

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report Nos. 50-387/90-07 & 50-388/90-07

Docket Nos. 50-387 & 50-388

License Nos. NPF-14 & NPF-22

Licensee: Pennsylvania Power and Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101

Facility Name: Susquehanna Steam Electric Station, Units 1 & 2

Inspection At: Berwick, Pennsylvania

Inspection Conducted: April 17-19, 1990

Team Members: Craig Z. Gordon
C. Z. Gordon, Regional Team Leader

5/10/90
date

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Approved By: W. J. Lazarus
W. J. Lazarus, Chief, Emergency
Preparedness Section

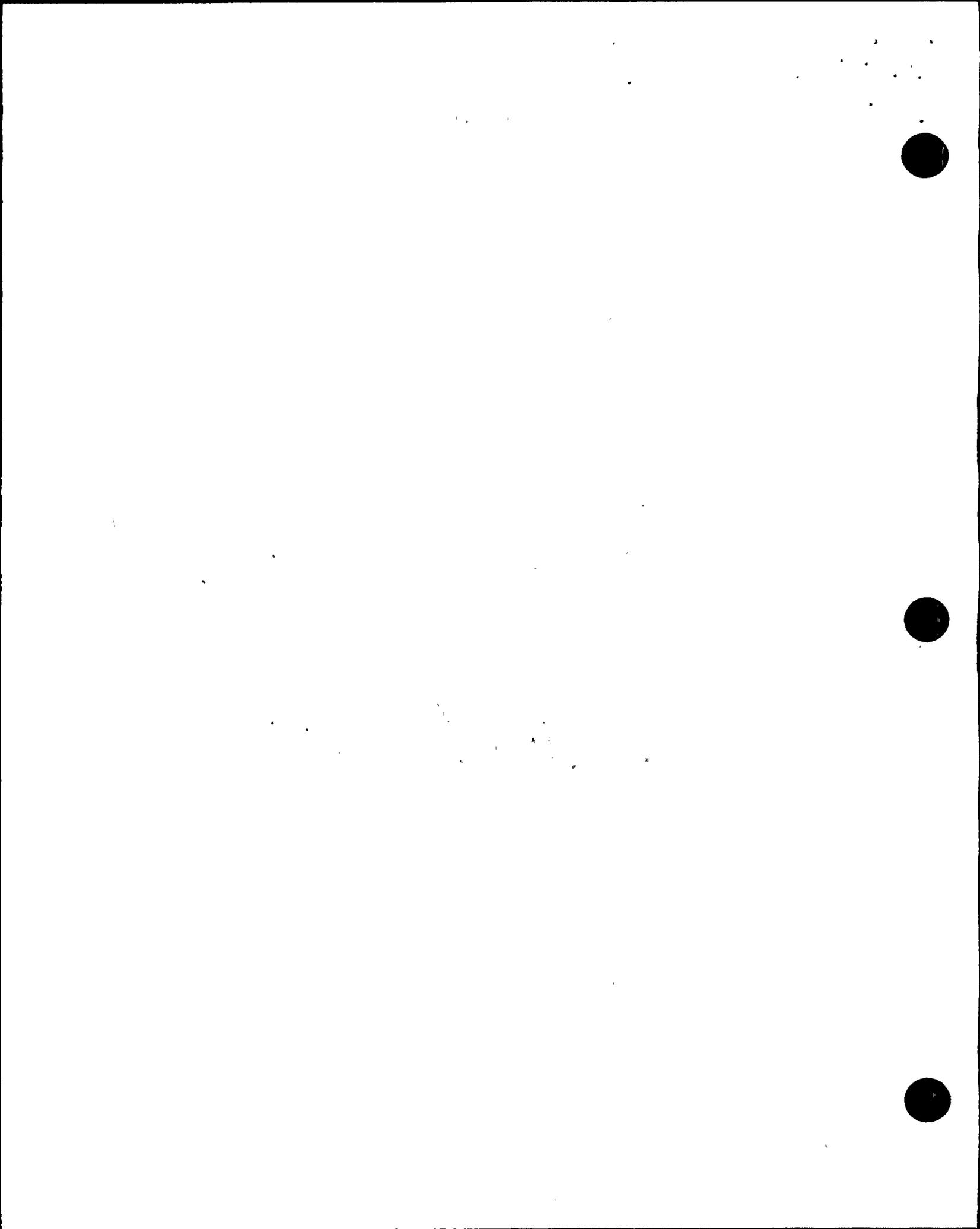
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Inspection Summary: Inspection on April 17-19, 1990 (Report Nos. 50-387/90-07 and 50-388/90-07).

Areas Inspected: Routine announced emergency preparedness (EP) inspection and observation of the licensee's partial participation annual emergency preparedness exercise conducted on April 18, 1990. The inspection was performed by a team of five NRC Region I and contractor personnel.

Results: No violations were identified. The licensee's response actions for this exercise were adequate to provide protective measures for the health and safety of the public.

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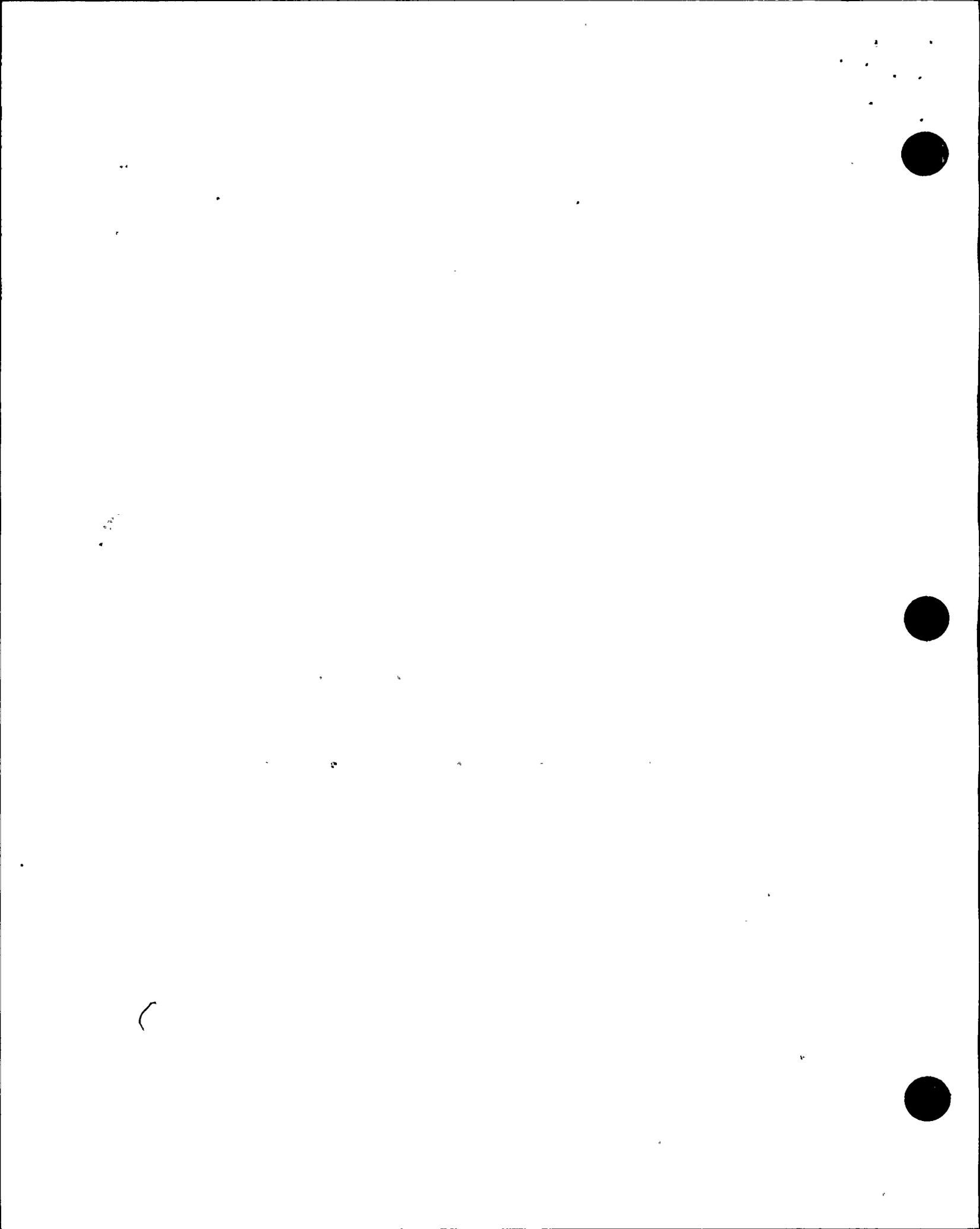


DETAILS

1.0 Persons Contacted

The following licensee and State representatives and support personnel attended the exit meeting held on April 19, 1990.

W. E. Barberich, Manager, Nuclear Services
W. M. Bogle, Supervisor, Resources and Training
R. G. Byram, Vice President
T. C. Dalpiaz, Assistant Superintendent, Outages
S. L. Denson, Supervisor, Outages
R. L. Doty, Supervisor, Radiological and Environmental Services
E. W. Figard, Supervisor, Maintenance
R. E. Gaudreau, Supervisor, Security Training
F. S. Gruscavage, Supervisor, Nuclear Safety Assessment Group
J. D. Hackenberg, Shift Supervisor
W. J. Heske, Assistant to Manager, Nuclear Administration
R. E. Hoopes, Supervisor, Radiological Group
J. R. Jordan, Pennsylvania Emergency Management Agency (PEMA)
C. J. Kalter, Supervisor, Environmental and Chemistry Group
H. W. Keiser, Senior Vice President
J. H. Lex, Supervisor, Nuclear Training
W. H. Lowthert, Manager, Nuclear Training
A. M. Male, Manager, Nuclear Plant Engineering
T. R. Markowski, Shift Supervisor
J. M. Minneman, Supervisor, Nuclear Emergency Planning
C. A. Myers, Manager, Nuclear Projects
T. H. Nervine, PEMA
D. E. Ney, Pennsylvania Bureau Radiation Protection
T. J. Nork, Supervisor, Plant Engineering
K. J. O'Brien, Luzerne County Emergency Management Agency (LCEMA)
H. J. Palmer, Supervisor of Operations
H. L. Riley, Supervisor, Health Physics and Chemistry
K. M. Roush, Supervisor, Nuclear Instruction
K. E. Shank, Supervisor, Radiological and Environmental Services
J. P. Siracuse, LCEMA
D. G. Sutton, Supervisor, Materials
H. G. Stanley, Superintendent of Plant
R. L. Stotler, Supervisor, Security
P. E. Taylor, Lead Shift Technical Advisor
H. D. Woodshick, Special Assistant to the President



During the conduct of the inspection, other licensee personnel were interviewed and observed in performance of emergency response duties. Representatives from the Long Island Lighting Company served as observers during the exercise and assisted the licensee with the post-exercise critique.

2.0 Emergency Exercise

The Susquehanna partial-participation exercise was conducted on April 18, 1990, from 8:00 a.m. until 3:30 p.m. Response actions of personnel from the Commonwealth of Pennsylvania were also demonstrated in the Emergency Operations Facility.

2.1 Pre-exercise Activities

The exercise objectives, submitted to the NRC Region I on November 17, 1989, were reviewed and determined to adequately test the licensee's Emergency Plan. On February 27, 1990 the licensee submitted the complete scenario package for NRC review and evaluation. Region I representatives had telephone conversations with the licensee's emergency preparedness staff to discuss the scope and content of the scenario.

In general, the NRC review of the scenario revealed the submittal to be complete in most areas. However, several inadequacies were identified with regard to lack of detail in operations data and descriptions of activities associated with inplant repair and corrective actions. In addition, information for the recovery phase of the scenario was not submitted for NRC review. Significant revisions were made to the scenario and events data. Following the changes, it was determined that the revised scenario would provide for adequate testing of major portions of the Emergency Plan Implementing Procedures (EPIP) and also provide the opportunity for licensee personnel to demonstrate those areas previously identified by the NRC as in need of corrective action. NRC observers attended a licensee briefing on April 17, 1990 and participated in the discussion of emergency response actions expected during the scenario. Suggested NRC changes to the scenario were made by the licensee and were also discussed during the briefing.

2.2 Exercise Scenario

The exercise scenario included the following events:

1. Railroad car derailment inside protected area;

2. Damage to fire protection system;
3. Loss of major portion of control room annunciators;
4. Loss of feedwater heating;
5. Fuel channel blockage;
6. Unisolable High Pressure Coolant Injection (HPCI) line break
7. Core uncover and severe fuel damage;
8. Offsite release of radioactivity to the environment;
9. Declaration of Alert, Site Area Emergency, and General Emergency classifications; and
10. Recommendations of protective measures to offsite authorities.

The above events caused the activation of the licensee's onsite and offsite emergency response facilities.

2.3 Activities Observed

During the conduct of the licensee's exercise, NRC team members made detailed observations of the activation and augmentation of the emergency response organization (ERO), activation of emergency response facilities, and actions of emergency response personnel during the operation of the emergency response facilities.

The following activities were observed:

1. Detection, classification, and assessment of the scenario events;
2. Direction and coordination of the emergency response;
3. Notification of licensee personnel and offsite agencies;
4. Communications/information flow, and record keeping;

5. Assessment and projection of radiological dose and consideration of protective actions;
6. Provisions for inplant radiation protection;
7. Performance of offsite and inplant radiological surveys;
8. Maintenance of site security and access control;
9. Performance of technical support, repair and corrective actions;
10. Performance of firefighting activities;
11. Assembly and accountability of personnel;
12. Provisions for communicating information to the public; and
13. Post-exercise critique.

3.0 Classification of Exercise Findings

Emergency preparedness exercise findings are classified as follows:

3.1 Exercise Strengths

Exercise strengths are areas of the licensee's response that provide strong positive indication of their ability to cope with abnormal plant conditions and implement the Emergency Plan.

3.2 Exercise Weakness

An exercise weakness is a finding that the licensee's demonstrated level of preparedness could have precluded effective implementation of the Emergency Plan in the area observed (in the event of an actual emergency). Existence of an exercise weakness does not of itself indicate that overall response was inadequate to protect the health and safety of the public.

3.3 Areas for Improvement

An area for improvement is a finding which did not have a significant negative impact on overall performance during the exercise, but should be evaluated to determine whether corrective action could improve any programmatic or performance area.

4.0 Exercise Observations

The NRC team noted that the licensee's activation and augmentation of the emergency organization, activation of the emergency response facilities, and use of the facilities were generally consistent with their emergency response plan and implementing procedures. Exercise observations were identified in each of the emergency response facilities.

4.1 Control Room

The following exercise strengths were identified.

1. Good recognition of changing conditions during the train accident and operations events. Subsequent classifications, notifications, and communications were in accordance with established procedures.
2. Thorough review of piping and instrument drawings to determine capability and status of the degraded fire protection system.
3. Direction and control demonstrated at top-level positions was strong, particularly the Emergency Director position.

No exercise weaknesses were identified.

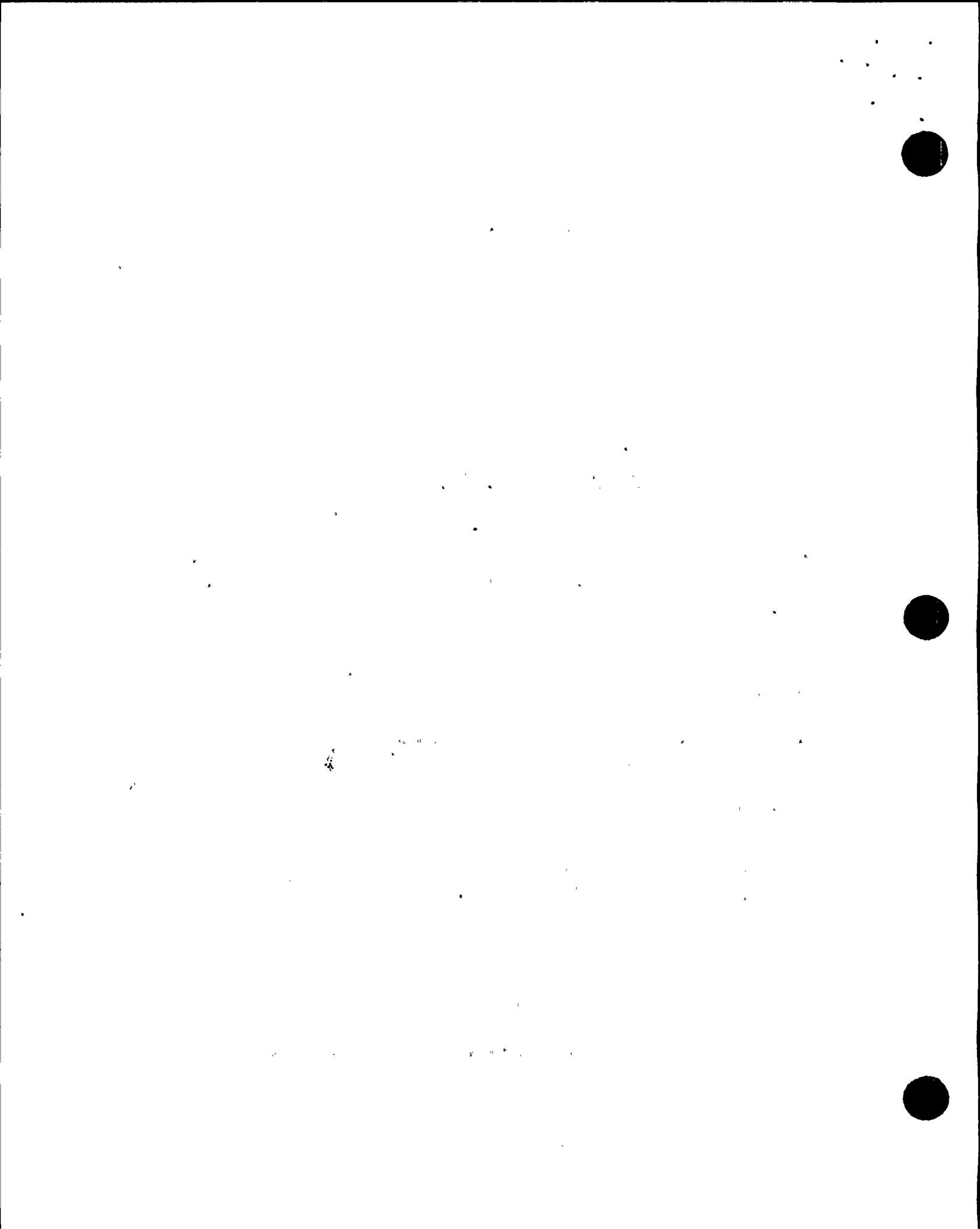
The following areas for improvement were identified.

1. Early in the scenario, the decision to initiate plant shutdown without annunciators was inappropriate and had the potential to aggravate operational events which existed at the time.
2. Information obtained from the control room by Media Operations Center staff was inaccurate regarding status of the accident, which unit was affected, and how the site-wide Emergency Plan was implemented.

4.2 Technical Support Center (TSC)

The following strengths were identified.

1. Personnel made good use of the new position specific implementing procedures.



2. The Emergency Director effectively used support personnel to perform priority tasks.
3. Good communications between field team coordinators, inplant repair teams, and offsite survey teams.
4. Accountability and site evacuation of non-essential personnel were timely.
5. Regular briefings were held between the Emergency Director and lead TSC coordinators to keep all staff apprised of key events.
6. The dose assessment overlays, used to display projected plume paths, was a helpful tool for anticipating affected sectors downwind of an expected release.

No exercise weaknesses were identified.

The following areas for improvement were identified.

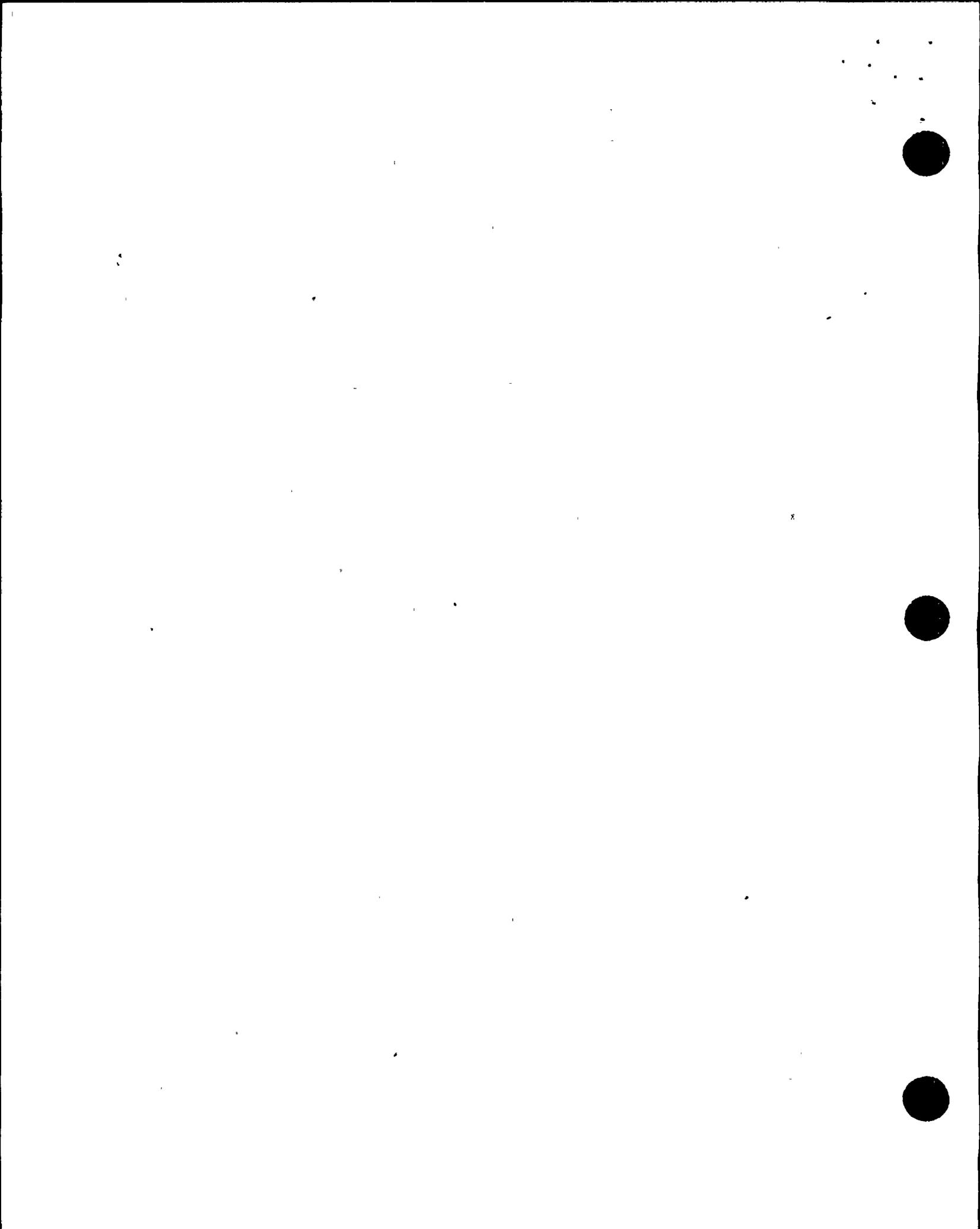
1. Inadequate controller information was given to the inplant team sent to investigate the fire in the Standby Gas Treatment System and caused confusion during their evaluation of radiological conditions.
2. Information transmitted to the State on a potential change in the Alert classification was not readily confirmed by TSC staff and resulted in misinterpretation of the information by State personnel.
3. The notification forms used to transmit outgoing information contained several errors and do not provide the basis for each emergency classification. The licensee must ensure that all information disseminated to offsite authorities is accurate.
4. Public address announcements inside various protected area locations were not adequately detailed to describe accident problems, affected areas, reactor status, or any plant areas with potentially high radiation levels.

4.3 Operations Support Center (OSC)

The following exercise strength was identified.

1. Good information flow between personnel in the OSC, control room, TSC, and assembly areas to ensure assigned tasks were effectively carried out.

No exercise weaknesses were identified.



The following area for improvement was identified.

1. Although the OSC provides adequate support to the technical staff, its overall function is not efficiently implemented. This is due to overall control of damage/repair teams from the TSC, a reduced role of the OSC Coordinator, staging of crafts personnel at remote locations in the plant, and separate communications links between each area involved in assembling and dispatch of teams. During the previous exercise, a similar finding was identified but the concern was not addressed. The licensee should evaluate possible changes to improve OSC efficiency (50-387/90-07-01 and 50-388/90-07-01).

4.4 Emergency Operations Facility (EOF)

The following exercise strengths were identified.

1. Thorough knowledge was displayed by EOF personnel in using revised implementing procedures and coordinating degraded plant parameters with radiological assessment staff.
2. The upgraded displays in EOF status boards provide an easy to use format to obtain reactor and containment parameters, makeup systems, emergency status, radiological release, and offsite doses.
3. The Recovery Manager demonstrated effective command and control which also included a significant amount of active participation. As a result, EOF response personnel were observed to be highly motivated in carrying out assignments.

No exercise weaknesses were identified.

The following areas for improvement were identified.

1. New scenario information was used for the recovery phase which was not submitted for NRC review prior to the exercise. As a result, initial conditions and events were confusing to recovery organization participants.
2. The intended use for the various types of media documents (bulletins, news releases, backgrounders) was unclear to EOF staff.
3. Emergency Operating Procedures and Emergency Plan Implementing Procedures do not appear to adequately address shutdown of the unaffected unit during serious emergencies since Unit 2 continued operation at 100% power well after the General Emergency was classified.

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5.0 Licensee Action on Previously Identified Items

(CLOSED) 50-387/89-02-01 and 50-388/89-02-01. Emergency Plan Implementing Procedures not effectively used or followed during the exercise.

In the training program for emergency response organization (ERO) personnel, the licensee emphasized the importance of using emergency procedures. During the exercise, ERO members were observed to be adequately trained and effectively using the new position specific response procedures.

(CLOSED) 50-387/89-02-02 and 50-388/89-02-02. Protective Action Recommendations (PAR) made to Pennsylvania delayed and primarily based upon field data.

Immediately following the General Emergency, the PAR issued to Pennsylvania was based on degraded plant conditions and was thoroughly discussed with State representatives until a consensus among all key decisionmakers was reached.

(OPEN) 50-387/89-02-03 and 50-388/89-02-03. Emergency Action Levels (EAL) should be reviewed and evaluated to ensure they are clear and unambiguous.

This concern, which was identified in previous inspections, was again noted in the licensee's performance during the exercise. Based upon initiating conditions which existed, classification of the Site Area Emergency was in accordance with EAL's, but ultimately left to Shift Supervisor discretion. The decision appeared to be overly conservative for expected onsite and offsite response actions. At the exit meeting, the licensee committed to a review of the EAL and emergency classification scheme. This item remains open and is unresolved.

(CLOSED) 50-387/89-02-04 and 50-388/89-02-04. EP-IP-033, "Dose Assessment and Protective Actions" is not consistent with NRC guidance.

The licensee addressed this concern by developing a study which focused on how EP-IP-033 could more closely follow NRC IE Information Notice No. 83-28 and NUREG-1210 guidance. As a result, the procedure was revised and now provides for a recommendation to evacuate people within two miles of the plant following a General Emergency.

(CLOSED) 50-387/89-02-06 and 50-388/89-02-06. Post-exercise critique did not thoroughly address areas in need of improvement.

During the exercise, the licensee used independent contractor support to provide an objective view of ERO performance and adequately identify deficient areas in need of corrective action.

Based upon discussions with licensee representatives, examination of procedures and records, and observations made by the NRC team during the exercise, areas for improvement identified during the previous emergency exercise (Inspection Report Nos. 50-387/89-02 and 50-388/89-02) were acceptably demonstrated and not repeated.

6.0 Licensee Critique

The NRC team attended the licensee's exercise critique on April 19, 1990 during which the licensee's lead controllers summarized observations from the exercise. The critique was thorough and documented deficient areas in need of corrective action. The licensee indicated that critique items would be tracked in their internal open item tracking system.

7.0 Exit Meeting

Following the licensee's self-critique, the NRC team met with the licensee representatives listed in Section 1 of this report. Team observations made during the exercise were summarized.

The licensee was informed that previously identified items were adequately addressed and that no violations were observed. Although there were areas identified for improvement, the NRC team determined that within the scope and limitations of the scenario, the licensee's performance demonstrated that they could implement their Emergency Plan and Emergency Plan Implementing Procedures in a manner that would provide adequate protective measures for the health and safety of the public.

Licensee management acknowledged the findings and indicated that they would evaluate and take appropriate action regarding the items identified for corrective action.