-02-77-165, "Review of the Environmental Impact of High Level Radioactive Waste Management," informed the requester no technical proposal was required to be submitted.

Denied

Anthony I. Robichaux
(79-367)

In response to a request for investigations of his allegations regarding falsification of documents by Southwest Research Institute of San Antonio, Texas, made available 10 documents. Denied portions of one document containing the name of a confidential source and information which would constitute a clearly unwarranted invasion of personal privacy.

(An NRC employee)
(79-419)

In response to a request for information regarding ratings and information relied upon to make those ratings for all candidates for Vacancy Announcement 79-15, made available 17 documents. Denied two documents in their entirety and portions of two documents, disclosure of which would constitute a clearly unwarranted invasion of the personal privacy of the individuals concerned.

(An individual requesting
information)
(79-432)

In response to a request for all information regarding the selection of Vacancy Announcement 79-562, denied the names of other candidates and their application documentation and individual evaluations of the "A" candidates, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy.

DIVISION OF CONTRACTS

(Week Ending November 2, 1979)

PENDING COMPETITIVE REQUIREMENTS

IFB RS-ADM-80-361

Title - Computer Output Microfilming and Production of 35mm Aperture Cards

Description - Produce microfilm and duplicates from computer tapes and
produce 35mm aperture cards from source.

Period of Performance - Twelve months with twelve month option

Sponsor - Office of Administration

Status - Solicitation being developed

ENCLOSURE A

DIVISION OF SECURITY

Week Ending November 2, 1979

1. A revised draft Bulletin on "Automated Information Systems Security Program for Sensitive Data" has been issued for comment to Directors of Offices and Divisions. The final Bulletin is due in January 1980.
2. Raymond J. Brady, Director, Division of Security, attended the Department of Energy Safeguards and Security Directors' Meeting in Germantown on October 30, 1979.
3. Robert F. Whipp, Chief of the Information Security Branch, conducted a classification appraisal of Region I.
4. The Division submitted an NRC Information Security Program Data Report to the Information Security Oversight Office covering the period May 1 to September 30, 1979.
5. NRC Manual Chapter 2101, "NRC Security Program," Part I, "Definitions," has been revised to conform to Executive Order 12065. The revised version has been submitted to OMPA for concurrence and approval for publication.

ENCLOSURE A

DIVISION OF TECHNICAL INFORMATION AND DOCUMENT CONTROL*

WEEK ENDING NOVEMBER 2, 1979

TRANSLATIONS

The following translations were received by the Division of Technical Information and Document Control during the month of October 1979. Copies of these translations will be available in the Library.

German

Impact of Steel Projectiles on Reinforced Concrete, Calculation and Comparison with Experimental Tests (Final Report). Bernd Nowotny, Peter Daublesky. Kerntechnik Entwicklung Dynamik (KED), Germany. August 1978. 153 pages. Cost of translation: \$500.00. NRC Translation 600.

RS 102-06-4. Pressure Waves and Flame Propagation in the Deflagration of Hydrocarbon/Air Mixtures. K. Behrens, H. Schneider. Ernst Mach Institut, Germany. April 1977. 67 pages. Cost of translation: \$675.00. NRC Translation 620.

06-01-07P04A. Indirect Electrical Fuel Rod Heating Simulator with Ballooning Capability: SIM II (Initial Report). T. Vollmer, K. Hain. Kernforschungszentrum Karlsruhe, Karlsruhe, Germany. March 1979. Cost of translation: \$140.00. NRC Translation 630.

German Standard Problem No. 3 (2nd Containment Standard Problem.): Water Line Rupture in a Simple Chain of Compartments. G. Hellings. Gesellschaft fur Reaktorsicherheit (GRS) mbH, Cologne, Germany. August 1979. 33 pages. Cost of translation: \$240.00. NRC Translation 636.

Japanese

52-STAE-116. Experimental Research into the Removal of Radioactive Crud in Light Water Reactors. (1976 Research into the Peaceful Uses of Atomic Energy). Biru Daiko Company, Japan. October 1977. 79 pages. Cost of translation: \$750.00. NRC Translation 577.

52-STAE-245. An Experimental Study on the Safety Margin of the Simplified Elasto-Plastic Fatigue Analysis Method in the ASME Boiler and Pressure Vessel Code (1976 Research into the Peaceful Uses of Atomic Energy). T. Kitagawa and others. Ishikawajima-Harima Heavy Industries Co., Ltd., Technical Institute, Japan. February 1978. 55 pages. Cost of translation: \$200.00. NRC Translation 628.

*This entry deleted from PDR copy.

OFFICE OF NUCLEAR REACTOR REGULATION

WEEKLY ITEMS OF INTEREST
(Week Ending November 2, 1979)

Zion Units 1 & 2

On October 26, 1979, representatives of Commonwealth Edison Corporation (licensee for Zion Station Units No. 1 and No. 2) and Westinghouse Electric Corporation met with the NRC staff. The meeting was requested by NRC to allow CECO to discuss reports of indications detected during additional non-destructive examinations of steam generator (SG) feedwater piping to steam generator nozzle welds at Zion Unit No. 1. CECO had reported indications on October 15 when two SG feedwater nozzle welds had been reinspected and indications noted. On October 24 CECO advised IE Region III by letter that examinations using more sensitive radiography techniques revealed indications (evidence of possible cracking in the weld prep counterbore to ramp angle areas) in all four SG feedwater lines.

At the conclusion of the meeting the NRC staff advised CECO representatives of the following positions:

- (1) CECO should proceed to replace piping on Unit No. 1 during the current outage (refueling started October 6) for all SG's.
- (2) CECO should prepare to bring Unit No. 2 to shutdown conditions to perform similar inspections of the areas of concern using the latest techniques. An analysis of any indications discovered should be performed to determine crack size, if existent, and safety consequences.

Following further discussion between CECO management and NRC management, Zion Unit No. 2 was placed in shutdown conditions on October 26. Unit 2 radiographic examination indicated feedwater line cracking at the nozzles for all steam generators in this plant also. CECO is presently examining the feedwater lines in Unit 2 using more sensitive radiography techniques.

A feedwater nozzle sample from Unit 1 was sent to Westinghouse for metallurgical examinations. CECO has decided, and begun to repair the crack areas in Unit 1 in all steam generators based on the results of these examinations.

Point Beach 1

Point Beach 1 is currently shut down for refueling and steam generator tube inspection. The "A" steam generator has undergone a 100% eddy-current inspection, the second such inspection since August of this year. Results indicate that an additional 73 tubes must be plugged due to defects found in the tube sheet region, taking the total number of plugged tubes in this steam generator to 324 (10%). The need to plug an additional 73 tubes is in this brief time interval an increase over previous experience. It is not clear at this time whether the increase is actual or apparent, since a more sensitive inspection technique is being used this time. A meeting has been scheduled for Monday, November 5 to discuss the inspection results for both steam generators, including a report of tubes removed for detailed examination.

ENCLOSURE B

Wisconsin Electric is continuing its investigation of ways to arrest the "deep crevice cracking" which is occurring. Flushing the narrow slot between the tube and tube sheet is being considered, as well as sleeving. Eventual steam generator replacement is a possibility.

Trojan

Oregon recently enacted a state law which will require the Oregon Department of Energy to maintain a state inspector at Trojan Nuclear Plant at least 40 hours per week. Oregon expects to fill this position in the next two months. The state inspector's duties and responsibilities parallel those of NRC resident inspectors. Trojan now has two NRC resident inspectors.

Monticello

The Atomic Safety and Licensing Board proceeding involving Northern States Power Company's application to convert the Monticello Nuclear Generating Plant provisional operating license to a full-term operating license was terminated and the case discussed on October 25, 1979. The Commission designated this ASLB to conduct a hearing on the proceeding by notice of hearing dated December 19, 1972 (37 FR 28544). The intervenors in this proceeding subsequently withdrew and the proceeding became uncontested. One issue raised unilaterally by the Board was satisfactorily resolved. OELD advised that the matter of Monticello's full-term license is now exclusively before the Director of Nuclear Reactor Regulation.

Donald C. Cook, Unit No. 1

The D. C. Cook Unit No. 1 is being shut down for repair of a main reactor coolant pump. In normal operation, a vibration of 2 to 5 mils is expected in these pumps and motors. The unit had measured up to 20 mils vibration in operation. In an attempt to balance the pump, the vibration went up to 60 mils. The utility is placing the unit in cold shutdown, degassifying the coolant, and draining the loop to the 1/2 level so that the loop can be opened and the pump can be inspected. At present it appears to the licensee that the lower motor bearing may be bad. The D. C. Cook facility has a spare reactor coolant pump on-site if required for the fix. It is estimated that the unit will be out of service for two weeks to a month. There has been no hazard to the public from this inspection and maintenance activity and it is expected that all actions by the utility can be accomplished within their normal operating and maintenance procedures. Unit No. 2 is presently down for refueling and scheduled to be back on line around mid-December.

Davis-Besse 1

On October 25, 1979, the Davis-Besse 1 plant was operating at approximately 70% full power when a reactor trip occurred. Prior to the trip, only three reactor coolant pumps (RCPs) were operating due to seal failures on the fourth pump. Plant personnel were conducting unloading and isolation procedures of a 480 V Bus to allow a new security system power supply hook-up

when one of the three operating RCPs tripped. This resulted in a unit trip. Attempt to restart the tripped RCP was unsuccessful and investigation revealed blown fuses in the component cooling water (CCW) pump permissive interlock. These same fuses had blown in the trip of October 15, 1979. Toledo Edison plans to keep the unit shutdown to allow replacement of the RCP seals. Region III is following up on the recurrence of the CCW interlock fuse problem.

Arkansas Nuclear One, Unit No. 2

Arkansas Power & Light Company has chosen to replace the engine for Diesel Generator No. 2 for ANO-2 rather than repair the original engine. The original engine recently failed due to a main bearing failure. It has experienced two similar failures since its installation at ANO-2. In addition, the same engine had a record of similar failures in the factor before installation at ANO-2. The operability of the diesel generator and the plant with a new engine and associated facility repairs (a wall was removed in the process of removing the failed engine) is not expected until late December '79.

Salem

Alfred and Elinore Coleman of Pennsville, New Jersey, petitioned the Commission on October 24, 1979 to withdraw the OL for Salem 1 and suspend the CPs for Salem 2 and Hope Creek 1 and 2. They have asked that an evaluation be performed to determine the power plants' impact on the shortnose sturgeon, an endangered species under the Endangered Species Act (ESA) of 1973 (PL 93-205). Two fish of this species were found on the Salem Unit 1 intake in 1978.

On October 29, 1979, informal consultation with National Marine Fisheries Service (NMFS) was initiated as specified by the ESA. Representatives were present from EPA Region II, Delaware Division of Fish and Wildlife, New Jersey Department of Environmental Protection, Public Service Electric and Gas Company (the licensee), Ichthyological Associates (the licensee's consultant), NMFS and NRC. Also present were Mr. and Mrs. Alfred C. Coleman, Jr., and an attorney, Karin Sheldon. At this meeting, the status of the license amendment for the Salem 1 core reload was discussed. Salem 1 has been shut down since April 1, 1979 and was to receive a core reload amendment on October 26, 1979. The Environmental Specialists Branch has prepared a preliminary assessment utilizing information provided at the meeting to serve as the technical basis for allowing operation of Salem 1 while formal consultation with NMFS is pending.

We have requested formal consultation with NMFS. We will provide technical information for response to the Coleman's petition to the Commission when requested by OELD. In the meantime, there is adequate preliminary information available to support a technical justification for allowing the Salem 1 license amendment to be issued.

Presentation at International School of Reactor Technology

Dr. Jerry Kline participated on October 18 and 19 in the Reactor Technology course being conducted by Argonne National Laboratory for students from foreign nations. Two lectures and a panel discussion were held on the environmental considerations required for environmental assessment and siting of nuclear power plants.

Generic Task A-7, Mark I Containment Long Term Program:

In letters dated October 31, 1979, the staff issued the "NRC Acceptance Criteria for the Mark I Containment Long Term Program", to the affected operating BWR facilities. This action represents a key milestone in the NRC staff's resolution of Generic Task A-7, which was reported to Congress as an "Unresolved Safety Issue" in the 1978 NRC Annual Report. The issuance of these criteria begins the implementation phase of this program. A generic Safety Evaluation Report (SER) is scheduled to be issued in December 1979. Issuance of the SER will conclude Generic Task A-7.

ECCS Meeting

On November 1, 1979, the NRR staff met with reactor and fuel vendors, and some reactor licensees, to discuss recently developed staff views on cladding swelling and coolant flow blockage which could result from reactor accidents. Based on a preliminary evaluation of correlations being developed, the staff had determined that parts of the approved ECCS models might be non-conservative in this area, and therefore, might not be in compliance with Appendix K of 10 CFR 50. As a result of the meeting, the staff concluded that, while the approved vendor models deviated significantly from the staff correlations on an overall basis, within the ranges of applicability, one of two circumstances prevailed: (1) the vendor models were either conservative or very close to the staff correlations within these ranges, or (2) peak cladding temperature was relatively insensitive to the discrepancy. In either case a check of the models used to evaluate operating plants by the vendors indicated that the plants would be in conformance with 10 CFR 50.46 (2200°F clad temperature limit) even using the NRC model. A briefing on this matter was provided to the Commission on November 2, 1979.

OFFICE OF STANDARDS DEVELOPMENT

IMPORTANT EVENTS FOR THE WEEK ENDING NOVEMBER 2, 1979

1. Executive Order Establishing the Federal Radiation Policy Council:
NRC has been asked to comment on a proposed Executive Order establishing the Federal Radiation Policy Council as recommended by the Libassi Task Force. The Council would be composed of representatives (Assistant Secretary or equivalent) of the EPA, DOE, DOD, DHHS, VA, NRC, DOL, DOT and the Consumer Product Safety Commission. Also included for comment were draft memoranda laying out the Council's responsibilities in 1) the areas of Public Information, Radiation Effects and Ways to Minimize Exposure and 2) reviewing the radiation guidance function of the EPA.

The Council will be chaired by EPA and coordinate the activities of Federal agencies relating to the use and control of ionizing radiation

[M. Parsont, 443-5854]

Regulatory Guides to be Issued in the Near Future

Title: Considerations for Establishing Traceability of SNM Accounting Measurements
(Reg. Guide 5.58, Rev. 1)

Expected Issuance Date: January 1980

Description: Reg. Guide 5.58 presents conditions and procedural approaches acceptable to the NRC staff for establishing and maintaining traceability of SNM control and accounting measurements. Traceability is the ability to relate individual measurement results to the national standards of measurement through the national measurement system by use of an unbroken chain of comparisons.

Contact: S. Turel
443-5905

Publications Issued During the Week of October 29-November 2, 1979

Reg. Guide 1.143, Rev. 1 - Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light-Water-Cooled Nuclear Power Plants
[Issued to Reflect Comments]

Draft Regulatory Guide and Value/Impact Statement: Reporting of Safeguards Events, Task SG-901-4 [Comments requested by December 31, 1979]

Proposed Revision 1 - Standard Review Plan - Section 9.2.2 "Reactor Auxiliary Cooling Water Systems" [Comments requested by December 28, 1979]

ENCLOSURE C

OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS

Items of Interest

Week Ending November 2, 1979

Oconee-McGuire Transshipment

Duke Power Company filed a motion with the Commission on October 24, 1979 pertaining to their application to ship spent fuel from Oconee to McGuire. This motion requested expedited consideration of the question before the Commission concerning the release of proprietary routing information. Duke cited timeliness as their prime concern. The delays of this proceeding have already forced them to consider other costly alternatives.

Congressional Committee Briefing

On October 29, Mr. Dircks of NRC and Mr. Dugoff of DOT jointly briefed the Senate Committee on Commerce, Science and Transportation. The subject of the briefing was actions being taken to improve safety in transporting radioactive materials. The topics of discussion included the transport of low-level waste to the burial grounds, DOT's rulemaking on routing, and the inspection and enforcement efforts of DOT and NRC.

Radon-222 Value for 10 CFR 51, Table S-3

A revised draft of the report on radon releases from the uranium fuel cycle has been prepared for internal review, using data from Battelle's revised reports on radon releases from underground and open pit uranium mines. On the basis of new data from the Battelle reports on mining and from the GEIS on uranium milling, the radon-222 value previously reported as 5200 curies per Reference Reactor Year (RRY) in testimony at individual reactor licensing hearings has been reduced to 3500 Ci/RRY.

Fuel Cycle Costs

A Fuel Cycle representative met with BPNL at Richland, Washington, to finalize the last interim report into a final report covering Fuel Cycle Cost Projections. This report summarizes the range of current and prospective unit costs associated with the various segments of the nuclear fuel cycle industry and projects to year 2020 overall fuel cycle costs (constant 1979 dollars) for LWR's operating on a once-through, or thermal recycle, mode for low, medium and high nuclear power growth projection scenarios. It is anticipated that a master copy of this report will be received about mid-November for reproduction and publication as a NUREG document.

ENCLOSURE D

Use of Process Data for Enhanced Material Control

A team from Pacific Northwest Laboratory visited the B&W-Lynchburg Plant on October 23-25 to obtain data in support of a study on the feasibility of using process and quality control data to enhance safeguards material control and accounting. Comparable data were obtained at B&W-Lynchburg on October 3-5, 1979. This study is in support of the MC&A Upgrade Rule development.

OFFICE OF INSPECTION AND ENFORCEMENT

Items of Interest

Week Ending November 2, 1979

1. Metropolitan Edison Company (Three Mile Island) - Civil Penalty Action - On October 25, 1979, the Commission issued a Notice of Violation and a Notice of Proposed Imposition of Civil Penalties in the amount of \$155,000. This action was based on alleged items of noncompliance associated with the accident that occurred on March 28, 1979.
2. The following Notification of Significant Enforcement Action was dispatched during the past week:
 - a. EN-79-07A University of Wisconsin, Madison, Wisconsin - On October 30, 1979, an Order Imposing Civil Monetary Penalties in the amount of \$1,800 was issued. A Notice of Proposed Imposition of Civil Penalties in the amount of \$2,300 was previously issued on August 15, 1979. Based on the licensee's reply, the staff concluded that the penalty proposed for one item should be mitigated from \$300 to \$200, and the proposed penalty of \$400 for another item should be remitted in its entirety.
3. Preliminary Notifications relating to the following actions were dispatched during the past week:
 - a. PNO-I-79-13 Yankee-Rowe - Possible Safeguards Bus Voltage Degradation
 - b. PNO-I-79-14 Westinghouse Plutonium Fuels Development Laboratory, Cheswick, PA - Plutonium Oxide Shipment to Savannah River
 - c. PNO-II-79-16 Oconee Unit 2 - Immediate Action Letter on Personnel Errors
 - d. PNO-II-79-17 Sequoyah Unit 1 - Emergency Planning Exercise
 - e. PNO-II-79-18 Oconee Unit 3 - Unit Restart After Extended Shutdown
 - f. PNO-II-79-19 Harris Units 1, 2, 3, and 4 - Confirmation of Action Letter on Omission of Reinforcement Steel in Safety Related Structures
 - g. PNO-II-79-20 Farley Unit 1 - Unit Restart After Extended Shutdown
 - h. PNO-II-79-21 Bellefonte Unit 2 - Cooling Tower Crane Collapse
 - i. PNO-III-79-23 Dresden Unit 3 - Spent Fuel Pool Overflow
 - j. PNO-III-79-24 Prairie Island Units 1 & 2 - Chlorine Treatment of Cooling Tower Water Containing Amoeba Encephalitis
 - k. PNO-III-79-25 & -25A Dresden Units 1, 2, & 3; Zion Units 1 & 2; LaCrosse; GE Morris Operations - Threatening Telephone Calls and Subsequent Trip at Dresden

ENCLOSURE E

- l. PNO-III-79-26 D. C. Cook Unit 1 - Excessive Vibrations on the Number 2 Reactor Coolant Pump
 - m. PNO-III-79-27 Zion Unit 2 - Unit Shutdown Per IE Bulletin No. 79-13
 - n. PNO-III-79-28 Davis-Besse Unit 1 - Unplanned Airborne Radioactivity Release
 - o. PNO-III-79-29 Zion Unit 2 - Twenty-Four Hour Notification of Cracking in the Steam Generator to Feedwater Piping
 - p. PNO-III-79-30 D. C. Cook Units 1 & 2 - Local Media Reporting of Potential Large Fish Kills
 - q. PNO-III-79-31 Dresden Station - Federal Highway Administration Civil Penalty of \$8,000 for Shipping Violations
 - r. PNO-III-79-32 Ohmart Corporation, Cincinnati, Ohio - Shipment of Gauge Containing a 300 Millicurie Cesium 137 Sealed Source
 - s. PNO-V-79-8 Trojan - Reported Exposure of 3.7 Rems to Lens of the Eye
 - t. PNO-TMI-79-03 Three Mile Island Unit 2 - Cooling Tower Fire System Deluge Activation
 - u. PNS-IV-79-12 South Texas Project Units 1 & 2 - Bomb Threat
4. The following IE Bulletin was issued:
- a. IE Bulletin No. 79-25, "Failures of Westinghouse BFD Relays in Safety Related Systems," was issued on November 2, 1979 to all power reactor facilities with an operating license or construction permit.

OFFICE OF NUCLEAR REGULATORY RESEARCH

Important Items - Week Ending November 1, 1979

SAFER

A subsurface survey of the low level waste disposal site at Beatty, Nevada was conducted by the Office of Nuclear Regulatory Research through its contractor Geo Centers, Inc., at the urgent request of NMSS, to assist the State of Nevada in clarifying recently identified uncertainties in the location of waste burial trenches. These uncertainties were uncovered during a recent inadvertent excavation of waste from about 30 feet outside the site's north boundary by USGS.

Geo-Centers used a pulsed radar system to profile the subsurface to a depth of approximately 40 feet, using reflected electro-magnetic pulses. The recorded data provided indications of buried objects, voids and regions of disturbed soils. Preliminary results from the unanalyzed data indicate the presence of subsurface anomalies typical of large buried objects and disturbed soils in the vicinity of the 12 older trenches, established between 1962 and 1969. However, there were also indications of such subsurface anomalies at locations suggesting an extension of four of the trenches 30 feet beyond the north boundary fence.

Additionally, several of the observed anomalies suggested that some trenches may be laterally offset by 15 or 20 feet from their markers. A survey along the remainder of the site periphery produced no additional obvious subsurface anomalies.

An analysis and interpretation of these data will be conducted by Geo-Centers, Inc., and a mapping of all detected subsurface anomalies will be provided and correlated with existing trench location records, to provide an improved definition of the boundaries of the waste trenches. Geo-Centers will brief NRC on the results of a preliminary analysis within 2 weeks, and provide a final report on the survey within 90 days.

Battelle-Pacific Northwest Laboratories will conduct a high resolution gamma ray survey of the site beginning on Monday, November 5, to determine the isotopic concentrations of nuclear contaminants which may be present at the ground surface. Reporting of these results will be coordinated with the report from Geo-Centers. Results will be reported to the State of Nevada through the office of Mr. John Vaden, Supervisor of Radiological Health Program for the State of Nevada.

Loss of Fluid Test (LOFT)

Plant preparations continue toward the performance of the first nuclear small break test on November 14, 1979.

Work is still being done on the low flow instrumentation, weatherproofing of the air-cooled condenser and core physics testing.

ENCLOSURE F

OFFICE OF THE EXECUTIVE LEGAL DIRECTOR

ITEMS OF INTEREST

WEEK ENDING NOVEMBER 2, 1979

H. B. Robinson, Unit No. 2

On October 31 (ALAB-569), the Appeal Board completed its sua sponte review of the combined proceeding on environmental impacts of continuation of operation of the facility and on a proposed increase in authorized power level. The Appeal Board addressed two significant matters, holding that: (1) Where EPA had granted a Section 316a exemption, thereby approving the facility's once-through cooling system, the Licensing Board correctly perceived that EPA's decision was binding on it. The Licensing Board's responsibility at that point was simply to factor the EPA determination into the cost-benefit balance. (2) Where the Staff had advised the Board that no safety questions arising from the TMI-2 accident would be made more serious by the proposed increase in power level (from 2200 to 2300 megawatts thermal), the Board properly determined that no uncontested matters were of such a serious nature as to warrant its formal attention.

Three Mile Island, Unit 2

On November 2, 1979, the Appeal Board issued a Memorandum and Order (ALAB-570) rescheduling the hearing on the aircraft crash probability issue, to commence on February 25, 1980. The Appeal Board was satisfied that any findings it would make would retain their validity, that it was in the interest of the public and litigants to go forward even recognizing the uncertainty in the future of TMI-2, because of the relative freshness of the evidence and availability of witnesses and counsel and the generic implications of the issue (particularly considering the presence of TMI-1). The Appeal Board also rescheduled the consolidated hearing on the radon issue (ALAB-566) to commence in Harrisburg immediately following the hearing on the aircraft crash probability issue.

ENCLOSURE G

ITEMS OF INTEREST
OFFICE OF INTERNATIONAL PROGRAMS
WEEK ENDING NOVEMBER 2, 1979

INTERNATIONAL COOPERATION

Distribution of the President's Commission's Report

The report of the Presidential Commission on the accident at Three Mile Island has been sent to U.S. Embassies in 24 countries; the U.S. Missions to the European Communities, the IAEA, and OECD. The report has also been provided to the local embassies or offices of these countries and organizations. Additional copies of the report have been sent to the official NRC contacts in the atomic energy regulatory organization in each Arrangement country.

Foreign Visits

Members of the Japanese Atomic Power Company (JAPCO) met with NRR, IE, and SP officials on October 31 to discuss lessons learned in the areas of licensing, inspection activities, and emergency response, with respect to TMI-2.

Members of the Swedish Nuclear Power Inspectorate met with NRR, IE, and RES officials on October 29 to discuss conclusions of a general and generic nature on TMI-2. The Swedish Head of the Nuclear Power Inspectorate, Mr. Lars Nordstrom, met with the Chairman and Commissioners and signed the renewal of our Regulatory Exchange Arrangement.

Dr. Sigvard Eklund, Director General of the IAEA, met with the staff and Commissioners on Monday, October 29 to discuss nuclear safety and safeguards matters.

Because of the LWR Research Review Meeting next week, we have received an unusually large number of visit requests. The following visits have been scheduled:

- on November 5: members of the Coordination Council for North American Affairs, Taiwan;
- on November 5: 8-member Japanese delegation;
- on November 5: delegation of the Argentine National Atomic Energy Commission
- on November 6: members of the Swedish Nuclear Training Center;
- on November 6: members from the GRS - Federal Republic of Germany;
- on November 7: members of the Swedish Nuclear Power Inspectorate;
- on November 8: members from the French Ministry of Industry;
- on November 9: members of the Japanese Ministry of International Trade;
- on November 9: members of the Belgian Society for Traction and Electricity

Signature of Renewal Arrangement

Commissioner Kennedy will sign the renewed Arrangement for the Exchange of Technical Information and Cooperation in Nuclear Safety Matters between NRC and the Spanish Junta de Energia Nuclear with JEN President Jesus Olivares Eacua on November 5, 1979. The original five-year Arrangement had been signed in Bethesda on October 29, 1974.

ENCLOSURE H

Foreign Reports

The following foreign reports were received at IP during the period of October 16 - 31, 1979. The ** indicates the reports are in the English language. For further information concerning these reports contact Maxine Johnson (49-27788), IP.

From Finland:

1. Quarterly Report 1979/I - Operation of Finnish Nuclear Power Plants, by the Institute of Radiation Protection**

From France:

1. The Nuclear Accident at Three Mile Island - U.S.A.
2. SCSIN No. 2867/79 - Operating Data for French Reactors June 1979 - July 1979
3. DSN No. 291 - Nature of Probability in Safety Assessments and Application to Earthquakes**
4. Analysis of the Nuclear Accident Crisis at Harrisburg
By B. Augustin & M. Fauve
5. Nuclear Aerosols in Reactor Safety: A State-of-the-Art Report by a Group of Experts of the NEA - June 1979**
6. DSN No. 292 - Numerical Forecast of Dilution and Fall Due to Atmospheric Precipitations (August 1979)

From Germany:

1. Catastrophe: Definition and Types, a Report by Dr. Peter Compes, BMI
2. GRS - Edition 16/79 - Safety Codes and Guides: Compilation of Information on the Steam Generators Required for Examination Purposes in the Licensing Procedures for Nuclear Power Plants Under the Atomic Energy Act (10/26/78)**
3. Technology Index for Plasmaphysics Research and Fusion Reactors - 1979, Volume 13, No. 8 (1735-1964)**
4. Report of the Federal Government on the Basis and Practices of the Event Notification Activities Within the Framework of Nuclear Legal Licensing and Inspection and Enforcement

ENCLOSURE H

From Germany: Cont'd

5. GRS-A-295 - Occupational Radiation Exposure Experienced in German BWR Nuclear Power Plants Until 1976.
6. GRS-A-296 - Occupational Radiation Exposure Experienced in German PWR Nuclear Power Plants Until 1976.
7. GRS-A-326 - Statistical Analysis of Temperatures Within Refill and Reflood Periods - July 1979
8. GRS-A-345 - Calculations Compared with Experimental Data No. 7 - 9, Regarding the Project RS 246 Performed by Battelle Institute, Frankfurt, "Distribution of Water Element in the Containment" - with the Aid of Computer Program RALOC. September 1979.
9. GRS-A-336 - Safety Experiments for Fabricating LWR Fuel with Enriched Uranium. August 1979.
10. GRS-A-335 - Cable Penetration in Reactor Containment. August 1979.
11. GRS-A-313 - Theoretical Guidelines Using Computer Program STREUSL for Fault-Tree Evaluation. June 1979.
12. General Ministerial Notice From the BMI - August 15, 1979.

From Japan:

1. STA - Second Interim Report by Special Committee on Investigation of the Accident at the American Nuclear Power Station

Crack in the Impeller of a Decay Heat Removal Pump at the Ohi Nuclear Power Station, Unit 1.
October 5, 1979.

Crack in the Impeller of a Decay Heat Removal Pump at the Ohi Nuclear Power Station, Unit 2.
October 9, 1979.

The 3 STA reports are in one volume.

From Korea:

1. KEPCO - Monthly Operating Data - September 1979 - for Kori 1.**

From Sweden:

1. Reactor Coolant Pressure Boundary Leakage Detection System.**
(PROPRIETARY)
2. Some Generic Problems Related to Westinghouse PWR ECCS Evaluation.**
3. A Parameter Study Concerning the Impact on the Calculated Peak Clad Temperature of a Redistribution of the Fuel After Cladding, Swelling and Rupture.**
4. Dose Calculations for TMI and Swedish Reactor Sites.
(From criteria report of the Swedish Radiation Protection Institute to be published November 30, 1979.)

From Taiwan:

1. Monthly Operating Report - December 1978 - July 1979 for Chin Shan 2.**
2. Reportable Occurrence No. RO-02-06 - First Nuclear Power Station Unit 2.**
3. Reportable Occurrence No. RO-02-07 - First Nuclear Power Station Unit 2.**
4. Reportable Occurrence Reports Nos. RO-02-08 and RO-02-09 on First Nuclear Power Station Unit 2.**
5. Monthly Operating Reports for August 1979, First Nuclear Power Station Unit 1 and 2.**

EXPORT/IMPORT AND INTERNATIONAL SAFEGUARDS

Meeting with OMB Regarding U.S. Technical Support for IAEA Safeguards

At the invitation of the State Department IP and NMSS (Ken Cohen and Ted Sherr, respectively) attended a meeting on October 29 at the offices of OMB to discuss budget matters dealing with U.S. technical support for IAEA safeguards. Also represented at the meeting were ACDA, DOE and DOE consultants. The principal focus of the meeting centered on the FY-81 budget request. The Executive Branch representatives provided an overview regarding why the USG provides technical support to the IAEA, how it fits into U.S. nonproliferation policy, and what the present and future needs are perceived to be. OMB raised a particular concern regarding when one could expect to see this particular type of support come to an end.

OFFICE OF STATE PROGRAMS
ITEMS OF INTEREST
WEEK ENDING NOVEMBER 2, 1979

State Agreements

The Texas radiation control program will be reviewed during the week of November 5, 1979.

Program Development

On October 30 and 31, 1979 Mr. S. A. Schwartz participated in the Region VI Regional Radiation Training Meeting.

On October 31, 1979, Region I SLO addressed the Huntingdon Valley Rotary Club regarding the accident at Three Mile Island.

Emergency Preparedness

An exercise was held by the State of Tennessee in conjunction with the Sequoyah Facility. It was observed by a regional advisory committee from Atlanta.

A one-week course for State Radiological Emergency Response Coordinators is being conducted by EPA and NRC in Auburn, Massachusetts.

Dick Van Niel participated in site visit with NRR at Quad Cities, Dresden, La Crosse and Zion, Illinois.

On October 26, 1979, Tom Elsasser, Region I SLO was in Augusta, Maine meeting with State officials to discuss the State Radiological Emergency Response Plan.

The Office of State Programs has issued a staff report, "Beyond Defense-in-Depth: Cost and Funding of State and Local Government Radiological Emergency Response Plans and Preparedness in Support of Commercial Nuclear Power Stations," by Dr. Stephen N. Salomon, Office of State Programs, NUREG-0553, in October 1979. This report, on which work began in June 1978, describes the current hodgepodge funding approach to State and local government radiological emergency response plans and preparedness in support of commercial nuclear power stations. The creation of a "Radiological Emergency Response Plans and Preparedness Fund for State and Local Government" is offered as the preferred solution. Copies are being sent directly to Federal, State and local officials with responsibilities for radiological emergency plans and preparedness, environmental and public interest groups and utility industry groups and associations. Other copies will be available in the headquarter's and local public document rooms.

ENCLOSURE I

OFFICE OF MANAGEMENT AND PROGRAM ANALYSIS

Items of Interest

WEEK ENDING - NOVEMBER 2, 1979

Emergency Preparedness

Assisted Chairman Hendrie by preparing a draft of his testimony before Rep. Moffett's subcommittee. Circulated draft on emergency preparedness organizational options to EDO and Office Directors.

Kemeny Report

Compared Kemeny Commission's recommendations with NRC's TMI action plan and with draft FY 82-86 Policy, Planning and Program Guidance (PPPG).

MIS Publication

Distributed October issue of Status Summary Report - Advanced Reactor Safety Research (Buff Book II).

ITEMS APPROVED BY THE COMMISSION - WEEK ENDING NOVEMBER 2, 1979

A. STAFF REQUIREMENTS MEMORANDUM ON EPICOR II ORDER FOR MODIFICATION (Memo, Chilk to Gossick dated 10/25/79)

The staff requirements memorandum dated October 16, 1979, subject as above, is amended to include the following instruction:

The order shall also make it clear that a hearing is not necessary prior to operation of EPICOR even though the amendments will not be effective until after the hearing.

Please take the necessary action.

B. STAFF REQUIREMENTS - DISCUSSION OF "FULL ACCESS" PROVISION OF COMMISSION PROCEDURES, 10:15 A.M., MONDAY, OCTOBER 22, 1979, COMMISSIONERS' CONFERENCE ROOM, DC OFFICE (Open to Public Attendance) (Memo, Chilk to Bickwit dated 10/25/79)

The Commission discussed the relationship between the "Full Access" provision of the Energy Reorganization Act and the Commission's open door policy.

The Commission requested that the General Counsel confer with the Commissioners and draft amendatory language to the Commission's open door policy which would note that because the power and authority of the Commission to act is vested in the collegial Commission and because all Commissioners must have access to all information that effects the performance of their duty, "open door" visitors should recognize that it is likely to be necessary that at least the substance of their difficulties be made known to other Commissioners and that this may also include the identity of the employee raising the concern. This clarifying language should be accompanied by a background statement explaining the potential conflict of the "Full Access" provision and the open door policy. This language and statement should be circulated to the Commission prior to dissemination.
(OGC) (SECY Suspense: 10/30/79)

C. STAFF REQUIREMENTS - DISCUSSION OF SECY-79-503 - PROPOSED AGREEMENT BETWEEN THE STATE OF RHODE ISLAND THE NRC, 1:45 P.M., TUESDAY, OCTOBER 22, 1979, COMMISSIONERS' CONFERENCE ROOM, D.C. OFFICE (Open to Public Attendance) (Memo, Chilk to Gossick, Kammerer and Fouchard dated 10/26/79)

1. The Commission, by a vote of 3-2, with Commissioners Gilinsky and Bradford dissenting*:

- a. found that the proposed Rhode Island program for control of radiation hazards with respect to byproduct materials, as defined in section 11e(1) of the Atomic Energy Act, source materials, and special nuclear materials in quantities not sufficient to form a critical mass, is compatible with the Commission's program for the regulation of like materials;

- b. found that the Rhode Island program is adequate to protect the public health and safety within the state with respect to the materials covered by the proposed section 274 agreement; and
 - c. approved, pursuant to Section 274 of the Atomic Energy Act, the proposed section 274b agreement between the State of Rhode Island and the Nuclear Regulatory Commission. (SP)
2. The Commission requested that:
- a. the Governor of Rhode Island be informed of this action by letter, which is to be prepared for the Chairman's signature; (SP) (SECY Suspense: 10/26/79)
 - b. the appropriate Congressional Committees be informed and an appropriate press release be issued; and (SP/OCA)(OPA) (SECY Suspense: 10/26/79)
 - c. the section 274b agreement be published in the Federal Register within thirty days after the agreement has been signed by both parties. (SP) (SECY Suspense: 11/26/79)

*Commissioner Gilinsky did not specifically object to the proposed Agreement with Rhode Island or to the compatibility of the Rhode Island program to current NRC criteria, but rather would have preferred that no new agreements be signed with any state until the criteria for determining adequacy and compatibility have been reevaluated. Commissioner Gilinsky earlier had proposed that such a reevaluation be the subject of a rulemaking proceeding. Commissioner Bradford agreed with Commissioner Gilinsky that no new agreement should be signed pending criteria reevaluation, but he also had reservations regarding the qualifications of the personnel who will conduct the Rhode Island program.

D. PUBLIC HEARING IN ENO DETERMINATION (Memo, Chilk to Gossick dated 10/29/79)

The Commission has decided to grant a request for a public hearing in the ENO determination filed by Mr. David Berger on behalf of numerous plaintiffs in the TMI class action suit. This hearing should be held in the Harrisburg area, and suitable public announcements should be made to ensure that all members of the public wishing to attend may do so. The Commission contemplates a one-day hearing before selected members of the ENO Panel (and others at your discretion). The hearing should be informal, with presentations sufficiently limited to allow maximum participation. Written submissions should also be accepted. All presentations should be in the form of statements made before the members of the Panel. A transcript of the meeting should be kept, made public as soon as possible, and reviewed by the ENO Panel along with other public comments already received.

The Commission requests that the following issues be open to consideration at the hearing:

1. Whether the accident at Three Mile Island meets the Commission's ENO criteria.
2. Whether uncertainties in radiation measurements during the accident are sufficient to warrant a finding that Criterion I has been satisfied.

These issues should be stated in public announcements -- including the Federal Register notice -- for the hearing, and should be repeated orally at the opening of the hearing.

The remaining details and arrangements are left to the discretion of the ENO Panel. If possible, a public announcement should be made by Friday, November 2, informing the public of the meeting and instructing interested persons on how to arrange for participation in the hearing.

E. SECY-78-220/78-220A - RECOMMENDED AGENCY PLAN FOR NUCLEAR SAFETY EVALUATIONS OF FUTURE SPACE PROGRAMS (Commissioner Action Item) (Memo, Chilk to Gossick dated 10/30/79)

This is to advise you that the Commission has reviewed the subject papers and following the June 28, 1979 briefing with NASA, DOE, OSTP and DOD has decided (with three Commissioners concurring) on the following actions:

1. NRC should participate in the Interagency Nuclear Safety Review Panel (INSRP), as an observer.
2. Such participation should consist of assigning one or more members of NMSS to be observers.
3. The observers efforts would be limited to informal consultation with other NRC staff members, in an out of NMSS. No separate NRC safety report would be prepared.
4. An NRC position on the nuclear safety aspects of a space mission would only be stated if the NRC observer(s) felt a particular nuclear safety issue or concern was as vital, and that the INSRP disposition so egregious as to require extraordinary treatment, he (they) could recommend that an NRC letter be sent to the NASA Administrator detailing the matter.

It is the Commission's opinion that no MOU is necessary, and the case for the exemption from licensing of the nuclear power sources used in space vehicles is adequate and appropriate. Commissioners Gilinsky and Bradford did not participate in this decision.

The staff is requested to proceed with the assignment of staff as observers and to keep the Commission informed of an actions as deemed appropriate.

ENCLOSURE M

F. SECY-79-518 - "Q" ACCESS AUTHORIZATIONS FOR OFFICE OF INSPECTION AND ENFORCEMENT OIE INSPECTORS (Commissioner Action Item) (Memo, Chilk to Gossick dated 10/30/79)

This is to advise you that the Commission (with three Commissioners concurring) has approved the staff's request for "Q" access authorizations for Office of Inspection & Enforcement inspectors. Commissioner Bradford concurred only in obtaining "Q" access authorizations for resident inspectors. Commissioner Ahearne non-concurred in this action.

The staff is authorized to seek "Q" access authorizations for all inspectors, but should start with the resident inspectors.

G. SECY-79-1B - COORDINATION WITH EPA ON OCCUPATIONAL RADIATION PROTECTION STANDARDS (Commissioner Action Item) (Memo, Chilk to Gossick dated 10/30/79)

This is to advise you that the Commission (with four Commissioners concurring) has, as an interim position, concurred with the staff's recommendation to retain current NRC limits for internal radiation exposure in the work place. However, in light of the stated intentions of both EPA and DOE, the Commission requests the staff to provide written descriptions of the internal dose limitation rationales used by EPA, DOE and the NRC staff. Any dissenting views from the NRC staff should also be provided. Although he did not participate in this decision, Commissioner Ahearne asked several questions of the staff, and raised no objection to proceeding prior to receiving an answer to his October 2 memorandum to Mr. Minogue.

Chairman Hendrie commented that he concurred in the staff position regarding dose limits, except for the organ dose limit. He stated that for the organ dose limit, he will accept the staff position on an interim basis, pending receipt of the information requested above.

H. STAFF REQUIREMENTS - CONTINUATION OF DISCUSSION OF ENFORCEMENT ACTIONS AT TMI, 3:50 P.M., TUESDAY, OCTOBER 23, 1979, COMMISSIONERS' CONFERENCE ROOM, D.C. (Closed to Public Attendance) (Memo, Chilk to the Record dated 10/30/79)

The Commission continued its discussion of enforcement actions proposed by the Director, Office of Inspection and Enforcement.

Although the Commission, by a vote of 4-1*, agreed that TMI enforcement actions should be taken in the near term, a collegial position could not be reached on which portions of the I&E proposed enforcement action should be implemented immediately. The Commission determined to give further consideration of this matter at a later date.

(A subsequent meeting was held on October 25, 1979).

*Commissioner Ahearne would have preferred delaying enforcement actions until the reports of other groups investigating the TMI accident can be reviewed.

- I. SECY-79-539 - COMPREHENSIVE EVALUATION OF SAFEGUARDS AT THE B&W NAVAL NUCLEAR FUEL DIVISION FACILITY, LYNCHBURG, VIRGINIA (Commissioner Action Item) (Memo, Chilk to Gossick dated 10/31/79)

This is to advise you that the Commission (with four Commissioners concurring) has approved the recommendations of this paper. Commissioner Gilinsky did not participate in this decision.

The Commission notes the contents of the report and approves the letters of transmittal to the Congressional Oversight Committees.

The Office of Nuclear Materials Safety & Safeguards was informed of this action by phone on October 31, 1979.

- J. SECY-79-1001 - PROPOSED RESPONSES TO PHILIPPINE INQUIRIES (Commissioner Action Item) (Memo, Chilk to Gossick dated 11/2/79)

This is to advise you that the Commission (with three Commissioners concurring and Commissioner Gilinsky noting without objection) has approved forwarding of the proposed responses to the Department of State for transmittal to the Philippine authorities, subject to appropriate updating of the response to Question 6. Commissioner Gilinsky would like an explanation as to why the responses have been classified. Commissioner Bradford did not participate in this action.

The Office of International Programs was informed of this action by telephone on November 2, 1979.

It is requested that you forward a response to Commissioner Gilinsky's request through the Office of the Secretary by c.o.b. November 15, 1979.

- K. SECY-A-79-76 - DIRECTOR'S DENIAL OF 2.206 RELIEF (IN THE MATTER OF PUBLIC SERVICE COMPANY OF INDIANA) (Commissioner Action Item) (Memo, Chilk to Bickwit dated 11/2/79)

This is to advise you that four Commissioners have agreed that there is no need for a review of this decision of the Director of Nuclear Reactor Regulation. Commissioner Gilinsky did not participate in this action.

In connection with his concurrence, Commissioner Bradford provided the following comment: "The issue of whether interested persons should be able to seek further actions by the NRC pursuant to the August 15, 1979 order is not decided until we rule on the petitions for hearing filed pursuant to the order."

The Office of the General Counsel was informed of this action by telephone on November 1, 1979.

CALENDAR OF SIGNIFICANT EVENTS

November 6, 1979	B&W Plants under Construction	Meeting with utilities who have B&W plants under construction, to discuss 10 CFR 50.54 request regarding the design adequacy of B&W NSSS utilizing once through steam generators.
November 17, 1979	FNP	ACRS Subcommittee meeting in Los Angeles

CALENDAR OF SPEAKING ENGAGEMENTS

NOVEMBER

- November 7-9 Sanford Israel will present a paper at the CSNI Specialist Meeting on Regulatory Review in Licensing Process in Madrid, Spain - TMI-2 and Its Impact on the Regulatory Process
- November 8 Edward Podolak will address FDA's Radiopharmaceutical Drugs Advisory Committee on "NRC Regulations for Medical Uses of Radioisotopes"
- November 12 Dr. Allen Brodsky, Keeping Radiation Exposures as Low as Reasonably Achievable, NC State University with Chapters of Professional Societies, NC State University, Raleigh, NC
- November 14 Dr. Allen Brodsky, Epidemiology and Radiation Protection (Wright H. Langham Memorial Lecture), University of Kentucky, Department of Health Radiation Sciences, Lexington, KY
- November 15 Dr. Allen Brodsky, Public Health and the Peaceful Atom: The Radiation Debate - Symposium: The Significance of Low-Level Radiation to Human Health, University of Kentucky Inter-Disciplinary Committee, Lexington, KY
- November 28 Information Security Oversight Office (ISOO) Annual Symposium, "Executive Order 12065 - A Year Later," "NRC's Development and Use of Classification Guides - Raymond J. Brady"

DECEMBER

- December 10-13 Stephen McGuire will speak before the Health Physics Society Mid-Year Symposium on "Safety Training for Industrial Radiographers" in Honolulu, Hawaii
- December 10-14 John McGrath will present a paper entitled "The NRC Program for Training of State Radiation Control Personnel" before the Health Physics Society Mid-Year Symposium, Honolulu, Hawaii

December 18, 1979

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SECY-79-669

INFORMATION REPORT

For: The Commissioners

From: Saul Levine, Director, Office of Nuclear Regulatory Research

Thru: Executive Director for Operations

Subject: MEMORANDUM OF UNDERSTANDING AMONG NRC, DOE, EPRI, GPU
FOR POST-ACCIDENT EXAMINATIONS OF TMI-2

Purpose: To inform the Commission of the agreement among NRC, DOE, EPRI, and GPU on the methods of interaction and coordination of efforts to achieve common goals in TMI-2 data gathering as represented by a completed Memorandum of Understanding among the parties.

Discussion: Following the letter from Chairman Hendrie to DOE Under Secretary Deutch (copy enclosed) concerning the need to develop a coordinated program for the post-accident examination of TMI-2, a Memorandum of Understanding (MOU) was developed through several meetings of senior representatives of NRC and the other organizations. As described in the enclosed MOU, a Joint Coordination Group (JCC) has been formed which has appointed members to a Technical Working Group (TWG). The Technical Working Group has had several meetings during which planning has been developed toward meeting the common goals defined by the JCC and the TWG. Also, as set forth in the MOU a Technical Integration Office has been established at TMI headed by a DOE representative and staffed by personnel from EG&G (Idaho) to coordinate the implementation of the plans.

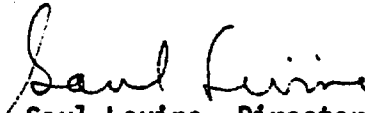
The first of the early examination efforts prescribed by the TWG has been accomplished. A 9-inch disk has been cut out of a containment penetration cover, allowing optical access to the containment and allowing for a detailed examination of the containment wall surface.

Contact:
Ronald Foulds, RSR
42-74323

12-18-19

The MOU will be signed by the Director of the Office of Nuclear Regulatory Research when DOE has the final draft prepared, by the end of December.

Coordination: This paper has been concurred in by NRR. ELD has no legal objection.



Saul Levine, Director
Office of Nuclear Regulatory Research

Enclosures:

1. TMI-2 Post-Accident Examination MOU
2. Chairman Hendrie Letter to Under Secretary Deutch

DISTRIBUTION

Commissioners
Commission Staff Offices
Exec Dir for Operations
ACRS
Secretariat

ENCLOSURE 1

November 2, 1979

MEMORANDUM OF UNDERSTANDING

TMI UNIT 2 INFORMATION AND EXAMINATION PROGRAM

1. INTRODUCTION

The TMI Unit 2 accident of March 28, 1979 was and is of great concern to the electric power industry, its customers, regulatory and other government agencies and the country as a whole. While the accident resulted in only limited radiation exposure to the population surrounding the power plant, the plant itself suffered extensive damage with high radiation contamination within the nuclear and other supporting systems and facilities. TMI Unit 2 currently presents opportunities to provide information for the enhancement of nuclear power plant safety and reliability of generic benefit to nuclear power technology. Four organizations, the Department of Energy (DOE), the Electric Power Research Institute (EPRI), the General Public Utilities Company (GPU), and the Nuclear Regulatory Commission (NRC), have a common interest in assuring that this information is obtained during the course of recovery. This memorandum of understanding identifies the broad areas of common interests, and objectives to which the signatories subscribe, and lays out in broad terms methods by which the signatories have agreed to interact in an effort to achieve these objectives consistent with the other obligations of the signatories.

2. OBJECTIVES

The TMI Unit 2 accident represented one of the most severe integral tests of nuclear plant safety philosophy and safety systems ever

encountered in a commercial light water reactor. The extent of damage to the reactor core and the subsequent release of fission products to the primary system, containment, and elsewhere is the most extensive experienced in any known light water reactor power system.

The environmental conditions within containment and the reactor system pose one of the most technically challenging decontamination and radioactive waste management situations ever encountered. These circumstances represent opportunities for state of the art advancement not available through normal research, development, and test programs.

Thus, it is our common objective that:

- significant applicable information stemming from the TMI Unit 2 accident be obtained and made available for the general improvement of light water reactor plant safety and reliability.
- unique data and experience at TMI Unit 2 that will be obtained during the plant decontamination and assessment of status be integrated into ongoing government and EPRI research and development programs as may be beneficial. This information will be made generally available to others engaged in the design, construction, operation and maintenance of nuclear power plants.
- information and experience of value to all parties be obtained during GPU's planned return to service program.

The signatories believe that the stated objectives above should be pursued to the benefit of the country and are in the best interest of the Nation. To this end, most effective use should be made of the available resources of government and industry.

3. COMMON INTERESTS

Major areas of common interests are, and work is expected to be undertaken in the following:

- a) The development and reporting of information on the performance of instrumentation, electrical and mechanical equipment within the reactor containment and auxiliary buildings during and after the accident. This effort will encompass work on plant systems and components whose performance is of importance to general generic improvements in light water reactor safety and reliability. Information which could lead to improvements in component and system designs and standards and plant operability, especially under abnormal conditions will be included.
- b) The development of information on fission product behavior, transport and deposition, particularly as this may contribute to a better understanding of nuclear plant accident scenarios.
- c) The development of information and the development and testing of new technology of potential industry wide application in the fields of
 - plant, system and equipment decontamination

- radioactive waste processing and disposal methods and systems
 - post-accident pressure vessel and other primary coolant system pressure boundary testing and qualification technology
 - removal, packaging, transportation, storage and disposal of damaged nuclear fuel.
- d) The development and reporting of information on the nature and extent of physical damage to surfaces, structural components and equipment within the reactor containment and auxiliary buildings as a result of the accident.
- e) The establishment and effective utilization of a common data bank for all information gathered under this agreement.
- f) The development and reporting of information on the nature and extent of core damage, with the objective of understanding the chemical, metallurgical and physical behavior of fuel, clad, core components, and related reactor internals during and after the accident.

Recognizing that other areas of common interest may arise, that the possibility exists for discovering conditions not previously anticipated, or of new questions arising at some future time not presently being considered, the signatories agree that an archival system be established under which specimens of hardware or other samples may be stored off-site for possible future examination and testing.

4. JOINT COORDINATING GROUP

To provide a forum for effectively guiding and reconciling, where necessary, the various activities which may be undertaken in association with TMI recovery, a Joint Coordinating Group will be formed to which each signatory will appoint one senior representative. The group will act to provide an integrated overview of activities associated with TMI, to provide a means for priority assessment of the expected large numbers of peripheral data and technology tasks, and to provide a means for the review and integration of activities ancillary to the recovery of the Unit. The Joint Coordinating Group will function to permit the fullest necessary management interaction of the parties. It will serve as one means to identify facility, equipment, personnel and financial resources for the accomplishment of common goals.

The Joint Coordinating Group will meet periodically (initially about once every two months) to consider policy matters, with responsibility for chairing each meeting alternating between the EPRI and the DOE representatives.

The Coordinating Group will develop a charter to implement the general understandings contained in the memorandum, and to form such subgroups or interact with such other parties as to facilitate common interests herein identified.

5. TECHNICAL WORKING GROUP

To assist the Joint Coordinating Group, the signatories agree to establish a Technical Working Group (TWG) whose functions are:

- (a) define the technical work to be done and prepare an integrated plan for such work.
- (b) to provide detailed technical scope of work for specific tasks to be performed under the plan, and
- (c) to provide technical oversight of such work, including recommendations for necessary changes and additions.

The TWG shall consist of technical experts appointed by each signatory. Three members shall initially be appointed by each signatory but the composition may be changed to meet specific needs or altered conditions. The TWG shall meet periodically as needed and the meetings shall be chaired by DOE and EPRI representatives. The results of these meetings shall be reported to the Joint Coordinating Group.

6. TECHNICAL INTEGRATION OFFICE

To assist the Joint Coordinating Group, the signatories further agree to establish a Technical Integration Office (TIO) with functions as noted below. Since some of these functions are expected to involve onsite work, the parties agree to the following understandings regarding such onsite activities:

- (a) All work within the reactor and auxiliary buildings will be arranged for, controlled, and executed by GPU and its contractors.
- (b) GPU will make office space available, on a reimbursable basis, within or proximate to the site boundary, for the Technical Integration Office.

The functions of the Technical Integration Office shall include:

- (a) The TIO shall be the interface between GPU and its contractors on the one hand, and the Joint Coordinating Group and its representatives on the other, for all matters related to work carried on pursuant to this agreement. This shall in no way be interpreted to extend to the normal requirements for information required for licensing or inspection and enforcement activities of the NRC, where existing channels shall continue to be used as appropriate.
- (b) In coordination with GPU, the TIO shall assist in identifying the schedule of specific activities to be conducted onsite pursuant to this agreement, arranging for the carrying out of these activities, the monitoring of these activities, and the reporting of data, selection and shipment of samples, etc.

- (c) Review, in coordination with TWG and GPU, proposed procedures related to activities conducted pursuant to this agreement so as to assure high likelihood of success of task objectives.
- (d) For all activities, whether onsite or offsite, actually carried out pursuant to this agreement, provide for the systematic collection and collation of information obtained so that such information may be freely accessible to any interested party. To this end, the TIO will maintain liaison with the TWG to define data to be collected, report format, and reporting schedule.
- (e) Work performed pursuant to this agreement which is sponsored by the Government shall be contracted for by the TIO.
- (f) Work performed pursuant to this agreement which is sponsored by EPRI shall be contracted for by appropriate means and the TIO shall be fully cognizant of the contractual arrangements so that it can perform its other integration, scheduling, interface, and information collection functions listed above.
- (g) The TIO shall establish, and maintain, a system for controlling changes to the work scope that may arise from time to time. This system shall be approved by the TWG.

The TIO will be established, manned and funded by DOE. Representatives of organizations in the TWG may be attached to the TIO to assist in administering the functions of the TIO, including technical oversight of specific tasks conducted pursuant to this agreement.

7. STATEMENT OF LIMITATIONS

It is understood that the TMI Unit 2 owners and customers have a strong interest in the return to safe commercial service of TMI Unit 2. Each party of this Memorandum of Understanding will implement their own individual programs. Nothing contained in this document shall be construed to impose upon any party hereto liability for injury to persons or property arising in the course of the activities under this Memorandum of Understanding. Nothing is intended to affect, modify or to act to change the internal management, structure or responsibilities of each of the participating groups individually.

Signed:

DOE

EPRI

GPU

NRC

(This page has been re-typed per ELD comments; DOE has agreed to this version.)

ENCLOSURE 2



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

October 19, 1979

The Honorable John M. Deutch
Under Secretary
U. S. Department of Energy
Washington, D. C. 20545

Dear Mr. Deutch:

I am writing you concerning the need for developing and implementing a plan for the post-accident examination of the Three Mile Island Unit-2 (TMI-2) power station. The accident was a highly regrettable occurrence, but the information that can be derived from a careful examination of the facility before and during cleanup can be invaluable in providing both understanding of the accident and reactor safety information.

Several discussions have been held on this subject. At a meeting of senior staff representatives of DOE, EPRI, GPU and NRC, it was concluded that it would be useful to develop a coordinated program under the aegis of a joint Coordinating Committee. I support this approach and recommend that DOE give strong consideration to the allocation of funds and other resources for this effort.

Some areas in which such information can be obtained are:

- (a) fission product behavior, transport, and plateout;
- (b) the extent and location of core damage from thermal and chemical degradation;
- (c) other primary system structural damage, if any; and
- (d) damage and deterioration of equipment in the containment.

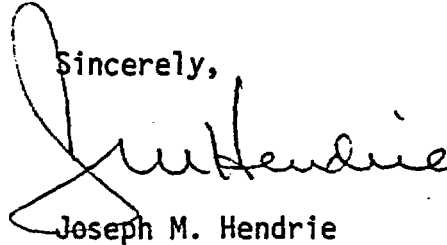
Such information is not only valuable to the mission of the NRC and DOE, but will be equally valuable to the international community. The enclosure hereto contains a more detailed preliminary listing of data needs.

The Honorable John M. Deutch

- 2 -

In essence, TMI-2 can provide a large amount of information which might not be available from limited scale experiments or simulations. It is important that these data not be lost in the recovery of the facility. Your attention to this matter is appreciated. If you have any questions in this regard, please do not hesitate to contact me or Dr. Charles N. Kelber of our Division of Reactor Safety Research,

Sincerely,

A handwritten signature in cursive script, appearing to read "J. Hendrie".

Joseph M. Hendrie

Enclosure:
As stated

Safety Related Examinations During TMI Recovery Operations

The TMI-2 plant, in its present accident aftermath state, contains a wealth of information of potentially great value to the NRC for understanding the nature of accident initiated effects on plant, equipment, and fluids. To guide future activities in preventing and mitigating the effects of accidents and to identify sources of potential decontamination and requalification difficulties it is of great importance that careful attention be given during recovery operations to obtaining data which could otherwise be forever lost without adequate planning and control. An early objective should be to determine and compare the values of alternative data needs and to establish their relative priorities prior to the various recovery operation steps during which they would take place.

A preliminary listing of desired information examples by category is given as follows for early planning purposes (taken from a more extensive list compiled from all sources within NRC staff):

Listing of Data Interests for TMI Recovery Examinations

General Guidelines

1. The recovery plan should be integrated with safety related examinations to minimize the loss of valuable information. A management mechanism has been suggested to assure proper coordination.
2. Provision should be made for careful recording and filing of photographs, TV tapes, voice records, etc., made during the recovery process.
3. Provision should be made for library samples for possible future tests.

Examples of Specific Examinations

A. Containment Building Interior Prior to Start of Decontamination

1. The disposition of radionuclides on walls and operating floors, and adsorption on concrete, should be sampled by swipes, trepanning or similar techniques.
2. Examination for damage associated with hydrogen burn.
3. All glass light bulbs and glass covers should be collected, identified for specific location and saved for eventual analysis. These items could provide an excellent indication of integrated dose to various parts of the containment since it is known that the amount of darkening (or change in optical density) is related to dose.
4. Check operating floor areas for any evidence that the containment spray was limited in lateral extent.
5. Assess debris in sump to determine type, size, and initial and final location if (and how) clogging took place.

B. Tests after Decontamination of Containment Building

1. Perform a detailed examination of safety grade electrical equipment including cables, instruments, and motors.
2. Check condition of thermal insulation.
3. Check condition of valves, blowdown lines, valve packing and gaskets.
4. Determine extent of external corrosion on reactor pressure vessel (including head), steam generators, pressurizer, piping and carbon steel valves inside containment.
5. Identify radionuclides and their location within the damaged steam generator.
6. Perform containment leak rate test to ascertain containment integrity subsequent to hydrogen explosion and intense radiation exposure.

C. Core and Reactor Vessel

1. Reactor Vessel, CRDM's, etc. (External)
 - a. extent and location of sites of contamination; characterization of radionuclides present,
 - b. examination for signs of overheating, thermal distortions.
2. Reactor Vessel, CRDM's, Instruments (Internal)
 - a. melting, distortion, fission product entrapment, etc., effects on control systems, thermal shields, upper and lower core support structures,
 - b. examination of vessel interior for damage and for signs of various accident conditions.
3. A visual examination of the core geometry with appropriate photographs; precise axial and radial locations of abnormalities.
4. Determination of extent of gross assembly-to-assembly core damage/distortion; estimation of flow blockages or other hydraulic phenomena, and distribution of thermal effects.
5. Determine distribution of (fuel and clad) debris and formation and composition of debris deposits and debris beds.
6. Assessment of the conditions of core instrumentation prior to removal.
7. Removal and inspection of fuel bundles to determine if ruptured or melted.

8. Poolside examination of any intact fuel bundles for degree of ballooning and flow restriction.
9. Removal and examinations of portions of guide tubes, control rods, instrumentation tubes, and upper and lower core structural components.
10. Removal of small samples from selected regions of the core.
11. Hot cell examination of samples for:
 - a. an estimate of the maximum clad and fuel temperatures reached in different portions of the core;
 - b. extent of oxidation of cladding in different temperature zones;
 - c. extent of damage to grids spacers;
 - d. evidence of UO_2 melting;
 - e. evidence of Zr/UO_2 liquid phase formation;
 - f. evidence of hydriding of zirconium cladding and the extent of hydride formation;
 - g. structural integrity of fuel pins as a function of temperatures reached; and
 - h. geometry of damaged fuel to assist estimates of coolability.

D. Survey Auxiliary Building and Contents

1. Radionuclide deposition
2. Flooding damage
3. Contamination of steam relief valves, lines and let-down heat exchangers.

E. Primary Coolant

1. Coolant before and during decontamination to provide archival samples for analysis. (It may be desirable to interrupt decontamination to dissolve lanthanides to obtain a sample of their abundance.)

RESPONSE TO FREEDOM OF
INFORMATION ACT (FOIA) REQUEST

2017-0034

1

RESPONSE
TYPE☐

INTERIM

☒

FINAL

REQUESTER:

DATE:

03/10/2017

DESCRIPTION OF REQUESTED RECORDS:

Copies of 16 specified SECY Papers.

PART I. -- INFORMATION RELEASED

- ☐ Agency records subject to the request are already available in public ADAMS or on microfiche in the NRC Public Document Room.
- ☒ Agency records subject to the request are enclosed.
- ☐ Records subject to the request that contain information originated by or of interest to another Federal agency have been referred to that agency (see comments section) for a disclosure determination and direct response to you.
- ☐ We are continuing to process your request.
- ☒ See Comments.

PART I.A -- FEES

AMOUNT*

\$

0.00

☐

You will be billed by NRC for the amount listed.

☒

None. Minimum fee threshold not met.

☐

You will receive a refund for the amount listed.

☐

Fees waived.

*See Comments for details

PART I.B -- INFORMATION NOT LOCATED OR WITHHELD FROM DISCLOSURE

- ☐ We did not locate any agency records responsive to your request. *Note:* Agencies may treat three discrete categories of law enforcement and national security records as not subject to the FOIA ("exclusions"). 5 U.S.C. 552(c). This is a standard notification given to all requesters; it should not be taken to mean that any excluded records do, or do not, exist.
- ☐ We have withheld certain information pursuant to the FOIA exemptions described, and for the reasons stated, in Part II.
- ☐ Because this is an interim response to your request, you may not appeal at this time. We will notify you of your right to appeal any of the responses we have issued in response to your request when we issue our final determination.
- ☐ You may appeal this final determination within 30 calendar days of the date of this response by sending a letter or email to the FOIA Officer, at U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001, or FOIA.Resource@nrc.gov. Please be sure to include on your letter or email that it is a "FOIA Appeal."

PART I.C COMMENTS (Use attached Comments continuation page if required)

In conformance with the FOIA Improvement Act of 2016, the NRC is informing you that you have the right to seek assistance from the NRC's FOIA Public Liaison.

With the exemption of SECY-79-263, the remaining SECY papers in your request are enclosed, and released in their entirety. They are: SECY-79-262, SECY-79-264, SECY-79-477, SECY-79-612, SECY-79-671, and SECY-79-552. (see Continuation page)

SIGNATURE - FREEDOM OF INFORMATION ACT OFFICER

Stephanie Blaney

2017-0034

1

**RESPONSE TO FREEDOM OF INFORMATION
ACT (FOIA) REQUEST Continued**

RESPONSE
TYPE

☐

INTERIM

☒

FINAL

REQUESTER:

DATE:

03/10/2017

PART I.C COMMENTS (Continued)

SECY-79-263 remains classified. You also requested a declassification review be done. The Mandatory Declassification Review (MDR) is a separate process. We will be forwarding your information to the appropriate individual at the NRC for a response for SECY-79-263.

April 16, 1979

UNITED STATES
NUCLEAR REGULATORY COMMISSION

SECY-79-262

INFORMATION REPORT

For:

The Commissioners

From:

William J. Dircks, Director
Office of Nuclear Material Safety and Safeguards

Thru:

Executive Director for Operations

Subject:

MISADMINISTRATION

Purpose:

To inform the Commission about a reported misadministration.

Discussion:

On April 6, 1979, the License Management Branch (LMB) received a telephone call from a physicist who consults for several hospitals in the Ohio area. The physicist asked if NRC required that misadministrations be reported. The physicist was informed that NRC has under consideration a proposed misadministration reporting requirement but that the proposed rule has not as yet been published in effective form.

While the physicist refused to identify the hospital at which the incident occurred because the hospital does not want any unfavorable publicity, he did provide the following information:

1. A patient being treated for bone metastases was given 3 millicuries of phosphorus-32 as colloidal chromic phosphate instead of the intended soluble phosphate.
2. The absorbed dose to the liver, the organ in which the colloidal form concentrates, was estimated to be about 900 rads.
3. The radioactive drug was properly labeled by the manufacturer.

Contact: Patricia Vacca, NMSS
42-74232

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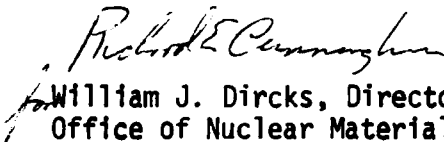
4. The patient was informed of the misadministration.
5. The error was apparently made by hospital personnel. The physicist noted that he had given an "in-service" training program at the hospital about two weeks prior to the incident and covered this type of problem. However, not all of the people in the department were present for the training.
6. The misadministration occurred within the last two weeks.

On April 6, 1979, LMB notified IE Headquarters and IE Region III of the information provided by the physicist.

In an effort to identify the hospital at which the incident occurred, IE Region III staff contacted Mallinckrodt, Inc., the sole U.S. supplier of phosphorus-32 as colloidal chromic phosphate. Mallinckrodt, Inc. provided the names of two customers in the Ohio area who had received this radioactive drug within the last several weeks.

A review of both license files indicates that each hospital is authorized to conduct therapy procedures which include the use of phosphorus-32 as soluble phosphate for treatment of bone metastases. In view of the physicist's statements about the size of the hospital and its active therapy program, the staff concluded that the incident occurred at the larger of the two hospitals. The staff contacted personnel at Akron General Medical Center by telephone who stated that the misadministration occurred at their hospital. An NRC staff member visited the hospital on Friday, April 13, 1979. The initial telephone report to Headquarters on the morning of April 13 was that hospital personnel denied the misadministration occurred at the hospital and that a review of the records does not indicate a misadministration. The NRC staff member is continuing to look into this matter.

We will keep the Commission informed of further developments.


for William J. Dircks, Director
Office of Nuclear Material Safety
and Safeguards

UNITED STATES
NUCLEAR REGULATORY COMMISSION


INFORMATION REPORT

April 16, 1979

SECT-79-264

For: The Commissioners

From: William J. Dircks, Director
Office of Nuclear Material Safety and Safeguards

Thru: Executive Director for Operations 

Subject: ISSUANCE OF ORDER TO SHOW CAUSE

Purpose: To inform the Commission of the issuance of an order suspending general license for Model No. NFS-4 packaging.

Issue: Currently constructed packaging identified as Model No. NFS-4 may not have been fabricated in accordance with the design approved by NRC Certificate of Compliance No. 6698.

Discussion: During a meeting on March 29, 1979, and by letter dated April 2, 1979, the Nuclear Assurance Corporation informed the NRC staff that a cask designated as the Model No. NFS-4 (NAC-1, Serial A) was not fabricated in accordance with the design approved by NRC Certificate of Compliance No. 6698. Cask Model No. NFS-4 is used for transportation of spent reactor fuel and is authorized to carry one PWR element or two BWR elements. Eighteen owners/users and the Department of Energy are currently authorized to use this model cask.

The information provided by Nuclear Assurance Corporation in the March 29 meeting indicates that one or more of the shells is warped or bowed, but the exact cause or extent of the warp or bow is not known at this time. Also, the NRC staff was informed that the cask manufacturer added increased shielding material in an area of reduced shielding thickness by welding copper plates to the outer shell of the cask.

The full safety implications of these reported deviations are not known at this time but they could represent a substantial reduction in the effectiveness of the package such that it would not meet the requirements of 10 CFR Part 71 for normal and accident conditions. It

Contact:
Charles E. MacDonald, NMSS
42-74122

Discussion:
(continued)

is possible that other casks fabricated to this design contain similar deviations. There are six casks fabricated to the design and one under construction at the present time.

An order (Enclosure 1) which was signed on April 6, 1979, was considered essential in the interest of public health and safety. All casks of this design should be withdrawn from use until a determination can be made of the exact nature of any deviations from the approved design and an assessment can be made of the safety significance of such deviations.


The order in Enclosure 1 became effective immediately and affects eighteen (18) licensees. The order required that:

- 1) Effective immediately, the general license to use casks designated as Model No. NFS-4 is suspended pending further order of the Commission.
- 2) Each owner/user shall show cause in the manner hereinafter provided why the general license to use cask Model No. NFS-4 should not remain suspended until such time as:

The owner/user demonstrates to the Commission that each cask was fabricated in accordance with the design approved by the Commission in Certificate of Compliance No. 6698. This demonstration shall include review of the quality assurance records required by Condition 17 to Certificate of Compliance No. 6698 and actual physical measurements of existing packages.

The Office of State Programs will notify all Agreement States of this action. The Department of Transportation and the Department of Energy have been notified of this action.

Coordination: The order was coordinated with the Office of Inspection and Enforcement and the Executive Legal Director. The Office of Public Affairs has decided to prepare a public announcement on the order. Appropriate Congressional committees have been informed (Enclosure 2).


William J. Dircks, Director
Office of Nuclear Material Safety
and Safeguards

Enclosures:
1. Order to Show Cause
2. Congressional letter

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Regional Offices
ACRS
Secretariat



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

71-6698

APR 00 1973

Gentlemen:

The attached order:

- (a) Prohibits the use of Model No. NFS-4 packaging by NRC licensees until a determination is made that the packaging meets the requirements of Certificate of Compliance No. 6698.
- (b) Requires an evaluation of deviations from the design approval.
- (c) Requires further order of the Commission to return the packagings to service.

This order is effective immediately.

Sincerely,

A handwritten signature in dark ink, appearing to read "William J. Dircks", is written over the typed name.

William J. Dircks, Director
Office of Nuclear Material Safety
and Safeguards

Enclosure: As stated

cc w/encl: Mr. Richard R. Rawl
Department of Transportation

Dr. William E. Mott
Department of Energy

Identical orders sent to those on
attached list

Enclosure 1

Identical orders sent to:

Nuclear Fuel Services, Inc.
ATTN: Mr. Larry Wiedemann
P.O. Box 124
West Valley, NY 14171

Commonwealth Edison
ATTN: Mr. L. D. Butterfield, Jr.
P.O. Box 767
Chicago, IL 60690

Maine Yankee Atomic Power Co.
ATTN: Mr. L. H. Heider
Turnpike Road (RT 9)
Westboro, MA 01581

Nuclear Assurance Corporation
ATTN: Mr. Jack D. Rollins
24 Executive Park West
Atlanta, GA 30529

Wisconsin Electric Power Company
ATTN: Mr. Sol Burstein
231 West Michigan
Milwaukee, WI 53201

Rochester Gas & Electric Corporation
ATTN: Mr. L. D. White, Jr.
89 East Avenue
Rochester, NY 14649

Jersey Central Power & Light Company
ATTN: Mr. J. T. Carroll, Jr.
P.O. Box 388
Forked River, NJ 08731

Duke Power Company
ATTN: Mr. W. O. Parker, Jr.
422 South Church Street
Charlotte, NC 28201

Southern California Edison Company
ATTN: Mr. William H. Seaman
P.O. Box 800
Rosemead, CA 91770

Florida Power and Light Company
ATTN: Mr. Robert E. Uhrig
P.O. Box 013100
Miami, FL 33101

Baltimore Gas & Electric Company
ATTN: Mr. A. E. Lundvall, Jr.
Gas & Electric Building
Baltimore, MD 21203

Battelle Columbus Laboratories
ATTN: Mr. Harley L. Toy
505 King Avenue
Columbus, OH 43201

Babcock and Wilcox Company
ATTN: Mr. D. W. Zeff
P.O. Box 1260
Lynchburg, VA 24505

Boston Edison Company
ATTN: Mr. G. Carl Andognini
800 Boylston Street
Boston, MA 02199

Dairyland Power Cooperative
ATTN: Mr. R. E. Shimshak
P.O. Box 135
Genoa, WI 54632

Westinghouse Electric Corporation
ATTN: Mr. Ronald P. Dipiazza
P.O. Box 355
Pittsburgh, PA 15230

Florida Power Corporation
ATTN: Mr. J. T. Rodgers
P.O. Box 14042
St. Petersburg, FL 33733

General Electric Company
ATTN: Mr. D. M. Dawson
175 Curtner Avenue
San Jose, CA 95125

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
WASHINGTON, D.C. 20555

ORDER TO SHOW CAUSE (IMMEDIATELY EFFECTIVE)

During a meeting on March 29, 1979, and by letter dated April 2, 1979, the Nuclear Assurance Corporation informed the NRC staff that a cask designated as the Model No. NFS-4 (NAC-1, Serial A) was not fabricated in accordance with the design approved by NRC Certificate of Compliance No. 6698. Cask Model No. NFS-4 is used for transportation of spent reactor fuel and is authorized to carry one PWR element or two BWR elements. Eighteen owner/users and the Department of Energy are currently authorized to use this model cask.

The deviations were characterized as a difference in the dimensions of the steel shells identified as Part Numbers 67 and 69 as shown in NFS Drawing No. E10080, Revision 16. In addition, copper plates were welded to the outside of Part 69. The information provided by Nuclear Assurance Corporation in the March 29 meeting indicates that one or more of the shells is warped or bowed, but the exact cause or extent of the warp or bow is not known at this time. Also, the NRC staff was informed that the cask manufacturer added increased shielding material in an area of reduced shielding thickness by welding copper plates to the outer shell of the cask.

The full safety implications of these reported deviations are not known at this time but they could represent a substantial reduction in the effectiveness of the package such that it would not meet the requirements of 10 CFR Part 71 for normal and accident conditions. It is possible that other casks fabricated to this design contain similar deviations. There are six casks fabricated to the design and one under construction at the present time.

II

In view of the foregoing and in the interest of public health and safety all casks of this design should be withdrawn from use until a determination can be made of the exact nature of any deviations from the approved design and an assessment can be made of the safety significance of such deviations.

Accordingly, pursuant to the Atomic Energy Act of 1954, as amended, and the Commission's regulations in 10 CFR Parts 2 and 71, IT IS HEREBY ORDERED THAT:

- 1) Effective immediately, the general license to use casks designated as Model No. NFS-4 is suspended pending further order of the Commission.
- 2) Each owner/user shall show cause in the manner hereinafter provided why the general license to use cask Model No. NFS-4 should not remain suspended until such time as:

The owner/user demonstrates to the Commission that each cask was fabricated in accordance with the design approved by the Commission in Certificate of Compliance No. 6698. This demonstration shall include review of the quality assurance records required by Condition 17 to Certificate of Compliance No. 6698 and actual physical measurements of existing packages.

III

In view of the facts set forth in Part I, above, and the importance to public health and safety of proper fabrication of the casks, the Director of the Office of Nuclear Material Safety and Safeguards has determined pursuant to 10 CFR 2.202(f) that the suspension of the general license to use cask Model No. NFS-4 shall be immediately effective.

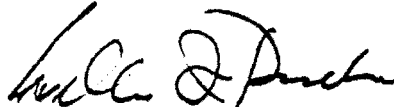
An owner/user to whom this Order applies may, within 20 days from the receipt of this Order, file a written answer to this Order under oath or affirmation. Within the same time, an owner/user may request a hearing. Any answer or request for hearing shall be filed with Mr. Richard E. Cunningham, Director, Division of Fuel Cycle and Material Safety, U. S. Nuclear Regulatory Commission, Washington, D.C. 20555. Any request for a hearing shall not stay the immediate effectiveness of this Order. If a hearing is requested, the Commission will issue an Order designating the time and place for hearing.

IV

In the event a hearing is requested, the issues to be considered at such a hearing shall be:

- 1) Whether the owner/user's casks designated Model No. NFS-4 were fabricated in accordance with design approved by NRC Certificate of Compliance No. 6698, and
- 2) Whether this ORDER should be sustained.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read "William J. Dircks", is written over the printed name.

William J. Dircks, Director
Office of Nuclear Material Safety
and Safeguards

Dated at Bethesda, Maryland
this 6th day of April, 1979.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

APR 18 1979

The Honorable John D. Dingell
Chairman, Subcommittee on Energy
and Power
Committee on Interstate
and Foreign Commerce
United States House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

Enclosed for the information of the Subcommittee is a copy of an Order to Show Cause which we recently issued to eighteen (18) licensees. We issued this order because currently constructed packaging identified as Model No. NFS-4 may not have been fabricated in accordance with the design approved by NRC Certificate of Compliance No. 6698. The order prohibits the use of the NFS-4 spent fuel cask until a determination is made that the packaging meets the requirements of the certificate.

During a meeting on March 29, 1979, and by letter dated April 2, 1979, the Nuclear Assurance Corporation (NAC) informed the NRC staff that a cask designated as the Model No. NFS-4 (NAC-1, Serial A) was not fabricated in accordance with the design approved by NCR Certificate of Compliance No. 6698. Cask Model No. NFS-4 is used for transportation of spent reactor fuel and is authorized to carry one PWR element or two BWR elements. Eighteen owner/users and the Department of Energy are currently authorized to use this model cask.

The full safety implications of the reported deviations are not known at this time but they could represent a substantial reduction in the effectiveness of the package such that it would not meet the requirements of 10 CFR Part 71 for normal and accident conditions. It is possible that other casks fabricated to this design contain similar deviations. There are six casks fabricated to the design and one under construction at the present time.

Enclosure 2

The Honorable John D. Dingell - 2 -

The enclosed Order was considered essential in the interest of public health and safety. All owners/users of casks of this design have been ordered to withdraw the cask from use until a determination can be made of the exact nature of any deviations from the approved design and an assessment can be made of the safety significance of such deviations.

Sincerely,

~~(Signed) William J. Dircks~~

William J. Dircks, Director
Office of Nuclear Material Safety
and Safeguards

Enclosure: Order to Show Cause
(Certificate of Compliance No. 6698)

cc w/encl: The Honorable Clarence J. Brown

Identical Letters To:

The Honorable Morris Udall
Subcommittee on Energy and
the Environment

cc: Steven D. Symms

The Honorable Gary Hart
Subcommittee on Nuclear Regulation

cc: Alan Simpson

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

August 8, 1979

INFORMATION REPORT

SECY-79-477

For: The Commissioners

From: Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Thru: Executive Director For Operations *TMR for L.V.G.*

Subject: MEETING WITH UTILITIES HELD ON AUGUST 1, 1979 TO
DISCUSS STATUS OF STAFF STUDIES ON SHORT-TERM TMI
LESSONS.

Purpose: To inform the Commission of the results and followup
of a meeting held with licensees of operating reactors
and applicants for near-term operating licenses.

Discussion: A meeting was held on August 1, 1979 to brief licensees
of operating reactors and applicants for near-term
operating licenses on the proposed recommendations
resulting from staff studies in four areas: TMI-2
Lessons Learned, Bulletins and Orders, Emergency
Preparedness, and Operator Training. Enclosed is a
summary of the principal points discussed at the
meeting. I have asked the ACRS for its advice on these
matters. The staff will meet with the ACRS on
August 9, 1979 and we expect a letter from the Com-
mittee later this week. Before making my final
recommendation to the Commission on these matters,
I will await the advice from the ACRS.

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Harold R. Denton
Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Enclosure:
Summary of Aug. 1 Mtg.

Contact: D. B. Vassallo, DPM
492-7595



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

AUG 8 1979

MEMORANDUM FOR: D. B. Vassallo, Acting Director, Division of Project Management, NRR
D. Eisenhut, Acting Director, Division of Operating Reactors, NRR

FROM: R. A. Benedict, Project Manager, Light Water Reactors Branch
No. 2, DPM

SUBJECT: SUMMARY OF MEETING HELD AUGUST 1, 1979 TO DISCUSS STATUS OF TMI-2
RELATED ACTIVITIES BY NRC TASK GROUPS

A meeting was held in Bethesda on August 1, 1979 to discuss the status of TMI-2 related activities by NRC task groups. Invited to attend were all utilities with operating plants and seven with OL applications for which licensing action is scheduled to be completed in the near term. These two groups are listed in Enclosures 1 and 2 respectively. Enclosure 3 presents the agenda for the meeting.

Mr. Denton noted that, since the occurrence of the TMI-2 accident, both the NRC and the industry have been active in studying the accident to arrive at means to prevent or mitigate future accidents of this type. He stressed that the purpose of this meeting was to present to the industry what the NRC has in mind to propose in the way of new requirements and to obtain feedback from the industry on these thoughts. He expressed hope that the industry could combine the efforts of all its parts and provide, ultimately, a single report presenting the industry's proposed alternatives. Such a combined effort would help reduce the time and manpower that would otherwise be spent by both industry and the NRC in evaluating the alternatives. He noted that the formation of owners groups was already helping to expedite and consolidate this process.

Lessons Learned

Mr. Mattson reviewed the major recommendations of the "Lessons Learned" Task Force, as presented more fully in NUREG-0578, "TMI Lessons Learned Task Force Status Report and Short-Term Recommendations." He noted that implementation of the recommendations, some scheduled for January 1, 1980 and others for January 1, 1981, should be accomplished on time. However, for good cause shown, some of those scheduled for January 1, 1980 implementation might be delayed a few months until the usual refueling shutdowns in the spring of 1980. Such delays would be handled on a case-by-case basis.

Mr. Mattson stated that early meetings between NRC and industry would probably be needed in order to expedite the implementation process. He also noted that the "lead plant" process might be used, indicating that Salem 2 and North Anna 2 might be such lead plants. Concerning operating reactors, the Babcock and Wilcox plants would probably be first for implementation, followed by the Westinghouse and Combustion Engineering plants. For near-term OL's, we would write SER supplements that would address all the near-term Lessons Learned and Bulletins and Orders. The TMI-2 items for plants not as advanced in the licensing process would be handled as part of the normal review process.

Questions from the floor, concerning Lessons Learned, concentrated on three items:

1. Performance testing of relief and safety valves,
2. Requirements for a shift technical adviser,
3. Revised limiting conditions for operation.

Industry concern about testing of relief and safety valves centered on the present lack of test facilities in the United States, which would delay implementation of this item. Mr. Mattson noted that there may be foreign facilities that might be used. He also noted that, some years ago, General Electric had performed tests on main steam isolation valves at an existing fossil-fueled boiler plant. NRC might become a party to such testing but a detailed test program from industry would be needed in order to justify expenditure of R&D funds.

Concerning the shift technical supervisor, comments from the floor indicated that the industry does not particularly object to the NRC proposal to have the talents required be available on shift, but industry does object to the requirement that these talents be vested in a separate, advisory-type individual. There would probably be severe conflicts between the experienced Senior Reactor Operators (SRO's) and a technical advisor whose background did not necessarily include "hands-on" operating experience. Also, it would be difficult to hold graduate engineers on shift work. Several questioners asked that industry be permitted to upgrade the SRO to have the required talents. This would be much easier to accomplish than to find 350 qualified individuals to staff approximately 70 plants within the next five months.

Mr. Mattson indicated that NRC is willing to consider industry proposals but that the function of the advisor must be provided on shift. Future improvements in control room design, combined with upgrading the SRO's, may ultimately provide the function, thus eliminating the need for a separate advisor. And Mr. Denton noted that industry self-interest in reliability of plant operation and in liability protection should be leading industry in the direction of having the required talents on site at all times rather than only in the central office during the day.

Concerning the recommended changes to the limiting conditions for operation, interest from the floor centered on the proposed requirement that the plant be shut down to a cold condition upon total loss of a safety function. Several commentators stated that the NRC already has the authority to require such a shutdown, and shutdown should not be required for a short-term violation. Mr. Mattson responded that responsibility for safe operation still resides in the utility, and should not be shifted to the NRC. Moreover, some plants have had many violations while others have had none, indicating a difference in management attention to operational safety. The NRC believes that these violations underscore the need for operational excellence and only by forcing management's attention to this matter can there be assurance that no one individual

can jeopardize safe operation. A further point raised from the floor concerned the "disgruntled" employee who could force a plant shutdown intentionally. Mr. Mattson reiterated that, although this point had not been considered, no one person should be able to cause a safety function to be negated. The industry further noted that shutdown penalizes the consumer in increased costs for replacement power, not the utility which can pass on its increased costs. Industry requested that it be heard more fully on this matter before the subject goes into the rulemaking process.

Mr. Denton mentioned that he is considering adding to the Lessons Learned recommendations a requirement for the capability to remotely vent the reactor vessel, during operation, to the pressurizer or quench tank. This would prevent formation of a bubble in the reactor vessel as a result of a transient or accident.

Bulletins and Orders

Mr. Ross presented the status of the work being done by the Bulletins and Orders Task Force. His discussion is outlined in Enclosure 4.

The work has concentrated on the loss-of-feedwater event and on the small-break loss-of-coolant accident. It will result in instruction to utilities, evaluation of utility responses to these instructions, and issuance of staff safety evaluation reports, followed by utility implementation of plant or operational changes.

Safety evaluation reports have been issued for B&W operating plants. Generic SER's will be issued for Westinghouse and Combustion Engineering plants.

Floor questions centered on scheduling and manpower requirements. Mr. Denton noted that the B&O group will probably cease to exist by January 1, 1980. Case-work on near-term OL's is going well and NRC is getting outside help to assist in the review of plants scheduled for later licensing decisions. In response to a point made that NRC should consider, in its requests to industry for small-break LOCA analyses, that industry's resources are limited just as are those of the NRC. Mr. Ross noted that most of the review of analytical work will be done during the normal staff review, not by the Task Group. This should help spread out the industry work over a period of time.

Emergency Preparedness

Mr. Grimes presented the status of the work being done by the Emergency Preparedness Task Force. His discussion summarized the information presented in Enclosure 5. He also noted that regional meetings will be held later with licensees and applicants and state and local officials. These meetings will be held to assure mutual understanding of the required emergency preparedness.

Mr. Grimes further noted recent Congressional actions that may lead to requiring approved state plans by mid-1980.

Industry interest, as evidenced by questions from the floor, centered on potential difficulties with states that either have no plans or do not agree with NRC requirements. Mr. Grimes admitted that this could be a problem, but noted that shutdown of a plant due to absence of a state plan might be politically undesirable from the state's standpoint. He also believes that conducting joint emergency exercises, perhaps every five years, will point up the desirability of having good state plans.

In response to a question concerning the details of such things as the number of telephones and other lines of communication, Mr. Grimes stated that NRC would probably not provide such detailed requirements; they would be determined by the particular circumstances of each plant and each state.

Operator Training

Mr. Collins discussed the status of work being done with respect to operator training. The points he covered are outlined in Enclosure 6. He also noted that the new requirements would probably be manifested in a new or revised Regulatory Guide.

Questions from the floor were concentrated on simulator training. Mr. Denton noted that simulators should handle off-normal events as well as normal operation and design basis accidents. Mr. Collins said that a week of simulator training would be part of the requalification requirements and that the operator performance criteria for requalification would be the same as for the original training. Training instructors may be from other plants but, in most cases, should have SRO licenses. Furthermore, operating experience cannot substitute for simulator training, and a "hands-on" examination is still required for a cold license. He agreed that, if an SRO is a graduate engineer, he might be excused from that training in which he can exhibit expertise.

Mr. Denton noted that he is encouraged by the formation of the industry-sponsored Nuclear Operations Institute which is intended to be able to certify operators. The NRC is interested in this program and will cooperate in every way it can.

Closing Remarks

Mr. Denton stated that he would take the industry comments into consideration before making his final decision on these matters.

R. A. Benedict

R. A. Benedict
Light Water Reactors Branch No. 2
Division of Project Management

Enclosures:
As Stated

ccs w/enclosures:
See next pages

JUL 18 1979

ENCLOSURE 1

OPERATING REACTORS

Alabama Power (Farley)	Maine Yankee Atomic Power (Maine Yankee)
Arkansas Power & Light (Arkansas)	Nebraska Public Power District (Cooper)
Baltimore Gas & Electric (Calvert Cliffs)	Niagara Mohawk (Nine Mile Point)
Boston Edison (Pilgrim)	Northeast Nuclear Energy (Millstone)
Carolina Power & Light (Brunswick & Robinson)	Northern States Power (Monticello & Prairie Island)
Commonwealth Edison (Dresden, Quad Cities & Zion)	Omaha Public Power District (Ft. Calhoun)
Connecticut Yankee Atomic Power (Connecticut Yankee)	Philadelphia Electric (Peach Bottom)
Consolidated Edison (Indian Point 2)	Portland General Electric (Trojan)
Consumers Power (Big Rock Point & Palisades)	Power Authority of the State of New York (Indian Point 3 & Fitzpatrick)
Dairyland (Lacrosse)	Public Service of Colorado (Ft. St. Vrain)
Duke Power (Oconnee)	Public Service Electric & Gas (Salem)
Duquesne Light (Beaver Valley)	Rochester Gas & Electric (Ginna)
Florida Power Corp. (Crystal River)	Sacramento Municipal Utility District (Rancho Seco)
Florida Power & Light (St. Lucie & Turkey Point)	Southern California Edison (San Onofre)
Georgia Power (Hatch)	Tennessee Valley Authority (Browns Ferry)
Indiana & Michigan Electric (D. C. Cook)	Toledo Edison (Davis-Besse)
Iowa Electric Light & Power (Duane Arnold)	Vermont Yankee Nuclear Power (Vermont Yankee)
Jersey Central Power & Light (Oyster Creek)	Virginia Electric & Power (North Anna & Surry)
Metropolitan Edison (Three Mile Island)	Wisconsin Michigan Power & Wisconsin Electric Power (Point Beach)
	Wisconsin Public Service (Kewaunee)
	Yankee Atomic Electric (Yankee-Rowe)

JUL 18 1979

ENCLOSURE 2

UTILITIES WITH NEAR-TERM OL'S

Cincinnati Gas & Electric (Zimmer)

Commonwealth Edison (LaSalle)

Duke Power (McGuire)

Pacific Gas & Electric (Diablo Canyon)

Public Service of New Jersey (Salem 2)

TVA (Sequoyah)

Virginia Electric Power Company (North Anna 2)

ENCLOSURE 3

JUL 18 1979

AGENDA

FOR

MEETING WITH LICENSEES OF OPERATING REACTORS AND APPLICANTS.

WITH NEAR-TERM OLS

- | | | |
|------------------------|------------|---------------|
| 1. Introduction | 10:00 A.M. | H. Denton |
| (a) Near-Term OLS | | D. Vassallo |
| (b) Operating Reactors | | D. Eisenhower |

- | | | |
|--------------------|------------|------------|
| 2. Lessons Learned | 10:30 A.M. | R. Mattson |
|--------------------|------------|------------|

----- Lunch -----

- | | | |
|---------------------------|-----------|---------------|
| 3. Bulletins and Orders | 1:00 P.M. | D. Ross |
| 4. Emergency Preparedness | 2:00 P.M. | B. Grimes |
| 5. Operator Training | 3:00 P.M. | P. Collins |
| 6. Summary | 4:00 P.M. | D. Vassallo |
| | | D. Eisenhower |

ENCLOSURE 4

BULLETINS & ORDERS TASK FORCE

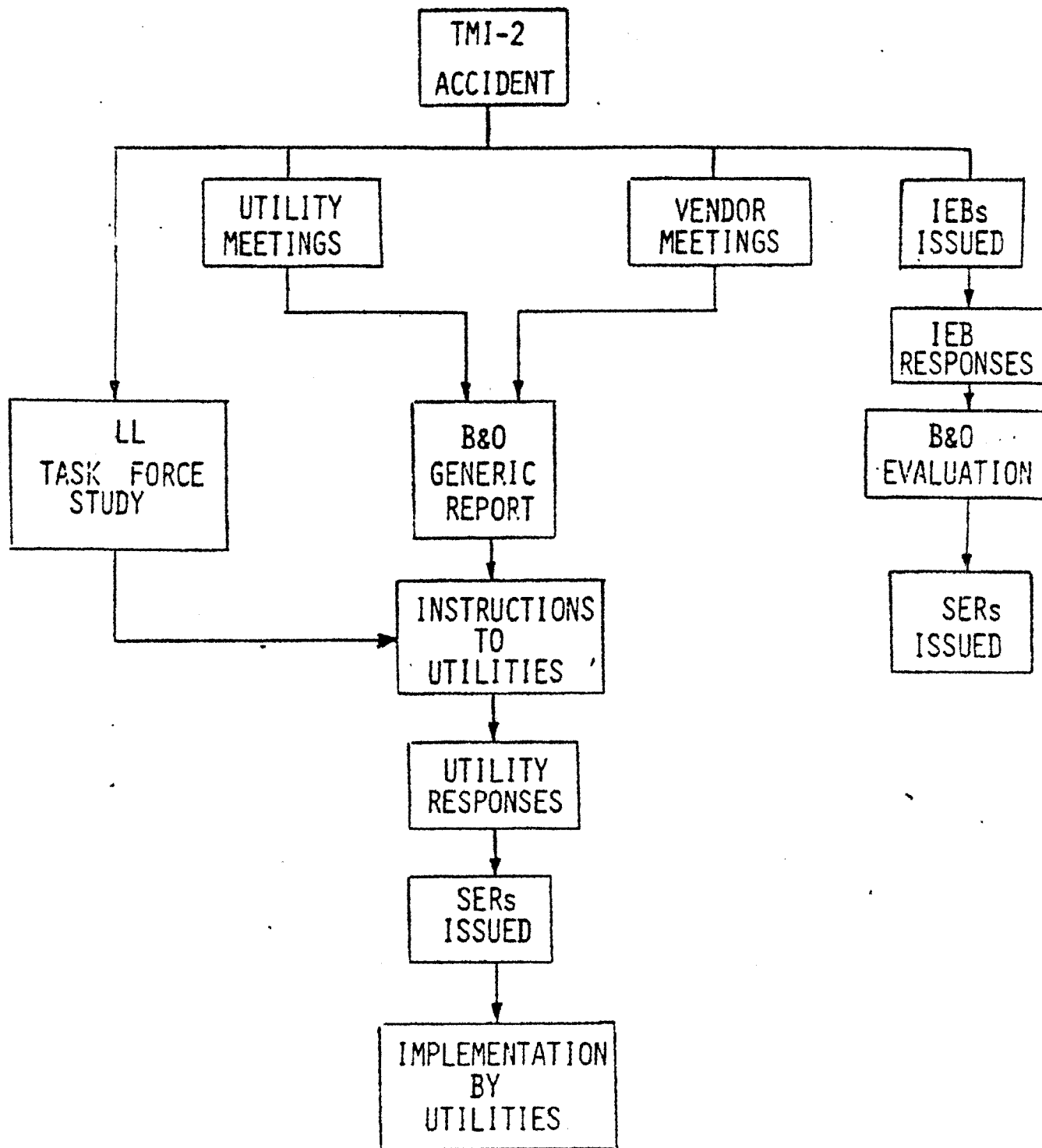
PURPOSE

- o REVIEW GENERIC IMPLICATIONS OF TMI-2 ACCIDENT FOR ALL OPERATING PLANTS TO CONFIRM BASES FOR THEIR CONTINUED SAFE OPERATION.
- o ADVISE LESSONS LEARNED TASK FORCE OF ANY ACTIONS IDENTIFIED DURING THE REVIEW.

SCOPE OF REVIEW

- o LOSS OF FEEDWATER EVENT
 - . ANALYSIS
 - . SYSTEMS
 - . GUIDELINES AND PROCEDURES
 - . OPERATOR TRAINING
- o SMALL BREAK LOCA
 - . ANALYSIS
 - . SYSTEMS
 - . GUIDELINES AND PROCEDURES
 - . OPERATOR TRAINING

B&O EVALUATION SEQUENCE



BULLETINS / ORDERS

D. ROSS

T. NOVAK (DEPUTY)

PROJECTS
(HEITEMES)

ANALYSIS
(ROSZTOCZY)

SYSTEMS
(ISRAEL)

—C-E PLANTS (M. VILLALVA)
—W PLANTS (P. O'REILLY)
—B&W PLANTS (R. CAPRA)
—GE PLANTS (W. YAME)
—ORPM (AS NEEDED)

—RSB
—ASB
—PSB
—OLB
—CSB
—ICSB

ACRS SUBCOMMITTEE
ON
BULLETINS AND ORDERS

- FORMED IN MID-JUNE 1979
- MEMBERSHIP

W. MATHIS (CHAIRMAN)

M. BENDER

H. ETHERINGTON

S. LAWROSKI

M. PLESSET

P. SHEWMON

B&O REVIEW MATTERS

B&W PLANTS

- o LONG-TERM ACTIONS IDENTIFIED IN COMMISSION ORDERS FOR B&W PLANTS
- o LONG-TERM ACTIONS IDENTIFIED IN STAFF SER'S ON B&W PLANTS
- o NEAR-TERM ACTIONS IDENTIFIED IN NUREG-0578 RELATING TO B&O
REVIEW SCOPE

REVIEW MATTERS IDENTIFIED IN COMMISSION ORDERS
AND STAFF SER'S FOR B&W PLANTS

COMMISSION ORDERS

- o FAILURE MODES AND EFFECTS ANALYSIS OF INTEGRATED CONTROL SYSTEM
- o SAFETY-GRADE REACTOR TRIP IN LOSS OF MAIN FEEDWATER
- o IMPROVEMENTS IN AUXILIARY FEEDWATER SYSTEMS
- o CONTINUED OPERATOR TRAINING

STAFF SER'S

- o TRANSIENT ANALYSES
- o SMALL BREAK LOCA ANALYSES
- o SAFETY AND RELIEF VALVE STUDIES
- o PRESSURE VESSEL INTEGRITY
- o AUXILIARY FEEDWATER SYSTEM RELIABILITY STUDY
- o AUXILIARY FEEDWATER SYSTEM CONTROL TESTS

SCHEDULE AND CHRONOLOGY OF GENERIC REVIEW
OF B&W PLANTS

<u>ACTIVITY</u>	<u>DATE</u>
ISSUE ORDERS	MAY 7-17, 1979
ISSUE SER; LIFT ORDERS	MAY 18 - JULY 6, 1979
<hr/>	
LICENSEES SUBMITTAL OF SCHEDULE FOR LONG-TERM ACTIONS	JUNE 18 - MID AUGUST 1979
REVIEW LONG-TERM ACTION; ISSUE EVALUATION	ONGOING
EVALUATE ACCIDENTS AND TRANSIENTS BEYOND CURRENT DESIGN BASES	DECEMBER

SCHEDULE AND CHRONOLOGY OF GENERIC ASSESSMENT
OF WESTINGHOUSE-DESIGNED OPERATING PLANTS

INITIATE GENERIC REVIEW	MAY 1, 1979
MEETINGS WITH LICENSEES ON AUXILIARY FEEDWATER SYSTEMS	MAY 22-26, 1979
MEETINGS WITH LICENSEES REGARDING FORMATION OF OWNERS' GROUP	MAY 30, 1979
MEETING WITH SMALL BREAK ANALYSIS SUBCOMMITTEE OF OWNERS' GROUP	MAY 31, 1979
GENERIC REQUESTS FOR INFORMATION ISSUED	JUNE 4, 1979
MEETING WITH PROCEDURES SUBCOMMITTEE OF OWNERS' GROUP	JULY 18, 1979
<hr/>	
ISSUE STAFF INSTRUCTIONS TO LICENSEES	MID-AUGUST 1979
ISSUE GENERIC REPORT	EARLY-SEPTEMBER 1979
LICENSEE RESPONSES TO INSTRUCTIONS	MID-SEPTEMBER 1979
ISSUE STAFF EVALUATION ON INITIAL PLANT	MID-OCTOBER 1979
EVALUATION OF ACCIDENTS & TRANSIENTS BEYOND CURRENT DESIGN	DECEMBER

SCHEDULE AND CHRONOLOGY OF GENERIC ASSESSEMENT OF
COMBUSTION ENGINEERING DESIGNED OPERATING PLANTS

<u>EVENT</u>	<u>DATE (1979)</u>
INITIATE GENERIC REVIEW OF C-E DESIGNED OPERATING PLANTS	MAY 1
MEET WITH LICENSEES REGARDING AUXILIARY FEEDWATER SYSTEMS	MAY 22 - 26
MEET WITH LICENSEES AND C-E REGARDING THE FORMING OF A C-E OWNER'S GROUP	JUNE 12
MEET WITH ANALYSIS SUBCOMMITTEE OF OWNER'S GROUP	JUNE 15 & JULY 24
MEET WITH PROCEDURES AND GUIDELINE SUBCOMMITTEE OF OWNER'S GROUP	JUNE 29 & AUGUST 10
ISSUE STAFF REQUIREMENTS TO LICENSEES	LATE AUGUST
ISSUE GENERIC REPORT	MID SEPTEMBER
APPLICANTS RESPOND TO STAFF REQUIREMENTS	LATE SEPTEMBER
ISSUE STAFF EVALUATION REPORT ON INDIVIDUAL PLANTS	LATE OCTOBER (FIRST REPORT)
EVALUATION OF ACCIDENTS & TRANSIENTS BEYOND CURRENT DESIGN	DECEMBER

B&O REVIEW MATTERS

BOILING WATER REACTOR PLANTS

- o NUREG-0578 NEAR-TERM REQUIREMENTS RELATING TO B&O REVIEW SCOPE
- o NEAR-TERM REQUIREMENTS RESULTING FROM B&O GENERIC REVIEW OF BWR'S

PROSPECTIVE NEAR-TERM REQUIREMENTS

B&O GENERIC REVIEW OF BOILING WATER REACTOR PLANTS

1. EXTEND RANGE OF WATER LEVEL RECORDERS IN THE CONTROL ROOM; INITIATE EXTENDED RANGE RECORDERS ON REACTOR TRIP.
2. AD'S INITIATION ON EITHER (LOW)³ WATER LEVEL OR HIGH DRYWELL PRESSURE (IN CONJUNCTION WITH OTHER PERMISSIVES).
3. PROVIDE FOR AUTOMATIC RE-INITIATION OF RCIC AND HPCI ON (LOW)² LEVEL.
4. PROVIDE FOR ISOLATION OF VENTING FROM ISOLATION CONDENSERS ON HIGH RADIATION LEVELS.
5. REDUCE FAILURE OF RELIEF VALVES BY REDUCING CHALLENGE RATE AND/OR IMPROVING DESIGN.
6. MODIFY OPERATING PROCEDURES TO REQUIRE A LOW PRESSURE SYSTEM RUNNING (LPCI, CORE SPRAY, CONDENSATE SYSTEM) BEFORE MANUAL DEPRESSURIZATION.
7. MAKE PROCEDURES CONSISTENT WITH OPERATOR SCENARIOS BEING DEVELOPED.
8. DEVELOP GENERIC GUIDELINES FOR EMERGENCY PROCEDURES.
9. ADDITIONAL OPERATOR TRAINING.
10. ESTABLISH AND MAINTAIN ONE SET OF AS-BUILT DRAWINGS ON SITE.
11. DETERMINE ROLE OF RECIRCULATION PUMPS IN CASE OF INADEQUATE CORE COOLING.
12. INVESTIGATE NATURAL CIRCULATION WITH CORE SPRAY.
13. ANALYSIS OF BREAK IN RECIRCULATION LINE TO DETERMINE WHETHER ISOLATION VALVES SHOULD BE CLOSED.
14. DEVELOP IMPROVED SMALL BREAK METHODS.
15. VERIFY BY EXPERIMENT THE SMALL BREAK LOCA METHODS.

SCHEDULE AND CHRONOLOGY OF GENERIC
REVIEW OF BWR'S

<u>ACTIVITY</u>	<u>DATE</u>
INITIATE GENERIC REVIEW	JUNE 7, 1979
MEETING WITH LICENSEES	JUNE 28, 1979
GENERIC REQUESTS FOR INFORMATION ISSUED	JULY 13, 1979
<hr/>	
ISSUE GENERIC REPORT AND INSTRUCTIONS TO LICENSEES	MID- SEPTEMBER
LICENSEE RESPONSES TO INSTRUCTIONS	MID-OCTOBER
INITIAL STAFF EVALUATION ON INDIVIDUAL PLANTS	MID-NOVEMBER
EVALUATE ACCIDENTS AND TRANSIENTS BEYOND CURRENT DESIGN BASES	DECEMBER

NEAR TERM REQUIREMENTS

FOR WESTINGHOUSE AND COMBUSTION ENGINEERING OPERATING PLANTS

AUXILIARY FEEDWATER SYSTEM

- . GENERIC

- . AUTOMATE (LL)
- . SINGLE SUCTION VALVE
- . ALTERNATE WATER SOURCE
- . CST LOW LEVEL ALARM
- . PUMP ENDURANCE TEST
- . FLOW INDICATION (LL)
- . VALVE POSITION (LOSS OF AIR)
- . ACTUATION ON LOSS OF ALL AC
- . TECH SPECS

o PLANT SPECIFIC

APW PUMP TEST CRITERIA

MODIFY VALVE LINEUPS

REVIEW COMMON MODE ELECTRICAL FAILURES

MODIFY SURVEILLANCE TEST PROCEDURES

PROCEDURES

- o SMALL LOCA
- o EXTENDED LOSS OF FEEDWATER
- o SG DUMP VALVE OPERATION
- o TRAINING

ANALYSIS

- o SMALL BREAK LOCA
- o EXTENDED LOSS OF FEEDWATER
- o MICHAELSON CONCERNS
- o VENDOR GUIDELINES
- o CODE VERIFICATION
- o INADEQUATE CORE COOLING SYMPTOMS/OPERATOR ACTIONS
- o STAFF SMALL BREAK AUDITS

ENCLOSURE 5

July 23, 1979

SECY-79-450

For: The Commissioners

Thru: Executive Director for Operations *YAR for L.V.G*

From: Harold R. Denton, Director, Office of Nuclear Reactor Regulation

Subject: ACTION PLAN FOR PROMPTLY IMPROVING EMERGENCY PREPAREDNESS

Purpose: To inform the Commission of the staff's plans to take immediate steps to improve licensee preparedness at all operating power plants and for near-term OL's.

Discussion: While the emergency plans of all power reactor licensees have been reviewed by the staff in the past for conformance to the general provisions of Appendix E to 10 CFR Part 50, the most recent guidance on emergency planning, primarily that given in Regulatory Guide 1.101 "Emergency Planning for Nuclear Power Plants", has not yet been fully implemented by most reactor licensees. Further, there are some additional areas where improvements in emergency planning have been highlighted as particularly significant by the Three Mile Island accident.

The NRR staff plans to undertake an intensive effort over about the next year to improve licensee preparedness at all operating power reactors and those reactors scheduled for an operating license decision within the next year. This effort will be closely coordinated with a similar effort by the Office of State Programs to improve State and local response plans through the concurrence process and Office of Inspection and Enforcement efforts to verify proper implementation of licensee emergency preparedness activities.

The main elements of the staff effort, as listed in Enclosure 1, are as follows:

- (1) Upgrade licensee emergency plans to satisfy Regulatory Guide 1.101, with special attention to the development of uniform action level criteria based on plant parameters.

- (2) Assure the implementation of the related recommendations of the NRR Lessons Learned Task Force involving instrumentation to follow the course of an accident and relate the information provided by this instrumentation to the emergency plan action levels. This will include instrumentation for post-accident sampling, high range radioactivity monitors, and improved in-plant radioiodine instrumentation. The implementation of the Lessons Learned recommendation on instrumentation for detection of inadequate core cooling will also be factored into the emergency plan action level criteria.
- (3) Determine that an Emergency Operations Center for Federal, State and local personnel has been established with suitable communications to the plant, and that upgrading of the facility in accordance with the Lessons Learned recommendation for an in-plant technical support center is underway.
- (4) Assure that improved licensee offsite monitoring capabilities (including additional TLD's or equivalent) have been provided for all sites.
- (5) Assess the relationship of State/local plans to the licensee's and Federal plans so as to assure the capability to take appropriate emergency actions. Assure that this capability will be extended to a distance of 10 miles as soon as practical, but not later than January 1, 1981. This item will be performed in conjunction with the Office of State Programs and the Office of Inspection and Enforcement.
- (6) Require test exercises of approved Emergency Plans (Federal, State, local, licensees), review plans for such exercises, and participate in a limited number of joint exercises. Tests of licensee plans will be required to be conducted as soon as practical for all facilities and before reactor startup for new licensees. Exercises of State plans will be performed

in conjunction with the concurrence reviews of the Office of State Programs. Joint test exercises involving Federal, State, local and licensees will be conducted at the rate of about 10 per year, which would result in all sites being exercised once each five years.

The staff review will be accomplished by about 6 review teams, similar to the concept used to assure suitable implementation of the physical security provisions of 10 CFR 73.55. As a minimum, the teams will consist of a team leader from NRR, a member from Los Alamos Scientific Lab (LASL) and, at least for field visits, a member from the IE Regional office. LASL will be used as the source of non-NRC team members because of the expertise gained and familiarity with the plants acquired during the physical security reviews. The Division of Operating Reactors will have the responsibility for completing these reviews for both operating reactors and near-term OL's. J. R. Miller, Assistant Director, DOR will be responsible for implementation of the program. General policy and technical direction will be provided by Brian Grimes, Assistant Director, DOR.

The first sites to be reviewed by the teams will be those scheduled for operating licenses within the next year and those sites in areas of relatively high population. Major milestones for the program are being developed and will include regional meetings with licensees to discuss the program, site visits by the review team, and meetings with local officials.

Coordination: This action plan has been discussed with the Task Force on Emergency Planning and the Task Force Chairman, T. F. Carter, has advised that the Task Force deliberations to date have indicated no reason why NRR should not proceed. The Office of State Programs concurs in this plan. The Office of Inspection and Enforcement concurs in the plan.

The Commissioners

- 4 -

NRR expects to perform this task without augmentation of resources beyond those authorized for FY79 and FY80.



Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Enclosure:
Emergency Preparedness Improvements
for Operating Plants and Near
Term OL's

DISTRIBUTION
Commissioners
Commission Staff Offices
Exec Dir for Operations
ACRS
Secretariat

ENCLOSURE NO. 1

EMERGENCY PREPAREDNESS IMPROVEMENTS
AND COMMITMENTS REQUIRED FOR OPERATING PLANTS AND NEAR TERM OL'S

<u>Item</u>	<u>Implementation Category^{1/}</u>
1. Upgrade emergency plans to Regulatory Guide 1.101 with special attention to action level criteria based on plant parameters.	A ¹
2. Implement certain short term actions recommended by Lessons Learned task force and use these in action level criteria. ^{2/}	
2.1.8(a) Post-accident sampling	
Design review complete	A
Preparation of revised procedures	A
Implement plant modifications	B
Description of proposed modification	A
2.1.8(b) High range radioactivity monitors	B
2.1.8(c) Improved in-plant iodine instrumentation	A
3. Establish Emergency Operations Center for Federal, State and Local Officials	
(a) Designate location and alternate location and provide communications to plant	A ¹
(b) Upgrade Emergency Operations Center in conjunction with in-plant technical support center	B

^{1/}
Category A: Implementation prior to OL or by January 1, 1980 (see NUREG-0578).
Category A¹: Implementation prior to OL or by mid-1980.
Category B: Implementation by January 1, 1981.

^{2/}
The implementation of the Lessons Learned task force recommendation item 2.1.3(b), instrumentation for detection of inadequate core cooling, will also be factored into the action level criteria.

<u>Item</u>	<u>Implementation Category</u>
4. Improve offsite monitoring capability	A ¹
5. Assure adequacy of State/local plans	
(a) Against current criteria	A ¹
(b) Against upgraded criteria	B
5. Conduct test exercises (Federal, State, local, licensee)	
(a) Test of licensees emergency plan	A ¹
(b) Test of State emergency plans	A ¹
(c) Joint test exercise of emergency plans (Federal, State, local, licensee)	
New OL's	B
All operating plants	Within 5 years

RECOMMENDATION 1

INCREASE MINIMUM EXPERIENCE REQUIREMENTS FOR SENIOR OPERATOR APPLICANTS

**4 YEARS OF OPERATING EXPERIENCE
2 YEARS NUCLEAR — 6 MONTHS ON SITE**

- **NUCLEAR PLANT STAFF ENGINEER OR**
- **CONTROL ROOM OPERATOR**
- **2 YEARS MAY BE ACADEMIC**

RECOMMENDATION 2

***SENIOR OPERATOR APPLICANTS
MUST HOLD AN OPERATOR
LICENSE FOR SIX MONTHS***

RECOMMENDATION 3

***MORE SPECIFIC TRAINING
REQUIREMENTS FOR HOT
LICENSE APPLICANTS***

RECOMMENDATION 4

***REQUIRE SIMULATOR
TRAINING FOR HOT
LICENSE APPLICANTS***

RECOMMENDATION 5

***MORE FREQUENT AUDITING OF
TRAINING PROGRAMS,
INCLUDING ADMINISTRATION OF
SOME CERTIFICATION
EXAMINATIONS***

RECOMMENDATION 6

***REQUIRE INSTRUCTORS TO
HOLD SENIOR OPERATOR
LICENSES***

RECOMMENDATIONS 7, 8 AND 9

REQUALIFICATION PROGRAMS

- 1. REQUIRE ANNUAL SIMULATOR RETRAINING**
- 2. REQUIRE SPECIFIC EXERCISES**
- 3. NRC ADMINISTER SOME OF THE ANNUAL EVALUATIONS**

RECOMMENDATIONS 10, AND 13

NRC WRITTEN EXAMINATIONS

- A. INCREASE THE SCOPE TO INCLUDE
THERMODYNAMICS, HYDRAULICS AND
RELATED SUBJECTS**
- B. NEW PASSING GRADES FOR WRITTEN
EXAMINATIONS**
 - 80% OVERALL**
 - 70% EACH CATEGORY**
- C. INFORM FACILITY MANAGEMENT OF
RESULTS**

RECOMMENDATIONS 11, 12 AND 15

NRC OPERATING TESTS

- A. PART OF THE OPERATING TEST TO BE
ADMINISTERED ON A SIMULATOR**
- B. SENIOR OPERATORS TO BE
ADMINISTERED SIMULATOR OPERATING
TESTS**
- C. REVIEW ANSI/ANS 3.5-1979 "NUCLEAR
POWER PLANT SIMULATORS"**

November 9, 1979

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SECY-79-612

INFORMATION REPORT

For: The Commissioners

From: Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Thru: Executive Director for Operations *ES /m46*

Subject: TO INFORM THE COMMISSION OF THE RESULTS OF THE NRC STAFF'S
COMPLETED REVIEW OF THE NON-RADIOLOGICAL CONSEQUENCES TO
THE AQUATIC BIOTA AND FISHERIES OF THE SUSQUEHANNA RIVER
FROM THE ACCIDENT AT THREE MILE ISLAND NUCLEAR STATION

Discussion: On March 28, 1979, Three Mile Island Nuclear Station experienced an accident which has raised serious public concern about safety and environmental ramifications of nuclear facility operation. Verified reports of very high core coolant temperatures and releases of liquid industrial wastes into the Susquehanna River during and following the accident prompted NRC Staff to initiate a study of the non-radiological (thermal and chemical) consequences of the accident to the river biota and fisheries. Since the accident was a unique occurrence for which no generic non-radiological assessment exists, the Staff felt it important to document fully and carefully the non-radiological operational characteristics of the station and any causally-related environmental responses of the river biota and recreational fishery.

The enclosed manuscript is the Staff report in response to the above concerns. In addition to assessing potential for accident-related impacts, the report endeavors to reference pertinent recent studies and assessments and presents data collected during the periods immediately before and following the accident so that their availability and general content might be known by interested public, private, and governmental activities. The Staff proposes to publish the report as a NUREG so that: public access will be readily available; the findings can form the foundation for follow-up studies (as appropriate) during decontamination and clean-up of Unit 2; and the generic aspects will be available for application to other cases and EIS projects.

The non-radiological consequences of the accident to the aquatic biota and fisheries were assessed through the post-accident period of July 1979 and compared with environmental data for corresponding

Contact:
C. R. Hickey, NRR
49-28205

periods during the years of 1974-1978. A summary of the findings is presented below.

1. During and following the accident, thermal discharges to the river never exceeded limitations imposed by the Commonwealth of Pennsylvania and were all within the values reviewed and found to be acceptable in NRC preoperational NEPA assessments. The concentrations of chemical substances releases during the period never exceeded NPDES* limitations and were within the values reviewed and found to be acceptable in preoperational NEPA assessments.
2. The relative location of the effluent (thermal) plume was identified and found to be confined to very near the west shoreline of Three Mile Island, with a maximum downstream extent of about 1000 meters (0.6 mile).
3. Since thermal and chemical effluents were within previously assessed values, impacts to aquatic biota were not expected. An examination of biotic conditions was made which confirmed the absence of any detectable impacts to benthic invertebrates and fishes. Several species of fishes were documented to have been in the effluent plume area during the period, including rough (carp, suckers), forage (shiners, darters), and predator/sport fishery (bass, sunfishes, walleye) species.
4. Post-accident recreational fishing patterns in the site vicinity departed from historical trends. Fishing appeared to partially shift from the reservoir in the immediate site vicinity to other areas, especially downstream to the York Haven Dam and hydroelectric station tailrace. Anglers fished relatively less in the reservoir and those who did fish there returned greater proportions of their catches than during any corresponding time period within the previous five years. This was most notable during April 1979, when anglers returned an unprecedented 100% of their catches. With time following the accident, the patterns of recreational fishing returned to normal or near-normal.
5. Several generic aspects from this study of non-radiological effects were noted, including:

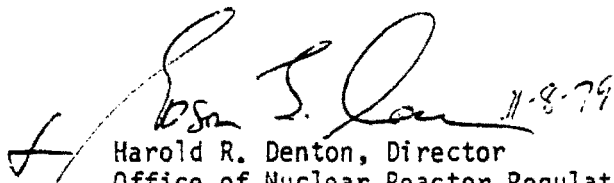
* National Pollutant Discharge Elimination System Permit is required by Section 402 of the Clean Water Act (PL 92-500 as amended) and is administered by the Commonwealth of Pennsylvania.

- a. The ability to control thermal and chemical effluents during an accident to within acceptable levels, thus minimizing the potential for impact to aquatic biota.
 - b. The accident happened during a biological season when impacts would have been most detectable. This timing plus the availability of detailed site specific data permitted a realistic assessment and a reasonable conclusion of no impact.
 - c. The need for and availability of data for assessing impacts were examined through the period of the accident. Environmental monitoring required by both the ETS* and NPDES permit were essential elements for realistically assessing impacts. A scenario was developed for situations which might occur many years after the stop of detailed site specific studies to consider how the lack of data could affect the ability to assess the impacts.
6. Several findings of this non-radiological study may be of assistance in the assessment of the potential radiological consequences of the accident and to radiological assessment in general:
- a. The identification of the extent and relative location of the effluent plume could be useful in defining the immediate impact area for collecting samples of river water and sediments and aquatic biota for radiological analysis.
 - b. The identification of several components of the fish community in the immediate effluent plume area could be useful for selecting fishes to be studied for radiological purposes.
 - c. The identification of fish disease and mortality conditions by type and species, as known from the site vicinity historically and following the accident, could be used for comparison and follow-up after an accident.
 - d. Examination of the recreational fishery in the site vicinity following the accident showed that fishing temporarily shifted away from the immediate site vicinity (the reservoir) to other areas. During the first month following the accident (April 1979) anglers

* Environmental Technical Specifications are included as Appendix B to the facility operating license.

fishing in the reservoir were noted as having kept none of their catches. This suggests that the liquid radiological pathway leading to man via finfish consumption was absent in the immediate receiving waters of station effluents. As such, a form of voluntary pathway interdiction might have been exercised by the anglers.

Coordination: Availability of the NUREG document will be noticed in the Federal Register.

 11-8-79
Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Enclosure:
Staff Report

The Non-Radiological Consequences
to the Aquatic Biota and Fisheries of the
Susquehanna River from the 1979 Accident at
Three Mile Island Nuclear Station

Clarence R. Hickey, Jr.

Robert B. Samworth

Manuscript Completed: October 1979

Date Published:

Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission

ABSTRACT

The non-radiological consequences to the aquatic biota and fisheries of the Susquehanna River from the March 28, 1979 accident at Three Mile Island Nuclear Station were assessed through the post-accident period of July 1979. Thermal and chemical discharges during the period did not exceed required effluent limitations. Several million gallons of treated industrial waste effluents were released into the river which were not of unusual volumes compared with normal operation and were a very small proportion of the seasonally high river flows. The extent and relative location of the effluent plume were defined and the fishes known to have been under its immediate influence were identified, including rough, forage, and predator/sport fishery species.

No impacts to benthic invertebrates or fishes were detected. No unusual conditions of fish disease or mortalities were noted. Normal seasonal increases in faunal abundance and species composition occurred, as did the onset of the fish spawning season in April with peaks of ichthyoplankton abundance in May and June.

Post-accident recreational fishing patterns in the vicinity of Three Mile Island departed from historical trends. Fishing appeared to partially shift emphasis from the reservoir proper near the nuclear station to other areas, especially downstream. Anglers fished relatively less in the reservoir and returned greater proportions of their catches than during any corresponding

time period within the previous five years. This was most notable during April when anglers returned an unprecedented 100% of their catches. With time following the accident, the patterns of recreational fishing returned to normal or near-normal.

Several generic aspects of this investigation are discussed, including: the occurrence of the accident with respect to the biological season, and the ability to detect an impact; data availability and data needs for assessment; and the application of these non-radiological findings for radiological impact assessment.

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EXECUTIVE SUMMARY

1. The non-radiological consequences to the aquatic biota and fisheries of the Susquehanna River from the March 28, 1979 accident at Three Mile Island Nuclear Station were assessed through the post-accident period of July 1979. Data utilized in the study included site specific biological and water quality information collected by the Licensee and his consultants during operational monitoring at Units 1 and 2, beginning in 1974 and continuing through the period of study. Data were also available through the Commonwealth of Pennsylvania NPDES monitoring program, from the U. S. Geological Survey, from knowledgeable persons within state and federal agencies, and from aquatic biological studies conducted in other upstream and downstream areas of the Susquehanna River.
2. During and following the accident, the ΔT and discharge temperatures at the river discharge never exceeded thermal limitations imposed by the Commonwealth of Pennsylvania. The thermal discharges were all within the values reviewed and found to be acceptable in preoperational NEPA assessments, including the 1972 NRC FES, the 1976 NRC Final Supplement to the FES, the 1977 Unit 2 environmental hearing. Similarly, the concentrations of chemical substances released during the period never exceeded NPDES limitations and were within the values reviewed and found to be acceptable in preoperational assessments. The several millions of gallons of treated industrial waste effluents released into the river were not of unusual volume compared with normal operational releases and

were very small in volume relative to the seasonally high river flow during that time.

3. Utilizing data collected during operational thermal plume mapping surveys (1974-1978), the relative location of the effluent plume, and thus that portion of the receiving waters under its immediate influence, were identified. The effluent plume has been confined to very near the west shoreline of Three Mile Island. Its maximum measurable extent has been to distances less than 20m offshore and 1000m (about 0.6 mile) downstream, or to a point about halfway between the discharge and the junction of the York Haven Dam with Three Mile Island.
4. Since thermal and chemical effluents did not violate established limitations and were within previously assessed values, impacts to aquatic biota were not expected. An examination was conducted of biotic conditions in the river during the period of the accident and compared with historic conditions. No effects to benthic invertebrates or fishes were detected. No unusual conditions of fish disease or mortality were noted in the river following the accident. The normal spring increases in faunal abundance occurred, as did the onset of the fish spawning season in April with ichthyoplankton peaks during May and June. Sampling with several gear types in the immediate effluent plume area documented the presence of many fish species including rough (carp, suckers), forage (shiners, darters), and predator/sport (bass, sunfishes, walleye) species.

5. Post-accident recreational fishing patterns in the site vicinity departed from historical trends. Fishing appeared to partially shift away from the reservoir in the immediate site vicinity to other areas, especially downstream to the York Haven Dam and the hydroelectric station. Anglers fished relatively less in the reservoir and those who did fish there returned greater proportions of their catches than during any corresponding time period within the previous five years. This was most notable during April 1979, when anglers in the reservoir returned an unprecedented 100% of their catches. With time following the accident, the patterns of recreational fishing returned to normal or near-normal.
6. Several generic aspects realized from this study were noted, including:
 - a. A realization that thermal and chemical effluents during the accident could be maintained within acceptable levels, thus minimizing the potential for impact to aquatic biota.
 - b. The occurrence of the accident during a biological season when impacts might have been most detectable, had they occurred. This possibility plus the availability of detailed site specific data for evaluation of impact permitted a realistic assessment and a reasonable conclusion of no impact. This conclusion supports that expected from the non-violation of thermal and chemical discharge limits, and might be expected to result (in general) following accidents (of the type experienced at Three Mile Island) in which similar limitations are not violated.

c. The data needs and data availability for assessing impacts were examined, on the premise that the situation which occurred at Three Mile Island probably represented a best-case with respect to the presence of several recent years of detailed studies which continued through the period of the accident. Environmental monitoring required by both the ETS and NPDES permit were essential elements in realistically assessing impacts. A scenario was developed for accidents (or any non-accident events of potential ecological significance) which occur many years after the cessation of detailed site specific studies and considered how the lack of such data could affect the ability to realistically assess the impacts. Means for coping with this situation were explored including: periodic goal oriented monitoring for updating specific types of information; goal oriented operational monitoring during the early years of reactor life; the types of information which likely could be obtained following an accident which occurs many years into station life and for which no site specific studies have been conducted for many years.

7. Several findings of this non-radiological study are applicable to the assessment of the potential radiological consequences of the Three Mile Island accident, and to radiological assessment in general. They are as follows:

a) The identification of the immediate extent and relative location of the effluent plume could be useful in defining the immediate impact area for collecting radiological samples of river water and

sediments and aquatic biota which might have received doses prior to significant effluent dilution with river flows.

- b) The identification of several components of the fish community (rough, forage, predator/sport) in the immediate effluent plume area could be useful for defining fishes to be studied for radiological purposes.
- c) The identification of fish disease and mortality conditions by type and species, as known from the site vicinity historically and following the accident, could be used for comparison and followup after an accident or radiological release event for short-term (mortalities) and long-term (disease) effect studies, as potentially causally related to the releases.
- d) Examination of the recreational fishery in the site vicinity following the accident showed that fishing partially shifted from the immediate site vicinity (the reservoir) to other areas. During the first month following the accident (April 1979) anglers fishing in the reservoir proper were noted as having kept none of their catches. This suggests that the liquid radiological pathway leading to man via finfish consumption was absent in the immediate receiving waters of the station effluents. As such, a form of voluntary pathway interdiction might have been exercised by the anglers.

I. INTRODUCTION AND OVERVIEW

The Three Mile Island Nuclear Station is located in Dauphin County on the York Haven Pond (Lake Frederic) of the Susquehanna River approximately 10 miles (6.2 km) downstream (southeast) from Harrisburg, Pennsylvania. The station consists of two closed-cycle cooling steam electric generating units (Figure 1). Initial reactor criticality was achieved at Unit 1 (871 MWe) on June 5, 1974 and at Unit 2 (959 MWe) on March 28, 1978. Unit 2 was designated to be in commercial operation on December 30, 1978^{1/}.

On March 28, 1979, Unit 2 was operating at 97 percent of full power when it experienced a loss of normal feedwater supply that led to a turbine trip and later to a reactor trip. Subsequently, a series of events occurred that resulted in significant damage to portions of the reactor core. During the early phases of the accident, the reactor coolant system experienced high temperatures, at one point in excess of 620°F (~327°C). After about 15.5 hours, the core coolant temperatures decreased to about 280°F (~138°C). Heat was transferred through one steam generator to the main condenser and then to the atmosphere and river by the circulating cooling water system. The reactor remained in that condition, but with decreasing temperature during the next several weeks, and on Friday April 27, 1979, the unit was placed in a natural circulation cooling mode with heat removal through the steam generator^{2/}. Unit 1 began a shutdown for refueling on February 16, 1979, and was in a cold shutdown mode at the onset of the Unit 2 accident.

The nuclear incident was of critical public concern due to health and safety considerations and much documentation of these matters has already occurred. A detailed list through May 21, 1979 of available preincident and postincident documents is published ^{3/}, as well as several postincident NRC assessments of health and safety related matters 2/ 4/ 5/ 25/ 51/ 56/ 58/.

It is the intent of this report to examine the non-radiological consequences to the aquatic biota of the Susquehanna River in the vicinity of Three Mile Island during and following the accident. Since the incident was a unique occurrence, it is important and useful to document the non-radiological operational characteristics of the station which potentially could affect the river biota and to cite the sources of available information for such an examination. This report will examine station operation during the period of the accident in relation to normal operation and to previous impact assessments of operation on Susquehanna River biota. Aquatic ecological studies of the river in the vicinity of Three Mile Island have been ongoing for several years and have formed the bases for impact assessments in the 1976 NRC Final Supplement to the Final Environmental Statement^{6/} and during the 1977 environmental hearings before the NRC Atomic Safety and Licensing Board in Harrisburg. It is not the intent of this report to describe or summarize all the studies which have occurred or which are ongoing, since most of the studies already are summarized or evaluated in several documents, including the FES^{6/}, hearing testimony^{7/ 8/ 9/}, and the current Environmental Technical Specifications (ETS) and their companion Environmental Program Description Document for operation of Unit 2. It is the intent to reference the pertinent

recent studies and assessments and to present data collected during the periods immediately before and following the accident so that their availability and general content might be known by interested private, public, and governmental concerns. The findings and generic aspects will then be discussed in a broader sense, along with the applicability of the non-radiological findings to radiological assessments.

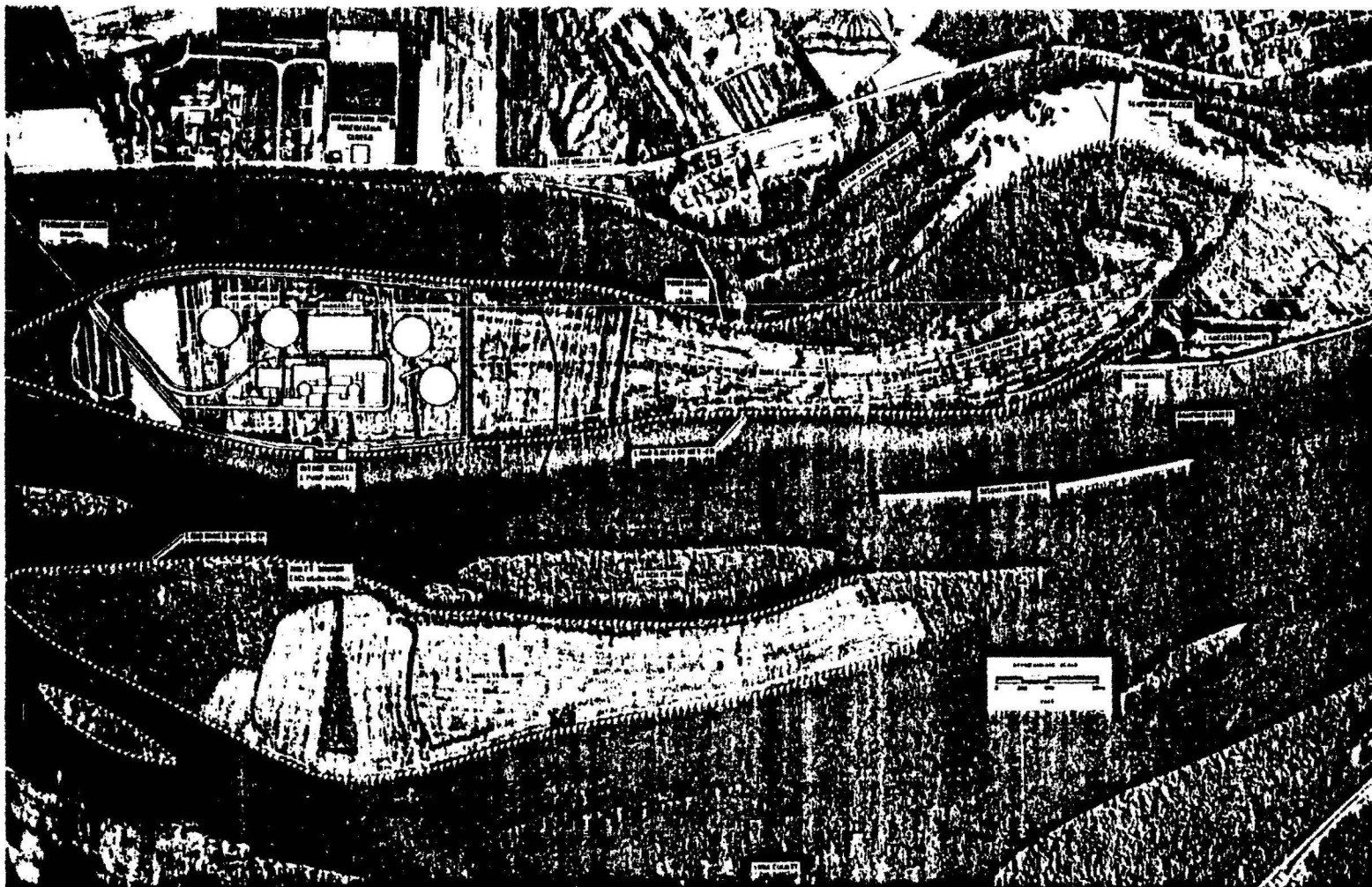


FIGURE 1. THE THREE MILE ISLAND NUCLEAR STATION SITE ON THE SUSQUEHANNA RIVER, PENNSYLVANIA (Ref.No.10).

II. NON-RADIOLOGICAL ASPECTS OF STATION OPERATION AND WATER QUALITY IN THE SUSQUEHANNA RIVER

The aspects of station operation during the accident which potentially could have affected the aquatic biota of the Susquehanna River are related to thermal and chemical discharges. During the NRC review of the potential impacts of operation of Unit 2 on the Susquehanna River, the water quality conditions as they existed then were examined^{6/}. The water quality of the river was found to be generally good. Parameters of concern in the Three Mile Island site vicinity included nutrients, iron, pH, sulfate, and coliform bacteria concentration. Typical values of these and other parameters in the river near the site for the period June 1967 through August 1974 are shown in Table 2.4 of the FES ^{6/}. The NRC NEPA review ^{6/} examined several water quality parameters of the nuclear station discharge that were of concern either because of their potential for adverse affects in and of themselves or in concert with conditions in the receiving waters. Included were: sulfate (from station demineralizers and concentration effects in the closed-cycle cooling system); copper and zinc (from erosion products of the heat exchangers in the cooling waters); residual chlorine (from biofouling control); temperature; total dissolved solids; and alkalinity and pH. Data on these parameters are available from ongoing monitoring programs at Three Mile Island, as required by the Commonwealth of Pennsylvania NPDES Permit PA-0009920 and the USNRC Environmental Technical Specifications (Appendix B to the Facility Operating Licenses for Units 1 and 2). These data are discussed below in relation to normal station operation, applicable permit limits and discharge standards, and to relevant previous studies and analyses.

A. Thermal Discharges

Both units of the nuclear station utilize hyperbolic natural draft cooling towers (two towers per unit) for dissipating the heat rejected from the steam cycle. Additionally, all of the cooling water effluent from the station is passed through mechanical draft cooling towers (one per unit) prior to discharge to the river ^{10/}. Each unit utilizes a separate shoreline cooling water intake structure, but both units discharge through a common shoreline structure (Figure 2). Water withdrawal requirements (for both units combined) are approximately 54,500 gpm (~ 122 CFS; 78.5×10^6 GD) for cooling tower makeup ^{6/} during normal operation. Of that volume, approximately 36,000 gpm (~ 80.4 CFS; 51.8×10^6 GD) on an annual average is discharged to the river, with the remainder lost through cooling tower evaporation. During reactor cooldown, approximately an additional 10,000 gpm (22.3 CFS) of river water can be provided to each unit ^{31/}.

During normal winter operation, cooling tower effluent is discharged to the river at a ΔT of approximately 3°F (1.7°C) and a flow of about 80 CFS. During a normal cooldown (cooling of the reactor primary coolant loop by the nuclear decay heat system following a reactor shutdown), the discharge ΔT at hour 0 could be about 12°F (6.7°C) at a flow of about 113 CFS and at hour 12 return to about 3°F (1.7°C) at 113 CFS ^{6/ 9/}.

Since Unit 1 became operational in 1974, the following maxima and minima of temperatures and ΔT s at the discharge have been recorded:

<u>Year</u>	<u>Discharge Temp. ($^{\circ}\text{C}$)</u>		<u>ΔT ($^{\circ}\text{C}$)</u>	
	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>High</u>
1974 <u>11/</u>	4.9(Dec 17)	27.5(Jul 19)	-5.6(Jul 17)	+3.9(Dec 3)
1975 <u>12/</u>	3.3(Feb 4)	30.0(Aug 14)	-0.2(Aug 6)	+5.2(Mar 5)
1976 <u>13/</u>	2.8(Feb 21)	25.8(Aug 26)	-2.8(Jun 2)	+4.7(Feb 16)
1977 <u>14/</u>	2.6(Nov 29)	29.9(Jul 21)	-5.9(Sep 15)	+2.5(Dec 8)
1978	<0.1(Jan) ^{32/}	31.7(Jul 21) ^{32/}	-0.5(Jun 23) ^{15/}	+1.7(Jul 14) ^{15/}

During actual normal cooldown operations at Unit 1, the following temperature conditions have been recorded:

<u>Date</u>	<u>Max. Effluent</u>	<u>High ΔT</u>	<u>Low ΔT</u>
	<u>Rate (CFS)</u>	<u>($^{\circ}\text{C}$)</u>	<u>($^{\circ}\text{C}$)</u>
Feb 20-21, 1976 ^{13/}	115.9	+4.7	+1.4
Mar 19-20, 1977 ^{14/}	115.85	+1.7	-0.1

The Commonwealth of Pennsylvania NPDES Permit requires monitoring of the effluent discharge temperature and ΔT , with results to be reported in

monthly discharge monitoring reports (DMR). Discharge Temperature and ΔT s for the period during (beginning March 28) and following the accident were reported to the Commonwealth in the DMRs for March 16/ and April 17/ 1979 and are presented here as Tables 1 and 2. During the accident and through April 27 (when the natural circulation cooling mode began) the recorded temperatures were as follows:

	<u>Minimum</u>	<u>Maximum</u>
Discharge Temperature ($^{\circ}\text{F}$)	41.8	65.4
Discharge Temperature ($^{\circ}\text{C}$)	5.4	18.6
ΔT ($^{\circ}\text{F}$)	-1.3	+4.7
ΔT ($^{\circ}\text{C}$)	-0.7	+2.6

Discharge volumes ranged from a maximum of 106.6 MGD (165.2 CFS) on March 31 (Table 3)16/ to a minimum of 61.3 MGD (95.0 CFS) on April 22 (Table 4)17/. These values include the combined effluents of Units 1 and 2.

The Commonwealth of Pennsylvania's Water Quality Certification under Section 401 of PL 92-500 (dated November 9, 1977) for Three Mile Island Nuclear Station contains the following five criteria with respect to thermal discharges:

1. "The temperature of the discharge shall never exceed a maximum of 87°F [30.6°C], except when the ambient river temperature exceeds

- 87°F, in which case, the discharge temperature shall not exceed the ambient river temperature" (Section 3.c.2.b);
2. "The temperature of the discharge shall not change by more than 5°F[2.8°C] during any one hour period" (Section 3.c.2.b);
 3. "During the period November 1 through April 30, the temperature of the discharge shall not exceed 12°F[6.7°C] above ambient river temperature" (Section 3.c.2.c.1);
 4. "During the period May 1 through October 31, the temperature of the discharge shall not exceed 7°F[3.9°C] above ambient river temperature" (Section 3.c.2.c.2);
 5. "During plant cooldown operations, the temperature of the discharge shall not exceed 12°F[6.7°C] above ambient river temperature" (Section 3.c.2.c.3).

During and following the accident, none of the above thermal criteria were violated, and in fact, the ΔT s generally were smaller than during most of the month of March preceding the accident. The only potential noncompliance with thermal criteria which occurred during 1979 preceding the accident was on 21-22 March when maximum ΔT s of 13.0°F and 15.1°F were reported (Table 1). Investigation by the licensee revealed that the instrumentation used to determine the temperature differential was not operating correctly at that time, and the actual ΔT s were approximately 2°F. Action was taken to correct the faulty instrumentation 18/.

Thermal discharges during and following the accident also were within the required limits of the NRC ETS and were within the values reviewed in previous evaluations 6/ 9/ 10/ 19/.

The accident at Three Mile Island was described as a feedwater transient* which led to a small break loss-of-coolant accident which resulted in damage to portions of the reactor core ^{2/}. Core damage resulted from overheating due to the generation of heat from the fission process at a rate faster than it was being removed by the cooling system. Nuclear fuel is subjected to heating due to absorption of energy from the decay of radioactive materials and this heating continues even after a reactor is shutdown. Decay heat can be a source of overheating in fuel in a shutdown reactor or in fuel that has been removed from a reactor. Immediately following shutdown of a reactor that has operated about a month or longer, the heat from radioactive decay heat amounts to about 7%

*The Reactor Safety Study (Ref. No. 20) states that in general, the term reactor transient applies to any significant deviation from the normal operating value of any of the key reactor operating parameters. Transient events include all those situations which could lead to fuel heat imbalances, and transients cover the reactor in a shutdown condition as well as in the various operating conditions. The shutdown condition is important because many transient conditions result in shutdown of the reactor, and decay heat removal systems are needed to prevent fuel heat imbalances due to core heat decay. In safety analyses, the principal areas of interest are: increases in reactor core power (heat generation); decreases in coolant flow (heat removal); and reactor coolant system pressure increases. All of these represent a potential for damage to the reactor core.

of that produced during operation 20/. During the Three Mile Island accident, the heat production in the core was decay only a few percent of that produced during normal full power operation, but overheating resulted from an inability to remove the relatively small amount of decay heat at the proper rate for normal core cooling. During the accident, then, the rejection of heat from the reactor cooling system to the river via the condenser cooling system was not greater than normal, as one might suspect from knowledge that the reactor core was experiencing overheating difficulties. During normal full power operation, the rate of heat transfer to the condenser cooling system essentially is near maximum.

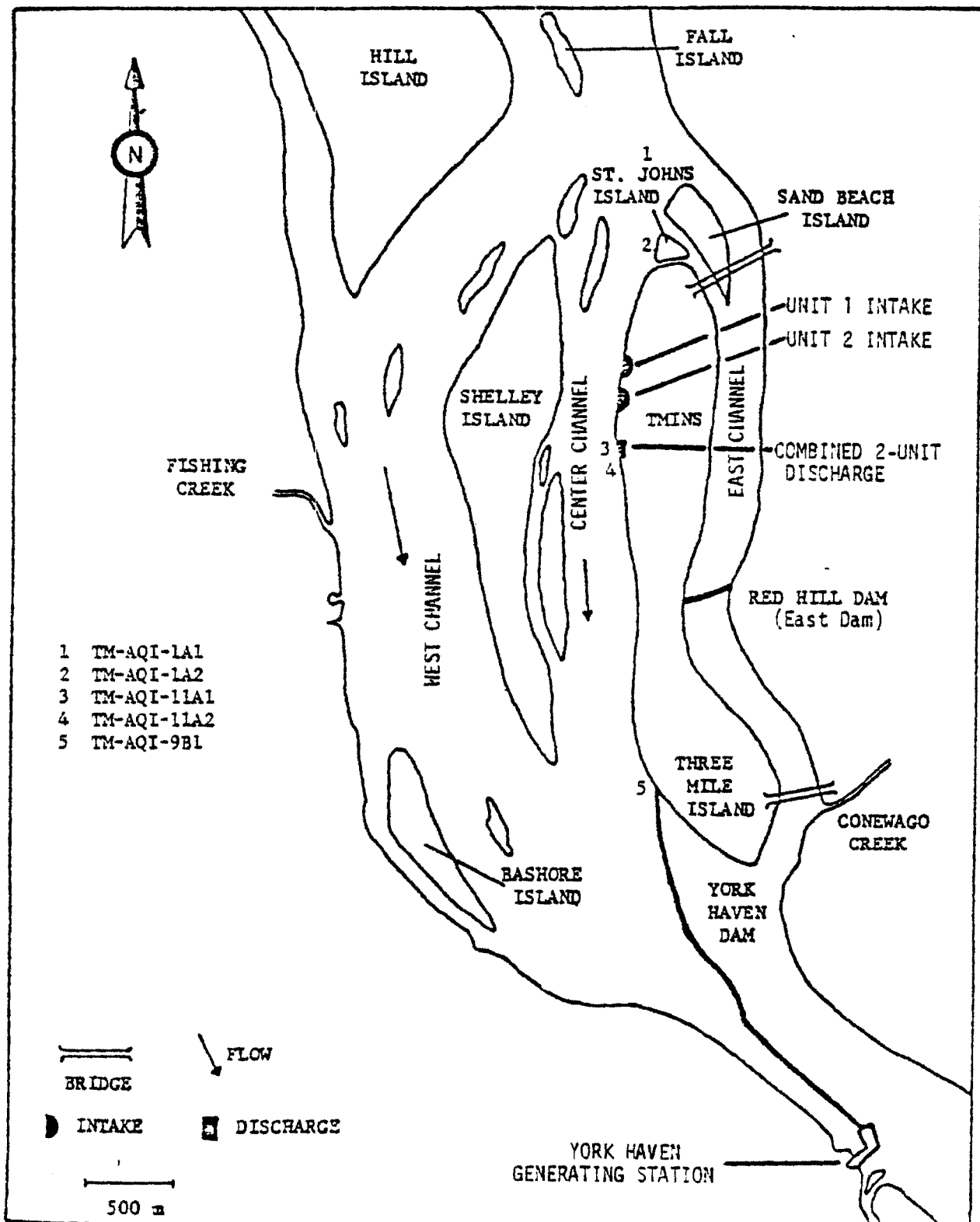


FIGURE 2. LOCATION OF WATER QUALITY AND MACROINVERTEBRATE SAMPLING STATIONS IN THE SUSQUEHANNA RIVER NEAR THREE MILE ISLAND NUCLEAR STATION. (Ref.No.15).

TABLE 1
(Ref.No.16)

THREE MILE ISLAND NUCLEAR STATION
MONTHLY OPERATING REPORT
MAIN DISCHARGE
THERMAL DISCHARGES
MARCH 1979

Parameter	Chlorine						T. Min		T. Avg		T. Max	
Units	mg/l						°F		°F		°F	
Sample Type	Grab						Meas.		Meas.		Meas.	
Frequency	3/Day for 1 Chlorination						Daily		Daily		Daily	
Date	Total	Free	Total	Free	Total	Free	Eff.	ΔT	Eff.	ΔT	Eff.	ΔT
3/01/79	OUT OF	SERVICE	ENTIRE MONTH				36.9	+4.5	38.6	+5.5	40.0	+6.9
02							38.1	+4.0	40.0	+5.3	42.2	+7.2
03							39.2	+3.0	40.7	+4.7	42.7	+6.7
04							41.5	+5.7	43.0	+7.0	44.8	+9.5
05							44.5	+8.1	45.6	+9.3	46.7	+10.3
06							41.3	+4.4	43.7	+7.0	45.6	+9.2
07							39.6	+2.9	40.8	+4.2	41.8	+5.1
08							39.2	+3.6	40.8	+4.7	42.1	+5.8
09							39.2	+3.6	41.0	+5.0	42.5	+6.2
10							39.2	+3.6	41.5	+5.6	43.6	+7.4
11							38.2	+1.7	39.8	+3.6	42.1	+6.1
12							39.2	+3.5	40.0	+4.1	41.3	+5.1
13							39.2	+3.5	41.2	+5.2	43.9	+7.6
14							40.9	+4.2	43.9	+7.4	46.0	+9.6
15							38.4	+2.9	42.4	+6.3	46.0	+9.6
16							38.5	+3.3	40.0	+4.1	41.1	+5.1
17							39.8	+3.7	42.1	+5.8	44.1	+7.6
18							42.7	+6.3	43.9	+7.2	45.5	+8.6
19							42.9	+6.5	44.3	+8.0	45.5	+9.3
20							43.6	+7.3	45.3	+8.8	48.1	+11.6
21							43.8	+7.1	46.7	+10.0	49.8	+13.0
22							44.9	+8.3	48.3	+11.7	51.8	+15.1
23							46.9	+4.3	50.6	+5.6	53.8	+6.0
24							53.3	+4.0	54.1	+4.7	54.7	+4.9
25							50.3	+2.1	51.8	+3.0	53.7	+4.4
26							43.0	-3.0	46.3	+0.5	48.1	+2.1
27							46.0	+1.3	47.4	+2.7	48.6	+3.5
28		BEGIN		ACCIDENT			44.4	+0.9	46.0	+1.7	47.4	+2.5
29							46.3	+1.5	48.2	+2.9	50.1	+4.3
30							49.3	+2.8	50.4	+3.9	51.6	+4.8
31							50.7	+3.4	51.9	+4.1	53.1	+4.7

* PaDER informed by letter dated 4-6-79 regarding the accuracy of this data.

TABLE 2
(Ref.No.17)

THREE MILE ISLAND NUCLEAR STATION
MONTHLY OPERATING REPORT
MAIN DISCHARGE
THERMAL DISCHARGES
APRIL 1979

Parameter	Chlorine						T. Min		T. Avg		T. Max	
Units	mg/l						°F		°F		°F	
Sample Type	Grab						Meas.		Meas.		Meas.	
Frequency	3/Day for 1 Chlorination						Daily		Daily		Daily	
Date	Total	Free	Total	Free	Total	Free	Eff.	ΔT	Eff.	ΔT	Eff.	ΔT
April 1, 1979	-----	OUT OF	SERVICE	ENTIRE MONTH	-----	-----	50.9	+2.2	52.1	+3.1	53.2	+3.5
2,							50.0	+1.1	50.8	+1.8	52.1	+2.4
3,							49.2	+1.6	50.0	+2.3	50.4	+2.9
4,							47.2	+0.7	47.8	+1.2	49.0	+1.8
5,							46.7	+1.2	48.0	+1.6	48.2	+1.9
6,							43.3	-1.3	45.1	-0.3	47.1	+1.5
7,							41.8	-0.6	43.5	+0.1	44.7	+0.9
8,							43.6	+0.4	44.3	+1.1	44.8	+2.0
9,							43.6	+1.7	44.3	+2.1	44.8	+2.6
10,							43.0	+1.6	44.8	+2.1	46.6	+2.4
11,							45.4	+1.4	47.3	+2.5	48.8	+3.3
12,							47.1	+2.9	47.9	+3.4	48.5	+3.8
13,							44.6	+1.6	45.8	+2.6	47.3	+3.8
14,							44.7	+1.7	46.4	+2.1	48.4	+2.6
15,							47.7	+1.3	48.4	+1.8	48.8	+2.5
16,							47.2	+1.2	47.4	+1.6	47.7	+2.0
17,							46.8	+1.5	47.2	+1.7	47.6	+1.9
18,							47.0	+0.9	48.4	+1.4	50.0	+1.8
19,							48.2	+0.5	49.7	+1.0	51.6	+1.7
20,							49.0	+0.1	51.2	+1.1	53.0	+1.8
21,							50.8	+0.4	53.6	+1.4	56.1	+2.2
22,							53.8	+1.2	55.9	+1.9	58.1	+2.9
23,							56.7	+1.4	58.5	+2.0	60.3	+2.7
24,							58.6	+1.0	60.4	+1.6	62.3	+2.3
25,							61.1	+2.0	63.1	+2.4	65.2	+2.9
26,							63.7	+1.5	64.3	+1.9	65.4	+2.2
27,		NATURAL		CIRCULATION			60.7	+0.2	63.2	+1.4	64.1	+2.1
28,							58.7	-0.7	60.6	+0.2	63.3	+0.6
29,							57.6	-0.8	60.0	-0.2	61.3	+0.5
30,	↓	↓	↓	↓	↓	↓	58.3	-0.3	60.7	+0.4	62.6	+1.0

TABLE 3
(Ref.No.16)

THREE MILE ISLAND NUCLEAR STATION
MONTHLY OPERATING REPORT
MAIN DISCHARGE
CHEMICAL DISCHARGES
MARCH 1979

Parameter	Volume	pH		TSS		TDS		Total FE		Oil & Grease
Units	10 ⁶ Gal.	Standard Units		mg/l		mg/l		mg/l		mg/l
Sample Type	Meas.	Grab		Grab		Grab		Grab		Grab
Frequency	Daily	Weekly		Weekly		Weekly		Weekly		Weekly
Date	Eff.	Inf.	Eff.	Inf.	Eff.	Inf.	Eff.	Inf.	Eff.	Eff.
3/01/79	63.9	6.75	7.35	13	88	184	215	1.08	3.65	
3/02/79	56.3	7.58	7.23	84	94	183	348	1.21	2.98	
3/03/79	59.8									
3/04/79	66.7	6.6	6.9	30	21	83	182	1.00	2.59	
3/05/79	69.7	6.7	7.4	7	44	99	112	0.83	1.41	
3/06/79	74.1	6.72	7.25	7	90	110	97	1.42	5.18	
3/07/79	69.6	6.8	6.75	311	117	124	104	19.3	7.86	
3/08/79	76.3									
3/09/79	72.7	6.8	6.85	30	190	115	95	3.35	6.69	
3/10/79	77.0	6.9	7.12	172	210	101	124	8.7	9.87	
3/10/79		6.90	7.2	136	128	110	113	8.63	6.87	
3/11/79	50.5									
3/12/79	70.0	7.17	7.4	75	76	92	123	3.72	4.93	
3/13/79	69.6	6.95	7.23	27	22	111	161	3.15	3.62	
3/14/79	65.6	7.19	7.23	33	34	158	148	3.95	4.14	
3/15/79	63.1	7.05	7.3	41	50	235	121	3.83	4.67	
3/16/79	79.6	7.21	7.39	19	58	110	179	0.36	0.48	
3/17/79	63.8	7.23	7.29	17	40	125	150	2.38	3.08	
3/18/79	57.3	7.25	7.27	24	52	151	144	2.78	3.09	
3/19/79	69.2	7.01	7.12	28	35	120	167	1.61	1.14	
3/20/79	70.2	6.9	7.15	11	23	120	165	3.07	5.16	
3/21/79	73.2									
3/22/79	74.4	7.15	7.32	11	21	71	86	3.34	3.68	
3/22/79		7.27	7.95	7	8	77	304	1.38	1.97	
3/23/79	87.2									
3/24/79	71.7	7.21	7.4	42	27	143	120	2.95	4.8	
3/25/79	63.3	7.51	7.44	20	26	172	214	2.75	1.99	
3/26/79	63.5									
3/27/79	64.7	7.47	7.73	27	46	145	231	1.66	2.73	
3/28/79	68.2									
3/29/79	101.1	7.25	7.3	32	20	202	260	2.84	3.28	

(Ref.No.16

THREE MILE ISLAND NUCLEAR STATION
MONTHLY OPERATING REPORT
MAIN DISCHARGE
CHEMICAL DISCHARGES
MARCH 1979

[illegible]

THREE MILE ISLAND NUCLEAR STATION
MONTHLY OPERATING REPORT
MAIN DISCHARGE
CHEMICAL DISCHARGES
APRIL 1979

TABLE 4
(Ref.No.17)

Parameter	Volume	pH		TSS		TDS		Total FE		Oil & Grease
Units	10 ⁶ Gal.	Standard Units		mg/l		mg/l		mg/l		mg/l
Sample Type	Meas.	Grab		Grab		Grab		Grab		Grab
Frequency	Daily	Weekly		Weekly		Weekly		Weekly		Weekly
Date	Eff.	Inf.	Eff.	Inf.	Eff.	Inf.	Eff.	Inf.	Eff.	Eff.
April 1, 1979	94.7	7.1	7.2	24	24	130	154	1.45	2.53	
2,	85.3									
3,	85.4	7.64	7.65	1	7	127	148	1.68	2.08	
4,	82.2									
5,	86.0	7.16	7.3	32	39	214	187	0.96	1.23	
6,	84.6									
7,	81.5	7.48	7.69	9	25	166	143	1.85	1.9	
8,	83.3	7.19	7.38	18	44	83	133	2.07	2.55	
9,	91.2									
10,	80.6									
11,	75.9	7.49	7.61	1.0	7.0	159	181	1.26	2.12	
12,	84.7	7.54	7.59	46	64	281	132	1.02	1.13	
13,	79.3									
14,	79.7									
15,	78.1									
16,	84.2									
17,	79.3									
18,	80.0									
19,	83.0									
20,	75.3									
21,	94.0									
22,	61.3									
23,	75.0	7.06	7.37	2	4	117	124	0.58	0.94	
24,	83.5	7.05	7.2	9	19	150	190	1.39	1.77	
25,	70.2									
26,	82.6									
27,	77.3	7.14	7.72	15	15	149	159	0.85	0.97	
28,	78.2	7.05	7.85	36	15	315	335	1.98	1.52	
29,	77.6									
30,	84.0	7.83	7.67	8	26	151	167	1.15	2.16	

B. Chemical Discharges and River Flow

The Commonwealth of Pennsylvania NPDES Permit requires monitoring of several chemical parameters at various monitoring points and discharge locations within Three Mile Island Nuclear Station. One of the monitoring points is in the main effluent discharge to the river (monitoring point No. 001) and another is in the discharge from the industrial waste treatment system (IWTS; monitoring point No. 107) prior to its entry into the effluent discharged through the main river effluent discharge. Results of such monitoring are reported to the Commonwealth in monthly Discharge Monitoring Reports (DMR). Results of monitoring at those two points were reported in the DMR's for March 16/ and April 17/ 1979 and are presented here in Tables 3, 4, 5, and 6. Additionally, data collected by the Pennsylvania Department of Environmental Resources 21/ on April 13 and April 30, 1979 were made available to NRC and are presented in Table 7. Data collected in the Susquehanna River under the ETS program during March 22/ 23/ and April 23/ 24/ 1979 by Ichthyological Associates, Inc (consultant to Metropolitan Edison Co.) are presented in Tables 8 and 9, with their locations described in Table 10 and shown in Figure 2.

During about the first two weeks following the accident, several NRC Office of Inspection and Enforcement (OIE) Preliminary Notification bulletins reported releases of industrial wastes into the river. On March 29 less than 50,000 gallons were released 26a/ and between March 30

and April 3 controlled releases of "several hundred thousand gallons" occurred ^{26b/}. Discharge to the river from the industrial waste storage tanks resumed on April 6 at an average rate of 100 gpm (~ 0.22 CFS) ^{26c/} and was stopped late on April 7 ^{26d/}. All totalled, between March 28 and April 11, 1979, 4,530,000 gallons were released from the IWTs and 750,000 gallons were released from the industrial waste filter system (IWFS, monitoring point No. 104) ^{27/}. Total releases during the period March 28-May 19, 1979 from the IWTs, IWFS, waste evaporator condensate storage tank (WECST), and the secondary neutralization tank (SNT, monitoring point No. 108) were as follows, based upon information supplied to OIE from Metropolitan Edison Company ^{28/}:

	Total Releases	Mean Vol. per	Mean Vol. Release	Mean Vol. Release
<u>System</u>	<u>in gallons</u>	<u>Release in gallons</u>	<u>per day in gallons</u>	<u>in gpm (CFS)</u>
IWTs	4,993,660	222,890	96,032	66.7(0.15)
IWFS	962,830	57,743	17,362	12.1(0.03)
WECST	164,659	4,191	3,117	2.2(<0.01)
SNT	1,310,341	63,701	25,199	17.5(0.04)

The NPDES Permit places limits on discharges from the IWTs, IWFS, and the SNT. During the several weeks following the March 28 accident, no

violations of NPDES water quality limitations were recorded on days when samples were taken at the IWTS monitoring point (Tables 5, 6, and 7), in the main discharge effluent (Tables 3, 4, and 7), and in the river near and downstream of the discharge (Table 8). The noncompliance noted on Table 5 during March occurred on March 7, 1979 and was reportedly due to equipment failure 29/. No chlorine usage occurred during either March or April 1979 16/ 17/. No noncompliances or limit violations were reported for the IWFS during March following the accident. No samples were collected in April at the IWFS monitoring point, but discharges from the system are released through the main river discharge where no violations occurred.

Before discharge into the river, the IWTS and IWFS effluents are diluted with the cooling tower blowdown. A comparison of total volumes and the mean volumes of releases (shown above) with the daily effluent volumes at the main discharge to the river (Tables 3 and 4), illustrates the relatively small quantities of industrial-type wastes released. The volumes released during March and April were not unusual volumes or significantly different from those released during normal operation 27/ 28/ 30/. Additionally, all of the station effluent was diluted with the flows of the Susquehanna River which were seasonally high during the period, as discussed below. Dilution by itself, however, is not the means to environmentally acceptable station operation, although dilution can result in reducing potentially harmful or toxic concentrations of discharge substances to non-harmful concentration

levels. During the period of concern here, however, toxic concentrations of non-radiological effluents do not appear to have been released into the river and violations of water quality limitations did not occur. Water quality parameters measured in the discharge and both near and downstream of the discharge (Tables 7, 8, and 9) were not substantially different overall from ambient levels at upstream river areas and near the cooling water intake structures, located ~750-1000 feet (~229-305m) upstream of the discharge (Tables 3, 4, 7, 8, and 9).

Since October 1890, the U. S. Geological Survey (USGS), Department of the Interior, has been recording discharge flow in the Susquehanna River at Harrisburg, Pennsylvania. During the period of record between 1890 and 1977, the average annual discharge has been 34,300 CFS (~22,192 MGD). The maximum and minimum daily discharges of record are 1,020,000 CFS (during Tropical Storm Agnes in June 1972) and 1,700 CFS respectively ^{34/}. The river flows for the months of March-May during 1976-1979 are presented in Table 11. The 1979 data are considered to be provisional data by USGS, and not final computations. The provisional daily flows for the months of March and April 1979 are presented in Table 12. During the period of the accident at Three Mile Island, the river flows were above the annual mean flow and within the ranges recorded for the last several years.

During low flow conditions of 1,700 CFS, approximately 400 CFS (~24%) of the river discharge passes Three Mile Island in the center channel, with

the remainder passing through the west channel (Figure 2) ^{37/}. At flow rates below about 20,000 CFS, the total river flow passes through the head race channel of York Haven Dam leading to the hydroelectric generating station, with no flow over either York Haven Dam or Red Hill Dam (Figure 2) ^{38/}. During high flow conditions, approximately 30% of the river flow is through the center channel. During the period March 28 through the end of April 1979, the minimum and maximum daily river flows were 31,400 CFS and 99,700 CFS respectively (Table 12). Assuming a minimum of 30% of the flow was through the center channel, a minimum range of 9,420 - 29,910 CFS would have passed the nuclear station and received discharge effluents before mixing with the remainder of the river flow near and below York Haven Dam.

The spatial extent or size of the discharge plume has not been determined for chemical effluents, but it has been determined for thermal effluents during normal operations and during normal cooldown conditions on several occasions in recent years. Thermal plume mapping is a required monitoring program in the Environmental Technical Specifications. During years of Unit 1 operation only, the following thermal plume conditions were recorded:

1974 ^{11/} - plume characteristics were distinguished less than 20m (66 ft) into the river and 50m (164 ft) downstream of the discharge; generally thermal characteristics were maintained throughout the water column (0-3m); the farthest downstream distance that the plume was located was 400m (1312 ft).

1975 12/ - in 20 of 28 surveys the plume was limited to the point of discharge; the maximum extent of the plume was defined to be within at least 5m (16 ft) offshore and 100m (328 ft) downstream.

1976 13/ - in 28 of 33 surveys the plume was limited to 5m offshore and 25m (82 ft) downstream; the maximum extent of the plume during the February 21 cooldown was 5-20m offshore and 1000m (3281 ft) downstream.

1977 14/ - during the March 19-20 cooldown, the plume was limited to the point of discharge.

During 1978, the plume was surveyed during May - August when Unit 1 was operating at 100% power and Unit 2 was operating 0% power (although it had attained criticality in March and was operating nuclear and secondary service pumps during the period of plume surveys). During all surveys (from the discharge, offshore to 40m and downstream to 1900 m, or about 1.2 miles) the thermal effluent was confined to within 5m of shore and 25m downstream 15/.

These observations indicate that the thermal plume has been variable in downstream extent (0-1000m, or to about 0.6 mile), has been confined to within short distances of the shoreline (0-20m), and to depths of about 3m in the center channel of the Susquehanna River, which is approximately 1300 feet (~400m) wide and 9 feet (~2.7m) deep at low flows of about 10,000 cfs 33/. Using these criteria and recognizing that the chemical

discharges follow a similar path as the thermal effluent, that portion of the river potentially under the immediate influence of chemical effluents could be presumed to be the same as for the thermal plume. That area (< 20m wide and 1000m long) would occupy the west shore of Three Mile Island from the station discharge downstream to a point about halfway between the discharge and the junction of Three Mile Island and the York Haven Dam (Figure 2). That area is a relatively small portion of both the center channel and the river as a whole in the site vicinity. Chemical substances discharged into the river, however, might be found in detectable amounts farther downstream of the area where thermal effluents were no longer detectable.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
DISCHARGE MONITORING REPORT

Form Approved
OMB NO. 1545-0047

Metropolitan-Edison Company (July 1, 1977 to expiration)
Three Mile Island Nuclear Generating Station

TABLE 5
(Ref, No, 16)

IWTS Monitoring Point, March 1979

INSTRUCTIONS

1. Provide dates for period covered by this report in spaces marked "REPORTING PERIOD".
2. Enter reported minimum, average, and maximum values under "QUANTITY" and "CONCENTRATION" in the units specified for each parameter as appropriate. Do not enter values in boxes containing asterisks. "AVERAGE" is average computed over actual time discharge is operating. "MAXIMUM" and "MINIMUM" are extreme values observed during the reporting period.
3. Specify the number of analyzed samples that occurred the maximum (and/or minimum as appropriate) permit conditions in the columns labeled "No. Ex." If none, enter "0".
4. Specify frequency of analysis for each parameter as No. analyses/No. days. (e.g., "3/7" is equivalent to 3 analyses performed every 7 days.) If continuous enter "CONT".
5. Specify sample type ("grab" or "hr. composite") as appropriate. If frequency was continuous, enter "NA".
6. Appropriate signature is required on bottom of this form.

PA	0009920	107	4911	40° 9' 10"	76° 43' 35"
PERMIT NUMBER		DIS	MG	LATITUDE LONGITUDE	
REPORTING PERIOD FROM		TO			
7 9 0 3 0 1		7 9 0 3 3 1			
YEAR MO DAY		YEAR MO DAY			

PARAMETER		QUANTITY				UNITS	NO. EX.	CONCENTRATION				UNITS	NO. EX.	FREQUENCY OF ANALYSIS	SAMPLE TYPE	
		MINIMUM	AVERAGE	MAXIMUM	MINIMUM			AVERAGE	MAXIMUM							
Flow	REPORTED	.002	.078	.178			N/A					N/A	N/A	cont.	measured	
	PERMIT CONDITION	N/A	N/A	N/A		MGD						N/A		2/30	measured	
Total Suspended Solids	REPORTED	0.00	2.96	5.92			0	N/A	N/A	N/A		N/A	N/A	2/31	grab	
	PERMIT CONDITION	N/A	36	240		lbs/day		N/A	N/A	N/A		N/A		2/30	grab	
Oil & Grease	REPORTED	1.58	2.01	2.45			0	N/A	N/A	N/A		N/A	N/A	2/31	grab	
	PERMIT CONDITION	N/A	18.1	48.1		lbs/day		N/A	N/A	N/A		N/A		2/30	grab	
Total Iron	REPORTED	1.06	1.95	2.83			1	N/A	N/A	N/A		N/A	N/A	2/31	grab	
	PERMIT CONDITION	N/A	1.2	2.4		lbs/day		N/A	N/A	N/A		N/A		2/30	grab	
Total Copper	REPORTED	0.02	0.02	0.02			0	N/A	N/A	N/A		N/A	N/A	2/31	grab	
	PERMIT CONDITION	N/A	1.2	2.4		lbs/day		N/A	N/A	N/A		N/A		2/30	grab	
pH	REPORTED						N/A	6.92	7.03	7.13			Std. pH Units	0	2/31	grab
	PERMIT CONDITION	N/A	N/A	N/A				6.0	N/A	9.0				0	2/30	grab
	REPORTED															
	PERMIT CONDITION															
	REPORTED															
	PERMIT CONDITION															

NAME OF PRINCIPAL EXECUTIVE OFFICER			TITLE OF THE OFFICER		DATE		I certify that I am familiar with the information contained in this report and that to the best of my knowledge and belief such information is true, complete, and accurate.	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT
Herbein	John	G.	Vice-President	7 9 0 4 2 7				
LAST	FIRST	MI	TITLE		YEAR	MO	DAY	

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DISCHARGE MONITORING REPORT

DWM FORM 10-1-77
QWL NO. 10-1-77Metropolitan-Edison Company (July 1, 1977 to expiration)
Three Mile Island Nuclear Generating StationTABLE 6
(Ref.No.17)

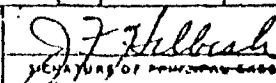
IWTS Monitoring Point, April 1979

INSTRUCTIONS

1. Provide dates for period covered by this report in spaces marked "REPORTING PERIOD".
2. Enter reported minimum, average, and maximum values under "QUANTITY" and "CONCENTRATION" in the units specified for each parameter as appropriate. Do not enter values in boxes containing asterisks. "AVERAGE" is average computed over actual time discharge is operating. "MAXIMUM" and "MINIMUM" are extreme values observed during the reporting period.
3. Specify the number of analyzed samples that exceed the maximum (and/or minimum as appropriate) permit conditions in the columns labeled "No. Ex." If none, enter "0".
4. Specify frequency of analysis for each parameter as No. analyses/No. days (e.g., "3/7" is equivalent to 3 analyses performed every 7 days.) If continuous enter "CONT.".
5. Specify sample type ("grab" or "hr. composite") as applicable. If frequency was continuous, enter "NA".
6. Appropriate signature is required on bottom of this form.

PA ST	0009920 PERMIT NUMBER	107 DIS	4911 SEC	40° 9'10" LATITUDE	76° 43'35" LONGITUDE
REPORTING PERIOD FROM		719 YEAR	04 MO	01 DAY	TO
		79 YEAR	04 MO	310 DAY	

PARAMETER		QUANTITY				UNITS	CONCENTRATION				UNITS	FREQUENCY OF ANALYSIS	SAMPLE TYPE
		MINIMUM	AVERAGE	MAXIMUM	NO. EX.		MINIMUM	AVERAGE	MAXIMUM	NO. EX.			
Flow	REPORTED	0	0.080	0.243	N/A					N/A	cont.	measured	
	PERMIT CONDITION	N/A	N/A	N/A		MGD						2/30	measured
Total Suspended Solids	REPORTED	0.75	7.53	14.3	N/A		N/A	N/A	N/A	N/A	2/30	grab	
	PERMIT CONDITION	N/A	36	240		lbs/day	N/A	N/A	N/A	N/A	2/30	grab	
Oil & Grease	REPORTED	4.7	8.6	12.5	N/A		N/A	N/A	N/A	N/A	2/30	grab	
	PERMIT CONDITION	N/A	18.1	48.1		lbs/day	N/A	N/A	N/A	N/A	2/30	grab	
Total Iron	REPORTED	0.22	0.39	0.56	N/A		N/A	N/A	N/A	N/A	2/30	grab	
	PERMIT CONDITION	N/A	1.2	2.4		lbs/day	N/A	N/A	N/A	N/A	2/30	grab	
Total Copper	REPORTED	0.018	0.02	0.022	0		N/A	N/A	N/A	N/A	2/30	grab	
	PERMIT CONDITION	N/A	1.2	2.4		lbs/day	N/A	N/A	N/A	N/A	2/30	grab	
pH	REPORTED				N/A		7.3	7.33	7.35	Std. pH Units	0	2/30	grab
	PERMIT CONDITION	N/A	N/A	N/A			6.0	N/A	9.0		0	2/30	grab
	REPORTED												
	PERMIT CONDITION												
	REPORTED												
	PERMIT CONDITION												

NAME OF PRINCIPAL EXECUTIVE OFFICER			TITLE OF THE OFFICER		DATE		I certify that I am familiar with the information contained in this report and that to the best of my knowledge and belief such information is true, complete, and accurate.	 SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER AUTHORIZED AGENT
Herbein	John	G.	Vice-President		719 015 25 YEAR MO DAY			

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Table 7. Water Quality Data Compiled by the
 Pennsylvania Department of Environmental Resources for
 Three Locations at Three Mile Island Nuclear Station During
 April of 1979. (Ref. No. 21).

Parameter	April 13			April 30
	River Intake	Main Discharge(001)	IWTS (107)	Main Discharge (001)
pH	7.6	7.1	6.5	7.8
Total Sulfate, mg/l	30.0	32.0	76.0	-
Total Alkalinity				
as CaCO ₃ ,mg/l	30.0	32.0	18.0	44.0
Total Nitrate, mg/l	1.32	1.42	8.8	-
Total Nitrite, mg/l	0.028	0.028	0.024	-
Total Ammonia				
Nitrogen, mg/l	0.32	0.49	0.55	-
Total Phosphate,				
mg/l	0.22	0.22	0.66	0.08
Total Iron, ug/l	1930.0	1960.0	1160.0	1110.0
Chloride, mg/l	10.0	12.0	33.0	-
5-Day BOD, mg/l	0.4	0.5	18.0	-
Specific				
Conductance	150.0	160.0	310.0	-

Table 8 (Ref.Nos,22 and 23)

Summary of selected physicochemical parameters taken on 19 and 26 March 1979 near the THINS. Values are expressed in mg/l except for water temperature (C), pH, and turbidity (JTU).

Location	Date	Water Temperature (C)	pH	Dissolved Oxygen	Turbidity (JTU)	Alkalinity as CaCO ₃	Sulfate	Total Dissolved Solids	Total Copper	Dissolved Copper	Total Zinc	Dissolved Zinc
TH-AQ1-1A1	19 Mar	5.0	-	11.6	23	27	37	111	0.009	0.005	0.031	0.019
TH-AQ1-1A2		5.0	-	11.6	23	27	35	101	0.019	0.005	0.032	0.018
TH-AQ1-11A1		5.5	-	11.5	24	27	37	107	0.010	0.005	0.032	0.016
TH-AQ1-11A2		6.5	-	11.4	24	27	35	110	0.016	0.007	0.032	0.019
TH-AQ1-9B1		6.0	-	11.5	23	27	33	106	0.012	0.003	0.031	0.017
TH-AQ1-1A1	26 Mar	6.0	-	9.2	18	37	45	125	0.010	0.010	0.033	0.009
TH-AQ1-1A2		7.0	-	10.0	16	38	41	119	0.013	0.010	0.024	0.006
TH-AQ1-11A1		7.5	-	9.6	18	39	43	123	0.010	0.010	0.024	0.005
TH-AQ1-11A2		7.5	-	9.7	16	39	44	125	0.010	0.010	0.025	0.006
TH-AQ1-9B1		7.0	-	9.2	17	38	38	119	0.010	0.010	0.024	0.005
MEAN VALUES FOR MARCH 1979												
TH-AQ1-1A1	Mar	5.5	-	10.4	20	32	41	118	0.010	0.006	0.032	0.014
TH-AQ1-1A2		6.0	-	10.3	20	32	38	110	0.015	0.006	0.028	0.012
TH-AQ1-11A1		6.5	-	10.6	21	33	41	115	0.010	0.006	0.025	0.010
TH-AQ1-11A2		7.0	-	10.6	20	33	40	115	0.010	0.006	0.028	0.012
TH-AQ1-9B1		6.5	-	10.4	20	32	36	112	0.011	0.006	0.028	0.011

Table 9 (Ref. Nos. 23 and 24)

Summary of selected physicochemical parameters taken on 11 and 23 April 1979 near the THINS. Values are expressed in mg/l except for water temperature (C), pH, and turbidity (JTU).

Location	Date	Water Temperature (C)	pH	Dissolved Oxygen	Turbidity (JTU)	Alkalinity as CaCO ₃	Sulfate	Total Dissolved Solids	Total Copper	Dissolved Copper	Total Zinc	Dissolved Zinc
TH-AQ1-1A1	11 Apr	7.5	7.5	11.3	10	31	45	118	0.010	0.010	0.028	0.018
TH-AQ1-1A2		7.5	7.6	11.2	10	33	42	116	0.010	0.010	0.021	0.010
TH-AQ1-11A1		7.5	7.5	11.6	10	33	45	117	0.010	0.010	0.022	0.010
TH-AQ1-11A2		7.5	7.5	11.0	9	33	44	116	0.010	0.010	0.022	0.011
TH-AQ1-9B1		8.0	7.5	11.2	10	32	40	119	0.010	0.010	0.022	0.013
TH-AQ1-1A1	23 Apr	14.0	7.8	11.1	3.9*	25	38	114	0.003	0.002	0.021	0.005
TH-AQ1-1A2		14.0	7.8	11.2	3.3*	30	41	121	0.003	0.002	0.018	0.002
TH-AQ1-11A1		14.5	7.9	11.8	3.9*	30	47	122	0.002	0.002	0.019	0.003
TH-AQ1-11A2		14.0	7.8	10.8	4.2*	30	45	142	0.002	0.002	0.016	0.006
TH-AQ1-9B1		14.5	7.8	11.2	3.5*	30	47	132	0.002	0.002	0.014	0.002
MEAN VALUES FOR APRIL 1979												
TH-AQ1-1A1	Apr	10.8	-	11.2	7.0*	28	42	116	0.006	0.006	0.024	0.012
TH-AQ1-1A2		10.8	-	11.2	6.6*	32	42	118	0.006	0.006	0.020	0.006
TH-AQ1-11A1		11.0	-	11.7	7.0*	32	46	120	0.006	0.006	0.020	0.006
TH-AQ1-11A2		10.8	-	10.9	6.6*	32	44	129	0.006	0.006	0.019	0.008
TH-AQ1-9B1		11.2	-	11.7	6.8*	31	46	128	0.006	0.006	0.018	0.008

* Turbidity in NTU.

Station locations correspond to those in Figure 2 and Table 10.

TABLE 10
LOCATION AND DESCRIPTION OF WATER QUALITY AND MACROINVERTEBRATE
SAMPLING STATIONS IN THE SUSQUEHANNA RIVER NEAR THREE MILE ISLAND NUCLEAR
STATION. (Ref.No.14).

Station Number	Location and Description
TM-AQI-1A1 (No.1)	40° 09' 52" N, 76° 43' 26" W. North tip of Sand Beach Island, 30 to 75 m offshore. Water depth varied from 0.5 to 2.5 m. Substrate ranged from very coarse to medium sand. Coarse organic detritus was sometimes present.
TM-AQI-1A2 (No.2)	40° 09' 36" N, 76° 43' 30" W. Southwest St. Johns Island at mouth of channel between TMI and St. Johns Island, 1 to 15 m offshore. Water depth varied from 0.5 to 3.5 m. Substrate sometimes stratified ranging from silt and clay to gravel. In the absence of stratification most substrate composed of silt and clay and fine sands. Organic detritus and trace amounts of oil present.
TM-AQI-11A1 (No.3)	40° 09' 09" N, 76° 43' 39" W. West shore of TMI, 10 to 25 m downstream from Discharge, 1 to 15 m offshore. Water depth ranged from 0.25 to 2.0 m. Substrate composed mostly of silt and clay and fine sands. Organic detritus and trace amounts of oil present.
TM-AQI-11A2 (No.4)	40° 09' 07" N, 76° 43' 39" W. West shore of TMI, 75 to 90 m downstream from Discharge, 1 to 15 m offshore. Water depth varied from 0.25 to 2.0 m. Substrate composed of fine sands and silt and clay. Some organic detritus and trace amounts of oil present.
TM-AQI-9B1 (No.5)	40° 08' 03" N, 76° 43' 33" W. West shore of TMI, 1975 m downstream from Discharge, 5 to 15 m offshore. Water depth varied from 0.75 to 2.25 m. Substrate composed of silt and clay and fine sands. Some organic detritus and trace amounts of oil present.

Table 11. Water Discharge (cfs) in the Susquehanna River
at Harrisburg, Pennsylvania during March, April, and May for the
years 1976-1979, from USGS records. Data for 1979 are considered to
be provisional and not final computations

	<u>1976^{35/}</u>	<u>1977^{34/}</u>	<u>1978^{36/}</u>	<u>1979^{36/}</u>
March				
mean	57,550	115,400	97,330	124,000
max.	114,000	206,000	249,000	409,000
min.	34,100	68,500	14,000	48,000
April				
mean	37,630	77,010	82,620	55,869
max.	82,200	209,000	162,000	84,700
min.	20,100	24,200	32,400	31,400
May				
mean	30,930	26,540	72,950	39,000
max.	50,800	44,400	205,000	91,600
min.	19,300	13,300	24,500	18,500

TABLE 12. Daily Water Discharge (cfs) in the Susquehanna
 River at Harrisburg, Pennsylvania during March
 and April 1979. Data are considered provisional by USGS. ^{36/}

<u>Day</u>	<u>March</u>	<u>April</u>
1	105,000	54,300
2	90,800	55,100
3	90,200	55,600
4	90,200	57,800
5	126,000	64,400
6	317,000	68,800
7	409,000	64,700
8	347,000	59,200
9	270,000	54,200
10	217,000	53,500
11	177,000	68,000
12	154,000	84,700
13	133,000	83,200
14	107,000	77,300
15	93,300	72,900
16	87,600	69,000
17	83,100	66,800
18	73,500	63,100
19	62,900	58,400
20	55,500	53,300

TABLE 12. Cont'd. Daily Water Discharge (cfs) in the Susquehanna
River at Harrisburg, Pennsylvania during March
and April 1979. Data are considered provisional by USGS. ^{36/}

<u>Day</u>	<u>March</u>	<u>April</u>
21	52,000	47,100
22	49,800	42,700
23	48,000	39,100
24	48,500	36,100
25	55,700	33,700
26	86,300	31,600
27	105,000	*
28	99,700	31,400
29	84,600	35,800
30	68,300	38,400
31	57,000	—

* No data reported.

III. AQUATIC BIOTA AND FISHERIES OF THE SUSQUEHANNA RIVER, AND NON-RADIOLOGICAL CONSEQUENCES OF THE ACCIDENT

During the period 1974-1978, the aquatic biota of the York Haven Pond of the Susquehanna River were studied in considerable detail with respect to the operation of Three Mile Island Nuclear Station 11/ 12/ 13/ 14/ 15/ 39/ 40/ 57/ Data collected in 1979 for the periods before, during, and following the accident were available in summary form in monthly progress reports prepared by Licensee's consultant Ichthyological Associates, Inc. As such, the 1979 data are not as detailed or as fully analyzed statistically as those data contained in the annual reports of aquatic studies. However, the 1979 progress reports are a form of summarized data available soon after collection (~ one month) and are used here to examine the biotic conditions of the river during the period of interest.

The Environmental Technical Specifications (ETS) for Unit 2 were issued by NRC on February 8, 1978 and require three years of operational studies for macro-benthos, ichthyoplankton, fishes, creel surveys, ichthyoplankton entrainment and fish impingement. Additionally, the ETS require the Licensee to make a prompt report to NRC of any unusual or important events such as fish kills near or downstream of the site. The initial studies of two-unit operation are contained in the annual report for 1978. ^{15/} The Commonwealth of Pennsylvania NPDES Permit requires the in-plant monitoring of thermal and chemical effluents and entrainment and impingement, but not farfield biological, fisheries, and water quality studies in the Susquehanna River. The

combination of the results of the effluent monitoring under the NPDES Permit and the farfield monitoring required by the ETS thus encompass the spectrum of data needed to perform an analysis of observed effects of the nuclear accident at Three Mile Island Nuclear Station.

A. Macroinvertebrates

Macroinvertebrates are collected by Ponar grab at five stations upstream, near, and downstream of the effluent discharge (Figure 2; Table 10), March through December. Substrates at the various stations ranged from medium - coarse sand (91%) at upstream station 1 to fine sand (25%) and silt (71%) at the station (No. 5) nearest to York Haven Dam ^{15/}. Substrates at stations nearest the discharge were predominantly fine sand, silt and clay. Studies in the immediate vicinity of the discharge have revealed no obvious area of scouring of the river bed due to discharges ^{38/}.

During 1978, 142 taxa of macroinvertebrates were collected from the river, with the dominant species being tubificid annelid worms (Limnodrilus spp), chironomid (midge) insects (Chironomus sp, Procladius spp), amphipod crustaceans (Gammarus, sp), and gastropod molluscs (Goniobasis sp) ^{15/}. Limnodrilus generally has been the most abundant macroinvertebrate in the site vicinity during recent years and has been most abundant at station 3 nearest the discharge and least abundant at station 1 upstream ^{15/}. Densities of this species and other dominant

organisms generally have been low during early spring months, and increased to peaks during late spring through fall. Densities and biomass of most benthic invertebrates have been greatly affected by ambient environmental variables such as river flow, substrates, dissolved oxygen, temperature, and siltation ^{15/}. Extreme conditions during the flooding and scouring caused by Hurricane Eloise in September 1975 drastically affected the macrobenthos of the river near Three Mile Island ^{8/ 12/}.

During 1979, macrobenthos were not collected during January and February due to ice and high river flows ^{41/ 42/}. During March, sampling was conducted on the 19th and 26th of the month ^{22/} and during April on the 11th and 23rd ^{23/}, but data reduction had not been completed for presentation in the appropriate monthly reports. At the request of NRC, the Licensee's consultant prepared tabular estimates of the densities and biomass of selected macroinvertebrate taxa at all stations for the months of March-May 1979, which are presented here as Tables 13 and 14 ^{43/}. The patterns of abundance in 1979 generally follow those of recent years. Chironomus was considerably greater in density at all stations during 1979 than during either 1977 ^{14/} or 1978 ^{43/}.

Station discharges were within specified limitations and did not alter the environmental conditions of the river with respect to water quality and temperature. Discharges were within previously evaluated ranges which were found to be acceptable. The Unit 2 ETS bases for the benthic

macroinvertebrate monitoring program recognize that "Since benthic organisms are sedentary and cannot 'avoid' adverse conditions, they are useful indicators of water quality and environmental change." The data available for the period encompassing the accident indicate that the dominate macroinvertebrate species were not affected by station operating conditions. The normal trend of generally increasing abundance with time from March through May indicates an absence of station-related effects from the accident.

TABLE 13
(Ref.No.43)

Estimates of density (number/m²) of selected taxa, March through May 1979. Dashes indicate species not present.

	March	April	May
TM-AQI-1A1 (No.1)			
<u>Limnodrilus claparedeianus</u>	33	42	12
<u>L. hoffmeisteri</u>	156	385	324
<u>L. udekemianus</u>	-	-	-
<u>Gammarus fasciatus</u>	7	5	21
<u>Chironomus decorus</u>	26	31	3783
TM-AQI-1A2 (No.2)			
<u>Limnodrilus claparedeianus</u>	90	31	-
<u>L. hoffmeisteri</u>	593	896	1420
<u>L. udekemianus</u>	9	45	12
<u>Gammarus fasciatus</u>	147	21	80
<u>Chironomus decorus</u>	711	276	3906
TM-AQI-11A1 (No.3)			
<u>Limnodrilus claparedeianus</u>	128	165	54
<u>L. hoffmeisteri</u>	1654	1822	3686
<u>L. udekemianus</u>	-	24	147
<u>Gammarus fasciatus</u>	116	45	354
<u>Chironomus decorus</u>	347	260	7389
TM-AQI-11A2 (No.4)			
<u>Limnodrilus claparedeianus</u>	149	95	24
<u>L. hoffmeisteri</u>	1297	1545	2859
<u>L. udekemianus</u>	92	69	161
<u>Gammarus fasciatus</u>	111	17	286
<u>Chironomus decorus</u>	276	428	2292
TM-AQI-9B1 (No.5)			
<u>Limnodrilus claparedeianus</u>	47	95	-
<u>L. hoffmeisteri</u>	3006	3095	1928
<u>L. udekemianus</u>	24	73	99
<u>Gammarus fasciatus</u>	19	2	137
<u>Chironomus decorus</u>	147	9	6661

TABLE 14
(Ref.No.43)

Estimates of biomass of selected taxa (by weight), March through May 1979. Dashes indicate species not present. Weight in mg.

	March	April	May
TM-AQI-1A1 (No.1)			
<u>Limnodrilus hoffmeisteri</u>	28.6	112.7	65.9
<u>Gammarus fasciatus</u>	20.3	19.4	1.7
<u>Chironomus decorus</u>	21.7	7.1	697.1
<u>Goniobasis virginica</u>	2360.6	6210.1	1899.3
TM-AQI-1A2 (No.2)			
<u>Limnodrilus hoffmeisteri</u>	184.6	296.3	371.7
<u>Gammarus fasciatus</u>	396.7	47.0	32.4
<u>Chironomus decorus</u>	649.1	277.9	1027.4
<u>Goniobasis virginica</u>	1373.4	4721.4	1813.1
TM-AQI-11A1 (No.3)			
<u>Limnodrilus hoffmeisteri</u>	480.4	887.8	1218.1
<u>Gammarus fasciatus</u>	264.9	59.1	105.6
<u>Chironomus decorus</u>	257.8	245.5	1687.6
<u>Goniobasis virginica</u>	-	190.9	1000.9
TM-AQI-11A2 (No.4)			
<u>Limnodrilus hoffmeisteri</u>	453.7	746.0	1342.4
<u>Gammarus fasciatus</u>	257.7	16.8	109.2
<u>Chironomus decorus</u>	229.4	327.0	358.2
<u>Goniobasis virginica</u>	-	570.4	2995.5
TM-AQI-9B1 (No.5)			
<u>Limnodrilus hoffmeisteri</u>	998.6	1391.0	888.9
<u>Gammarus fasciatus</u>	39.5	0.9	48.2
<u>Chironomus decorus</u>	126.7	-	1707.0
<u>Goniobasis virginica</u>	-	250.0	4192.1

B. Fishes

The fish community of York Haven Pond is sampled by means of trapnet, seine, electroshocker, and plankton net. Additionally, samples are collected at the two intake structures for ichthyoplankton entrainment and fish impingement. Fifty-six species of fishes have been recorded during studies conducted between 1974 and 1978 (Table 15) ^{15/}.

Trapnetting is conducted for four twenty-four hour periods per month at four stations along the west shore of Three Mile Island. Two of the stations are located downstream of the discharge, one at 20m and the other at 200m, which could be potentially under the immediate influence of the effluent plume. The 20m station is reported to receive strong current and turbulence from the discharge ^{15/}. A third station is located upstream near St. John's Island and a fourth station is located 1900m downstream of the discharge. During 1977 and 1978, 26 and 24 species respectively were collected by trapnet ^{14/ 15/}. Catches were dominated by pumpkinseed, black crappie, white crappie, channel catfish, carp, rock bass, and quillback. Catches generally were low in the spring and increased to maxima during summer and fall. During the months of March and April 1975-1978, catches have not always shown an overwhelming dominance of a species, but generally the most abundant fishes have been channel catfish, rock bass, pumpkinseed, quillback, and spottail shiner. Catch differences (numbers, species composition) among stations during March and April have not been dramatic in most cases. Those instances

where obvious difference existed which involved the stations close to the discharge are summarized as follows:

1975 -

April 9-11: of 56 total specimens taken at four stations, 31 specimens were taken at the station nearest the discharge; 24 of 38 channel catfish were captured at the discharge station (20m station).

1976 -

March 15-17: of 21 total specimens captured at four stations, none were taken at the station nearest the discharge (20m) and only 1 specimen was taken at the 200m station.

March 29-31: of 21 total fish taken, none were taken at the 20m station.

April 13-15: of 31 total fish taken, 18 were at the 20m station; spottail shiner and channel catfish were taken only at the 20m station.

1977 -

March 9-11: 12 of 21 total specimens were taken at the 20m station; rock bass were taken only at the 20m station.

March 29-31: 5 of 6 total specimens were taken at the 20m station, 3 were channel catfish and one each of pumpkinseed and yellow perch.

Historically, then, March-April catches by trapnet have not shown dramatic differences among stations. When differences did occur, catches were sometimes much less at the discharge station suggesting a possible avoidance by fishes. When catches were greater at the discharge stations, channel catfish were often dominant.

During 1979, trapnetting was not conducted during January and February due to ice and high river flow ^{41/ 42/}. Sampling was conducted on March 20-22 ^{22/} and captured 25 fishes of nine species. Walleye, channel catfish, rock bass, and white crappie were most abundant. Sampling during April (9-11 and 18-20) ^{23/} resulted in the capture of 31 fishes of 10 species, with shorthead redhorse, channel catfish and walleye most numerous. No apparent patterns existed for species abundance or composition with respect to the discharge plume stations. Species taken at the stations 20m and 200m downstream of the discharge included white sucker, marginated madtom, rock bass, redbreast sunfish, smallmouth bass, walleye, northern hog sucker, shorthead redhorse, and spottail shiner. During the subsequent months, trapnet catches increased to 108 fishes of 10 species in May ^{24/} with pumpkinseed, white crappie and rockbass dominating. In June ^{44/} 116 fishes of 15 species were taken with rock bass, pumpkinseed, and black crappie most numerous. The most numerous

species at the plume stations were pumpkinseed and rock bass. Trapnet catches during 1979 did not show any aberrant patterns or trends compared with previous years' data. Catches were relatively low in March and April and increased through May and June.

Seining is conducted twice per month at ten stations throughout the site vicinity. Four stations are located on the west shore of Three Mile Island downstream of the discharge at distances of 150m, 1100m, 1500m, and 2000m (near the dam) ^{15/}. Total seine catches from all stations have ranged from 6,574 fishes of 30 species in 1975 ^{12/} to 51,297 fishes of 38 species in 1978 ^{15/}. Catches have been dominated by spotfin shiner, spottail shiner, tessellated darter, white sucker, bluntnose minnow, channel catfish, and quillback. Generally, catches have been relatively low during March-May with yearly peaks in June. During the months of March and April, catches have been dominated by spotfin shiner, spottail shiner, and bluntnose minnow. On numerous occasions during 1975, 1976, and 1977 catches were noticeably larger at the station 150m downstream of the discharge than at other stations on the west shore of Three Mile Island with spotfin shiner, spottail shiner, and bluntnose minnow dominating.

During 1979, seining was not conducted during January and February due to ice and high river flows ^{41/ 42/}. Sampling was conducted on March 16 and captured 946 fishes of 13 species, with spotfin shiner and bluntnose minnow dominating ^{22/}. Only 104 of the 946 fishes were taken at the

stations on the west shore of Three Mile Island, with most fishes caught in the east channel and west channel of the river. Sampling in April (10th and 16th) captured 1111 fishes of 11 species, with spotfin shiner, spottail shiner, and bluntnose minnow dominating ^{23/}. Only 29 of the 1111 fishes were taken at the stations on the west shore of Three Mile Island, with most fishes (806) caught in the east channel. Similar patterns of higher abundance in the east and/or west channels also occurred on several sampling dates during March and April of 1977 ^{14/} and April of 1978 ^{15/}. On April 10, 1979 only four fishes were taken downstream of the discharge, all at the 1100m station. On April 16 fishes were taken at all of the downstream stations except that at 1500m. Species taken at the stations 150m and 1100m downstream of the discharge included spotfin shiner, spottail shiner, rosyface shiner, comely shiner, tessellated darter, and blacknose dace. During the subsequent months, seine catches increased to 2199 fishes of 22 species in May, with spottail shiner, spotfin shiner, bluntnose minnow, and pumpkinseed most numerous ^{24/}. Of the 2199 fishes collected in May, 346 fishes were taken at the station 150m downstream of the discharge, with spottail shiner, spotfin shiner, and bluntnose minnow the most abundant species. In June 22,834 fishes of 30 species were captured ^{44/}. Juvenile white sucker dominated the catches (45% of total fish caught), along with spottail shiner, spotfin shiner, tessellated darter and fallfish at all stations. 4844 fishes were taken at the 150m downstream station during June. In general, the species composition and patterns of abundance in 1979 were similar to those of previous years. During early April 1979, few fishes

were taken downstream of the discharge, but by mid-April abundance began increasing and continued to do so through June.

Electrofishing is conducted twice per month at 12 stations throughout the site vicinity. Four stations are located on the west shore of Three Mile Island. One extends from the discharge to a point 500m downstream, another is sampled between 1500 and 2000m downstream from the discharge, and two stations are sampled upstream of the discharge ^{15/}. Total catches were 7,054 fishes of 26 species in 1977 ^{14/} and 7,522 fishes of 31 species in 1978 ^{15/}. Overall, catches have been dominated by smallmouth bass, pumpkinseed, rock bass, redbreast sunfish, quillback, carp, and walleye. No consistent trends in overall abundance have been evident, but catches have often been highest during spring and fall. During the months of March and April, catches have been dominated by smallmouth bass, pumpkinseed, quillback, redbreast sunfish, carp, rock bass and walleye. No distinct patterns or trends of differing fish distributions have been apparent with respect to the discharge effluent.

During 1979, electrofishing was not conducted during January and February due to ice and high river flows ^{41/ 42/}. Sampling on March 19 and 20 captured 140 fishes of 13 species with carp, walleye, rock bass, and quillback dominating ^{22/}. Sampling in April (10th-11th and 23rd-24th) captured 1022 fishes of 24 species, with shorthead redhorse, walleye, rock bass, quillback, smallmouth bass, and pumpkinseed dominating ^{23/}. No differing patterns or trends in abundance or distributions were

evident for fishes near the discharge, although in the latter April sampling more specimens (128) were collected at the discharge station than at other stations sampled. Species taken during March and April 1979 at the station extending from the discharge downstream for 500m included walleye, shorthead redhorse, quillback, smallmouth bass, white sucker, rock bass, pumpkinseed, redbreast sunfish, carp, and bluegill. During the months following, catches decreased to 726 fishes of 17 species in May ^{24/} and 596 fishes of 22 species in June ^{44/}, with rock bass, smallmouth bass, walleye, and quillback dominating. In general, the patterns of species composition, abundance, and distribution in 1979 were similar to previous years.

Ichthyoplankton is sampled via plankton net once per week at 14 stations throughout York Haven Pond. Four stations are located along the west shore of Three Mile Island, two upstream of the discharge, one 200m downstream of the discharge, and one 200m upstream of the York Haven Dam ^{15/}. During 1976-1978, fish larvae have first appeared in samples in mid-to-late-April with peak densities occurring about one month after the first larvae were taken, generally late May to mid-June ^{15/}. The most abundant species have been carp, spottail shiner, spotfin shiner, quillback, channel catfish, pumpkinseed/bluegill, tessellated darter, and banded darter. In 1977 and 1978 respectively, 30 and 32 total species were recorded from ichthyoplankton samples. Generally, the east and west channels yielded the highest densities of larvae. Carp, quillback, and

banded darter have been in relatively high abundance along the west shore of Three Mile Island.

During 1979, ichthyoplankton sampling began in April and was conducted on the 10th, 17th and 24th. Sampling was not undertaken during the first week of April due to the accident at the nuclear station 23/. No larvae were collected in 56 samples on April 10. One shield darter larva was collected during each of the samplings on April 17 and 24 23/. Both larvae were collected in the west channel. During the months following, larval catches increased to a peak in mid-May (4,746 larvae taken on May 15-16) 24/, with a secondary peak on June 5-6 44/. Species taken included spottail shiner, quillback, white sucker, tessellated darter, banded darter, shield darter and walleye. Darters dominated during the sampling on May 1 and suckers on May 8 24/. In general, patterns of ichthyoplankton abundance in 1979 (April-June) were similar to previous years. Fish larvae were not captured in the center channel near the nuclear station during April 1979.

In summary, the overall patterns of the fish community in the vicinity of Three Mile Island Nuclear Station during 1979 (March-June) were similar to those of previous years. Levels of abundance and species composition during the months immediately following the March 28 nuclear accident were not noticeably different from previous years and generally were on the increase throughout the spring months, as usual. Fish spawning produced peak larval abundances in May and June, per the normal pattern.

Sampling by several gear types in the immediate plume area documented the presence of many species, including rough (carp, suckers), forage (shiners, darters), and predator/sprot fishery (walleye, bass, sunfishes) species. An absence of significant immediate effects with respect to the nuclear accident is in keeping with the facts that the non-radiological aspects of station operating conditions during and following the accident did not deviate from those of normal operation.

TABLE 15
(Ref.No.15)

List of scientific and common names of fishes recorded from the Susquehanna River near TWINS.

Scientific Name	Common Name
Amiidae	Howfin
<i>Amia naja</i> Linnaeus	Howfin
Anguillidae	Freshwater eels
<i>Anguilla rostrata</i> (Leaueur)	American eel
Clupeidae	Herrings
<i>Alosaestivalis</i> (Mitchill)	Blueback herring
<i>Alosa pseudoharengus</i> (Wilson)	Alewife
<i>Alosa sapidissima</i> (Wilson)	American shad
<i>Coregonus nasus</i> (Leaueur)	Gizzard shad
Salmonidae	Trouts
<i>Salmo gairdneri</i> Richardson	Rainbow trout
<i>Salmo trutta</i> Linnaeus	Brown trout
<i>Salvelinus fontinalis</i> (Mitchill)	Brook trout
Esoxidae	Pikes
<i>Esox lucius</i> Linnaeus	Northern pike
<i>Esox masquinomy</i> Mitchell	Muskellunge
<i>Esox nax</i> Leaueur	Chain pickerel
Cyprinidae	Minnows and carps
<i>Carassius auratus</i> (Rafinesque)	Stoneroller
<i>Carassius auratus</i> (Linnaeus)	Goldfish
<i>Cyprinus carpio</i> Linnaeus	Carp
<i>Emmelania emmeliana</i> (Leaueur)	Cutlips minnow
<i>Notropis microstomus</i> (Cope)	River chub
<i>Notropis strimlingi</i> (Mitchill)	Golden shiner
<i>Notropis maculatus</i> (Abbott)	Common shiner
<i>Notropis cornutus</i> (Mitchill)	Common shiner
<i>Notropis heterodon</i> (Cline)	Speckled shiner
<i>Notropis pygmaeus</i> (Cope)	Shadtail shiner
<i>Notropis rubellus</i> (Agassiz)	Rockyface shiner
<i>Notropis spilargenteus</i> (Cope)	Speckle shiner
<i>Notropis spilargenteus</i> (Cope)	White shiner
<i>Minichthys reticulata</i> (Rafinesque)	Bluntnose minnow
<i>Minichthys reticulata</i> (Rafinesque)	Fathead minnow
<i>Minichthys reticulata</i> (Rafinesque)	Blacknose dace
<i>Minichthys reticulata</i> (Rafinesque)	Longnose dace
<i>Minichthys reticulata</i> (Rafinesque)	Creek chub
<i>Minichthys reticulata</i> (Rafinesque)	Valley fish
Caracanthidae	Suckers
<i>Caracanthus caracanthus</i> (Leaueur)	Quillback
<i>Caracanthus caracanthus</i> (Leaueur)	White sucker
<i>Caracanthus caracanthus</i> (Leaueur)	Northern hog sucker
<i>Caracanthus caracanthus</i> (Leaueur)	Shorthead redhorse
Leuciscidae	Freshwater catfishes
<i>Leuciscus carpio</i> (Linnaeus)	White catfish
<i>Leuciscus carpio</i> (Linnaeus)	Yellow bullhead
<i>Leuciscus carpio</i> (Linnaeus)	Brown bullhead
<i>Leuciscus carpio</i> (Linnaeus)	Channel catfish
<i>Leuciscus carpio</i> (Linnaeus)	Marginal madtom
Cyprinodontidae	Killifishes
<i>Cyprinodon diabolus</i> (Leaueur)	Sanded killifish
Perichthyidae	Temperate basses
<i>Perichthys tatarica</i> (Walbaum)	Striped bass
Centropomidae	Sunfishes
<i>Centropomus americanus</i> (Rafinesque)	Rock bass
<i>Centropomus americanus</i> (Rafinesque)	Redbreast sunfish
<i>Centropomus americanus</i> (Rafinesque)	Green sunfish
<i>Centropomus americanus</i> (Rafinesque)	Pumpkinseed
<i>Centropomus americanus</i> (Rafinesque)	Bluegill
<i>Centropomus americanus</i> (Rafinesque)	Smallmouth bass
<i>Centropomus americanus</i> (Rafinesque)	Largemouth bass
<i>Centropomus americanus</i> (Rafinesque)	White crappie
<i>Centropomus americanus</i> (Rafinesque)	Black crappie
Peridae	Perches
<i>Perca flavescens</i> (Storer)	Tessellated darter
<i>Perca flavescens</i> (Storer)	Sanded darter
<i>Perca flavescens</i> (Storer)	Yellow perch
<i>Perca flavescens</i> (Storer)	Shield darter
<i>Perca flavescens</i> (Storer)	Walleye

C. Fish Disease, Parasites, and Mortalities

Fish disease and mortality conditions in the Susquehanna River near Three Mile Island have been recognized and were reviewed with respect to the operation of the nuclear station 6/ 45/. Mortalities during the spring are not unusual and may be related to several causes, natural and man made 45/. Mortalities of approximately 200 and 300 fishes were observed during the springs of 1974 and 1975 respectively 6/, but were not attributable to operation of Three Mile Island Nuclear Station 45/.

During routine farfield sampling from 1975-1978, observations of diseased, parasitized and dead fishes were maintained and reported in the annual reports of ecological studies. These observations are summarized in Table 16 and include:

- (1) Fish leeches - Myzobdella lugubris and Placobdella montifera.
- (2) Parasitic copepods - Lernaea sp.
- (3) Fish louse (branchiuran) - Argulus catostomi
- (4) Blackspot disease - metacercariae of digenetic trematodes, unspciated.
- (5) Spiny - headed worm - acanthocephalan sp.
- (6) Myxosporidian protoza - Thelohanellus sp. (as subdermal cysts).
- (7) Nematodes - unspciated (encysted).
- (8) Abnormalities.
- (9) Observations of dead fish encountered while sampling.

The occurrence of diseased or parasitized fishes usually has been low during spring, with increases to peaks during August-September, and decreases during October-December ^{14/ 15/}. Fishes found dead and floating in the water have occurred during the spring, April-June ^{14/ 15/}. During the four years of observations, no patterns of diseases, parasites, or mortalities have been noted with respect to the location of affected fishes and the nuclear station.

During farfield sampling in 1979 (March-June), parasitized fishes were observed and the data are summarized in Table 17. Generally, the patterns of parasite occurrence during the spring months of 1979 were similar to those of previous years, with blackspot, copepods, and leeches most common. Blackspot was the most common parasite noted in the spring of 1979 and was most prevalent on spotfin shiner and other shiners and minnows, as in previous years. During April and May of 1978, blackspot infections were described as "slight to moderate" and were most prevalent on spotfin shiner ^{15/}. Copepods of the genus Lernaea are non-specific parasites ^{46/}, as evidenced by their infestation on several different species during 1976-1978 (Table 16). Lernaea is active only during warm seasons, with temperatures above 18°C favoring the organism, and the optima being 22°-30°C ^{46/}. Parasitic copepods were less prevalent in 1979 than previous years, which might be related to water temperature, since the favorable 18°C was not reached until late May 1979 ^{24/}. Studies in the North Branch of the Susquehanna River also have revealed the presence of fish parasites and seasonal occurrences similar to some

noted near Three Mile Island ^{47/ 48/}. During 1973, for example, approximately 85% of the fishes examined in the North Branch were infected with one or more of 40 species of parasites, including copepods (Lernaea), branchiurans (Argulus), leeches, nematodes, trematodes, and acanthocephalans ^{47/}. It was noted that most parasites did not produce notable pathogenic symptoms in fish ^{47/}.

Dead fishes observed while sampling during the spring of 1979 included 29 fishes in May and 47 fishes in June, with smallmouth bass the most numerous (Table 17). No dead fishes were reported in April immediately following the nuclear accident ^{23/} and no unusual biological events or fish kills were observed by biologists while sampling on the river during early April ^{49/ 50/}. The numbers seen dead in May and June 1979 (total of 76) were less than observed during 1977 and 1978, but involved similar species (Table 16). These general findings were also confirmed by the Pennsylvania Fish Commission Waterway Patrolman who patrols southern Dauphin County and the Three Mile Island vicinity ^{53/}. The mortalities observed during the springs of 1974 and 1975 also included similar species - smallmouth bass, sunfishes, and channel catfish ^{45/}. Annual mortalities of fishes also have been noted in the Conowingo Reservoir of the Susquehanna River downstream of Three Mile Island ^{45/}. Most dead fishes have occurred there during May and June and have included channel catfish, carp, guillback, white catfish, brown bullhead, eel, bluegill, pumpkinseed, largemouth bass, white crappie, and walleye.

Parasite and mortality conditions of fishes were observed in the York Haven Pond near Three Mile Island during the period March-June 1979. The observed conditions do not appear to be unusual for that period and generally follow trends previously noted for the area. Conditions of parasitism and spring mortalities are not unique to York Haven Pond and have been observed in other areas of the Susquehanna River upstream and downstream of the Three Mile Island site vicinity. It therefore appears probable that station operating conditions during and following the accident did not contribute to unusual disease or mortality conditions of fishes in the site vicinity.

Table 16. Records of diseased, parasitized, and dead fishes observed during 1975-1978 in the Susquehanna River near Three Mile Island Nuclear Station.

<u>Year</u>	<u>Disease or Mortality Condition</u>	<u>Species Involved (Nos & months, if recorded)</u>
1975 <u>12/</u>	Fish leech	Channel catfish, sunfishes, tessellated darter; common parasite.
	Copepods	Spottail shiner (23), bluntnose minnow (1), bluegill (1); August.
	Blackspot	Spottail shiner (1), spotfin shiner (1).
	Spiny - headed worm Fish louse	Tessellated darter (1); May. Redbreast sunfish (1), Common shiner (1); June.
1976 <u>13/</u>	Fish leech	Tessellated darters; common parasite, August-October, Channel catfish (1).
	Copepods	Comely shiner, spottail shiner, spotfin shiner, bluntnose minnow, smallmouth bass, bluegill; (few specimens each).
	Blackspot	Creek chub (1).
1977 <u>14/</u>	Fish leech	Channel catfish (2), rock bass (1), redbreast sunfish (1), tessellated darter (38)-May to September; spottail shiner (3)-Sept-Nov.; carp(1).
	Blackspot	Common shiner, spotfin shiner, blacknose dace, fallfish, quillback, (few specimens each).
	Copepods	Stoneroller, carp, spottail shiner, spotfin shiner, bluntnose minnow, fallfish, white sucker, shorthead redhorse, rock bass, redbreast sunfish, pumpkinseed, smallmouth bass, black crappie, tessellated darter.

Table 16 (Continued)

	Myxosporidian protozoa	Comely shiner, bluntnose minnow; Common in July.
	Dead Fish (153)	Smallmouth bass (105), shorthead redhorse (10), channel catfish (8), suckers (10), rock bass (5), blueback herring (6), carp (4), fallfish (3), pumpkinseed (1), redbreast sunfish (1); April and May.
1978 <u>15/</u>	Fish leech	White catfish, channel catfish, rock bass, redbreast sunfish, black crappie, spottail shiner, tessellated darter; (few specimens each).
	Copepods	Channel catfish, rock bass, white crappie, redbreast sunfish, pumpkinseed, black crappie.
	Nematode	Margined madtom (1), December.
	Dead fish (190)	Smallmouth bass (148), Channel catfish (13), Suckers (17), Carp (3), rock bass (3), redbreast sunfish (2), bluegill (1), quillback (1), yellow bullhead (1), unidentified sunfish (1); most occurred in June.
	Blackspot	Spotfin shiner (54), April-May; bluntnose minnow, Oct-Dec.
	Myxosporidian protozoa	Bluntnose minnow, comely shiner.
	Spinal deformity	Smallmouth bass.
	Nematode	Smallmouth bass.

Table 17. Records of diseased, parasitized, and dead fishes observed during 1979 (March-June) in the Susquehanna River near Three Mile Island Nuclear Station.

Month	Disease or Mortality Condition	Species Involved (Numbers & gear type)
March ^{22/}	Nematode Fish leech	Marginated madtom (2)-trapnet. Smallmouth bass (1)-trapnet.
April ^{23/}	Nematode Black spot	Tessellated darter (4). Spotfin shiner (33), mimic shiner (2), bluntnose minnow (9), blacknose dace (6) - all taken by seine.
May ^{24/}	Blackspot Copepods Fin rot Dead fish (29)	Common shiner (1), spotfin shiner (69), bluntnose minnow (14) - seine. Quillback (1) - seine. Quillback (1), shorthead redhorse (1) - seine. Smallmouth bass (16), channel catfish (6), shorthead redhorse (4), rock bass (1), carp (1), sunfish sp. (1) - only 2 specimens taken downstream of discharge.
June ^{44/ 55/}	Blackspot Copepods Fish leech Jaw deformity Dead fish (47)	Spotfin shiner (86), golden shiner (1), common shiner (1) - seine. Redbreast sunfish (1) - trapnet. Spotfin shiner (3) - seine. Rock bass (1) - trapnet. Rock bass (1) - seine. Spotfin shiner (1) - seine. Smallmouth bass (25), shorthead redhorse (8), carp (1), white sucker (2), northern hog sucker (3), unidentified suckers (2), channel catfish (3), rock bass (3).

D. Recreational Fisheries

The recreational fisheries of the Three Mile Island site vicinity have been studied since 1974 and reported in the Annual 11/ 12/ 13/ 14/ 15/ and Supplemental 39/ 40/ 57/ Reports to NRC. Between-year comparisons are summarized in the 1978 Annual Report 15/. Creel surveys have been conducted on two weekends days and two weekdays per month in four areas: the general reservoir (including the waters of the east, center, and west channels from Fall and Hill Islands to the north to Bashore Island and the York Haven Dam to the south; Figure 2); the east dam; the York Haven Dam; and the York Haven Generating Station (hydroelectric) tailrace 15/.

The total estimates of recreational fishing in the site vicinity during 1977 and 1978 (January-December) were:

	Total Anglers	Total Fish caught	Total Fish kept(%)	Total Hours fished	CPUE (fish/hr)
1977 <u>14/</u>	<u>7,791</u>	<u>12,089</u>	<u>5,341</u> (44.2%)	<u>14,773</u>	<u>0.82</u>
1978 <u>15/</u>	14,089	27,979	9,490 (33.9%)	27,992	1.00

The species caught in greatest numbers overall in 1977 and 1978 respectively were: smallmouth bass (32% and 42%); channel catfish (28% and 24%); walleye (10% and 11%); rock bass (10% and 9%); sunfishes (10% and 5%); carp (7% and 4%); and suckers (1% and 1%). The bulk of the

harvests in the general reservoir during 1977 and 1978 respectively were: smallmouth bass (44% and 61%); channel catfish (25% and 13%); sunfishes (15% and 14%); rock bass (15% and 9%); and others. Smallmouth bass, rock bass and sunfishes (predominantly bluegill, pumpkinseed and redbreast) have been caught in greater numbers in the reservoir than at either dam or the York Haven tailrace. Walleye and channel catfish have been taken in greater numbers at the tailrace than at other locations. The reservoir has accounted for approximately 36% and 31% of the fishes caught in the area during 1977 and 1978 respectively, for 29% and 40% of the total anglers, and for 29% and 44% of the total hours fished. A summary of the creel survey data for the reservoir during the period 1974-1978 is presented in Table 18 15/. Overall during 1977 14/ and 1978 15/, smallmouth bass catches were greatest during May-June, rock bass during May, channel catfish during July, walleye during May, and sunfishes during June-July. Good fishing (by boat) apparently also occurs near the nuclear station discharge for channel catfish (many greater than 20 inches long), with catches of walleye and muskellunge also 53/. Fishing occurs there primarily at night and continues yearround except for winter months during ice conditions 53/.

During 1979, creel surveys were conducted four times per month in January and February at the York Haven Generating Station only, due to ice and high river flows 41/ 42/ and during mid-March through July at all survey areas 22/ 23/ 24/ 44/ 55/. Following the Three Mile Island accident, surveys were conducted on April 16, 21, 26, and 29 33/. Creel survey

results for March-July 1979 are summarized in Tables 19 and 20. During that four month period, 63-82% of the anglers interviewed resided in York and Dauphin Counties, Pennsylvania, and most reported that they ate some of their catches.

Fishing in the general reservoir following the accident showed some interesting contrasts. The number of anglers interviewed during April-July were within the range of numbers reported during previous years (Tables 18, 19), but the hours fished were greater in April than in previous years and in the high-normal range during May-July. The numbers of anglers who fished the reservoir compared with the total numbers for all fishing areas surveyed were the lowest on record for April and May 1979 and within the historical ranges during June and July (Table 24). The relative numbers of hours fished on the reservoir were within historical levels for all post-accident months. The catch-per-effort (fish caught per angler-hour) was low-to-low-normal during April-June and a record high during July. The percentages of fish caught in the reservoir which were kept (actual harvest) by the anglers were the lowest on record for each post-accident month (Figure 3). During April, no fish were kept, all were returned. This is contrasted with the historical proportion harvested (Table 21) which has been as high as 85.7% during April. The composition of the recreational catches and harvests during March-July 1979 in the reservoir was primarily smallmouth bass, sunfishes, rock bass, and channel catfish (Table 22), as per historical trends. The relative contributions of the general reservoir to the total catches and harvests at all four locations

in the Three Mile Island vicinity during 1974-1979 are presented in Table 23. During previous years (1974-1978) no consistent annual patterns or trends existed with respect to the percent contribution of the reservoir to the total area catches and harvests during the months of April-July (Table 23), although the 5-year mean values for each month showed a generally increasing trend from April-July (Figure 4). During 1979 the percent contributions of the reservoir catches were the lowest on record in April and increased to historical levels during May-July. The percent contribution of the reservoir harvests (fishes actually kept by anglers) were the lowest on record during the post-accident months of April-June 1979 and did not reach historical levels until July (Table 23).

These data suggest that immediately following the 1979 accident, anglers were fishing relatively less and keeping fewer fishes from the reservoir than during previous years. During subsequent months, anglers slowly and steadily returned to near normal activities in the reservoir. Even three months post-accident, however, the relative harvests from the reservoir were still lower than any during the previous five years, and four months post-accident the percentages harvested from the reservoir itself were the lowest in six years of sampling.

Fishing in other creel survey areas of the Three Mile Island vicinity apparently increased somewhat following the accident (Tables 19 and 20). The numbers of anglers and fish caught at each dam and the tailrace were higher in April 1979 than during any previous April since 1974.

Similarly, the hours fished and catches-per-effort were either record highs or high-normal levels for those areas during April 1979. Only at the tailrace area was the percent harvested in April at a record low. The number of anglers at the York Haven Dam and the tailrace during May also were record highs. During June the percents harvested were record lows for all four survey areas.

The differences between the catches and harvests for the post-accident months of 1979 and those of corresponding months for 1974 through 1978 (as shown in Figures 3 and 4) were tested for statistical significance by analysis of variance which did not detect any differences attributable to year, month, or year-by-month interaction. A high degree of variability existed within the monthly data, however, which could have masked any real significant differences. In an attempt to reduce or stabilize the variance, the analysis was re-run using square root transformed data, and again statistically significant differences were not detected. The variability of the data could be the result of truly variable phenomena of catch and harvest or the result of a creel survey program which did not sample frequently enough to reduce the data variability of truly less variable phenomena.

Even though statistically significant differences were not detected between fishery parameters of 1979 and previous years, it is apparent that the recreational fishery was different following the accident than during corresponding periods preceding the accident. Post-accident recreational fishing in the Three Mile Island vicinity apparently was most altered in the reservoir, which contains the Island and the nuclear station. Fishing was not curtailed, but rather appeared to partially shift emphasis from

the reservoir to other areas, especially near the York Haven Dam and in the hydrostation tailrace. Whether there was an actual shift in areas fished or merely an avoidance of the reservoir (anglers who normally fish there stayed home) is uncertain, but record increases during April in the numbers of anglers, fish caught, hours fished, and catches-per-effort at most of the other areas surveyed suggests that a shift occurred immediately following the accident. Anglers apparently were fishing relatively less in the reservoir and those who did fish there were returning greater proportions of their catches than during any corresponding time period in the previous five years.

Several factors could have contributed to the observed differences. If the sizes of some desirable fishes were smaller than normal during 1979, then harvests might have been lower than normal. Size data were not presented in the monthly reports, thus between year comparisons are not possible at this time. Weather conditions can influence angler activity, but during 1979 the weather conditions on creel survey days were not severe and do not appear to have been substantially different from previous years. High angler activity at the dams and tailrace during 1979 suggest that fishing was not restricted by weather. The noted differences in fishery catches and harvests were not the result of impacts to the fish populations from the accident, but rather appear to have been due to altered fisherman behavior following the accident. Such alterations probably were related to the fishermen's knowledge of the occurrence of the accident and to their awareness of the liquid releases of industrial wastes to the river from the various station systems, as discussed in previous sections. Since fishing patterns changed following the accident, some anglers apparently missed a portion of the spring fishing in the reservoir which provides good local fishing for species such as smallmouth bass, rock bass, and sunfishes. With time following the accident, the patterns of recreational fishing returned to normal or near-normal.

TABLE 18
MONTHLY SUMMARIES OF CREEL SURVEY DATA COLLECTED FROM THE
GENERAL RESERVOIR DURING THE PERIOD 1974-1978. (Ref.No.15).

	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total May-Dec	TOTAL
Anglers												
1978	NO SURVEY	34	90	234	111	170	147	80	28	1	861	898
1977	-	50	54	90	49	50	49	14	-	-	306	356
1976	18	43	124	188	122	148	71	4	5	NO SURVEY	662	723
1975	17	28	70	67	91	58	117	7	10	-	420	465
1974	NO SURVEY		113	124	143	113	83	141	14	-	733	733
Fish Caught												
1978	NO SURVEY	62	107	328	207	247	234	126	86	-	1335	1397
1977	-	38	131	118	107	176	81	14	-	-	647	645
1976	4	17	180	287	237	423	173	18	-	NO SURVEY	1300	1321
1975	1	28	74	105	139	113	299	6	1	-	737	764
1974	NO SURVEY		179	116	183	141	204	315	6	-	1144	1144
Fish Kept												
1978	NO SURVEY	18	34	107	88	66	115	39	30	-	519	537
1977	-	29	72	61	73	71	30	10	-	-	319	348
1976	3	1	77	94	70	114	42	8	-	NO SURVEY	405	409
1975	-	24	44	84	62	58	123	1	1	-	373	397
1974	NO SURVEY		89	73	88	50	57	140	6	-	525	525
Hours Fished												
1978	NO SURVEY	64.00	158.05	642.80	218.83	334.75	301.20	167.83	63.85	1.00	1868.33	1992.33
1977	-	62.33	116.91	183.23	117.16	132.73	72.73	16.50	-	-	639.32	701.63
1976	22.50	61.25	206.50	371.23	235.25	301.82	126.33	7.50	9.00	NO SURVEY	1257.65	1361.40
1975	16.00	51.50	63.75	118.00	171.00	160.25	249.75	8.25	12.50	-	803.50	871.00
1974	NO SURVEY		157.25	226.50	307.00	221.25	176.50	345.25	8.75	-	1442.50	1442.50
Catch/Effort (h)												
1978	NO SURVEY	0.97	0.68	0.31	0.99	0.74	0.78	0.73	1.35	-	0.71	0.72
1977	-	0.61	1.29	0.84	0.91	1.33	1.11	0.85	-	-	1.01	0.98
1976	0.18	0.38	0.87	0.72	1.01	1.40	1.38	2.40	-	NO SURVEY	1.03	0.98
1975	0.06	0.54	1.16	0.89	0.81	0.71	1.11	0.73	0.08	-	0.92	0.88
1974	NO SURVEY		1.14	0.31	0.60	0.64	1.18	2.21	0.49	-	2.72	2.72

Table 19. Creel survey data from the General Reservoir and East Dam areas of the Three Mile Island site vicinity during March-July 1979.

General Reservoir					
	<u>March</u> <u>22/</u> 2	<u>April</u> <u>23/</u> 45	<u>May</u> <u>24/</u> 106	<u>June</u> <u>44/</u> 158	<u>July</u> <u>55/</u> 138
No. Anglers					
Fish Caught	3	30	105	251	300
Fish kept(%)	3(100)	0(0)	24(22.9)	48(19.1)	86(28.7)
Hrs. Fished	1.50	78.20	176.95	370.35	229.40
c/f(fish/hr)	2.00	0.38	0.59	0.68	1.31
East Dam					
	<u>March</u> <u>22/</u> 20	<u>April</u> <u>23/</u> 72	<u>May</u> <u>24/</u> 75	<u>June</u> <u>44/</u> 50	<u>July</u> <u>55/</u> 28
No. Anglers					
Fish Caught	22	270	121	166	37
Fish kept(%)	0(0)	26(9.6)	22(18.2)	14(8.4)	3(8.1)
Hrs. Fished	43.35	85.40	83.75	89.55	36.90
c/f(fish/hr)	0.51	3.16	1.44	1.85	1.00

Table 20. Creel survey data from the York Haven Dam and York Haven Generating Station Tailrace areas of the Three Mile Island site vicinity during March-July 1979.

York Haven Dam					
	<u>March</u> <u>22/</u>	<u>April</u> <u>23/</u>	<u>May</u> <u>24/</u>	<u>June</u> <u>44/</u>	<u>July</u> <u>55/</u>
No. Anglers	<u>0</u>	<u>22</u>	<u>54</u>	<u>57</u>	<u>20</u>
Fish Caught	0	231	481	329	75
Fish kept(%)	-	10(4.3)	42(8.7)	43(13.1)	16(21.3)
Hrs. Fished	0	37.40	111.75	131.80	31.75
c/f(fish/hr)	-	6.18	4.30	2.50	2.36
York Haven Generating Station					
	<u>March</u> <u>22/</u>	<u>April</u> <u>23/</u>	<u>May</u> <u>24/</u>	<u>June</u> <u>44/</u>	<u>July</u> <u>55/</u>
No. Anglers	<u>64</u>	<u>139</u>	<u>225</u>	<u>177</u>	<u>160</u>
Fish Caught	39	258	335	259	191
Fish kept(%)	15(38.5)	66(25.6)	124(37.0)	72(27.8)	106(55.5)
Hrs. Fished	62.10	240.00	401.65	415.45	246.30
c/f(fish/hr)	0.63	1.08	0.83	0.62	0.78

Table 21. Percentage of the fishes caught that were kept (harvested) by anglers fishing in the Three Mile Island vicinity during the March-July period between 1974-1978. Data compiled from that summarized in Reference No. 15. GR=general reservoir; ED=east dam; YHD=York Haven Dam; YHGS=York Haven Generating Station Tailrace.

<u>1974</u>	<u>March</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>
GR	-	-	49.7	64.7	48.1
ED	-	-	21.4	28.6	54.1
YHD	-	-	48.6	26.7	46.6
YHGS	-	-	34.4	75.7	48.0
<u>1975</u>					
GR	0	85.7	59.5	80.0	44.6
ED	-	57.1	38.4	43.9	15.0
YHD	-	0	29.4	26.2	59.2
YHGS	50.0	66.7	52.0	57.4	76.0
<u>1976</u>					
GR	75.0	5.9	42.8	35.2	29.5
ED	100.	3.0	21.4	21.9	-
YHD	0	0	30.3	35.2	0
YHGS	90.0	56.2	45.5	35.0	31.2
<u>1977</u>					
GR	-	76.3	47.7	51.7	70.1
ED	0	11.9	1.4	62.5	42.9
YHD	-	-	6.1	75.8	34.6
YHGS	50.0	55.6	47.1	48.0	52.8
<u>1978</u>					
GR	-	29.0	31.8	32.6	42.5
ED	-	3.8	6.9	22.4	30.0
YHD	-	0	9.5	33.1	35.2
YHGS	0	49.2	29.6	64.5	53.2

Table 22. Composition of the recreational fishery catch and harvest in the General Reservoir of the Three Mile Island site during March-July 1979.

Species	March <u>22/</u>		April <u>23/</u>		May <u>24/</u>		June <u>44/</u>		July <u>55/</u>	
	Caught	Kept	Caught	Kept	Caught	Kept	Caught	Kept	Caught	Kept
Carp	-	-	1	0	2	1	-	-	-	-
White catfish	-	-	-	-	-	-	1	1	-	-
Brown bullhead	1	1	-	-	-	-	-	-	-	-
Channel catfish	2	2	1	0	12	9	37	5	32	19
Catfish spp.	-	-	-	-	-	-	2	1	-	-
Rock bass	-	-	1	0	9	4	22	10	47	17
Bluegill	-	-	-	-	-	-	1	0	1	1
Pumpkinseed	-	-	-	-	7	5	1	1	-	-
Redbreast sunfish	-	-	-	-	8	2	-	-	5	3
Sunfish spp.	-	-	9	0	28	3	22	6	11	0
Smallmouth bass	-	-	18	0	39	0	160	23	202	45
Black crappie	-	-	-	-	-	-	1	0	-	-
Crappie spp.	-	-	-	-	-	-	3	0	-	-
Yellow perch	-	-	-	-	-	-	1	1	-	-
Fallfish	-	-	-	-	-	-	-	-	1	1
Walleye	-	-	-	-	-	-	-	-	1	0
Total	3	3	30	0	105	24	251	48	300	86

Table 23. Relative contribution (% by number) of the General Reservoir to the total recreational fishery catch and total harvest (numbers kept) from all areas surveyed in the Three Mile Island vicinity during the months of April-July 1974-1979. Data computed from the referenced cited.

	<u>% of Total Caught</u>				<u>% of Total Harvest</u>			
	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>
1974 ^{15/}	-	26.3	24.3	38.4	-	34.8	31.1	38.1
1975 ^{15/}	30.1	14.3	25.6	35.9	32.4	18.3	36.4	27.0
1976 ^{15/}	7.7	34.4	31.1	57.0	2.3	38.3	33.5	56.9
1977 ^{14/}	15.2	42.2	40.1	37.8	24.0	58.1	38.9	50.3
1978 ^{15/}	37.3	8.5	38.9	23.8	36.7	19.7	31.8	22.7
1979	3.8 ^{23/}	10.1 ^{24/}	25.0 ^{44/}	49.8 ^{55/}	0.0 ^{23/}	11.3 ^{24/}	27.1 ^{44/}	40.8 ^{55/}

Table 24. Use of the general reservoir by recreational fishermen expressed as a percentage of the total number of anglers and hours fished for all areas surveyed in the Three Mile Island vicinity during the months of April-July 1974-1979. Data computed from the references cited.

	<u>% of Total Anglers</u>				<u>% of Total Hours Fished</u>			
	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>April</u>	<u>May</u>	<u>June</u>	<u>July</u>
1974 ^{39/}	-	24.4	34.6	38.3	-	21.2	36.7	41.8
1975 ^{40/}	21.5	23.7	20.9	31.5	28.4	14.2	20.1	31.4
1976 ^{57/}	19.7	33.5	46.8	55.2	19.1	35.5	45.3	59.4
1977 ^{14/}	25.1	26.2	41.9	36.6	12.3	31.4	39.9	44.3
1978 ^{15/}	19.0	27.4	44.2	32.6	23.2	25.0	52.3	33.6
1979	16.2 ^{23/}	23.0 ^{24/}	35.7 ^{44/}	39.9 ^{55/}	17.7 ^{23/}	22.9 ^{24/}	36.8 ^{44/}	42.1 ^{55/}

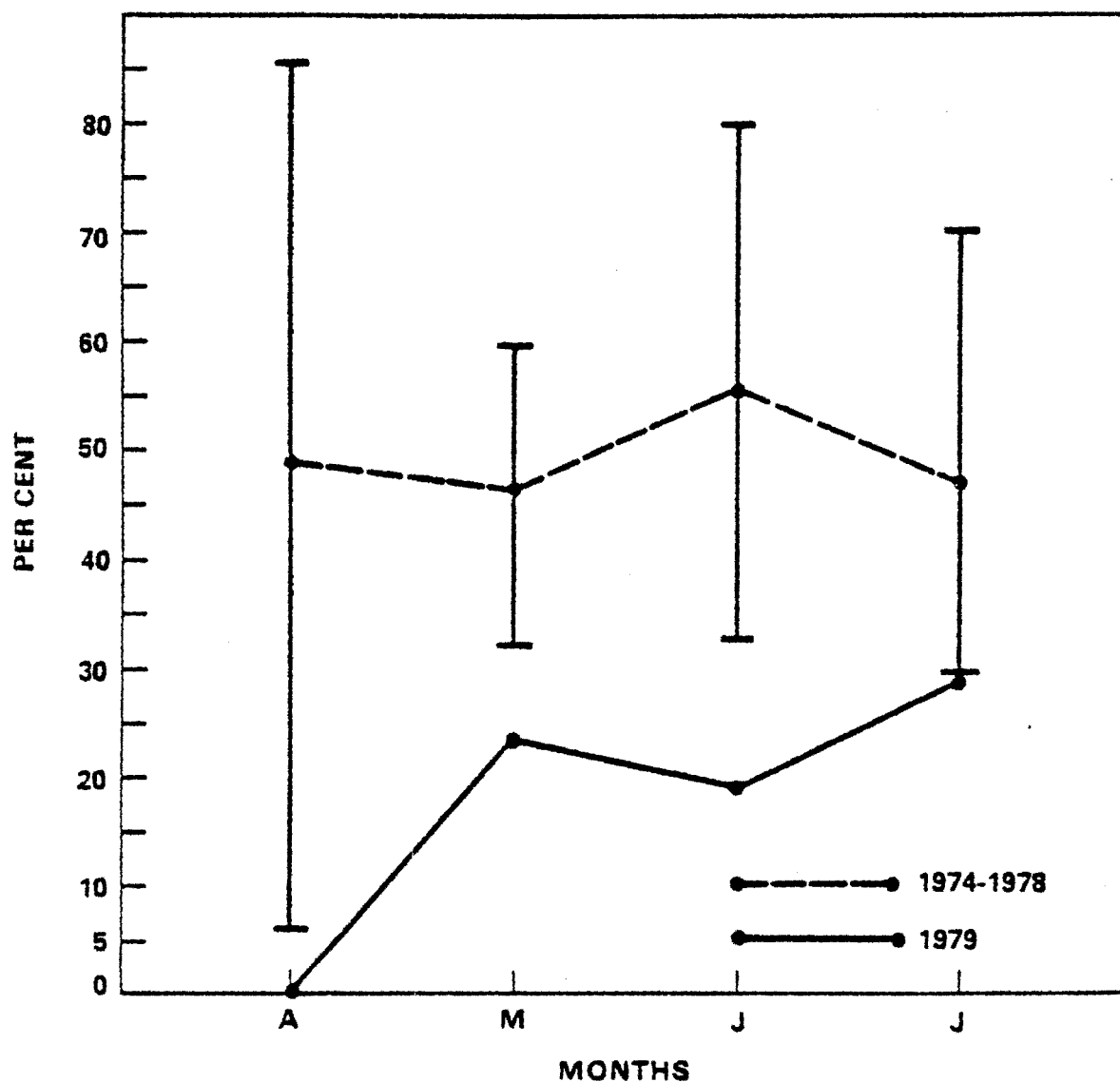


Figure 3. Recreational fishery harvest (% by number of the total fishes caught that were kept) from the general reservoir of the Susquehanna River in the Three Mile Island site vicinity during the months of April through July 1979 (solid line) and 1974-1978 (broken line; showing 5-year mean and range for each month, except April which are 4-year values).

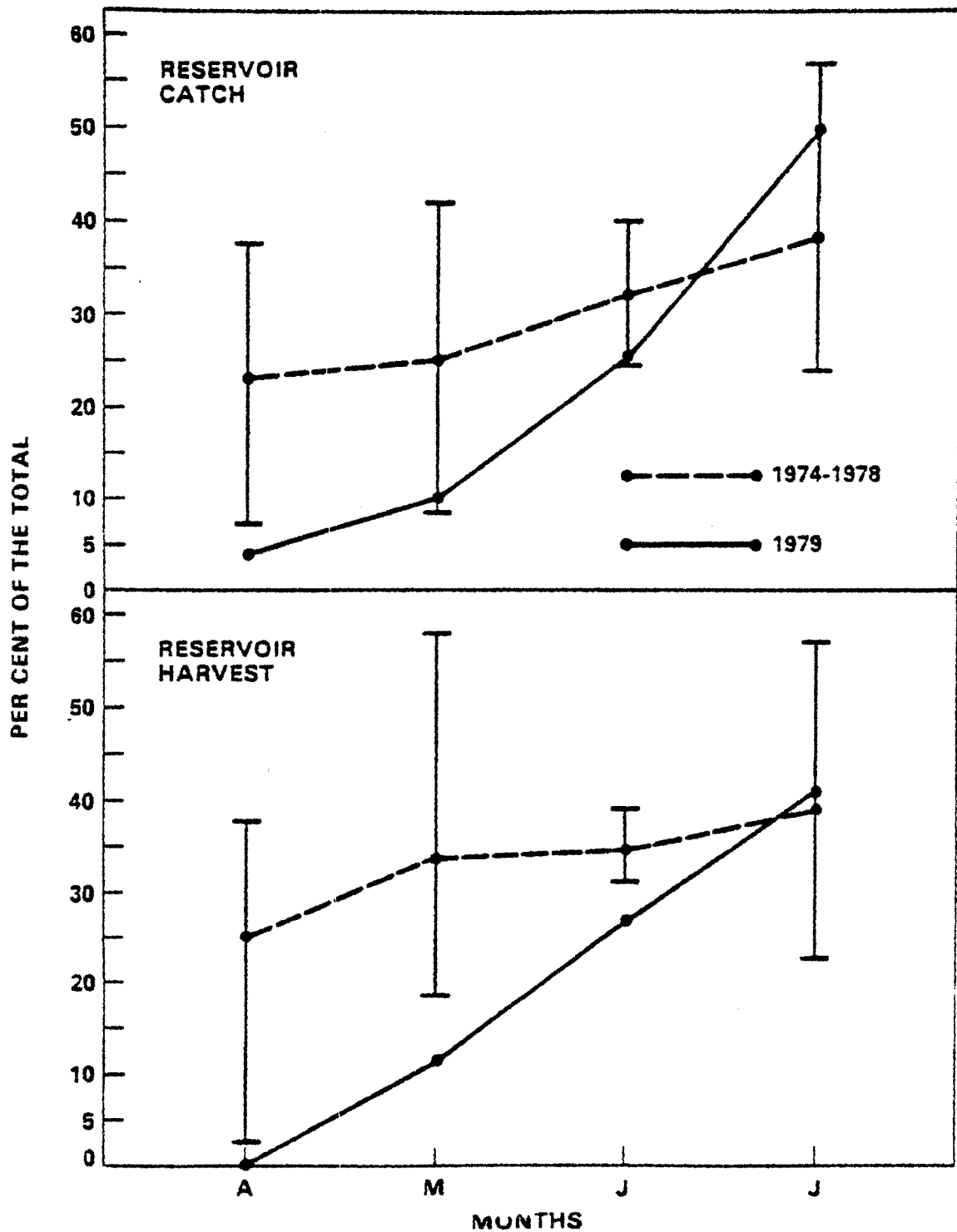


Figure 4. Relative contribution (% by number) of the general reservoir to the total recreational fishery catch (upper) and harvest (lower) from all areas surveyed in the Three Mile Island site vicinity during the months of April through July 1979 (solid line) and 1974-1978 (broken line; showing 5-year mean and range for each month, except April which are 4-year values).

E. Summary

1. The non-radiological aspects of station operations during and following the accident which potentially could have affected the aquatic biota of the Susquehanna River are related to thermal and chemical discharges.
 - a) Thermal discharge and chemical discharge limitations established by the Commonwealth of Pennsylvania 401 Certification and NPDES Permit were not violated during the period of interest. The discharges which did occur (thermal, chemical, flow volumes) were all within the ranges of values previously analyzed in the FES and at the environmental hearing and found to be acceptable. River flows during the period were at seasonally high normal levels such that station discharges received considerable dilution.
 - b) Based upon several years of studies conducted prior to the accident, the spatial extent of the thermal discharge plume was described. The measurable plume has been variable in extent and has been confined to very near the shoreline. Its maximum measurable extent has been to distances less than 20m offshore and 1000m downstream along the west shore Three Mile Island from the discharge downstream to a point about halfway between the discharge and the junction of the York Haven Dam with the Island. It is assumed that this area would constitute that portion of the river under the immediate influence of station discharges.

2. Biological data were being collected in the Susquehanna River upstream, downstream and near the nuclear station during the period of interest under the NRC ETS program. Summarized data made available to NRC by the licensee were analyzed and compared with historical data from the site vicinity for the period 1974-1978.

- a) Since thermal and chemical discharges were not different from those of normal operation and did not violate effluent limitations, significant impacts to aquatic biota would not be expected. An examination of the biotic conditions was made which confirmed the absence of any detectable effects to benthic invertebrates and fishes.

No unusual conditions of fish diseases or mortalities were noted in the river following the accident.

- b) Post-accident recreational fishing in the site vicinity did show departures from historical trends. Fishing appeared to partially shift emphasis from the reservoir in the immediate site vicinity to other areas, especially downstream near the York Haven Dam and the hydroelectric station. Anglers apparently fished less in the reservoir and those who did fish there returned more of their catches than in previous years. With time following the accident, the patterns of recreational fishing returned to normal or near-normal.

IV. Generic Aspects

A. Station Operation and Non-Radiological Effluents

Station operating conditions during and immediately following the accident resulted in releases of several hundred thousand-to-several million gallons of treated industrial waste effluent, in addition to cooling tower blowdown. In all cases where measurements were made, effluent limitations established by the NPDES permitting authority (Commonwealth of Pennsylvania) were not exceeded. Maintenance of the required quality of liquid effluents, therefore, appears not to have been impaired as a result of the accident.

Knowledge by the non-nuclear engineering public that the reactor core was experiencing high temperatures and overheating difficulties during the accident, might have led one to wonder what magnitude of heat load was transferred to the Susquehanna River, and then, what impact it might have had on river biota and fisheries. Reactor design and operating conditions, however, resulted in a reactor trip and shutdown early during the course of accident events, so that the heat produced following shutdown was only a small portion of that produced during full power operation. In the case of the Three Mile Island accident, the removal of decay heat following shutdown also was less than normal due to a loss of immediate core cooling ability. The river discharge ΔT of up to 6.7°C during

normal reactor cooldown, therefore, was not realized, and thermal effluents during the accident were low.

Both chemical and thermal effluents to the Susquehanna River were maintained within established limitations and within the bounds of those analyzed during NEPA reviews prior to Unit 2 operation. That having been the case, as now known, it would be reasonable to expect that effects to the aquatic biota of the river also would have been within the bounds of acceptability as concluded in the pre-operational NEPA reviews. Examination of the biological data collected during routine non-radiological ETS studies in the site vicinity for a three month period following the accident (April through June 1979) confirmed the absence of any significant ecological effects. Spring conditions of increasing abundance of aquatic organisms and the onset of fish spawning during the historical April-June period were realized during 1979. Normal aquatic biological cycles apparently were undisturbed by non-radiological accident conditions.

The accident occurred during the early phases of the spring aquatic biological season - a time of transition from winter's low faunal abundance and productivity to spring's rapidly increasing faunal abundance and productivity. In a way, then, the timing of the accident was fortuitous for assessment purposes, in that if potentially harmful effluents had been released (and continued for some period of time), deviations from the normal spring productivity (in terms of species,

magnitude, or timing etc.) might have been recognizable and as causally related to accident conditions. This is contrasted with mid-summer or late fall conditions of decreasing abundance (or availability) of portions of the aquatic community. Had the accident occurred at those times, one could be faced with deciding whether downward biological trends were in some way related to accident events, or within the normal biological cycle only. Had the accident occurred during the winter months when aquatic productivity and faunal abundance are normally low, impacts could have been minimal, but not easily measured or detected. Additionally, aquatic biological sampling during months of extreme winter weather (cold, wind, ice, etc.) might have been suspended making an impact assessment difficult due to the lack of data.

The actual timing of the accident and the ready availability of site specific data (effluent quality and biological), however, permitted an evaluation which indicated that aquatic biological problems did not occur. It therefore seems reasonable to conclude that if the required limitations for non-radiological effluents are met during an accident, then the effects to the aquatic communities from those effluents should be minimal.

B. Data Availability and Data Needs

The availability of site specific data from ongoing studies prior to and following the accident and the existence of several successive years of

similar data (1974 through 1978) permitted a realistic assessment of observed effects rather than necessitating the conduct of a worst case analysis of potential effects. This was indeed fortunate since the accident was the first and only one of its kind. Had the accident occurred several years into the operational life of the station, it is possible that detailed site specific studies would not have occurred for several years, making a precise assessment of effects more difficult. Effluent quality can be measured throughout the life of a station under the NPDES program, however, and the knowledge that water quality can be controlled during accidents and that aquatic biota will be affected minimally (at worst) can be used in assessing effects realistically.

The ecological studies being undertaken by the licensee in the Susquehanna River have been greatly expanded in scope and complexity since their inception with the onset of Unit 1 operation in 1974. The data that were available for use in assessing effects of the accident were of a type and quality that were both useful and obtainable soon after collection. Data which proved to be of most practical use were those which:

- 1) defined the extent and relative locations of the effluent plume;
- 2) defined the fish species at sampling stations within the known area influenced by the plume; the use of several sampling gear types selective for various components of the fish community permitted the

identification of species potentially under the influence of the plume (and thus station discharges) from the rough, forage, and predator/sport segments of the community;

- 3) defined seasonal trends in species composition and abundance;
- 4) defined the types of disease and parasite conditions and the occurrence of fish kills and mortalities in the site vicinity;
- 5) defined the recreational fishery catches and harvests in absolute terms; from those, relative catches and harvests could be calculated for comparison between creel survey sites and among years; the ability of the creel survey program to reflect changes in fishing patterns during the post-accident period was most useful and permits analyses beyond those of ecological concern only, as discussed later;
- 6) defined water quality conditions in the river in and near the discharge and both upstream and downstream.

The monthly compilation and summarization of the ecological data by Licensee's consultant on a routine basis made the 1979 data rapidly available and in usable form. Similarly, those data on in-plant effluent thermal and chemical characteristics contained in the Discharge Monthly Reports submitted by the Licensee to the Pennsylvania Department of

Environmental Resources were both readily available and invaluable for assessment purposes. The provisional data on 1979 river flow in the form of computer printout supplied by the USGS at NRC request were also rapidly available and in usable form.

As stated, the rapid availability of usable data permitted a realistic assessment of observed effects. This probably represents a "best case" condition, however, since such a set of circumstances might not always occur. It is conceivable that future nuclear plants could be permitted to operate without having performed any ecological studies during years of actual reactor operation, if their potential impacts are found to be minimal and acceptable during pre-operational NEPA reviews. Were that to be the case at a plant experiencing (or which just experienced) an accident, perhaps only pre-operative data and predictive assessment conclusionary information (EIS, predictive models, etc.) might be available, with the exception of any in-plant NPDES effluent monitoring data that might be required. Without actual operational biological and related data which define historical trends in the biotic system with respect to station operational characteristics (and vice versa), realistic assessments of accidents (or other non-accident unusual events of potential ecological significance) might not be possible. Operational

monitoring of aquatic biota, therefore, might have more far reaching application than merely defining the impacts of a nuclear plant under normal operating conditions only. It might serve to define, for example, such data needs as discussed in items 1) through 6) above. Monitoring of aquatic biota for a given period of time prior to and during the first years of plant operation, therefore, could be used to satisfy the needs of the NPDES permitting authority, as well as provide data useful for assessment of unusual events, should they occur some years later.

It is recognized that even if detailed studies are conducted during the first few years of station operation, their usefulness would be reduced with time, especially for an accident or event which occurred well into the life of a reactor (i.e., 20-30 years). Periodic monitoring of selected biotic parameters could provide useful information updates throughout the life of a nuclear plant. Whether this is practical or desirable, however, is not a subject for debate here. If for the sake of discussion, it is assumed that an event occurs many years after the termination of operational studies, and no periodic update monitoring has

occurred, what type of information might be expected to be readily available for assessment purposes? Site specific data probably would be available on some point source effluents under the NPDES monitoring program. Although current site specific data on fish species occurrence and distribution might not be available, historical fish impingement data (if available) could be compared with fishes impinged following an incident. Impingement sampling does not require expensive equipment or time consuming efforts to obtain data, as compared with making ready with boats, nets, and personnel. As long as a nuclear plant is withdrawing condenser cooling water through traveling screens, the potential for collecting data on fish species composition and seasonality is there. During operational monitoring programs conducted in the first years of station life, therefore, an objective could be to define quantitatively the usefulness and site-specific limitations of using impingement as a readily available source of data to be used on short notice. If impingement is determined to be useful, periodic monitoring might concentrate more on impingement than farfield netting studies. The usefulness of impingement as a sampling tool has been investigated, with promising results, when it is standardized against conventional sampling gear types and when used for specific purposes under which its limitations are known.^{52/}

Studies at Three Mile Island during 1978 showed that significant differences existed between fish species ranks in impingement samples compared with seine samples collected on the west shore of the Island.

Species composition also was more closely related for impingement samples at each intake than between impingement and seine samples.^{15/} During 1979, impingement samples were not collected at Three Mile Island during April due to the nuclear accident.^{23/} Data for March^{22/} and May,^{24/} however, do show that the farfield sampling techniques (seine, trapnet, electrofisher) captured many more individuals and species than did impingement. The Units 1 and 2 intakes are shoreline structures located several hundred meters upstream of the main station discharge. As such, fish species impinged could be assumed to be some of those which probably would be found in the downstream shorezone area under the influence of the effluent plume. During March of 1979, impinged fish species included spottail shiner, spotfin shiner, tessellated darter, banded darter, channel catfish, rock bass, smallmouth bass, walleye, marginated madtom, shield darter, and pumpkinseed. Similar species were impinged during May 1979 and were also taken at sampling stations downstream of the discharge during the period of the nuclear accident. If far-field netting studies had not been required, precise information on fishes near the station discharge would not have been known. Examination of impingement catch data prior to the accident (if such sampling were ongoing, which it was) and/or following the accident could have provided general information on the species present along the west shore of Three Mile Island and thus potentially in the area of station discharges. Actions then could have been directed toward collecting and studying identified fishes, including recreational fishery species (channel catfish, basses, sunfish, walleye) and forage species (shiners, darters).

A knowledge of the location and extent of the effluent plume and fish species likely to be near or potentially under its influence would be a reasonable starting point for investigation during or following a potentially significant environmental event. This would also dictate where stressed or dead fishes might be found during a visual inspection. Such specimens (if found) could be used for both impact assessment and post mortem pathology work for establishing presence or absence of a causal link relationship between plant operation and mortality. A knowledge of pre-incident or normal levels of pathology and mortality (if known) would also be useful for comparative purposes. These could be other objectives of monitoring programs conducted during the early years of station life. In the absence of site specific creel survey data, current information on the recreational fisheries can often be obtained from state fish and game agencies and their biologists and wardens.

C. Application of Non-Radiological Findings for Radiological Assessments

The examination and findings of the non-radiological consequences of the accident might be applicable for some aspects of the radiological assessment of the accident at Three Mile Island, and for radiological assessment in general.

The thermal plume mapping results provided insight into the location and extent of the thermal plume in the Susquehanna River. This information could be used in deciding upon sampling locations for river water and

sediment radiological content and for obtaining fishes for radiological analysis which might have been in the immediate plume area and subject to relatively high doses prior to substantial effluent dilution with river flows. The present non-radiological study was able to determine that several species of forage and predator/sport fishes were in the plume area following the accident.

This study also examined the background information on fish disease and mortality conditions by type and species, as known for the site area. Such historical data could be used for comparison and follow-up after an accident or radiological release event for short-term (mortalities) and long-term (disease) effect studies, as potentially causally related to releases.

An examination of the recreational fishery in the Three Mile Island area following the accident compared with historical data showed that fishing patterns in the immediate site vicinity (reservoir) were altered. During the month of April immediately following the accident, anglers fishing in the reservoir were noted as having kept none of their catches. This suggests that the liquid radiological pathway leading to man via finfish consumption was absent, or at worst, very small in the immediate receiving waters (the reservoir) of station effluents. If, however, fishing emphasis following the accident did shift from the reservoir to downstream areas such as the York Haven Dam or the hydrostation tailrace, then the liquid pathway to man could have been present through finfish consumed from

those areas. A form of voluntary pathway interdiction might have been exercised by the anglers fishing the reservoir, however. The Liquid Pathway Generic Study ^{54/} discusses interdiction following nuclear accidents, one form of which is controlling radiological exposure to the public by controlling the link in the food chain to man. One method for accomplishing that is prohibition or some form of control of finfishing and fish caught in the area, such as has been done following chemical and biological contamination of fishing areas. If finfish control measures are to be initiated for a land-based riverine site following a large-scale nuclear accident, the Liquid Pathway Generic Study suggested that initiation occur soon after (within days) and continue for a limited duration time period (weeks). It appears that those control criteria might have been met on a voluntary basis for reservoir fishing for about a month following the March 28 accident. On the first survey period in May 1979 (Sunday May 6), 54 anglers interviewed caught 66 fish and kept 6 (9.1% harvested) from the reservoir. A factor which probably aided in reduced fishing and catch retention in April was that the legal harvest season for some desirable species had not yet opened - May for walleye, northern pike, and muskellunge; and June for smallmouth bass.^{53/}

This study has examined the data needs and potential sources of aquatic biological data which could be obtained quickly for first-round qualitative uses, when more detailed studies might not be ongoing. Some of the data sources applicable for radiological uses could be: fish impingement collections on the traveling screens; visual inspections for

fish kills; recreational (and commercial) fisheries information obtained from knowledgeable state resource agencies; data on plume location, species present there, and fish diseases and mortalities from properly planned preoperative and operative studies conducted previously. Such first-round sampling measures (along with others as appropriate) could be initiated as part of an emergency data gathering program, prior to any full scale monitoring which might occur following a nuclear accident.

The incorporation of non-radiological studies and findings into radiological assessments (as appropriate) can aid in the conduct of a meaningful and realistic overall assessment of the consequences of nuclear accidents.

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VI. REFERENCES

1. Teledyne Isotopes. 1979. Metropolitan Edison Company Radiological Environmental Monitoring Report. 1978 Annual Report for Three Mile Island Nuclear Station. Westwood, New Jersey. 91 p.
2. U.S. Nuclear Regulatory Commission. May 1979. Staff Report on the Generic Assessment of Feedwater Transients in Pressurized Water Reactors Designed by the Babcock & Wilcox Company. NUREG-0560. Office of Nuclear Reactor Regulation, USNRC, Washington, D.C.
3. U.S. Nuclear Regulatory Commission. 1979. Title List Publicly Available Documents Three Mile Island Unit 2, Docket 50-320, Cumulated to May 21, 1979. NUREG-0568. Office of Administration, USNRC, Washington, D.C. 153 p.
4. U.S. Nuclear Regulatory Commission. May 1979. Evaluation of Long-Term Post-Accident Core Cooling of Three Mile Island Unit 2. NUREG-0557. Office of Nuclear Reactor Regulation, USNRC, Washington, D.C.
5. Battist, L., F. Congel, J. Buchanan, H. Peterson, C. Nelson, M. Nelson, and M. Rosenstein. May 1979. Population Dose and Health Impact of The Accident at the Three Mile Island Nuclear Station. Preliminary Estimates for the Period March 28, 1979 through April 7, 1979. NUREG-0558. U.S. Nuclear Regulatory Commission, Washington, D.C. 77 p. plus appendices.

6. U.S. Nuclear Regulatory Commission. December 1976. Final Supplement to the Final Environmental Statement related to operation of Three Mile Island Nuclear Station, Unit 2. Docket No. 50-320. Office of Nuclear Reactor Regulation, USNRC, Washington, D.C.
7. Mudge, J. E. 1977. Prepared Testimony before the USNRC Atomic Safety and Licensing Board, In the Matter of Metropolitan Edison Company, et. al. for Three Mile Island Nuclear Station, Unit 2. 16 p. following transcript page 980. May 2 1977, Harrisburg, Pennsylvania.
8. Hickey, C.R., Jr. 1977. NRC Staff Testimony Related to the Adequacy of the Applicant's Aquatic Biological Survey. Before the USNRC Atomic Safety and Licensing Board, In the Matter of Metropolitan Edison Company, et. al. for Three Mile Island Nuclear Station, Unit 2. 22 p. following transcript page 988. May 2, 1977, Harrisburg, Pennsylvania.
9. Hickey, C. R., Jr. 1977. NRC Staff Response to Licensing Board's Question Relating to Aquatic Impacts. Before the USNRC Atomic Safety and Licensing Board, In the Matter of Metropolitan Edison Company, et. al. for Three Mile Island Nuclear Station, Unit 2. 50 p. following transcript page 988. May 2, 1977, Harrisburg, Pennsylvania.

10. U.S. Atomic Energy Commission. December 1972. Final Environmental Statement related to operation of Three Mile Island Nuclear Station Units 1 and 2. Docket Nos. 50-289 and 50-320. Directorate of Licensing, USAEC, Washington, D.C.
11. Potter, W. A. and Associates. February 1975. An Ecological study of the Susquehanna River in the Vicinity of the Three Mile Island Nuclear Station. Annual Report for 1974. Ichthyological Associates, Inc. Etters, Pennsylvania. 468 p.
12. Potter, W. A. and Associates. February 1976. An Ecological Study of the Susquehanna River in the Vicinity of the Three Mile Island Nuclear Station. Annual Report for 1975. Ichthyological Associates, Inc. Etters, Pennsylvania. 395 p.
13. Nardacchi, G. A. and Associates. February 1977. An Ecological Study of the Susquehanna River in the Vicinity of the Three Mile Island Nuclear Station. Annual Report for 1976. Ichthyological Associates, Inc. Etters, Pennsylvania. 231 p.
14. Nardacchi, G. A. and Associates. April 1978. An Ecological Study of the Susquehanna River in the Vicinity of the Three Mile Island Nuclear Station. Annual Report for 1977. Ichthyological Associates, Inc. Etters, Pennsylvania. 685 p.

15. Nardacci, G. A. and Associates. July 1979. An Ecological Study of the Susquehanna River near the Three Mile Island Nuclear Station. Annual Report for 1978. Ichthyological Associates, Inc. Etters, Pennsylvania. 721 p.
16. Letter dated April 27, 1979. From: G. J. Troffer, Manager-Generation Quality Assurance, Metropolitan Edison Co., Reading, Pennsylvania; To: R. Shertzer, Pennsylvania Department of Environmental Resources, Harrisburg. 1 p., plus 12 page Discharge Monitoring Report for March 1979 at Three Mile Island Nuclear Station.
17. Letter dated May 25, 1979. From: G. J. Troffer, Manager-Generation Quality Assurance, Metropolitan Edison Co., Reading, Pennsylvania; To: R. Shertzer, Pennsylvania Department of Environmental Resources, Harrisburg. 1 p., plus 11 page Discharge Monitoring Report for April 1979 at Three Mile Island Nuclear Station.
18. Letter dated April 6, 1979. From: G. J. Troffer, Manager-Generation Quality Assurance, Metropolitan Edison Co., Reading, Pennsylvania; To: F. Marrocco, Regional Water Quality Manager, Pennsylvania Department of Environmental Resources, Harrisburg. 2 p.
19. Hickey, C. R., Jr. December 1977. Affidavit of Clarence R. Hickey, Jr. on NRC staff's Assessment of Revised 401 Certification. Submitted to the USNRC Atomic Safety and Licensing Board, In the Matter of

Metropolitan Edison Company Three Mile Island Nuclear Station,
Unit 2. 10 p.

20. U.S. Nuclear Regulatory Commission. October 1975. Reactor Safety Study.
An Assessment of Accident Risks in U.S. Commercial Nuclear Power
Plants. Main Report and Executive Summary. WASH-1400
(NUREG-75/014). Washington, D.C. 198 p.
21. Shipman, D. R. 1979. Water and Wastewater Reports of Data collected at
Three Mile Island Nuclear Station during April 1979. Pennsylvania
Department of Environmental Resources, Harrisburg. 4 p.
22. Nardacci, G. A. and Associates. Undated. Three Mile Island Aquatic
Study Monthly Report for March 1979. Ichthyological Associates,
Inc. Etters, Pennsylvania. 21 p.
23. Nardacci, G. A. and Associates. Undated. Three Mile Island Aquatic
Study. Monthly Report for April 1979. Ichthyological Associates,
Inc. Etters, Pennsylvania. 22 p.
24. Nardacci, G. A. and Associates, Undated. Three Mile Island Aquatic
Study. Monthly Report for May 1979. Ichthyological Associates,
Inc. Etters, Pennsylvania. 35 p.

25. U.S. Nuclear Regulatory Commission. July 1979. TMI-2 Lessons Learned Task Force Status Report and Short-term Recommendations. NUREG-0578. Office of Nuclear Reactor Regulation, USNRC, Washington, D.C. 90 p.
26. U.S. Nuclear Regulatory Commission Office of Inspection and Enforcement. Preliminary Notifications of Event or Unusual Occurrence Bulletins.
 - (a) PNO-79-67B. March 30, 1979. 11 p.
 - (b) PNO-79-67I. April 3, 1979. 3 p.
 - (c) PNO-79-67M. April 7, 1979. 3 p.
 - (d) PNO-79-67N. April 8, 1979. 4 p.
27. Telephone conversation between C. R. Hickey, USNRC, ONRR and Robert Bores, USNRC, OIE, Region I, King of Prussia, Pennsylvania. June 19, 1979.
28. Telephone conversation between C. R. Hickey, USNRC, ONRR, and Robert Bores, USNRC, OIE, Region I, King of Prussia, Pennsylvania. July 25, 1979.
29. Letter dated March 23, 1979. From: G. J. Troffer, Manager-Generation Quality Assurance, Metropolitan Edison Co., Reading, Pennsylvania; To: F. Marrocco, Pennsylvania Department of Environmental Resources, Harrisburg. Noncompliance Notification No. 79-02. 2 p.

30. Telephone conversation between C. R. Hickey, USNRC, ONRR, and D. R. Shipman, Environmental Protection Specialist, Water Quality Management Program, Pennsylvania Department of Environmental Resources, Harrisburg. June 19, 1979.
31. Samworth, R. B. 1977. NRC Staff Response to Licensing Board's Question Relating to Water Use and Chemical Discharge. Before the USNRC Atomic Safety and Licensing Board, In the matter of Metropolitan Edison Company, et. al. for Three Mile Island Nuclear Station, Unit 2. 17 p. following transcript page 988. May 2, 1977. Harrisburg, Pennsylvania.
32. Metropolitan Edison Company. April 1979. Three Mile Island Nuclear Station 1978 Annual Environmental Operating Report. Reading, Pennsylvania. 15 p. plus attachments.
33. Gilbert Associates. January 1977. Hydrographic Survey Three Mile Island Nuclear Station, June/November, 1976. Reading, Pennsylvania. 7 p. plus figures.
34. U.S. Geological Survey. 1978. Water Resources Data for Pennsylvania, Water Year 1977. Volume 2. Susquehanna and Potomac River Basins. USGS Water-Data Report PA-77-2. Harrisburg, Pennsylvania. 384 p.

35. U.S. Geological Survey. 1977. Water Resources Data for Pennsylvania, Water Year 1976. Harrisburg, Pennsylvania. p. 273.
36. U.S. Geological Survey. Computer printout of Susquehanna River discharge at Harrisburg, Pennsylvania for the periods October 1977-September 1978 and October 1978-July 1979. Courtesy of R. E. Helm, USGS, Water Resources Division, Harrisburg, Pennsylvania.
37. U.S. Nuclear Regulatory Commission. September 1976. Safety Evaluation Report related to operation of Three Mile Island Nuclear Station, Unit 2. Docket No. 50-320. NUREG-0107. Office of Nuclear Reactor Regulation, USNRC, Washington, D.C.
38. Gilbert Associates, Inc. June 1978. Hydraulic Survey Three Mile Island Nuclear Station. Reading, Pennsylvania. 7 p. plus figures.
39. Potter, W. A. and Associates. April 1975. An Ecological Study of the Susquehanna River in the Vicinity of Three Mile Island Nuclear Station. Supplemental Report for 1974. Ichthyological Associates, Inc., Etters, Pennsylvania. 209 p.
40. Nardacci, G. A. and Associates. May 1976. An Ecological Study of the Susquehanna River in the Vicinity of Three Mile Island Nuclear Station. Supplemental Report for 1975. Ichthyological Associates, Inc., Etters, Pennsylvania. 249 p.

41. Nardacci, G.A. and Associates. Undated. Three Mile Island Aquatic Study Monthly Report for January 1979. Ichthyological Associates, Inc. Etters, Pennsylvania. 11 p.
42. Nardacci, G. A. and Associates. Undated. Three Mile Island Aquatic Study Monthly Report for February 1979. Ichthyological Associates, Inc. Etters, Pennsylvania. 11 p.
43. Letter dated July 24, 1979. From: G. A. Nardacci, Project Leader, Ichthyological Associates, Inc., Etters, Pennsylvania. To: C. R. Hickey, USNRC, Washington, D.C. 1 p. plus macroinvertebrate density and biomass estimates for 1978 (2 tables) and March-May 1979 (2 tables).
44. Nardacci, G. A. and Associates. Undated. Three Mile Island Aquatic Study Monthly Report for June 1979. Ichthyological Associates, Inc. Etters, Pennsylvania. 25 p.
45. Hickey, C. R., Jr. 1977. NRC Staff Response to Licensing Board's Question Relating to Fish Kills. Before the USNRC Atomic Safety and Licensing Board, In the Matter of Metropolitan Edison Company, et al. for Three Mile Island Nuclear Station, Unit 2. 18 p. following transcript page 988. May 2, 1977. Harrisburg, Pennsylvania.

46. Meyer, F. P. 1970. Seasonal Fluctuations in the Incidence of Disease on Fish Farms. pp. 21-29. In: S. F. Snieszko (ed). A Symposium on Diseases of Fishes and Shellfishes. Special Publication No. 5. American Fisheries Society, Washington, D.C. 526 p.
47. Deutsch, W. G. October 1977. Parasites of Fishes. pp. 231-239. In: T. V. Jacobsen (ed). Ecological Studies of the Susquehanna River in the Vicinity of the Susquehanna Steam Electric Station. Annual Report for 1976. Ichthyological Associates, Inc. Berwick, Pennsylvania. 250 p.
48. Deutsch, W. G. April 1978. Lernaea cyprinacea on two Catostomids. pp. 268-278. In: T. V. Jacobsen (ed). Ecological Studies of the Susquehanna River in the Vicinity of the Susquehanna Steam Electric Station. Annual Report for 1977. Ichthyological Associates, Inc. Berwick, Pennsylvania. 345 p.
49. Telephone conversation between C. R. Hickey, USNRC, ONRR, and J. E. Mudge, Metropolitan Edison Company, Reading, Pennsylvania. April 12, 1979.
50. Telephone conversation between C. R. Hickey, USNRC, ONRR, and G. A. Nardacci, Project Leader, Three Mile Island Aquatic Study, Ichthyological Associates, Inc., Etters, Pennsylvania. April 12, 1979.

51. U.S. Nuclear Regulatory Commission. August 1979. Investigation into the March 28, 1979 Three Mile Island Accident by Office of Inspection and Enforcement. Investigative Report No. 50-320/79-10. NUREG-0600. Office of Inspection and Enforcement, USNRC, Washington, D.C.
52. Hickey, C. R. Jr. 1978. The Use of Power Plant Impingement as a Fisheries Sampling Tool. p. 53. In : Abstracts of Papers Presented at the American Fisheries Society 108th Annual meeting, August 20-25, 1978. University of Rhode Island, Kingston. 56 p.
53. Telephone conversation between C. R. Hickey, USNPC, ONRR, and W. Snider, Pennsylvania Fish Commission Waterway Patrolman, Lancaster, Pennsylvania. August 10, 1979.
54. U.S. Nuclear Regulatory Commission. February 1978. Liquid Pathway Generic Study. Impacts of Accidental Radioactive Releases to the Hydrosphere from Floating and Land-Based Nuclear Power Plants. NUREG-0440. Office of Nuclear Reactor Regulation, USNPC, Washington, D. C.
55. Nardacci, G. A. and Associates. Undated. Three Mile Island Aquatic Study Monthly Report for July 1979. Ichthyological Associates, Inc. Etters, Pennsylvania. 27 p.

56. U.S. Nuclear Regulatory Commission. July 1979. Report to Congress on Abnormal Occurrences. January-March 1979. NUREG-0090, Vol. 2, No. 1. Office of Management and Program Analysis, USNRC, Washington, D.C. 33 p.
57. Nardacci, G. A. and Associates. November 1977. An Ecological Study of the Susquehanna River in the Vicinity of the Three Mile Island Nuclear Station. Supplemental Report for 1976. Ichthyological Associates, Inc., Etters, Pennsylvania. 413 p.
58. U. S. Nuclear Regulatory Commission. October 1979. TMI-2 Lessons Learned Task Force Final Report. NUREG-0585. Office of Nuclear Reactor Regulation, USNRC, Washington, D. C.

September 27, 1979

SECY-79-552

For: The Commissioners

From: L. V. Gossick *LS /m ...*
Executive Director for Operations

Subject: **COMMISSIONER ACTION**
SECTION 208 REPORT TO THE CONGRESS ON ABNORMAL
OCCURRENCES FOR APRIL-JUNE 1979

Purpose: Approval of Final Draft

Discussion: Enclosure 1 is a proposed letter to the Speaker of the House and the President of the Senate covering transmittal of the seventeenth Section 208 Report to Congress.

Enclosure 2 is a final draft of the seventeenth report to Congress on abnormal occurrences. The report covers the period from April 1 to June 30, 1979. The report also contains updating material for previous reports, including the TMI accident. This draft incorporates the major comments obtained from staff review of earlier drafts.

Normally, these quarterly reports contain only those occurrences approved by the Commission by the end of the reporting period - any events which occurred during the report period, but which had not been approved by the Commission at the end of the report period, would be included in a succeeding report. However, preparation of this report has been considerably delayed due to other pressing staff work. Therefore, we propose that the "Damage to New Fuel Assemblies (Surry)" and "Indication of Low Water Level in a BWR (Oyster Creek)" events, both of which were approved by the Commission as abnormal occurrences on August 10, 1979 and August 14, 1979, respectively, be included in the second quarter report. Also included in the report are any abnormal occurrences submitted by the Agreement States during the report period.

On the above basis, the seventeenth report to Congress states:

1. There were two abnormal occurrences at the 70 nuclear power plants licensed to operate. One involved an indication of low water level in a boiling water reactor and the second involved damage to the new fuel assemblies.
2. There were no abnormal occurrences at fuel cycle facilities (other than nuclear power plants).
3. There were no abnormal occurrences at other licensee facilities.

CONTACT:
Crooks, MPA

4. There were two abnormal occurrences reported by the Agreement States. One involved release of tritium and contamination of food and the second involved overexposures from a radiography source.

The report is similar in format to the published sixteenth report except that an Appendix C item (Other Events of Interest) is proposed for the present report. The event pertains to cracking in the main feedwater system piping of PWR plants and appears to meet the guidelines for Appendix C reporting (widespread media interest), as referenced in Information Report, SECY-78-460A, dated December 1, 1978.

No press release is planned for the issuance of the report. A Federal Register notice will be issued.

When Commission approval is received, the report will be updated for currency before release. Following your approval, approximately two weeks will be required for publication and issuance of the report. Each report is an NRC publication (NUREG series).

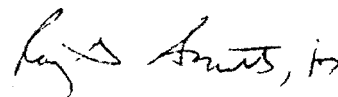
Enclosure 3 is a representative sample of events which were the important candidates for inclusion as abnormal occurrences, but which in the staff's judgment did not meet the criteria for abnormal occurrence reporting. The staff's decision basis is briefly described. This is provided per Commission comments on SECY-76-471.

Scheduling:

It is desirable to have this report published and issued by early October.

Coordination:

The Offices of Nuclear Reactor Regulation, Nuclear Materials Safety and Safeguards, Nuclear Regulatory Research, Inspection and Enforcement, Standards Development, State Programs, the Division of Security, and Public Affairs concur. The Executive Legal Director has no legal objections.



Lee V. Gossick
Executive Director for Operations

Enclosures:

1. Proposed Letters to Congress
2. Draft of the Seventeenth Report to Congress
3. Other Candidates for Reporting

Commissioners' comments should be provided directly to the Office of the Secretary by c.o.b. Friday, October 12, 1979.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT October 5, 1979, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional time for analytical review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

DISTRIBUTION

Commissioners
Commission Staff Offices
Exec Dir for Operations
ACRS
Secretariat

ENCLOSURE 1



OFFICE OF THE
CHAIRMAN

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

Enclosure 1

Page 1 of 2

The Honorable Walter F. Mondale
President of the Senate
Washington, D. C. 20510

Dear Mr. President:

We submit herewith the seventeenth report on abnormal occurrences at licensed nuclear facilities, as required by Section 208 of the Energy Reorganization Act of 1974 (PL 93-438), for the second calendar quarter of 1979.

In the context of the Act, an abnormal occurrence is an unscheduled incident or event which the Commission determines is significant from the standpoint of public health or safety. These incidents or events, including any submitted by the Agreement States, are as follows:

1. There were two abnormal occurrences at the 70 nuclear power plants licensed to operate. One involved an indication of low water level in a boiling water reactor and the second involved damage to new fuel assemblies.
2. There were no abnormal occurrences at fuel cycle facilities (other than nuclear power plants).
3. There were no abnormal occurrences at other licensee facilities.
4. There were two abnormal occurrences reported by the Agreement States. One involved releases of tritium and contamination of food and the second involved overexposure from a radiography source.

This report also contains information updating previously reported abnormal occurrences, including an update on the Nuclear Accident at Three Mile Island.

In addition to this report, we will continue to disseminate information on reportable events. These event reports are routinely distributed on a timely basis to the Congress, industry and the general public.

Sincerely,

Joseph M. Hendrie
Chairman

Enclosure:
Report to Congress
on Abnormal Occurrences



OFFICE OF THE
CHAIRMAN

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

Enclosure 1

Page 2 of 2

The Honorable Thomas P. O'Neill, Jr.
Speaker of the United States
House of Representatives
Washington, D. C. 20515

Dear Mr. Speaker:

We submit herewith the seventeenth report on abnormal occurrences at licensed nuclear facilities, as required by Section 208 of the Energy Reorganization Act of 1974 (PL 93-438), for the second calendar quarter of 1979.

In the context of the Act, an abnormal occurrence is an unscheduled incident or event which the Commission determines is significant from the standpoint of public health or safety. These incidents or events, including any submitted by the Agreement States, are as follows:

1. There were two abnormal occurrences at the 70 nuclear power plants licensed to operate. One involved an indication of low water level in a boiling water reactor and the second involved damage to new fuel assemblies.
2. There were no abnormal occurrences at fuel cycle facilities (other than nuclear power plants).
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In addition to this report, we will continue to disseminate information on reportable events. These event reports are routinely distributed on a timely basis to the Congress, industry and the general public.

Sincerely,

Joseph M. Hendrie
Chairman

Enclosure:
Report to Congress
on Abnormal Occurrences

ENCLOSURE 2

NUREG-0090
Vol. 2 No. 2

DRAFT

REPORT TO CONGRESS
ON
ABNORMAL OCCURRENCES

APRIL-JUNE 1979

Status as of August 31, 1979
Date Published: October 1979

Office of Management and Program Analysis
United States Nuclear Regulatory Commission
Washington, D.C. 20555

ABSTRACT

Section 208 of the Energy Reorganization Act of 1974 identifies an abnormal occurrence as an unscheduled incident or event which the Nuclear Regulatory Commission determines to be significant from the standpoint of public health or safety and requires a quarterly report of such events to be made to Congress. This report, the seventeenth in the series, covers the period from April 1 to June 30, 1979.

The following incidents or events, including any submitted by the Agreement States, were determined by the Commission to be significant and reportable:

1. There were two abnormal occurrences at the 70 nuclear power plants licensed to operate. One involved an indication of low water level in a boiling water reactor and the second involved damage to new fuel assemblies.
2. There were no abnormal occurrences at fuel cycle facilities (other than nuclear power plants).
3. There were no abnormal occurrences at other licensee facilities.
4. There were two abnormal occurrences reported by the Agreement States. One involved releases of tritium and contamination of food and the second involved overexposures from a radiography source.

This report also contains information updating previously reported abnormal occurrences, including an update on the Nuclear Accident at Three Mile Island.

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PREFACE

INTRODUCTION

The Nuclear Regulatory Commission reports to the Congress each quarter under provisions of Section 208 of the Energy Reorganization Act of 1974 on any abnormal occurrences involving facilities and activities regulated by the NRC. An abnormal occurrence is defined in Section 208 as an unscheduled incident or event which the Commission determines is significant from the standpoint of public health or safety.

Events are currently identified as abnormal occurrences for this report by the NRC using the criteria delineated in Appendix A. These criteria were promulgated in an NRC policy statement which was published in the Federal Register (42 FR 10950) on February 24, 1977. In order to provide wide dissemination of information to the public, a Federal Register notice is issued on each abnormal occurrence with copies distributed to the NRC Public Document Room and all local public document rooms. At a minimum, each such notice contains the date and place of the occurrence and describes its nature and probable consequences.

The NRC has reviewed Licensee Event Reports, licensing and enforcement action (e.g., violations, infractions, deficiencies, civil penalties, license modifications, etc.), generic issues, significant inventory differences involving special nuclear material, and other categories of information available to the NRC. The NRC has determined that only those events, including those submitted by the Agreement States, described in this report meet the criteria for abnormal occurrence reporting. This report, the seventeenth in the series, covers the period between April 1 - June 30, 1979.

Information reported on each event includes: date and place; nature and probable consequences; cause or causes; and actions taken to prevent recurrence.

THE REGULATORY SYSTEM

The system of licensing and regulation by which NRC carries out its responsibilities is implemented through rules and regulations in Title 10 of the Code of Federal Regulations. To accomplish its objectives, NRC regularly conducts licensing proceedings, inspection and enforcement activities, evaluation of operating experience and confirmatory research, while maintaining programs for establishing standards and issuing technical reviews and studies. The NRC's role in regulating represents a complete cycle, with the NRC establishing standards and rules; issuing licenses and permits; inspecting for compliance; enforcing license requirements; and carrying on continuing evaluations, studies and research projects to improve both the regulatory process and the protection of the public health and safety. Public participation is an element of the regulatory process.

In the licensing and regulation of nuclear power plants, the NRC follows the philosophy that the health and safety of the public are best assured through the establishment of multiple levels of protection. These multiple levels can be achieved and maintained through regulations which specify requirements which will assure the safe use of nuclear materials. The regulations include design and quality assurance criteria appropriate for the various activities licensed by NRC. An inspection and enforcement program helps assure compliance with the regulations. Requirements for reporting incidents or events exist which help identify deficiencies early and aid in assuring that corrective action is taken to prevent their recurrence.

Most NRC licensee employees who work with radioactive materials are required to utilize personnel monitoring devices such as film badges or TLD (thermoluminescent dosimeter) badges. These badges are processed periodically and the exposure results normally serve as the official and legal record of the extent of personnel exposure to radiation during the period the badge was worn. If an individual's past exposure history is known and has been sufficiently low, NRC regulations permit an individual in a restricted area to receive up to three rems of whole body exposure in a calendar quarter. Higher values are permitted to the extremities or skin of the whole body. For unrestricted areas, permissible levels of radiation are considerably smaller. Permissible doses for restricted areas and unrestricted areas are stated in 10 CFR Part 20. In any case, the NRC's policy is to maintain radiation exposures to levels as low as reasonably achievable.

REPORTABLE OCCURRENCES

Since the NRC is responsible for assuring that regulated nuclear activities are conducted safely, the nuclear industry is required to report incidents or events which involve a variance from the regulations, such as personnel over-exposures, radioactive material releases above prescribed limits, and malfunctions of safety-related equipment. Thus, a reportable occurrence is any incident or event occurring at a licensed facility or related to licensed activities which NRC licensees are required to report to the NRC. The NRC evaluates each reportable occurrence to determine the safety implications involved.

Because of the broad scope of regulation and the conservative attitude toward safety, there are a large number of events reported to the NRC. The information provided in these reports is used in the NRC and the industry in their continuing evaluation and improvement of nuclear safety. Most of the reports received from licensed nuclear power facilities describe events that did not directly involve the nuclear reactor itself, but involved equipment and components which are peripheral aspects of the nuclear steam supply system, and are minor in nature with respect to impact on public health and safety. Many are discovered during routine inspection and surveillance testing and are corrected upon discovery. Typically, they concern single malfunctions of components or parts of systems, with redundant operable components or systems continuing to be available to perform the design function.

Information concerning reportable occurrences at facilities licensed or otherwise regulated by the NRC is routinely disseminated by NRC to the nuclear industry, the public, and other interested groups as these events occur. Dissemination includes deposit of incident reports in the NRC's public document rooms, special notifications to licensees and other affected or interested groups, and public announcements. In addition, a biweekly computer printout containing information on reportable events received from NRC licensees is sent to the NRC's more than 120 local public document rooms throughout the United States and to the NRC Public Document Room in Washington, D.C.

The Congress is routinely kept informed of reportable events occurring at licensed facilities.

AGREEMENT STATES

Section 274 of the Atomic Energy Act, as amended, authorizes the Commission to enter into agreements with States whereby the Commission relinquishes and the States assume regulatory authority over byproduct, source and special nuclear materials (in quantities not capable of sustaining a chain reaction). Comparable and compatible programs are the basis for agreements.

Presently, information on reportable occurrences in Agreement State licensed activities is publicly available at the State level. Certain information is also provided to the NRC under exchange of information provisions in the agreements. NRC prepares a semiannual summary of this and other information in a document entitled, "Licensing Statistics and Other Data," which is publicly available.

In early 1977 the Commission determined that abnormal occurrences happening at facilities of Agreement State licensees should be included in the quarterly report to Congress. The abnormal occurrence criteria included in Appendix A is applied uniformly to events at NRC and Agreement State licensee facilities. Procedures have been developed and implemented and any abnormal occurrences reported by the Agreement States to the NRC are included in these quarterly reports to Congress.

REPORT TO CONGRESS ON ABNORMAL OCCURRENCES

APRIL-JUNE 1979

NUCLEAR POWER PLANTS

The NRC is reviewing events reported at the 70 nuclear power plants licensed to operate during the second quarter of 1979. As of the date of this report, the NRC had determined that the following events were abnormal occurrences.

79-5 Indication of Low Water Level in a Boiling Water Reactor

Preliminary information pertaining to this incident was reported in the Federal Register (44 FR 50925). Appendix A (Example 1 of "For Commercial Nuclear Power Plants") of this report notes that exceeding a safety limit of license Technical Specifications (10 CFR Part 50.36(c)) can be considered an abnormal occurrence.

Date and Place - On May 2, 1979, the NRC was notified by the licensee (Jersey Central Power and Light Company) of an event at their Oyster Creek facility. The Oyster Creek Nuclear Plant utilizes a boiling water reactor and is located in Ocean County, New Jersey.

Nature and Probable Consequences

Summary

A loss of feedwater transient at the Oyster Creek facility on May 2, 1979, resulted in a significant reduction in water inventory above the reactor core area as measured by one set of water level instruments (triple-low level), while the remaining two sets of level instrumentation in the reactor annulus indicated water levels above any protective feature setpoint (Figure 1). The water level measured within the core shroud area fell below the triple-low level setpoint, a safety limit, of 5-feet 6-inches above the top of the fuel. Subsequent analyses by the licensee have conservatively determined that the minimum water level over the top of the fuel was 1 to 1-1/2 feet. Coolant sample analyses and offgas release rates support the conclusion that no fuel damage occurred.

Sequence of Events

Oyster Creek is a non-jet pump BWR* with a licensed power of 1930 MWt. Immediately prior to the transient, the reactor was operating at 98% power

*The non-jet pump BWR is of an older design. The newer designs incorporate jet pumps within the reactor pressure vessel to improve the coolant recirculation system performance. The jet pump concept reduced the number of external coolant recirculation loops to two.

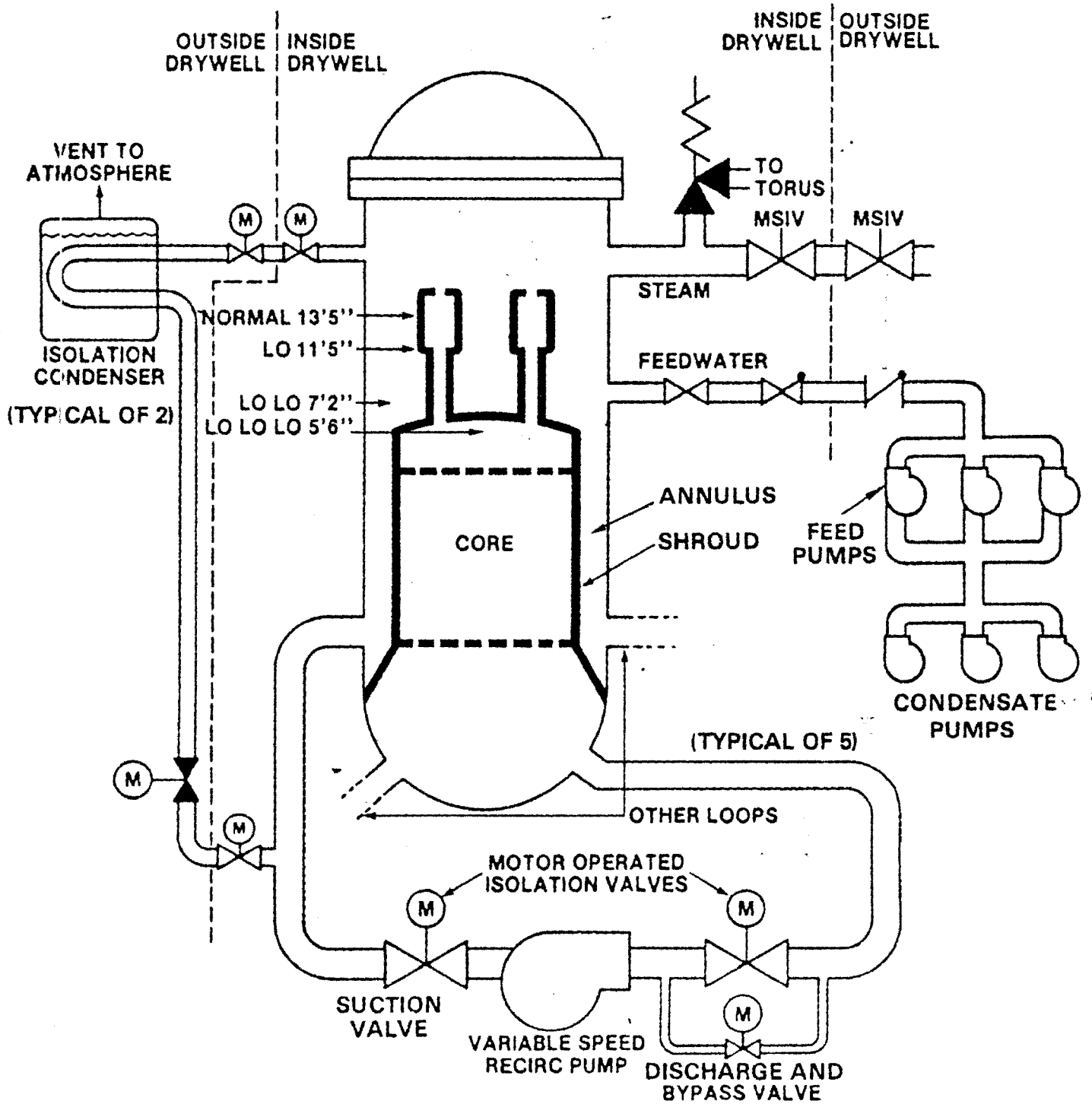


Figure 1. RECIRCULATION, STEAM AND ISOLATION CONDENSER SCHEMATIC

with the reactor vessel water level at 13-feet 4-inches above the top of the fuel. The "D" reactor recirculation loop was out-of-service because of a recirculation pump seal cooler problem and the "SB" startup transformer was out-of-service for inspection of the associated 4160-volt cabling.

The initiating event was a false high reactor pressure scram. The pressure spike that led to the scram signal was generated by the way an instrument technician was performing surveillance testing on isolation condenser pressure switches. The signal resulted in a simultaneous reactor scram and the tripping of all operating recirculation pumps. The tripping of all operating recirculation pumps is a safeguard to mitigate the consequences of anticipated-transients-without-scram (ATWS) events.

Thirteen seconds after the reactor scram, the turbine tripped at the low load setpoint. The turbine trip initiated a transfer of power from the auxiliary transformers to the startup transformers. Because one startup transformer "SB" was out of service, two feed pumps and two condensate pumps (pumps 1B and 1C) on the associated 4160v bus (2B) lost power. The third feed pump (1A) tripped due to low suction pressure during the feedwater transient. An immediate attempt to restart the 1A feedwater pump, powered by the live 4160v bus (1A), was unsuccessful because of failure of an auxiliary oil pump to start. The lube oil pump is interlocked in the feed pump start sequence. This was the only equipment failure during the transient.

Subsequent to the reactor scram, reactor water inventory initially decreased due to steam flow through the turbine bypass valves to the main condenser. This loss together with the void collapse associated with the scram and the subsequent loss of feed flow, resulted in a rapid reactor water level reduction to the low water level alarm setpoint of 11-feet 5-inches above the top of the fuel at 13.6 seconds. The operator manually initiated closure of all main steam line isolation valves (MSIV) at about 43 seconds into the transient to conserve water. The minimum indicated water level in the annulus was 9-feet 8-inches above the top of the fuel (the low-low setpoint is 7-feet 2-inches above the top of the fuel).

After closure of the MSIV, an isolation condenser was manually placed in service for core decay heat removal. The isolation condenser was condensing steam from the core and returning the condensate to the reactor annulus through a connection to a recirculation loop pump suction line (Figure 1). At approximately a minute and a quarter after the reactor scram, the discharge valves in "A" and "E" recirculation loops were closed in accordance with a Standing Order that was in effect. Closing the "A" and "E" loop discharge valves had in the past been necessary to prevent inadvertent stopping of the isolation condenser due to forced flow from operating recirculation pumps being sensed as if it were flow from an isolation-condenser line break. (This Standing Order was no longer appropriate since an ATWS modification had been made that tripped the recirculation pumps coincident with high-pressure or low-low-level scrams. The necessary procedure change had not been performed following the

plant modification.) At the same time, the "B" and "C" loop discharge valves were apparently closed, in anticipation of restarting the recirculation pumps. The "D" loop discharge valve had been closed prior to the event because the associated pump was out of service.

The reactor triple low water level (5-feet 6-inches above the top of the fuel) setpoint was reached at 172 seconds into the transient. The triple low level setpoint activates one of the permissives on the automatic depressurization system and alarms in the control room to alert the operator.

The triple-low level in the core shroud area resulted from the restriction of the flow path between the annulus and the core region by closure of all recirculation pump discharge valves. With the recirculation pump discharge valves closed (discharge piping is over 2 feet in diameter), the only flow path back to the core region was via the 2-inch bypass lines around the discharge valves. The effect of this flow restriction was to reduce the water level in the core region and to increase the level in the reactor annulus area.

Reactor pressure was controlled by intermittent manual operation of the two isolation condensers. At about half an hour into the transient, a recirculation pump was started. The operator tripped the recirculation pump within 2 minutes when he noted a rapid decrease in the annulus level (the recirculation pumps take suction from the annulus). About 5 minutes later, a feed pump was successfully started. At about 40 minutes into the event, a primary recirculation pump and a reactor feed pump were restarted for continued cooldown of the reactor. From about 40 minutes onward, the water level within the core region was normal. The plant attained cold shutdown within 9 hours.

Review of the occurrence by the licensee and NRC established that although the water level in the core shroud area went below the triple low level setpoint, the core remained covered and consequently no fuel damage would be expected.

Cause or Causes - The spurious reactor high pressure scram was initiated by a pressure spike on the reactor high pressure scram switches, caused by an instrument technician while performing surveillance testing. However, the fundamental causes of the resulting sequence of events were:

- (1) The operators essentially isolated the reactor annulus and core region from each other by shutting all recirculation pump discharge valves.
- (2) Notes or Cautions against closing all suction and discharge valves in the recirculation loops were not adequate.

Actions Taken to Prevent Recurrence

Licensee - The licensee performed a thorough evaluation of the event to determine whether any fuel damage had occurred and developed follow up actions. As a result of the evaluation and discussions with the NRC, the licensee took the following significant actions:

1. The triple-low level was established as a Safety Limit for all modes of reactor operation.¹
2. A requirement was added to the Technical Specifications that the suction and discharge valves in at least two recirculation loops be open at all times. The procedures were changed to implement this requirement.
3. Operator training sessions were held, the event was thoroughly discussed and the revised procedures reviewed.

NRC - Following notification from the licensee of the event, an NRC inspector was dispatched to the site. Additional NRC personnel arrived at the site on May 3, 1979 to review the situation and determine the status of the plant. Fact finding by the NRC was supplemented by information obtained from the licensee, the reactor vendor (General Electric) and fuel supplier (Exxon). A safety evaluation report (SER) of the event was prepared which discusses the minimum water level experienced in the reactor vessel and the fuel conditions. The following three requirements were added to the Technical Specifications:

1. The triple-low level was made a Safety Limit for all mode-switch positions.
2. At least two recirculation loop discharge and suction valves must remain in the full open position.
3. The time duration of the low-low level signal was required to be not greater than that used in the safety analysis for the limiting loss-of-inventory transient.

The NRC staff also recommended that the licensee consider surveillance program and level instrument improvements.

It was concluded that no evidence of fuel damage was apparent, and that the facility could be safely returned to operation.

Based on the satisfactory actions taken by the licensee, on May 30, 1979 the NRC authorized the licensee to resume operation.

¹At the time of the event, the licensee's technical specifications defined the triple-low water level as a Safety Limit when the reactor mode switch was in the "SHUTDOWN" mode only. A limiting safety system setting was also associated with the double low water level when the mode switch was in the "RUN" position. Even though the mode switch had been placed in the "REFUEL" position by the operator shortly after initiation of the transient, the event was regarded by the licensee as if a Safety Limit had been violated.

The possible generic implications of the Oyster Creek event have been considered. Nine Mile Point Unit 1 (operated by Niagara Mohawk Power Corporation and located in Oswego County, New York) and LaCrosse (operated by Dairyland Power Cooperative and located in Monroe County, Wisconsin) are the only reactors presently operating which are susceptible to a similar event. Immediate requirements similar to those which were required for Oyster Creek (Technical Specification changes 1 and 2) were implemented at these facilities prior to their start-up (they were both in a shutdown condition at the time of the Oyster Creek event). The third requirement will be implemented as soon as practicable.

Two other plants (Dresden Unit 1 and Big Rock Point), which are presently in extended shutdowns, would also be susceptible to a similar event. However, it is planned to impose appropriate requirements on those two plants prior to their startup.

In addition, on May 29, 1979 the NRC issued IE Information Notice No. 79-13, detailing this event, to all holders of operating licenses and construction permits.

Further reports will be made as appropriate.

79-6 Damage to New Fuel Assemblies

Preliminary information pertaining to this incident was reported in the Federal Register (44 FR 50925). Appendix A (Example 6 of "For All Licensees") of this report notes that a substantiated case of actual or attempted ... sabotage of a facility can be considered an abnormal occurrence.

Date and Place - On May 7, 1979, the NRC Resident Inspector at the Surry Power Station was notified by the licensee (Virginia Electric and Power Company - VEPCO) that while conducting inspections of new fuel for Unit 2 it was found that 62 of 64 fuel assemblies were coated with a white crystalline substance. Surry Units 1 and 2 are pressurized water nuclear power plants located in Surry County, Virginia.

Nature and Probable Consequences - On May 7, 1979, while conducting routine inspections of new fuel, the licensee discovered that a foreign substance had been poured onto 62 of the 64 new fuel assemblies stored in the Fuel Building, a vital area which contains both new and spent fuel. An analysis of the substance determined it to be sodium hydroxide. As a result of this analysis and the uncertainty of the extent of damage, the licensee is returning all the assemblies to the vendor for refurbishment. The licensee determined that there were no indications of damage to the spent fuel, nor was there evidence of unauthorized individuals gaining access to the vital area.

Fuel at the Surry site is stored in the Fuel Building, an area which is locked and alarmed, and to which access is controlled by the use of specially coded access cards. Authorized individuals, who are permitted access to the Fuel Building using the specifically coded access cards, are afforded unimpeded access to both the new and spent fuel.

Since normally conducted inspections by the licensee detected the damage to the new fuel, there is little chance that these assemblies - damaged in this way - would have been used in the reactor. While the actual consequences of this incident had no effect on the public health and safety, the incident did represent a potential threat in that it occurred within a vital area where sabotage to both new fuel and spent fuel was possible.

Cause or Causes - The cause was an alleged criminal act. On May 7, 1979, the licensee notified the FBI of the damage to the new fuel. The FBI conducted an investigation which culminated in two plant workers surrendering to Surry County authorities on June 19, 1979. A grand jury hearing was held in Surry, Virginia on July 24, 1979; trial is scheduled for October 10-12, 1979. The two workers, under advice from their attorney, have refused to describe the details of the safety issues which reportably motivated them to commit the acts.

Actions Taken to Prevent Recurrence

Licensee - As a result of the incident, and to assist the FBI in its investigation, the licensee considerably reduced the number of people permitted access to the Fuel Building and stationed a security guard inside the Fuel Building to verify access authorization. These were prompt temporary actions. The licensee has completed a thorough review of their access control program, and are now more selective in determining whether unescorted access should be provided. The licensee has made the Superintendent of Administrative Services responsible for coordinating corrective actions, and to ensure that weaknesses are corrected even if noted by someone not normally responsible for that particular professional discipline. These actions are consistent with the NRC IE Bulletin described below. Similar measures were also instituted at VEPCO's North Anna Power Station.

NRC - An NRC IE Security Inspector was dispatched to the site on May 8, 1979. Additionally, the Region II Senior Investigator, the Region II Security Section Chief and a Health Physics Inspector were onsite to assist the NRC Resident Inspector and to provide onsite assistance to the FBI. NRC IE Security Inspectors have examined the corrective measures taken by the licensee.

NRC IE Information Notice No. 79-12, "Attempted Damage to New Fuel Assemblies," was issued on May 11, 1979, to alert all NRC licensees who store new fuel assemblies of this problem.

NRC IE Bulletin No. 79-16, "Vital Area Access Controls," was issued on July 26, 1979 to require specific actions by the licensees, including a report by September 9, 1979 of actions taken and planned.

This incident is closed for purposes of this report.

FUEL CYCLE FACILITIES

(Other Than Nuclear Power Plants)

The NRC is reviewing events reported by these licensees during the second quarter of 1979. As of the date of this report, the NRC had not determined that any events were abnormal occurrences.

OTHER NRC LICENSEES

(Industrial Radiographers, Medical Institutions,
Industrial Users, etc.)

There are currently more than 8,000 NRC nuclear material licenses in effect in the United States, principally for use of radioisotopes in the medical, industrial and academic fields. Incidents were reported in this category from licensees such as radiographers, medical institutions, and byproduct material users.

The NRC is reviewing events reported by these licensees during the second quarter of 1979. As of the date of this report, the NRC had not determined that any events were abnormal occurrences.

AGREEMENT STATE LICENSEES

Procedures have been developed for the Agreement States to screen unscheduled incidents or events using the same criteria as the NRC (see Appendix A) and report the events to the NRC for inclusion in this report. During the second quarter of 1979, the Agreement States reported the following abnormal occurrences to the NRC.

AS79-1 Releases of Tritium and Contamination of Food

Appendix A (Example 11 "For All Licensees") of this report notes that a serious deficiency in management or procedural controls in major areas can be considered an abnormal occurrence.

Date and Place - On March 9, 1979, the Arizona Atomic Energy Commission conducted an inspection at American Atomics Corporation in Tucson, Arizona. American Atomics is licensed by Arizona to, among other things, manufacture and distribute to authorized persons luminous signs and devices using tritium, a radioactive isotope of hydrogen, as the activating agent. The inspection disclosed 4 items of non-compliance which were reported to the licensee by letter dated March 30, 1979: discharge of tritium to the atmosphere in unrestricted areas

in concentrations which exceed regulatory limits; possession of tritium by the licensee in quantities in excess of that authorized by the license; inadequate stack monitoring; and the excessive use of the category of normal operating losses for accountability of tritium. The inspection report noted that in the second quarter of 1978, 57,417 curies were calculated as "normal operating loss" and as much as 80% of this was discharged to the atmosphere. For the calendar year, the 287,000 curies categorized as "normal operating losses" were deemed by Arizona to be excessive.

An unannounced investigation by the State performed on May 7, 1979 disclosed the licensee had received additional quantities of tritium and its inventory continued to exceed the amount authorized by its license.

In May 1979, the State collected environmental samples around the facility. Analyses of these samples disclosed elevated levels of tritium. Located a block from the licensee is a kitchen that prepares school lunches for the Tucson Unified School District. Food samples were collected and the results of the analyses were reported to the State on May 31, 1979. Elevated levels of tritium were found - water contained in cake contained 56 nanocuries of tritium per liter. As a comparison, the EPA drinking water standard is 20 nanocuries per liter.

Nature and Probable Consequences - American Atomics Corporation was authorized by the Arizona Atomic Energy Commission to use radioactive materials in research and development and in manufacturing of devices containing radioactive materials. Predominant among its licensed activities is the manufacture of sealed self-luminous devices containing tritium. Examples are small tubes containing up to 200 millicuries of tritium used for backlighting liquid crystal display digital watches and Exit Signs containing up to 21 curies of tritium. The former can be distributed to the public as assembled timepieces exempt from licensing only under authority of a specific license issued by NRC. The latter can be distributed to persons who possess them under a General License provided by 10 CFR Part 31.5 or equivalent Agreement State regulations.

After receiving the notice of violations from the State dated March 30, 1979, the licensee established the boundary of the restricted area at the plant boundary and the State calculated that the concentrations of tritium at this boundary did not exceed the limits prescribed for unrestricted areas. The State, however, became concerned over the consequences of the releases to the atmosphere of the operational losses.

After consultation with EPA, an environmental sampling and analysis program commenced which led to the finding on May 31, 1979, of tritium in foodstuffs used in the Tucson school system.

Assessments of doses received by the public and the health effects resulting from the releases of the tritium and the contamination of the foodstuffs will be made by the University of Arizona Health Sciences Center. It should be

noted that daily intake by an adult of water containing tritium at a concentration equal to the EPA Drinking Water standard will result in an annual whole body dose of 4 millirem.

Cause or Causes - It appears that the primary cause of the contamination of foodstuffs was failure by the licensee to institute managerial and procedural controls to keep releases of tritium to the atmosphere as low as reasonably achievable.

Actions Taken to Prevent Recurrence

Licensee - The licensee suspended operations on June 15, 1979 and will decontaminate and decommission the facility in Tucson.

Arizona Atomic Energy Commission (AAEC) - In collaboration with the Pima County Health Department, AAEC obtained agreement from the school district kitchen on June 1, 1979, to suspend operation until additional measurements were made.

On June 2, 1979, AAEC met and determined an emergency existed and moved to restrict the licensee's operations from two to one shift per day, and scheduled a formal hearing for June 16, 1979, to consider alteration, suspension or revocation of the license. On June 15, 1979, AAEC ordered shutdown of the tritium operations. On July 11, 1979, American Atomics Corporation was given 100 days to decommission their operations. All production of tritium products was terminated and all tritium and tritium containing products were sealed to assure compliance with the Order.

On September 11, 1979, the production remnants, consisting of both rejected and leaking small tubes, as well as unfinished production items, totaling approximately 4 million pieces, were transferred to 17H-55 gallon drums and the drums were sealed gas tight. This effectively reduced the releases to the atmosphere to only out gassing from the production machinery, structural components, etc. This reduced the total release to approximately 4 curies per day. When the drums are connected in the total containment system, the total release is estimated to be as low as 1 millicurie per day.

Future reports will be made as appropriate.

AS79-2 Overexposures from a Radiography Source

Dates and Place - On June 22, 1979, the Radiological Health Section of the State of California was notified that a possible exposure to persons occurred from a radiography incident. The State investigation revealed the following: On May 22, 1979, X-Ray Products Corporation conducted radiography at the plant of REPCO, a pressure vessel manufacturer. The radiographer made 2 or 3 exposures and, unknown to the radiographer, the source had disconnected and was found on the floor by a REPCO employee who placed it in his hip pocket.

Several hours later he gave it to his supervisor. Both handled it and it was left with a secretary who was asked to contact the radiographer. The radiographer returned and retrieved the source. On the evening of May 22, the REPCO employee who had picked up the source became nauseous and went to a hospital where a blister was found on his buttock. The initial diagnosis and treatment was for an insect bite.

Nature and Probable Consequences - On June 22, 1979, the individual was hospitalized for treatment of injury. At that time he asked the physician if there was any relationship of the injury to the radiography performed at the plant on May 22, 1979. At the time the State was notified, exposure estimates ranged from: 1st REPCO employee 1.5 million Rem surface dose, 1 cm depth dose 60,000 rem, 3 cm depth dose 7,000 rem; Supervisor 3000 to 5000 rem hand dose and 16 rem whole body; secretary 1000 to 2000 rem hand dose and 50 to 60 rem whole body. Several other workers and clerical staff were identified as receiving exposure and their dose estimate range from a high of 14 rem to 3 rem whole body.

Cause or Causes - The State conducted an experiment utilizing a dummy mock up to determine the cause of the disconnect. The results of the experiment led the State investigator to the conclusion that the radiographer never connected the source to the cable.

Actions Taken to Prevent Recurrence - The State issued an order to X-Ray Products suspending the license and the investigation is continuing. The State is convening a State Board of Inquiry for this incident.

Future reports will be made as appropriate.

APPENDIX A

ABNORMAL OCCURRENCE CRITERIA

The following criteria for this report's abnormal occurrence determinations were set forth in an NRC policy statement published in the Federal Register (42 FR 10950) on February 24, 1977.

Events involving a major reduction in the degree of protection of the public health or safety. Such an event would involve a moderate or more severe impact on the public health or safety and could include but need not be limited to:

1. Moderate exposure to, or release of, radioactive material licensed by or otherwise regulated by the Commission;
2. Major degradation of essential safety-related equipment; or
3. Major deficiencies in design, construction, use of, or management controls for licensed facilities or material.

Examples of the types of events that are evaluated in detail using these criteria are:

For All Licensees

1. Exposure of the whole body of any individual to 25 rems or more of radiation; exposure of the skin of the whole body of any individual to 150 rems or more of radiation; or exposure of the feet, ankles, hands or forearms of any individual to 375 rems or more of radiation (10 CFR Part 20.403(a)(1)), or equivalent exposures from internal sources.
2. An exposure to an individual in an unrestricted area such that the whole body dose received exceeds 0.5 rem in one calendar year (10 CFR Part 20.105(a)).
3. The release of radioactive material to an unrestricted area in concentrations which, if averaged over a period of 24 hours, exceed 500 times the regulatory limit of Appendix B, Table II, 10 CFR Part 20 (10 CFR Part 20.403(b)).
4. Radiation or contamination levels in excess of design values on packages, or loss of confinement of radioactive material such as
(a) a radiation dose rate of 1,000 mrem per hour three feet from the

surface of a package containing the radioactive material, or (b) release of radioactive material from a package in amounts greater than the regulatory limit (10 CFR Part 71.36(a)).

5. Any loss of licensed material in such quantities and under such circumstances that substantial hazard may result to persons in unrestricted areas.
6. A substantiated case of actual or attempted theft or diversion of licensed material or sabotage of a facility.
7. Any substantiated loss of special nuclear material or any substantiated inventory discrepancy which is judged to be significant relative to normally expected performance and which is judged to be caused by theft or diversion or by substantial breakdown of the accountability system.
8. Any substantial breakdown of physical security or material control (i.e., access control, containment, or accountability systems) that significantly weakened the protection against theft, diversion or sabotage.
9. An accidental criticality (10 CFR Part 70.52(a)).
10. A major deficiency in design, construction or operation having safety implications requiring immediate remedial action.
11. Serious deficiency in management or procedural controls in major areas.
12. Series of events (where individual events are not of major importance), recurring incidents, and incidents with implications for similar facilities (generic incidents), which create major safety concern.

For Commercial Nuclear Power Plants

1. Exceeding a safety limit of license Technical Specifications (10 CFR Part 50.36(c)).
2. Major degradation of fuel integrity, primary coolant pressure boundary, or primary containment boundary.
3. Loss of plant capability to perform essential safety functions such that a potential release of radioactivity in excess of 10 CFR Part 100 guidelines could result from a postulated transient or accident (e.g., loss of emergency core cooling system, loss of control rod system).

4. Discovery of a major condition not specifically considered in the Safety Analysis Report (SAR) or Technical Specifications that require immediate remedial action.
5. Personnel error or procedural deficiencies which result in loss of plant capability to perform essential safety functions such that a potential release of radioactivity in excess of 10 CFR Part 100 guidelines could result from a postulated transient or accident (e.g., loss of emergency core cooling system, loss of control rod systems).

For Fuel Cycle Licensees

1. A safety limit of license Technical Specifications is exceeded and a plant shutdown is required (10 CFR Part 50.36(c)).
2. A major condition not specifically considered in the Safety Analysis Report or Technical Specifications that requires immediate remedial action.
3. An event which seriously compromised the ability of a confinement system to perform its designated function.

APPENDIX B

UPDATE OF PREVIOUSLY REPORTED ABNORMAL OCCURRENCES

During the April through June 1979 period, the NRC, NRC licensees, Agreement States, Agreement State licensees, and other involved parties, such as reactor vendors and architects and engineers, continued with the implementation of actions necessary to prevent recurrence of previously reported abnormal occurrences. The referenced Congressional abnormal occurrence reports below provide the initial and any updating information on the abnormal occurrences discussed. Those occurrences not now considered closed will be discussed in subsequent reports in the series.

NUCLEAR POWER PLANTS

The following abnormal occurrence was originally reported in NUREG-75/090, "Report to Congress on Abnormal Occurrences: January-June 1975," and updated in subsequent reports in this series, i.e., NUREG-0090-1, 2, 3, 9, and Vol. 1, No. 3. It is further updated as follows:

75-5 Cracks in Pipes at Boiling Water Reactors (BWRs)

The 1978 Study Group completed its evaluation in February 1979 and issued a report, NUREG-0531, "Investigation and Evaluation of Stress-Corrosion Cracking in Piping of Light Water Reactor Plants." The new Study Group not only reaffirmed the conclusions and recommendations reached by the previous group (NUREG-75/067) but also presented some new ideas to reduce the potential for intergranular stress corrosion cracking (IGSCC). In addition, they addressed IGSCC in safe ends.

On March 13, 1979, NRC issued a Notice in the Federal Register to request public comment on the Study Group's report, NUREG-0531. After expiration of the public comment period and review of the Study Group's conclusions/recommendations, the staff initiated action in June 1979 to update NUREG-0313 ("Technical Report on Material Selection and Processing Guidelines for BWR Coolant Pressure Boundary Piping," issued July 1977) to incorporate the present Study Group's conclusions/recommendations and public comments received on NUREG-0531.

The NRC staff is currently updating the implementation document NUREG-0313 as a subtask under Generic Task A-42, "Pipe Cracks in Boiling Water Reactors." The objective of other subtasks is to identify and recommend additional measures to reduce the susceptibility of stainless steel piping to stress corrosion cracking. A report on the results of this task is expected to be published this year.

Further reports will be made as appropriate.

The following abnormal occurrence was originally reported in NUREG-75/090, "Report to Congress on Abnormal Occurrences: January-June 1975," and updated in subsequent reports in this series, i.e., NUREG-0090-1, 6, and Vol. 1, No. 4. It is further updated as follows:

75-7 Steam Generator Feedwater Flow Instability at Pressurized Water Reactors (PWRs)

Since the previous 1978 update of this item (NUREG-0090, Vol. 1, No. 4), additional incidents of steam generator water hammer have occurred at two pressurized water reactors. These events occurred at Zion Unit 1 and San Onofre Unit 1. One event at Zion Unit 1 resulted in the actuation of the Safety Injection System. Subsequent visual inspection of the piping at Zion indicated no apparent structural damage as a result of the water hammer and safety injection. The feedwater pipes were also radiographically inspected in the vicinity of the steam generator nozzle and the pipes were found to have no cracks. Operation of the Zion unit was resumed but the licensee will modify the feedings in all steam generators of Units 1 and 2 at the rate of one steam generator per refueling outage in order to prevent steam generator water hammer in the future. The water hammer at San Onofre Unit 1 resulted in minor damage to a seismic snubber, which was repaired.

Steam generator water hammer has occurred in certain nuclear power plants as a result of the rapid condensation of steam in a steam generator feedwater line. The consequent acceleration of a slug of water and the impact ("hammering") within the piping system causes undue stresses in the piping and its support system. The significance of these events varies from plant to plant. Since the total loss of feedwater could affect the ability of the plant to cool down after a reactor shutdown, the NRC is concerned about these events occurring, even though an event with potentially serious consequences is unlikely to happen.

With the exception of the Zion and San Onofre Units, all operating nuclear power stations that have had steam generator water hammer events have been modified and subsequently have not experienced steam generator water hammer. The NRC is continuing to evaluate the potential for steam generator water hammer in operating pressurized water reactor systems.

Further reports will be made as appropriate.

The following abnormal occurrence was originally reported in NUREG-0090-3, "Report to Congress on Abnormal Occurrences: January-March 1976," and updated in subsequent reports in this series, i.e., NUREG-0090-4, 6, Vol. 1, No. 1 and Vol. 1, No. 3. It is further updated as follows:

76-1 Deficiencies in the Mark I Containment Systems of Certain Boiling Water Reactors (BWRs)

Actions Taken to Prevent Recurrence

Licensee/Vendor - General Electric Company (GE) and the Mark I Owners Group are continuing to conduct the Mark I Containment Long Term Program (LTP).

The objectives of the LTP are (1) to establish design basis (conservative) loads that are appropriate for the anticipated life (40 years) of each Mark I BWR facility, and (2) to restore the original intended design safety margins for each Mark I containment system. The LTP consists of a series of major tasks and subtasks which are designed to provide a detailed basis for hydrodynamic load definition and the methodology and acceptance criteria for the structural assessments. The generic aspects of the LTP are described in a Plant Unique Analysis Applications Guide, which was submitted to the NRC in February 1979, and a Load Definition Report, which was submitted by parts, in December 1978 and March 1979. These reports describe the proposed load definition and assessment techniques for the Mark I LTP. These reports are currently under review by the NRC staff and, upon the completion of this review, the staff will issue a set of acceptance criteria for these generic assessment techniques. Subsequently, each utility will perform a plant-unique analysis using approved load definition and structural analysis techniques to demonstrate conformance with the LTP structural acceptance criteria.

The scheduled completion date for the Mark I LTP, including the issuance of license amendments and the implementation of any plant modifications necessary to satisfy the LTP structural acceptance criteria, is December 1980. To maintain this schedule, a number of utilities have undertaken plant modifications prior to the completion of their plant-unique analysis. This action has been considered necessary to minimize the potential for extended plant outages later in the program. Similarly, modifications to components external to the containment (e.g., support structure) have and are being conducted during normal plant operation.

Further reports will be made as appropriate.

The following abnormal occurrence was originally reported in NUREG-0090-6, "Report to Congress on Abnormal Occurrences: October-December 1976," and updated in subsequent reports in this series, i.e., NUREG-0090-7 and Vol. 1, No. 4. It is further updated as follows:

76-16 Feedwater Nozzle Cracking in Boiling Water Reactors

Over the last several years, inspections at 22 of the 23 boiling water reactor (BWR) plants licensed for operation in the U.S. have disclosed some degree of

cracking in the feedwater nozzles of the reactor vessel at 18 of those facilities inspected. One facility has not yet been inspected because it has not accumulated significant operating time. In a closely related area, cracks have been found in control rod drive (CRD) return line nozzles, the openings in BWR pressure vessels through which the high pressure water in excess of that needed to operate and cool the CRDs is returned to the pressure vessel. The cracks resemble those found in feedwater nozzles. Both conditions probably result from the same kind of cyclic thermal stresses.

The NRC staff has completed its review of the proposed long-term solutions to the BWR nozzle cracking problem and has concluded that they provide effective means of mitigating the problem. A NUREG document is being written to incorporate guidance for operating reactors and plants under licensing review. The resolution of inservice inspection technique selection and frequency of inspection has been separated from the generic task while major industry investigations (including thermal cracking of a full-size nozzle mockup for use in ultrasonic testing evaluation) continue. A revision to the NUREG document will be written at the completion of these studies. In the meantime, stringent inspection requirements, based mainly upon dye-penetrant testing, are still in force. All licensee efforts, such as system and operational changes, to lengthen the time to crack initiation and to slow crack growth are taken into account in the determination of inspection techniques and acceptance criteria. Plant modifications related to final resolution of the CRD nozzle problem are still under NRC staff review.

Plant-specific implementation of the generic resolution (with the exception of final inservice inspection technique and frequency determination) has begun.

Further reports will be made as appropriate.

The following abnormal occurrence was originally reported in NUREG-0090-10, "Report to Congress on Abnormal Occurrences: October-December 1977," and updated in subsequent reports in this series, i.e., NUREG-0090, Vol. 1, No. 1 and Vol. 1, No. 2. It is further updated as follows:

77-9 Environmental Qualification of Safety-Related Electrical Equipment Inside Containment

As described in the last update to this abnormal occurrence (NUREG-0090, Vol. 1, No. 2), Inspection and Enforcement (IE) Circular No. 78-08 was issued on May 31, 1978 to all licensees to highlight important lessons learned from environmental qualification deficiencies reported by individual licensees. Licensees were requested to examine installed safety-related electrical equipment and determine that proper documentation existed which provided assurance that the equipment would function under postulated accident conditions.

NRC inspections conducted of licensees' activities in response to the Circular identified one component (certain stem mounted limit switches) found to be unqualified for service within the Loss of Coolant (LOCA) environment. Also, NRC inspection of component qualification identified equipment which did not have documentation indicating it was qualified for the LOCA environment. The inspections also identified that the licensees' re-review and resolution of problem areas were not receiving the level of attention from all licensees that the NRC believed was warranted. Therefore, IE Bulletin No. 79-01 was issued to licensees of power reactor facilities on February 8, 1979. The intent of the Bulletin was to raise the threshold of the Circular to the level of a Bulletin; i.e., actions requiring licensee response.

In addition to requiring a complete review by the licensees of the environmental qualification of all Class IE electrical equipment within 120 days, the Bulletin also required that any equipment determined to be unqualified for its service conditions be reported to the NRC Director of the Division of Operating Reactors within 24 hours of discovery. To date, there have been some 32 separate reports of unqualified equipment at 29 different plants involving five different types of equipment. The unqualified equipment reported included: (1) limit switches mounted on safety-related valve stems to indicate valve stem position; (2) containment isolation valve motor operators; (3) instrument and control cable insulated terminal lugs; (4) aluminum limit switch housings on containment isolation valves; and (5) ASCO pilot solenoid valves for miscellaneous valve air operators.

In each instance where an item of equipment was determined to be unqualified, the NRC staff immediately evaluated the impact on the health and safety of the public and the adequacy of the remedial steps to be taken by the licensees. In some cases the licensees elected to replace the unqualified equipment immediately; in others a basis for continued operation pending corrective action at a specified future date was provided. In those cases where the licensees proposed to continue to operate the plant for a period of time before shutting down and replacing the affected equipment, the following factors were considered in the NRC staff evaluations of whether the plants could continue to be operated safely: (1) redundant/diverse components available to perform the required safety functions; (2) locking the affected component in its safety position; (3) administrative actions and revised operating procedures; (4) additional operability tests and inspections; (5) post accident mitigating actions available; and (6) fail safe design features. In all cases where continued operation was requested by the licensees based on a plant specific safety evaluation, the NRC staff has concluded (contingent upon additional staff requirements being satisfied in some cases) that the plants could continue to be operated safely.

An NRC task group has been formed to review in detail the licensees' responses to Bulletin 79-01 in regard to the documentation of qualification of the affected equipment.

Further reports will be made as appropriate.

The following abnormal occurrence was originally reported in NUREG-0090, Vol. 1, No. 2, "Report to Congress on Abnormal Occurrences: April-June 1978," and updated in NUREG-0090, Vol. 1, No. 4. It is further updated as follows:

78-2 Fuel Assembly Control Rod Guide Tube Integrity (A Generic Concern)

As reported previously, examination of fuel assembly control rod guide tubes after service in several operating pressurized water reactors (PWRs) disclosed significant amounts of wear. At the extreme, some tubes had been worn through showing sizeable holes. The cause was determined to be flow-induced vibration of fully withdrawn control rods. The rod tips, vibrating against the guide tubes, induced degrading wear, probably aided by corrosion.

The safety significance of the incidents relates to the functions of the guide tubes. Guide tubes serve both as fuel assembly structural members and as channels for control rod movement. Thus, guide tube failure could adversely affect either the preservation of a coolable core geometry or the scram capability of the control rods, or both.

The observed severe wear of the guide tubes thus far has been confined to facilities designed by Combustion Engineering (CE). Basic differences in the design of the control rod systems which insert into the guide tubes of the fuel assemblies exists between the CE plants and the other PWR plants (Westinghouse and Babcock and Wilcox). These design differences appear to have reduced the severity of wear on the guide tubes in the latter vendors facilities. However, such wear in Westinghouse and Babcock and Wilcox plants and in Exxon Nuclear fuel assemblies is under investigation by the NRC staff.

To overcome the susceptibility to wear by the guide tube material (Zircaloy-4) and to recover the design margin lost by wear, CE designed stainless steel sleeves for use in the guide tubes. Prior to installation of stainless steel sleeves during a refueling outage, operators of CE reactors instituted the practice of inserting the control rods three inches further into the core than the normal fully withdrawn position. That action both distributed the wear location and provided added assurance of scram capability. NRC approval was granted for this short-term administrative procedure allowing continued operation with the control rods inserted three inches further into the core.

The use of sleeved guide tubes was approved by the NRC as an interim repair to mitigate the guide tube wear on a cycle specific basis. In conjunction with the use of the stainless steel sleeves, the NRC staff required that inspection programs be submitted for review and approval well in advance of refueling shutdowns.

The first opportunity to evaluate the performance of the sleeved guide tubes after reactor operations occurred during the Millstone Unit 2 refueling outage in the spring of 1979. Subsequent to the Millstone 2 refueling, the St. Lucie Unit No. 1 and the Calvert Cliffs Unit No. 1 also provided additional evidence on the performance of the sleeved guide tubes. Based on the results of these inspections, the sleeving modification has performed well as an interim solution to mitigate the guide tube wear, but it does not eliminate the cause of the wear.

Additional out-of-reactor hot loop testing by CE showed the important role of flow-induced vibration of the control rods in the guide tube wear problem. The vibration and, hence, the wear, was reduced by redistributing some of the guide tube coolant (water) flow. Two fuel assembly modifications were designed to redistribute the coolant flow. One involved inserting a splined cylinder in the top of the guide tube. The second involved reducing the size and number of flow holes in the bottom of the guide tube. Test results favored the modified flow hole design. A limited number of assemblies with both modifications are installed in currently operating reactors to confirm the loop test results.

The Calvert Cliffs Unit No. 2 is scheduled for refueling in the late summer or early fall of 1979. This unit has, in addition to the sleeving modification, 16 assemblies with modifications designed to affect the coolant flow and perturb the vibrational characteristics of the control rods.

The NRC has closely monitored the analyses and experiments performed by CE. The NRC staff agrees with the vendor that the results point to control rod flow-induced vibration as the principal factor in guide tube wear. Therefore, design modifications intended to redistribute flow in guide tubes were judged appropriate. The NRC has approved the modified designs for limited operation on the basis that they will mitigate the wear problem. Approval of either design modification as a final solution to the problem will be contingent upon the results of further out-of-reactor experiments and examination of the modified assemblies which are currently subject to in-reactor operations.

Further reports will be made as appropriate.

The following abnormal occurrence was originally reported in NUREG-0090, Vol. 1, No. 4, "Report to Congress on Abnormal Occurrences: October-December 1978," and is further updated as follows:

78-5 Loss of Containment Integrity

The NRC staff review of the generic implications of the two events (Millstone Unit 2, and Salem Unit 1), has continued. The NRC staff letter of November 1978 has requested all licensees of operating reactors to respond to generic

concerns about containment purging or venting during normal plant operation. The generic concerns were twofold:

1. Events had occurred where licensees overrode or bypassed the safety actuation isolation signals to the containment valves.
2. Recent licensing reviews have required tests or analyses to show that containment purge or vent valves would shut without degrading containment integrity during the dynamic loads of a design basis accident-loss of coolant accident (DBA-LOCA).

The NRC position of the November 1978 letter requested that licensees take the following positive actions pending completion of the NRC review: (1) prohibit the override or bypass of any safety actuation signal which would affect another safety actuation signal; the NRC Office of Inspection and Enforcement would verify that administrative controls prevent improper manual defeat of safety actuation signals, and (2) cease purging (or venting) of containment or to limit purging (or venting) to an absolute minimum, not to exceed 90 hours per year. Licensees were requested to demonstrate (by test and analysis) that containment isolation valves would shut under postulated DBA-LOCA conditions.

After the licensee responses were received for review, the NRC staff made site visits to several facilities, met with other licensees at Bethesda, Maryland, and held numerous conferences with many other licensees. The staff also met with some valve manufacturers. During these discussions the staff stressed that positive actions must be taken to assure that containment integrity would be maintained in the event of a DBA-LOCA.

As a result of these actions, the NRC staff was informed that at least three valve vendors have reported that their valves may not close against the ascending differential pressure and the resulting dynamic loading of a design basis LOCA. All identified licensees whose plants had questioned the designs are maintaining the valves in the closed position or are restricting the opening of the valves when primary containment integrity is required. Re-evaluation of the valve performances under the DBA-LOCA condition are being made by affected licensees.

At this time, the licensees of about twenty percent of the reactors have not yet limited purging and venting of containment beyond their current licensed requirements. The remainder of the licensees have either ceased purging (about twenty-five percent of the reactors) or have limited purging to various degrees. As the NRC review progresses, licensees which might have electrical override circuitry problems are being advised not to use the override and have taken compensatory interim measures to minimize the problem. The NRC is continuing to take such action during the remaining reviews.

Pending completion of the NRC staff's review, the following interim measures will be required by licensees of operating reactors that do not now limit purging or venting of containment. These licensees will be required to

propose modifications to plant or system design to minimize the need for purging or venting of the containment. Design modifications being considered include limiting valve angular opening to assure that critical valve parts will not be damaged during the DBA-LOCA, increasing the cooling capacity of the containment cooling system to control the containment pressure, temperature and relative humidity, and using internal charcoal filter system for air circulation and filtering throughout all containment and during plant discharge to reduce airborne activity.

Further reports will be made as appropriate.

The following abnormal occurrence was originally reported in NUREG-0090, Vol. 2, No. 1, "Report to Congress on Abnormal Occurrences: January-March 1979," and is further updated as follows:

79-1 Degraded Engineered Safety Features

As described in NUREG-0090, Vol. 2, No. 1, three safety concerns emerged from the analysis of the event that occurred at Arkansas Nuclear One (ANO) site on September 16, 1978. The three concerns were:

1. The offsite power supply for ANO Unit 1 Engineered Safety Feature loads was deficient in that degraded voltage could have resulted in the unavailability of ESF equipment, if it were to be needed.
2. The design of the ANO site electrical system that provides offsite power to Units 1 and 2 did not fully meet the Commission's Regulations, 10 CFR 50, Appendix A, General Design Criterion 17, because in certain circumstances a failure of one of the two offsite power circuits would also result in a failure of the other such circuit.
3. Deficiencies existed in the operation of the Unit 2 inverters that convert battery power to AC power for certain safety-related equipment.

As stated in the previous report, the NRC has reviewed and approved corrective actions taken by the licensee to prevent recurrence. The actions taken to date have satisfactorily alleviated the safety concerns (2) and (3) above. The review and evaluation by NRC staff of corrective actions proposed by the licensee addressing safety concern (1) is still in progress.

The existing NRC generic review activity regarding degraded grid voltage related to the July 5, 1976 Millstone Unit 2 event* has been expanded to ensure that adequate voltage will be available at the ESF buses during all electrical transients including voltage degradation resulting from loading

*Reference Abnormal Occurrence No. 76-9 ("Failure of Undervoltage Trip Logic and Consequent Loss of Safeguard Power") reported in NUREG-0090-5 and NUREG-0090-6.

due to onsite automatic switching. A letter was sent from the NRC to power reactor licensees on August 8, 1979 requesting the licensees to review the adequacy of their electric power systems. Responses were requested within 60 days.

Further reports will be made as appropriate.

The following abnormal occurrence was originally reported in NUREG-0090, Vol. 2, No. 1, "Report to Congress on Abnormal Occurrences: January-March 1979," and is further updated as follows:

79-2 Deficiencies in Piping Design

The Nuclear Regulatory Commission staff ordered five plants to shutdown on March 13, 1979, until reanalysis and necessary modifications were made to safety-related piping systems to bring them into conformance with requirements for withstanding earthquakes. The plants ordered shutdown were Beaver Valley Unit 1, James A. FitzPatrick, Maine Yankee and Surry Units 1 and 2.

Stone and Webster Engineering, the architect engineer for all five plants, and Duquesne Light Company, the licensee for the Beaver Valley facility, reported to the NRC during a meeting on March 8, 1979, that an algebraic summation method was used to combine seismic forces in the computer code SHOCK II. The algebraic summation method can result in cancellation of seismic forces and resulted in prediction of stresses significantly lower than would be predicted by NRC approved techniques. Following the meeting on March 8, members of the NRC staff met for three days with Stone & Webster Engineering officials in Boston. Additional analyses of piping systems for the Beaver Valley facility were performed. These analyses indicated significant overstress in the piping systems under postulated earthquake conditions when computer codes were utilized which did not combine seismic loads algebraically. Piping systems involving the integrity of the Reactor coolant pressure boundary, Emergency Core Cooling Systems and safe shutdown systems, were involved. It was also determined that the same computer code (SHOCK II) was used in the design of four other facilities. The NRC staff ordered all five plants shut down because there was not assurance that a severe earthquake at any of these facilities would not cause an accident, damage emergency core cooling systems, and prevent safe shutdown of the plant.

The required reanalysis and necessary modifications were completed for Maine Yankee and Beaver Valley and orders were issued on May 24, 1979 and August 8, 1979, respectively terminating the March 13, 1979 Show Cause Orders. Sufficient reanalysis and modifications were completed for FitzPatrick and Surry Unit 1 to permit issuing orders on August 14, 1979, and August 22, 1979, respectively allowing resumption of operation for 60 days while some remaining pipe support analyses were completed.

Surry Unit 2 was shut down for steam generator repair and replacement prior to the March 13, 1979 shut down order. Because of the long shutdown for steam generator work, the seismic reanalysis required by the order was delayed by the licensee. It is not anticipated that the required seismic reanalysis will lengthen the plant shutdown.

Several actions have been taken by the NRC staff related to review, evaluation and approval of computer codes used for seismic analysis of safety-related piping. The computer code verification program initiated by the staff has three principal parts; (1) review of actual computer code listings, (2) solution of NRC benchmark problems to compare results to known values, and (3) independent check analyses of piping problems using NRC's own computer code. Additionally the NRC staff reviewed the development of the mathematical model which represents the piping system.

On April 13, 1979, Florida Power and Light, the licensee for Turkey Point Units 3 and 4, reported that algebraic summation techniques had been utilized by Westinghouse in design of the main reactor coolant system piping. The NRC reviewed the results of Westinghouse's reanalysis, determined that the piping design was acceptable and permitted resumption of operation of both Turkey Point Units. However, as a result of this information, an NRC IE Bulletin was issued on April 14, 1979, requiring all licensees to review the computer codes used in the design of safety-related systems to determine if algebraic summation had been utilized. A total of 24 additional plants used an algebraic summation technique. Four of these plants were still under construction and had not yet been issued operating licenses. The computer codes identified were:

SHOCK II	Stone & Webster Engineering
WESTDYN	Westinghouse
DAPS	General Electric
PIPDYN II	Franklin Institute
ADLPIPE	Arthur D. Little Company

The NRC staff has required reanalysis of all affected piping, modification when necessary, and computer code verification for those codes used for reanalysis. The majority of the 20 operating reactors not designed by Stone & Webster Engineering utilized algebraic summation methods on very few piping systems and had reanalyzed these systems prior to responding to the bulletin. In a few cases (Pilgrim Unit 1, Brunswick Units 1 and 2, Indian Point Unit 3 and Salem Unit 1), the use of algebraic summation was more extensive. One unit, Salem Unit 1, has been shut down since April 1979 for refueling and other modifications, and will not resume operation until the algebraic summation issue is resolved. All other units have been resolved completely, or based upon NRC staff evaluation have been permitted to continue operation during reanalysis. In each case where continued operation was permitted (Brunswick Units 1 and 2 and Indian Point Unit 3) analysis methods utilized and the margin in the piping design to code allowable values were such that modification to piping systems was unlikely. The staff however required detailed reanalyses to confirm that the designs were acceptable.

As described in the previous Abnormal Occurrence Report to Congress (NUREG-0090, Vol. 2, No. 1), an additional issue has been identified which can cause seismic analysis of safety-related piping systems to yield nonconservative results. The issue involves the accuracy of the information input for seismic analyses. NRC IE Bulletin 79-14 was issued on July 2, 1979 to all power reactor facilities with an operating license or a construction permit. The Bulletin, which was revised on July 18, 1979 and supplemented on August 14, 1979, directs the licensees to perform inspections of their safety-related piping systems and supports. Various categories of information were to be reported to the NRC within 30, 60, and 120 days. The NRC will then review the results and take action, as appropriate, on a case-by-case basis. Because of the conservatism and redundancy built into the piping systems, the NRC did not require the facilities to be shut down pending completion of the inspections and remedial action if required. However, one plant, Ft. St. Vrain, has shutdown pursuant to technical specification requirements resulting from nonconformances discovered during "as-built" inspections. The inspection at this plant is not complete. Currently, several significant nonconformances have been identified and are being resolved. Licensee responses for the information required within 30 days are being presently reviewed by the NRC.

Further reports will be made as appropriate.

The following abnormal occurrence was reported first in NUREG-0090, Vol. 2, No. 1, "Report to Congress on Abnormal Occurrences: January-March 1979," and in the Federal Register (44 FR 45802) on August 3, 1979. It is further updated as follows:

79-3 Nuclear Accident at Three Mile Island

The Three Mile Island Unit 2 (TMI-2) plant remains in a stable condition. In late August 1979, core flow was being provided by natural circulation; core cooling was being maintained by steaming the "A" steam generator through the turbine bypass valve to the main condenser. On August 20, 1979, the hot and cold leg temperatures were 165°F and 157°F, respectively; the highest incore thermocouple indication was 253°F. Primary pressure was about 275 psig. As reported in the previous report, an alternate mode of cooling is in place in case the existing mode becomes inoperable.

The licensee (Metropolitan Edison Company) has made provision for a direct sampling capability in the containment while maintaining constant containment isolation. An existing, but unused penetration was modified to provide a sampling point by boring a hole through a blank flange. The penetration is about two feet above the water line (the water in the containment is about seven feet deep). The radiological aspects of the modifications were reviewed and approved by NRC personnel onsite. The sampling capability will be used to monitor the radioactivity both above and below the water line. The information will be useful in planning cleanup activities and to obtain a better estimate of core damage.

The first significant waste shipment from TMI-2 (a previous shipment consisted of three liners, shipped in mid-April to Richland, Washington) since the accident was shipped on August 7, 1979, arriving at Nuclear Engineering Company's Hanford, Washington burial facility on August 10, 1979. The shipment consisted of 157 55-gallon drums of low specific activity trash. The shipment was made without incident.

The licensee has completed work on specially-built equipment to decontaminate intermediate level radioactive waste water resulting from the accident. The water which would be decontaminated by the system (designated "EPICOR-II") is contained in tanks in the Unit 2 auxiliary building and totals approximately 265,000 gallons. The primary radioactive contaminants are iodine-131 and cesium-137 -- ranging from as much as 3 microcuries per milliliter of iodine to as much as 35 microcuries per milliliter of cesium. The NRC staff has completed an environmental assessment of the use of the "EPICOR-II" system and has issued it for public comments. The systems will not be used until authorized by the Commission.

The NRC's Office of Inspection and Enforcement (IE) issued their report of the investigation into the March 28, 1979 TMI-2 accident. The report (NUREG-0600) was issued in early August 1979. The IE investigation covered two aspects of the accident:

1. Those related operational actions by the licensee during the period from before the initiating event until approximately 8:00 p.m., March 28, when primary coolant flow was re-established by starting a reactor coolant pump, and
2. Those steps taken by the licensee to control the release of radioactive material to the offsite environs, and to implement the licensee's emergency plan during the period from the initiation of the event to midnight, March 30.

These investigation periods were selected because they include the licensee actions which most significantly affected the accident sequence and its results.

The IE investigation supported the reported population dose from the accident as developed by an ad hoc assessment group (which included representatives of various Federal agencies) and reported in NUREG-0558 which was issued May 10, 1979. The ad hoc's conclusion that the accident resulted in minimal risks of additional health effects to the offsite population was also summarized in the previous Abnormal Occurrence Report to Congress (NUREG-0090, Vol. 2, No. 1).

The IE investigation also substantiated earlier conclusions concerning the underlying causes of the accident and those factors that contributed to its severity. Inadequacies in six major areas were confirmed:

1. Equipment performance (failures and maloperation).
2. Transient and accident analyses.
3. Operator training and performance.
4. Equipment and system design.
5. Information flow, particularly during the early hours of the accident.
6. Implementation of emergency planning.

The investigation concluded that the accident could have been prevented, in spite of the listed inadequacies, if the plant systems and procedures had been permitted to function or be carried out as planned. Subsequent actions have been required by the NRC to retrain all licensed operators in an effort to preclude recurrence. Upgraded procedural instructions have also been required.

The investigation also identified up to 35 potential violations of federal procedures by the licensee. These are being further evaluated and appropriate action will be taken with the licensee.

The Lessons Learned Task Force is one of several TMI-2 related activities underway in the NRC. The Task Force was established in the NRC Office of Nuclear Reactor Regulation (NRR) to ensure the continued safe operation of licensed nuclear power plants. The purpose of the Task Force is to identify and evaluate those safety concerns originating with the TMI-2 accident that require licensing actions (beyond those already specified in IE Bulletins and Commission Orders) for presently operating reactors as well as for pending operating license and construction permit applications. The Task Force issued a status report together with short-term recommendations in late July 1979. The report (NUREG-0578) identified 23 specific requirements whose implementation was judged to provide substantial, additional protection which is required for the public health and safety. The time scale recommended for promulgation and implementation was also presented. The requirements were discussed with licensee representatives in a meeting held in Bethesda, Maryland in early August 1979. The recommendations of the Task Force are or will be implemented as approved by the Director of NRR or the Commission. The Task Force is developing longer term recommendations and plans to issue a final report in October 1979. Topics to be addressed in that report include general safety criteria, system design requirements, nuclear power plant operation, and the nuclear power plant licensing process. Additional licensing actions or requirements may be recommended by the Task Force within the next several months for backfit to operating plants and pending license applications.

A related ongoing effort in the NRC Office of Nuclear Reactor Regulation is the Bulletins and Orders (B&O) Task Force. This group is performing safety evaluations for the five Babcock & Wilcox plants shut down by confirmatory Commission Orders, and is reviewing the responses to IE Bulletins by licensees with nuclear steam supply systems designed by Westinghouse, Combustion Engineering, and General Electric. The B&O Task Force plans to publish reports that will cover the various plant designs of each of the reactor vendors noted above. The reports will deal with specific plant design aspects. Feedwater transients

and small break loss-of-coolant accidents are being evaluated in considerable detail, including the review of emergency procedures and operator training for these events. These reports are scheduled to be available in the late summer of 1979.

Inspection and Enforcement (IE) Bulletin Nos. 77-05C and 79-06C was issued on July 26, 1979 to all pressurized water reactor (PWR) facilities with an operating license. The Bulletin requires that under loss of coolant symptoms, all operating reactor coolant pumps be tripped (turned off) immediately before significant voiding in the reactor coolant system occurs; certain required operator actions and analyses to be performed by the licensees were also stipulated. This revised Bulletin was issued after calculations by the PWR vendors indicated that, for a certain spectrum of small breaks in the reactor coolant system, continued operation of the reactor coolant pumps could increase the mass lost through the break and prolong or aggravate the uncovering of the reactor core.

As described in the previous Abnormal Occurrence Report to Congress (NUREG-0090, Vol. 2, No. 1), there are continuing investigations of the accident underway. Further actions will be considered and implemented as necessary based on the ongoing NRC staff studies, and the ongoing Presidential, Congressional, and NRC investigations. The NRC continues to have onsite staff at TMI to assure that (1) TMI-2 achieves a safe cold shutdown condition, and (2) radwaste cleanup and recovery operations are conducted in a safe manner such that occupational exposures and releases offsite are as low as reasonably achievable.

TMI-1, which was in a shutdown condition at the time of the TMI-2 accident, remains shutdown. It is estimated that it may be up to two years before TMI-1 can resume operation, considering the time necessary for licensee actions and modifications, public hearing process, and final NRC action.

Further reports will be made as appropriate.

APPENDIX C

OTHER EVENTS OF INTEREST

The following event is described below because it may possibly be perceived by the public to be of public health significance. The event did not involve a major reduction in the level of protection provided for public health or safety; therefore, it is not reportable as an abnormal occurrence.

Cracking in Main Feedwater System Piping (PWR Plants)

Description

On May 20, 1979, Indiana and Michigan Electric Company informed the NRC of cracking in two feedwater lines at the D.C. Cook Unit 2. Leaking circumferential cracks were identified in the 16-inch lines in the immediate vicinity of the steam generator nozzles. Subsequent volumetric examination (radiography) revealed crack indications at similar locations in all feedwater lines of both Units 1 and 2. As a result of a letter sent to all PWR licensees by the NRC and the issuance of Inspection and Enforcement (IE) Bulletin No. 79-13, inspections are being performed at other PWR facilities. Of the 22 facilities examined to July 20, 1979, 12 have piping cracks or crack-like indications in the vicinity of the feedwater nozzles.

Presumed Cause/Mode of Failure

The mode of failure at the facilities with the most severe cracks has tentatively been identified as corrosion assisted fatigue. The cracking at these facilities has been located at a stress riser caused by machining the fitting. Internal diameter cracking of a less severe nature, which is not localized at the discontinuity, has been located at two units, Point Beach Unit 2 and San Onofre. The cracking mode at San Onofre has been identified tentatively as primarily stress assisted corrosion.

The initiating cause and driving force for the cracking has not been positively identified at this time. Factors that could contribute to the cracking include the following:

- Pipe vibrations
- Thermal stresses
- Environmental effects
- Improper pipe restraint and support
- Fabrication discontinuities

Reanalyses of normal piping system stresses and visual inspections of the feedwater lines have not, to date, uncovered any anomalies that would be expected to cause cracking. No significant deviations from proper feedwater chemistry control have been discovered. Through-wall thermal stresses due to

alternate heating and cooling of this region have been analyzed and do not appear to be large enough to cause the degree of cracking found within the relatively short time periods of operation (approximately 1 year at Cook-2). At least three of the facilities involved have not experienced water hammer events. Thermal stresses, both high and low cycle, which could occur because of mixing of hot and cold water in the nozzle region during hot standby are also being considered, but to date have not been quantitatively analyzed pending the outcome of test programs.

Licensees for several facilities at which the cracking was most severe have agreed to install a multitude of thermocouples, strain gages and accelerometers at appropriate places on feedwater piping in the vicinity of the nozzles. During subsequent operations these instruments will be monitored in an attempt to find the cause or causes of cracking.

Safety Significance

The NRC has considered the safety significance of these cracks, and has concluded that the worst cracks found to date (Cook-2) would be unlikely to result in a significant feedwater line break (leaks are possible) in the event of an earthquake. It is conceivable, however, that a line may not survive a severe water hammer although it is unlikely that more than one line would experience a severe water hammer event simultaneously. Thus, the worst reasonable consequence would be the rupture of a single line, with which the facilities are designed to cope.

Repair Procedures

Repairs are being or have been made using somewhat improved designs for this piping region. The NRC has concluded that they are adequate pending the outcome of the test programs being conducted at several facilities. The NRC has advised other licensees to follow the conduct of these programs and that other remedial measures may be required later depending on the findings of the tests.

NRC Action

The NRC will follow closely the conduct of the several test programs to be conducted and will review and analyze the test results. The NRC will also have samples of the cracked piping analyzed metallographically. In addition, the piping designs and facility operating procedures of all PWRs are being reviewed in an attempt to find common factors which may result in cracking or preclude cracking.

ENCLOSURE 3

OTHER EVENTS CONSIDERED FOR ABNORMAL OCCURRENCE REPORTING

The following incidents are samples of incidents seriously considered for abnormal occurrence reporting. The incidents are briefly discussed and the reasons why they are not being reported are stated. The incidents were judged not to have involved a major reduction in the level of protection provided for public health or safety.

This enclosure is provided to the Commission per Commission comments on SECY-76-471; the enclosure will not be a part of the published report.

1. Failure in High Pressure Injection Systems

On January 3, 1979, during a monthly surveillance test of the Davis-Besse Unit 1 High Pressure Injection (HPI) pumps, the licensee found that there was no flow through the recirculation line from the pump discharge to the Borated Water Storage Tank (BWST). Investigation revealed that a portion of the line exposed to the outside weather was frozen. This portion of the line to the BWST is common to both HPI pumps. The line has redundant heat tracing (a heated wire to prevent freezing); it is insulated; and it has a low-temperature alarm system to warn of freezing conditions. The line froze through; apparently because of prolonged sub-freezing temperatures and a defect in the insulation. There was no apparent malfunction of the heat tracing or temperature alarm circuits, although the temperature sensing elements are located in an area not exposed to the coldest temperature conditions.

This recirculation line serves two purposes: One is to provide a flow path for surveillance testing, and the other is to provide a minimum flow path to prevent possible damage to the pump in the event it is operated against a closed discharge valve or a reactor coolant system pressure greater than the maximum discharge pressure of the pump (approximately 1600 psig).

In its initial review of the event on January 3, 1979, the licensee concluded that the pumps were still operable with the recirculation line frozen. On January 5, 1979, the line was thawed and the surveillance test of the pumps was successfully completed.

During a review of the event on March 12, 1979, the licensee concluded that there were special conditions in which reactor coolant system pressure could decrease slowly enough to cause the HPI pumps to operate for a significant period of time at maximum discharge pressure with no water flow through the pump (shutoff head) if the recirculation line were frozen or otherwise blocked. Depending upon the length of time the HPI pumps operated at "shutoff head,"

the internal pump temperature rise could damage the pumps and make them inoperable.

However, in April, the licensee informed the NRC that the significance of the event had been reanalyzed based on recently acquired data on the heat-up rate of the pump operating without water flow. It was concluded that no damage would occur, even during a slow depressurization. They calculated that if the recirculation line was frozen, the pumps would operate for less than 1 minute before a flow of 35 gpm would be established, whereas, 10 minutes of operation without flow would be required to heat the pump casing to a temperature of 300°F. Damage to the pump would occur above this temperature. Therefore, there was no impact on public health or safety. The licensee's analysis was submitted to the NRC.

As corrective action, the thermostatic temperature setting for the heat trace installed on the recirculation line was temporarily increased and the line was blown free as the frozen section was thawed. A temporary enclosure was built around the line and an additional heat trace was added. Surveillance testing to verify pump operability was performed following the thawing of the recirculation line. An engineered evaluation is being conducted by the licensee to determine long-term corrective action.

2. Deficient Procedures

On June 2 while Arkansas Nuclear One - Unit 1 was preparing for startup, an NRC inspector in the control room found that during a surveillance test of the main feedwater check valves, the controls of the emergency feedwater system were positioned so that the system could not automatically respond if needed. The NRC inspector found that the test procedure being used by the licensed operators did not include, as it should have, instructions either to bypass the emergency feedwater system or to return it to normal. The plant operators, without approved procedures covering this aspect of the test, bypassed the controls that would have started the feedwater system automatically. Lacking a procedural requirement to return the system to normal, there was no assurance that emergency feedwater would be provided automatically if needed.

Following the Three Mile Island accident, the NRC required that operators be trained to initiate properly the emergency feedwater system manually if it does not come on automatically. Thus, while no immediate safety hazard existed at the Arkansas Unit 1 plant because of the improper action, the NRC staff is concerned about the potential safety hazard of leaving the emergency feedwater system in the bypassed condition, about the possibility that other procedures at the Arkansas plant may be deficient, and about the fact that the operators deviated from procedures in performing the surveillance test.

Arkansas Power and Light Company has returned the plant to cold shutdown. The June 2, 1979 NRC Order confirmed the requirement for a cold shutdown until the Commission staff is satisfied with the utility's method of controlling the

development of operating procedures, the adequacy of existing procedures, and until there is assurance that operators will not deviate from those procedures.

Licensee actions required as a result of the Order were confirmed by NRC inspections. On June 14, 1979, Arkansas Power and Light Company was authorized to return Arkansas Nuclear One - Unit 1 to operation.

IE Information Notice No. 79-15 ("Deficient Procedures") was issued on June 7, 1979 to all holders of reactor operating licenses and construction permits to inform them of this event.

It is believed that this event is not an AO. While the event was viewed as serious, we feel this single event is below the threshold for indication of a "Serious deficiency in management or procedural controls in major areas." However, the staff will continue to follow the Unit 1 experiences with the emergency feedwater system to determine if the present AO judgments on this matter should be revised.

3. Issuance of Order to Show Cause - Spent Fuel Casks

During a meeting on March 29, 1979, and by letter dated April 2, 1979, the Nuclear Assurance Corporation informed the NRC staff that a cask designated as the Model No. NFS-4 (NAC-1, Serial A) was not fabricated in accordance with the design approved by NRC Certificate of Compliance No. 6698. Cask Model No. NFS-4 is used for transportation of spent reactor fuel and is authorized to carry one PWR element or two BWR elements. Eighteen owners/users and the Department of Energy are currently authorized to use this model cask.

The information provided by Nuclear Assurance Corporation in the March 29 meeting indicates that one or more of the shells is warped or bowed, but the exact cause or extent of the warp or bow is not known at this time. Also, the NRC staff was informed that the cask manufacturer added increased shielding material in an area of reduced shielding thickness by welding copper plates to the outer shell of the cask.

The full safety implications of these reported deviations are not known at this time but they could represent a substantial reduction in the effectiveness of the package such that it would not meet the requirements of 10 CFR Part 71 for normal and accident conditions. It is possible that other casks fabricated to this design contain similar deviations. There are six casks fabricated to the design and one under construction at the present time.

An order which was signed on April 6, 1979 was considered essential in the interest of public health and safety. All casks of this design should be withdrawn from use until a determination can be made of the exact nature of any deviations from the approved design and an assessment can be made of the safety significance of such deviations.

The order became effective immediately and affected eighteen (18) licensees. The order required that:

- (1) Effective immediately, the general license to use casks designated as Model No. NFS-4 is suspended pending further order of the Commission.
- (2) Each owner/user shall show cause in the manner hereinafter provided why the general license to use cask Model No. NFS-4 should not remain suspended until such time as:

The owner/user demonstrates to the Commission that each cask was fabricated in accordance with the design approved by the Commission in Certificate of Compliance No. 6698. This demonstration shall include review of the quality assurance records required by Condition 17 to Certificate of Compliance No. 6698 and actual physical measurements of existing packages.

It is not believed that the issuance of this order should be reported as an abnormal occurrence at this time since the full safety implications of the reported deviations are not yet known.

4. Issuance of License Amendment - Fuel Fabrication Facility

On April 16, 1979, the NRC staff was informed by a representative of Nuclear Fuel Services, Inc. (NFS) that the Oil, Chemical and Atomic Workers Union representing the hourly production employees at the NFS plant at Erwin, Tennessee, had gone out on strike. The following information regarding the company's operating plans was subsequently obtained from NFS personnel at Rockville, Maryland, and Erwin, Tennessee:

1. Management personnel would continue to operate the "high-enriched" operations to deplete the process equipment of uranium in preparation for inventory, scheduled for May 9, 1979;
2. All scrap inventory would be processed to a form suitable for inventory;
3. The decision to restart the production line after the inventory would be contingent upon the progress NFS was making in contract negotiations with the union.

The NRC staff advised NFS that it agreed with the steps being taken to deplete the enriched system of uranium and to process it to a stable form for inventory, and that the staff did not disagree with any plans the company might have to restart operations, using management personnel, after the inventory.

In order to ensure that public health and safety would not be compromised by the company's actions, however, the NRC staff issued by letter dated April 23, 1979, an immediately effective license amendment to Special Nuclear Material License No. SNM-124 adding the following license conditions:

"Prior to introducing additional special nuclear material into the process systems and/or commencement of operations, using management personnel, NFS shall obtain written approval from the Commission. This condition shall be terminated when the Commission is satisfied that sufficient trained production workers are available to man the process facilities, under normal, safe operating conditions."

By letter dated May 17, 1979, NFS submitted the "Planning Guidelines" to be utilized for operation during the strike, and a request for approval of resumption of operations. The guidelines discussed the selection and qualifications of health and safety personnel, the training of operational personnel, and the NFS staffing concepts for the operational and support groups at the Erwin facility.

The NRC Resident Inspector at NFS Erwin, together with the NRC Regional Inspector, conducted a complete inspection of the NFS facilities May 8-10, 1979. Based on their observations, inspection findings, and discussions with licensee representatives, it was the inspectors' opinion that management personnel could safely conduct limited production operations. The limiting factor was the availability of trained manpower.

On May 18, 1979, based upon the NFS letter of May 17, 1979, specifying the staffing plan for limited operations, the NRC staff issued an amendment to Materials License No. SNM-124 deleting the condition added to the license by order dated April 23, 1979, permitting resumption of operations.

It is not believed that the issuance of this license amendment should be reported as an abnormal occurrence. The amendment was issued to provide assurance of continued protection of the public health and safety, and was not in response to an observed safety deficiency. This identifies a potential generic safety concern that should be investigated when licensees plan operations with limited staffing.

December 19, 1979

SECY-79-671

For: The Commissioners

From:

COMMISSIONER ACTION
Executive Director for Operations

Subject: SECTION 208 REPORT TO THE CONGRESS ON ABNORMAL
OCCURRENCES FOR JULY-SEPTEMBER 1979

Purpose: Approval of Final Draft

Discussion: Enclosure 1 is a proposed letter to the Speaker of the House and the President of the Senate transmitting the eighteenth Abnormal Occurrence Report to Congress, as required by Section 208, covering the third quarter of CY-79.

Enclosure 2 is a final draft of the eighteenth report to Congress on abnormal occurrences. The report covers the period from July 1 to September 30, 1979. This draft incorporates the major comments obtained from staff review of earlier drafts.

Normally, these quarterly reports contain only those occurrences approved by the Commission by the end of the reporting period - any events which occurred during the report period, but which had not been approved by the Commission at the end of the report period, would be included in a subsequent report. However, since preparation of this report has been considerably delayed due to the staff's other pressing workload, we propose that this report include all abnormal occurrences approved up to the time of preparation of the report. Therefore, we have included the "Major Degradation of Primary Containment Boundary (Palisades)" and "Mill Tailings Impoundment Dam Failure (United Nuclear Corporation - Church Rock Mill)" events in this report. The first event was forwarded to the Commission on November 13, 1979 by SECY-79-613 and approved on December 3, 1979. The second event was forwarded to the Commission on November 30, 1979 by SECY-79-638 and is presently being reviewed by the Commission. In addition, we have revised the wording in the abstract and introduction to the report to reflect that all abnormal occurrences approved up to the time of preparation of the report are included. Also included are any abnormal occurrences submitted by the Agreement States.

On the above basis, the eighteenth report to Congress states:

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7735

1. There was one abnormal occurrence at the 70 nuclear power plants licensed to operate. The event involved a major degradation of primary containment boundary.
2. There was one abnormal occurrence at the fuel cycle facilities (other than nuclear power plants). The event involved a mill tailings impoundment dam failure. (See NOTE below.)
3. There were no abnormal occurrences at other licensee facilities.
4. There were two abnormal occurrences reported by the Agreement States. Both incidents involved overexposure of radiography personnel.

The report is similar in format to the published seventeenth report. The report contains three Appendix C items (Other Events of Interest). One pertains to the construction deficiencies at the Marble Hill 1 and 2 facilities; the second pertains to a low level radioactive gas release at North Anna Unit 1; and the third pertains to the inventory difference at Nuclear Fuel Services. (The guidelines for Appendix C reporting are referenced in Information Report, SECY-78-460A, dated December 1, 1978.)

NOTE: Including the event at Nuclear Fuel Services in Appendix C rather than as a separate abnormal occurrence is a matter that is at issue. Since the attached draft was written and coordinated, some members of the staff believe the event at Nuclear Fuel Services may qualify as an abnormal occurrence (the inventory difference has not been resolved and there may be a substantial breakdown of the accountability system). MPA is exploring this further with NMSS and IE. If an abnormal occurrence recommendation is made and approved by the Commission, we propose that the abnormal occurrence writeup be included in a subsequent report to Congress, since the determination would probably not be made until January, 1980. Alternatively, the Commission may wish to include such an abnormal occurrence determination in this report and drop the Appendix C item on NFS, Erwin. We will provide further information on the possible NFS, Erwin abnormal occurrence determination as soon as possible. Any Commission guidance on this point also would be appreciated.

It should be noted that the Prairie Island Unit 1 tube rupture event has been included in Appendix B as an update to Abnormal Occurrence 76-11 (Steam Generator Tube Integrity). While the reasons for the tube degradation are entirely different from those reported previously under this item, reporting it here does have the advantage of accumulating tube degradation experience under a single item.

No press release is planned for the issuance of the report. A Federal Register notice will be issued.

When Commission approval is received, the report will be updated for currency before release. Following your approval, approximately two weeks will be required for publication and issuance of the report. Each report is an NRC publication (NUREG series).

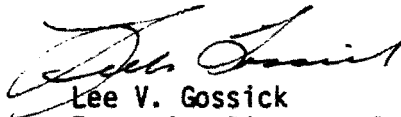
Enclosure 3 is a representative sample of events which were the important candidates for inclusion as abnormal occurrences, but which in the staff's judgment did not meet the criteria for abnormal occurrence reporting. The staff's decision basis is briefly described. This is provided per Commission comments on SECY-76-471.

Scheduling:

It is desirable to have this report published and issued by late December 1979 or early January 1980.

Coordination:

The Offices of Nuclear Reactor Regulation, Nuclear Materials Safety and Safeguards, Nuclear Regulatory Research, Inspection and Enforcement, Standards Development, State Programs, Analysis and Evaluation of Operational Data, Public Affairs, and the Division of Security concur. The Executive Legal Director has no legal objections.



Lee V. Gossick
Executive Director for Operations

Enclosures:

1. Proposed Letters to Congress
2. Draft of the Eighteenth
Report to Congress
3. Other Candidates for Reporting

Commissioners' comments should be provided directly to the Office of the Secretary by c.o.b. Wednesday, January 9, 1980.

Commission Staff Office comments, if any, should be submitted to the Commissioners NLT January 2, 1980, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional time for analytical review and comment, the Commissioners and the Secretariat should be apprised of when comments may be expected.

DISTRIBUTION

Commissioners
Commission Staff Offices
Exec Dir for Operations
Regional Offices
ACRS
Secretariat

ENCLOSURE 1



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

Enclosure 1

Page 1 of 2

OFFICE OF THE
CHAIRMAN

DRAFT

The Honorable Thomas P. O'Neill, Jr.
Speaker of the United States
House of Representatives
Washington, D.C. 20515

Dear Mr. Speaker:

We submit herewith the eighteenth report on abnormal occurrences at licensed nuclear facilities, as required by Section 208 of the Energy Reorganization Act of 1974 (PL 93-438), for the third calendar quarter of 1979.

In the context of the Act, an abnormal occurrence is an unscheduled incident or event which the Commission determines is significant from the standpoint of public health or safety. These incidents or events, including any submitted by the Agreement States, are as follows:

1. There was one abnormal occurrence at the 70 nuclear power plants licensed to operate. The event involved a major degradation of primary containment boundary.
2. There was one abnormal occurrence at the fuel cycle facilities (other than nuclear power plants). The event involved a mill tailings impoundment dam failure.
3. There were no abnormal occurrences at other licensee facilities.
4. There were two abnormal occurrences reported by the Agreement States. Both incidents involved overexposure of radiography personnel.

This report also contains information updating some previously reported abnormal occurrences.

In addition to this report, we will continue to disseminate information on reportable events. These event reports are routinely distributed on a timely basis to the Congress, industry and the general public.

Sincerely,

John F. Ahearne
Chairman

Enclosure:
Report to Congress
on Abnormal Occurrences



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

Enclosure 1

Page 2 of 2

OFFICE OF THE
CHAIRMAN

DRAFT

The Honorable Walter F. Mondale
President of the Senate
Washington, D.C. 20510

Dear Mr. President:

We submit herewith the eighteenth report on abnormal occurrences at licensed nuclear facilities, as required by Section 208 of the Energy Reorganization Act of 1974 (PL 93-438), for the third calendar quarter of 1979.

In the context of the Act, an abnormal occurrence is an unscheduled incident or event which the Commission determines is significant from the standpoint of public health or safety. These incidents or events, including any submitted by the Agreement States, are as follows:

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This report also contains information updating some previously reported abnormal occurrences.

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Sincerely,

John F. Ahearne
Chairman

Enclosure:
Report to Congress
on Abnormal Occurrences

ENCLOSURE 2

Enclosure 2

NUREG-0090
Vol. 2 No. 3

DRAFT

REPORT TO CONGRESS
ON
ABNORMAL OCCURRENCES

JULY-SEPTEMBER 1979

Status as of November 30, 1979
Date Published: January 1980

Office of Management and Program Analysis
United States Nuclear Regulatory Commission
Washington, D.C. 20555

ABSTRACT

Section 208 of the Energy Reorganization Act of 1974 identifies an abnormal occurrence as an unscheduled incident or event which the Nuclear Regulatory Commission determines to be significant from the standpoint of public health or safety and requires a quarterly report of such events to be made to Congress. This report, the eighteenth in the series, covers the period from July 1 to September 30, 1979 and includes all abnormal occurrences approved as of the date of preparation of this report.

The following incidents or events, including any submitted by the Agreement States, were determined by the Commission to be significant and reportable:

1. There was one abnormal occurrence at the 70 nuclear power plants licensed to operate. The event involved a major degradation of primary containment boundary.
2. There was one abnormal occurrence at the fuel cycle facilities (other than nuclear power plants). The event involved a mill tailings impoundment dam failure.
3. There were no abnormal occurrences at other licensee facilities.
4. There were two abnormal occurrences reported by the Agreement States. Both incidents involved overexposure of radiography personnel.

This report also contains information updating some previously reported abnormal occurrences.

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PREFACE

INTRODUCTION

The Nuclear Regulatory Commission reports to the Congress each quarter under provisions of Section 208 of the Energy Reorganization Act of 1974 on any abnormal occurrences involving facilities and activities regulated by the NRC. An abnormal occurrence is defined in Section 208 as an unscheduled incident or event which the Commission determines is significant from the standpoint of public health or safety.

Events are currently identified as abnormal occurrences for this report by the NRC using the criteria delineated in Appendix A. These criteria were promulgated in an NRC policy statement which was published in the Federal Register (42 FR 10950) on February 24, 1977. In order to provide wide dissemination of information to the public, a Federal Register notice is issued on each abnormal occurrence with copies distributed to the NRC Public Document Room and all local public document rooms. At a minimum, each such notice contains the date and place of the occurrence and describes its nature and probable consequences.

The NRC has reviewed Licensee Event Reports, licensing and enforcement action (e.g., violations, infractions, deficiencies, civil penalties, license modifications, etc.), generic issues, significant inventory differences involving special nuclear material, and other categories of information available to the NRC. The NRC has determined that only those events, including those submitted by the Agreement States, described in this report meet the criteria for abnormal occurrence reporting. This report, the eighteenth in the series, covers the period between July 1 - September 30, 1979. The report includes all abnormal occurrences approved by the Commission up to the time of preparation of this report. Some events require considerable time and effort to analyze due to the complexity of situations where actual consequences are not readily apparent and additional facts are required.

Information reported on each event includes: date and place; nature and probable consequences; cause or causes; and actions taken to prevent recurrence.

THE REGULATORY SYSTEM

The system of licensing and regulation by which NRC carries out its responsibilities is implemented through rules and regulations in Title 10 of the Code of Federal Regulations. To accomplish its objectives, NRC regularly conducts licensing proceedings, inspection and enforcement activities, evaluation of operating experience and confirmatory research, while maintaining programs for establishing standards and issuing technical reviews and studies. The NRC's role in regulating represents a complete cycle, with the NRC establishing standards and rules; issuing licenses and permits; inspecting for compliance; enforcing license requirements; and carrying on continuing evaluations, studies and research projects to improve both the regulatory process and the protection of the public health and safety. Public participation is an element of the regulatory process.

In the licensing and regulation of nuclear power plants, the NRC follows the philosophy that the health and safety of the public are best assured through the establishment of multiple levels of protection. These multiple levels can be achieved and maintained through regulations which specify requirements which will assure the safe use of nuclear materials. The regulations include design and quality assurance criteria appropriate for the various activities licensed by NRC. An inspection and enforcement program helps assure compliance with the regulations. Requirements for reporting incidents or events exist which help identify deficiencies early and aid in assuring that corrective action is taken to prevent their recurrence.

Most NRC licensee employees who work with radioactive materials are required to utilize personnel monitoring devices such as film badges or TLD (thermoluminescent dosimeter) badges. These badges are processed periodically and the exposure results normally serve as the official and legal record of the extent of personnel exposure to radiation during the period the badge was worn. If an individual's past exposure history is known and has been sufficiently low, NRC regulations permit an individual in a restricted area to receive up to three rems of whole body exposure in a calendar quarter. Higher values are permitted to the extremities or skin of the whole body. For unrestricted areas, permissible levels of radiation are considerably smaller. Permissible doses for restricted areas and unrestricted areas are stated in 10 CFR Part 20. In any case, the NRC's policy is to maintain radiation exposures to levels as low as reasonably achievable.

REPORTABLE OCCURRENCES

Since the NRC is responsible for assuring that regulated nuclear activities are conducted safely, the nuclear industry is required to report incidents or events which involve a variance from the regulations, such as personnel over-exposures, radioactive material releases above prescribed limits, and malfunctions of safety-related equipment. Thus, a reportable occurrence is any incident or event occurring at a licensed facility or related to licensed activities which NRC licensees are required to report to the NRC. The NRC evaluates each reportable occurrence to determine the safety implications involved.

Because of the broad scope of regulation and the conservative attitude toward safety, there are a large number of events reported to the NRC. The information provided in these reports is used in the NRC and the industry in their continuing evaluation and improvement of nuclear safety. Most of the reports received from licensed nuclear power facilities describe events that did not directly involve the nuclear reactor itself, but involved equipment and components which are peripheral aspects of the nuclear steam supply system, and are minor in nature with respect to impact on public health and safety. Many are discovered during routine inspection and surveillance testing and are corrected upon discovery. Typically, they concern single malfunctions of components or parts of systems, with redundant operable components or systems continuing to be available to perform the design function.

Information concerning reportable occurrences at facilities licensed or otherwise regulated by the NRC is routinely disseminated by NRC to the nuclear industry, the public, and other interested groups as these events occur. Dissemination includes deposit of incident reports in the NRC's public document rooms, special notifications to licensees and other affected or interested groups, and public announcements. In addition, a biweekly computer printout containing information on reportable events received from NRC licensees is sent to the NRC's more than 120 local public document rooms throughout the United States and to the NRC Public Document Room in Washington, D.C.

The Congress is routinely kept informed of reportable events occurring at licensed facilities.

AGREEMENT STATES

Section 274 of the Atomic Energy Act, as amended, authorizes the Commission to enter into agreements with States whereby the Commission relinquishes and the States assume regulatory authority over byproduct, source and special nuclear materials (in quantities not capable of sustaining a chain reaction). Comparable and compatible programs are the basis for agreements.

Presently, information on reportable occurrences in Agreement State licensed activities is publicly available at the State level. Certain information is also provided to the NRC under exchange of information provisions in the agreements. NRC prepares a semiannual summary of this and other information in a document entitled, "Licensing Statistics and Other Data," which is publicly available.

In early 1977 the Commission determined that abnormal occurrences happening at facilities of Agreement State licensees should be included in the quarterly report to Congress. The abnormal occurrence criteria included in Appendix A is applied uniformly to events at NRC and Agreement State licensee facilities. Procedures have been developed and implemented and any abnormal occurrences reported by the Agreement States to the NRC are included in these quarterly reports to Congress.

REPORT TO CONGRESS ON ABNORMAL OCCURRENCES

JULY-SEPTEMBER 1979

NUCLEAR POWER PLANTS

The NRC is reviewing events reported at the 70 nuclear power plants licensed to operate during the third quarter of 1979. As of the date of this report, the NRC had determined that the following event was an abnormal occurrence.

79-8 Major Degradation of Primary Containment Boundary

Preliminary information pertaining to this incident is also being reported in the Federal Register. Appendix A (Example 2 of "For Commercial Nuclear Power Plants") of this report notes that a major degradation of the primary containment boundary can be considered an abnormal occurrence.

Date and Place - On September 14, 1979, the Consumers Power Company notified the NRC of discovery of two improperly positioned valves in the containment purge system at their Palisades Nuclear Plant. The Palisades Nuclear Plant utilizes a pressurized water reactor designed by Combustion Engineering Co. and is located in Van Buren County, Michigan.

Nature and Probable Consequences - While preparing to perform a "Type C" (local isolation valve) leak test between two manual valves in a 4-inch bypass line around the main 48-inch containment purge valve, plant personnel discovered that both of these manual isolation valves were locked in the open position. These valves should have been locked closed. Investigation by the licensee indicated that the valves may have been improperly positioned since April 1978 when an efficiency test of the bypass line filters was performed. The plant has operated at power for the major portion of that time period.

The valve misalignment did not result in any actual adverse impact on the public health. However, had an accident occurred wherein fuel was damaged and primary coolant released into the containment while the valves were misaligned in the open position, a significant release of radioactive material from the containment could have occurred. Were such a release to occur, there is no instrumentation to identify those open valves as the cause.

The initial design purpose for the bypass system was to provide a long term hydrogen control capability for the containment atmosphere following a design basis accident.¹ It was intended that after approximately 30 days following an accident, when containment pressure and activity levels dropped sufficiently to permit venting, this system would be manually valved to vent the containment atmosphere, through high efficiency and charcoal filters, to the exhaust stack. Thus the components in the bypass line beyond the two manual isolation valves were not designed for the severe service they would be exposed to with the valves open during the initial pressure surge of the design basis accident,

¹ Palisades now has recombiners installed for hydrogen control.

and significant uncontrolled releases would result. High radiation in the vicinity of the bypass line would also make immediate closing of the manual isolation valves, even if identified as the source of leakage, an extremely hazardous operation.

Cause or Causes - The principle cause for this event was lack of the necessary attention to detail in development of procedures for ensuring containment integrity. The master containment integrity valve line-up checklist, which is used to perform a valve line-up prior to each startup from cold shutdown, did not include these valves. The filter efficiency test procedure for the 4-inch bypass line did not adequately specify the final position of these valves, and this is the probable cause for the valves being left incorrectly positioned in April of 1978.

Actions Taken to Prevent Recurrence

Licensee - The licensee has revised both of the above mentioned procedures to assure that proper positioning of these valves is addressed. Concurrently, the licensee is reviewing all other paths from containment to assure that procedures and checklists are complete. The licensee has also tasked a qualified consultant to perform an independent review for the same purpose.

NRC - The NRC site inspector verified the corrective actions taken by the licensee. The regional office determined that this event constitutes an item of noncompliance of the violation category.

The NRC staff determined that the event demonstrated a weakness in the licensee's ability to control testing and maintenance activities, to develop and review procedures, to adhere to approved procedures, and to conduct audit activities. The Director, Office of Inspection and Enforcement (IE), also determined that the potential public hazard had been high. As a result, on November 9, 1979 the staff proposed imposition of civil penalties in the amount of \$450,000 for the prolonged violation of containment integrity. On the same date, the staff issued an Order to require that appropriate review of checklists and procedures be performed to assure that engineered safety features are in compliance with the specifications of the license and that monthly inspections of these features be conducted. The Order further required a meeting with NRC management prior to resumption of operation.

IE Information Notice 79-26 was issued on November 5, 1979 to all holders of operating licenses and construction permits to provide them with the details of this occurrence. On November 16, 1979 the Director, Office of Inspection and Enforcement, sent a letter to chief executives of all utilities with operating licenses and construction permits informing them of the enforcement action against Consumers Power Company and stating the intention to take similar action in any future instances where ineffective management leads to a serious breach of safety.

This incident is closed for purposes of this report.

FUEL CYCLE FACILITIES

(Other Than Nuclear Power Plants)

The NRC is reviewing events reported by these licensees during the third quarter of 1979. As of the date of this report, the NRC had determined that the following event was an abnormal occurrence.

79-9 Mill Tailings Impoundment Dam Failure

Preliminary information pertaining to this incident is also being reported in the Federal Register. Appendix A (Example 3 of "For Fuel Cycle Licensees") of this report notes that an event which seriously compromised the ability of a confinement system to perform its designated function can be considered an abnormal occurrence.

Date and Place - On July 16, 1979 a uranium mill tailings impoundment dam failed at the United Nuclear Church 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 State Agreements Program. At the time of the incident, the uranium mill tailings at the Church Rock Uranium Mill were under general license from the NRC pursuant to the Uranium Mill Tailings Radiation Control Act of 1978.

Nature and Probable Consequences - As a result of the dam failure, mill tailings solution and solids poured through the break into a catchment area below the dam. The catchment embankment was subsequently breached and tailings solution flowed into an arroyo and on into the Rio Puerco River which flows past Gallup, New Mexico.

The break in the dam allowed approximately 100 million gallons of tailings solution and 1100 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 "Pipeline Arroyo." The tailings solutions travelled in the Pipeline Arroyo to the Rio Puerco which flows through Gallup, New Mexico, a town about 20 miles southwest of the mill site, and into Arizona. The spilled solutions eventually dissipated at a point estimated to be about 20 miles into Arizona.

The radioactive isotopes in the mill tailings and tailings solutions are those which naturally occur in the soil of the area but which have been concentrated by the milling process. These isotopes, primarily thorium-230 and radium-226, did not present any immediate health hazard when released by the dam failure. The concentrated contamination of normally dry areas of the Pipeline Arroyo and the tailings solids in the Arroyo would contribute a relatively small increment to the estimated normal background dose rate of 140 mrem/year for persons living near the Arroyo. However, cleanup of these sources has been undertaken in accordance with maintaining doses as low as reasonably achievable and lowering the potential for radiological contamination of groundwater.

The immediate health hazard arose from the acidic nature of the tailings solution which could cause chemical burns if ingested or brought in contact with skin. The potential for acute chemical effects persisted for approximately 2 days, until water from the upstream mining operations and the natural alkalinity of the stream bed neutralized the tailings solution. Chemical contamination (e.g., elevated trace metal concentrations) of groundwater presents a long-term problem.

Cause or Causes - The tailings impoundment dam failed as a result of differential settlement and direct exposure of the dam to tailings solutions. The first factor was the result of the manner in which the dam was constructed; the second factor was the result of failure of the operator to maintain a buffer of mill tailings between the dam and the tailings solutions.

The dam is located on a site containing alluvial soils overlying bedrock having an irregular surface. Depths of this relatively loose soil ranged from less than 20 feet up to a maximum of 100 feet. During design and construction of the dam, tests were conducted to determine how much the alluvial soil would compress under a load. These tests indicated that settlement of about 5 percent would result from the loading of the embankment under dry conditions. With water in the impoundment, additional settlement ranging from 1-1/2 percent to 13 percent was experienced due to collapse of the soil structure. As a result of this high compressibility of the alluvial soil and the irregular bedrock surface, large differential settlement of the dam occurred. As a result of differential settlement, cracks developed in the embankment. These cracks coupled with the lack of a buffer of solid tailings between water and the dam allowed tailings water to penetrate and weaken the embankment.

Actions Taken to Prevent Recurrence

Licensee - The United Nuclear Corporation (UNC) performed an evaluation of the dam failure and examined the servcibility of the remaining portions of the dam. UNC is also performing a study of alternate sites for the tailings impoundment. UNC is conducting cleanup operations at the instruction of various regulatory bodies, including the NRC.

NRC - The NRC has worked in conjunction with numerous other State and Federal organizations in responding to the accident and formulating longer-term corrective action, including cleanup of contamination and continued monitoring of groundwater quality.

The NRC issued an order on October 12, 1979 banning generation of additional tailings until a review provided adequate assurance that all causes of the dam failure had been identified and that the remaining portions of the embankment were free of deficiencies. The NRC reviewed the licensee's evaluation of the dam failure, concurred in the findings with regard to the major causes, and determined that limited generation and storage of uranium tailings could be conducted with reasonable assurance of protection for the public and the environment. The staff issued an order to this effect on October 24, 1979.

The order allowed operation for a limited time subject to continued demonstration of dam integrity by documented inspection, prohibited planned expansion of the current tailings area until NRC staff approval was given, and required that UNC submit a proposal for development of a new tailings site for ultimate disposal. Direct NRC regulatory authority over tailings in Agreement States was subsequently removed by an act of Congress amending the Uranium Mill Tailings Radiation Control Act of 1978 (Public Law 96-106, November 9, 1979) and the NRC order can no longer be enforced. However, a State of New Mexico order which imposes essentially the same terms and conditions remains in effect. NRC is continuing to provide technical assistance to New Mexico.

The staff reviewed docket files on the tailings dams at operating mills in non-Agreement States and in all but one case found that differential settlement was satisfactorily addressed. The exception was a dam authorized in 1971 and documentation does not indicate that differential settlement was addressed. However, no evidence of excessive differential settlement leading to cracking has shown up in routine inspection of the dam. Arrangements have been made for geotechnical and hydrology consultants to assess each of the Agreement States' uranium tailings impoundment systems.

The NRC had also proposed, prior to the accident, regulations which specify requirements for mill tailings disposal. These regulations identify certain siting and design features which must be incorporated into tailings disposal programs to assure long-term isolation and containment of tailings without continuing active maintenance. The regulations identify burial of tailings below the surrounding grade as the preferred mode of tailings disposal. In this way, dams such as the one which failed at the Church Rock mill would be avoided.

This incident is closed for purposes of this report.

OTHER NRC LICENSEES

(Industrial Radiographers, Medical Institutions,
Industrial Users, etc.)

There are currently more than 8,000 NRC nuclear material licenses in effect in the United States, principally for use of radioisotopes in the medical, industrial and academic fields. Incidents were reported in this category from licensees such as radiographers, medical institutions, and byproduct material users.

The NRC is reviewing events reported by these licensees during the third quarter of 1979. As of the date of this report, the NRC had not determined that any events were abnormal occurrences.

AGREEMENT STATE LICENSEES

Procedures have been developed for the Agreement States to screen unscheduled incidents or events using the same criteria as the NRC (see Appendix A) and report the events to the NRC for inclusion in this report. As of the date of

this report, the Agreement States reported the following abnormal occurrences to the NRC.

AS79-3 Overexposure of a Radiographer

Date and Place - On the evening of July 20, 1979, at the U.S. Department of Energy's St. James terminal near St. James, Louisiana, a radiographer received an overexposure from an iridium-192 source.

Nature and Probable Consequences - A supervising radiographer for an out-of-state company (Bill Miller X-Ray, a subsidiary of Peabody Testing) working in Louisiana received sufficient dose to produce blistering of the thumb, index finger and middle finger of his right hand. He had retrieved a disconnected 100 Curie source of iridium-192 on July 20, 1979. Approximately 7 days later he experienced a tingling sensation in his right hand and on August 3, 1979, he noticed the tingling sensation also beginning in his left hand.

The supervising radiographer was not wearing a pocket dosimeter or film badge at the time he performed the retrieval; therefore, dose estimates were obtained from the clinical symptoms that had been displayed and a time-and-motion study. From the clinical indications, it is estimated that the right hand received a dose of 3,000 to 10,000 rems, and from the time-and-motion study, it was estimated that the whole body dose was less than 20 rems. A second estimate of 6,000 rads to the fingers and 1.8 rads whole body was performed by the University of Oklahoma Health Sciences Center where the individual is receiving medical treatment.

Cause or Causes - The source disconnect was caused by the female connector pulling loose from the drive cable; however, this disconnect was discovered through the routine survey procedures and, if it had been handled properly, would not have resulted in the excessive dose received by the supervising radiographer. The primary cause of the excessive dose was the method by which the disconnected source was retrieved.

When a radiographer discovered that the disconnect had occurred and that the source was still in the source tube, he removed the source tube from the camera and placed it behind some shielding. The dosimeter indicated that during this procedure, the radiographer received a dose of 180 mr. The radiographer then contacted the supervising radiographer and reported the disconnect. The supervising radiographer removed the tip from the source tube, shook the source out of the tube and removed the female connector from the pigtail assembly by hand. He then placed the source pigtail assembly (connector end first) into the outlet nipple of the exposure device. The source tube was reattached to the outlet nipple of the exposure device and the supervising radiographer held the open end of the source tube against the end of a drive cable assembly while the first radiographer cranked the drive cable through the source tube to push the pigtail assembly back into the camera in the correct position. During this procedure there were several occasions when the individual may have actually touched the source capsule.

Actions Taken to Prevent Recurrence

Licensee - Although the investigation is complete, formal notice of violation has not been transmitted, pending reply to a letter requesting additional information concerning this incident. However, the company has notified the Louisiana Nuclear Energy Division of the corrective action that has already been taken. This includes removing the radiographer from work with radioactive material or in a radiation area until he has received re-training in the company's operating and emergency procedures, specifically covering personnel monitoring and emergency procedures. Also, at least once a year, all drive cables are to be cut back eight (8) inches from the connector and new connectors swaged to the cable.

Louisiana Nuclear Energy Division - Appropriate violations have been cited. In addition, a Radiation Advisory was issued to all Louisiana industrial radiography licensees, warning of the potential for pulling the female connector off the drive cable after repeated use and requesting the submission of a program of preventive maintenance. This advisory will be made available to the NRC and all Agreement States.

This incident is closed for purposes of this report.

AS79-4 Overexposure of a Radiographer's Assistant

Date and Place - On August 3, 1979 the State of Texas was notified of a source disconnect and possible overexposure of a radiographer's assistant at Dow Chemical Company in Freeport, Texas. The radiography company was Mobilab, Inc. of Houston, Texas.

Nature and Probable Consequences - The radiographer's assistant was working along a pipeline in a trench. The radiographer had told the assistant to crank in the source at the end of the exposure while the radiographer went back to the truck to process film. The assistant cranked the source back into the camera and carried the camera to the truck. At the truck, he disconnected the source guide tube and the source assembly dropped out of the camera. He then picked up the source assembly by the pigtail and knocked on the door of the truck dark room to call it to the radiographer's attention. When the radiographer opened the door (about 2 minutes later) and saw the source, he knocked it out of the assistant's hand and shielded the source as best he could. The source was later placed back in its container.

Four or five days after the incident, blood studies showed a temporary (lasting for about 24 hours) drop (about 55%) in the assistant's white blood cell count. He also had a lesion on his left mid-thigh measuring 3 inches in diameter. The State estimates that the whole body dose to the assistant is from 200 to 300 rems.

Cause or Causes - The primary cause of the incident was the radiographer allowing the assistant to crank the source back into the device unsupervised. The assistant also failed to perform a survey of the device to determine if the source was in the shielded position.

Actions Taken to Prevent Recurrence

Mobilab, Inc. - The licensee has "suspended" the radiographer responsible for activities at the site of the incident. He has been assigned non-radiation related work. The licensee has also conducted a retraining program for its other radiographers.

State of Texas - The State inspected the licensee and conducted an investigation of the incident on August 3, 6 and 15, 1979. The investigation included an enactment of the incident on August 15. An enforcement letter was sent to the licensee on August 9 listing seven items of noncompliance. A pre-hearing was conducted on October 10, 1979 for the licensee to present a written response to the seven items of noncompliance. The licensee has adequately responded in writing to the State's enforcement letter and request for the film badge report.

This incident is closed for purposes of this report.

APPENDIX A

ABNORMAL OCCURRENCE CRITERIA

The following criteria for this report's abnormal occurrence determinations were set forth in an NRC policy statement published in the Federal Register (42 FR 10950) on February 24, 1977.

Events involving a major reduction in the degree of protection of the public health or safety. Such an event would involve a moderate or more severe impact on the public health or safety and could include but need not be limited to:

1. Moderate exposure to, or release of, radioactive material licensed by or otherwise regulated by the Commission;
2. Major degradation of essential safety-related equipment; or
3. Major deficiencies in design, construction, use of, or management controls for licensed facilities or material.

Examples of the types of events that are evaluated in detail using these criteria are:

For All Licensees

1. Exposure of the whole body of any individual to 25 rems or more of radiation; exposure of the skin of the whole body of any individual to 150 rems or more of radiation; or exposure of the feet, ankles, hands or forearms of any individual to 375 rems or more of radiation (10 CFR Part 20.403(a)(1)), or equivalent exposures from internal sources.
2. An exposure to an individual in an unrestricted area such that the whole body dose received exceeds 0.5 rem in one calendar year (10 CFR Part 20.105(a)).
3. The release of radioactive material to an unrestricted area in concentrations which, if averaged over a period of 24 hours, exceed 500 times the regulatory limit of Appendix B, Table II, 10 CFR Part 20 (10 CFR Part 20.403(b)).
4. Radiation or contamination levels in excess of design values on packages, or loss of confinement of radioactive material such as (a) a radiation dose rate of 1,000 mrem per hour three feet from the surface of a package containing the radioactive material, or (b) release of radioactive material from a package in amounts greater than the regulatory limit (10 CFR Part 71.36(a)).

5. Any loss of licensed material in such quantities and under such circumstances that substantial hazard may result to persons in unrestricted areas.
6. A substantiated case of actual or attempted theft or diversion of licensed material or sabotage of a facility.
7. Any substantiated loss of special nuclear material or any substantiated inventory discrepancy which is judged to be significant relative to normally expected performance and which is judged to be caused by theft or diversion or by substantial breakdown of the accountability system.
8. Any substantial breakdown of physical security or material control (i.e., access control, containment, or accountability systems) that significantly weakened the protection against theft, diversion or sabotage.
9. An accidental criticality (10 CFR Part 70.52(a)).
10. A major deficiency in design, construction or operation having safety implications requiring immediate remedial action.
11. Serious deficiency in management or procedural controls in major areas.
12. Series of events (where individual events are not of major importance), recurring incidents, and incidents with implications for similar facilities (generic incidents), which create major safety concern.

For Commercial Nuclear Power Plants

1. Exceeding a safety limit of license Technical Specifications (10 CFR Part 50.36(c)).
2. Major degradation of fuel integrity, primary coolant pressure boundary, or primary containment boundary.
3. Loss of plant capability to perform essential safety functions such that a potential release of radioactivity in excess of 10 CFR Part 100 guidelines could result from a postulated transient or accident (e.g., loss of emergency core cooling system, loss of control rod system).
4. Discovery of a major condition not specifically considered in the Safety Analysis Report (SAR) or Technical Specifications that require immediate remedial action.

5. Personnel error or procedural deficiencies which result in loss of plant capability to perform essential safety functions such that a potential release of radioactivity in excess of 10 CFR Part 100 guidelines could result from a postulated transient or accident (e.g., loss of emergency core cooling system, loss of control rod systems).

For Fuel Cycle Licensees

1. A safety limit of license Technical Specifications is exceeded and a plant shutdown is required (10 CFR Part 50.36(c)).
2. A major condition not specifically considered in the Safety Analysis Report or Technical Specifications that requires immediate remedial action.
3. An event which seriously compromised the ability of a confinement system to perform its designated function.

APPENDIX B

UPDATE OF PREVIOUSLY REPORTED ABNORMAL OCCURRENCES

During the July through September 1979 period, the NRC, NRC licensees, Agreement States, Agreement State licensees, and other involved parties, such as reactor vendors and architects and engineers, continued with the implementation of actions necessary to prevent recurrence of previously reported abnormal occurrences. The referenced Congressional abnormal occurrence reports below provide the initial and any updating information on the abnormal occurrences discussed. Those occurrences not now considered closed will be discussed in subsequent reports in the series.

NUCLEAR POWER PLANTS

The following abnormal occurrence was originally reported in NUREG-0090-3, "Report to Congress on Abnormal Occurrences: January-March 1976," and updated in subsequent reports in this series, i.e., NUREG-0090-4, 6, Vol. 1, No. 1, and Vol. 1, No. 3. It is further updated as follows:

76-1 Deficiencies in the Mark I Containment Systems of Certain Boiling Water Reactors (BWRs)

Actions Taken to Prevent Recurrence

Licensee/Vendor - The Mark I Owners Group (licensees) and the General Electric Company (GE) are continuing to conduct the Mark I Containment Long Term Program (LTP). In December 1978 and April 1979, GE submitted proposed hydrodynamic load definition techniques and structural acceptance criteria for the LTP.

During the course of the staff's review of the proposed assessment methodology, a concern was identified regarding the potential for dynamic amplification of the condensation loads on the containment vent system which could lead to an overpressurization of the containment in the event of a major loss-of-coolant accident. This concern evolved from load magnitudes derived from full scale, prototypical test data. The Mark I Owners Group subsequently provided additional information concerning existing vent system configurations and structural response analyses from which the staff concluded that there is a sufficient margin of safety in the vent system designs to preclude the need for any action at this time.

In October 1979 the staff issued criteria to begin the implementation of this program. The scheduled completion for the LTP, including the issuance of license amendments and the installation of plant modifications, continues to be December 1980.

Further reports will be made as appropriate.

The following abnormal occurrence was originally reported in NUREG-0090-5, "Report to Congress on Abnormal Occurrences: July-September 1976," and updated in subsequent reports in the series, i.e., NUREG-0090-8 and NUREG-0090, Vol. 1, No. 4. It is further updated as follows:

76-11 Steam Generator Tube Integrity

Since the last update report, another type of steam generator tube degradation occurred. Although the degradation was due to entirely different reasons than those previously reported, it is being reported here as an update item since it can be considered under the general category of steam generator tube integrity.

On October 2, 1979, a steam generator tube ruptured at Northern States Power Company's Prairie Island Unit 1, a pressurized water nuclear power plant located near Red Wing, Minnesota, in Goodhue County. Unit 1 was operating at 100% at the time the tube ruptured. At 2:14 p.m. the control room received a high radiation alarm from the steam jet air ejector monitor. At 2:21 p.m. low pressurizer pressure and level alarms were received. At 2:24 p.m. a reactor trip and a safety injection occurred as a result of low pressurizer pressure. All safety systems functioned normally. At 2:41 p.m. the No. 11 Steam Generator was identified as having the ruptured tube and the main steam isolation valve was shut. Between 2:41 p.m. and 3:15 p.m. the plant was depressurized and cooled down to the point that the steam generator pressure and reactor coolant pressure were equal. The plant was brought to cold shutdown (less than 200°F) by 11:45 a.m. on October 3, 1979.

During the event there was a small release of radioactivity from the steam jet air ejectors due to primary coolant leaking into the main steam system through the ruptured steam generator tube. The steam jet air ejectors remove non-condensable gases from the steam system at the condenser. The gases removed are not normally radioactive. The air ejectors are vented to the atmosphere through the turbine building stack. The amount of radioactivity released was well within technical specification limits.

Licensee examination of the steam generator tube determined that a single tube (out of 3,388 in the steam generator) had ruptured. The size of the rupture was 2 inches long and 3/8-inch wide in the wall of the 7/8-inch diameter tube. Plant personnel found a small steel coil spring lodged near the ruptured tube. The spring apparently had rubbed against the tube during operation, causing the tube to wear away and eventually rupture. An adjacent tube was also worn by the spring vibration. The spring is believed to have been part of a hose used to loosen corrosion products from the tube support sheet during an early refueling outage.

The ruptured tube and five adjacent tubes were plugged to preclude the possibility of future leakage problems. A detailed visual inspection of both steam generators revealed no signs of other foreign objects. In addition, eddy current tests were performed on the affected steam generator and the other

steam generator with no other abnormal indications noted. The unit returned to service on October 23, 1979.

The NRC resident inspector was at the site at the time of the tube rupture. A team of reactor inspectors and radiation specialists was dispatched by charter aircraft to the plant from the NRC Regional Office in Chicago. NRC radiation surveys and environmental samples determined that there were no detectable increases in radiation in the vicinity of the plant. Surveys by the licensee, the State of Minnesota, and the State of Wisconsin also confirmed that there was no detectable increase in radiation levels as a result of the tube rupture.

The Prairie Island Unit 1 event described above is closed for purposes of this report.

The following abnormal occurrence was originally reported in NUREG-0090, Vol. 2, No. 1, "Report to Congress on Abnormal Occurrences: January-March 1979," and updated in a subsequent report in this series, i.e., NUREG-0090, Vol. 2, No. 2. It is further updated as follows:

79-3 Nuclear Accident at Three Mile Island

EPICOR-II

As a result of the March 28, 1979 accident at the TMI Unit 2 facility, a significant amount of radioactive contaminated water has been generated (approximately 400,000 gallons) and collected in Unit 2 auxiliary building tanks. Subsequently, Metropolitan Edison Company (the licensee) designed and constructed a system which is now known as the EPICOR-II system. The EPICOR-II system is a liquid radwaste processing system, designed to decontaminate by filtration and ion exchange radioactive contaminated water contained in Unit 2 auxiliary building tanks. The system has been in operation since October 1979 and was able to reduce radioactivity in the waste water to the level less than the maximum permissible concentrations specified in 10 CFR 20, Appendix B, Table II, Column 2, except tritium. Tritium concentrations can be reduced by dilution prior to final deposition.

Further reports will be made as appropriate.

APPENDIX C

OTHER EVENTS OF INTEREST

The following events are described below because they may possibly be perceived by the public to be of public health significance. None of the events involved a major reduction in the level of protection provided for public health or safety; therefore, they are not reportable as abnormal occurrences.

1. Construction Deficiencies

During NRC inspections conducted in April and May 1979 of construction activities at the Public Service Company of Indiana Marble Hill 1 and 2 facilities, various problems were discovered that indicated inadequacies in the licensee's quality assurance program. On June 12, 1979, NRC received allegations of improper concrete honeycomb repairs. Subsequent inspections and investigations confirmed these allegations. These findings, together with the previously identified quality assurance problems associated with concrete placement activities, led to the cessation of concrete placement work in safety related structures.

On July 10, 1979, the National Board of Boiler and Pressure Vessel Inspectors issued a report documenting the results of their inspection conducted on June 12-14, 1979 of the licensee's activities. Extensive noncompliance to ASME Code requirements was identified in this report, thereby indicating additional inadequacies in the licensee's quality assurance program. Following further NRC inspections and investigations, the licensee ceased all safety-related construction at the site, and the NRC issued a confirmatory order on August 15, 1979 enforcing the cessation of such construction. The licensee is currently developing corrective actions. At the present time, a schedule for resolution of this matter has not been established.

The U. S. Attorney is conducting an investigation at the plant site as a result of findings by NRC regarding the alleged coverup of civil construction deficiencies. Congressional hearings were held by the Subcommittee on Environment, Energy and Natural Resources regarding the construction deficiencies.

2. Low Level Radioactive Gas Release

At 6:09 a.m. on September 25, 1979, the North Anna Unit 1 power plant experienced a secondary system component failure which resulted in the plant shutting down and operating safety equipment to control the transient. During recovery operations, which entail securing the safety equipment and restoring system valve lineups to normal, the Volume Control Tank (VCT), which holds 300 cubic feet of radioactive primary coolant water and hydrogen gas under low pressure, was overpressurized. This resulted in releasing a mixture of hydrogen gas and noble gases from the reactor coolant water to radiological waste tanks and from there to the auxiliary building atmosphere.

Two plant personnel were evacuated from the auxiliary building when radiation monitors alarmed in the auxiliary building. Radioactive gas was released through the two auxiliary building vents to the atmosphere.

NRC inspectors verified the amount of gas release from the plant which, combined with knowledge of meteorological data at the time of the event, resulted in negligible radiation doses at the nearest residence in the direction of wind travel.

Design inadequacies and incomplete construction and testing controls apparently led to this occurrence.

Correction of a radiation waste system piping deficiency was conducted by the licensee immediately. Followup evaluation of the incident and operator training on operation are continuing while the plant is shut down for refueling.

The NRC inspectors, on site when notified of the event, verified that adequate controls were in force. An investigation was completed of the event and the information has been issued to other licensees to avoid similar situations.

3. Inventory Difference in Excess of Licensee Condition

Nuclear Fuel Services, Inc., Erwin, Tennessee, on September 17, 1979, reported the inventory difference for the period June 18 through August 14, 1979, to be in excess of the upper limit specified in Condition 2.10 of the Material and Plant Protection License Amendment. The large inventory discrepancy is of concern because of the possible diversion of special nuclear material. Additionally, the material could constitute a health and safety hazard.

Preliminary findings of the NRC Inspection Team did not identify the cause or causes. No specific discrepancies either in material control and accountability or security were found, although, inaccurate measurements, undocumented losses or transfers could have resulted in the inventory anomaly.

Nuclear Fuel Services started an orderly shutdown of the high enriched uranium operations on September 18, 1979, in preparation for a plant re-inventory. These actions were in compliance with an NRC order issued September 17, 1979. Nuclear Fuel Services actions included shutdown to a static condition, extensive plant cleanout, security reviews, record audits, surveys of the plant grounds, surveys of the plant buildings, and additional inventory data reviews.

The NRC's Office of Nuclear Material Safety and Safeguards (NMSS) issued an order modifying the facility license halting further introduction of feed material and requiring an immediate re-inventory. An NRC Inspection Team was dispatched from Region II, Atlanta, and arrived on site September 18, 1979. The Director of the Division of Safeguards, NMSS, arrived on site on September 19, 1979, to assume the position of Senior NRC Representative. The Nuclear Emergency Search Team (NEST) arrived on site on September 20, and began aerial monitoring activities. The NEST overflight and ground surveys were completed by September 24.

Surveys identified above background indications outside the protected area. Soil sample analysis showed low enriched uranium consistent with normal effluents in the area. NEST and inspection team findings did not identify items having significant bearing on the inventory discrepancy.

The Region II mobile laboratory arrived on site on September 23, and an NRC Inventory Verification Team began a complete overcheck of the fabrication plant inventory with the mobile laboratory measuring verification samples. The NRC Inventory Verification Team monitored the licensee's performance and performed independent verification of the re-inventory and continuing scrap recovery operations.

A reinventory was completed and results reported on November 2, 1979. The reinventory partially reconciled the inventory difference, however, it continued to be in excess of the upper limit specified in Condition 2.10 of the Materials and Plant Protection License Amendment. A remeasurements program conducted by the licensee did not significantly alter the reinventory results.

The NRC Inventory Verification Team findings confirm the reinventory results. Investigation of liquid and gaseous effluents, analytical data, uranium wastes for burial and search for unmonitored release paths did not account for quantities of materials that would explain the inventory difference.

The high enriched uranium activities at the plant are in a shutdown status. The NRC has approved the shipment of finished fuel to the receiver to reduce the high enriched uranium plant inventory and to obtain a second measurement and verification of the finished fuel.

ENCLOSURE 3

DRAFT

OTHER EVENTS CONSIDERED FOR ABNORMAL OCCURRENCE REPORTING

The following incidents are samples of incidents seriously considered for abnormal occurrence reporting. The incidents are briefly discussed and the reasons why they are not being reported are stated. The incidents were judged not to have involved a major reduction in the level of protection provided for public health or safety.

This enclosure is provided to the Commission per Commission comments on SECY-76-471; the enclosure will not be a part of the published report.

1. Violation of Primary Containment Integrity

During a routine inspection at Pilgrim Nuclear Power Station, Unit 1, in August 1979, a Region I inspector noted that the licensee had violated primary containment integrity during the performance of maintenance on June 12, 1979. The violation occurred when the containment isolation check valve in the core spray test line was disassembled and repaired during operation of the reactor. The valve is in a six-inch line penetrating the TORUS which is part of the primary containment boundary. There was no isolation valve inside the TORUS and the valve was disassembled for approximately 7 hours.

On August 10, 1979, Region I transmitted an Immediate Action Letter to the Boston Edison Company, documenting their agreement to take the following actions:

1. Review the sequence of the events leading to the violation of primary integrity, determine the safety significance of each of these and define specific measures to prevent recurrence;
2. Review the adequacy of procedural and management controls as they apply to safety-related maintenance; and
3. Review the adequacy of plant staffing and staff training to prevent such an occurrence.

Region I also held a management meeting with the Boston Edison Company on September 5, 1979 to discuss the occurrence and the actions taken by the licensee in response to the August 10 Immediate Action Letter.

In this particular instance there are two primary safety concerns. First is that the primary containment had been violated. Second, and of even greater concern, is that the licensee violated a limiting condition for operation without being aware of the condition and its implications. Although this event constituted a violation of primary containment, it is not proposed to include it as an abnormal occurrence because the violation existed for only

about 7 hours, well within the action statement contained in the Technical Specifications. The action statement requires that, "If the specifications of 3.7.A cannot be met, an orderly shutdown shall be initiated and the reactor shall be in a cold shutdown condition within twenty-four hours."

2. High Radiation Levels from Xenon-133 Shipment

A representative of Elfreth Alley Apothecary of Philadelphia, Pennsylvania, an NRC licensee, reported to Region I that a package containing xenon-133 in gaseous form delivered on August 25, 1979 showed a radiation level of 50 milliroentgens per hour measured at 10 feet from the surface of the package. A Region I inspector determined that the actual radiation levels were 20 milliroentgens per hour at 3 feet from the surface of the package and 1,000 milliroentgens per hour on contact. Apparently, the glass ampule containing xenon gas broke during shipment and the gas was released from the lead shielded container into the outer sealed tin can. In order to allow the xenon to decay, the tin can is still at the licensee's facility, inside a fume hood surrounded by lead shielding.

Investigations of personnel exposure to this source during transit indicate that the highest exposure was to a Federal Express employee who handled the package from the time it was unloaded at the Federal Express facility near the Philadelphia Airport, until it was delivered to the licensee's facility. It is estimated that the dose this individual received was between 100 and 200 millirems. The next highest dose received by an individual was estimated to be approximately 12 millirems to another Federal Express employee who also handled the package. The doses actually received are considerably below the threshold for abnormal occurrence reporting. In addition, there is no evidence that any xenon was released to the atmosphere.

3. Breakdown in Administrative Control of Low Recirculation Flow Bypass Switches

On September 9, 1979, Dairyland Power Cooperative's LaCrosse facility reported that they had failed to open the low recirculation flow safety circuit switches prior to taking the reactor critical as required by the facility technical specifications.

The operator performing the startup checklist was interrupted several times during the implementation of the procedure. As a result, he inadvertently missed the step where bypass keys Nos. 34 and 35, low recirculation flow safety circuit trips, were to be placed in the non-bypassed condition. Reactor criticality was achieved and low power operations were performed for five shifts with these switches in the incorrect position. Operations personnel on each shift logged the fact that keys 34 and 35 were in the "bypass" condition but did not immediately recognize that these were low recirculation flow safety circuit trips.

The principal causes for this event were personnel error and inadequate procedures. The initial event, skipping a step in the startup procedure, was personnel error. The failure of the shift change checklists to properly identify this error for five shifts is procedure inadequacy.

The licensee has reinstructed all operations personnel on the importance of adherence to procedure. The licensee has modified the original checklist, adding hold points, such that the shift supervisor has to periodically review and initial the status of items on the checklist during startup. The shift turnover checklists have been modified such that the "bypass key" function is logged instead of simply the key number. The licensee has reviewed all other administratively controlled safety circuit bypass procedures to assure that they properly address these areas.

An NRC investigator and an inspector were dispatched to the site on September 10, 1979. The investigation confirmed that the causes for this event were human error and inadequate procedures. The inspector verified that the above corrective actions had been taken.

The probable consequences of this administrative error, at power levels less than 25 percent, would be minimal since the plant is designed with the capability to operate at 25 percent power on convective cooling flow. During the period of operation with these switches in the incorrect position, the reactor power level was maintained at less than 1 percent of full power. All reactor power monitoring trips were functioning properly and would have prevented core overpower situations. Therefore, there was no actual impact on public health or safety.