

1004.22
Revision 1
09/08/83

IMPORTANT TO SAFETY
NON-ENVIRONMENTAL IMPACT RELATED

THREE MILE ISLAND NUCLEAR STATION
UNIT NO. 1 EMERGENCY IMPLEMENTING PROCEDURE 1004.22
TORNADO/HIGH WINDS

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THREE MILE ISLAND NUCLEAR STATION
UNIT NO. 1 EMERGENCY IMPLEMENTING PROCEDURE 1004.22
TORNADO/HIGH WINDS

1.0 PURPOSE

To provide guidelines for initiating protective actions when warnings of high wind indicate the possibility of damage to the plant or when any tornado strikes the facility. The Emergency Director is responsible for implementing this procedure.

2.0 ATTACHMENTS

- 2.1 Attachment I - Definitions
- 2.1 Attachment II - Diagram of Unit 1 Plant Structures Designed to withstand Tornado Loading.
- 2.3 Attachment III - Diagram of Unit 2 Plant Structures Designed to withstand Tornado Loading

3.0 EMERGENCY ACTION LEVELS

- 3.1 An Unusual Event has been declared due to projected hurricane force winds (≥ 75 mph gusting).
- 3.2 An Alert has been declared due to a tornado striking the facility.
- 3.3 When the Emergency Director deems necessary.

4.0 EMERGENCY ACTIONS

Initial

- 4.1 In the event of a Tornado/High Wind Storm Warning, proceed as follows:

Initial

4.1.1 Announce over the plant page the following: ATTENTION ALL PERSONNEL, ATTENTION ALL PERSONNEL, A TORNADO/HIGH WIND STORM WARNING (SELECT APPROPRIATE CONDITION)(GREATER THAN 75 MILES PER HOUR) HAS BEEN ISSUED FOR THE TMI VICINITY. ALL PERSONNEL PROCEED TO ONE OF THE FOLLOWING LOCATIONS:

UNIT 1 CONTROL BUILDING

UNIT 1 FUEL HANDLING BUILDING

UNIT 1 AUXILIARY BUILDING

UNIT 1 HEAT EXCHANGER VAULT

UNIT 1 DIESEL GENERATOR BUILDING

UNIT 1 INTAKE SCREEN HOUSE AND PUMP HOUSE

UNIT 1 REACTOR BUILDING

UNIT 2 CONTROL AND SERVICE BUILDING

UNIT 2 CONTROL BUILDING

UNIT 2 AUXILIARY and FUEL HANDLING BUILDING

UNIT 2 DIESEL GENERATOR BUILDING

UNIT 2 RIVER WATER PUMP HOUSE

UNIT 2 AIR INTAKE TUNNEL

ALL PERSONNEL ARE TO REMAIN IN THESE AREAS, AWAY FROM EXTERIOR DOORS, UNTIL FURTHER NOTICE. (REPEAT MESSAGE)

4.1.2 Ensure that all exterior doors (including non-protected buildings) are secured.

: NOTE: Complete this step if adequate time is available :
: and personnel safety is maintained. :

Initial

_____ 4.1.3 Considering the severity of the weather and its impact on plant safety, determine whether the reactor should remain at power or be shut-down.

_____ 4.2 If a tornado strikes the site, ensure Operations Coordinator dispatches Emergency Repair/Operations teams to determine the extent of the damage and effect repairs as necessary.

_____ 4.3 When the extent of the damage is known, assess the impact of this damage on plant safety and, if the reactor was not shutdown, determine if the reactor should remain at power or be shutdown.

5.0 FINAL CONDITIONS

_____ 5.1 Tornado/High Winds have passed, the warning has been cancelled and/or Emergency Repair Teams are effecting repairs as necessary.

ATTACHMENT I

DEFINITIONS

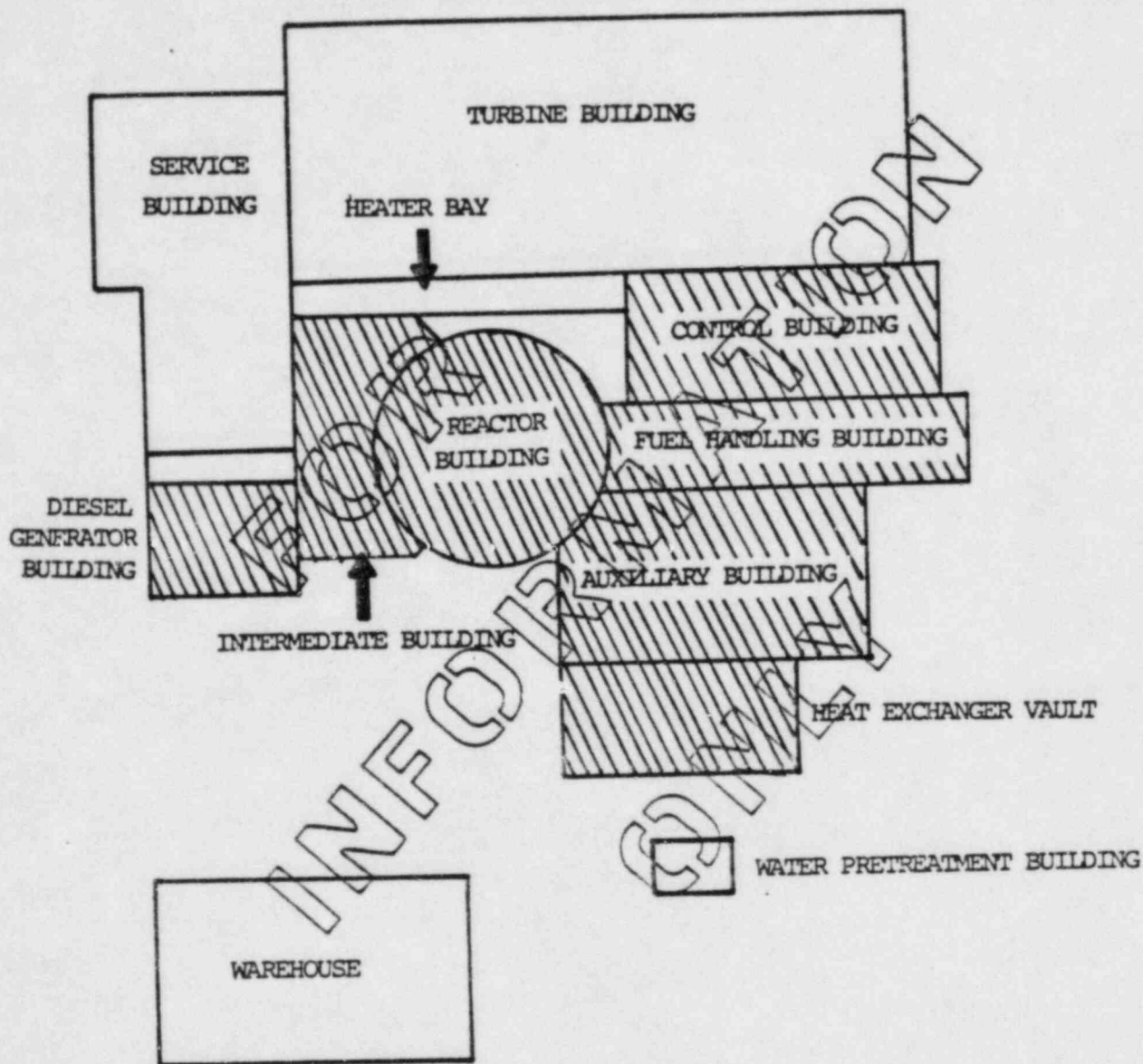
(As applicable to tornado, hurricane or high wind storms)

WATCH: The meteorological conditions are correct for a tornado or other high wind storm.

WARNING: In addition to the correct meteorological conditions a tornado or high wind storm has been sighted.

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ATTACHMENT II

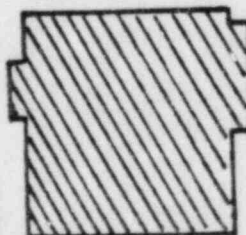


KEY  TORNADO PROTECTED AREA

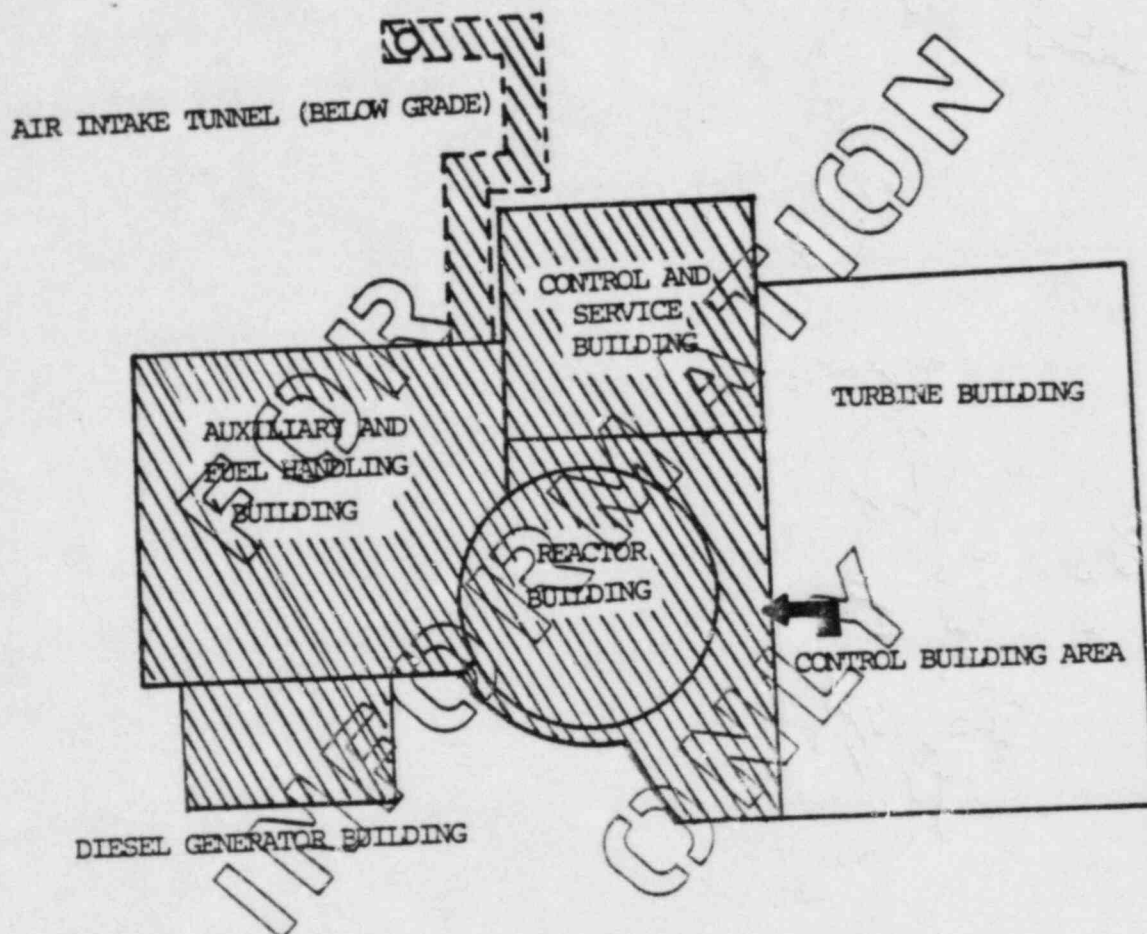
UNIT I

STRUCTURES DESIGNED TO WITHSTAND TORNADO LOADINGS

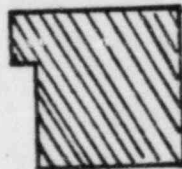
INTAKE SCREEN AND PUMP HOUSE



ATTACHMENT III



RIVER WATER PUMP HOUSE



KEY



TORNADO
PROTECTED
AREA

UNIT 2

STRUCTURES DESIGNED TO WITHSTAND TORNADO LOADINGS

1004.28
Revision 2
09/08/83

IMPORTANT TO SAFETY
NON-ENVIRONMENTAL IMPACT RELATED

THREE MILE ISLAND NUCLEAR STATION
UNIT NO. 1 EMERGENCY IMPLEMENTING PROCEDURE 1004.28
ACTIVATION OF THE TECHNICAL SUPPORT CENTER

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THREE MILE ISLAND NUCLEAR STATION
UNIT NO. 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.28
ACTIVATION OF THE TECHNICAL SUPPORT CENTER

1.0 PURPOSE

The purpose of this Procedure is to provide guidelines for the Technical Support Center Coordinator to activate the Technical Support Center (TSC) (322' Elevation-Remote Shutdown-Panel Room).

The Technical Support Center Coordinator is responsible for implementing this procedure.

2.0 ATTACHMENTS

2.1 Attachment I, Technical Support Center Floor Plan

3.0 EMERGENCY ACTION LEVELS

3.1 This procedure is to be initiated upon declaration of any of the following:

- 3.1.1 Alert as determined by the Alert Procedure, 1004.2.
- 3.1.2 Site Emergency as determined by the Site Emergency procedure, 1004.3.
- 3.1.3 General Emergency as determined by the General Emergency procedure, 1004.4.
- 3.1.4 As directed by the Emergency Director.

4.0 EMERGENCY ACTIONS

Initial

- ____ 4.1 If an accountability has been ordered, collect or have collected all security badges of personnel at the TSC and send them to the Operations Support Center (OSC).
- ____ 4.2 At the TSC, set up the tables and chairs as required.

- ____ 4.3 Arrange the prints, technical manuals and other information sources to make them available when needed. (Keys to the file cabinets will be maintained in the Control Room/Shift Supervisor's Office).
- ____ 4.4 Using the Operational Line, obtain information pertaining to the emergency and plant status from the phonetalker in the Emergency Control Center (ECC) and update the TSC status board.
- ____ 4.5 Contact the Parsippany Technical Functions Center (PTFC) upon declaration of Site Emergency, General Emergency or upon notification from the ECC; and inform the PTFC that activation per EPIP 1004.34 is required. During normal work hours 0800-1700 hours Monday thru Friday use the Parsippany/TMI dedicated line, or if unavailable, use a commercial line and dial 76-86-2164 or 76-86-2477. If contact is needed during off-normal work hours call the Jersey Central Power and Light dispatcher at 71-74-1 (201) 455-8345 and request that TMI Emergency Pager 111 be activated or the beeper of the Parsippany Duty Member. Ensure that the PTFC is informed, record the name of the person contacted and the time of the call.
- ____ 4.6 Contact Babcock and Wilcox upon declaration of Site Emergency, General Emergency or upon notification from the ECC, use the B and W/TMI line and dial 3413 or, if unavailable, use a commercial line and dial 74-1-804-384-3413. Notify the B and W duty person as follows: "This is name/title at Three Mile Island Unit 1. We have declared a (Site/General) Emer-

gency at (time) hours. (Give a brief description of the emergency using the TSC status board as a reference, as needed); record the name of the person contacted and the time of the call.

- 4.7 Assign a phonetalker to man the Operational Line and to log emergency-related communications sent and received on the Telephone Communication Log Sheet (Attachment II of the Communications and Recordkeeping procedure, 1004.5). Copies of these log sheets are available at the TSC.
- 4.8 Activate the Cathode Ray Tube (CRT) and commence performing accident assessment functions by monitoring present plant parameters and conducting trend analysis of Key Parameters.
- 4.9 Inform the Emergency Director, via the Communicator, that the TSC is operational and state manpower status.

NOTE: In the event that the Technical Support Center becomes uninhabitable, move the Technical Support Center to the I and C Shop.

5.0 FINAL CONDITIONS

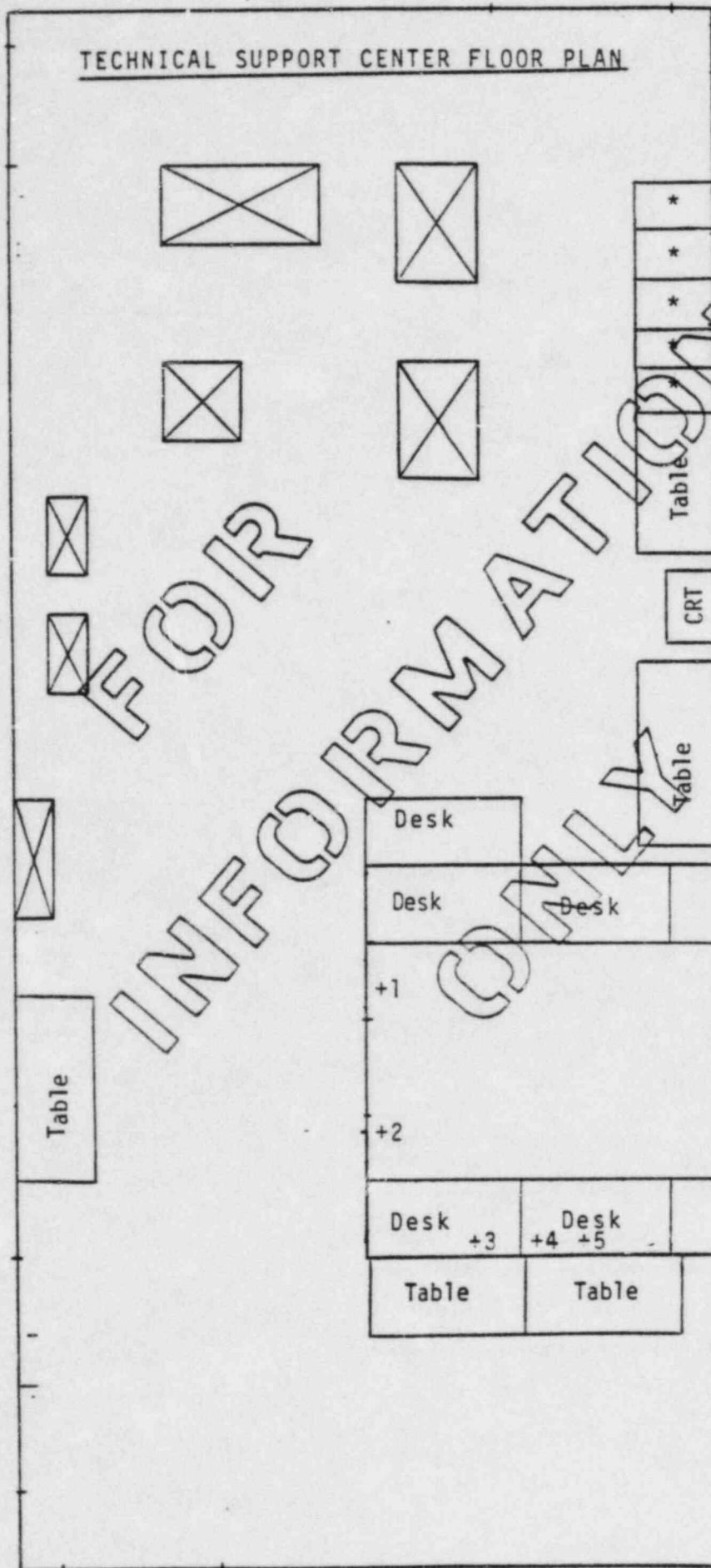
Initial

- 5.1 The Technical Support Center is operational with work areas set up for the Technical Support Staff.
- 5.2 The Operational Line is established to the Emergency Control Center, the Near-Site Emergency Operations Facility and the Operations Support Center.


- ____ 5.3 The Parsippany/TMI Line is established between the Technical Functions Center, Support Center and the Parsippany Technical Functions Center.
- ____ 5.4 If applicable, notify Babcock and Wilcox (74-1-804-384-3413 or use dedicated B and W line and dial 3413) of close-out of the emergency.

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TECHNICAL SUPPORT CENTER FLOOR PLAN



- +1. NRC HPN line
- +2. Operational line
- +3. B&W line
- +4. Parsippany/TMI
- +5. Telecopier Phone

 - Permanently installed equipment
 * - Fireproof file

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IMPORTANT TO SAFETY
NON-ENVIRONMENTAL IMPACT RELATED

THREE MILE ISLAND NUCLEAR STATION
UNIT NO. 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.27
ACTIVATION OF THE NEAR-SITE EMERGENCY OPERATION FACILITY

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THREE MILE ISLAND NUCLEAR STATION
UNIT 1 NO. EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.27
ACTIVATION OF THE NEAR-SITE EMERGENCY OPERATION FACILITY

1.0 PURPOSE

The purpose of this procedure is to provide guidelines for the Emergency Support Director to activate the Nearsite Emergency Operations Facility (NEOF) in Room 118/119 at the TMI Training Center.

The Emergency Support Director is responsible for implementing this procedure.

2.0 ATTACHMENTS

- 2.1 Attachment I, Emergency Support Director's Checklist
 - 2.1.1 Attachment IA, Emergency Support Director Turnover Checklist
- 2.2 Attachment II, Emergency Support Communicator's Checklist
- 2.3 Attachment III, Group Leader - Chemistry Support Checklist
- 2.4 Attachment IV, Technical Support Representative Checklist
- 2.5 Attachment V, Assistant Environmental Assessment Coordinator's Checklist
- 2.6 Attachment VI, Group Leader - Administrative Support Checklist
- 2.7 Attachment VII, (Activated) NEOF Floor plan and Communications
- 2.8 Attachment VIII, (Inactive) NEOF Floor plan
- 2.9 Attachment IX, NEOF Data Link Operating Instructions

3.0 EMERGENCY ACTION LEVELS

- 3.1 This procedure is to be initiated upon declaration of any of the following:
 - 3.1.1 Site Emergency
 - 3.1.2 General Emergency

- 3.1.3 Whenever the NEOF is decided to be activated by the
Emergency Director or Emergency Support Director.

: NOTE: OFF-hours, the key for the Training Center and NEOF :
: classrooms and the key for the storage closet :
: (Attachment VII, Station 8) will be with the Duty :
: Sergeant in the Unit 1 Processing Center. :

4.0 EMERGENCY ACTIONS

INITIALS

- ____ 4.1 Coordinate the activation of the NEOF as follows:
- ____ 4.1.1 Emergency Preparedness Representative/Staff Advisors:
Report to the NEOF and assist the Emergency Support
Director in implementing this procedure and in
performing the Emergency Support Director's Check-
list (Attachment I) and Emergency Support Director
Turnover Checklist (Attachment IA).
- ____ 4.1.2 Emergency Support Communicator:
Report to the NEOF and complete the Emergency
Support Communicator's Checklist (Attachment II).
- ____ 4.1.3 Group Leader - Chemistry Support:
Report to the NEOF and complete the Group Leader -
Chemistry Support Checklist (Attachment III).
- ____ 4.1.4 Technical Support Representative:
Report to the NEOF and complete the Technical
Support Representative's Checklist (Attachment IV).

- ____ 4.1.5 Assistant - Environmental Assessment Coordinator:
Report to the NEOF and complete the Assistant
Environmental Assessment Coordinator Checklist
(Attachment V).
- ____ 4.1.6 Group Leader - Administrative Support report to the
NEOF and complete the Group Leader - Administrative
Support Checklist (Attachment VI).

5.0 FINAL CONDITIONS

INITIALS

- ____ 5.1 The NEOF is operational with the desired positions manned and
functional. Communications are established among the necessary
organizations and agencies.

: NOTE: When the NEOF is de-activated, ensure that telephones :
: are returned to phone lockers, status boards are re- :
: turned to the storage closet and tables and chairs :
: are arranged as shown in Attachment VIII. :

ATTACHMENT I

EMERGENCY SUPPORT DIRECTOR CHECKLIST

INITIALS

: NOTE: The Emergency Support Staff/Emergency Preparedness :
: Representative should complete this Checklist and :
: Attachment IA. :

- ___ 1. The Emergency Support Director shall, after conferring with the Emergency Director, brief the Emergency Support personnel at the NEOF on the plant status and any major evolutions in progress.
- ___ 2. Assign personnel to assume the following positions, as necessary, and direct those personnel to report to the NEOF and complete the required checklists (located in locker 4), refer to Attachment VII):
 - ___ a. Emergency Support Communicator
 - ___ b. Group Leader - Chemistry Support
 - ___ c. Technical Support Representative
 - ___ d. Assistant Environmental Assessment Coordinator
 - ___ e. Group Leader - Administrative Support
- ___ 3. Start the Emergency Support Directors Log (Attachment III of EPIP 1004.5, Communications and Recordkeeping) by performing the following:
 - ___ a. Log the date, time and shift in the upper left-hand corner.
 - ___ b. Complete the title of the log and the name of the person assuming the responsibility of the Emergency Support Director.

ATTACHMENT I (Cont'd)

INITIALS

- ____ c. Log the names of the personnel assigned to the positions listed in the upper righthand corner.
- ____ d. Make an entry by logging the time, and describing the emergency, plant status, and any major evolutions in progress.
- ____ e. Ensure the Emergency Support Communicator assigns someone to act as a logkeeper to maintain this log.
- ____ 4. When the Emergency Support Communicator returns the completed checklists from the assigned Offsite Emergency Support Organization positions, inform the Emergency Director that the Offsite Emergency Organization is operational.
- ____ 5. If TLD issuance is necessary, notify the Personnel Monitoring Coordinator at the AEOP.

NAME	TIME	DATE
Emergency Support Director		

ATTACHMENT IA

EMERGENCY SUPPORT DIRECTOR TRAINING CHECKLIST

To Be Completed By The Emergency Support

Staff/Emergency Preparedness Representative

UNUSUAL EVENT DECLARED _____ HOURS

DESCRIPTION:

ALERT DECLARED _____ HOURS

DESCRIPTION:

SITE EMERGENCY DECLARED _____ HOURS

DESCRIPTION:

GENERAL EMERGENCY DECLARED _____ HOURS

DESCRIPTION:

CURRENT EMERGENCY LEVEL _____ HOURS

PLANT STATUS

ESTIMATED TIME TO 'STABLE' PLANT CONDITIONS _____ HOURS

RADIOACTIVE RELEASE STATUS

CURRENT PAG STATUS (SHELTER/EVACUATE)

PERSONNEL INJURY/CONTAMINATION

OPEN TECHNICAL ISSUES

NEW RELEASES ISSUED - ATTACH

ATTACHMENT II

EMERGENCY SUPPORT COMMUNICATOR CHECKLIST

INITIALS

- ___ 1. Ensure telephone communications are readied as follows (refer to Attachment VII):
- ___ a. Phone storage lockers (marked by (P) label) are unlocked (Stations 15, 16, and 17).
 - ___ b. Hardwired phones are removed from wall storage lockers (Stations 2, 3, 5, and 6).
 - ___ c. Phones are removed from phone locker (Station 9) and plugged into corresponding wall recepticals (Stations 10, 11, 12 and south wall).
 - ___ d. Phone ringer volumes are adjusted (adjustment wheel is on bottom of telephone).
- ___ 2. Assign personnel for the following positions, as necessary:
- | | | |
|----------------|---|---|
| : <u>NOTE:</u> | Instruct the phonetalkers to record all emergency | : |
| : | related calls on the Telephone Communications Log- | : |
| : | sheet (Attachment II of EPIR 1004.5, Communications | : |
| : | and Recordkeeping). | : |
- ___ a. Logkeeper (to maintain the Emergency Support Director's Log)
 - ___ b. Status Board Keeper
 - ___ c. Phonetalkers to answer the conventional telephones on the Phonetalkers table.

ATTACHMENT II (Cont'd)

INITIALS

- ____ d. Phonetalkers, as necessary, to man the following lines of communications (If the cognizant Group Leader/person doesn't have personnel available to man the phones).
- ____ 1. Radiological Line
 - ____ 2. Operations Line
 - ____ 3. Parsippany/TMI Line
 - ____ 4. Emergency Director's Line
 - ____ 5. Environmental Assessment Command Center Line
- ____ 3. Ensure all phonetalkers have a supply of Telephone Communications Logsheets (Attachment II of the EPIR 1004.5, Communications and Recordkeeping).
- ____ 4. When completed, collect checklists from the following personnel and report to the Emergency Support Director.
- ____ a. Group Leader - Chemistry Support
 - ____ b. Technical Support Representative
 - ____ c. Assistant Environmental Assessment Coordinator
 - ____ d. Group Leader - Administrative Support
- ____ 5. Develop a watchbill for persons under your direct control.
- ____ 6. Notify the Emergency Support Staff/Emergency Preparedness Representative that the duties of the Emergency Support Communicator have been assumed and return this form, along with the checklists collected in Step 5 above, to them.

NAME _____ TIME _____ DATE _____
Emergency Support Communicator

ATTACHMENT III

GROUP LEADER-CHEMISTRY SUPPORT CHECKLIST

INITIALS

1. Set up the Chemistry Status Board and work area as illustrated in Attachment VII.
2. Start the Group Leader-Chemistry Support Log (Attachment II of EPIP 1004.5, Communications and Recordkeeping).
3. Communicate with the Chemistry Coordinator to determine the manpower and chemistry equipment needed to support the emergency.
4. Contact other facilities and request additional assistance as needed per EPIP 1004.6, Additional Assistance and Notification.
5. Notify the Emergency Support Staff/Emergency Preparedness Representative that the duties of the Group Leader-Chemistry Support have been assumed. (Forward this completed form to the Emergency Support Communicator).

NAME _____ TIME _____ DATE _____
(Group Leader-Chemistry Support)

ATTACHMENT IV

TECHNICAL SUPPORT REPRESENTATIVE CHECKLIST

INITIALS

- ____ 1. Set up Technical Support work area.
- ____ 2. Start the Technical Support Representative log (Attachment III of EPIP 1004.5, Communications and Recordkeeping).
- ____ 3. Assign a phonetalker to communicate on the Parsippany TMI Line with the onsite Communicator in the TSC (Technical Support Center) and the Parsippany Technical Functions Center. Instruct the phone-talker to log all pertinent information on the telephone Communications Logsheets (Attachment II of EPIP 1004.5, Communications and Recordkeeping).
- ____ 4. Activate the CRT (Refer to Attachment NEOF Data Link Operating Instructions) and commence performing accident assessment functions by monitoring present plant parameters and conducting trend analysis of key parameters.
- ____ 5. Obtain prints, technical manuals, reference materials, etc., and set-up as required in the area of the Technical Support Representative.
- ____ 6. Develop a watchbill for your organization.
- ____ 7. Notify the Emergency Support Staff/Emergency Preparedness Representative that the duties of the Technical Support Representative have been assumed. (Forward this completed form to the Emergency Support Communicator).

NAME _____ TIME _____ DATE _____
Technical Support Representative

ATTACHMENT V

ASSISTANT ENVIRONMENTAL ASSESSMENT COORDINATORS CHECKLIST

INITIALS

1. Set up EACC work area as illustrated in Attachment VII.
2. Start the Assistant Environmental Assessment Coordinator's Log
(Attachment III of EPIP 1004.5, Communications and Recordkeeping).
3. Assume the position of phonetalker to maintain communication on the
Environmental Assessment Command Center Line with the Environmental
Assessment Communicator at the Environmental Assessment Command
Center. Log all pertinent information on the telephone communi-
cations log sheets (Attachment II of EPIP 1004.5, Communications
and Recordkeeping).
4. Ensure that the Environmental Assessment Communicator provides the
NEOF with the proper radio communications.
5. Notify the Emergency Support Staff/Emergency Preparedness
Representative and the Environmental Assessment Command Center that
the duties of the Assistant Environmental Coordinator have been
assumed. (Forward this completed form to the Emergency Support
Communicator).

NAME _____ DATE _____ TIME _____
Assistant Environmental Assessment Coordinator

ATTACHMENT VI

GROUP LEADER - ADMINISTRATIVE SUPPORT CHECKLIST

INITIALS

- ☐ 1. Ensure that tables are arranged as shown in Attachment VII.
(Additional tables should be stored behind the divider at the south-end of the room).
- ☐ 2. Ensure that the lecturn (used by the Site Protection Officer) is moved to the hallway and the nearby door is locked (Station 13).
- ☐ 3. Begin Group Leader - Administrative Support Log Attachment III of EPIP 1004.5, Communications and Recordkeeping).
- ☐ 4. Determine where the following services can be performed, or obtained, as necessary
 - ☐ a. Word Processing
 - ☐ b. Typing
 - ☐ c. Reproduction
 - ☐ d. Transportation (vans, buses, automobiles, shuttle service, etc.)
 - ☐ e. Trailer set-ups
 - ☐ f. Janitorial service
 - ☐ g. Telephones
 - ☐ h. Meals
 - ☐ i. First Aid
 - ☐ j. Lodging
 - ☐ k. Sanitation facilities
 - ☐ l. Data Processing

ATTACHMENT VI (Cont'd)

INITIALS

- ____ 5. Establish a watchbill for the offsite emergency organization, as appropriate.
- ____ 6. Contact the AEOF to ensure that the AEOF is being properly activated.
- ____ 7. Notify the Emergency Support Staff/Emergency Preparedness Representative that the duties of the Group Leader Administrative Support have been assumed. (Forward this completed form to the Emergency Support Communicator).

NAME _____ TIME _____ DATE _____
(Group Leader - Administrative Support)

ATTACHMENT VII (Page 1 of 2)

ACTIVATED NEOF FLOORPLAN AND COMMUNICATIONS

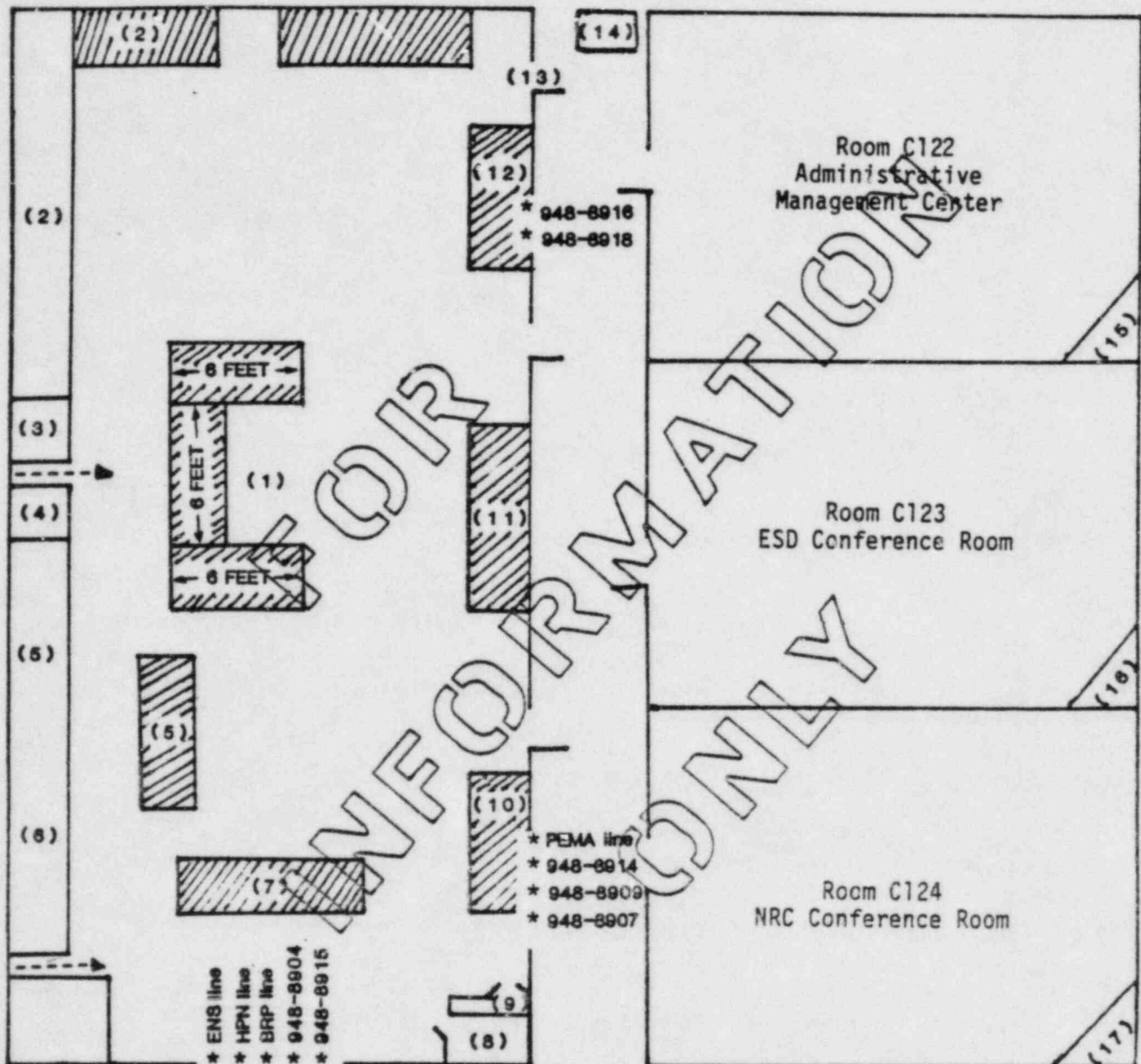
Storage Location*	Station No.	Communications
(3)	(1)	- Unit 1 Emergency Director's Line (circuit 3 PLNT 750090) - Unit 2 Emergency Director's Line (circuit 3 PLNT 750089) - Two commercial lines (948-8902, -8906) on 5 button key-set phone (see note 1)
Corresponding Phone Lockers	(2)	- Operations Line (Circuit 3 PLNT 750084) - NEOF/TSC Line (Circuit 4 PLNT 580106) - Parsippany/TMI Line - Two commercial lines (948-8902, -8906; see note 1) - All five lines above on 5 button keyset phone
(3)	(3)	- CRT monitor, hard copier,
(4)	(4)	- Telecopier
Corresponding Phone Lockers	(5),(6)	- Radiological Line (Circuit 3 PLNT 750085) - BRP Technical Line (4 PLNT 825106) - Environmental Assessment Command Center Line - Two commercial lines (948-8913, -8917) - Radiological, BRP Technical, EACC and the two commercial lines on 5 button keyset phone
(9)	(7)	- BRP Technical Line (4 PLNT 825106) - Two commercial lines (948-8904, -8915; see note 2)
(9)	(10)	- HPN Line - ENS Line
(9)	(11)	- PEM (Radiological) Notification Line (Circuit 4 PLNT 580108) and Auto Dialer - Three commercial lines (948-8914, -8909, -8907)
(9)	(12)	- Two commercial lines (948-8916, -8918)
(15)	Room C122	- Five commercial lines (948-8901, -8903, -8905, -8908, -8910)
(16)	Room C123	- Unit 1 Emergency Director's Line (Circuit 3 PLNT 750090) - Unit 2 Emergency Director's Line (Circuit 3 PLNT 750089) - BRP Technical Line (4 PLNT 825106) - Three commercial lines (948-8904, -8906, -8911) on 5 button keyset phone (see notes 1 and 2)
(17)	Room C124	- HPN Line - ENS Line - Three commercial lines (948-8912, -0128, -0132)

NOTES:

- * Status boards and keys for phone cabinets are in storage closet (8).
948-8906 has extensions in room 118/119 (ED and Technical Support areas) and room C123.
2. 948-8904 has extensions in room 118/119 (BRP area) and room C123.

ATTACHMENT VII (Page 2 of 2)

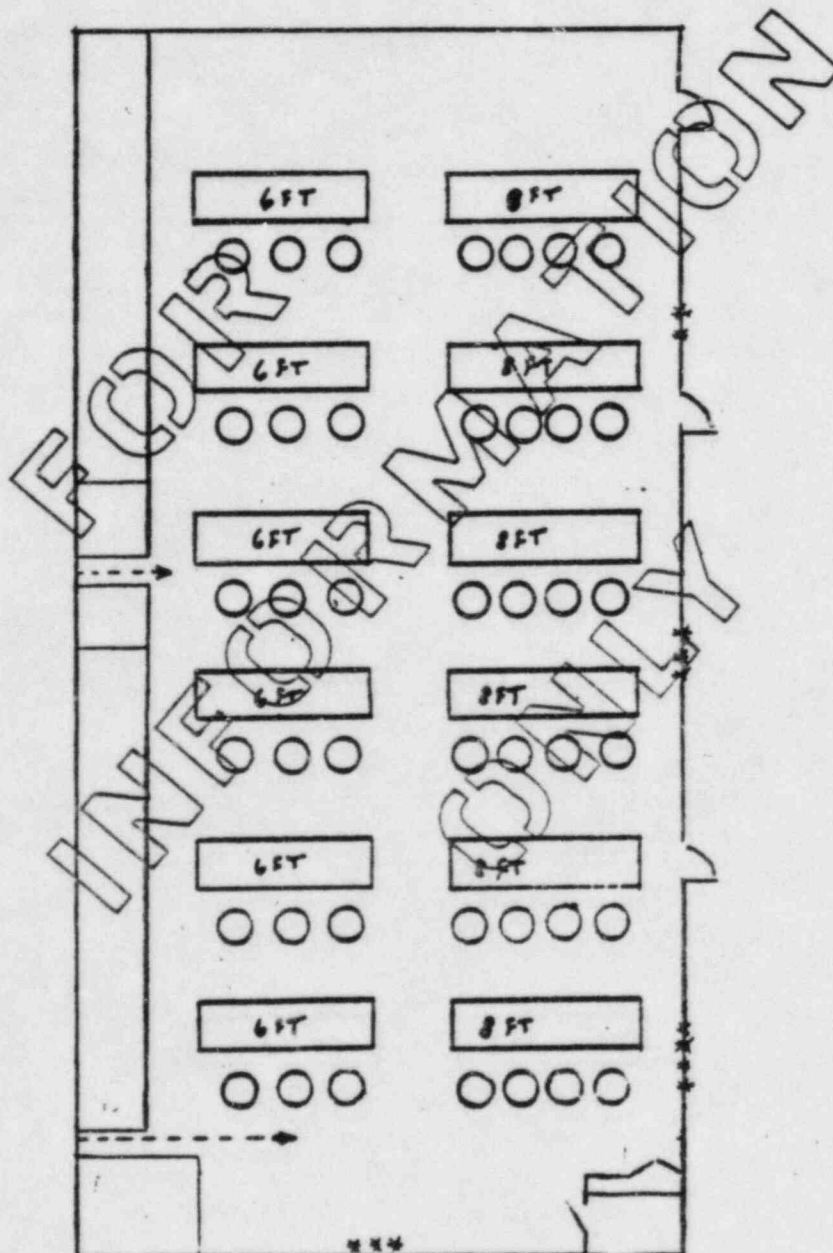
ACTIVATED NEOF FLOOR PLAN AND COMMUNICATIONS



- | | |
|--------------------------------------|--|
| (1) Emergency Support Director area | (11) Emergency Support/Emergency Preparedness area |
| (2) Technical Functions area | (12) Public Information |
| (3) locker: CRT, phones | (13) Doorway |
| (4) locker: Tech Manuals, telecopier | (14) SPO Lecturn |
| (5) Environmental Controls area | (15) phone locker |
| (6) Chemistry, Rad Con area | (16) phone locker |
| (7) BRP, FEMA area | (17) phone locker |
| (8) storage closet | * phone jack |
| (9) phone locker | --- room divider |
| (10) NRC area | |

 folding table

ATTACHMENT VIII
(INACTIVE) NEOF FLOOR PLAN



ATTACHMENT IX

NEOF DATA LINK OPERATING INSTRUCTIONS

1. Turn on main power switch (top right side of wooden cabinet).
2. Turn on power to the Tektronics terminal and hardcopy unit.
3. Ensure that baud rate is set to 9600 (check the (2) thumb wheel switches on the back of the CRT cabinet and also ensure that the pushbutton on the RACAL - MILGO modem is pushed in).
4. Place the T-bar selector switch on the black box to the TMI ("B") position.
5. If the data link from the plant process computer is not activated, notify computer personnel at the TSC.
6. Execute "Control A" command (push "CNTRL" and "A" keyboard keys simultaneously). If the terminal is activated, the system will respond.
7. Choose the appropriate function listed on the screen to obtain data required by the Group Leader Technical Support.
8. Refer to TMI-1 Process Computer System Remote Data Link Users Manual for further instructions.

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IMPORTANT TO SAFETY
NON-ENVIRONMENTAL IMPACT RELATED

THREE MILE ISLAND NUCLEAR STATION
UNIT NO. 1 EMERGENCY PLAN IMPLEMENTING PROCEDURE 1004.31
AIRBORNE RADIOACTIVITY SAMPLING AND ANALYSIS

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THREE MILE ISLAND NUCLEAR STATION
UNIT NO. 1 EMERGENCY IMPLEMENTING PROCEDURE 1004.31
AIRBORNE RADIOACTIVITY SAMPLING AND ANALYSIS

1.0 PURPOSE

The purpose of this procedure is to define the method of air sampling and analysis for Airborne Radioactivity in the areas of 1) in-plant
2) out-of-plant and 3) plant effluent pathways during an emergency.
The Radiological Assessment Coordinator is responsible for implementing this procedure.

2.0 ATTACHMENTS

- 2.1 Attachment I, Airborne Radioactivity Sampling and I-131 Analysis Data Sheet.
- 2.2 Attachment II, Iodine Air Sample Nomograph.
- 2.3 Attachment III, Particulate Air Sample Nomograph.
- 2.4 Attachment IV, Minimum Detectable Radioiodine Nomograph.
- 2.5 Attachment V, Containment Atmospheric Post Accident Sampling System Schematic.
- 2.6 Attachment VI, Schematic of Catpass Remote Sample Panel.
- 2.7 Attachment VII, Catpass Sample Data Sheet.
- 2.8 Attachment VIII, MAP-5 Sample Panel Schematic.
- 2.9 Attachment IX, MAP-5 Sample Data Sheet.

3.0 EMERGENCY ACTION LEVELS

- 3.1 This procedure shall be implemented as directed by the Emergency Director, Radiological Assessment Coordinator or their designee.

4.0 EMERGENCY ACTIONS

- 4.1 Emergency Equipment Required to be available for use for out of plant air sampling:

INITIALS

- ____ 4.1.1 SAM-II/RD19 Detector Probe
____ 4.1.2 Radeco H-809 Air Sampler or equivalent
____ 4.1.3 Stopwatch
____ 4.1.4 GY-130 Silver Zeolite Cartridge
____ 4.1.5 Particulate Filter

4.2 Sample Collection For Out-Of-Plant Areas

- 4.2.1 For particulate and radioiodine sampling, insert a radioiodine cartridge (silver zeolite) with the arrow in the direction of air flow and particulate filter in the Air Sampler unit holder with the fibrous glass backing side of the particulate filter facing toward the sampler. The particulate filter must be upstream of the cartridge.
- 4.2.2 With the filters in place, set the flow selector switch on the air sampler unit to variable and adjust the flow so as not to exceed 2 CFM (~60 liters/min). Run the sampler unit for sufficient time to obtain a minimum of ten (10) cubic feet (~3E5 cc). Record the sample time and volume on the data sheet. Periodically check the air flow indicator while the sampler is running.

: NOTE: A minimum of ten (10) cubic feet (~3E5 cc) is re- :
: require to obtain an MDA of 1E-8 μ Ci/cc. The larger :
: the sample, the lower the MDA will be. :

4.2.3 To set up the Sam II, perform the following steps.

- a. Check settings on the SAM-II unit to comply with the calibration label except that the threshold must be set at 3.60 for both sample and source counts.
- b. Set the Scaler display switch to "ON", Count Mode to "2", "XI", "timed".

: NOTE: This will set the SAM-II for a 2 minute count. For :
: high radioiodine sample count rates as indicated on :
: the count rate meter, lower counting times may :
: be used. :

- c. Connect the detector to the front panel of the SAM-II.
- d. Turn the power switch "ON" and the stabilizer "ON", and allow unit to stabilize for approximately five (5) minutes.

: NOTE: Do Not count the source, the background, or a sample :
: while the air sampler is running. While counting the :
: sample or background ensure that the check source is :
: at least five (5) feet from the SAM-II probe. :

4.3 Sample Analysis

- 4.3.1 Prior to counting the first sample, count a background with the SAM-II set-up in the mode defined in step 4.2.3. Count background whenever radiological conditions have changed or are suspected to have changed

at the counting location. Count background after changing locations.

: NOTE: If the SAM-II unit is stable and not located in the :
: plume or a high background area, the background counts: :
: should be less than 100 in a two minute count. :

4.3.2 Label a coin envelope with the necessary information, i.e., date, time, volume, location, and person taking sample. Then remove the radioiodine cartridge and particulate filter from the air sampler unit and place the particulate filter disc in the coin envelope for later counting and analysis in accordance with RCP 1605. Particulate air samples will then be saved for subsequent GeLi analysis at U-1 Rad Con Lab or the EACC.

: NOTE: A more rapid determination of airborne particulate :
: radioactivity may be made using the AIRBORNE :
: PARTICULATE SAMPLE NOMOGRAPH, ATTACHMENT III. :

4.3.3 Place the radioiodine cartridge in the SAM-II shield chamber with the upstream side facing the detector, and count the sample for two (2) minutes. (Or less if the high count rate is indicated for the sample.)

: NOTE: If problems are encountered with the Sam II while :
: counting, check the following: :
: 1. Power supply and connections. :
: 2. Physical damage and proper probe connections. :
: 3. Adjustments and settings per 4.2.3.a. :
: 4. Response to provided source. :

- 4.3.4 Record the serial number of the SAM-II, counter factor (as indicated on the SAM-II), background counts, and counting time on the sample data sheet. (Att. I).

: NOTE: The "Count Factor" posted on the SAM II incorporates :
: counting efficiency, geometry factor and activity :
: conversion factors. :

- 4.3.5 After counting sample, record the iodine sample counts and counting time on the data sheet.

- 4.3.6 Report the following information to the RAC/EACC (as appropriate):

- a. Air sampler flow rate and run time
- b. Total sample counts
- c. Total background counts
- d. Time and location of sample

: NOTE: Analysis of field samples may be performed by use of :
: the TMI Unit 1 Canberra system in accordance with :
: the applicable 1990 procedure, the TMI Unit 2 :
: GeLi/MCA unit, or the GeLi/MCA unit operated by the :
: Environmental Assessment Section. :

: NOTE: If during sample analysis, the sample activity :
: exceeds the ability of the instrument being used, :
: (i.e., high count rate), one or all of the following :
: alternatives may be used as directed by the RAC: :
: a. Reduce the sample volume :
: b. Utilize different counting geometries :
: c. Utilize counting instrumentation with lower :
: efficiency/sensitivity :
:

4.3.7 Place all samples in separate plastic bags and label the samples with sample date, time, location and calculated activity and return all samples to the Rad Con Coordinator at the OSC or other location as directed by the RAC.

4.4 In-Plant air sampling for Radioactive Gas (except for Reactor Building) shall be performed in accordance with RCP 1607 with attention to the problems expressed in the note below 4.3.6.

4.5 In-Plant air sampling for Radioactive Iodine shall be performed in accordance with RCP 1605 with attention to the problems expressed in the note below 4.3.6.

: NOTE: A more rapid determination of radioiodine concen- :
: tration may be made using the AIRBORNE IODINE SAMPLE :
: NOMOGRAPH, ATTACHMENT II. :

4.6 In-Plant air sampling for Radioactive Particulates shall be performed in accordance with RCP 1605 with attention to the problems expressed in 4.3.6.

: NOTE: A more rapid determination of airborne particulate :
: radioactivity may be made using the AIRBORNE PARTIC- :
: ULATE SAMPLE NOMOGRAPH, ATTACHMENT III. :

4.7 All air samples shall be handled in accordance with RCP 1605.1.

4.8 When directed by the RAC, obtain post accident samples of Reactor Containment air as outlined below.

: CAUTION: Obtaining a Reactor Containment atmospheric sample :
: after an accident may involve high levels of gaseous :
: and particulate activity. Special precautions as :
: outlined in EPIP 1004.9 should be observed. :

: NOTE: Personnel performing this portion of the procedure :
: are required to initial each step upon completion :
: and prior to performing the next step. :

4.8.1 Containment Atmospheric Post Accident Sampling System
(CATPASS).

4.8.1.1 Contact the Control Room and request current Reactor
Building pressure. If Reactor Building pressure exceeds
30 PSIG, samples shall not be taken.

4.8.1.2 Before proceeding to the sampling station, request that
the Control Room isolate RM-A2 by shutting valves CM-V-1,
V2, V3, and V4 if not already shut due to ESFAS actua-
tion. Also request whether instrument air is available
in the Intermediate Building for sampling operations.

: NOTE: If instrument air is not available in the Inter- :
: mediate Building, bottled air must be connected at :
: the sample station area to the fitting at reducing :
: valve CM-V-32. :

4.8.1.3 Determine habitability of the sampling area prior to
sampling by: 1. Setting up a continuous air monitor in
the vicinity of the sample station and 2. Taking dose
rate readings in the sampling area.

: NOTE: If a sampling system line ruptures, close valves :
: CM-V-12 and CM-V-13 and switch valve CM-V-10 to the :
: recirc. mode at the remote sample panel. Notify the :
: RAC to have the Control Room close valves CM-V-1, :
: V2, V3, and V4. A rupture may be indicated by an :
: abnormal or unexpected change in flow or pressure. :

- 4.8.1.4 The Radiological Controls Coordinator shall conduct a briefing with those personnel directly involved in the sampling evolution. Attachments V and VI should be used to familiarize sampling personnel with the sampling system and sample panel. Heat insulating gloves will be needed for handling the sample flask after sampling.
- 4.8.1.5 Switch heat tracing "ON" at the remote sample panel.
- 4.8.1.6 Install the sample flask at the fittings between valves CM-V-12 and CM-V-13 at the sample station if not already in place. Ensure that the 2 isolation valves attached to the sample flask are open and that the septum valve is shut.
- NOTE: Valves CM-V-11 and CM-V-14 are quarter turn ball valves. These valves are open when the handle on the valve is aligned with the system tubing and shut when the handle is at a 90° angle to the system tubing.
- 4.8.1.7 If not already closed, close the following valves: CM-V-11 and CM-V-14 (at the sample station), CM-V-16, CM-V-17, and CM-V-18 (at the instrument/bottled air station), and CM-V-12 and CM-V-13 (at the remote sample panel).
- 4.8.1.8 Place valves CM-V-7, V8, and V10 in the sample mode at the remote sample panel.
- 4.8.1.9 Switch valve CM-V-9 to "COOL SMPL" position at the remote sample panel.

- 4.8.1.10 If bottled air is used, open the valve on the supply bottle and adjust the reducer (CM-V-32) to achieve 90-100 psig on the regulator outlet guage, then open CM-V-16.

: NOTE: The following step can be more easily accomplished if :
: 2 people are used, one to manipulate the valves, and :
: another to watch the pressure gauges. :

- 4.8.1.11 "Crack" open valve CM-V-17 to obtain a reading of 25 to 30 psig on PI-997 at the sample station, then immediately shut CM-V-17. Then crack open valve CM-V-18 to obtain a reading of 25 to 30 psig on PI-995 at the sample station, then immediately shut CM-V-18.

- 4.8.1.12 Record all pressure gauge indications at the sample station. PI-995, _____, PI-996 _____, PI-997 _____.

- 4.8.1.13 Wait 2 minutes and again record pressure gauge indications. PI-995, _____, PI-996, _____, PI-997, _____.

- 4.8.1.14 If there is no change in pressure indications, the pressure integrity is acceptable. If pressure integrity is unacceptable, notify the RAC.

: NOTE: Approximately 3 hours will elapse before heat tracing :
: has warmed the system to operating temperature :
: (-200°F). :

- 4.8.1.15 When the heat tracing indicator light on the remote sample panel goes off, ensure that valves CM-V-7, V8, and V10 are in the sample mode.

NOTE: CM-V-9 may be placed in either "COOL SMPL" or "ISOK SMPL" position dependent on whether the RAC desires a sample from the RM-A2 Isokinetic Probe or the Cooler Discharge. Note the position used on sample data sheet.

- 4.8.1.16 Request, through the RAC, to have the Control Room override the ESFAS function of valves CM-V-1, V2, V3 and V4 (if ESFAS is actuated) and open valves CM-V-1, V2 V3, and V4.

- 4.8.1.17 Fully open valve CM-V-17. If bottled air is used, also open CM-V-16.

- 4.8.1.18 Open valves CM-V-11 and CM-V-14 at the sample station.

- 4.8.1.19 Switch valves CM-V-12 and CM-V-13 to "OPEN" at the remote sample panel.

NOTE: Valves CM-V-12 and CM-V-13 have three positions: "Close", "Open", and "Open Bypass". The "Open Bypass" mode bypasses the protective pressure switches that normally shut CM-V-12 and CM-V-13 on an over pressure situation. Do not use this position unless directed to do so by this procedure.

- 4.8.1.20 Verify that the temperature on TI-992 at the remote sample panel indicates at least 215°F and that FI-838 at

the remote sample panel indicates that flow exists in the sample system. Flow is indicated when the needle on FI-838 is to the left of the center mark.

: NOTE: The sample flask and other exposed metal portions of :
: the sample system will be HOT! Heat insulating :
: gloves should be used to handle any exposed metal :
: portion of this system. :

4.8.1.21 After 5 minutes verify that dose rates at the sample station are within acceptable limits then, samples may be drawn from the system by the following sequence: a. Open the septum valve and insert the tip of a syringe through the septum; b. Withdraw a predetermined volume of containment atmosphere into the syringe; c. Remove the syringe, then close the septum valve and record the sample time on the sample data sheet. These steps may be repeated as necessary, to obtain further samples while the system continues circulation.

4.8.1.22 Upon completion of syringe sampling or if syringe sampling is not desired, place CM-V-10 in the recirculation mode at the remote sample panel.

4.8.1.23 Switch valves CM-V-12 and CM-V-13 to "close" at the remote sample panel.

4.8.1.24 If it is desired to remove the sample flask for analysis, verify that dose rates at the sample station are within acceptable limits, then close the valves on the sample flask. Remove the sample flask from the sample station for further analysis. Record the time removed as sample time on the sample data sheet.

4.8.1.25 If removed, replace the sample flask with the spare flask. Ensure that the septum valve is closed and that the 2 isolation valves attached to the sample flask are open on the newly installed flask.

4.8.1.26 To purge the sample piping of Containment air, switch valve CM-V-10 to "SAMPLE" and switch valves CM-V-12 and CM-V-13 to the "Open Bypass" mode. Switch valve CM-V-9 to "COOL SMPL".

4.8.1.27 Slowly open valve CM-V-18 to flush all lines with instrument/bottled air.

NOTE: Keep valves CM-V-7 and CM-V-8 in the sample mode until their respective sample lines are depressurized to Reactor Building pressure as indicated on PI-995 and PI-997.

4.8.1.28 At the completion of a 2 minute purge time, close valve CM-V-18 then switch valve CM-V-12 to "Close" at the remote sample panel.

4.8.1.29 Request that the Control Room close valves CM-V-3 and CM-V-4. When these valves are shut, switch valve CM-V-8 to "RM-A2" position at the remote sample panel.

4.8.1.30 At the completion of an additional 2 minute purge, close valve CM-V-17. If bottled air was used, also close valve CM-V-16 and the valve on the bottled air source. Switch valve CM-V-13 to "close" at the remote sample panel.

4.8.1.31 Request that the Control Room close valves CM-V-1 and CM-V-2. When these valves are shut, switch valve CM-V-7 to "RM-A2" position at the remote sample panel.

- 4.8.1.32 Turn off heat tracing at the remote sample panel.
- 4.8.1.33 Shut valves CM-V-11 and CM-V-14 at the sample station.
- 4.8.1.34 The sample(s) should now be analyzed per the applicable 1990 Chemistry Procedure.
- 4.8.1.35 Relay the results of the gamma analysis to the Radiological Assessment Coordinator to be used in EPSP 1004.7.

4.9 Post Accident Sampling of Condenser Vacuum Exhaust, Reactor Building Purge or Auxiliary and Fuel Handling Building Exhaust using the NRC MAP-5 Sampling Stations in automatic mode. (NRC MAP-5 Sample Panels)

- 4.9.1 When directed by the Radiological Assessment Coordinator, remove sample media from the appropriate sample panel(s) following automatic activation as follows. (Refer to Attachment VIII)

NOTE: Radiological conditions may warrant consideration of the need for shielding, stay times, respiratory protection, dosimetry and protective clothing. The RM-A8 and RM-A9 sample panel room vent fan should be running during sampling (switch is on the right, just inside the door) to remove noble gases which may leak the monitors. Dose rates at the door to the sample station should be monitored and relayed to the Radiological Assessment Coordinator.

CAUTION: When the MAP-5 panel front is open, avoid contact with any live electrical components due to shock hazard, also avoid touching the green solenoid valves as they may be very hot!

4.9.2 Perform a lamp test upon arriving at the sample station by pressing the lamp test button. All digital display segments should light. If lamp test is unsat, inform the RAC.

4.9.3 Open the sample panel and survey the two cartridge holders and the lead shield. Enter the contact dose rate for each cartridge holder/lead shield on the data sheet (Att. IX). Inform the RAC of the survey results and request that he determine which cartridge holder(s) are to be removed.

: NOTE: Dose rate from channels 1 and/or 2 may interfere or :
: mask the dose rate from channel 3. If this is :
: suspected, sampling steps 4.9.4 through 4.9.9 should :
: be performed for all channels and then a more accurate :
: contact dose rate determined by removing the :
: individual cartridge holders to in low background :
: area. :

4.9.4 Record flow rate(s) on desired channel(s) on the sample data sheet (Att. IX). (Flow rate during sampling should be approximately 3000 cc/min). Close the panel.

4.9.5 Depress the "OFF" button on the desired channel(s). The "OFF" light should go on, the "AUTO" light should go off.

: NOTE: Channel 2 and 3 will complete a purge cycle before :
: turning off. :

4.9.6 Depress "PURGE" button on desired channel to remove any noble gases which may have been present in the ambient air. The "sample" light should go off and the "purge" light should go on. The elapsed purge time indicator for channel No. 1 should start to increment.

4.9.7 Depress "OFF" button on desired channel after at least one (1) minute.

4.9.8 Record elapsed time (in minutes), flow rate (in cc/min), for the appropriate channel number on sample data sheet (Att. IX).

4.9.9 Open the panel and remove cartridge holder(s) by releasing quick disconnect fittings on sample line.

NOTE: Cartridge holder in channel 1 is enclosed inside an 80 lb. lead shield. Shield and cartridge holder should be removed as one unit, if possible, if the cartridge holder would present a significant exposure hazard if unshielded.

NOTE: Radiological conditions will dictate how filters and cartridges are to be handled during transport and analysis.

4.9.10 If additional sampling is necessary, insert new silver zeolite cartridge (with the arrow pointed toward the blue half of the cartridge holder) and particulate filter into the cartridge holder.

4.9.11 Insert cartridge holder into place while ensuring sample flow is through the particulate filter first (blue end of the filter holder should be on top).

- 4.9.12 Ensure quick disconnect fittings are securely attached and close panel.
- 4.9.13 After cartridge holder(s) are installed, verify sample flow rate by depressing sample and purge pump, "ON" button, then depress the channel "SAMPLE" button. Verify 3000 cc/min flow rate on the applicable flow meter for approximately 5 seconds. If flow rate is not 3000 cc/min., adjust flow rate by rotating the knob at the bottom of the flow meter. Then depress Sample and Purge Pump "OFF" button.
- 4.9.14 Wait until all three channels have stopped cycling then depress Sample and Purge Pump "AUTO" button.
- 4.9.15 Depress "AUTO" button for all three channels, and then depress "RESET" button for all three channels. The "AUTO" button light should be on and the LED readouts should read zero. This now places the MAP-5 sampling station back in automatic standby to permit response to RM-A5 8, or 9 low channel alarm.
- 4.9.16 Ensure that the sample and purge times have not been disturbed (Normal settings are: Channel 2, sample - 4 sec., purge - 36 sec.; Channel 3, sample - 4 sec., purge - 396 sec.).

4.10 Post Accident Sampling of Condenser Vacuum Exhaust, Reactor Building Purge or Auxiliary and Fuel Handling Building Exhaust using the NRC MAP-5 sampling stations in manual mode.

4.10.1 When directed by the Radiological Assessment Coordinator obtain samples by manual operation as follows: (Refer to Attachment VII).

4.10.2 If sample panel is currently operating replace the present filter media with new filter media per 4.9.2 through 4.9.12 above, for all channels then proceed to 4.10.3.

4.10.3 Depress "RESET" on all three channels to clear display.

4.10.4 Depress "ON" button for pump. Pump "OFF" light should go off. Pump "AUTO" light should be off. Pump "ON" light should go on.

4.10.5 Depress channel "SAMPLE" button on the desired channel control. "SAMPLE" light should go on. Elapsed time indicator should begin count for that channel. Record the flow rate for the appropriate channel(s) on the sample data sheet (Att. IX).

4.10.6 When desired sample time is reached, depress the "PURGE" button, the purge light should go on. If using Channel 1, elapsed time display should begin incrementing in seconds. Purge all channels for at least one (1) minute.

4.10.7 To stop sample operation, depress "OFF" button for the desired channel. "PURGE" light should go out. "OFF" light should go on.

- 4.10.8 When sampling is completed, depress pump "OFF" button. Pump "ON" light should go off. Pump "OFF" light should go on.
- 4.10.9 Record elapsed sample time (in minutes) on the sample data sheet (Att IX). Open the panel and survey the two cartridge holders and the lead shield. Record the contact dose rate for each cartridge holder/lead shield on the sample data sheet (Att. IX). Inform the Radiological Assessment Coordinator of the survey results before proceeding.
- 4.10.10 Remove cartridge holder(s) by releasing quick disconnect fittings on sample line.
- 4.10.11 If additional sampling is necessary, insert new silver zeolite cartridge (with the arrow pointed toward the blue half of the cartridge holder) and particulate filter into the cartridge holder.
- 4.10.12 Insert cartridge holder into place while ensuring sample flow is through the particulate filter first (blue end of the cartridge holder should be on top).
- 4.10.13 Ensure quick disconnect fittings are securely attached and close panel.
- 4.10.14 Depress "RESET" button on desired channels to clear accumulated time. All displays should read zero.

- 4.10.15 Ensure that the sample and purge times have not been disturbed. (Normal settings are: Channel 2, sample - 4 sec., purge - 36 sec.; Channel 3, sample - 4 sec., purge - 396 sec.).
- 4.10.16 For additional manual sampling proceed back to Step 4.10.4.
- 4.10.17 Follow steps 4.9.12 through 4.9.15 to place sampling station back in automatic mode after manual sampling.
- 4.10.18 Sample analyses will be performed in accordance with the applicable 1996 Chemistry procedures.
- 4.10.19 Relay the results of the gamma analysis to the Radiological Assessment Coordinator to be used in EPIP 1004.7.

5.0 FINAL CONDITIONS

- 5.1 All samples taken after release has been terminated.
- 5.2 All monitoring teams ordered to return to base.
- 5.3 All samples given to Radiological Controls for analysis.
- 5.4 Post accident sampling of the Containment atmosphere and MAP-5 processor stations complete and analysis results reported to the RAC.

ATTACHMENT I
AIRBORNE RADIOACTIVITY SAMPLING AND IODINE - 131 ANALYSIS DATA SHEET

Sample Collection	Iodine Sample Counting
1) Time on _____, Time off _____ Run Time _____ min. I	1) Serial No. of SAM-II _____
2) Sample Flow _____ CFM, _____ LPM 2a 2b	2) Counter Factor _____
3) Location: _____ _____	3) Background counts _____
4) Date: _____	4) Background count time _____ min
5) Time: _____	5) Sample Counts _____
6) Sampler Type: _____ Serial No.: _____	6) Sample Count Time _____ min.
7) Collected by: _____	7) Date and Time of Counting: _____
	8) Counted by: _____

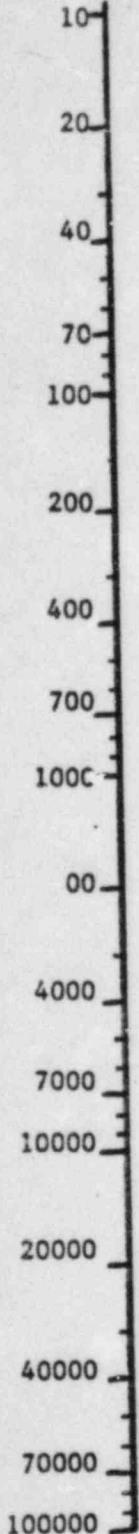
AIRBORNE IODINE SAMPLE NOMOGRAPH

Note: This nomograph is to be used for Iodine 131 air samples counted with a SAM II. This nomograph assumes an ave. counter factor of 16000 for SAM II's.

A
Net CPM
(Gross CPM-Bkg. CPM)

B
Air Sample Volume
(Ft³) (ml or cc)

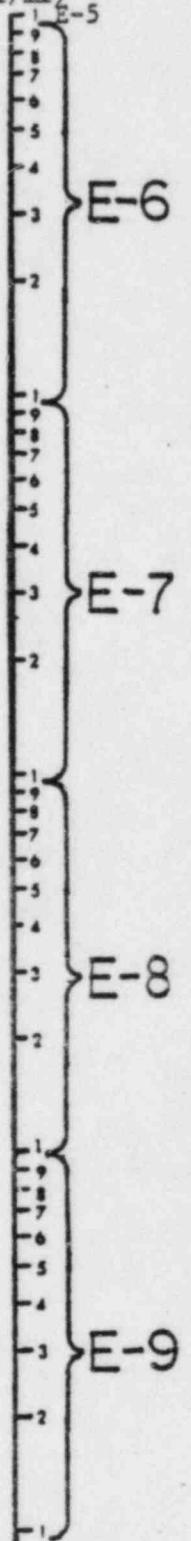
C
¹³¹I
Airborne Activity
(μ Ci/ml)

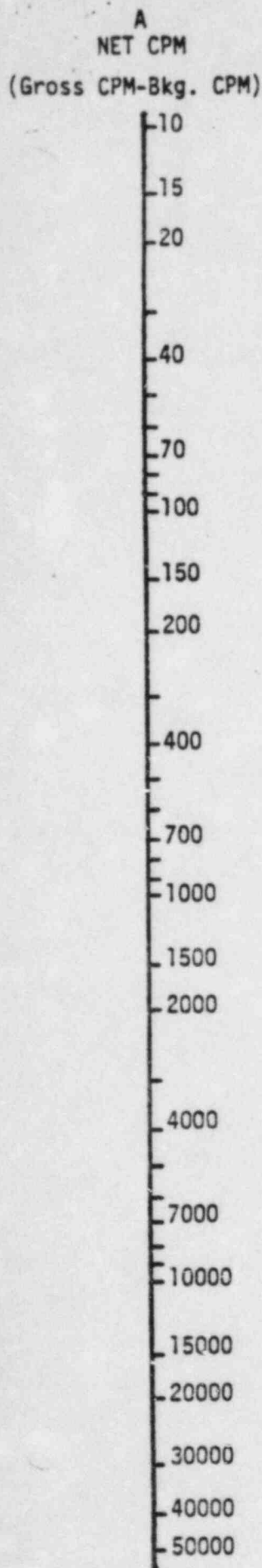


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Instructions: Draw a line through Net CPM (A) and Air Sample Volume (B) using a straight edge and read ¹³¹I Airborne Activity (C) on the line.

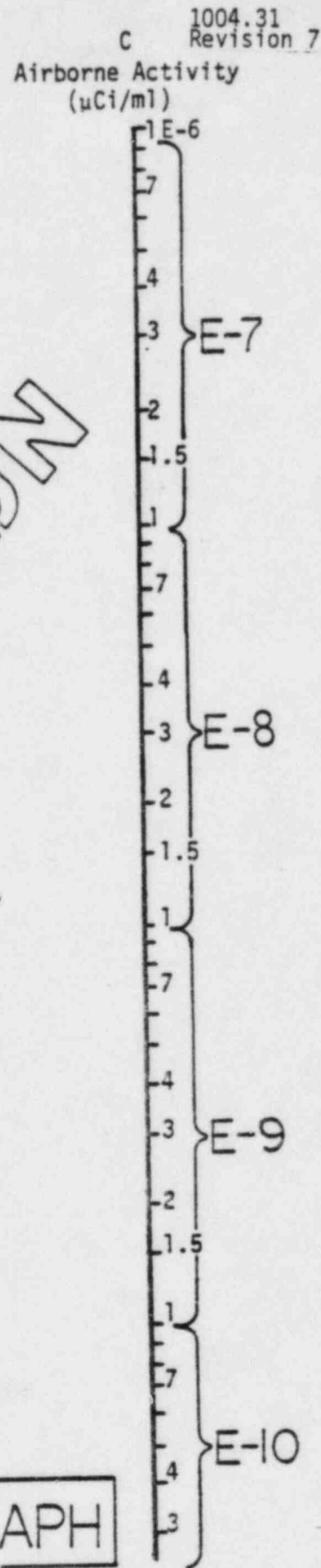
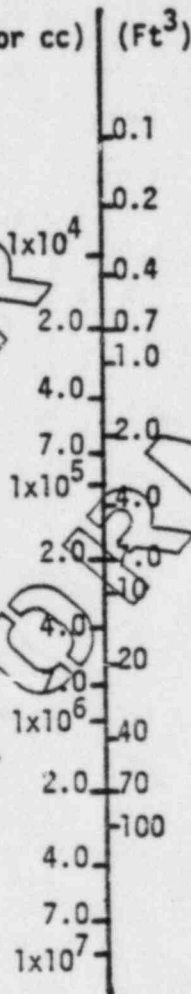
IODINE NOMOGRAPH





ATTACHMENT III
AIRBORNE PARTICULATE SAMPLE NOMOGRAPH.
Note: This nomograph is to be used for particulate air samples counted with an RM-14/HP-210 Beta-Gamma Count Rate Meter. This nomograph assumes a counting efficiency of 10%.

B
Air Sample Volume
(ml or cc) (Ft³)

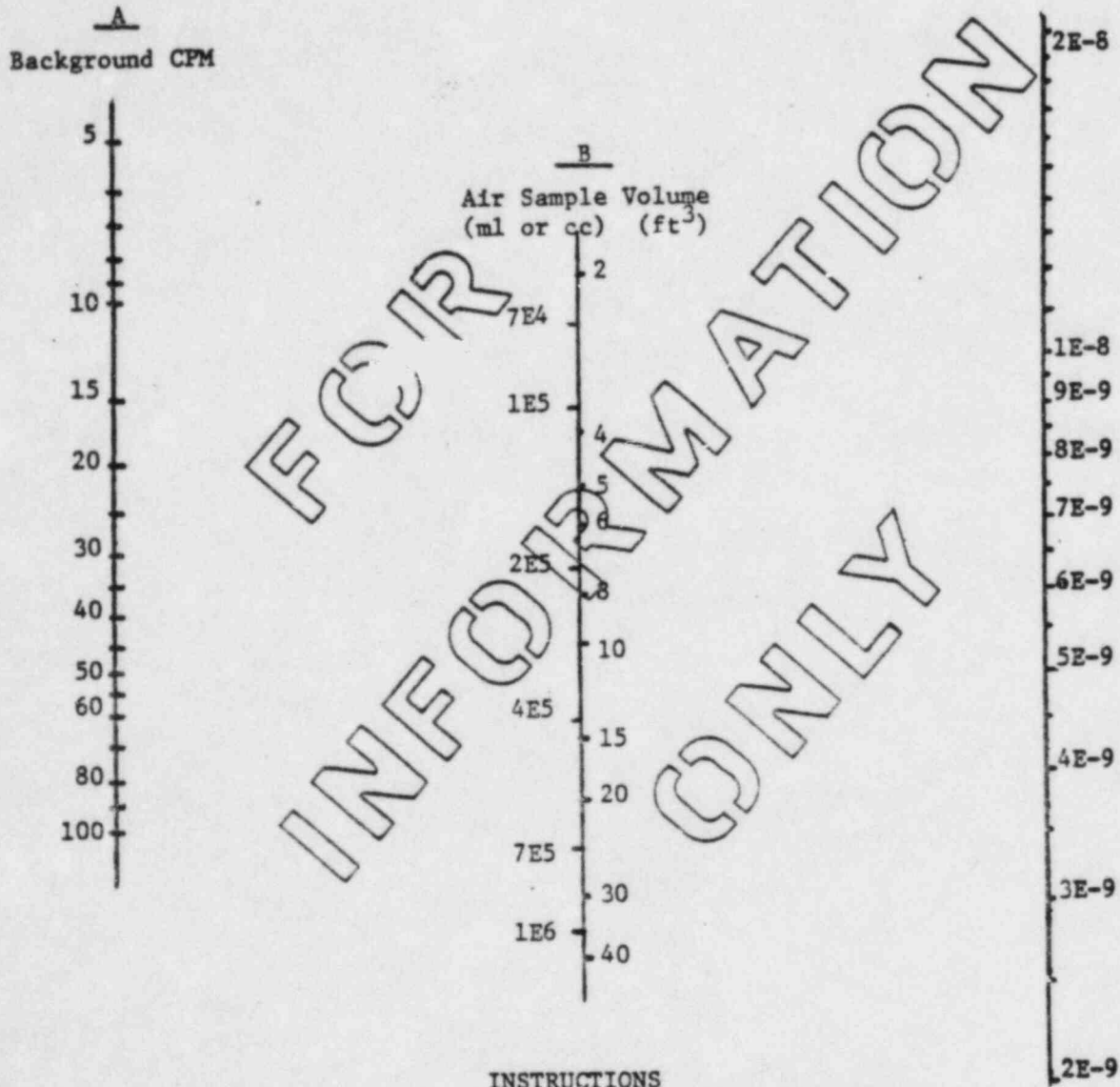


INSTRUCTIONS: Draw a line through Net CPM (A) and air sample volume (B) using a straight edge and read airborne activity (C) on the line.

PARTICULATE NOMOGRAPH

MINIMUM DETECTABLE RADIOIODINE ACTIVITY NOMOGRAPH

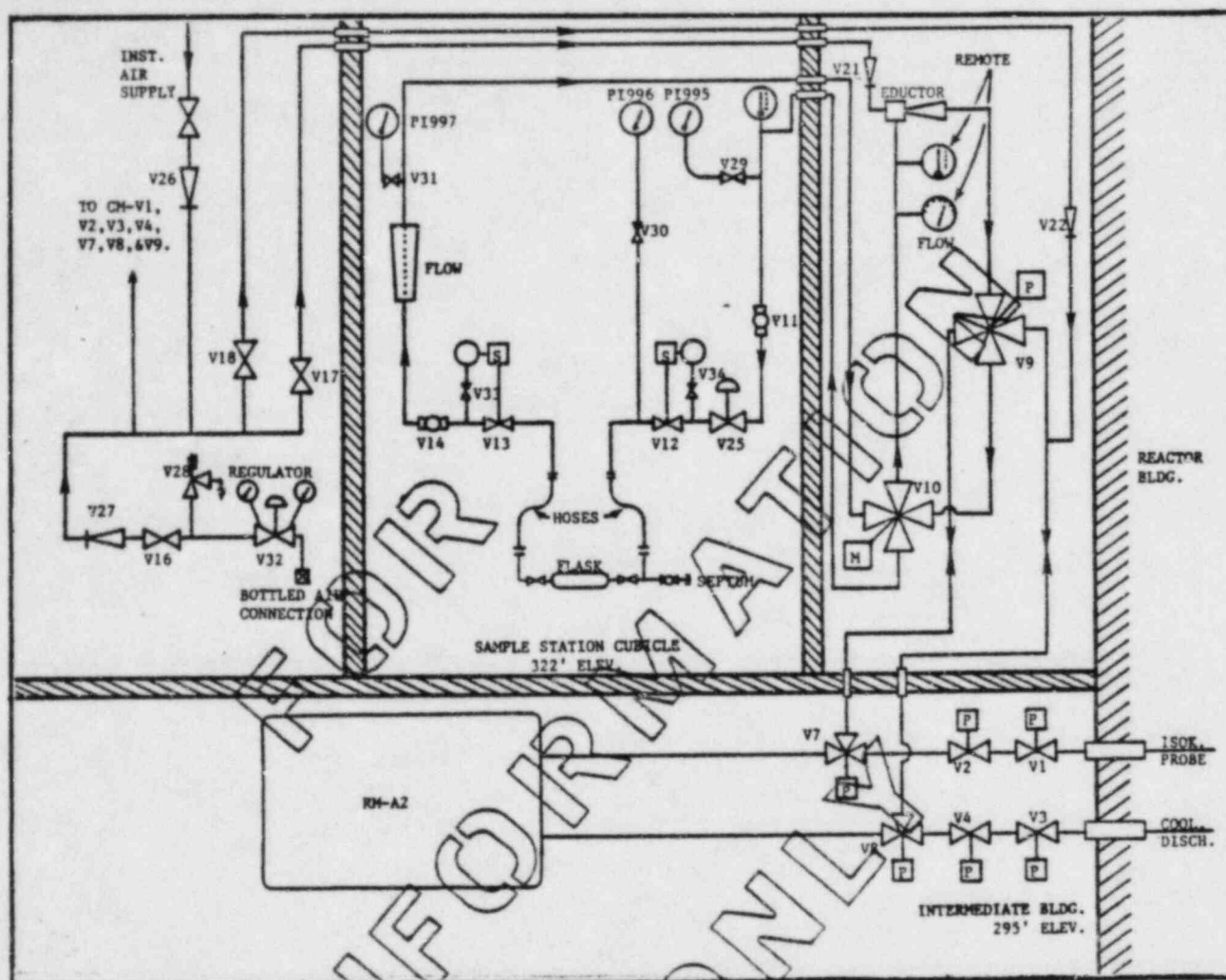
Note: This nomograph is to be used for determining the minimum detectable activity of airborne iodine samples counted with the SAM II. This nomograph assumes an ave. efficiency of 0.72% for SAM II's.



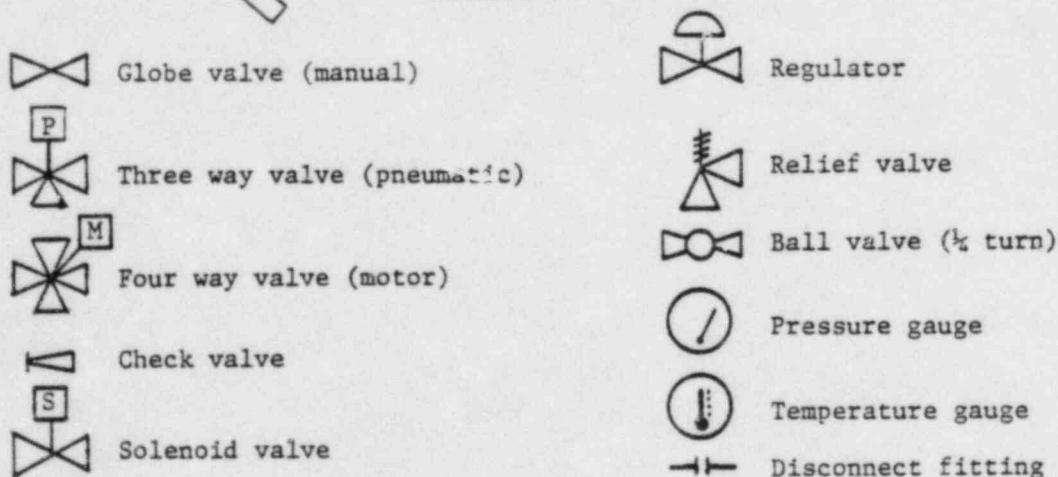
Draw a line through background CPM (A) and air sample volume (B) using a straight edge and read MDA (C) where the line intersects the right hand scale.

MDA NOMOGRAPH

ATTACHMENT V
Containment Atmospheric Post Accident
Sampling System (CATPASS)

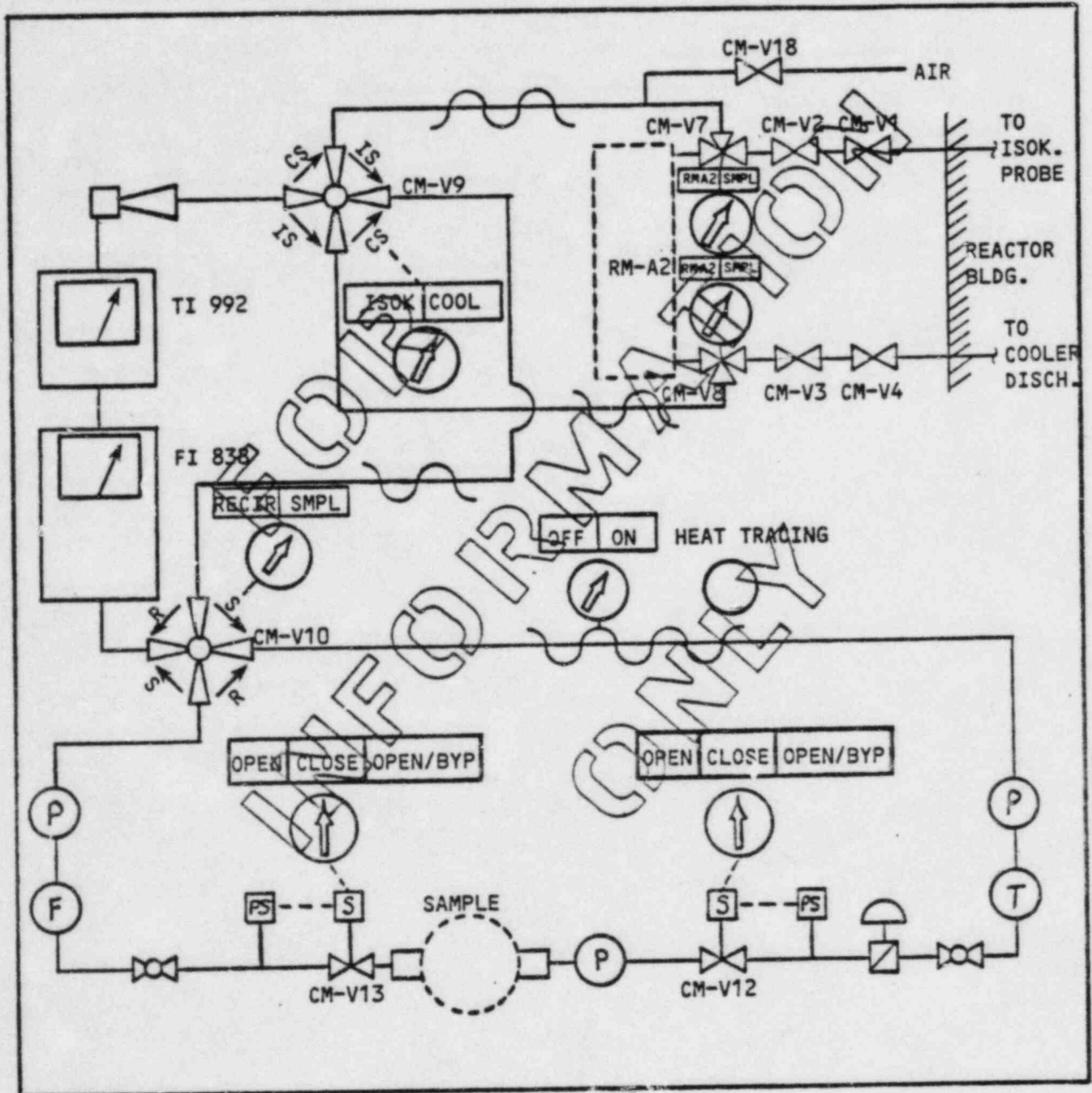


LEGEND



ATTACHMENT VI
SCHEMATIC OF CATPASS REMOTE SAMPLE PANEL

1004.31
Revision 7



ATTACHMENT VII

CATPASS Sample Data Sheet

Sample Time: _____ Date: _____

Type Sample:

50 cc Sample Flask/____cc Syringe
(circle one)

CM-V9 Position: ISOK. SMPL./COOL. SMPL.
(circle one)

Tech _____

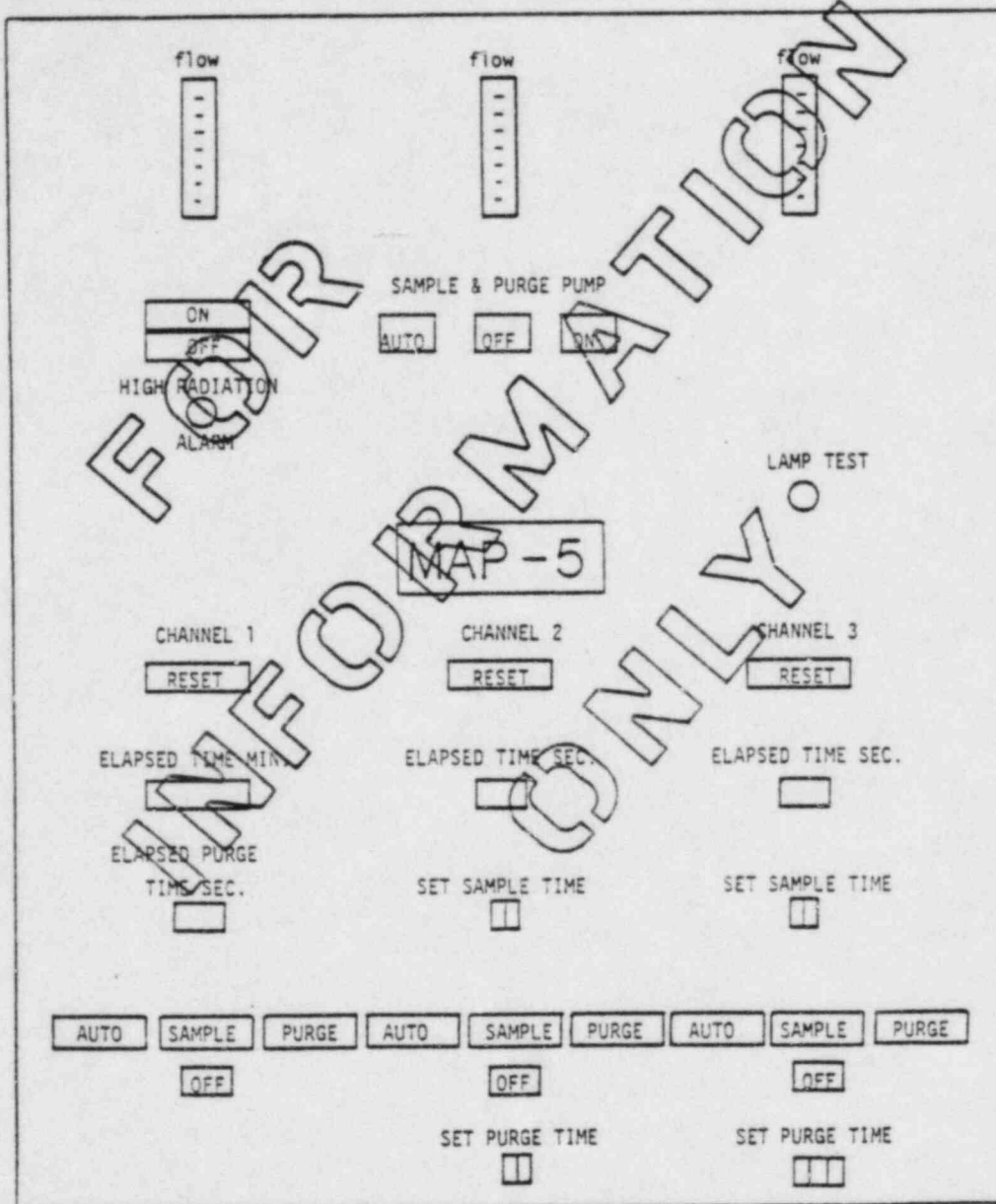
Remarks: _____

Results: Contact dose rate $\mu\text{R}/\text{Hr.}$

NUCLIDE	ACTIVITY (μCi)	CONC. ($\mu\text{Ci/cc}$)
TOTAL		

ATTACHMENT VI II
MAP 5 SAMPLE PANEL SCHEMATIC

1004.31
Revision 7



ATTACHMENT IX

MAP-5 Sample Data Sheet
RM-A5, RM-A8, RM-A9
(circle one)

Sample Time: _____ Date: _____

Technician: _____

Sample Data		Sample Results	
		Nuclide	Activity (μ ci) : Concentration (μ ci/cc)
Channel No. 1			
1. Sample Flow Rate (cc/min) =			
2. Elapsed Sample Time (min) =			
3. Sample Volume (cc) (1 x 2) =			
4. Contact Dose Rate (mR/hr) =	Total		
Channel No. 2			
1. Sample Flow Rate (cc/min) =			
2. Elapsed Sample Time (min) =			
3. Sample Volume (cc) (1 x 2) =			
4. Contact Dose Rate (mR/hr) =	Total		
Channel No. 3			
1. Sample Flow Rate (cc/min) =			
2. Elapsed Sample Time (min) =			
3. Sample Volume (cc) (1 x 2) =			
4. Contact Dose Rate (mR/hr) =	Total		