

		INSTRUCTION API #2	
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		BY	DATE
		PREPARED MAN	2-8-84
		PREPARED TAS	2-8-84
PRODUCT	RECIRCULATION AND RHR PIPING REPLACEMENT - PEACH BOTTOM UNIT 2	PREPARED MPF	2-8-84
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I. RESPONSIBILITIES OF THE CBI ALARA STAFF

In accordance with paragraph 4.1 of Peach Bottom Station Procedure A-83, "ALARA Program Administrative Procedure", the Support Health Physicist designated the CBI Radiological Engineers the responsibility for ALARA during the Unit 2 Recirculation and RHR piping replacement program.

Each member of the CBI ALARA staff shall be qualified as a Station Health Physics Technician (ANSI N 18.1-1971, and station requirements). The CBI ALARA Group shall comply with all station procedural requirements in the performance of the function of ALARA designee.

The CBI ALARA Administrative organization is depicted in Figures 1 and 2.

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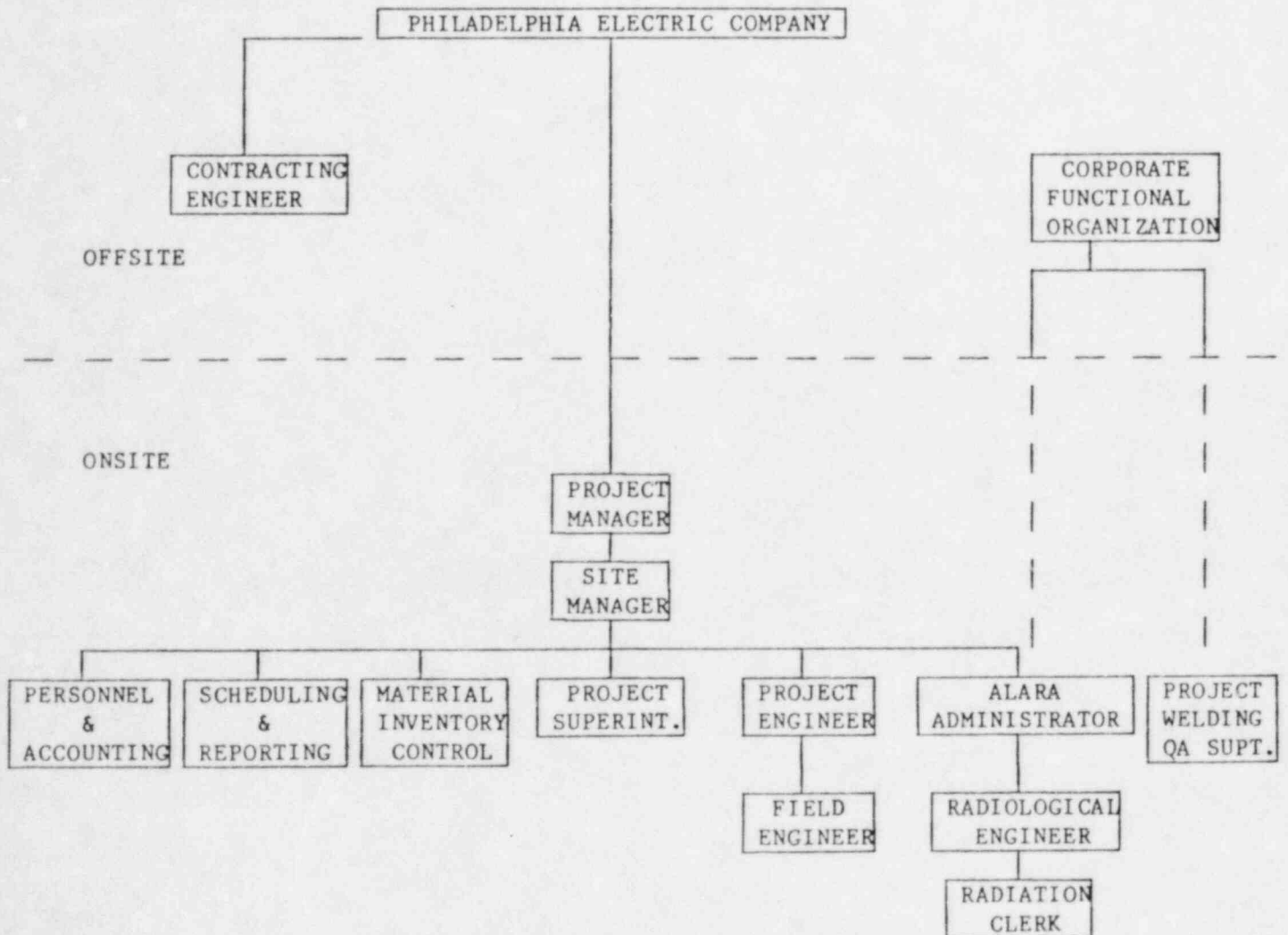


Figure 1

ALARA PROGRAM INSTRUCTION #2

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CBI ALARA HEALTH PHYSICS ORGANIZATION

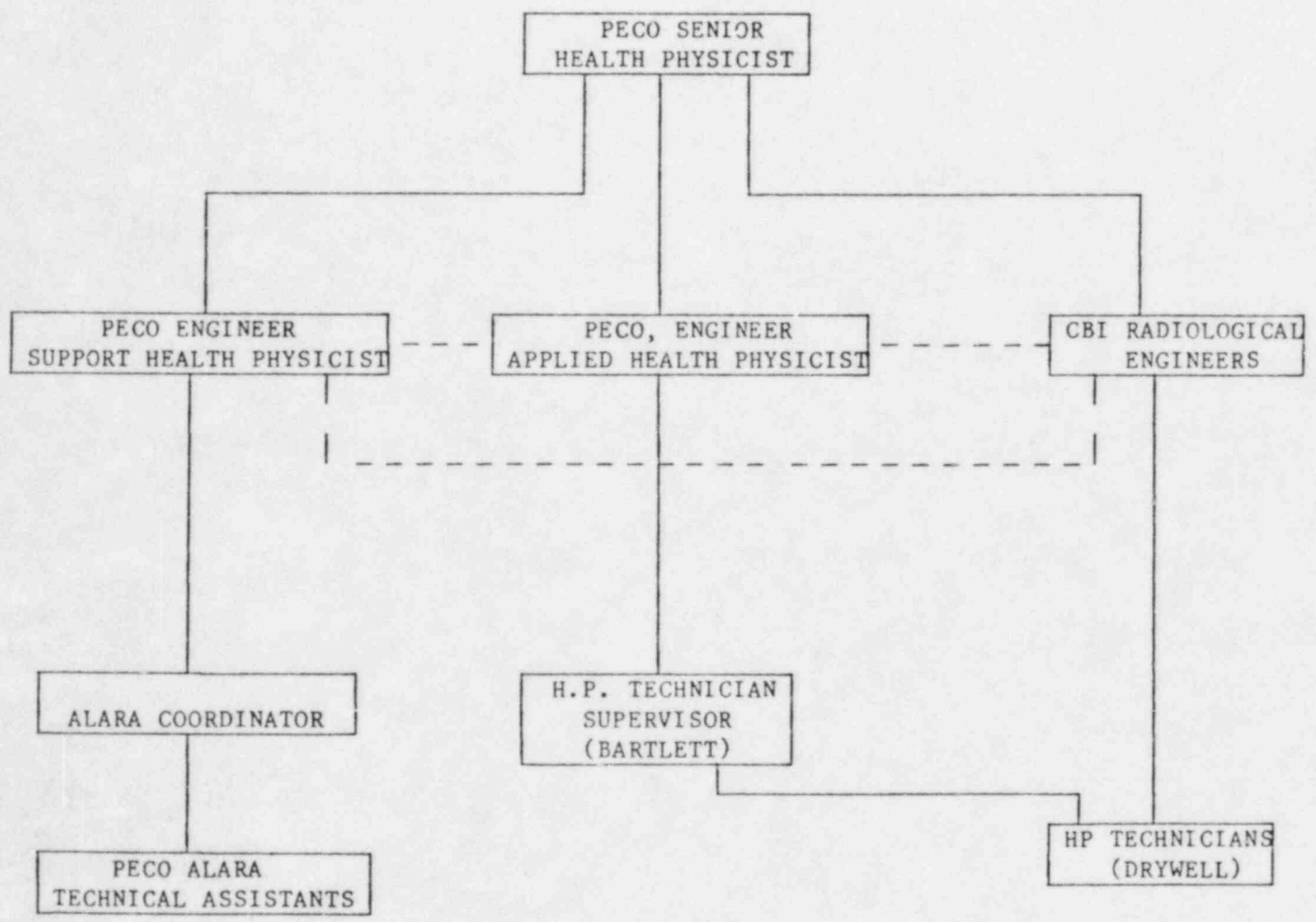


Figure 2

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RESPONSIBILITIES CONTINUED

The responsibilities of each member of the group are as follows:

CBI RADIOLOGICAL ENGINEERS

1. Development of the ALARA program implementing instruction.
2. Conducting ALARA reviews for facilities, equipment, and major operations/work evolutions (including the performance of ALARA reviews on associated work procedures or instructions.)
3. Performing program effectiveness evaluations.
4. Providing technical guidance on matters of exposure tracking, exposure evaluations/reduction, and training programs.
5. Disseminating information concerning the ALARA Program and its effectiveness.
6. ALARA training and instruction.
7. Performs preliminary ALARA reviews for all CBI procedures and work instructions.

(Effective and successful implementation of ALARA requires knowledge and understanding of the ALARA concept. Thus, training of personnel in ALARA and radiation protection is probably the single most important element in the ALARA program. All CBI personnel whose duties require: 1) working with radioactive material, 2) entering radiation areas, 3) directing the activities of others who work with radioactive materials or enter radiation areas, and 4) responsibility for operation, maintenance, design and modification of facilities and equipment using radioactive materials or producing radiation shall be familiar with the CBI ALARA policy and program and be trained in station radiation protection and ALARA practices.)

RADIOLOGICAL ENGINEER (A)

- - Responsible for coordination of ALARA (site) mock-up activities.
- - Responsible for man-rem tracking and coordination of computer data.
- - Responsible for Weekly ALARA Progress/Status Report
- - Coordinate Off-Shift Activities

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RADIOLOGICAL ENGINEER (B)

- - Responsible for coordination of in-plant activities.
- - Responsible for issuance and review of radiation work permits.
- - Responsible for pre-job and post-job critiques.
- - Coordinates/responsible for CBI audio-visual control point surveillance equipment.
- - Coordinates Radiography Program

RADIOLOGICAL ENGINEER (C)

- - Reviews and investigates radiological deficiencies.
- - Coordinates radwaste activities.
- - Coordinates Health Physics Technician support requirements.
- - Coordinates CBI Dosimetry Program with PECO Dosimetry Program.
- - Coordinates Respiratory Protection Program.

II. REVIEW OF WORK PACKAGES AND WORK INSTRUCTIONS

All work planned to be performed in radiologically controlled areas shall be reviewed for ALARA considerations to minimize personnel exposure, the spread of contamination, and to prevent or minimize releases to the environment. The CBI ALARA review requirements are as follows:

1. A preliminary ALARA review of draft work instructions with the responsible engineer. Radiological Engineering will identify radiological considerations during this review.

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II. REVIEW OF WORK PACKAGES AND WORK INSTRUCTIONS Continued

2. Radiological Engineering will perform a second ALARA review in accordance with Station Procedure A-83. This review shall be attached to the RWP as the ALARA package and Job Code Number.

3. Tasks will be classified according to one of three exposure and ALARA categories.

Category 1  $\leq$  1 man - rem

Category 2  $>$  1 but  $\leq$  25 man-rem

Category 3  $>$  25 man - rem

Note:

Category 1, 2 & 3 ALARA reviews require the approval of the PECO Support Health Physicist.

4. The Radiological Engineer performing the ALARA review will verify the the CBI job code number from the master work schedule for the specified tasks. Once identified, the job code number and the ALARA number are synonymous.

5. A log of ALARA reviewed and approved job code numbers will be maintained by Radiological Engineering.

6. Copies of all ALARA reviews will be maintained by Radiological Engineering.

7. Hold point requirements shall be added to work instructions for operations performed in radiologically controlled areas when necessary to assure the work is completed in a radiologically satisfactory manner. If hold point requirements are warranted, an ALARA Traveller (HPO/CO-500) will be initiated by CBI Radiological Engineering in order to specify the steps requiring certification.

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II. REVIEW OF WORK PACKAGES AND WORK INSTRUCTIONS Continued

8. Special training, mock-up rehearsals, or job briefings shall be specified when necessary to assure the radiological effectiveness/efficiency of workers. The extent of the training, rehearsals and briefings will be consistent with the potential radiological risks associated with the work.
9. Exposure tracking and Man-Rem estimates shall be performed for all tasks. Man-Rem estimates shall be performed by CBI Radiological Engineering to determine the level of ALARA review required and assist in evaluating the ALARA considerations. Exposure tracking shall be performed to evaluate the need to re-assess the effectiveness of the ALARA program.
10. Program assessment shall be performed by the Radiological Engineers. The results of these assessments shall be forwarded to the ALARA Administrator. The following minimum assessments shall be performed.:
  - (1.) Periodic assessment of ALARA reviews.
  - (2.) Post-job evaluations of program effectiveness for jobs exceeding 5.0 Man-Rem.
  - (3.) Post job evaluations of any job where the actual exposure returns exceed the projected exposures by 25 percent or more.

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### III. RADIATION WORK PERMIT

Reference: Station Health Physics Procedure, HPO/CO-4, "Radiation Work Permits"

This paragraph describes the method by which Radiation Work Permits shall be obtained, and used by CBI personnel for tasks associated with the Recirculation and RHR piping replacement program.

1. The CBI ALARA group is responsible for performing ALARA reviews prior to issuing draft Radiation Work Permits.
2. Each RWP drafted by a CBI Radiological Engineer, shall be reviewed by the Utility Health physics Technician Control Point Leader at the Unit 2 Drywell Control Point prior to assigning a permit number.

Note 1: If an RWP is being prepared for entry into a High Radiation Area, a dose rate instrument, alarming SRD, or HP coverage, is required. Place a check mark next to Ion Chamber Required for Entry If an alarming SRD, or HP coverage is used rather than a dose rate instrument, indicate this in special instructions. (For alarming SRD's also indicate the alarm setpoint).

3. It is the responsibility of a Task Supervisor for initiation of the Radiation Work Permit request, and the responsibility of the Job Foreman and Health Physics Technicians to see that all radiological controls are enforced while work is in progress. In addition, it is the responsibility of the personnel signed onto the RWP to adhere to the instructions listed.
4. Radiation surveys required to support work in the Unit 2 Drywell will be controlled by "creating an area survey RWP" in accordance with HPO/CO-4.

Note 2: Only responsible HP Technicians are authorized to perform initial surveys, breach surveys or surveys defining High Radiation Areas (greater than 100 mr/hr).

5. CBI Radiological Engineering will maintain copies of all RWP's, ALARA Reviews, and Attachment Sheets issued.



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### III. RADIATION WORK PERMIT Continued

6. The Job Code Number is the means for the identification of each task for dose tracking purposes; its appearance at the top right hand corner of the Daily RWP Sign-In Sheets signifies that the supporting ALARA Review has been conducted, and that the task has been approved by CBI Radiological Engineering.

- - A Job Code Number is assigned to only one RWP. (Example: 540 Job Code Numbers listed on 30 RWP could at minimum, create 18 Job Code Numbers per RWP with no two RWP's listing the same Job Code Number).

- - The "RWP Access and Exposure Control" sheets attached to an RWP must have a Job Code Number indicated. For purposes of dose tracking, the access sheets will be terminated daily.

- - Each Job Code Number identified on an RWP will have a supporting ALARA package attached to the RWP.

- - Before conducting the Final ALARA Review and assigning a Job Code Number, Radiological Engineering will verify that sufficient radiation survey information has been obtained.

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IV. SPECIFIC REQUIREMENTS FOR ENTRIES INTO THE DRYWELL

Planning and Implementation

1. Scheduling - Prior to scheduling an activity, a review by CBI Field Engineering will be made to determine the following to the maximum extent possible:
  - a.) What services will be available.
  - b.) The in-containment time to do the task is available.
  - c.) The task does not conflict with any other task currently scheduled.
  - d.) Personnel are available to do the task, i.e., the proper mix of trades, etc.
  - e.) The equipment necessary to do the task is or will be available.
  - f.) The extent of specialized training requirements.

Upon satisfactory review of these items, the activity will be placed on the Schedule and tracked until completion.

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IV. SPECIFIC REQUIREMENTS FOR ENTRIES INTO THE DRYWELL

Planning and Implementation Continued

2. Training

- A.) Training for activities will be conducted at 3 different levels.
1. Overall RWP qualification provided by PECO's training department.
  2. Pre-job safety training provided by CBI to include:
    - a.) ALARA Philosophy
    - b.) Organization and control.
    - c.) General requirements.
    - d.) Casualty instructions
    - e.) Equipment orientation including radiological (e.g. digital dosimeters), and safety devices.
    - f.) TV and audio Communications.
  3. Work instruction training provided by Radiological Engineering will consist of one or more of the following as determined during the final ALARA review.
    - a.) Walk thru's and briefings.
    - b.) Dry Runs (Fully dressed per proposed RWP Requirements).
    - c.) If necessary, Mock-up Training and Job Briefings.
    - d.) Selected task-specific technique training.

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IV. SPECIFIC REQUIREMENTS FOR ENTRIES INTO THE DRYWELL

Planning and Implementation Continued

2. Training

B.) Each task will be reviewed by Radiological Engineering to determine the level of training and mock-up necessary.

3. Fire Protection

Precautions

1. Transient combustibles shall be minimized and controlled per special instruction.
2. Welding, cutting, burning, grinding, etc. shall be controlled per special instruction.
3. Personnel should be alert for fires and signs of fire during entries. All fires and signs of fire shall be reported to the Control Room (Ext. 4220).

4. Radiological Controls Representative AT THE UNIT 2 DRYWELL

The Radiological Controls Representative shall be a Radiological Engineer or a Responsible Health Physics Technician. The duties of the Radiological Controls Representative are as follows:

1. Monitor task progress.
2. Advise task personnel of potential radiological problems.
3. Recommend suitable actions relevant to radiological controls.
4. If in the opinion of the radiological controls representative proper radiological controls are not being exercised, he is to terminate the activity.
5. Track exposure and advise personnel of stay time(s) requirements.

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IV. SPECIFIC REQUIREMENTS FOR ENTRIES INTO THE DRYWELL

Planning and Implementation Continued

5. Execution

The Task Supervisor will insure all prerequisites are complete and system status, services etc., are as required in the work instruction. Prior to allowing entry, the following documents are required.

RWP, ALARA Review and Job Code Number assigned

Work Instruction (s)

Associated Procedures

Note : Any individual entering a High Radiation Area shall (a) use a continuously indicating dose rate device or (b) use a dose rate integrating device which alarms at a preset dose level or (c) assure that a Health Physics Technician provides periodic radiation surveillance with a dose rate monitoring instrument.

SELF READING DOSIMETERS AND DIGITAL DOSIMETERS WILL BE WORN BY ALL INDIVIDUALS ENTERING THE DRYWELL FOR THE PURPOSE OF DOSE TRACKING.

6. Termination of task

A.) CBI Radiological Engineering will terminate activities when Radiological precautions are not adequate for the situation encountered.

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IV. SPECIFIC REQUIREMENTS FOR ENTRIES INTO THE DRYWELL

Planning and Implementation Continued

6. Termination of task (Continued)

B.) If any of the following exit criteria are met:  
(For exits, the prime criteria is the safety of the individual.):

Exit Criteria

- 1.) Sickness and/or fatigue - affected individual should be escorted. All team members do not have to exit unless leaving individual cannot be readily replaced and is required to perform team tasks.
- 2.) Dose Pull Point - to be specified by Radiological Controls Representative.
- 3.) Radiation Detection Gear - loss of radiation dose instrumentation to the degree that personnel dose rate levels cannot be determined.
- 4.) Respirator - failure of respirator to perform properly.
- 5.) Any emergency declared by the Control Room or the Operations Supervisor.

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V. EXPOSURE TRACKING AND MAN-REM ESTIMATES

All man-rem estimates will be entered into the IBM, PC/XT computer for personnel, overall job, Job Codes, and RWP's. Information entered into the computer for the personnel file will be:

Name, Social Security Number and Craft. Information entered into the computer for Radiation Work Permits (RWP's) will be: Description of permit, general area dose, and the man-rem estimate for that RWP. Note: The RWP man-rem estimate will be a summation of the estimate for associated job codes for the RWP.

The Job Code Number will be assigned to a specific job, and will also serve as the ALARA tracking number. A man-rem estimate will be performed for each ALARA tracking number, and each craft.

Information entered into the computer for the Job Code Number will be: Description of the Job, Associated RWP #, The Man-Rem Est. for the Job, and the Actual Doses with time associated for each Job Code Number.

Daily input into the computer will consist of the personnel that signed on an RWP, the corresponding RWP number, the job code number, time entered area, time exiting the area, the date, and the dose (dosimeter) received for the job.

Additions, deletions, and corrections will be noted on Program Audit Sheets.

The computer will keep a running total of all exposures for personnel, the Job Code, RWP, and Craft.

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#### VI. MOCK-UP TRAINING

The purpose of this section is to provide a working guide to perform mock-up and pre-job training for personnel working specific jobs in a radiological controlled area.

All mock-ups and pre-job briefings will be documented on a mock-up verification record (MVR). The MVR will be kept on record in the CBI ALARA office until completion of the project, at which time the forms will be included with the PECO RWP packet.

Mock-up training should familiarize personnel on special tools and equipment such as automatic welding and cutting machines. The training will familiarize personnel on actual conditions of work such as cramped areas and use of special clothing requirements set by the RWP.



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ALARA MOCK-UP VERIFICATION RECORD

JOB CODE/ALARA NO. \_\_\_\_\_  
RWP NO. \_\_\_\_\_

WORK EVOLUTION: \_\_\_\_\_  
\_\_\_\_\_

SPECIAL TOOLS: \_\_\_\_\_  
\_\_\_\_\_

PARTICIPANTS

NAME	SS NO.	CRAFT	DATE	INITIAL

The above individuals have successfully completed mock-up training on the subject work evolution.

\_\_\_\_\_/\_\_\_\_\_  
RADIOLOGICAL ENGINEER / DATE

\_\_\_\_\_/\_\_\_\_\_  
WORK GROUP LEADER / DATE

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#### WORKER BRIEFING GUIDELINES FOR JOB SUPERVISION

Ensure the worker is aware of the exact work location, including access and egress routes.

Ensure the worker is familiar with and capable of performing the intended operation.

Ensure the worker has the necessary tools and equipment prior to entry into the work area.

Ensure the worker performs as much work as possible outside of the radiologically controlled areas.

Ensure the worker is familiar with the work associated documents including sign off requirements.

Ensure the worker meets the radiological requirements for entry into the work area.

Ensure the worker's remaining allowable exposure will permit completion of the operation.

Ensure the worker has the required dosimetry (self-reading dosimeters) prior to reporting to control point.

Ensure the worker is familiar with the method for the disposition of contaminated waste and equipment.

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WORKER BRIEFING GUIDELINES FOR RADIOLOGICAL CONTROLS PERSONNEL

Ensure the worker is aware of the radiological status of the work area and access routes (radiation, contamination, and airborne levels).

Ensure the worker is aware of the requirements listed on the RWP and work instructions.

Familiarize the worker with the location of hot spots.

Familiarize the worker with the location of lower levels of radiation and instruct the worker to perform as much work as possible in these areas. (Low level stand by areas when applicable.)

Ensure the worker does not loiter in radiation areas.

Ensure the worker does not eat, smoke, or chew in radiologically controlled areas.

Provide dosimetry placement instructions.

Discuss stay time based upon available dose and ALARA Review.

Ensure the worker is familiar with the use requirements of the radiological control equipment used (protective clothing, respiratory equipment, dosimetry devices, etc.).

Ensure the worker is familiar with contamination control practices.

Instruct the worker to contact Health Physics personnel immediately upon encountering an unusual radiological situation.

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VII. DOSE EXTENSION REQUESTS AND ADMINISTRATIVE DOSE LIMITS

A. The Dose Extension Request Form will be filled out by a CBI Safety Representative and forwarded to the CBI Radiological Engineering Group. A Rad-Engineer will review the request and forward it to the HP Senior Technician for processing.

B. CBI Administrative Dose Limits are as follows:

(1) No individual can work in a restricted area once the following Station Dose limits have been reached:

Whole Body (quarter)	1,000 mrem (2,500 mrem with NRC Form 4)
Extremity (quarter)	15,000 mrem
Skin of Whole Body (quarter)	6,000 mrem

(2) No individual can work in a restricted area with less than 5 rem allowed according to the formula 5 (N-18).

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### VIII. RADIOGRAPHY OPERATIONS

#### A. Reference

1. "Safety And Control Of Radioactive Nuclides During Their Use Within The Philadelphia Electric Company System", Safety Department 1978.
2. "Isotope Radiation Safety Manual" CBI April 20, 1982 Rev. 0.

#### RESPONSIBILITIES

1. CBI shall endeavor to schedule radiography during break periods and between shifts. Routine radiography will not be performed during active work periods.
2. CBI will brief HP on areas to be radiographed
3. HP will verify that unauthorized personnel are signed-out of Torus Proper, Drywell, and other potentially effected areas.
4. All RWP's for Torus Proper and Drywell will be under control of the HP in charge of the Drywell.
5. HP will review job specific RWP for radiography.
6. CBI will post access points to effected areas such as the Drywell and Torus Proper. HP will verify all access points are properly posted.
7. CBI will provide personnel to guard all access points to the Drywell and Torus Proper during radiography to prevent inadvertent entry by un-authorized personnel.
8. CBI will notify the Control Room of intent to perform radiography. CBI will verbally announce notice of radiography to plant personnel via the Plant P.A. System prior to and after radiography.

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VIII. RADIOGRAPHY OPERATIONS Continued

REQUIREMENTS (Continued)

9. CBI will remove all warning signs and warning lights at the completion of radiography. HP will verify.
10. Upon completion of radiography, the radiographer shall notify HP to do a dose rate survey of the radiographic device prior to storage of device.  
  
Note: The Health Physics Technician should perform a release survey of film packets as soon as possible once the radiography is complete.
11. When not in use the radiographic device or devices will be stored in a metal lockable container controlled by the radiographer as specified in 10CFR34. HP and CBI will ensure container is properly posted.
12. CBI shall provide the names and phone numbers of the responsible CBI personnel who should be contacted in the event of an emergency.
13. CBI shall supply the PECO responsible person a copy of applicable emergency procedures.
14. CBI shall provide individuals qualified in accordance with 10CFR34 for all job functions involving the use of any radiography unit.
15. CBI shall provide documentation of calibration of survey instruments to PECO Department representative upon request.
16. CBI shall provide upon request of PECO representative proof of compliance with applicable regulations, including a copy of any governmental license(s).

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RADIOGRAPHIC ACTIVITIES IN UNIT 2 DRYWELL

A "Radiography Check Off List" will be used for all radiographic work done in Drywell.

-- EXAMPLE --

1. An RWP for radiography work in the Drywell has been issued and is ready for use at the Drywell Control Point.

\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
HP / Time / Date

2. Verify that the Drywell is clear of all personnel and all RWP's for work, inspection etc. are under the control of the HP in charge at the Drywell Control Point. Control Point HP verify that all RWP sign in sheets are clear and everyone is signed out.

\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
HP / Time / Date

3. Notify Control Room @ 4221 or 4220.

\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
CBI / Time / Date

4. Notify HP Office @ 4262 or 4263

\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
CBI / Time / Date

5. ALL access points to the Drywell and Torus Proper are posted.

\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
Radiographer / Time / Date

6. Announce over Page System "Radiography will begin in the Unit 2 Drywell in 5 minutes".

\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
CBI / Time / Date

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RADIOGRAPHIC ACTIVITIES IN UNIT 2 DRYWELL (Continued)

7. When finished, announce over Page System "Radiography in Unit 2 Drywell is complete".

\_\_\_\_\_ / /  
CBI                      /      Time      /      Date

8. Remove postings, turn in RWP to HP at Control Point.

\_\_\_\_\_ / /  
Radiographer              /      Time      /      Date

9. Notify Control Room, Radiography is complete @ 4221 or 4220.

10. Notify HP Office, Radiography is complete at 4262 or 4263.

\_\_\_\_\_ / /  
CBI                      /      Time      /      Date

Note: This form shall remain with the RWP.



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VIII. RADIOGRAPHY OPERATIONS Continued

EMERGENCY INSTRUCTION:

"ACCIDENT" and "EMERGENCY" as defined in "ISOTOPE RADIATION SAFETY MANUAL" section 5 Emergency Procedures. CBI Manual 4-20-83 Rev. 0.

Action to be taken by radiographer and his assistant in the event that an accident occurs which causes the following to exist:

1. Loss of the radiography source in the work area.
2. Damage to the radiography device resulting in the inability to retract the source.
3. Any other condition resulting in loss of control of the source.

The Radiographer and His Assistant shall exit the Drywell and immediately notify the HP at the Drywell Control Point that an emergency exists in the Drywell, and explain the exact nature of the problem. The HP will notify his Supervisor and the Control Room. All barriers will be surveyed by HP and the Radiographer, barriers will be adjusted as required. The Radiographer and His Assistant will sign-out on the Specific RWP. The HP will take possession of the RWP. CBI personnel will continue to guard all access points with all access denied until the following is done; a meeting with the Radiographer, a CBI Radiological Engineer and CBI Safety Rep. and at least one PECO Health Physics Supervisor. The purpose of the meeting is to determine the magnitude of the problem and generate instructions to correct the problem, to include an ALARA Review, and a specific RWP for recovery. Radiography for acceptance inspection will be performed outside the protected area. If a problem occurs, the Radiographer should follow this Emergency Instruction.

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## IX. RECORDS

1. "ALARA Mock-up Verification Records".  
 These records will be maintained by CBI Radiological Engineers in the ALARA Group. The purpose of these documents is to provide a record of individuals who have received specific mock-up training as required. The record will contain the following information, job code and ALARA number, work evolution, special tooling used for the training, participants i.e. name, ssn, craft, date of training etc. Upon successful completion of mock-up training, the record will be signed by a Radiological Engineer and the Work Group Leader.
2. A-86 "Discrepancies"  
 When an incident occurs which requires or could require an A-86 to be initiated, the person identifying the problem shall notify one of the Radiological Engineers. The Rad-Engineer will determine if the problem will impact the ALARA concerns in the area where the problem exists, such as un-authorized movement of shielding causing abnormally high dose rates etc. Corrective action will take place immediately as directed by the Rad-Engineer. Upon receiving notification the Rad-Engineer will notify the Support Health Physicist or his alternate. Approval of corrective action will be requested. All A-86 forms will be forwarded to the Support Health Physicist.
3. "ALARA Review Packages"  
 All ALARA Paperwork will become part of and remain with the RWP, as per A-83. Copies of CBI issued ALARA paperwork and RWP's will be kept on file with the CBI ALARA Group.
4. "HP Log Book for Drywell Control Point".  
 Shall be maintained in accordance with HPO/CO-101, 9-B.
5. Dose Tracking Computer Program for IBM PC/XT and Exposure Estimates.
6. Master Job Code Number Index.
7. Dose Extension Authorizations.

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IX. RECORDS Continued

8. A log describing radioactive contaminated equipment and materials which will not be discarded as waste. These materials will be identified by the tag depicted on this page.

  
RADIOACTIVE MATERIAL

Serial no. \_\_\_\_\_

Material Description \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Contamination level (inside of package)

Beta-Gamma \_\_\_\_\_ DPM/100cm<sup>2</sup>

Alpha \_\_\_\_\_ DPM/100cm<sup>2</sup>

Exposure rate \_\_\_\_\_ mRem/hr

Special instructions: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

RMP \_\_\_\_\_ Date \_\_\_\_\_

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#### X. USE OF VACUUM CLEANERS IN CONTROLLED AREAS

##### PURPOSE:

This paragraph provides guidance on the use, control and maintenance of high efficiency filter vacuum cleaners in controlled areas. Specific guidelines are needed to prevent unnecessary exposure of personnel during the use, repair, cleaning and storage of these vacuum cleaners.

##### PRECAUTIONS:

- Observe standard safety precautions for use of portable electrical equipment, and use of air powered tools.
- A non-filter vacuum cleaner should not be used in the controlled area.
- A HEPA vacuum cleaner should not be opened without HP approval. Cleaning and repair will be done under controlled area conditions (i.e. tent, or, glove bag) and HP coverage.
- All external suction of a filter vacuum cleaner must be surveyed for contamination by an HP prior to removal from a controlled area.
- All hoses and attachments for a filter vacuum cleaner will be bagged or sealed and surveyed prior to release from a controlled area by an HP.
- Personnel operating, cleaning or repairing any filter vacuum cleaner will follow specific RWP requirements.

##### SPECIFICATIONS:

- Filter vacuum cleaners must be surveyed periodically to identify a potential radiation hazard. If the contact reading exceeds 200 mr/hr or 20% above background radiation levels, the vacuum should be removed from service for cleaning and decontamination (this level may be increased at CBI Radiological Engineer discretion).
- The motor lid, power head assembly or transfer lid shall be locked to the collection tank such that the vacuum cleaner may not be inadvertently opened by unauthorized personnel.

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X. USE OF VACUUM CLEANERS IN CONTROLLED AREAS CONTINUED

SPECIFICATIONS: Continued

- Only absolute filters that have been inspected will be used in controlled area vacuum cleaners. The filter assembly shall be labeled "Potentially contaminated" with date and time of installation of the filter.
- The use of an H.E.P.A. Filter transfer system using 702-55 air vacuum will be in accordance with manufacture's procedure attached to the work instruction.

USAGE AND SURVEY REQUIREMENTS:

- Only high efficiency filter vacuum cleaners may be in the controlled areas.
- HP Personnel shall survey and tag vacuum cleaners during the routine surveys of the areas in which vacuum cleaners are located and used.
- If the contamination level of an area in which the vacuum cleaner is being used is such that the limits of 200 mr/hr or 20% above background level could be exceeded, the survey frequency will be increased proportionally. Filter vacuum cleaners used in this instance will have a dedicated HP by RWP to insure compliance to this instruction.
- Routine air samples will be performed during operation of all filter vacuum cleaners in controlled areas.

XI. USE OF DIGITAL DOSIMETERS (Reference HPO/CO-68)

- - Digital dosimeters will be used by CBI as a supplement to self reading pocket dosimeters for all individuals entering a high radiation area.

Note 1: Self Reading Pocket Dosimeters are the devices used for exposure estimation for RWP purposes. Digital Dosimeters are intended to aid the worker in making a quick dose estimate and to alert the worker if dose limits are approached.

- - Digital Dosimeters currently authorized by PECO are Xetex Models 409A, 415A and 415B, and Dositec Model DOS-502A.

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XI. USE OF DIGITAL DOSIMETERS (Reference HPO/CO-68) Continued

- - Xetex Models 415A and 415B are functionally the same; the Model 409A does not retain the accumulated exposure (If the model 409A is in use, and the switch is placed from the "ON" to the "OFF" position, the display is erased and the dosimeter will read zero.) The preferred Digital Dosimeters used by CBI will be Xetex Model 415B.

- Note:
- (1) Alarm set points will be at 256 HREM unless a dose extension has been authorized.
  - (2) Form HPO/CO-68A will be used to record the issuing of Digital Dosimeters, and will be maintained at the HP Control Point.
  - (3) Dositec Model DOS-520A Digitals will be used in accordance with the Manufacturer's Instruction Manual. A copy of this manual will be maintained at the CBI Drywell Control Point.

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## XII. HANDLING OF RADIOACTIVE WASTE MATERIALS

### PURPOSE:

This paragraph describes the way in which CBI will package and label radioactive material prior to removal from the controlled area (Drywell), and turnover to PECO.

The proper containment of radioactive materials may range from the sealing of openings in large diameter piping to complete enclosure of the item in wrapping or LSA Boxes. Labelling and tags will be utilized to inform personnel of the radiological conditions and contents of a package. Labelling and tagging will take place at the transfer point.

Described also is the storage system which CBI will use for proper storage and control of radioactive equipment or materials to prevent the spread of contamination and minimize exposure to personnel.

### DEFINITIONS:

Point of origin will be the point or area at which the item or material originates (i.e. valve packing point of origin is at the valve; pipe point of origin where pipe is cut from the system).

Transfer Point will be the point at the Drywell or controlled area entrance (e.g. step-off-pad) where the item can be surveyed, tagged, labelled and packaged.

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## XII. HANDLING OF RADIOACTIVE WASTE MATERIALS CONTINUED

### REQUIREMENTS:

All openings (bags, piping, etc) will be closed and taped at the point-of-origin before the material is moved in the controlled area or Drywell.

A radiation survey of the material will be conducted at the transfer point to determine contamination and radiation levels. The radiation/contamination levels will be marked on a tag attached to the item.

All material (pipe, etc.) not intended to be reused will be surveyed and wrapped before transfer to the final staging area.

The transfer and movement of radioactive waste materials will be under the supervision of a responsible Health Physics Technician.

All handling, movement, and storage of radioactive waste materials will be in strict accordance with Station Procedures.

## XIII. CBI RADIOLOGICAL DISCREPANCY REPORTING

1. To initiate a Radiological Discrepancy Report, obtain a blank RDR form from the CBI Radiological Engineering Department, Complete the following items and return the form to Radiological Engineering.
  - 1.1 Location of the observed deficiency.
  - 1.2 Date and time of the observation.
  - 1.3 The description of the deficiency and any apparent causes.
  - 1.4 The originating department/section and the name of the individual initiating the report.



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XIII. CBI RADIOLOGICAL DISCREPANCY REPORTING Continued

2. CBI Radiological Engineering will forward the RDR in accordance with the requirements of A-86, "Administrative Procedure for Corrective Action". In addition an assigned Radiological Engineer will maintain a copy of the RDR and perform the following:
  - 2.1 Review the submitted RDR for validity and accuracy.
  - 2.2 Resolve any questionable areas with the initiator.
  - 2.3 Review the suggested corrective action portion of the RDR and revise if necessary. Revision to the suggested corrective actions should be done only after discussion with the initiator.
  - 2.4 Assign the appropriate action addressee for the corrective actions.
  - 2.5 Assign the corrective action due date. The corrective action due date is normally ten (10) working days.
  - 2.6 Assign the RDR number and enter the RDR number, description, category, cause action addressee, and corrective action due date in the RDR Index.
  - 2.7 Forward the RDR to the ALARA Administrator for review.
  - 2.8 File a copy of the "open" RDR in the RDR Status Log and forward a copy to the action addressee.
3. The action addressee will perform the following:
  - 3.1 After receiving the RDR, the action addressee shall review the corrective actions assigned. Any concerns regarding the actions should be brought to the attention of Radiological Engineering, including appropriateness, inability to perform, and inability to perform by the due date. If revisions to the corrective actions are necessary, Radiological Engineering will notify the initiator of the RDR.

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XIII. CBI RADIOLOGICAL DEFICIENCY REPORTING Continued

3. The action addressee will perform the following: (Continued)
  - 3.2 Initiate the corrective action, complete the corrective actions section and return the RDR to Radiological Engineering.
4. Radiological Engineering will perform the following upon receipt of the RDR from the action addressee.
  - 4.1 Review the corrective actions taken for adequacy and enter any comments on the RDR.
  - 4.2 Enter the completion date on the RDR and in the RDR index.
  - 4.3 File the completed RDR in the RDR Status Log.
5. The RDR Status Log will consist of the following:
  - 5.1 The RDR Index containing the following information.
    - 5.1.1 RDR Number - a CBI sequential number with the form 84-001 (year, number).
    - 5.1.2 Description of deficiency.
    - 5.1.3 RDR cause code(s), as follows:
      - a. Communications
      - b. Planning Inadequate
      - c. Training Inadequate
      - d. Equipment Inadequate
      - e. Performance Inadequate
      - f. Procedure Inadequate

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CBI RADIOLOGICAL DEFICIENCY REPORTING Continued

5. The RDR Status Log will consist of the following: (Continued)
  - 5.1 The RDR Index containing the following information. (Continued)
    - 5.1.4 Action addressee for corrective action.
    - 5.1.5 Issue date/initiation date.
    - 5.1.6 Corrective action due date.
    - 5.1.7 Completion date of RDR.
  - 5.2 Copies of all "open" RDR's.
  - 5.3 Originals of all completed RDR's.

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\* \* \* \* \* NOTICE TO ALL CBI EMPLOYEES \* \* \* \* \*

THE CBI RADIOLOGICAL ENGINEERING DEPARTMENT HAS ESTABLISHED A PROGRAM FOR THE REPORTING AND CORRECTION OF RADIOLOGICAL DISCREPANCIES IN ACCORDANCE WITH STATION PROCEDURE A-86.

IF YOU OBSERVE A WORK PRACTICE WHICH DOES NOT CONFORM TO ESTABLISHED RADIOLOGICAL CONTROLS PRACTICES, OR ONE IN WHICH THE RADIOLOGICAL CONTROLS PRACTICES UTILIZED MIGHT BE IMPROVED, YOU SHOULD:

1. FIRST, DISCUSS THE PROBLEM WITH THE HEALTH PHYSICS TECHNICIAN INVOLVED WITH THE WORK;
2. IF THE HEALTH PHYSICS TECHNICIAN DOES NOT PROVIDE YOU WITH AN ADEQUATE EXPLANATION, DISCUSS THE PROBLEM WITH THE CBI RADIOLOGICAL ENGINEERER ON DUTY;
3. IF THE PROBLEM IS STILL NOT RESOLVED OR EXPLAINED TO YOUR SATISFACTION, YOU MAY INITIATE A RADIOLOGICAL DISCREPANCY REPORT;

TO INITIATE A REPORT FILL IN THE LOCATION, DATE, AND TIME OF THE OBSERVATION, A DESCRIPTION OF THE DEFICIENCY AND APPARENT CAUSE . PLEASE FILL IN YOUR NAME AND DEPARTMENT SO THAT A COPY OF THE COMPLETED REPORT MAY BE RETURNED TO YOU. FORWARD THE DISCREPANCY REPORT TO CBI RADIOLOGICAL ENGINEERING.

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DISCREPANCY REPORT

Report No.: \_\_\_\_\_ - \_\_\_\_\_  
(Provided by Eng.-QA)

Part I - Identification:

Date of Occurrence: \_\_\_\_\_ Time of Occurrence: \_\_\_\_\_

Location of Occurrence: \_\_\_\_\_

Individual identifying the discrepancy: \_\_\_\_\_  
(Print)

Personnel Involved	Organization	Supervisor
_____	_____	_____
_____	_____	_____
_____	_____	_____

Description of Discrepancy: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Immediate Corrective Action: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Copy of Report forwarded to:

Plant Supervision

(Support Health Physicist)

Investigation assigned to \_\_\_\_\_  
Date \_\_\_\_\_

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Part II - Investigation (completed by Investigator)

Personnel Contacted

Organization/Group

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Investigation Results:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Report Investigator (Print)

Signature

Date

Organizations Involved:

PECO:

Operations  
Maint.  
HP  
Chemistry  
I&C  
Reactor  
Training  
Test Engineers

E&R  
Stores Div.  
Security Div.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Vendors:

Catalytic  
General Electric  
Henkel & McCoy

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_