

6.0 ADMINISTRATIVE CONTROLS

6.1 ORGANIZATION

- a. The organization for the management and operation of the reactor shall be as indicated in Figure 6.1. The Director, Nuclear Research Center shall have over all responsibility for direction and operation of the reactor facility, including safeguarding the general public and facility personnel from radiation exposure and adhering to all requirements of the operating license and Technical Specifications.
- b. The Manager, Office of Radiation Safety, shall advise the Director, Nuclear Research Center in matters pertaining to radiological safety. She/he has access to the Vice-President, Interdisciplinary Programs and/or the President of the Institute as needed.
- c. The minimum qualifications with regard to education and experience backgrounds of key supervisory personnel in the Reactor Operations group shall be as follows:

- (1) Reactor Supervisor

The Reactor Supervisor must have a college degree or equivalent in specialized training and applicable experience, and at least five years experience in a responsible position in reactor operations or related fields including at least one year experience in reactor facility management or supervision. He shall hold a Senior Reactor Operator's license for the GTRR.

- (2) Reactor Engineer

The Reactor Engineer must have a combined total of at least seven years of college level education and/or nuclear reactor experience with at least three years experience in reactor operations or related fields. He shall be qualified to hold a Senior Reactor Operator's license.

- d. Senior Reactor Operator's License

Whenever the reactor is not secured, the minimum crew complement at the facility shall be two persons, including at least one senior operator licensed pursuant to 10 CFR 55.

Attachment B

Section 9 Health Physics Operations

9010	Kanne Chamber Calibration	10/14/88
9012	Operation and Calibration of The Gas Monitor	04/28/89
9013	Calibration and Testing of Moving Air Particulate Monitor	10/21/88
9014	Vibrating Reed Electrometer Calibration for Tritium	02/28/78
9015	Cooling Water Gamma Monitor	10/21/88
9016	Calibration and Testing of Filter Bank Monitor	10/21/88
9017	Stack Grab Sample Analysis	10/14/88
9018	Charcoal Cartridge Analysis	10/14/88
9019	Cooling Tower Tritium Analysis	07/17/81
9025	Liquid Waste Tank Analysis	12/10/85
9037	Tritium Determination in Urine	04/28/89
9038	Bioassay Program	04/28/89
9040	Liquid Waste Tank Analysis	10/21/88
9041	Storage Pool Water Sampling and Analysis	12/30/88
9050	Basic Portable Ionization Chamber Calibration	02/28/78
9051	Basic Portable GM Survey Meter Calibration	02/28/78
9052	Basic Portable Alpha Meter Calibration	12/10/85
9053	Basic Portable Neutron Meter Calibration	02/28/78
9054	Calibration of The Low Beta II Alpha/Beta Counting System	10/14/88
9055	Operation of The Low Beta II Alpha/Beta Counting System	10/14/88

Section 9 Continued

9056	Calibration and Operation of The Ludlum 2000 Scaler	10/21/88
9057	Calibration Procedure for Eberline Model E-120 GM Survey Meter	12/30/88
9058	Calibration Procedure for Eberline Model RM-14 Rate Meter	12/30/88
9059	"As Found" Calibration Check	12/30/88
9060	Calibration Procedure for Bicron Model RSO-5 Survey Meter	12/30/88
9061	Testing Procedure for Pocket Ionization Chambers (PICS)	12/30/88
9062	Calibration Procedure for Victoreen Panoramic Model 470A Survey Meter	06/30/89
9063	Calibration Procedure for Ludlum Model 2 GM Survey Meter	03/30/89
9064	Calibration Procedure for Eberline Model RO-3A Survey Meter	06/30/89
9065	Calibration Procedure for Bicron Model RSO-500 Survey Meter	06/28/90
9066	Calibration Procedure for the Bicron Microanalyst Survey Meter	02/15/90
9068	Calibration of the SAIHIC-RADECO Model H-809V Air Sampler	09/29/89
9069	Calibration of the Gast Model 0522 Oil-Less Vacuum Pump	08/25/89
9070	Calibration of the Harshaw Automatic Integrating Picoammeter Model 2000-B	04/28/89
9071	Calibration of Beam Intensity of Radiation Sources	08/25/89
9072	Calibration Procedure for Eberline Model RO-2 Survey Meter	09/29/89
9074	Calibration Procedure for Eberline Model PIC-6A Survey Meter	04/26/90
9150	Operation and Calibration of Area Radiation Monitors	08/25/89

Section 9 Continued

9151	Calibration and Operation of The Tri-Carb 2000 Series Liquid Scintillation Counter	10/14/88
9152	Basic Gas Proportional Flow Counter Calibration	02/28/78
9153	Basic TLD Reader Calibration	02/28/78
9154	Operation and Calibration of the Gamma Analysis System for Effluent Monitoring	10/14/88
9155	Determination of Count Times Based on a Priori Lower Limit of Detection (LLD)	12/30/88
9250	Facilities Contamination Surveys	09/09/88
9251	Procedure for Picking Up, Receiving, and Opening Radioactive Packages in Accordance with 10 CFR 20.205	02/28/78
9252	Stack Flow Test	12/10/85
9280	Personnel Monitoring	10/21/88
9300	Respiratory Protection	08/06/80
9302	Protective Clothing Requirements	09/09/88
9303	Guidelines for Handling Radioactive Spills	08/08/89
9304	Routine Facility Radiation Surveys	09/09/88
9306	Preparation & Maintenance of RWP's	09/09/88
9308	Airborne Radioactivity Surveys	09/09/88
9310	Posting of Radiological Control Areas and Materials	10/14/88
9400	Environmental Monitoring	
9501	Control & Accountability of Radioactive Sources	04/28/89
9502	Control and Accountability of Radiation Generating Devices	08/25/89

Attachment C



Georgia Institute of Technology

NEELY NUCLEAR RESEARCH CENTER
900 ATLANTIC DRIVE
ATLANTA, GEORGIA 30332-0425

(404) 894-3600

March 23, 1990

MEMORANDUM

TO: Nuclear Safeguard Committee
FROM: R. A. Karam *RAK*
SUBJECT: Audits

At the request of the Chairman, Dr. Bernd Kahn, I am sending you this memo to remind you that audit assignments, as distributed to you on January 26, 1990, are due March 31, 1990.

The audit assignments are attached for your convenience.

AUDIT ASSIGNMENTS FOR NSC MEMBERS
Reports are due March 31, 1990

Audit records created by procedures
2000 series: Dr. J. Mahaffey

Audit records created by procedures
3000 series: Dr. E. Barefield

Audit records created by procedures
4000 series: Dr. H. Neumann

Audit records created by procedures
6000 series and security plan and
procedures: Mr. J. Vickery

Audit records created by procedures
7000 series: Dr. P. Desai

Audit records created by procedures
8000 series: Dr. S. Abdel-Khalik

Audit records created by procedures
9000 series: Dr. B. Kahn*
Dr. J. Gordon
Dr. B. Livesay
Mr. Les Petherick*

Audit actions taken to correct
IFI's: Mr. E. Cobb*

* Completed Audits



Georgia Power

Nuclear Operations Department

March 22, 1990

Dr. B. Kahn, Chairman
Nuclear Safeguards Committee
Old CE Building
Georgia Institute of Technology
Atlanta, Georgia 30332-0225

Dear Dr. Kahn:

I have completed the assignment to audit action taken on Nuclear Regulatory Commission (NRC) Open Items associated with Neely Nuclear Research Center (NNRC). The audit was conducted March 14, 1990 at the NNRC.

There are thirteen open items. Nine items are ready for NRC review and closure either now or at the next emergency exercise. The other four open items remain open for action to be completed.

Appendix A provides a brief summary of the status of the thirteen open items. Appendix B is a more detailed description of each open item and current status.

Sincerely,

E. F. Cobb

dmc

Attachment

xc: R. A. Karam

APPENDIX A
SUMMARY OF NRC OPEN ITEMS

	<u>Item</u>	<u>Status</u>
1.	VIO 87-01-01 Utilize Procedure	Ready for NRC review.
2.	VIO 87-01-02 Control Experiments	Ready for NRC review.
3.	UNR 87-01-10 Instrument Calibrations	Remains open to determine all bench test instruments identified.
4.	IFI 88-02-13 Reactor Coolant Flow	Remains open to evaluate test results.
5.	VIO 89-02-01 Containment Test	Ready for NRC review.
6.	VIO 89-02-02 Shim Blades	Ready for NRC review.
7.	IFI 89-03-01 Radioactive Material	Procedure needs additional review by NNRC.
8.	Exercise Weakness 89-04-01 Fully Testing Emergency Plan	Confidential scenario will be used for next exercise. Ready for NRC review.
9.	IFI 89-04-02 Radio Transmission	Ready for NRC review.
10.	IFI 89-04-03 Test Off-site Components	This will be tested during next exercise. Ready for NRC review.
11.	IFI 89-04-04 Emergency Plan Training	Ready for NRC review.
12.	IFI 89-04-05 Required Notification	Ready for NRC review.
13.	IFI 90-01-01 Stack Grab Sample	Remains open to make a technical change.

APPENDIX B
STATUS OF NRC OPEN ITEMS

1. VIO 87-01-01. Failure to provide or utilize procedures.

Status

A letter response by NNRC was made on July 15, 1987 to the NRC. While not all corrective action was completed, all estimates of action completion were in 1987. This violation is ready for NRC review.

2. VIO 87-01-02. Failure to control experiments per Technical Specifications.

Status

Same as VIO 87-01-01 stated above.

3. UNR 87-01-10. Verify that instrument calibrations necessary for operability of safety equipment listed in Technical Specifications Table 4.1 are performed.

Status

The NRC reviewed status of the unresolved item during a NRC inspection which was reported in Inspection Report 89-02 on November 11, 1989. The following statement was made by the NRC:

"The licensee has records of calibrations of four instruments used in calibrating the instrumentation listed in Table 4.1. Those instruments are:

"HP Multimeter, SN 2237A15867, Model 3468A;
Keithley Picoampere Source, SN261, Model 261;
HP Universal Counter, SN 2714A15245, Model 5314A; and
HP VTVM, SN316-09668, Model 412A.

"All have current calibrations against NBS standards. However, it was not determined that these are the only bench test instruments used in the calibration of the Table 4.1 equipment. Hence, this item remains open."

4. IFI 88-02-13. Develop and implement reactor coolant flow calibration procedure.

The following is quoted from NRC Inspection Report 88-02:

"Surveillance procedure 2015, Reactor Power Calibration, is required to be performed weekly when at 1 MW or higher power.

"The measurement is performed by considering the heat removed by the primary coolant (D₂O) flow and the light water coolant flow through the shield. (The latter appears to a negligible heat sink during 1 MW operation.) The primary coolant flow detector, a turbine vane flow meter, has not been calibrated since it left the factory and does not appear to be susceptible to on site calibration. Hence, the accuracy of the power calibration, which is proportional to the product of flow times coolant temperature rise, is indeterminable as currently performed.

"In the secondary coolant system, there is a calibrated flow orifice plate and the dP cell across the plate has been calibrated against a standard water gauge on occasion. The licensee has neither a procedure nor a schedule for this calibration.

"In order to justify a power calibration based on primary flow, that flow must be calibrated. That calibration can be accomplished by performing simultaneous heat balances on the secondary and primary sides, equating them, and solving for primary flow. The prerequisites to this measurement include calibration of the dP cell in the secondary flow system and calibration of the RTDs and thermocouples used in the temperature measurements. This flow and power calibration should be performed before exceeding 1 MW and at 1 MW increments as power is increased to the license limit of 5 MW. Appropriate procedures and schedules for the calibration of flow and temperature measuring devices must be established by the licensee. The licensee committed at the exit to develop the appropriate procedures and implement them prior to exceeding 1 MW. (IFI: 50-160/88-02-13)."

Status

The secondary coolant system calibrated flow orifice plate (venturi) has not been calibrated since original calibration. The venturi was inspected and found to be clean and useful for the establishment of secondary coolant flow. Heat balance tests have been made at 1MW, 2MW, 3MW and 4MW. Test data and results are being evaluated.

5. VIO 89-02-01. Failure to perform the containment building leak-rate test in accordance with commitments.

Status

NNRC has reported the following status to the NRC:

"Procedure 4000, Containment Building Pressure Test, was deficient in that the procedure did not provide adequate guidance to the operator in the area of data handling and treatment.

"Procedure 4000 has been revised and is currently being reviewed against Standard ANS 7.60 and other requirements.

"It is anticipated that an adequate procedure which meets the requirements of ANS 7.60 will, when completed, ensure that further violations in this area do not occur.

"Full compliance will be achieved as of March 31, 1990."

Procedure 4000 was revised and procedures 4001 and 4002 written to correct deficiencies. The Nuclear Safeguard Committee reviewed and approved procedures 4000, 4001, and 4002 on March 22, 1990.

6. VIO 89-02-02. Procedures did not assure that any shim blade not fully inserted was withdrawn sufficiently to cause a negative rate trip when released into the core, as required by Technical Specification 3.1.d - paragraph 5.

Status

NNRC has reported the following to the NRC:

"The Staff of the Neely Nuclear Research Center has been involved in upgrading operating procedures on many fronts: Health Physics, Operations, Emergency Response, Environmental, Security, etc. Consequently, the procedure to assure that shim safety blades were always withdrawn to at least 5 degrees was overlooked.

"Procedure 7247 has been drafted to cover this area and is currently undergoing review.

"The corrective action directed toward development of an adequate procedure which implements Technical Specification requirements will, when completed, ensure that further violations in this area will not occur.

"Full compliance will be achieved as of March 31, 1990."

The Nuclear Safeguard Committee has approved Procedure 7247.

7. IFI 89-03-01. Follow up the development of a procedure for the shipment of radioactive material.

Status

The NRC reviewed status of the inspector follow up item during a NRC inspection which was reported in Inspection Report 90-01 on February 5, 1990. The following statement was made by the NRC.

"The inspector verified that a draft procedure has been written for handling radioactive waste and completing radioactive material shipment. The licensee indicated however, that the procedure still needs to be revised before being submitted to the NSC for review and approval."

The procedure has not been revised additional.

8. Exercise Weakness 89-04-01. Failure to conduct the annual emergency drill in a manner that would fully test implementation of the Emergency Plan.

Status

This weakness involved the NRC inspectors comment that the drill scenario should not be developed by a drill participant and that drill exercise players should not have advance knowledge of the scenario details. NNRC committed to ensure that exercises are conducted using a confidential scenario for fully testing the entire emergency organization. This will be demonstrated at the next emergency exercise.

9. IFI 89-04-02. Conduct an evaluation of radio transmission over the entire EPZ to identify areas of impeded transmission.

Status

A brief loss of communications between the Emergency Director and Health Physics personnel was caused by a communications dead spot in the vicinity of the storage pool. A radio test has been conducted over the entire EPZ. Action is completed.

10. IFI 89-04-03. Verify that the full-scale exercise conducted on a biennial basis, included an accident scenario that will test all on-site and off-site components of the emergency organization.

Status

This item resulted from the simulated emergency event which was not a classifiable event that warranted off-site notifications to State, local and federal authorities. Drills are expected to conduct such notifications every two years. This will be tested at the next emergency exercise.

11. IFI 89-04-04. Proceduralize the emergency response training program to ensure documented compliance with Section 10.1 of the Emergency Plan.

Status

A procedure has been written and approved to describe the emergency response training programs. The IFI is ready for NRC review.

12. IFI 89-04-05. Review Procedure 6100 (Emergency Notification) to ensure that all required notifications are included and made in a timely manner.

Status

Procedure 6100 has been reviewed and revised to ensure that all required notifications are included in the procedure. This item is ready for NRC review.

13. IFI 90-01-01. Follow the revision of Procedure 9017, Stack Grab Sample Analysis, Rev. 2, of October 14, 1988.

Status

The NRC reviewed status of the inspector follow-up item during a NRC inspection. The following statement was made by the NRC in the Inspection Report:

"IFI 88-02-08, Stack Grab Sampling, was established due to the potential occupational hazards associated with climbing the exhaust stack while carrying sampling equipment. The licensee agreed to evaluate the stack sampling method and consider another possible method for obtaining the sample.

"The inspector discussed the sampling process with licensee representatives including those who actually climb the stack to obtain the sample. Although management and workers alike felt that climbing the stack posed only a limited safety hazard, the licensee has decided to change the method used to sample the air from the exhaust stack. This IFI (88-02-08) will be closed but another established to follow and review the revised procedure. The NRC will track revision of Procedure 9017, Stack Grab Sample Analysis, Rev. 2, dated October 14, 1988, as an IFI (50-160/90-01-01)."

May 15, 1990

Georgia Institute of Technology
Atlanta, Georgia 30332-0405

MEMORANDUM

TO: Dr. B. Kahn, Chair, Nuclear Safeguards Committee

FROM: Prateen V. Desai

SUBJECT: Audits

I have now completed the audits of the 7000 Series Procedures. I randomly picked Procedure 7241 and Procedure 7420 for the audit.

Procedure 7241 concerns reactor tank level transmitter maintenance and calibration to be conducted twice a year. In particular, these were performed on 2/23/88, 7/23/88, 2/23/89, 7/26/89 and 2/12/90. In each case the procedure was performed as per its approved version by our committee.

Procedure 7420 concerned with providing channel check test or calibration for safety related instruments. It included several related procedures. Procedure 2003 dealt with daily reactor pre-startup checklist, Procedure 2002 dealt with weekly pre-startup checklist and Procedures 9010, 9012, 9013, 9015, 9016 and 9150 dealt with monthly and yearly checks.

For audits, I randomly picked the week of May 29th, 1989 for the daily check, the weeks of May 29th, 1989 and June 5th, 1989 for the weekly checks and the month of May 1989 (5/08/89 - 6/08/89) for the monthly checks. I also randomly picked instrument channel Map-1 for my audit. Weekly checks were performed as per approved procedure. Daily checks were performed as per approved procedure for only two days during the week of May 29th, namely on May 30th and 31st, these being the only two days of the week when the reactor was operating. The monthly and yearly checks were also performed as per approved Procedure 9013.

In summary, my audit of two randomly chosen 7000 Series Procedures 7241 and 7420 indicates that the NNRC staff has satisfactorily performed the latest versions of the procedures approved by the Nuclear Safeguards Committee.

Sincerely,



Prateen V. Desai

Member

Nuclear Safeguards Committee

PVD/eb



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March 28, 1990

MEMORANDUM

TO: Dr. Ratib Karam

FROM: Jack Vickery *Jack Vickery*

NUCLEAR RESEARCH CENTER

SUBJECT: Audit--6000 Series Procedures and Security Plan

I have reviewed the security plan of the NNRC and the following procedures:

1. Procedure 0001--Access Control and Accountability of Keys and Access Cards.
Approved 12/08/89
2. Procedure 0002--Security System Testing.
Approved 12/08/89
3. Procedure 0003--Emergency Power Generator Test.
Approved 12/08/89
4. Procedure 6010--General Rules and Guides for Handling Emergencies.
Approved 12/30/88
5. Procedure 6020--Response to Heavy Water Leakage in Containment Building.
Approved 02/02/89
6. Procedure 6030--Response to Irradiated Fuel Element Becoming Unshielded.
Approved 02/02/89
7. Procedure 6040--Response to Fire at NNRC.
Approved 02/02/89
8. Procedure 6050--Response to Zinc Bromide Leak in Hot Cell Window.
Approved 02/02/89
9. Procedure 6060--Response to Pool Water Draining with Co-60 Sources in Bottom. Approved 02/02/89
10. Procedure 6070--Response to Loss of Integrity of CO-60 Sources.
Approved 02/02/89
11. Procedure 6090--Personnel Monitoring after Building Evacuation in Emergency Situations. Approved 02/02/89
12. Procedure 6100--Emergency Notification.
Approved 02/02/89 Minor Change 09/28/89

My findings and recommendations are as follows:

1. Procedure 0001--Inventories of keys and magnetic cards are in process of being transferred to forms SEC 005 and SEC 006 as required by procedure.
2. Procedure 0002--Records of test of security system were on file and up-to-date.
3. Procedure 0003--No record of test of emergency power generator located.
4. No records have been generated as a result of the implementation of procedures 6010, 6020, 6030, 6040, 6050, 6060, 6070, 6093 and 6100.
5. Procedure 6080--Accidental Release of High Levels of Gaseous Activity to the Atmosphere, although referenced in other procedures, has not been written yet.
6. Procedure 6090--Appendix A (page 4) of this procedure is a list of NNRC personnel. This list was out of date in the manual, however, an up-to-date list was on file. Recommendation: Consider removing the list of personnel which is subject to change from the procedure, but maintain it in a separate file.

I hope this information will be of assistance to the management of the NNRC.



13 April 1990

MEMORANDUM

TO: Dr. B. Kahn, Chairman, Nuclear Safeguards Committee
FROM: Dr. J. Mahaffey *Jam*
SUBJECT: Audit of 1989 2000-level procedures (reactor operations)

As a spot check of general 2000-level procedures I have examined the Weekly Precritical Startup Checklists (2002) and the Weekly Shutdown Checklists (2006) for every week of 1989.

In general, the checklists appear correct, complete, and consistent. A few very minor exceptions are as follow:

- 1) On 6 November, and 17 January no flux amp trip points were recorded. On 5 June trip point no. 2 was recorded, but trip point no. 1 was not. On 13 February the blanks reserved for trip point recordings were checked, with no numbers supplied. On two other occasions no trip points were recorded, but adequate explanations were written.
- 2) For each of the 37 weeks of operation the parameter labeled "upper window" was recorded as "4.7," except for the week of 9 January, in which the recorded number was "440." There was no explanation offered for this 100X discrepancy.
- 3) Similarly, for each of the 37 weeks the parameter labeled "lower window" was recorded as ".21," except for the week of 9 January, in which the recorded number was "20."
- 4) The parameter labeled "fine gain" was always recorded as ".93," except on 3 January, 4 January, 10 May 17 May, 6 March, and 24 February, when it was recorded as "9.3."



Student Health Service
Office of the Director
(404) 894-2584

April 24, 1990

NUCLEAR RESEARCH CENTER

TO: DR. KARAM
NUCLEAR RESEARCH CENTER

FROM: J. NICHOLAS GORDON, MD
DIRECTOR, STUDENT HEALTH *J. Nicholas Gordon M.D.*

RE: NEELY NUCLEAR RESEARCH CENTER AUDIT

I. TESTING PROCEDURE FOR POCKET IONIZATION CHAMBER (PICS)

PIC calibration should be checked every 6 months. On the following PICS the checking was several days late.

PIC NUMBER	DATES CHECKED
4031577	9/8/89 - 3/16/90
4052633	9/6/89 - 3/16/90
4052634	9/11/89 - 3/14/90

II. BIO ASSAY

The Bicassy procedure states that all employees should be examined with a urinary tritium and gamma isotope analysis as follows:

1. Annually
2. Upon termination of employment
3. Any additional times as determined by the Manager, Office of Radiation Safety (MORS) or designee.

FINDINGS:

It was found that the employees were bio assayed annually and upon termination of employment as directed above. Only the tritium assay was done. It was then explained that only tritium is used and that the gamma ISOTOPE ANALYSIS was done only in special cases. If this is so, the procedure 5.2.3 should be corrected.

Minor Change Number: By: Date: / /	NEELY NUCLEAR RESEARCH CENTER	Procedure 9038 Revision 01 Approved 04/28/89 Page 2 of 6
	<u>BIOASSAY PROGRAM</u>	

- 4.3.1 ANSI N343-1978, "American National Standard for Internal Dosimetry for Mixed Fission and Activation Products."
- 4.3.2 International Commission on Radiological Protection, Pub. 2, "Report of Committee II on Permissible Dose for Internal Radiation," 1959.
- 4.3.3 International Commission on Radiological Protection, Pub. 10, "Evaluation of Radiation Doses to Body Tissues from Internal Contamination Due to Occupational Exposure," 1967.
- 4.3.4 International Commission on Radiological Protection, Pub. 10A, "The Assessment of Internal Contamination Resulting from Recurrent or Prolonged Uptakes," 1969.
- 4.3.5 NUREG/CR-4884, "Interpretation of Bioassay Measurements," 1987.
- 4.3.6 Regulatory Guide 8.32, "Criteria for Establishing a Tritium Bioassay Program," 1988.

5.0 PROCEDURES/REQUIREMENTS

- 5.1 Equipment/Materials Needed
 - 5.1.1 None
- 5.2 Procedure
 - 5.2.1 The estimation of radioactivity in the human body shall primarily be measured by analysis of urine samples.
 - 5.2.2 The Radiation Safety office shall request a urine sample from individuals and shall document the request in the bioassay logbook or record.
 - 5.2.3 The primary analyses that shall be performed are tritium analysis and gamma isotopic analysis.
 - 5.2.4 The routine bioassay program shall consist of:
 - 5.2.4.1 Beginning employment bioassay.
 - 5.2.4.2 A yearly bioassay.



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Please reply to:

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GEORGIA INST. OF TECHNOLOGY
ATLANTA, GEORGIA 30332 U.S.A.

Date : March 12, 1990
To : Dr. R. Karam, Director, NNRC
From : B. Kahn, Nuclear Safeguards Committee *B. Kahn*
Subject : FY 1990 Audit of Procedures

I selected, at random, two procedures to audit in Section 9, Health Physics Operations. Those selected were numbers 9037 and 9040. For this purpose I reviewed for each procedure the data entry sheets collected in a loose-leaf binder for the calendar year 1989, and compared the entries with the instructions in the procedure.

Both sets of data entries were, on the whole, recorded correctly and in accord with instructions, according to my observations. The following minor problems were found in the procedures and the data sheets.

\m\karam2.mar

A. Procedure 9037, Rev.00, dated 04/28/89
Tritium Determination in Urine

1. a. The procedure, in step 5.2.2.1, intends to refer to Appendix A, but the A is missing.
- b. The space in Appendix A that shows "Final pH" should say "Initial pH".
- c. In step 6.0, the procedure should refer to recording results in the sample log, Procedure 9038.
- d. Appendix A should have line for the sample ID, and Appendix B should have a column for this purpose.
2. The summary record of results in the Procedure 9038 sample log should have consistent values with regard to precision (not a mix of 0.00, 0.1 0.714, 0.66, etc.).
3. The "Reviewed by" signature and date are missing in Appendix A for #15-19 and in Appendix B for #15-19 and #39-49.

B. Procedure 9040, revision 02, dated 10/21/88 Liquid Waste Tank Analysis.

1. The procedure, in step 7.0, should refer to the data sheet and authorization record.
2. The gamma-ray data have "less-than" signs missing for samples 89-02 and 89-09.

GEORGIA INSTITUTE OF TECHNOLOGY

A Unit of the University System of Georgia

PLANT OPERATIONS DIVISION

915 Atlantic Drive, N.W. - Atlanta, Georgia 30318

404 - 894 - 4635

February 14, 1990

MEMORANDUM

TO: Ratib Karam
Director, Nuclear Research

FROM: G. Les Petherick *G. L. Petherick*
Manager, Environmental Safety

SUBJECT: Neeley Nuclear Research Center Audit

I conducted an audit of Procedures numbered 9252 - 9400 on February 14, 1990. An in-depth review was conducted on the following Procedures: 9252, 9305, and 9306. No discrepancies were found in Procedures 9304 or 9306; however, Procedure 9252 needs to be revised.

It is recommended that Procedure 9252, Stack Flow Test, be revised. The present procedure does not list the reason for the stack flow test, the type of instrumentation required for the test, any tech spec on the instrumentation such as required calibration etc., how many measurements will be taken inside the stack, the location of these measurements and if an average of the measurements be done and the average measurement be used as proper flow test rate required by the form.

If there are any questions concerning this audit please feel free to contact me at 894-4636.

GLP:ah

cc: Dr. Bernd Kahn

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NUCLEAR RESEARCH CENTER

Georgia Institute of Technology

Atlanta, Georgia 30332

A Unit of the University System of Georgia

29 March 1990

TO: Dr. Berndt Kahn, Chairman
Nuclear Safeguards Committee

From: Henry M. Neumann

H. M. Neumann

Subject: Audit of records related to 4000 series procedures.

I have completed an audit of the procedures and records named above. Some procedures have been revised recently, while others have been in effect for several years. The approval date for procedures are given below. I examined selected records, and below are comments resulting from the examination.

Procedures 4000, 4001, 4002 (22 March 1990)

These procedures, related to pressure test of the containment building, are very new. I did not examine records related to these.

Procedure 4005 (12 October 1966)

This procedure is related to changing filters in the reactor ventilation system. There is no specified time interval for these changes. Records, which go back to 1979, were found under "Filter Banks". The last recorded change was 6/3/88. Is this correct?

Procedure 4010 (6 May 1974)

This procedure describes removal of the bismuth block. There are no related records.

Procedure 4050 (6 May 1974)

This procedure relates to deuterization of the ion resin bed. The only requirement for record keeping related to this procedure is that entries should be made in the D₂O Inventory Log when the procedure is performed.

The records labeled "D₂O Inventory" are concerned with procedure 3500, which is to be performed quarterly. My conclusion from these records, which go back to 11/8/85 is that procedure 4050 has not been performed since that date. Is that correct?

Procedure 4051 (30 January 1986)

This procedure describes the recovery of D₂O from the ion resin bed. There are no related records.

Procedure 4060 (10 February 1972)

This procedure describes measurement of the top reflector dump time. The procedure must be performed four times per year at approximately 90 day intervals. A handwritten comment on the first page of the procedure says "Not a valid procedure". The measurement is now done as part of the Weekly Reactor Shutdown Checklist (Procedure 2006). The latter records for 1989 were examined. Measurements were made much more frequently than the stated requirement.



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Procedure 4100 (6 May 1974)

This procedure relates to the hydrostatic test of the primary system using H_2O . I did not examine records related to this.

Procedure 4150 (30 June 1989)

This procedure related to maintenance, inspection, and testing of cranes. Procedure is to be performed annually. Records indicate maintenance of the hot cell crane in 1987, 1988, and 1989, and maintenance of the containment crane in 1986, 1988, and 1989.

Procedure 4200 (28 April 1989)

This procedure relates to changes in GTRR design. I did not examine records related to this.

Procedure 4400 (30 October 1987)

This procedure relates to D_2 analysis in reactor cover gas, and is to be performed annually. The records for this analysis were contained in a folder incorrectly labeled " D_2O concentration analysis". The record for 1987 is only a strip of recorder chart, with no date. The records, including a strip of recorder chart, for 1988 and 1989 are satisfactory.

Procedure 4950 (30 December 1988)

This procedure relates to tagging equipment out of service. I did not examine records related to this.

cc: Dr. R. Karam



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13 April 1990

Audit of records created by 3000 series procedures (Auxiliary Systems)

Performed by

E. Kent Barefield

6 April 1990

After reviewing the procedures that required logs to be kept, logs for procedures 3107 (Handling Samples Irradiate in the GTRR), 3600 (Special Nuclear Materials Inventory) and 3800 (Liquid Waste Disposal) were examined.

Procedure 3107. Thirty eight irradiation experiments were logged for 1989. Log entries for experiments 8, 18 and 34 were examined in detail. All forms were completed and approved as required by the procedure.

Procedure 3600. The inventories done in 1989 were based on the original procedure approved 5/6/74. This procedure called for inventories in January and July. The actual inventories were done in May and October, which was the schedule that has been followed for several years. The procedure revision dated 12/8/89 calls for inventory at six month intervals. Burn-up calculations were in place for the last inventory.

Procedure 3800. Twenty discharges of water were made in 1989, all apparently from the Suspect Waste Tank. Forms 3800-01 and 3800-02 were properly executed and filed with the authorization sheet for each discharge. Pumping times were kept within the required 24 h elapsed time in each case.

Although unrelated to the audit itself, it should be noted that several discrepancies were found in the names of the procedures given in the Procedure Index and what is actually given on the procedure itself. Also one procedure, found in the notebook, number 3200, is not even listed in the Procedure Index. All of these things should be corrected and perhaps the entire Procedure Index should be checked against the procedures in the notebook.

MEMORANDUM

TO: DR. R. A. KARAM
FROM: BILLY STATHAM *BS*
DATE: 3/16/90
SUBJECT: IFI 50-160/87-01-10 FROM NRC

The open item IFI 50-160/87-01-10 states "Verify that instrument calibrations necessary for operability of safety equipment list in TS Table 4.1 are performed."

Listed below are the Reactor and Safety Systems included in TS Table 4.1 and the procedure for testing each:

1. Power trip (proc 7270)
2. Period trip (proc 7272)
3. Start up channel (proc 7273)
4. Logic and magnet amplifier channel (proc 7271)
5. Pico ammeter channels (proc 7274)
6. Reactor D₂O level channels (proc 7241)
7. D₂O temperature channels (proc 7291)
8. D₂O flow rate channels (proc 7292)

Listed below are 4 calibrated instruments:

1. HP Multimeter Model 3468A s/n 2237A15867
2. Keithley Picoammeter Source Model 261 s/n 71987
3. HP Universal Counter Model 5314A s/n 2714A15245
4. Oscilloscope (on order, to include calibration)

Every signal necessary for test and calibration of the Safety Systems listed in TS Table 4.1 can be measured or supplied from calibrated instruments listed above. The function(s) of each instrument is listed below:

1. Multimeter to measure voltage and resistance
2. Picoammeter Source to supply current
3. Universal Counter to measure frequency
4. Oscilloscope to observe/measure waveforms

The guidelines of procedure 7900 are followed in the calibration of test instruments. Of the procedures referred to in this memo, only 7900, 7241, 7270 and 7271 are NSC approved. Procedures 7291 and 7292 are in the process of being written and ~~be~~ will be completed by 5/1/90; this does not include NSC approval.

I think this item should be closed on the follow up inspection.

MEMORANDUM

TO: DR. R. A. KARAM

FROM: BILLY STATHAM

DATE: 4/09/90

SUBJECT: Reactor controls and instrumentation calibration

This is a follow up on our recent discussion about the frequency of the reactor instrumentation calibration.

Listed below are the Reactor and Safety Systems included in TS Table 4.1 which must be calibrated on a 6 month cycle:

1. Power trip (Flux Amps) (proc 7270)
2. Period trip (LogN Per. & recorder) (proc 7272)
3. Start up channel (proc 7273)
4. Logic and magnet amplifier channel (proc 7271)
5. Pico ammeter channels (proc 7274)
6. Reactor D₂O level channels (proc 7241)
7. D₂O temperature channels (proc 7276)
8. D₂O flow rate channels (proc 7277)

The remaining instrumentation could be calibrated on a 12 month cycle since there is no Tech Spec requirements for this calibration. In the past, there has been no distinction made between what is included in 4.1 and what isn't. Listed below are the devices that could be put on a 12 month cycle:

1. Area Monitor Recorder (could be part of ARM system calibration) (proc 7275)
2. Kanne Recorder (could be part of Fanne system calibration) (proc 7279)
3. MAP-1 Recorder (could be part of MAP-1 sys. cal.) (proc 7280)
4. Gas Recorder (could be part of Gas Mon. sys. cal.) (proc 7275)
5. Temperature Recorders TR-1 & TR-2 (proc 7281)
6. Temperature Recorder Secondary coolant (TRA-H1) (proc 7276)
7. Water Recorder (could be part of GWGM sys cal) (proc 7275)

NOTE: The procedures in this paragraph (7275 thru 7281) are in draft form and do not have NSGC approval.

There are 2 components from TS Table 4.1 that may need a procedure for calibration (calibration may not be correct term since trip point is the only test that can be made). Listed below are the 2 components:

1. 2nd D2O temperature trip (thermocouple trip device)
2. 2nd D2O flow trip (diff. press. xmtr.)

The auto controller has no calibration procedure. This is on the things to do list (not included in TS Table 4.1).

Listed below are 4 calibrated (with traceability to RIST) test instruments:

1. HP Multimeter Model 3468A s/n 2237A15867
2. Keithley Picoammeter Source Model 261 s/n 71987
3. HP Universal Counter Model 5314A s/n 2714A15245
4. Oscilloscope (on order, to include calibration)

The HP 5216A Electronic Counter (s/n 748-01239) has been calibrated using the HP Universal Counter listed above.

We need a policy decision on the frequency of calibration of the instruments not included in TS Table 4.1 before finalization of procedures 7275 thru 7281.

Information included in this memo can also serve as a summary of where we are on calibration procedures for the Reactor instrumentation systems.

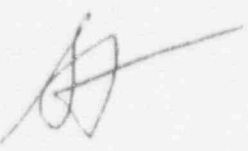


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March 27, 1990

TO: Dr. R. A. Karam
FROM: S. I. Abdel-Khalik 
SUBJECT: Audit of 8000 Series Procedure

I have reviewed the above reference procedures. There were no records related to these procedures which needed to be examined. I recommend that they be removed from the procedures manual and placed in a "Systems Description" manual.

Thank you.

APPENDIX A

SUMMARY OF NRC OPEN ITEMS

	<u>Item</u>	<u>Status</u>
1.	VIO 87-01-01 Utilize Procedure	Ready for NRC review.
2.	VIO 87-01-02 Control Experiments	Ready for NRC review.
3.	UNR 87-01-10 Instrument Calibrations	Remains open to determine all bench test instruments identified.
4.	IFI 88-02-13 Reactor Coolant Flow	Remains open to evaluate test results.
5.	VIO 89-02-01 Containment Test	Ready for NRC review.
6.	VIO 89-02-02 Shim Blades	Ready for NRC review.
7.	IFI 89-03-01 Radioactive Material	Procedure needs additional review by NNRC.
8.	Exercise Weakness 89-04-01 Fully Testing Emergency Plan	Confidential scenario will be used for next exercise. Ready for NRC review.
9.	IFI 89-04-02 Radio Transmission	Ready for NRC review.
10.	IFI 89-04-03 Test Off-site Components	This will be tested during next exercise. Ready for NRC review.
11.	IFI 89-04-04 Emergency Plan Training	Ready for NRC review.
12.	IFI 89-04-05 Required Notification	Ready for NRC review.
13.	IFI 90-01-01 Stack Grab Sample	Remains open to make a technical change.

APPENDIX B
STATUS OF NRC OPEN ITEMS

1. VIO 87-01-01. Failure to provide or utilize procedures.

Status

A letter response by NNRC was made on July 15, 1987 to the NRC. While not all corrective action was completed, all estimates of action completion were in 1987. This violation is ready for NRC review.

2. VIO 87-01-02. Failure to control experiments per Technical Specifications.

Status

Same as VIO 87-01-01 stated above.

3. UNR 87-01-10. Verify that instrument calibrations necessary for operability of safety equipment listed in Technical Specifications Table 4.1 are performed.

Status

The NRC reviewed status of the unresolved item during a NRC inspection which was reported in Inspection Report 89-02 on November 11, 1989. The following statement was made by the NRC:

"The licensee has records of calibrations of four instruments used in calibrating the instrumentation listed in Table 4.1. Those instruments are:

 "HP Multimeter, SN 2237A15867, Model 3468A;
 Keithley Picoampere Source, SN261, Model 261;
 HP Universal Counter, SN 2714A15245, Model 5314A; and
 HP VTVM, SN316-09668, Model 412A.

"All have current calibrations against NBS standards. However, it was not determined that these are the only bench test instruments used in the calibration of the Table 4.1 equipment. Hence, this item remains open."

4. IFI 88-02-13. Develop and implement reactor coolant flow calibration procedure.

The following is quoted from NRC Inspection Report 88-02:

"Surveillance procedure 2015, Reactor Power Calibration, is required to be performed weekly when at 1 MW or higher power.

"The measurement is performed by considering the heat removed by the primary coolant (D₂O) flow and the light water coolant flow through the shield. (The latter appears to a negligible heat sink during 1 MW operation.) The primary coolant flow detector, a turbine vane flow meter, has not been calibrated since it left the factory and does not appear to be susceptible to on site calibration. Hence, the accuracy of the power calibration, which is proportional to the product of flow times coolant temperature rise, is indeterminable as currently performed.

"In the secondary coolant system, there is a calibrated flow orifice plate and the dP cell across the plate has been calibrated against a standard water gauge on occasion. The licensee has neither a procedure nor a schedule for this calibration.

"In order to justify a power calibration based on primary flow, that flow must be calibrated. That calibration can be accomplished by performing simultaneous heat balances on the secondary and primary sides, equating them, and solving for primary flow. The prerequisites to this measurement include calibration of the dP cell in the secondary flow system and calibration of the RTDs and thermocouples used in the temperature measurements. This flow and power calibration should be performed before exceeding 1 MW and at 1 MW increments as power is increased to the license limit of 5 MW. Appropriate procedures and schedules for the calibration of flow and temperature measuring devices must be established by the licensee. The licensee committed at the exit to develop the appropriate procedures and implement them prior to exceeding 1 MW. (IFI: 50-160/88-02-13)."

Status

The secondary coolant system calibrated flow orifice plate (venturi) has not been calibrated since original calibration. The venturi was inspected and found to be clean and useful for the establishment of secondary coolant flow. Heat balance tests have been made at 1MW, 2MW, 3MW and 4MW. Test data and results are being evaluated.

5. VIO 89-02-01. Failure to perform the containment building leak-rate test in accordance with commitments.

Status

NNRC has reported the following status to the NRC:

"Procedure 4000, Containment Building Pressure Test, was deficient in that the procedure did not provide adequate guidance to the operator in the area of data handling and treatment.

"Procedure 4000 has been revised and is currently being reviewed against Standard ANS 7.60 and other requirements.

"It is anticipated that an adequate procedure which meets the requirements of ANS 7.60 will, when completed, ensure that further violations in this area do not occur.

"Full compliance will be achieved as of March 31, 1990."

Procedure 4000 was revised and procedures 4001 and 4002 written to correct deficiencies. The Nuclear Safeguard Committee reviewed and approved procedures 4000, 4001, and 4002 on March 22, 1990.

6. VIO 89-02-02. Procedures did not assure that any shim blade not fully inserted was withdrawn sufficiently to cause a negative rate trip when released into the core, as required by Technical Specification 3.1.d - paragraph 5.

Status

NNRC has reported the following to the NRC:

"The Staff of the Neely Nuclear Research Center has been involved in upgrading operating procedures on many fronts: Health Physics, Operations, Emergency Response, Environmental, Security, etc. Consequently, the procedure to assure that shim safety blades were always withdrawn to at least 5 degrees was overlooked.

"Procedure 7247 has been drafted to cover this area and is currently undergoing review.

"The corrective action directed toward development of an adequate procedure which implements Technical Specification requirements will, when completed, ensure that further violations in this area will not occur.

"Full compliance will be achieved as of March 31, 1990."

The Nuclear Safeguard Committee has approved Procedure 7247.

7. IFI 89-03-01. Follow up the development of a procedure for the shipment of radioactive material.

Status

The NRC reviewed status of the inspector follow up item during a NRC inspection which was reported in Inspection Report 90-01 on February 5, 1990. The following statement was made by the NRC.

"The inspector verified that a draft procedure has been written for handling radioactive waste and completing radioactive material shipment. The licensee indicated however, that the procedure still needs to be revised before being submitted to the NSC for review and approval."

The procedure has not been revised additional.

8. Exercise Weakness 89-04-01. Failure to conduct the annual emergency drill in a manner that would fully test implementation of the Emergency Plan.

Status

This weakness involved the NRC inspectors comment that the drill scenario should not be developed by a drill participant and that drill exercise players should not have advance knowledge of the scenario details. NNRC committed to ensure that exercises are conducted using a confidential scenario for fully testing the entire emergency organization. This will be demonstrated at the next emergency exercise.

9. IFI 89-04-02. Conduct an evaluation of radio transmission over the entire EPZ to identify areas of impeded transmission.

Status

A brief loss of communications between the Emergency Director and Health Physics personnel was caused by a communications dead spot in the vicinity of the storage pool. A radio test has been conducted over the entire EPZ. Action is completed.

10. IFI 89-04-03. Verify that the full-scale exercise conducted on a biennial basis, included an accident scenario that will test all on-site and off-site components of the emergency organization.

Status

This item resulted from the simulated emergency event which was not a classifiable event that warranted off-site notifications to State, local and federal authorities. Drills are expected to conduct such notifications every two years. This will be tested at the next emergency exercise.

11. IFI 89-04-04. Proceduralize the emergency response training program to ensure documented compliance with Section 10.1 of the Emergency Plan.

Status

A procedure has been written and approved to describe the emergency response training programs. The IFI is ready for NRC review.

12. IFI 89-04-05. Review Procedure 6100 (Emergency Notification) to ensure that all required notifications are included and made in a timely manner.

Status

Procedure 6100 has been reviewed and revised to ensure that all required notifications are included in the procedure. This item is ready for NRC review.

13. IFI 90-01-01. Follow the revision of Procedure 9017, Stack Grab Sample Analysis, Rev. 2, of October 14, 1988.

Status

The NRC reviewed status of the inspector follow-up item during a NRC inspection. The following statement was made by the NRC in the Inspection Report:

"IFI 88-02-08, Stack Grab Sampling, was established due to the potential occupational hazards associated with climbing the exhaust stack while carrying sampling equipment. The licensee agreed to evaluate the stack sampling method and consider another possible method for obtaining the sample.

"The inspector discussed the sampling process with licensee representatives including those who actually climb the stack to obtain the sample. Although management and workers alike felt that climbing the stack posed only a limited safety hazard, the licensee has decided to change the method used to sample the air from the exhaust stack. This IFI (88-02-08) will be closed but another established to follow and review the revised procedure. The NRC will track revision of Procedure 9017, Stack Grab Sample Analysis, Rev. 2, dated October 14, 1988, as an IFI (50-160/90-01-01)."

MEMORANDUM

TO: DR. R. A. KARAM
FROM: BILLY STATHAM
DATE: 6/8/90 (UPDATE OF MEMO WRITTEN ON 3/16/90)
SUBJECT: IFI 50-160/87-01-10 FROM NRC

The open item IFI 50-160/87-01-10 states "Verify that instrument calibrations necessary for operability of safety equipment list in TS Table 4.1 are performed."

Listed below are the Reactor and Safety Systems included in TS Table 4.1 and the procedure for testing each:

1. Power trip (proc 7270)
2. Period trip (proc 7272)
3. Start up channel (proc 7273)
4. Logic and magnet amplifier channel (proc 7271)
5. Pico ammeter channels (proc 7274)
6. Reactor D₂O level channels (proc 7241)
7. D₂O temperature channels (proc 7276)
8. D₂O flow rate channels (proc 7277)

Listed below are 4 calibrated instruments:

1. HP Multimeter Model 3468A s/n 2237A15867
2. Keithley Picoammeter Source Model 261 s/n 71987
3. HP Universal Counter Model 5314A s/n 2714A15245
4. Tektronix Model 2225 Oscilloscope s/n E226957

Every signal necessary for test and calibration of the Safety Systems listed in TS Table 4.1 can be measured or supplied from calibrated instruments listed above. The function(s) of each instrument is listed below:

1. Multimeter to measure voltage and resistance
2. Picoammeter Source to supply current
3. Universal Counter to measure frequency
4. Oscilloscope to observe/measure waveforms

The guidelines of procedure 7900 are followed in the calibration of test instruments.

I think this item should be closed on the follow up inspection.

Attachment D

AUDIT ASSIGNMENTS FOR NSC MEMBERS

Reports due by 3/31/90

Audit records created by procedures
2000 series: Dr. J. Mahaffey

Audit records created by procedures
3000 series: Dr. K. Barefield

Audit records created by procedures
4000 series: Dr. H. Neumann

Audit records created by procedures
6000 series and security plan and
procedures: Mr. J. Vickery

Audit records created by procedures
7000 series: Dr. P. Desai

Audit records created by procedures
8000 series: Dr. S. Abdel-Khalik

Audit records created by procedures
9000 series: Dr. B. Kahn
Dr. N. Gordon
Dr. B. Livesay
Mr. L. Petherick

Audit actions taken to correct IFI's:
Mr. E. Cobb

NNRC RESPONSE TO NUCLEAR SAFEGUARD COMMITTEE AUDIT OF 1989 ACTIVITIES

Jim Mahaffey - 2000 Series Procedures

1. Weekly Precritical Startup and Shutdown Checklists

OBSERVATIONS - Several recording errors were identified
on the weekly startup/shutdown checklists.

RESPONSE - These mistakes were made by operators,
and in several instances, check marks were entered

on the checklists instead of values for the flux amp trip set points. It appears that the operators are automatically completing the check list without using the procedure to verify that the checklist has been completed correctly. The corrective action that has been taken is that the operators have been sensitized to pay closer attention to the checklists when completing and the importance generally of attention to detail.

K. Barefield - 3000 Series Procedures

OBSERVATION - There were discrepancies between the actual names of procedures and the names listed in the Index, and other procedures were not listed at all.

RESPONSE - In April, 1990, a comparison was made between the Index and the procedures that are considered to be the official records for the facility. A new index was compiled and issued on April 19, 1990.

Henry M. Neumann - 4000 Series Procedures

OBSERVATION - Procedure 4005 is related to changing filters in the reactor ventilation system. There is not specified time interval for these changes. The last recorded change was 6/3/88. Is this correct?

RESPONSE - Yes. Filter changes are not performed on a set frequency but is dependent upon the pressure drop across the filter. The pressure drops are checked on the Daily Precritical Startup Checklist (Procedure 2003) and the values recorded on the Operating Data Log - Field (Procedure 2011). A pressure drop of > 4 inches of water across either the total filter bank or the absolute filter is the point where change is required.

OBSERVATION - Procedure 4050 relates to deuterization of the ion resin bed and requires that entries be made in the D₂O Inventory Log when the procedure is performed. It appears that 11/8/85 is the last time this procedure has been performed. Is this correct?

RESPONSE - This is correct.

OBSERVATION - Procedure 4051 describes the recover of D₂O from the ion resin bed. There are no related records.

RESPONSE - The D₂O Inventory Log will contain an entry for the recovered D₂O.

OBSERVATION - Procedure 4060 describes measurement of the top reflector dump time with required quarterly performance. The measurement is now done as part of the weekly shutdown checklist (Procedure 2006). These records were examined and found that the frequency of performance exceeded the required performance.

RESPONSE - Procedure 4060 needs to be deleted. This will be brought before the NSC in the near future.

Jack Vickery - 6000 Series Procedures and Security Plan

1. Security Related Observations

OBSERVATION - Inventories of keys and magnetic cards are in process of being transferred to forms SEC-005 and SEC-006 as required by procedure.

RESPONSE - Inventories of keys have been completed as required by procedure. Work is progressing on the magnetic card inventory and it is anticipated that it will be completed by September 1, 1990

OBSERVATION - No record of test of emergency power generator located.

RESPONSE - Procedure 0003 was approved on 12/8/89 and the work it covers is performed on a quarterly schedule. In the NNRC files are records covering two performances of the procedure. The folder containing these records is entitled "Power Generator Test."

OBSERVATION - No records have been generated as a result of implementation of Procedures 6010, 6020, 6030, 6040, 6050, 6060, 6070, 6090, and 6100.

RESPONSE - These are the emergency preparedness procedures, and, fortunately, since we have not had any emergencies no records have been created.

OBSERVATION - Procedure 6080, Accidental Release of High Levels of Gaseous Activity to the Atmosphere, has not yet been written.

RESPONSE - That is correct. Discussions are currently underway to determine whether this procedure should be deleted from consideration or whether it should be written. In either case, the decision should be made with the 1990 Calendar year.

OBSERVATION - Procedure 6090, Appendix A lists NNRC personnel. This list was out of date in the manual, however, an up-to-date list was on file. Recommendation: Consider removing the list of personnel from the procedure since it is subject to change, but maintain it in a separate file.

RESPONSE - The NNRC concurs with the above recommendation and will implement said recommendation by 9/30/90.

Prateen V. Desai - 7000 Series Procedures

OBSERVATION - Procedure 7241 and 7420 were evaluated for compliance. No discrepancies between requirements and practice were identified.

RESPONSE - No response required.

S. I. Abdel-Khalik - 8000 Series Procedures

OBSERVATION - There are no records related to these procedures. It is recommended that these "procedures" be removed from the procedures manual and placed in a "systems description" manual.

RESPONSE - It is agreed that the documents in this section do not constitute true procedures. A Systems Description Manual shall be created, and the Nuclear Safeguards Committee will be asked to approve the removal of the 8000 series documents to this new manual at the Committee meeting on June 28, 1990 .

J. Nicholas Gordon - 9000 Series Procedures

1. Calibration of Pocket Ionization Chambers (PIC)

OBSERVATION - It was found that three PICs were calibrated several days past the six month calibration period.

RESPONSE - This observation does not constitute a program deficiency because Technical Specifications,

Section 1.27 permits adjusting of the calibration interval to plus or minus 25% of the normal interval provided that the next calibration interval begins at the end of the original specified interval. Although at the NNRC we try not to invoke this modifier, it is available for use in these circumstances.

2. Bioassay Program

OBSERVATION - Employees were bioassay annually and upon termination of employment for tritium. Gamma isotopic analyses was performed only in special cases.

RESPONSE - The intent of paragraph 5.2.3 of Procedure 9038 was to indicate the laboratory capability at the NNRC, i. e., tritium and gamma analysis. It was not meant that everyone at the NNRC would routinely receive both types of analyses. Procedure 9038, Step 5.2.3 will be modified to read as follows:

"The primary analyses that can be performed are tritium analysis and gamma isotopic analysis. Each person shall receive the analysis appropriate to their exposure potential."

B. Kahn - 9000 Series Procedures

1. Procedure 9037, 4/28/89, Tritium Determination in Urine

OBSERVATION - Step 5.2.2.1 intends to refer to Appendix A but the A is missing.

RESPONSE - The Procedure will be modified to add the missing A.

OBSERVATION - The space in Appendix A that shows "Final pH" should say "Initial pH."

RESPONSE - The NNRC staff does not agree. The intent of this blank on the tritium bioassay form was to ensure that the pH was neutral when the distillation occurred. The actual pH of the initial urine sample not wanted or needed.

OBSERVATION - In step 6.0 the procedure should refer to recording results in the sample log, Procedure 9038.

RESPONSE - There is no requirement in Procedure 9038 or Procedure 9037 to record bioassay results in the sample log but rather that the results of the

analyses be documented on the Bioassay Analysis Data Sheet, Appendix A. This is the same sheet that forms Appendix A of Procedure 9037 which is used for documented the results of tritium analysis. A bioassay log is maintained simply to have a compilation of all bioassay performed at one location.

OBSERVATION - Appendix A should have a line for the sample ID and Appendix B should have a column for this purpose.

RESPONSE - A line has been added to the Appendix A, Procedure 9037 for sample ID. In the approved version of Appendix B sample Log, a sample ID space is already provided.

OBSERVATION - The summary record of results in the Procedure 9038 sample log should have consistent values with regard to precision.

RESPONSE - The technician staff have been requested to limit the calculation to one decimal place.

OBSERVATION - The "Reviewed by" signature and date are missing in Appendix A for #15-19 and Appendix B for 15-19 and 39-49.

RESPONSE - These records were reviewed and signed. The remainder of the bioassay records were also reviewed to ensure that appropriate signatures had been obtained.

2. Procedure 9040, Rev. 2, 10/21/88, Liquid Waste Tank Analysis

OBSERVATION - The procedure, in step 7.0, should refer to the data sheet and authorization record.

RESPONSE - Step 7 of Procedure 9040 does not specifically mention the data sheet and authorization record; however, it does specify the fate of any record created by implementation of the procedure. This wording was approved by the Nuclear Safeguard Committee and has been adequate to ensure that all of the necessary and appropriate records are maintained.

OBSERVATION - The Gamma-ray data have "less than" signs missing for samples 89-02 and 89-09.

RESPONSE - A review of the paperwork for waste release #89-02 and #89-09 shows that for those two cases, the gamma-ray spectroscopy results did not

give "less than" values. The values stated appear to be correct as positive numbers.

L. Petherick - 9000 Series Procedures

1. Procedure 9252

OBSERVATION - Procedure 9252 needs revision.

RESPONSE - Procedure 9252 has been revised and was approved by the Nuclear Safeguards Committee at the April, 1990 meeting.

E. F. Cobb - IFI Review.

The status of the IFI's as identified by Mr. Cobb are essentially correct and are appended to this document. Item 3, the unresolved item, has been resolved and the test equipment that will be maintained NIST traceable have been identified. This list is also attached to this document in the form of a memo from Billy Statham to Dr. R. A. Karam, dated 6/8/90. The NRC has reviewed this list (USNRC operations inspector currently onsite as this meeting is taking place), but it is not yet known whether this will be considered adequate to resolve the item.

Item #4 Status - Power calibration - Test evaluation have indicated some discrepancies between primary and secondary flow indicating a need for directly measurement of flow in the primary. NNRC management has learned that ultrasound flow detectors are now available commercially. Unfortunately, they are prohibitively expensive. Consequently, the NNRC is investigating whether it might be possible to rent such equipment for a specified time