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October 17, 1985

BECO Ltr. 85-189

Dr. Thomas E. Murley
Office of Inspection and Enforcement
Region I
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pa. 19406

License DPR-35
Docket No. 50-293

Radiological Improvement Plan Implementation
Progress Report for the Third Quarter of 1985

Dear Sir:

As required by Section IV.C of the NRC Order Modifying the Pilgrim Operating License, dated November 29, 1984, the Radiological Improvement Plan (RIP) Implementation Progress Report for the third quarter of 1985 is attached for your use.

If you have any questions or concerns regarding this progress report, please do not hesitate to contact us.

Very truly yours,



William D. Harrington

Attachment: Memo from Mr. W. H. Deacon to Mr. W. D. Harrington, dated October 16, 1985, Boston Edison Company Radiological Improvement Plan (RIP) Implementation Progress - Third Quarter, 1985

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Boston Edison Company

To: Mr. W. D. Harrington

From: W. H. Deacon

Date: October 16, 1985

Dept. Doc.

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NonSafety Related

Subject: BOSTON EDISON COMPANY RADIOLOGICAL IMPROVEMENT PLAN (RIP)
IMPLEMENTATION PROGRESS - THIRD QUARTER, 1985

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Executive Summary

RIP implementation effort during the third quarter of 1985 reached peak levels in both diversity of activities and manpower levels, with an accompanying shift in manhour burden to Boston Edison Management and Supervisory personnel as some of the most comprehensive RIP improvements reached the implementation stage.

The major accomplishments of the third quarter are highlighted by essentially completing the improvement activities related to:

1. Reorganization of the Radiological Section.
2. Implementation of the revised General Employee Training (GET) Program.
3. Establishment of an improved exposure control Program.
4. Improvements to the bioassay program with accompanying procedures; and software/hardware decisions for the Whole Body Counting (WBC) equipment.
5. Contamination Control policy, updating survey matrices and procedural requirements for the revised Radiation Work Permit (RWP) process.
6. Establishing management approval of the long term housekeeping program methodology.
7. Development and issuance for review of the Draft Radiation Protection Program document.

The contract assistance during most of this period remained relatively constant at 18 full-time and 3 part-time personnel until reduced down to 15 full-time and 2 part-time during the last half of September.



RIP Milestone progress remained essentially on schedule through July, however, during August, 3 milestones, followed by 3 milestones in September were off schedule in spite of extra effort applied in attempts to meet the original commitment dates. The schedule slippage was due partly to the peaking of program activities but more so due to August's implementation of the new Radiological Organization and accompanying re-assignment of key task responsibilities. A formal NRC extension request letter has been prepared for the late August milestones requesting an additional 30 days. The impact of extending the work associated with September's milestones will be negligible in that the balance of the work to complete in the remaining 3 months of scheduled RIP Program activities is drastically reduced from the third quarter peak.

Organizational commitment thus far has been good. At the end of the third quarter, 184 of the 209 program milestone commitments (89%) are completed with only seven (7) milestones having required a formal NRC extension approval. Management oversight of the RIP Program through the Radiological Oversight Committee (ROC) continues to provide positive involvement through bi-weekly plant tours but also continues to struggle with recurring incidents related to housekeeping and radioactive materials control. Recent prompt actions by the ROC to improve R-key control and better communicate personnel responsibilities for access control of locked high radiation areas are indicative of general improvement in ROC's functional effectiveness.

To date, a total of 84 Action and Follow Items have been identified through ROC activities of which 53 items have been closed out. The difficult items still outstanding generally relate to personnel attitude toward Radiological Controls, and definition of the actual process and responsibilities associated with plant housekeeping and radioactive material control. The ROC will need to place its near term priority on these issues as the RIP moves into its heavy implementation phase of the fourth quarter.

- The recent NRC audit of RIP Program activities including NRC attendance at a ROC Meeting (Inspection #85-22) was favorable with respect to overall progress, tracking and reporting of committed activities, however, a few key follow items were identified which will be examined again:
 1. Personnel selection criteria may not be consistent with Regulatory Guide 1.8, for some job positions. (RIP Milestone 1, Section 2.1.4)
 2. RIP Milestone #1, Section 4.3 needs to provide a comprehensive evaluation of the radiation area key control process. The inspector felt that this subject should have been evaluated as part of this RIP Milestone.
 3. The inspector intends to monitor the application of timely action and effectiveness reviews in addressing significant radiological items. (Reference Nuclear Operations Procedure (NOP) 85A1 and Nuclear Policy #37.)

- Overall, the inspector was satisfied that the RIP Program was progressing well, but is very concerned about recurring problems in the form of procedural non-conformances and control of access to locked radiation areas.
- I am recommending that special attention (project assignment) be given to the radioactive materials consolidation effort because of its complexity and the independent, but related efforts, currently being conducted within the organization. Also, as stated in my previous report, a fundamental need to ensure the long-term success of RIP is to require the all-around involvement of BECo Supervisory personnel in demonstrating and enforcing implementation of the newly established radiological performance standards.

RIP implementation problems at this time are confined to three (3) Milestones (8.1.2, 8.1.3 and 8.1.4) originally due September 30, 1985. These commitments deal with the consolidation of radioactive materials (contaminated and waste) and providing necessary enclosures and shielding consistent with the specified storage areas. A revised schedule is being developed which addresses these needs and milestone completion is expected before December 30, 1985, consistent with the original program completion date.

I. RIP Implementation StatusA. Milestone Status

- The RIP Milestones for July (28 milestones) were completed on schedule, with one (1) milestone, Section 9.1.1 pertaining to a Nuclear Operations Procedure (NOP) on the ALARA Program on "hold". The NOP was completed, but was to be issued at a later date consistent with organization changes planned for implementation at the end of August. This deviation was reported to the NRC Regional Inspector and the "hold" action was considered appropriate.
- The RIP Milestones for August numbered 27, 24 of which were completed essentially on schedule. NRC was notified (Mr. Ron Nimitz) of several minor milestone delays and it was determined that a formal extension letter would be required for three (3) milestones as follows:
 - RIP 7.3.2 - Milestone 2 (Contamination Minimization Effectiveness Review Process). This product consisted of a proposed Nuclear Operations Procedure (NOP) describing the interdepartmental responsibilities for an effectiveness review of organizational efforts in behalf of minimizing radioactive contamination. The NOP was in the final stages of management review, but had not been approved. This commitment was completed on October 2, 1985.
 - RIP 10.1.3 (Long Term Program for Housekeeping Methodology). The intent of this milestone was to arrive at a management agreement on a long-term housekeeping program methodology.

Based upon feedback from various groups, received during the comment phase of the "pilot" program, there was still controversy over the responsibilities of participating groups and therefore management agreement had not been reached. This commitment (a program outline) was completed on September 30, 1985.
 - RIP 12.1; 12.2 - Milestone 2 (Radioactive Material Control Program). The product produced was found to require rework with respect to addressing the level of control intended. Mr. T. L. Sowdon, the new Radiological Section Head, had requested time for this product to be examined by him in detail, given his new responsibility assignments in this area. This commitment was completed on October 15, 1985.

- The RIP Milestones for September 1985 numbered 32, 22 of which were completed on schedule, followed by 7 milestones completed before October 15, 1985. Three (3) milestones could not be completed within the original schedule allowances and will be addressed by re-examining the current RIP plan and revising it accordingly. NRC was notified of the late milestones and the request for extension of three September milestones (RIP Section 8.1.2, 8.1.3 and 8.1.4) was considered reasonable to adequately address the issue.

The following September milestones will be extended:

- RIP 8.1.2 (Milestone 2). This milestone deals with the consolidation of radioactive material (contamination and waste) storage areas and is estimated as 25% complete at this time. The consolidation areas have been designated, however, the transfer of materials in accordance with the assigned areas is not complete.
 - RIP 8.1.3 (Milestone 3). This milestone deals with providing improved enclosures for the stored materials and is impacted by the consolidation effort of RIP 8.1.2 above, therefore, this task will follow 8.1.2 for completion.
 - RIP 8.1.4 (Milestone 4). This milestone addresses the evaluation for shielding of the consolidated storage areas and also is somewhat dependent on the above milestones in that both specific and general area shielding evaluations must be evaluated as the consolidated areas of RIP 8.1.2 are established.
 - A new schedule for completion of the foregoing milestones is now being developed, however, milestone completion is expected to be on or before December 30, 1985.
- The RIP Milestone progress to date stands at 184 of the 187 milestones due, being accepted by the Program Manager. The NRC Inspector (Mr. Nimitz) has reviewed approximately 125 of these completed milestones (through July, 1985) in two (2) announced inspections. The balance to complete will address 25 milestones, a significantly lighter workload, over the next quarter.

B. Major Accomplishments

The RIP effort during the third quarter focused heavily on development and completion of several key improvement areas. The following are considered the major accomplishments of RIP during the third quarter:

1. Implementation of the Long Term Radiological Organization with Boston Edison personnel assigned to the key exempt positions.

2. Implementation of the improved General Employee Training (GET) program which in addition to being expanded to two full days, now offers the alternative of a comprehensive short course (1/2 day) for experienced personnel who can demonstrate their proficiency in radiological knowledge and practical factors.
3. Completion of milestone activities to address improvements in procedures and upgrade of equipment (hardware and software) for the Internal Dosimetry Program.

Actual improvements implemented to date, include an improved "energy window" and an updated Whole Body Counting (WBC) library.

4. Completion of milestone activities to address improvements in procedures, dose assessment and equipment used in the External Dosimetry Program. The use of specific "trigger" levels and finger ring dosimetry have been procedurally incorporated.
5. Completion and implementation of an improved Radiation Work Permit (RWP) procedure which incorporates input from sister utilities and the ALARA Section of the new Radiation Protection Program document. The RWP procedure now designates responsibility for RWP's to one (1) supervisor, upgrades and clarifies conditions which require RWP's, elevates the approval level for manrem estimates, provides for briefings on extended RWP's and enables automatic termination of RWP's that are not used for seven (7) consecutive work days.
6. Significant progress was made in definition of the radioactive materials control program and designation of consolidation areas for contaminated materials versus waste material.
7. The major portion of work required to produce the Radiation Protection Program Document was completed, in that a draft document which ties together the PNPS Radiological Controls Program has been developed and cycled through an initial review and comment phase.
8. Significant progress was made in defining the long term housekeeping program in that the concept of assigning housekeeping responsibility for specific plant areas to an individual was approved by management. The concept was field-tested following the preliminary "pilot" housekeeping program and is expected to be an effective method for maintaining ongoing control.
9. Substantial progress has been made in the radiological procedure update task. Approximately 40 of the expected 150 procedures have been issued for use.

C. Problem Areas

Beyond the three (3) September milestones discussed in Section I.A of this report, related to consolidation of on-site radioactive material storage, there are no additional RIP program implementation problems expected.

These three (3) September milestones should be able to be rescheduled for completion over the fourth quarter without impacting the balance of work to complete.

II. Radiological Activity Assessment Reports

1. Control of Work in Progress

Routine and special work observations by the Onsite Assessor resulted in the reporting of 47 findings to the Chief Radiological Engineer (CRE).

1.1 Routine Work (June 27, 1985 - September 25, 1985)

● Procedural Non-Conformances

Routine work observations identified 23 procedural non-conformances primarily in the following categories:

- Storage/Handling of Radioactive Materials
- Door/Key Control
- Misuse of Poly Material
- Improper Posting

The door/key control problems have been acted upon through both line management and the Radiological Oversight Committee.

Actions initiated to date include:

- Elevation of reporting unlocked high rad doors >1R and key control violations to the Radiological Section Head.
- Physically moving the R-key storage box to provide tighter access controls.
- Ordering of "responsibility" signs for posting on locked radiation area doors to remind personnel of control responsibilities.
- Implementation of "large" key holders to preclude inadvertantly pocketing of R-keys.
- Reduction in the number of key-controlled radiation areas from 70 to 43 over the third quarter.

The storage/handling of radioactive materials, misuse of poly material and improper posting problems are interrelated and to a large degree are the product of

poor handling, packaging and understanding of work responsibilities. The process is further hampered by the inadequacy of current storage areas which promote the use of any available area for radioactive material storage. There is a definite need for definition and communication of responsibilities in the area of radioactive material control.

The confusion in this area has been demonstrated both in the Radiological Oversight Committee's struggle to identify needed actions required and the difficulty which was encountered by Nuclear Organization personnel when attempting to define a radioactive materials control program for the consolidation of on-site storage. I recommend priority assignment and authority be assigned to one (1) Boston Edison individual to coordinate the various "interest groups" currently involved in radioactive materials handling, i.e., activities such as posting, waste handling/shipping, consolidation, shielding, etc. This will be necessary if we are to achieve RIP milestone implementation by year's end.

● Areas of Concern

Routine work observations identified 19 "areas of concern", primarily in the following categories:

- Poor physical condition of outside storage containers of contaminated materials (CRD boxes and oil barrels for example).
- Excessive packaging materials brought into contaminated areas.
- Lack of established radiological limits for stored (contaminated) tools.
- Poor application of ALARA principals for potentially high exposure activities (spent fuel pool vacuuming).

These incidents are being addressed individually as part of the Finding evaluation process and corrective actions are documented. The physical condition of outside storage containers and excessive packaging materials in contaminated areas will be addressed, in general, through monitoring of contamination minimization effectiveness (NOP 85RCI) and the radioactive materials control program, both recently established RIP commitments.

1.2 Special Work - June 27, 1985 - September 25, 1985

Special work observations identified three (3) procedural violations and two (2) areas of concern related to work practices.

Observations indicate the need for:

- Increased application of ALARA and engineering controls for special work such as those non-routine tasks performed in the spent fuel pool and radwaste area.
- Better control over storage of materials in the spent fuel pool to prevent potential overexposures. Many high dose rate objects are stored routinely in buckets or "hung" over the side of the spent fuel pool without adequate posting.

III. Radiological Occurrence Reports (ROR's)

The total number of Radiological Occurrence Reports (ROR's) written for this period is 379 which are reported on a monthly basis as follows:

July - 162

August - 137

September - 80

Please note that in addition to ROR's being categorized into 17 different areas, the evaluation process was modified to provide for the separation of identified problems into major and minor categories; and the "grouping" of one specific procedural violation (failure to signout at the main gate) under one (1) ROR, generated monthly.

These changes were initiated at the beginning of August and has been effective in sorting out the significant ROR's, thereby providing for more timely review on important items.

- For the purposes of consistency during this reporting period, the major/minor sorting was not used, therefore, the data can be easily correlated to the first and second quarter if desired. In general, the use of the ROR as a reporting tool increased dramatically.

The ROR breakdown, by month, for the third quarter is as follows:

Category	6/27/85 thru 7/31/85	8/1/85 thru 8/28/85	8/29/85 thru 9/25/85
• Door/Key Control	9	10	4
• RWP Violations	7	6	0
• Procedure Violations	15 + (22)*	17 + (15)*	16 + (15)*
• Contamination of Clean Areas/Spills	8	14	8
• Misuse of Respirator/Respirator Issue System	2	5	0
• HP Equipment Shortage and Misuse	0	4	9
• Improper Storage of Radioactive Material	8	5	4
• Clothing Contamination	24	13	5
• Skin Contamination	11	12	4
• Improper Radiological Posting	11	7	1
• Dosimetry	10	8	1
• ALARA/Engineering Controls	5	0	1
• Radiation Materials in Clean Dumpsters	4	3	0

• Smoking or Eating in Controlled Area	0	0	0
• Poor Housekeeping in Controlled Area	1	3	1
• Improper Frisking	1	0	2
• Miscellaneous	24	15	9
	<u>162</u>	<u>137</u>	<u>80</u>
	(35 Days)	(28 Days)	(28 Days)

(*Violations accumulated for
failure to signout at gate)

Examination of ROR incidence in conjunction with comparison to
the previous quarter's data resulted in the following
observations:

• Improvements

1. The number of ROR's involving poor housekeeping in controlled areas, and in general areas, has reduced drastically.

This major improvement is the result of management attention through the on-site assessor's observations, the Radiological Oversight Committee tours, and the efforts of Boston Edison supervision during the "pilot" housekeeping program.

The long term housekeeping methodology has now been defined and will soon result in housekeeping responsibility for a defined area of the plant assigned to a specific individual. This will provide the accountability for maintaining good housekeeping which was missing under the premise that good housekeeping was everyone's responsibility.

2. The number of incidents of contamination of clean areas and spills has improved over the third quarter. This improvement is attributed to the "pilot" housekeeping program continuing to be maintained, in that specific areas of the plant which have been deconned are monitored and tracked for changing conditions. The frequency of recontamination of clean areas has improved as "communications" progressed.
3. The common minor violations of "failure to sign out at the main gate" has been effectively resolved in that on the average only 1 to 2 violations per day are occurring. This areas has shown continued improvement.
4. A general improvement in the ROR process has been implemented in that the monthly ROR Trend Report now contains an Executive Summary and a much broader distribution, including the Radiological Oversight Committee members.

This action is expected to increase management attention to the ROR process and specific problem areas thus communicating the effectiveness of corrective actions.

- Continuing Problems

Examination of ROR data identify five (5) areas of recurring incidents which require management attention:

1. Procedural violations.
2. Door/Key control.
3. Clothing contamination.
4. Skin contamination.
5. Improper radiological posting.

- The significance (and frustration) of incidents in the above areas, in general, is that ROR's continue to recur at relatively steady frequencies when it is known that a great deal of corrective action has been implemented to address these areas.
- The areas of greatest concern are the door/key control incidents and procedural violations because they are long standing and have not yet shown significant improvement in spite of past corrective action.

Several recent actions have been initiated to further address the key control problem, however, their effectiveness cannot be determined yet.

- Key control has been an ongoing concern identified by the NRC and of course is generic to the origin of the RIP - i.e., significant potential for personnel overexposure.
- The problem of procedural violations, in general, continues and must be resolved. I would suggest that a good start could be achieved through supervision reviewing the new or revised procedures, developing a checklist of requirements for the procedure and then field checking for the existence of and compliance with those requirements, particularly the new requirements.

This would also provide the supervisor with an assessment of how well new requirements are being communicated to personnel.

- In the case of the clothing and skin contaminations, it is recognized that the source is primarily from work in high contamination areas such as the spent fuel pool, however, the incidence of occurrence has not changed significantly, indicating either ineffective corrective actions or lack of effective implementation.

- Posting inadequacies are recurring primarily because personnel continue (unauthorized) to place radioactive materials in posted areas, thereby causing the posting to be inaccurate. Several areas are also awaiting receipt of protective enclosures for upgrading the posting of outside storage areas. Posting in general has improved, but emphasis must be placed on educating personnel and enforcing the use of only authorized storage areas for radioactive materials. It is expected that improvements currently being implemented in radioactive material control system (consolidation of storage areas) will improve this situation during the fourth quarter.

IV. Supplemental Corrective Actions Planned or Taken

1. Radiological Oversight Committee (ROC) Activities

- The Radiological Oversight Committee has identified approximately 48 Action and Follow Items during the third quarter, of which, 28 items have been acted upon and closed.
- Progress was achieved in ROC functional performance as a result of direct observations during plant tours, more day to day effort by ROC members in addressing Action Items and supplemental involvement by corporate management. Communications about RIP and its significance has improved through monthly meetings between union personnel and the Vice President - Nuclear Operations. This effort is helping to improve personnel attitude toward radiological controls.
- Supervision should become more involved in enforcing radiological requirements and it is expected that continued attendance by plant supervisory personnel at ROC meetings will accomplish this objective.
- Frisking observations by ROC participants and contractor supervision indicate an improvement of the general frisking performance of personnel, although it is recognized that there is still a long way to go. ROC recently addressed the frisking situation (an interim action) by initiating the planned installation of additional frisking stations at the main access control point. This should relieve any peer pressure on personnel regarding the time it takes to frisk properly.
- The door/key control problems and the apparent lack of "elevation" and effective correction of these violations by management was a major concern by ROC. Several prompt actions were taken (see Section II.1.1 of this report) to resolve the door and key control problems and in addition, the plant manager has been assigned the task of reassessing the reporting criteria of ROR's to determine why identified problems such as R-key control, with the potential for overexposures that accompanies it, do not get elevated to the Failure and Malfunction Reporting process, or to other higher levels of management attention.
- Another accomplishment initiated from ROC activities was the decision to replace the spent resin storage tank, expedited by priority corporate attention. This equipment has been an ongoing problem creating recurring recontamination incidents in the spent resin storage tank room for over two (2) years.

In summary, ROC functional performance has improved and has the direct support of corporate management in addressing major

issues. ROC will need to place priority during the fourth quarter, on the major problems which linger - the tough issues of attitude and poor work practices, the activities defining and implementing a consolidated radioactive materials control program, assuring that recurring problems like door/key control and procedural non-conformances are being corrected and assurance that RIP improvements/changes are being implemented.

2. Other RIP Actions Planned or Taken

During the third quarter, the following supplemental actions have been taken:

- The "Follow Items" identified by the Regional NRC Inspector have been entered back into the RIP program for assignment and closeout by appropriate participants. To date approximately 22 items have been identified by the Inspector for possible further review. The nature of these items, in general, is to revise or justify conclusions reached in RIP milestones, or to increase the scope of evaluation in a few cases such as adding the R-key control process to the RIP milestone which evaluated physical controls over high radiation areas. The major Follow Items are identified in the Executive Summary of this report.
- RIP Sections 8.1.2, 8.1.3 and 8.1.4 which deal with implementation of consolidated radioactive material storage areas, proper protective enclosures and shielding of same requires revision of the original plan and schedule.

This area of RIP needs more evaluation due to the difficulty and complexity encountered in progressing original actions.

A new schedule is currently under development and will be communicated in an extension request letter to NRC during October, 1985.