GEORGIA POWER COMPANY

HATCH NUCLEAR PLANT

PROCEDURE

Radiation and Contamination Control
PROCEDURE TITLE

HNP-8005
PROCEDURE NUMBER

Lab
RESPONSIBLE SECTION

SAFETY RELATED (X) NON-SAFETY RELATED ( )

REV.	DESCRIPTION	APPROVED DEPT. HEAD	APPROVED PLANT MANAGER	DATE
12	General Revision	W. H. Rogers	Jim Greene	1/14/82
13	Pages 2, 4, 14 & 16	W. H. Rogers	Harvey Rice	8/27/82

WE

PROCEDURE REVISION REQUEST

PROCEDURE NO. HNP- 8005

Revision No. 12

REQUESTED BY		DEPARTMENT HEAD APPROVAL	
Name:	Date:	Signature:	Date:
M. Link	7-6-82	RC Head	7-16-82

REVISION CHANGES MODE OF OPERATION OR INTENT AS DESCRIBED IN FSAR:
( ) Yes (X) No

CHANGE INVOLVES:
( ) An unreviewed Safety Question ( ) Tech. Specs. (X) Neither
(See back for Safety Evaluation if required).

Safety Related (X) Non-Safety Related ( )

Safety/Non-safety Status Change ( ) Yes (X) No

Attach marked up copy of procedure to this form.

REASON FOR REQUEST Pg 2, Para. c. change air to area / Pg. 4, para. F.2.d. correct spelling. Pg. 14 & 15 re-number para. to conform to proper format for HNP-9., Pg. 16 replace figure 1 with new sketch.

PRB RECOMMEND APPROVAL: (X) Yes ( ) No J L Elt for PRB Secretary

7/27/82 Date

83-127 PRB Number

REVISED

HNP-9

manual set

RADIATION AND CONTAMINATION CONTROL

A. PURPOSE

To outline the procedures which will be used by Health Physics personnel and by all plant personnel to ensure that potential radiation hazards are adequately defined, that adequate controls are instituted so that radiation exposure to personnel working in Radiation Control Areas or working with radioactive materials is minimized, and that each person carries out his work in a radiologically safe and economical manner.

B. GENERAL MONITORING

1. External Radiation Measurement.

   a. All individuals entering a Radiation Control Area are required to wear a TLD badge and pocket dosimeter at all times. A record of accumulated external radiation exposure received is obtained principally from the interpretation of the TLD badge. Direct reading pocket dosimeters provide an "on-the-spot" reading for the individual.

   b. Radiation Control Areas within the Primary Protective Area are classified and identified as to levels of radiation and for contamination. Strict procedures will be enforced for access to these areas.

   c. There are numerous area radiation monitors located throughout the plant which alert personnel to abnormal radiation levels.

   d. In addition to the measurements made by the area radiation monitors, the measurement of external dose rates is accomplished by portable survey instruments. The operation of survey instruments will be in accordance with the operating instructions outlined in each particular instrument procedure. Instruments covering high, intermediate, and low ranges are available in the plant and in emergency kits.

2. Loose Surface Contamination Measurement.

   a. In Radiation Control Areas loose surface contamination is normally determined by wiping a disc smear over a 100 square centimeter area of the surface being monitored. Detailed procedures for contamination surveys are found in HNP-8012, SURFACE RADIOACTIVE CONTAMINATION SURVEYS. The smear is then counted using a beta-gamma (G-M) count rate meter. Alpha activity of a smear is determined by means of a gas proportional detector.

b. In areas not normally expected to be contaminated, the loose surface contamination will be determined by wiping a disc smear over a 100 square centimeter area and counting the smear with a proportional or G-M counter for gross beta-gamma.

3. Airborne Contamination Measurement.

In addition to the area radiation monitors particulate airborne activity will be determined as needed by utilizing portable air samplers with filter paper and mobile continuous air monitors (C.A.M.'s). Filter samples from portable air samplers are counted for gross beta activity using a gas-flow proportional or G-M counter. Alpha activity of a sample is determined by means of a gas-flow proportional counter. The continuous air monitors are self contained and therefore record air activity continuously on a strip chart recorder. Operation of these air samplers will be in accordance with HNP-8013, 8109, and 8128.

C. ROUTINE AREA MONITORING

1. Health Physics personnel will perform surveys that are necessary for the designation of Radiation Control Areas. Surveys will include routine checking of areas for external radiation hazards and contamination, as well as for airborne radioactivity.

2. Routine surveys will be conducted in the plant to establish radiation, airborne, and contamination levels throughout the facility. Whenever practical, Health Physics personnel will make the first entry into areas of unknown radiation levels. Otherwise, licensed operating personnel entering areas of unknown radiation levels will carry survey meters to determine radiation levels.

D. SPECIAL AREA MONITORING

1. Special radiation, airborne and contamination surveys in addition to routine surveys, will be made when necessary. Examples of situations requiring special surveys are.

a. During any test or work items involving:

(1) Installation or removal of in-core fission chambers.

(2) Installation or removal of core startup sources.

(3) Installation or removal of reactor components.

(4) Loading and unloading fuel elements.

(5) The opening of a primary coolant system (conducting a special survey of the surrounding area for contamination after the opening or removal operation has been completed and before other work is resumed).

(6) The removal of any material which has been in contact with the primary coolant (i.e., valves, pumps, sections of piping, demineralizer resin, etc.).

(7) During reactor operation after the intial installation of, and after repairs or modifications to, radiation shielding.

b. Following any situation which may result in radioactive contamination.

c. Before and after any decontamination operation.

d. Checking shop areas in which contaminated equipment is being worked on.

e. When rupture of a radioactive - material container occurs, or when spills are reported.

f. When handling spent fuel.

g. Unconditional release of items to unrestricted areas.

E. CONTAMINATION LIMITS

1. Personnel, material and equipment released from Radiation Control Areas shall be free of significant radioactive contamination. Release surveys will be made and will include alpha, beta and gamma radiation detection unless it is known that a given type is not present. Release surveys must be performed where the background does not exceed 200 cpm on beta-gamma detection meters or 50 dpm on alpha detection meters. The procedure for surveys is found in HNP-8012 SURFACE RADIOACTIVE CONTAMINATION SURVEYS.

2. Surface Contamination Limits.

a. Clean Areas.

For areas outside the boundary of a Contaminated Area, surface contamination will be kept at a minimum and maintained below the limits set for Contaminated Areas in HNP-8003 RADIATION CONTROL AREA CLASSIFICATIONS.

b. Contaminated Areas - Frequent Access.

For areas which become contaminated and which require frequent access, efforts will be made to clean up the contamination as soon as possible, provided the clean-up operation will not result in unnecessary exposure to clean-up personnel.

For frequent access areas in which it is impractical to decontaminate immediately, contamination levels will be maintained below the following:

(1) Smearable surface radioactive contamination

Beta-Gamma	50,000 dpm/100 cm
Alpha	50 dpm/100 cm

(2) Fixed surface radioactive contamination

Beta-Gamma	10 mR/hr at 1" using a RO-2A or RO-3A
Alpha	50 dpm per detector area

c. Contaminated Areas - Occasional Access.

For contaminated areas which may require occasional access, the values in E.2.b may be increased by a factor of 10-100.

NOTE

When the above values in E.2.b. and E.2.c. are exceeded, the areas involved should be decontaminated as soon as possible.

d. Regulated Equipment.

Equipment of a portable nature, such as hand tools, small pumps and motors, of such design which makes decontamination impractical, will be considered regulated equipment and stored in a designated area, which will be labeled as a Radioactive Material Area. The department using this equipment will be responsible for proper storage of this equipment.

Regulated equipment may have smearable contamination on exposed surfaces up to 50,000 dpm/GM probe area beta-gamma and 50 dpm/detector probe area alpha, and may have radiation levels up to 10 mR/hr at one inch. This equipment must remain in a designated storage area within a Radiation Control Area, and can be used only

in Radiation Control Areas by workers wearing protective clothing. Workers requesting to remove regulated equipment from a designated storage area must first notify Health Physics. Health Physics will determine the radiation and contamination levels on the regulated equipment and determine if it is acceptable for this equipment to be used in the requested work area. Equipment having radiation levels higher than 10 mR/hr may be used after consideration of all factors involved, i.e., the nature of the equipment, the frequency of use, and the length of time it may be in use. Movement of regulated equipment will be controlled such that highly contaminated equipment will not be used in relatively clean areas.

e. Personnel Contamination Limits.

(1) Personnel contamination levels shall be kept as low as possible at all times, therefore the following limits may be used as a guide to release personnel to clean areas:

Beta-Gamma

SKIN		CLOTHING		INTERNAL
Fixed	Removeable	Fixed	Removeable	
≤ 1000 DPM/ Probe Area	No Detectable Activity	≤ 1000 DPM/ Probe Area	No Detectable Activity	5% MPBB

Alpha

SKIN		CLOTHING		INTERNAL
Fixed	Removeable	Fixed	Removeable	
≤ 50 DPM/ Probe Area	No Detectable Activity	≤ 50 DPM/ Probe Area	No Detectable Activity	N/A

NOTE

All Beta, Gamma measurements are using a pancake probe G.M. detector with count rate instrument.

(2) All Alpha measurements are using a PAC-4G and a MS-2 Counter set up for alpha detection.

(3) Personnel with contamination levels greater than the above values shall notify Health Physics and decontamination shall be attempted. If contamination levels cannot be reduced below the above values a Health Physics Supervisor or his designated alternate will determine the release.

(4) Movement of Material and Equipment from a Radiation Control Area.

Any component, item of equipment, or tools having been used in a Radiation Control Area, will require, as much as practical, a beta-gamma dose rate and contamination survey prior to or after coming out of a Radiation Control Area. All released items will be classified by Health Physics personnel as either an unconditional release or conditional release.

(a) Unconditional Release Item:

Material and equipment will be given an unconditional release by Health Physics personnel for use outside the boundary of a Radiation Control Area if no smearable beta-gamma or alpha contamination is found using a smear technique and radiation levels at one inch are less than 100 CPM above background using a GM count rate meter with HP-210 Probe or equivalent.

NOTE

Material and equipment which contain inaccessible and/or porous surfaces will not be released until the material or equipment is known not to be contaminated.

(b) Special Releases:

An assistant Plant Manager may authorize the unconditional release of certain radioactive material when it has been determined that the total activity of the material is less than that specified in 10 CFR Part 20 Appendix "C".

(c) Conditional Release Item:

Removal of material and equipment from Radiation Control Area with radiation and contamination levels in excess of those limits specified for unconditional release must be approved for conditional release by Health Physics personnel. Contaminated material and equipment will be placed in containers, when practicable prior to removal from a Radiation Control Area and tagged with Figure 1 tag or labeled with a radioactive

material label. These labels will contain the levels of radioactivity, description of material, initials of individual performing the survey and date.

When it is not practicable to place contaminated material and equipment in containers movement out of an RCA will be controlled to prevent contamination spread.

No conditional release item will be allowed to leave the Primary Protected Area without the express approval of the Health Physics staff.

(d) Contaminated Equipment Control:

Certain items of material and equipment used during maintenance activities may, from time to time, become contaminated, and prior to return to the Maintenance Shop Tool Room, must be stored until decontamination can be performed. In this event, Figure 3 may be completed by Health Physics, if requested by Maintenance, and may be forwarded to the Maintenance Department and the equipment will be stored under lock and key until such time decontamination can be performed.

(5) Laundered Protective Clothing:

(a) Returned laundered protective clothing shall be surveyed by Health Physics personnel for acceptable limits of contamination as described in HNP-8007, LAUNDERING OF PROTECTIVE CLOTHING.

(b) Procedures for handling and surveying protective clothing is detailed in HNP-8007, LAUNDERING OF PROTECTIVE CLOTHING.

F. RADIATION WORK PERMIT

1. The Radiation Work Permit (RWP) (HNP-8008) is a procedure used to provide radiation safety and an awareness of significant exposure radiation levels in areas where personnel will be working.

2. Procedures for issuing and using an RWP are found in HNP-8008, RADIATION WORK PERMIT.

G. PROTECTIVE APPAREL AND EQUIPMENT

1. Location.

Protective apparel and equipment are kept in the warehouse and in other areas as judged necessary by the Health Physics Supervisor. A minimum supply of clothing and equipment is kept in the Radwaste Building 132' elevation, Reactor Building 228' elevation, Turbine Building 112', Reactor Building 130' elevation and Reactor Building 158' elevation.

2. Protective Apparel.

Coveralls, shoe covers, hoods and gloves are available for use. This apparel is distinctively colored (yellow) and should be used only as anti-contamination clothing.

3. Use of Protective Clothing.

The following procedure will be used by personnel required to wear full protective clothing in Radiation Control areas.

a. Entry Procedures.

(1) Obtain coveralls, gloves, head covers, shoe covers, rubbers, and other equipment as required by the Radiation Work Permit.

(2) Follow HNP-8011, PROTECTIVE CLOTHING DRESSING AND UNDRESSING.

NOTE

When working in contaminated areas, personnel should periodically check levels in contamination on protective clothing with a G.M. survey meter or count rate meter. If gross contamination is detected, i.e., radiation levels in excess of 5 mR/hr at one inch, the protective clothing should be removed and clean protective clothing put on.

b. Radiation Control Area Exit Procedure.

(1) Follow HNP-8011, PROTECTIVE CLOTHING DRESSING AND UNDRESSING, to remove clothing to prevent contamination of the skin or articles of clothing underneath.

(2) Place articles of clothing in the proper containers as they are removed.

(3) Monitor self and personal clothing with count rate meter before leaving the access of the Radiation Control Area.

(4) If no contamination exists, exit the Radiation Control Area.

(5) If contamination is present, notify Health Physics personnel immediately.

4. Additional Protective Clothing Requirements.

As the conditions warrant, additional protective clothing may be required for operations involving high levels of contamination or in situations where a splash hazard from contaminated liquid may exist.

5. Respiratory Protection.

a. Respiratory protection devices may be required in any situation arising from plant operations where the potential for airborne radioactivity exists.

b. In such cases, the air will be sampled by Health Physics personnel and the necessary protective devices specified according to the concentration and type of airborne contaminants present. It is the responsibility of the individual and his supervisor to notify Health Physics personnel when working with radioactive materials that are likely to become airborne. Every precaution should be taken to keep the air contamination to a minimum through use of proper ventilation and prior decontamination of equipment or work areas.

c. Issuance and use of all respiratory protection equipment is described in HNP-8010.

H. TEMPORARY SHIELDING

1. General Criteria for Installing Temporary Shielding.

Prior to installing shielding on a safety-related system, an evaluation of the loading effects of the shielding material on the system must be completed.

All temporary shielding installations involving a safety-related system must be performed under a Maintenance Request. For temporary shielding involving equipment or areas other than safety-related systems, an H.P./Lab foreman or supervisor will determine the necessity for a loading evaluation and Maintenance Request, and will request

assistance as necessary from the appropriate department(s). A Design Change Request (DCR), in addition to an MR, is required if shielding is to be made permanent.

Temporary shielding is defined as shielding installed to reduce personnel exposure during job performance, to reduce background radiation levels in frisking areas, or to bring radiation levels in an area into compliance with NRC regulations. This type shielding should only be installed for a specific time period, i.e. for the duration of a job, to the next scheduled outage when corrective measures may be taken, or as directed by plant management.

2. Installation on a Safety-Related System.

   a. The person requesting the shielding on the safety-related system will first contact the Engineering Department.

   b. The Engineering Department will make or have made an evaluation as to how the shielding will affect the seismic or design loading of the piping or the equipment to which it is applied. Engineering will coordinate the evaluation with the Health Physics staff for specifications of the shield, i.e. size, shape, material, thickness, etc. All evaluations will be documented.

   c. Upon the completion and acceptance of the evaluation, an MR will be initiated for placement of the shielding. A copy of the evaluation will be attached to the MR.

   d. The Temporary Shielding Log will be completed per Section H.4. below.

3. Installation on a Non-Safety-Related System.

   a. The person requesting the shielding will contact a Health Physics foreman or supervisor.

   b. The H.P. foreman or supervisor will determine, using assistance from other departments as necessary, if the shielding installation is of such magnitude to warrant a loading evaluation and if an MR should be issued. If so, step H.2.b. and/or H.2.c. will be completed.

   c. The Temporary Shielding Log will be completed per Section H.4. below.

4. Temporary Shielding Log.

Information concerning the installation will be logged in a Temporary Shielding Log maintained at the Health Physics office. The log will include a description of the type shielding, the location where the shielding is to be installed, Maintenance Request number, RWP number (if RWP is required), when shielding is to be removed and any remarks deemed necessary.

5. Removal of Shielding.

a. The person who requested the shielding is responsible for its removal at the time designated in the Temporary Shielding Log. Reasons for time extensions should be documented in the log.

b. Health Physics will review the log on a monthly basis to assure temporary shielding installations are removed in a reasonable time frame after the removal date specified.

6. Discrepancies.

If unauthorized temporary shielding is observed, a Deviation Report will be completed and corrective action taken as deemed necessary by plant management.

7. Types of Shielding.

a. Alpha and Beta Radiation

Alpha and beta radiation can be stopped or shielded with a sheet of paper and a small piece of steel, respectively. Gamma and Neutron radiation require considerably more material for shielding.

b. Gamma Radiation

(1) For gamma radiation, various thicknesses of dense material such as steel, lead, or concrete can be used to reduce the radiation to desired levels.

(2) A convenient concept to use for rough gamma shielding estimates is the tenth value thickness. This value is that thickness of material which will reduce the radiation level by a factor of ten (10). As shown in the following table, the tenth value thickness differs with different shield materials and with gamma energy. The tenth value thickness for 6 Mev should be used for [illegible] and

equipment containing steam or reactor water. The 1 Mev Values should be used for irradiated fuel, for isolated equipment and for all equipment during plant shutdown.

TABLE 2

TENTH VALUE THICKNESSES

MATERIAL	APPROXIMATE TENTH VALUE THICKNESS 1 MEV GAMMA	6 MEV GAMMA
Lead	1.5 inches	2 inches
Steel	4 inches	5 inches
Concrete	12 inches	20 inches
Water	24 inches	40 inches

NOTE

The half value thickness for the listed materials is one-third of the tenth value thickness.

c. Neutron Radiation

Neutron radiation can be shielded best by using a hydrogenous material such as water, plastic, or paraffin to thermalize the neutrons and by surrounding or impregnating this hydrogenous material with boron, cadmium or lithium to absorb the thermal neutrons. An approximate half value thickness for 1 Mev neutrons to 1.3 inches of paraffin and approximately 2.7 inches for 5 Mev neutrons.

I. RADIATION OCCURRENCE REPORTS

1. In order to assure that conditions adverse to radiological safety are properly identified and corrected, the use of a Radiation Occurrence Report has been established.

a. Radiation Occurrence.

NOTE

The requirement for the use of this report will be determined by the Health Physics Supervisor or designated alternate.

Radiation occurrence may be reported to plant management for corrective action and may be documented by use of Figure 2, REPORT OF RADIATION OCCURRENCE. Types of radiation occurrences are described as follows:

(1) External exposure:

Includes:

(a) Uncontrolled personnel exposure from external sources.

(b) Uncontrolled personnel exposure from contamination on protective clothing.

(c) Uncontrolled dose rates existing outside of Radiation Control Areas.

(d) Dose rates inside a Radiation Control Area greatly exceeding normal levels.

(e) Exposure of personnel to dose rates such that a weekly permissible dose of radiation could be received in less than 6 minutes.

(2) Personnel contamination control:

Includes:

(a) Skin contamination.

(b) Any contaminated injury.

(c) Any significant personnel exposure to contaminated air without adequate protection.

(d) Personal clothing contamination.

(3) Surface contamination control:

Includes

(a) Any contamination transported outside of GPC controlled boundaries.

(b) Spread of contamination cutside Radiation Control Area.

(c) Spread of contamination in the immediate work area beyond that which was planned or might normally be expected.

(d) Any fire or explosion in a Radiation Control Area.

(e) Release of contamination to the air, ground, or water which greatly exceeded normal conditions.

(4) Administration control:

Includes:

(a) Employee working in a Radiation Control Area without adequate time keeping.

(b) Employee working in a Radiation Control Area without required or adequate monitoring.

(c) Employee working in a Radiation Control Area without wearing required or adequate protective clothing and equipment.

(d) Employee working in a Radiation Control Area in violation of an RWP.

(e) Employee working in a Radiation Control Area without personnel meters.

(f) Employee working in a controlled area beyond estimated permissible weekly exposure.

(5) Procedures for completion of the report is as follows:

(a) The individual initiating the Radiation Occurrence will use the complete Figure 2. Figure 4 will be used as a monthly tabulation for the Occurrences. He will complete the report through the section, "Action taken At Time of Occurrence". He will then forward the report to the Health Physics Supervisor or his designated alternate.

(b) The Health Physics Supervisor or his designated alternate will review the report, and, if further action is required, will forward the report to the appropriate supervisor, keeping the pink copy for a temporary record. If no further action is required, he will complete the form, sign at the bottom, and distribute the copies to the Plant Manager, appropriate supervisor and Health Physics file. The pink copy will be placed in the individual's exposure record file.

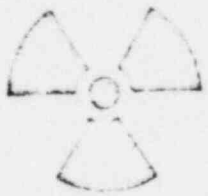
(c) If further action is required, the appropriate supervisor will review the report and specify what specific action is being, or was taken to prevent a similar occurrence, when the action will be completed and by whom. He will then return the report to the Health Physics Supervisor or his designated alternate.

(d) The Health Physics Supervisor will review the report, and sign at the bottom. He will then distribute the copies to the Plant Manager, appropriate supervisor and Health Physics file. The pink copy will be placed in the individual's exposure record file.

FIGURE 1

RADIOACTIVE MATERIAL TAG

CAUTION



RADIOACTIVE MATERIAL

DESCRIPTION OF MATERIAL

CONTAMINATION DATA

SURFACE CONTAMINATION OF MATERIAL

Beta-Gamma _____ dpm/100 cm²

Alpha _____ dpm/100 cm²

RADIATION DATA

SURFACE DOSE RATE _____ mrem/hr

18 INCH DOSE RATE _____ mrem/hr

SPECIAL INSTRUCTIONS

SURVEYED BY _____ DATE _____

manual set

PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-R005-1

SERIAL NO: R13-

MPL NO: _____

RTYPE: G15.14

XREF: _____

TOTAL SHEETS: 2

FREQUENCY: As Required

COMPLETED BY: _____

DATE COMPLETED: _____

I HAVE REVIEWED THIS DATA PACKAGE FOR COMPLETENESS AND AGAINST ACCEPTANCE CRITERIA IN ACCORDANCE WITH HNP-830.

ACCEPTANCE ____ UNACCEPTABLE ____

REVIEWED BY: _____

DATE REVIEWED: _____

REMARKS: _____

FIGURE 2
Page 1 of 2

manual set

DATA PACKAGE 1
REPORT OF RADIATION OCCURRENCE

PLANT E. I. HATCH
REPORT OF RADIATION OCCURRENCE

NUMBER

DATE OF ISSUANCE

TYPE OF OCCURRENCE

ACTUAL ☐
POTENTIAL ☐

LOCATION

DATE & TIME OF OCCURRENCE

REFERENCES RWP'S, SURVEYS, ETC.

REPORT REVIEWED BY:

HEALTH PHYSICS SUPERVISOR

PERSONNEL INVOLVED NAME	DEPARTMENT	LENGTH OF SERVICE ON PRESENT JOB	EXTERNAL EXPOSURE MREM	INTERNAL EXPOSURE YES	NO	POSSIBLE

DESCRIPTION OF OCCURRENCE (INCLUDE ALL PRINCIPLE CAUSES AND SIGNIFICANT MEASUREMENTS)

INITIALED BY: DEPT:

ACTION TAKEN AT TIME OF OCCURRENCE

BY WHOM: DEPT:

☐ REFERRED TO INDIVIDUAL'S SUPERVISOR FOR ACTION DATE: SUPERVISOR:

WHAT SPECIFIC ACTION IS BEING, OR WAS, TAKEN TO PREVENT A SIMILAR OCCURRENCE?

WHEN WILL THIS ACTION BE COMPLETED? BY WHOM?

CORRECTIVE ACTION REVIEWED AND APPROVED

HEALTH PHYSICS SUPERVISOR

☐ HEALTH PHYSICS FILE (ORIG & PINK) ☐ PLANT MGR (BLUE) ☐ EMPLOYEE'S SUPERVISOR (GREEN)

FIGURE 2
Page 2 of 2

PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8005-2

SERIAL NO: R13-

MPL NO: _____

RTYPE: G15.14

XREF: _____

TOTAL SHEETS: 2

FREQUENCY: As Required

COMPLETED BY: _____

DATE COMPLETED: _____

I HAVE REVIEWED THIS DATA PACKAGE FOR COMPLETENESS AND AGAINST ACCEPTANCE CRITERIA IN ACCORDANCE WITH HNP-830.

ACCEPTANCE ___ UNACCEPTABLE ___

REVIEWED BY: _____

DATE REVIEWED: _____

REMARKS: _____

FIGURE 3
Page 1 of 2

DATA PACKAGE 2
FIGURE 3
CONTAMINATED EQUIPMENT CONTROL

TO MAINTENANCE SHOP STORE ROOM:

THE FOLLOWING NAMED INDIVIDUAL HAS LEFT THIS EQUIPMENT AT HEALTH PHYSICS DUE TO RADIOACTIVE CONTAMINATION:

NAME _____ DATE _____

ITEM

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

THE EQUIPMENT LISTED ABOVE WILL BE STORED UNDER LOCK AND KEY IN A DESIGNATED AREA UNTIL THE EQUIPMENT HAS BEEN DECONTAMINATED AND RELEASED FOR NORMAL USE.

_____
HEALTH PHYSICS DATE

FIGURE 3
Page 2 of 2

PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8005-3

SERIAL NO: R13-

MPL NO: _____

RTYPE: G15.;4

XREF: _____

TOTAL SHEETS: 2

FREQUENCY: As Required

COMPLETED BY: _____

DATE COMPLETED: _____

I HAVE REVIEWED THIS DATA PACKAGE FOR COMPLETENESS AND AGAINST ACCEPTANCE CRITERIA IN ACCORDANCE WITH HNP-830.

ACCEPTANCE _____ UNACCEPTABLE _____

REVIEWED BY: _____

DATE REVIEWED: _____

REMARKS: _____

FIGURE 4
Page 1 of 2

DATA PACKAGE 3
FIGURE 4
REPORT OF RADIATION OCCURRENCES

MONTH _____ YEAR ____

TYPE OF OCCURRENCE

PERSONNEL CONTAMINATION	_____
CONTAMINATION IN UNCONTROLLED AREAS	_____
UNEXPECTED HIGH RADIATION	_____
MINOR INJURY	_____
CONTAMINATED ITEMS IN UNCONTROLLED AREAS	_____
HIGH AIRBORNE ACTIVITY	_____
OTHER	_____
TOTAL ___ ___ ___ ___ ___ ___ ___	_____

MOST PROBABLE CAUSE

IMPROPER DRESS	_____
IMPROPER CLOTHING REMOVAL	_____
NOT FOLLOWING PROCEDURE	_____
INSUFFICIENT PLANNING	_____
INADEQUATE OR NO MONITORING	_____
EQUIPMENT FAILURE	_____
INADEQUATE CLEAN-UP OF CONTAMINATION	_____
UNKNOWN	_____
OTHER	_____
TOTAL ___ ___ ___ ___ ___ ___ ___	_____
NUMBER OF OCURRENCES ISSUED ___ ___ ___	_____

COMPLETED BY _____

DATE: _____

FIGURE 4
Page 2 of 2

PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8005-4

SERIAL NO: R13-

MPL NO: _____

RTYPE: G15.14

XREF: _____

TOTAL SHEETS: 2

FREQUENCY: As Required

COMPLETED BY: _____

DATE COMPLETED: _____

I HAVE REVIEWED THIS DATA PACKAGE FOR COMPLETENESS AND AGAINST ACCEPTANCE CRITERIA IN ACCORDANCE WITH HNP-830.

ACCEPTANCE _____ UNACCEPTABLE _____

REVIEWED BY: _____

DATE REVIEWED: _____

REMARKS: _____

FIGURE 5
Page 1 of 2

manual set

DATA PACKAGE 4
FIGURE 5
RADIATION OCCURRANCE ISSUANCE LOG

DATE	OCCURRENCE NUMBER	ISSUED BY	OCCURRENCE ON

FIGURE 5
Page 2 of 2

GEORGIA POWER COMPANY

HATCH NUCLEAR PLANT

PROCEDURE

USE AND CARE OF RESPIRATORS
PROCEDURE TITLE

HNP-8010
PROCEDURE NUMBER

LAB
RESPONSIBLE SECTION

SAFETY RELATED (X) NON-SAFETY RELATED ( )

REV.	DESCRIPTION	APPROVED DEPT. HEAD	APPROVED PLANT MANAGER	DATE
13	General Revision	R.C. Hand for W.H.R.	J. T. Beckham Jr.	3/4/82
14	General Revision	W. H. Rogers	J. T. Beckham Jr.	3/31/82
15	Pages 1-3,6,8,9,14,16, 17,19,27,30	W. H. Rogers	[illegible]	8/[illegible]/82

manual set

We

Safety Related
DAM
7/15/82

PROCEDURE REVISION REQUEST

PROCEDURE NO. HNP-8010

Revision No. ~~15~~ 14

REQUESTED BY		DEPARTMENT HEAD APPROVAL	
Name:	Date:	Signature:	Date:
Wade McLeod	5-2-82	RC Hand	7-15-82

REVISION CHANGES MODE OF OPERATION OR INTENT AS DESCRIBED IN FSAR:
( ) Yes (X) No

CHANGE INVOLVES:
( ) An unreviewed Safety Question ( ) Tech.Specs. (X) Neither
(See back for Safety Evaluation if required).

Safety Related (X) Non-Safety Related ( )

Safety/Non-safety Status Change ( ) Yes (X) No

Attach marked up copy of procedure to this form.

REASON FOR REQUEST para F.3. pg 3 half face pieces are no longer used at plant Hatch. (Delete all references to ½ mask
para I.3. pg 8. half face pieces are no longer used at plant Hatch.
para M.2. pg 16 change frequency of class "D" air analysis
para N.1.b pg 19 reference correct form number
pg 30 data package 1, Form 3, Notes 3. add another condition for respirators to be left in
Para F.1. page 2, change oval to rectangular
Para A. delete Custom Lewfe (half-mask) respirator
Para C.5. give correct name for ref. #5.
Para G.4.b change Figure 2 to Data Package 1, Data Sheet 1
para I.3.g. delete "test", Para. I.3.n. change "VI" to "I" To Unit 1 Unit

PRB RECOMMENDS APPROVAL: (✓) Yes ( ) No

[signature] PRB Secretary

82-127
PRB Number

7/27/82
Date

HNP-9

continued on next page

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PROCEDURE REVISION REQUEST

PROCEDURE NO. HNP- 8010

Revision No. 14

REQUESTED BY		DEPARTMENT HEAD APPROVAL	
Name:	Date:	Signature:	Date:
Wade McLeod	5-2-82		

REVISION CHANGES MODE OF OPERATION OR INTENT AS DESCRIBED IN FSAR:
( ) Yes (X) No

CHANGE INVOLVES:
( ) An unreviewed Safety Question ( ) Tech. Specs. (X) Neither
(See back for Safety Evaluation if required).

Safety Related (X) Non-Safety Related ( )

Safety/Non-safety Status Change ( ) Yes (X) No

Attach marked up copy of procedure to this form.

REASON FOR REQUEST Para. I.1.c.(4)(d). delete (for full face masks only). Para. I.2.a. delete line about ½ face masks. Delete para. N.2. and renumber subsequent para. Delete para N.6. and renumber subsequent para. Para N.9. a & b correct spelling. Pg. 27 replace or with are, change I.6. to I.4.

PRB RECOMMENDATION APPROVAL: ( ) Yes ( ) No

PRB Secretary

PRB Number

Date

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continued from previous page

PROVAL
See Title Page
DATE
See Title Page

E. I. Hatch Nuclear Plant

Georgia Power

PROCEDURE NO
HNP- 8010
REVISION NO
15
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1 of 36

USE AND CARE OF RESPIRATORS

A. PURPOSE

To provide instructions for the proper selection, use, maintenance, control and storage of respiratory equipment.

This procedure covers the following respiratory devices:

MSA Ultra Filter Respirator
MSA Pressure Demand Apparatus (Air Pack)
MSA Constant Flow Air Line Respirator

B. SAFETY

Observe Radiation Protection Procedures.

C. REFERENCES

1. 10 CFR20 para. 20.103
2. Regulatory Guide 8.15
3. MSA Respirators Instructions for Use and Maintenance
4. NUREG-0041
5. A.N.S.I. Z-88.2 (1969)

D. MANAGEMENT POLICY

It is the Georgia Power management policy to minimize the inhalation of airborne radioactive materials to all personnel assigned or visiting Plant E. I. Hatch. For this reason it is mandatory that personnel at Plant Hatch adhere to all procedures, and policies relating to the respiratory protection program.

The management policy will be normally accomplished by the application of engineering controls, including process, containment, and ventilation equipment. Periodic evaluation of the respiratory protection program will provide the management with the means for determining what additional measures, equipment and controls may be necessary, where practical, to further meet the objective, while in turn reduce the need for wearing respiratory equipment.

Routine plant operations are planned activities that are generally repetitive and occur with various frequencies. Operations of this nature have been considered in the design of the plant and appropriate equipment installed to minimize most airborne situations.

The use of respirators as a substitute for practical engineering controls in routine operations is inappropriate. Therefore the installed process, containment, and ventilation equipment will be utilized, in addition to preplanning of work, to minimize the use of respiratory equipment.

Nonroutine operations are activities that are either nonrepetitive or else occur so infrequently that adequate limitation of exposures by engineering controls is impractical. For operations of this type respiratory equipment will be used where needed to provide protection.

Emergency operations are unplanned events characterized by risks sufficient to require immediate action or mitigate an abrupt or rapidly deteriorating situation. Procedures have been issued for handling most emergency situations and are contained in procedure series HNP-4000-4999. Adequate quantities of and locations for respiratory protection equipment are provided to handle emergency situations. Training and retraining of personnel in emergency situations requiring respiratory protection is provided.

Prior to issuing a respirator to an individual, he/she will be informed of the following policy: Persons wearing respirators may leave the area at any time for relief from respirator use in the event of equipment malfunction, physical or psychological distress, procedural or communication failure, significant deterioration of operating conditions, or any other condition that might require such relief.

E. REGULATORY REQUIREMENTS

10 CFR20 paragraph 20.103 specifies regulations regarding exposure of individuals to concentrations of radioactive materials in air in restricted areas. This procedure has been written to carry out the regulations.

F. DESCRIPTION OF RESPIRATORS

1. Ultra Filter Full Facepiece Respirator

This respirator is a full facepiece unit with a single or double cartridge providing protection factor of 50 against dust, fumes, and mists having a time weighted average less than 0.05 milligram per cubic meter. (See Table 1 for definition of protection factor.) The respirator with the rectangular ultra filter cartridge has an approval No. TC 21C-150. The respirator with the round ultra filter Type H cartridge has an approval No. TC 21C-155.

NOTE

This respirator removes only dispersoids from the air. It gives no protection against gases, vapors, or oxygen deficiency (less than 19.5% O_2).

2. Pressure Demand Apparatus (Air Pack)

The Pressure Demand Apparatus (Air Pack) consists of a high pressure cylinder, a pressure demand regulator connected by a high pressure tube to the cylinder, a facepiece and tube assembly with an exhalation valve, and a harness assembly for mounting the complete apparatus on the body. The unit maintains a slight positive pressure inside the facepiece during inhalation, thus minimizing potential air in-leakage into the facepiece. The unit contains an audible signal device to indicate when the breathing supply has dropped to a point where the user must return to fresh air. The unit is rated for 30 minutes service. Actual service time will depend on the user and his level of exertion. The unit has an approval No. TC13F-29. It can be used in oxygen deficient and in toxic atmospheric conditions and has a protection factor of 10,000 for particulates, gases and vapors.

3. Constant Flow Air Line Respirator - Full facepiece

The Constant Flow Air Line Respirator is a respirator approved for use in atmospheres not immediately hazardous to life or health. The unit consists of a facepiece and tube assembly, low pressure control valve, from 25-300 feet of air hose, and a portable air filter and regulator. Breathing air for this unit is provided by the plant service air compressors. The service air is filtered and reduced in pressure to 35-40 psig by the portable air filter and regulator to meet the requirements of the respirator. With this respirator, a continuous flow of breathable air is supplied to the facepiece and provides a cooling effect as it meets the respiratory requirements of the wearer. The unit has an approval No. TC19C-78 and provides a protection factor of 2000 for particulates, gases and vapors.

4. Hoods and Suits

No allowance can be made for wearing hoods and suits for protection against inhalation of radionuclides at present.

G. SELECTION OF RESPIRATORS FOR USE

NOTE

Respiratory protection devices may be required in any situation arising from plant operations where the potential for airborne radioactivity, oxygen deficiency, or toxic atmospheres exists. In such cases, the air will be monitored by Health Physics or other qualified personnel and the necessary protective devices specified according to the concentration and type of airborne contaminants present. It is the responsibility of the individual and his supervisor to notify Health Physics personnel when working with radioactive or hazardous material that are likely to become airborne. Every precaution should be taken to keep air contamination to a minimum through use of proper ventilation and prior decontamination of equipment or work areas.

1. Regulatory limits and rules.

Respiratory protective equipment will be selected to provide a protection factor greater than the multiple by which peak concentrations of radioactive materials are expected to exceed the values specified in Table I Column 1 of Appendix B to 10 CFR20. The equipment selected is to be used so that the average concentration of radioactive material in the air that is inhaled during any period of uninterrupted use in an airborne radioactivity area, on any day, by any individual using the equipment, will not exceed the values specified in Table I, Column 1 of Appendix B to 10CFR20.

For purposes of this procedure, the concentration of radioactive material in the air that is inhaled when respirators are worn may be initially estimated by dividing the ambient concentration in air by the protection factor specified in Table 1. If a respirator user's intake of radioactive materials is later determined by other measurements to have been greater than that expected from initial estimates of radioactive materials in the air the user inhales, the greater quantity is to be used in evaluating exposures. If it is less than that initially estimated, the lesser quantity may be used in evaluating exposures.

2. Administrative rules and limits.

a. Section E and paragraph G.1 prescribe rules and regulations which shall not be exceeded. For administrative purposes Table 2 will be used for selecting respirators.

b. If airborne conditions exist which require consideration toward exceeding the administrative limits in Table 2, a laboratory supervisor must be consulted and his approval received before using greater values.

3. Selection procedure.

a. Determine the radiological (external radiation and airborne) conditions in the work area using the procedures HNP-8005, 8012, 8013. Air samples should be taken as near the breathing zone where the work will be performed as possible. (Also if the worker has to pass through an airborne area to get to the work place).

b. If air sampling confirms that an airborne condition, as defined in HNP-8003, exists in the work area, respiratory protection equipment, increased surveillance, or limitation of working times is warranted.

c. Consider the type of work, work hazards and locations, time to complete the work, ambient conditions at the work location, equipment to be used by the worker, and the potential for airborne conditions to develop during the work period (i.e. highly contaminated areas and equipment, opening of equipment during the work, air movement in the work location, cutting and welding work, etc.).

d. Consult with a laboratory supervisor or designated alternate and select the proper respirator for the work conditions using Table 2 and paragraph b and c above.

e. Issue the respiratory equipment per Section H.

The worker, after proper training, will wear the respirator using Section I as guidance for donning the equipment.

4. Determination of Airborne Radiation Exposure.

a. Anytime an individual is likely to inhale, for any two hours in a day or ten hours in one week, radioactive materials in uniform concentrations as specified in Appendix B. Table 1 Column 1 of 10CFR20, the following calculations shall be made to determine levels of airborne radiation exposure.

b. From the data on HNP-8013 Data Package 1, Data Sheet 1 and HNP-8008 Figure 2, calculate the exposure to airborne radioactive materials as follows:

$$\text{MPC - HRS} = \text{Hours in Area multiplied by} \sum_{N=1}^{K} \frac{\text{Activity N}}{(PF)_N \ MPC_N}$$

WHERE

K = Number of nuclides in the air

Activity_N = Activity of the N^{th} Nuclide in uci/cc

PF_N = Protection factor of the respirator for the N^{th} Nuclide (See Table 1)

MPC_N = MPC of the N^{th} Nuclide in u ci/cc

Hours in Area = Stay time in the airborne area in hours

c. Log the airborne exposure in MPC-HRS for the appropriate day on Form 5 (Data Package 3) using the results obtained from G.4.b.

NOTE

If an individual's airborne exposure exceeds 2 MPC HRS in any one day or 10 MPC - HRS in any one week then that individual's intake will be assessed by appropriate methods as outlined in Section L and all his exposure to airborne radioactive materials will be documented on Form 5 (Data Package 3) for the current calendar quarter including those amounts of exposure below 2 MPC - Hrs. in a day or 10 MPC - Hrs. in a week..

H. CONTROL, ISSUANCE, PROPER USE AND RETURN OF RESPIRATORY EQUIPMENT

1. The Health Physics staff controls the issuance, proper use, inspection, cleaning and repair, testing and fitting, spare parts, and quantities of respirator equipment required. (The Regulatory Specialist handles special training for the fire brigade and team on SCBA). Training is conducted by the Training Department.

2. Respiratory equipment will be issued only to.

a. Those persons who have been trained, fitted and tested for that type equipment.

b. Those persons whose facial hair does not interfere with the seal of the respirator.

c. Those persons who have received medical approval by a physician to wear respirators.

3. Only BM/NIOSH approved equipment will be used when taking credit for the use of respirators in protecting personnel from airborne activity.

4. Respiratory equipment will be issued using a Radiation Work Permit procedure, except during emergency conditions.

5. Adequate surveillance and surveys of the work activity by the Health Physics staff will assure proper use of the equipment.

6. The Health Physics staff will conduct an adequate number of air surveys during the work period to verify and assess radiological conditions and exposure to personnel.

7. Facelets will not be used for protection against airborn radionuclides.

8. Equipment will be used within the limitations for its type and make of use as described in this procedure.

9. Only the SCBA equipment is to be used as emergency devices.

10. Where required, spectacle kits will be furnished to permanent plant personnel.

11. Where required, goggles, anti-fog compounds and communication gear will be furnished to respiratory users.

12. Contact lenses are not to be worn with full-facepiece respirators.

13. Air purifying respirators are not to be used in oxygen deficient atmospheres or atmospheres immediately hazardous to life or health.

14. No credit will be taken for use of sorbent cartridges against radioactive materials.

15. Only high efficiency cartridges, as described in Section F will be used in air purifying respirators when making allowance for the use of respiratory equipment in estimating exposures of individuals to airborne radioactive materials.

16. Filter cartridges on air purifying respirators must be replaced with a fresh cartridge after one work day's use by one individual.

17. Respiratory equipment except emergency equipment, will be issued by and returned to the Health Physics staff. Issuance will be controlled through an RWP permit, a Respirator Clearance List (or Respirator Clearance Card), and the use of Form 6 (Data Package 4). The normal method of issuance will be through the use of the clearance card unless exempted by the H.P. Superintendent or designee. In lieu of Form 6 (Data Package 4), Health Physics may control issuance and return of respirators at established control points by the worker surrendering the respirator clearance card to the Health Physics technician upon issuance. This card will be retained until the respirators are returned.

I. USING THE RESPIRATORS

1. Health Physics will issue the proper respirator for the work to be performed.

NOTE

a. Each respirator user is emphatically advised that he should immediately leave the area for relief from respirator use in case of equipment malfunction, physical or psychological discomfort, or any other condition that might cause reduction in the protection afforded the user.

b. Respiratory protective devices should never be worn when a satisfactory face seal cannot be obtained.

c. Custom Comfo Aerosol - half face respirator will not be used for respiratory protection.

2. Full facepiece w/type H Ultra Filter Cartridge.

a. Perform Steps I.5. and I.1.b. above.

b. Remove the facepiece after use per subsection I.6.

3. Constant flow air line respirators (full facepiece).

a. Inspect equipment as per Step N.5.

b. Bleed off the house service air line to remove any condensate which may have formed in the system prior to connecting the portable filter and regulator to the service air line.

c. Connect the portable filter and regulator unit to a house service air line, using the air hose provided. Attention should be made to keep the unit out of the contaminated area; but if this is not possible, it should be wrapped in plastic.

d. Tag the service air outlet with a "To Be Operated by H.P. only" Tag.

e. Adjust the regulator for 35-40 psi. Bleed off the filter trap for moisture.

f. Place the control valve on a belt or loop on the left side of the body.

g. Put on the facepiece as in subsection I.5.

h. Connect 25-300 ft. of MSA air hose from portable filter regulator unit to the control valve. Then connect facepiece breathing tube to the control valve.

i. After leaving the airborne or work area, do not remove the facepiece until outer pair of gloves, coveralls and shoecovers are removed. (This may not be possible in all cases).

j. Disconnect breathing tube and air line hose from the control valve. Disconnect air line hose at outlet of filter regulator unit.

k. Remove facepiece as in subsection I.6.

l. Shut off air supply to filter-regulator unit and disconnect hose.

NOTE

Do not perform this step until all persons are through using the filter-regulator unit.

m. Place all equipment in designated place for surveying and cleanup.

n. The plant service air compressors are equipped with a Control Room annunciated high temperature alarm. If the Control Room recieves a high temperature alarm, they will announce over the P.A. system that high temperature conditions exist in the Unit 1 and/or Unit 2 service air compressors. They will also announce that

all personnel using in-line air respirators are to remove their respirators and exit the work area following proper undressing procedures. The Control Room will also notify the Health Physics Foreman who will assure that all persons using air line respirators have removed their respirators and exited the work area.

4. MSA Air Pack Model 401-pressure demand

a. Check the pressure gauge in the cylinder valve to insure that the cylinder is full (2216 psi pressure). If there is less pressure, the service life will be reduced accordingly.

b. Put on the apparatus using either of the following methods:

(1) Open the lid of the case and extend the shoulder straps to their full length. Lean forward; grasp the cylinder and backplate firmly, with both hands, between the cylinder clamp and the waist belt. Lift the apparatus straight up and over the head and rest it on your back. The shoulder straps will fall into place over the shoulders. Adjust straps before straightening up. Fasten waist belt snugly. Should further adjustment be necessary, lean forward and adjust straps. Use of chest strap is optional.

(2) Extend narrow shoulder straps. Don the apparatus like a vest. Lean forward while the shoulder straps are being adjusted. Fasten waist belt securely and snap chest strap if desired.

c. Open the cylinder valve handwheel fully (at least 3 turns) and close the By-Pass (red) handwheel on the Demand Regulator.

d. Place palm of hand over the Pressure Demand Regulator outlet firmly to block it leaktight. This is necessry as the pressure Demand Regulator is spring loaded and air will flow automatically if the outlet is not blocked.

e. Open the Main Line (yellow) handwheel fully and observe the pressure gauge on the Regulator. This gauge indicates the pressure in the cylinder and should read 2216 psig $\pm$ 100 psig if fully charged. If there is less pressure in the cylinder the service life will be reduced accordingly. Turn off the cylinder valve and

watch the pressure gauge on the regulator. There should be no drop in pressure if the equipment is leaktight. If there is noticeable deflection of the needle the equipment should be checked and the leak corrected before entering a toxic atmosphere. Shut off Main-Line Valve.

f. Put on respirator as per subsection I.5.

g. Connect mask hose to regulator. Open Main-Line Valve fully.

h. Breathe normally as the apparatus automatically satisfies any breathing requirement.

NOTE

It is necessary to periodically check the pressure gauge on the Pressure Demand Regulator as it continually indicates the pressure in the cylinder. When the needle reaches approximately 540 psi on the pressure gauge, the Audi-Larm Signal will begin ringing. When the bell starts ringing, or when the pressure reaches 540 psi, it is time to return to fresh air.

NOTE

During normal use the By-Pass (red) valve is closed and is used only if the Pressure Demand Regulator becomes inoperative. It provides a continuous flow and should be opened and the By-Pass valve adjusted to provide the flow desired. Leave hazardous area immediately since life of apparatus is greatly diminished when By-Pass valve is being used.

i. After leaving the airborne area, remove the tank and harness but do not remove the facepiece until outer pair of gloves, coveralls and shoecovers are removed. (This may not be possible in all cases). Assistance will be required to hold the cylinder and harness while removing coveralls.

j. Unlock the lever on the cylinder valve and close the valve. Do not use excessive force as the valve closes leaktight with little effort.

k. Release pressure in high pressure hose by breathing until air is exhausted.

NOTE

Do NOT use By-Pass valve to exhaust air pressure.

1. Remove facepiece as in subsection I.6.

5. Donning the facepiece

a. Inspect the facepiece to be sure that all parts are in good condition and installed properly. Rubber parts should be pliable and not cracked. See section D for details.

b. Pull out the facepiece headband straps so that the ends are at the buckles and grip facepiece between the thumb and fingers. Insert chin well into the lower part of the facepiece and pull the headbands back over the head. To obtain a firm and comfortable fit against the facepiece at all points, adjust headbands as follows:

(1) See that straps lie flat against head.

(2) Tighten lower or neck straps.

(3) Tighten the side straps (do not touch forehead or front strap).

(4) Place both hands on headband pad and push in toward the neck.

(5) Tighten forehead or front straps a few notches if necessary.

(6) Check for proper seal using the field testing procedure in subsection J.2.

6. Removing the facepiece

a. After using the respirator remove the outer pair of contaminated gloves. Bend your body forward at the waist until the chest is parallel to the floor. Then remove the facepiece by grasping the cartridge housing and lifting outward. (For airline respirators and SCBA's, grasp breathing tube connection at the facepiece).

CAUTION

Care should be taken when removing respirator to insure that open areas of the face do not become contaminated from contact with the equipment. AVOID UNNECESSARY JERKY MOTIONS WITH THE FACEPIECE AS ANY CONTAMINATION MAY BE SHAKEN OFF AND ON TO YOU.

manual set

b. Place facepiece along with all associated respiratory equipment in a deisgnated location for survey and cleanup. DO NOT place in contaminated clothing storage drums.

WARNING

Respiratory equipment is a personnel safety device and should not be mistreated (i.e. thrown, kicked, dropped, mutilated). Personnel found abusing this equipment will receive disciplinary action.

c. Survey yourself for contamination, making a very thorough survey of the face and head. If contamination is found contact Health Physics immediately.

J. FITTING AND TESTING

1. Initial Fitting and Testing

a. Each person requiring the use of a respirator will be individually fitted for the particular facepiece prior to being allowed use of the respirator equipment. No person with facial hair interfering with the respirator seal area will be fitted and tested.

b. Anthropometric measurements (face length, face width, and lip width) will be taken to identify persons who fall outside of the 95% limits of facial measurement. Any facial abnormalities will also be noted. This information will be documented on Form 2 and will assist in identifying those persons who might have more difficulty in obtaining a good seal with a respirator.

c. A qualitative test will be performed for each type of facepiece as follows:

(1) The person dons the respirator with an organic cartridge attached.

(2) The person checks the facepiece seal using the negative pressure test as described in NUREG-0041 paragraph 8.5.2.3.3.

(3) The instructor will test the fit during normal breathing by waving a cotton or stencil brush filled with isoamyl acetate gently near the periphery of the facepiece. Smoke tubes, when available, may also be used. If odor is detected, the wearer must re-adjust the facepiece and the test redone.

NOTE

When practical, a test chamber will be used in lieu of the cotton or stencil brush. Evaporate about 173 milliliters of isoamyl acetate for each 1000 cubic feet of room volume. (Do not use heat for evaporation).

(4) The instructor may then have the wearer perform the following movements:

(a) deep breathing

(b) moving head from side to side (slowly)

(c) moving head up and down (slowly)

(d) frown

(e) talking (e.g., speaking a short passage aloud)

(f) normal breathing.

(5) The instructor will then re-check the seal with isoamyl acetate or smoke tube.

(6) If the tests are acceptable (no leakage) it will be documented on Form 2.

2. Field Testing

a. Where practical, respirators will be tested in the field using either amyl acetate or irritant smoke.

b. Where it is impractical, a negative pressure test will be performed as follows:

(1) Close off the inlet opening of the canister or breathing tube by covering it with the palm of the hand

(2) Gently inhale so that facepiece collapses slightly.

(3) Hold breath for 10 seconds.

(4) If facepiece remains in slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is satisfactory.

(5) If unsatisfactory do not use the respirator and contact Health Physics.

K. MEDICAL REQUIREMENT

All personnel who wear respirators will be evaluated by competent medical personnel prior to an assignment requiring such use. The evaluation will determine if the individual is physically able to perform the work and use the respiratory protective equipment. A physician will determine what health and physical conditions are pertinent. The medical status of each respirator user will be reviewed annually.

L. BIOASSAYS AND SURVEYS

1. Air sampling and contamination surveys

A comprehensive air sampling and contamination survey program is in effect to identify radioactive hazards to evaluate individual exposures, and to permit proper selection of respiratory protective equipment. Surveys are performed on a routine and special basis per the use of procedures HNP-8013, 8012, 8008, 8005, 8050 and applicable instrument operating procedures. High-efficiency (greater than 99%) filter media are used to measure airborne particulate concentrations. Activated charcoal is used to determine radio-iodine concentrations.

2. Bioassays

NOTE

Refer to HNP-8021 and 8009

a. Whole body counting -

(1) It is the intent to obtain a whole body count or urinalysis on each G.P.C. employee who may have been exposed to airborne radioactivity at least once each year.

(2) Whole body counts will also be made where suspect internal contamination has occurred.

b. Urinalysis

(1) A fission product and tritium analysis will be performed routinely on selected personnel who may have been exposed to airborne radioactivity.

(2) The above analysis will also be made, when deemed necessary, where suspect internal contamination has occurred.

c. Nasal, throat swabs or washings and breath samples will be performed as necessary on suspect inhalation cases to serve as a qualitative exposure index for radionuclides.

d. Follow up sampling (Whole body, urinalysis, nasal throat swabs, breath samples, etc.) will be performed and will be frequent enough to evaluate the uptake of radionuclides after an incident. The sample collection will be appropriately timed to permit accurate evaluation of the total intake and the resultant dose.

NOTE

It is noted that there are extenuating circumstances which may prevent whole body counting of all personnel affected by this procedure. Such situations as persons leaving the plant site without proper notification to the management, whole body counting equipment malfunction at critical counting times and scheduling impossibilities will prevent a 100% whole body counting program. The frequency of these events, should not diminish the overall effectiveness of the bioassay program however.

M. RESPIRABLE AIR REQUIREMENT

1. All breathing air supplied by air compressors and bottled air will meet the minimum requirements of Grade D air as prescribed by the Compressed Gas Association or better. Refer to NUREG-0041 page 5-19 for limits. If high temperature alarm is received for service air compressors, then air quality can no longer be guaranteed due to possible CO concentrations. See Section I.3.n. for details.

2. Samples of air from air supply sources will be taken quarterly and mailed to an outside laboratory for testing.

3. Oxygen and breathing air are not to be used in the same apparatus.

4. Proper fittings will be used with supplied air equipment.

5. Oxygen shall never be used with air line respirators.

6. All air cylinders used in the MSA 401 units will have the words "Breathing Air" on the cylinder.

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N. INSPECTION AND MAINTENANCE

All respirators shall be inspected routinely before and after each use. A respirator that is not routinely used but is kept ready for emergency use shall be inspected after each use and at least monthly to insure that it is in satisfactory working condition. All routinely used respirators shall be inspected before and after use and at least monthly and shall have an inspection sticker.

An inspection sticker shall be attached to the outside and inside of each emergency respirator container and a record of inspection kept on Form 3 (Data Package 1), Respirator Monthly Inspection Report. Any respirator not meeting inspection acceptance shall be repaired or replaced. Respirators will be repaired only by personnel designated by a laboratory supervisor.

1. Facepiece and breathing tube (SCBA & Constant Air Flow)

   a. Inspect the facepiece and breathing tube for signs of mechanical damage, deterioration, cracking or rupture. Tears occur most frequently about strap attachments, outlet valves and hose. Discard equipment damaged in this manner.

   b. Check the protective tape and metal band bindings for deterioration. Replace as necessary.

   c. Inspect the tab assemblies on the facepiece used for attaching head straps. All buckles should be present and in good operating condition.

   d. Check the lens for looseness and damage. Discolored or damaged lens should be replaced.

   e. Inspect the exhaust valve for proper sealing of the rubber diaphragm. Replace as necessary.

   f. Check breathing tube connections for deterioration and damage and tightness. Repair or replace as necessary.

2. Ultra Filter Respirator-Full facepiece. In addition to Step 1, just prior to use:

a. Check that the type of cartridge is correct and that the cartridge is coupled to the respirator securely.

b. Examine the cartridge for damage and check that the inlet seal has not been removed.

3. Pressure Demand Apparatus (Air Pack)

In addition to Step 1, perform the following:

a. Check for proper operation of cylinder valve assembly.

b. Check main pressure gauge for proper operation and that air cylinder is full (2216 ± 100 psig). If cylinder pressure is less than 2116 psig, remove air pack from service and recharge.

c. Inspect condition of hose connection and hose to cylinder valve assembly. If hose is cracked replace it.

d. Check operation of Main Line (yellow) valve by operating it.

e. Check operation of low pressure alarm monthly by closing cylinder valve and cracking the Main Line (yellow) valve open. This should let the pressure decay off so the alarm should sound at about 540 psi.

f. Check operation of regulator bypass (red) valve by operating it.

g. Inspect all belts for signs of fraying. Inspect around side strap buckles.

4. Constant Flow Air Line Respirator-In addition to Step 1 perform the following:

a. Check the operation of all couplings by mating them to working couplings.

b. Check all hoses for cracks and leaks.

c. Connect the portable air filter regulator to an air supply and check operation of the gauge, filter, regulator and inlet and outlet couplings. Check the filter trap for moisture. Pressure gauge should read 35-40 psig.

NOTE

Filter media for filters will be changed after each refueling outage for the units used during the outage.

5. MSA 401 SCBA Inspection Checklist

   a. Check lists are inluded in each 401 SCBA Air Pack Unit.

   b. Refer to the checklist while performing the monthly inspection. Comply with each item listed. See Form 1 (Figure 1).

6. S.C.B.A. Breathing Air Tanks (Model 401 Air Pack).

   a. Each steel tank will be hydrostatically tested to 3360 psig. on a 5 year frequency.

   b. Each aluminum and fiberglass tank will be hydrostatically tested to 3360 psig on a 3 year frequency.

   c. Form 4 (Data Package 2) will be used as a master list for determining when the testing will be performed.

   d. Testing documents will be filed in the Document Room.

7. Semi-Annual MSA 401 Regulator Testing.

   a. Each regulator will be tested every six months using the MSA Portable Regulator Tester.

   b. Once the regulator passes all the tests as described in the MSA Portable Regulator Tester Manual an inspection sticker will be place on the regulator bearing the date it was tested.

   c. In the remarks section of the monthly respirator inspection sheet FORM 3 (Data Package 1) for the particular MSA 401 that is being tested, note it was tested and that it passed or failed its test.

NOTE

Only personnel trained and certified by MSA will be approved to test or repair MSA 401 Regulators.

O. CLEANING AND SANITIZING

1. Monitor entire equipment as soon as possible after use to determine level of contamination. Pay particular attention to filters, exhaust valve housing and straps.

NOTE

If necessary, facepieces may be re-issued to the same person on the same day if the following limits are not exceeded on any surface of the facepiece. Alpha surveys are not required unless alpha contamination is suspected.

a. Fixed contamination:

Beta-gamma-0.2 millirad per hour above background at contact.

Alpha-100 d/m/100 cm^2

b. Smearable contamination:

No detectable removable activity using a standard swipe technique (disc smear over 100 cm^2).

2. Facemask and breathing tube.

The facepiece and breathing tube assembly of respirators must be cleaned, sanitized, dried, surveyed and inspected after each day's use as follows:

a. Add one package of powdered MSA Cleaner-Sanitizer per gallon of warm water (about 120 degrees F.).

b. Immerse equipment in the solution and scrub gently with a soft brush until clean. Take care to clean the exhalation valve in the facepiece and all other parts that exhaled air contacts. A dishwasher may be used in lieu of hand cleaning.

c. Rinse in plain warm water (about 120 degrees F.) and then air dry.

NOTE

Do not fold head straps in front of face piece for storage.

d. Survey the equipment for radioactive contamination. The facepiece and breathing tube(s) must have no detectable removable activity using a standard smear survey technique. Fixed contamination shall not exceed 0.2 millirad/hour at contact beta-gamma and 100 dpm/100 cm^2 alpha. Alpha surveys are not required unless alpha contamination is suspected.

e. Place routinely used facepieces after inspection in a clean plastic bag and store in their assigned storage locations. (During periods of high usage it will be acceptable to delete the clean plastic bag storage requirement). Place respirators assigned for emergency use only, after inspecting, in the compartments built for them and return them to their storage locations.

NOTE

Respirators should be packed or stored so that the facepiece and exhalation valve will rest in a normal position and function will not be impaired by the elastomer setting in an abnormal position.

3. Other equipment (harness, regulator, air cylinder, hose).

a. Remove the used air cylinder from the Pressure Demand Apparatus (Air Pack) and decontaminate by wiping with a wet pad of Cleaner-Sanitizer solution and then with a dry pad.

b. Wipe down harness, breathing bags, regulator and hose with wet pads as necessary to reduce the transferable contamination to less than 1000 dpm/100 cm^2 beta-gamma and 100 dpm/100 cm^2 alpha. Alpha surveys are not required unless alpha contamination is suspected.

c. Survey equipment after drying to verify contamination levels do not exceed those in Step 0.3.b.

d. Attach a fully charged cylinder to the harness and regulator assembly of the Pressure Demand Apparatus (Air Pack).

e. Store equipment in their designated areas.

P. REVIEWS AND RECORDS

1. A laboratory foreman will routinely review respiratory practices and procedures to assess the program effectiveness.

2. Timely assessments of a particular individual's intake will be made if and when required and adequate records will be maintained for summary review and evaluation.

3. If an individual's intake exceeds 40 MPC hrs. in seven consecutive days an evaluation will be made and action taken to assure against recurrence. Records of the occurrence, evaluations and actions taken will be kept in a clear and readily identifiable form suitable for summary review and evaluation. Radiation Occurrance Forms (HNP-8005), Personnel Contamination Report (HNP-8009), Radiation Work Permits (HNP-8008) in addition to survey records, bioassay results, etc. make up most of these records.

APPENDIX I

TABLE 1

PROTECTION FACTORS FOR RESPIRATORS[a]

DESCRIPTION[b]	MODES[c]	PROTECTION FACTORS[d]: PARTICULATES ONLY	PROTECTION FACTORS[d]: PARTICULATES, GASES & VAPORS[e]	SELECTION OF TESTED & CERTIFIED EQUIPMENT: BUREAU OF MINES NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH APPROVALS
I. AIR-PURIFYING RESPIRATORS				
Facepiece, half-mask[f]	NP	10		30 CFR Part 11 Subpart K
Facepiece, full	NP	50		
Facepiece, half-mask, full, or hood	PP	1000		
II. ATMOSPHERE-SUPPLYING RESPIRATORS				
1. Air-line respirator				
Facepiece, half-mask	CF		1000	30 CFR Part 11 Subpart J
Facepiece, half-mask	D		10	
Facepiece, full	CF		2000	
Facepiece, full	D		50	
Facepiece, full	PD		2000	
Hood	CF		2000[g]	
Suit	CF		h	i
2. Self-contained breathing apparatus (SCBA)				
Facepiece, full	D		50	30 CFR Part 11 Subpart H
Facepiece, full	PD		10,000[j]	
Facepiece, full	R		50	
III. COMBINATION RESPIRATOR				
Any combination of air-purifying and atmosphere-supplying respirators		Protection factor for type and mode of operation as listed above		30 CFR Part 11 § 11.63(b)

---

[a] For use in the selection of respiratory protective devices to be used where the contaminant has been identified and the concentration (or possible concentration) is known.

[b] Only for shaven faces and where nothing interferes with the seal of tight-fitting facepieces against the skin. (Hoods and suits are excepted.)

[c] The mode symbols are defined as follows:

- CF = continuous flow
- D = demand
- NP = negative pressure (i.e., negative phase during inhalation)
- PD = pressure demand (i.e., always positive pressure)
- PP = positive pressure
- R = demand, recirculating (closed circuit)

[d] 1. The protection factor is a measure of the degree of protection afforded by a respirator, defined as the ratio of the concentration of airborne radioactive material outside the respiratory protective equipment to that inside the equipment (usually inside the facepiece) under conditions of use. It is applied to the ambient airborne concentration to estimate the concentration inhaled by the wearer according to the following formula:

$$\text{Concentration Inhaled} = \frac{\text{Ambient Airborne Concentration}}{\text{Protection Factor}}$$

2. The protection factors apply:

(a) Only for trained individuals wearing properly fitted respirators used and maintained under supervision in a well-planned respiratory protective program.

(b) For air-purifying respirators only when high efficiency particulate filters [above 99.97% removal efficiency by thermally generated 0.3 μm dioctyl phthalate (DOP) test] are used in atmospheres not deficient in oxygen and not containing radioactive gas or vapor respiratory hazards.

(c) For atmosphere-supplying respirators only when supplied with adequate respirable air.

[e] Excluding radioactive contaminants that present an absorption or submersion hazard. For tritium oxide, approximately one half of the intake occurs by absorption through the skin so that an overall protection factor of less than 2 is appropriate when atmosphere-supplying respirators are used to protect against tritium oxide; for example:

If the protection factor for a device is:	PF overall for tritium oxide is:
10	1.82
100	1.98
1,000	1.99

TABLE 1 (CONTINUED)

Air-purifying respirators are not suitable for protection against tritium oxide. See also footnote g concerning supplied-air suits.

[f] Under-chin type only. This type of respirator is not satisfactory for use where it might be possible (e.g., if an accident or emergency were to occur) for the ambient airborne concentration to reach instantaneous values greater than 10 times the pertinent values in Table 1, Column 1 of Appendix B to 10 CFR Part 20, "Standards for Protection Against Radiation." This type of respirator is not suitable for protection against plutonium or other high-toxicity materials. The mask is to be tested for fit with irritant smoke, prior to use, each time it is donned.

[g] The design of the supplied-air hood or helmet (with a minimum flow of 6 cfm of air) may determine its overall efficiency and the protection it provides. For example, some hoods aspirate contaminated air into the breathing zone when the wearer works with hands-over-head. Such aspiration may be overcome if a short cape-like extention to the hood is worn under a coat or coveralls. Other limitations specified by the approval agency must be considered before using a hood in certain types of atmospheres (see footnote h). Manufacturers' recommended pressure settings for the air supply cannot always be relied on to ensure a minimum 6 cfm air flow. Equipment must be operated in a manner that ensures proper flow rates are maintained.

[h] Appropriate protection factors must be determined, taking into account the design of the suit and its permeability to the contaminant under conditions of use.

[i] No approval schedules are currently available for this equipment. Equipment is to be evaluated by testing or on the basis of reliable test information.

[j] This type of respirator may provide greater protection and be used as an emergency device in unknown concentrations for protection against inhalation hazards. External radiation hazards and other limitations to permitted exposure such as skin absorption must be taken into account in such circumstances.

Note 1: Protection factors for respirators, as may be approved by the U.S. Bureau of Mines/National Institute for Occupational Safety and Health (NIOSH) according to applicable approvals for respirators to protect against airborne radionuclides, may be used to the extent that they do not exceed the protection factors listed in this table. The protection factors listed in this table may not be appropriate to circumstances where chemical or other respiratory hazards exist in addition to radioactive hazards. The selection and use of respirators for such circumstances should take into account applicable approvals of the U.S. Bureau of Mines/NIOSH.

Note 2: Radioactive contaminants for which the concentration values in Table I of Appendix B to 10 CFR Part 20 are based on internal dose due to inhalation may, in addition, present external exposure hazards at higher concentrations. Under such circumstances, limitations on occupancy may have to be governed by external dose limits.

TABLE 2

AIRBORNE CONCENTRATION LIMITS FOR RESPIRATORS

AIR PURIFYING RESPIRATORS *	AIRBORNE CONCENTRATION
Full facepiece w/type H Ultra filter cartridge	Particulate activity less than 40 times MPC
ATMOSPHERE SUPPLYING RESP.*	
1. Air line respirators Full facepiece-constant flow -	Particulate, gas, and vapor activity less than 1600 times MPC
Full facepiece-pressure demand-	Particulate, gas and vapor activity less than 1600 times MPC
Hood-constant flow -	No credit allowed unless hood is BM/N1OSH approved. See the laboratory foreman.
Suit - constant flow -	No credit allowed unless suit is BM/N1OSH approved. See a laboratory supervisor

* Air line and air purifying respirators can only be used in atmospheres not immediately hazardous to life or health.

2. Self-Contained Breathing Apparatus (SCBA) MSA Air Pack Model 401 Pressure -	Particulates, gas and vapor activity less than 10,000 times MPC. However, may be used in emergency conditions in unknown concentrations of airborne activity. Must also consider external radiation hazards and other limitations (skin absorption, etc.).

FIGURE 1
FORM 1

INSPECTION OF 401 SCBA FORM

FORM 1

INSPECTION OF 401 SCBA

1. Items of inspection on facepiece and breathing tube.

   a. Insure facepiece is a 401 mask with spring loaded exhaust valve.
   b. Mechanical damage.
   c. Cracking or ruptures.
   d. Tears around strap attachments, outlet valve and hoses.
   e. Deterioration metal band bindings.
   f. Stuck exhaust valve.
   g. Damaged exhaust valve.
   h. Deterioration, damage, tightness of breathing tube.
   i. Missing clips on face lens.
   j. Cracking or deterioration of gaskets between facepiece, hose, regulator and hose.
   k. Insure all straps on facepiece are adjusted fully out.

2. Items of inspection on Pressure Demand Apparatus (Air Pack).

   a. Insure cylinder is full.
   b. Inspect cylinder for physical damage.
   c. Damage and proper operation of cylinder valve assembly.
   d. Damage and proper operation of low pressure alarm. (540 PSI)
   e. Damage to connections on hose from cylinder to regulator.
   f. Damage and proper operation of pressure gauge on tank.
   g. Cracks in hose from regulator to cylinder.
   h. Operation of main line (Yellow).
   i. Operation of bypass line (Red).
   j. Check air tightness by pressure drop (see section I.4.d.& e.).
   k. Unusual sounds in the regulator (whistling, chattering, clicking, or rattling).
   l. Damage and proper operation of the pressure gauge on the regulator.
   m. Physical or mechanical damage to the regulator.
   n. Fraying of belts and straps on harness.
   o. Insure all belts and straps are adjusted fully out.
   p. Insure all buckles will work properly.
   q. Insure cylinder is in the harness correct.

FIGURE 2
FORM 2

RESPIRATORY PROTECTION TRAINING FORM

FORM 2
RESPIRATORY PROTECTION TRAINING

DATE: _____

INITIAL ___ RETRAINING ___

_____ _____ _____ _____
NAME (last, first, middle initial) DEPT. BADGE # S.S. #

ANTHROPOMETRIC FACIAL MEASUREMENTS:

Facial Length: _____

Face Width: _____

Lip Width: _____

FACIAL ABNORMALITIES:

List any facial abnormality which may be prohibitive in obtaining an acceptable fit such as facial hair, a weak jaw without a clearly defined menton, hollow temples or cheeks, scars, excessive wrinkles or missing dentures:

_____

_____

_____

I have received instructions in respiratory protection, and I have been advised that I may leave an area when using a respirator at any time for relief from respirator use in the event of equipment malfunction, physical or psychological distress, procedural or communication failure, significant deterioration of operating conditions, or any other condition that might require such relief.

_____
TRAINEE SIGNATURE

Fit Test Results: Acceptable_____ Unacceptable_____

Written Test Results: Acceptable_____ Unacceptable_____

The above individual is qualified to use the following respiratory systems:

1. ___ MSA Ultra Filter

2. ___ Constant Flow

3. ___ MSA 401 Air Pack

COMPLETED BY: _____ DATE: _____

manual set

PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8010-1

SERIAL NO: R15-

MPL NO: N/A

RTYPE: G15.14

XREF: N/A

TOTAL SHEETS: 2

FREQUENCY: Monthly

COMPLETED BY: _____

DATE COMPLETED: _____

I HAVE REVIEWED THIS DATA PACKAGE FOR COMPLETENESS AND AGAINST ACCEPTANCE CRITERIA IN ACCORDANCE WITH HNP-830.

ACCEPTANCE ____ UNACCEPTABLE ____

REVIEWED BY: _____

DATE REVIEWED: _____

REMARKS: _____

FIGURE 3
Page 1 of 2

DATA PACKAGE 1
FORM 3

RESPIRATOR MONTHLY INSPECTION REPORT

Respirator No. _____

Respirator Type _____

Location _____

DATE	AS FOUND (NOTE 1)	AS LEFT (NOTE 2)	REMARKS	INITIALS

NOTES 1. A - Acceptable
N - Not Acceptable (If not acceptable, explain in REMARKS. Also give corrections/repairs made).

2. A - Acceptable (This is the ONLY condition these respirators must be left in).

3. O.O.S. - Out of Service (see Remarks for explanation)

FIGURE 3
Page 2 of 2

manual set

PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8010-2

SERIAL NO: R15-

MPL NO: N/A

RTYPE: G15.14

XREF: N/A

TOTAL SHEETS: 2

FREQUENCY: Annually

COMPLETED BY: _____

DATE COMPLETED: _____

I HAVE REVIEWED THIS DATA PACKAGE FOR COMPLETENESS AND AGAINST ACCEPTANCE CRITERIA IN ACCORDANCE WITH HNP-830.

ACCEPTANCE ____ UNACCEPTABLE ____

REVIEWED BY: _____

DATE REVIEWED: _____

REMARKS: _____

FIGURE 4
Page 1 of 2

manual set

DATA PACKAGE 2
FORM 4

MSA RESPIRATOR (MODEL 401) S.C.B.A.
TANK HYDROSTATIC TEST MASTER LIST

YEAR: _____

CYLINDER #	TYPE	DATE DUE	DATE SENT	SENT BY	DATE RETURNED	RESULTS

FIGURE 4
Page 2 of 2

PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8010-3

SERIAL NO: R15-

MPL NO: N/A

RTYPE: G15.14

XREF: N/A

TOTAL SHEETS: 2

FREQUENCY: As Required

COMPLETED BY: _____

DATE COMPLETED: _____

I HAVE REVIEWED THIS DATA PACKAGE FOR COMPLETENESS AND AGAINST ACCEPTANCE CRITERIA IN ACCORDANCE WITH HNP-830.

ACCEPTANCE _____ UNACCEPTABLE _____

REVIEWED BY: _____

DATE REVIEWED: _____

REMARKS: _____

FIGURE 5
Page 1 of 2

DATA PACKAGE 3
FORM 5

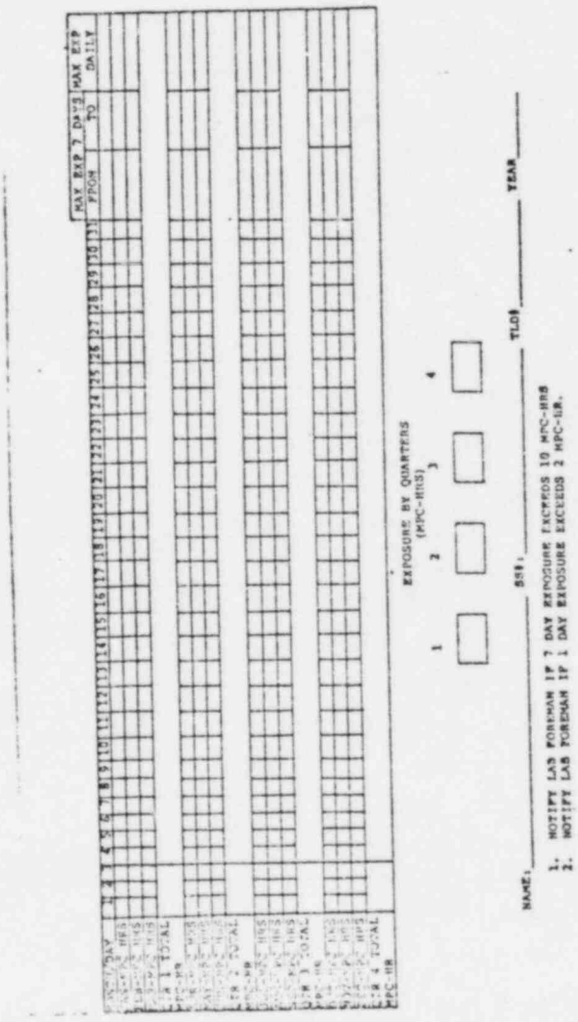

FIGURE 5
Page 2 of 2

PROCEDURE DATA PACKAGE

DOCUMENT NO: HNP-8010-4

SERIAL NO: R15-

MPL NO: N/A

RTYPE: G15.14

XREF: N/A

TOTAL SHEETS: 2

FREQUENCY: As Required

COMPLETED BY: _____

DATE COMPLETED: _____

I HAVE REVIEWED THIS DATA PACKAGE FOR COMPLETENESS AND AGAINST ACCEPTANCE CRITERIA IN ACCORDANCE WITH HNP-830.

ACCEPTANCE ____ UNACCEPTABLE ____

REVIEWED BY: _____

DATE REVIEWED: _____

REMARKS: _____

FIGURE 6
Page 1 of 2

DATA PACKAGE 4
FORM 6
RESPIRATOR ISSUANCE

DATE	RESP. NO.	ISSUED TO	BADGE NO.	BY	RETURNED TO

FIGURE 6
Page 2 of 2