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memorandum

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REPLY TO
ATTN OF: EH-332

SUBJECT: Supplement to EH Readiness Review Inspection (RRI) Report for Waste Isolation Pilot Plant (WIPP) Project

to: Jill E. Lytle, EM-30

The Office of the Deputy Assistant Secretary for Safety, Health and Quality Assurance (EH-30) conducted a follow-up RRI at WIPP during the week of November 6, 1989. The results of our evaluation are in the attached report, "Supplement to EH Readiness Review Inspection of the Waste Isolation Pilot Plant." The most significant open findings remaining are those dealing with the acquisition and training of personnel and the determination of the cause of failure of the waste hoist.

Questions concerning this report should be referred to Harry Pettengill (3-4093) or Edward Branagan (3-6509).

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Attachment

cc w/attachment: See List

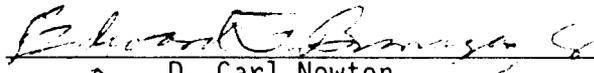
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SUPPLEMENT 1 TO
EH READINESS REVIEW INSPECTION
OF THE WASTE ISOLATION PILOT PLANT

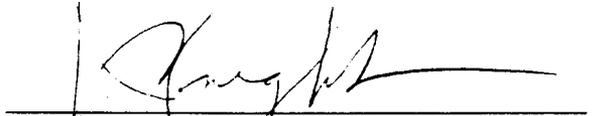
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1/22/90
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CONTENTS

	PAGE
SUMMARY AND CONCLUSIONS	ii
I. INTRODUCTION	I-1
II. EVALUATION AND CURRENT STATUS	II-1
III. REFERENCES	III-1
APPENDIX A - TEAM MEMBERS	A-1
APPENDIX B - EVALUATION OF LOSS OF POWER DRILL	B-1
APPENDIX C - EVALUATION OF HEALTH PHYSICS DRILL	C-1
APPENDIX D - EVALUATION OF HI-RAD DRUM DRILL	D-1
APPENDIX E - EVALUATION OF OFFSITE DOSE DRILL	E-1

SUMMARY AND CONCLUSIONS

This report provides an updated status report on the readiness of the Waste Isolation Pilot Plant (WIPP) to safely operate. Of the 73 original prestartup findings from the May 1989 RRI, 20 remain open and 53 are closed. Four additional findings were made during and following the November 6-8, 1989, follow-up visit. Thus, a total of 24 prestartup findings are open. Table 1 lists the follow-up actions required to closeout all open findings.

The project has provided a written commitment (Reference 12) for open findings. The commitments appear adequate to close out the findings. Completion of the actions committed to in Reference 22, and the submittal by the project to EH of appropriate confirming documentation, could resolve all but four of the open findings (Nos. 6, 13, 38, and 74) without a follow-up site visit. The documentation should be reviewed and evaluated before the finding is closed.

For the remaining four findings (Nos. 6, 13, 38, and 74), it will be necessary to conduct a follow-up site visit to confirm through onsite inspection that the actions taken by the project are adequate to close out the findings.

The most significant open findings from the standpoint of schedule impact appear to be those dealing with the acquisition and training of personnel (Nos. 18, 19, 22, 23, 66, and 73) and the determination of the cause of the waste hoist bearing failure (No. 76). An adequate number of positions for personnel in training, quality assurance and health physics must be established and filled with qualified individuals prior to startup. Also, a well documented resolution of the waste hoist bearing failure must be completed and reviewed to assure that the failure mechanism is understood and that the corrective actions taken will support the required high confidence that the design is adequate.

The RRI report issued by EH on June 2, 1989 (Reference 1), also listed 117 post startup findings. While these findings need not be resolved prior to startup, they are important and an action plan and schedule for their resolution should be finalized by the project and submitted to EH for review and comment prior to startup. The development of a plan and schedule for resolving the post startup findings has been added as finding number 77. The project has provided a draft schedule and outline for some findings (Reference 22).

TABLE 1 - FOLLOW-UP ACTIONS FOR OPEN FINDINGS

FINDING NO.	DESCRIPTION OF FINDING	FOLLOW-UP ACTION REQUIRED TO CLOSE OUT	FIELD VERIFY
6	Revise electrical drawings to "as built"	Electrical drawings must be revised to reflect the "as built" configuration of the facility.	Yes
7	Acceptance testing of uninterrupted power supply	Acceptance testing of the entire central uninterrupted power supply (including inverters) must be completed.	No
9	Safety Equipment Not on an Uninterrupted Power Supply (UPS)	Continuous Air Monitors (CAMs) and air pumps for CAMs that are OSR/LCO related must be on an UPS.	No
13	Log sheet corrective action follow-up	A history of compliance with the procedural requirements to high-light in the log and process out-of-tolerance conditions on electrical and mechanical equipment must be established.	Yes
18	Perform a task analysis for training	A plan and schedule for completing the training task analysis must be provided, or a viable alternative proposed.	No
19	Inadequate training staff	A reasonable number of positions in the training organization must be approved and filled with qualified individuals.	No
22	Health physics personnel lack experience	A reasonable number of positions for health physics technicians and professionals must be filled with qualified individuals.	No
23	Improved health physics training program	A reasonable number of health physics technicians must be fully certified.	No

FINDING NO.	DESCRIPTION OF FINDING	FOLLOW-UP ACTION REQUIRED TO CLOSE OUT	FIELD VERIFY
27	Demonstrate adequacy of Continuous Air Monitors (CAMs)	New radial entry sampling heads for subsurface CAMs must be installed and the CAMs calibrated.	No
28	Establish external dosimetry program	DOELAP accreditation of the external dosimetry program must be accomplished.	No
29	Improve respiratory protection program	Procedural revisions and development of a qualification card for respirator issue, inspection, and maintenance personnel must be completed.	No
37	Offsite monitoring	Develop procedures for the off site radiological monitoring program and train personnel in their use.	No
38	Off site dose estimates	Establish a capability for assessing offsite doses, issue a procedure and provide training.	Yes
47	Maintenance procedures need upgrading	Develop a comprehensive list of procedures required to implement Operational Safety Requirements and Limiting Conditions for Operations. Confirm the adequacy of these procedures.	No
48	Complete internal readiness review	Westinghouse must issue a Readiness Review Report documenting closure of all prestart findings.	No

FINDING NO.	DESCRIPTION OF FINDING	FOLLOW-UP ACTION REQUIRED TO CLOSE OUT	FIELD VERIFY
50	HEPA test procedures inadequate	Select a vendor to test HEPA filters, approve the procedures for testing filters, and complete testing of the filters.	No
55	Develop checklist for inspecting shipping trailers	The maintenance manual for the TRUPACT II shipping trailer must be issued and reviewed by EH.	No
59	Improvements for procedure revision system	A method must be established for assuring that the facility operations shift supervisor has immediately available a list of current procedures.	No
66	Authority of QA Manager	An adequate number of positions in the newly established organization must be filled with qualified individuals.	No
73	Inadequate QA audits performed	An adequate number of positions in the newly established organization must be filled with qualified individuals.	No
74	PA system in WHB is unintelligible	The public address system in the Waste Handling Building must be upgraded.	Yes
75	Some controlled notebooks not up-to-date	The system for assuring that controlled procedures are maintained current in notebooks must be reviewed.	No

FINDING NO.	DESCRIPTION OF FINDING	FOLLOW-UP ACTION REQUIRED TO CLOSE OUT	FIELD VERIFY
76	Failure of waste hoist bearing	The cause of failure of the waste hoist bearing must be established and adequate corrective action completed.	No
77	Action Plan for Post Startup Findings	The project must submit to EH for review and evaluation a plan and schedule for each of the 117 post startup findings in Ref. 1.	No

I. INTRODUCTION

This report provides an updated status report on the readiness of the Waste Isolation Pilot Plant (WIPP) to safely operate. The Office of the Deputy Assistant Secretary for Safety, Health and Quality Assurance (EH-30) conducted a Readiness Review Inspection (RRI) of the Waste Isolation Pilot Plant (WIPP) on May 8-15, 1989. The EH review independently assessed the readiness of the physical facility, staffing, training, procedures and documentation. A report was issued on June 2, 1989, documenting the results of the RRI (Reference 1).

The EH RRI conducted in May 1989 resulted in 73 prestartup findings and 117 post startup findings. The WIPP project provided written responses to the prestartup findings in References 2 through 5. EH evaluated these responses, provided comments, and requested additional information in References 6 through 8. A revised response was provided by the project in Reference 9. A summary of the project's responses and the EH evaluation is furnished in Section II of this report for each of the prestartup findings.

During November 6-8, 1989, a follow-up visit was made to the WIPP site and the status of open findings was further investigated through interviews with project personnel, inspection of equipment, examination of documents, and the observation of drills.

Four drills were conducted during this follow-up visit: (1) a TRUPACT opening and high radiation drum drill; (2) a contaminated injured man drill; (3) an offsite dose assessment drill; and (4) a loss-of-power drill. An evaluation of these drills is provided in Appendices B-E to this report.

Section II (Evaluation and Current Status) provides: (1) a statement of the acceptance criteria; (2) the original finding (or the new finding for those resulting from the November 6-8, 1989 follow-up visit); (3) a summary of the project's actions to resolve the finding, the EH evaluation of the project's

actions, and a conclusion as to adequacy (i.e., open or closed).

Appendix A lists the team members that participated in the November 6-8, 1989, follow-up visit to the WIPP site along with the technical observers for Defense Programs.

II. EVALUATION AND CURRENT STATUS

This section contains an evaluation for each of the original 73 prestartup findings and the four added findings. The evaluation includes:

- o A statement of the acceptance criteria;
- o A statement of the finding;
- o A summary of project activities to resolve the finding;
- o EH's evaluation of the project's activities; and
- o A conclusion as to the current status of the finding (open or closed).

Table 2 lists the status of all prestartup findings.

TABLE 2 - STATUS OF PRESTARTUP FINDINGS

NO.	DESCRIPTION OF FINDING	STATUS*	
		0	C
1	Balancing Test for Underground Ventilation System		C
2	Revise Documents for New Booster Fan Configuration		C
3	Acceptance Testing of Pressure Chamber		C
4	Issue Design Verification Procedure		C
5	Revise Operating Procedure for U/G Ventilation System		C
6	Revise Electrical Drawings to "As Built"	0	
7	Acceptance Testing of Uninterrupted Power Supply (UPS)	0	
8	Uninterrupted Power Supply Load Exceeds Capacity		C
9	Safety Equipment Not on UPS	0	
10	Data from Diesel Generator Startup Test		C
11	Confirm Capacity of UPS Battery		C
12	Remote Starting for Diesel Generators		C
13	Log Sheet Corrective Action Follow-up	0	
14	Inadequate Ventilation for Battery Room		C
15	Insufficient Emergency Lighting		C
16	Inaccurate Equipment Tracking List		C
17	Certification of Facility Operations Shift Supervisors		C
18	Perform a Task Analysis for Training	0	
19	Inadequate Training Staff	0	

NO.	DESCRIPTION OF FINDING	STATUS*	
		0	C
20	Improve Supervisor Training Program		C
21	Fill Position for Manager of Operational Health Physics		C
22	Health Physics Personnel Lack Experience	0	
23	Improve Health Physics Training Program	0	
24	Upgrade Health Physics Qualification Cards		C
25	Qualification of Contractor Health Physics Personnel		C
26	Establish Internal Dosimetry Program		C
27	Demonstrate Adequacy of Continuous Air Monitors	0	
28	Establish External Dosimetry Program	0	
29	Improve Respiratory Protection Program	0	
30	Implement Limiting Conditions for Operation		C
31	HP Supervisor Involvement in Dropped Drum Drill		C
32	Excessive Response Time in Dropped Drum Drill		C
33	Survey Training for Waste Handling Technicians		C
34	Radiological Spill Kits in Dropped Drum Drill		C
35	Additional Radiological Incident Training		C
36	Information on External Drum Radiation Levels		C
37	Offsite Monitoring	0	
38	Offsite Dose Estimates	0	
39	Instruments for Radiation Safety Group		C

NO.	DESCRIPTION OF FINDING	STATUS*	
		O	C
40	Calibration of Pocket and Alarming Dosimeters		C
41	Action Levels for External Radiation		C
42	Training Should Include DOT Requirements		C
43	Procedural Controls for High Radiation Areas		C
44	No Sprinklers in Shielded Storage Room		C
45	No Electrical Disconnect for Computers		C
46	No Sprinklers in Forklift Battery Charging Area		C
47	Maintenance Procedures Need Upgrading	O	
48	Complete Internal Readiness Review	O	
49	No Inspection Procedure for Seismic Damage		C
50	HEPA Test Procedures Inadequate	O	
51	Perform Casualty Drills Without Advance Notice		C
52	Issue DOE/WPO Management Plan		C
53	Develop a Formal Management Directives System		C
54	Define Interfaces Among Project Participants		C
55	Develop Checklist for Inspecting Shipping Trailers	O	
56	Develop Retrieval Procedure for High Radiation		C
57	Centralized Control of Tag Outs		C
58	Improvements for Procedure Revision System		C
59	Develop Waste Handling Procedures for High Radiation	O	

NO.	DESCRIPTION OF FINDING	STATUS*	
		O	C
60	Monitoring Equipment Training for Health Physics Personnel		C
61	Atmosphere Control While Opening TRUPACT Containers		C
62	Inconsistent Data Requirements for WIPP WAC and WIPP WWIS		C
63	Procedure to Segregate CH TRU and RH TRU		C
64	Radiation Surveys for Containers Left Outside Overnight		C
65	Storage Time Limit for CH Waste in Shielded Storage Room		C
66	Authority of QA Manager	0	
67	Stop Work Authority for Project Manager		C
68	Quality Level Assignments for Procurement Requests		C
69	Potentially Counterfeit High Strength Bolts		C
70	Qualification Requirements for Testing Personnel Not Specified		C
71	Out-of-Date Instrument Calibrations		C
72	Air Monitoring Equipment Operability Testing Overdue		C
73	Inadequate QA Audits Performed	0	
74	PA System in WHB is Unintelligible	0	
75	Some Controlled Notebooks Not Up-to-Date	0	
76	Failure of Waste Hoist Bearing	0	
77	Action Plan for Post Startup Findings	0	—
	TOTALS	24	53

O = Open, Action required to close out

C = Closed, no further action required

FINDING NO. 1 (B-1.1): BALANCING TEST FOR UNDERGROUND VENTILATION SYSTEM

ACCEPTANCE CRITERIA:

The underground ventilation system will provide life supporting flow in accessible drifts and will maintain flow from the mining and experimental areas to the Radioactive Material Area (RMA) during the normal and filtration flow modes (FSAR, Section 3.3.2.3.2, WIPP Dwg's. 54-W-002-W, 54-W-004-W and Mine Safety and Health Administration).

Acceptance tests will demonstrate that a system will satisfy design criteria and meet functional requirements (FSAR, Section 9.2).

ORIGINAL FINDING:

This preliminary report of the U/G Balancing tests is the only document issued to report the results of the test. Although the results are positive, they are too sparse to support a conclusion that the system is properly balanced.

The preliminary report indicates flows in some of the drifts which exceed the required flows shown on WIPP Dwg's 54-W-002-W and 54-W-004-W. For the balancing test, the Galloway was installed in the intake shaft and all registers and bulkhead doors were configured in the anticipated operating configuration. Results indicate acceptable balancing has been achieved for both the normal, filtration, and reversal flow modes for the few areas reported.

PROJECT RESPONSE AND EH EVALUATION:

The project's first response was provided in Reference 2. The response included a copy of the final report, "Final Testing and Balancing of the Recommended Ventilation System at the WIPP Facility," Mine Ventilation Services, Inc., May 1989. The report was reviewed and some additional information requested by EH in Reference 7. Specifically, no explanation for the low air flow in the Mining and C&SH Air Reversal mode was provided in the first response. EH requested an evaluation of the significance of the shortfall and justification from the project to operate with the low air flow.

The requested additional information was provided to EH by the project in Reference 9. The project's revised response explained that the air flow values given for the air reversal mode were only estimates, not minimum requirements, and that only the direction of the airflow, not the quantity, is critical when in the air reversal mode.

During the follow-up site visit November 6-8, 1989, the results of the underground ventilation system balancing test report (Reference 10) was reviewed. EH concurs with the project position that when in the air reversal mode it is the direction of airflow that is critical and not the quantity of the flow.

The project response is adequate and the finding is closed.

FINDING NO. 2 (B-1.2): REVISE DOCUMENTS FOR NEW BOOSTER FAN CONFIGURATION

ACCEPTANCE CRITERIA:

Booster fans are to be available if required to produce underground (U/G) reversal flow mode per fire protection requirements (FSAR, Section 4.4.1.3).

FACTS:

Reviewed TP-019-010, Underground Booster Fan Interlocks and Controls (Fans 74-B-004-A, B, C).

The procedure was used to test the main panel control functions, control logic, fan trip functions and that the flow control system would maintain flow in the automatic and manual modes for the booster fans 74-B-004A, B and C.

ORIGINAL FINDING:

All drawings, procedures and documents must be revised to reflect the new operating configuration for the booster fans corresponding to the revised U/G Ventilation System operating configuration.

The tests performed demonstrated that the fan could be started remotely in the normal flow mode, would shut down automatically in the filtration mode, and could be controlled from the CMS during flow reversal modes. As a result of the underground balancing it is now recognized that the booster fans are not needed during the normal flow mode. Consequentially the control interlocks used to control the booster fans in the normal and filtration modes should be removed from the control systems and the modified system retested to demonstrate proper operation.

PROJECT RESPONSE AND EH EVALUATION:

The project's first response (Reference 3) provided Revision 1 of Procedure WP 04-305 and some related drawings. The first response, however, lacked some of the drawings needed to show the corrections and revisions associated with the new operating configuration for the booster fans. Additional information was requested by EH in Reference 7. The project's revised response (Reference 9) provided revised procedure WP 04-305 and related drawings, including drawing number 54-W-002-W, showing the approved configuration for the booster fans.

Additional justification for the use of the control interlocks used to control the booster fans in the normal and filtration modes was also provided by the project in Reference 9. Specifically, the control interlocks help prevent inadvertent operation of the booster fans when operating in the filtration mode.

The project response is adequate and the finding is closed.

FINDING NO. 3 (B-1.3): ACCEPTANCE TESTING OF PRESSURE CHAMBER

ACCEPTANCE CRITERIA:

Acceptance tests will demonstrate that a system will satisfy design criteria and meet functional requirements (FSAR, Section 9.2).

ORIGINAL FINDING:

No acceptance testing has been performed to demonstrate that the S-400 pressure chamber does pressurize to a design operating pressure level, and that the time to reach that pressure, and the ability to maintain that pressure, are adequate. Further, the impact on a person in the chamber at the time of actuation should be assessed. Until these tests and evaluations are performed, the pressure chamber cannot be relied on to perform its function and presents a potential hazard.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 2) failed to address the possible impact of pressure on a person in the chamber at the time of pressurization and did not describe any controls to limit personnel access. The procedure (TP-017-045) submitted did not include any description of overpressurization protective devices nor any provisions for testing such devices. A request for this information was made in Reference 7.

The project's revised response (Reference 9) contained a copy of the completed and approved test procedure (TP-017-045) and the results of the startup test which was performed on June 24, 1989.

The project response is adequate and the finding is closed.

FINDING NO. 4 (B-1.4): ISSUE DESIGN VERIFICATION PROCEDURE

ACCEPTANCE CRITERIA:

During operations it is important to ensure that systems remain within their nominal performance parameters (FSAR, Section 9.2.5).

ORIGINAL FINDING:

Repairs, modifications and improvement to components, systems, and structures can result in changes in system performance. The additional engineering analysis and evaluations required to ensure that design change have not compromised the results of the acceptance test are not addressed in either of these documents. A prepared draft of WP 09-018, "Design Verification" addresses this concern, however, final EH-30 validation upon formal issuance is required.

PROJECT RESPONSE AND EH EVALUATION:

The original project response (Reference 4) did not include a copy of the "Engineering and Design Document Preparation and Change Control" Procedure WP 09-007 that is also required to close out this item. EH advised the project of the need for this information (Reference 8). The project (Reference 9) provided this procedure.

EH's review of this and the WP 09-018 "Design Verification" procedure adequately addresses this finding. Together these procedures ensure that repairs, modifications, and improvement to the components, systems, and structures receive the correct reviews and evaluations such that the design change does not compromise the original acceptance test.

The project response is adequate and the finding is closed.

FINDING NO. 5 (B-2.2): REVISE OPERATING PROCEDURE FOR U/G VENTILATION SYSTEM

ACCEPTANCE CRITERIA:

Operating procedures are written for complex or critical operations. These procedures are kept current (FSAR, Section 9.4.1).

ORIGINAL FINDING:

The facility is being operated in violation of NQA-1 Basic Requirement No. 5. Specifically, the facility has been and is being operated in accordance with an operating procedure for the U/G Ventilation System that was not revised to correspond to the balanced configuration of the U/G Ventilation System.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 2) included a revised procedure, WP 04-305, "Underground Ventilation System Operations," that accounted for the balanced configuration of the Underground Ventilation System.

EH reviewed the revised procedure and found that the balanced configuration was adequately covered in the revisions. The project was advised of the results of the EH review (Reference 7) and that no additional information would be required.

The project response is adequate and the finding is closed.

FINDING NO. 6 (B-3.1): REVISE ELECTRICAL DRAWINGS TO "AS BUILT"

ACCEPTANCE CRITERIA:

Electrical drawings should accurately reflect the existing as-built conditions. Follow-up to DOE/AL Phase II Findings #46 and #49.

ORIGINAL FINDING:

The need, especially in the electrical area, for as-built drawings is critical. As a minimum, management commitment for achieving this goal in an expeditious manner is necessary to assure safe and reliable operation of the facility (equipment and personnel safety with the LCO electrical as-built drawings taking top priority). During the process of validating and correcting the drawings, additional administration controls are necessary to assure that operational and safety objectives are maintained (i.e., personnel awareness of drawing status, additional precautions for hold-offs with verification by an independent second party, etc.).

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 2) included a list of LCO/OSR electrical equipment which had been field verified. A memorandum (6/19/89) stated that the appropriate drawings had been red-lined, and an engineering change order (ECO) had been initiated.

During the follow-up site visit, November 6-8, 1989, the as-built drawing program was reviewed. A contractor has been hired to field verify and update site drawings as appropriate by 5/1/90. Nineteen systems have been identified, with top priority being given to the systems that include LCO/OSR equipment. Procedures have been written by the project and by the contractor to control the conduct of work. These procedures were reviewed and found to be adequate.

The project commitment to resolve this finding appears adequate.

The finding is open.

FINDING NO. 7 (B-3.2): ACCEPTANCE TESTING OF UNINTERRUPTED POWER SUPPLY

ACCEPTANCE CRITERIA:

FSAR, Section 9.2 requires acceptance testing of equipment. DOE Order 6430.1A (1605-1), also specifies that on-site acceptance testing shall be required for each electrical system and components.

ORIGINAL FINDING:

No acceptance or startup test was conducted for the UPS. This test is required to comply with the FSAR commitment.

PROJECT RESPONSE AND EH EVALUATION:

The original project response (Reference 2) did not adequately address the issue. It simply stated that the battery discharge test had been satisfactorily completed which demonstrated that the UPS was capable of meeting its 30-minute requirement. The revised response (Reference 9) described a plan of attack for resolving the concern, including a new procedure, testing, and evaluation of the test results. Details of this effort were further described in a telephone conversation on 9/26/89.

During the follow-up site visit on November 6-8, 1989, the schedule for completing acceptance testing of the UPS was reviewed. A draft (non-approved) copy of the test procedure was obtained and reviewed. Prior to startup there should be approval of the procedure, conduct of the test, and EH review of the test results.

The finding is open.

FINDING NO. 8 (B-3.3.1): UNINTERRUPTED POWER SUPPLY LOAD EXCEEDS CAPACITY

ACCEPTANCE CRITERIA:

DOE Order 6430.1A, 1605-1, requires that electrical systems shall be designed so that all components operate within their capacities for initial and projected loads.

ORIGINAL FINDING:

It is not known whether loads presently connected to the 80 KVA UPS will exceed that equipments capacity. Specifically, the total nameplate loading carried by the UPS is 126.14 KVA.

PROJECT RESPONSE AND EH EVALUATION:

The original project response (Reference 2) included a work order which documented the actual loads to be supplied by the 80 KVA central UPS. The actual loading was found to be 28 KVA, well within the equipment's capacity.

The project response is adequate and the finding is closed.

FINDING NO. 9 (B-3.3.2): SAFETY EQUIPMENT NOT ON UNINTERRUPTED POWER SUPPLY

ACCEPTANCE CRITERIA:

DOE Order 6430.1A, 1605-1, requires that electrical systems shall be designed so that all components operate within their capabilities for initial and projected loads.

ORIGINAL FINDING:

The UPS load list does not contain Radiological Monitoring System (RMS) equipment designated as Operational Safety Requirement (OSR) related, and contains various nonessential loads.

PROJECT RESPONSE AND EH EVALUATION:

The original project response (Reference 2) stated that the UPS load list had been field verified and updated to incorporate RMS equipment designated as OSR related. Documentation was included which was not relevant to this concern. The revised response (Reference 9) included the updated load list as documented on drawings 45-J-031-W, Rev. A and 45-J-032-W, Rev. A. This finding was considered to be closed until the follow-up visit November 6-8, 1989.

During the power outage on November 7, 1989, it was discovered that Continuous Air Monitors (CAM's) number 29 and 30 in the Waste Handling Building, and their air pumps, were not on an Uninterrupted Power Supply (UPS) as required for OSR related equipment. Corrective action to place this equipment on an UPS is planned by the project, but has not yet been completed.

The finding is open.

FINDING NO. 10 (B-3.4): DATA FROM DIESEL GENERATOR STARTUP TEST

ACCEPTANCE CRITERIA:

FSAR, Section 9.2 specifies that acceptance test nonconformances may be authorized after evaluations by responsible engineering and management personnel.

ORIGINAL FINDING:

Out-of-tolerance data recorded in the Diesel Generator Startup Test Procedure were not evaluated and dispositioned prior to approval of the test results. The results of the startup test for Diesel Generators 1 & 2 are in question.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 3) contained a procedure review form with an appropriate engineering evaluation indicating that the out-of-tolerance data did not alter the satisfactory test completion. In addition, a record of recalibration was provided to bring the specific instruments into specification.

EH reviewed this material and found that it adequately addressed the finding.

The project response is adequate and the finding is closed.

FINDING NO. 11 (B-3.5): CONFIRM CAPACITY OF UPS BATTERY

ACCEPTANCE CRITERIA:

The FSAR, Section 4.4.2.1.3, states that the dedicated batteries can supply power to a fully loaded UPS for 30 minutes.

ORIGINAL FINDING:

Verification that the FSAR commitment for the UPS battery capacity is met has not been completed either by analysis or testing.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 3) contained the completed test procedure for the battery capacity test.

EH reviewed the start-up test procedure and results and finds that it adequately addresses the concern. No additional information is required. During the follow-up visit on November 6-8, 1989, it was learned that replacement of the battery was scheduled for the near future (about 1/90). The start-up test (TR-007/010/015) for the entire UPS (B-3.2) will include a capacity test of the battery.

The project response is adequate and the finding is closed.

FINDING NO. 12 (B-3.6): REMOTE STARTING FOR DIESEL GENERATORS

ACCEPTANCE CRITERIA:

According to the FSAR (pages 4.4-25, 26 and 29) the Diesel Generators can be started remotely from the CMR.

ORIGINAL FINDING:

FSAR statements regarding the remote start (from CMR) capability of the diesels are not implemented by the operating practices.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 2) indicated that an FSAR revision would be made to address the concern. However, this still did not address the fact that the diesel could not be started remotely if the local switch was in the "LOCAL" position per the operating procedure, 04-111.

The revised response (Reference 9) stated that the procedure would be revised to maintain the switch in the "REMOTE" position which allows the diesel to be started from the CMR.

During the follow-up site visit on November 6-8, 1989, the revised procedure 04-111, Rev. 2, 10/6/89, was reviewed. The switch position was visually verified to be in the "REMOTE" position.

The project response is adequate and the finding is closed.

FINDING NO. 13 (B-3.7): LOG SHEET CORRECTIVE ACTION FOLLOWUP

ACCEPTANCE CRITERIA:

Batteries shall be kept fully charged at all times per DOE Order 6430.1A, 1660-2.

ORIGINAL FINDING:

A logged parameter which was outside of the specified minimum or maximum was not circled in red. No action was taken to correct the out-of-tolerance condition as required by the operating procedure.

PROJECT RESPONSE AND EH EVALUATION:

The original project response documented that training of all facility operations personnel on log taking had been completed. This training emphasized circling out-of-inspection parameters, initiating corrective action, and conducting proper log reviews.

During the follow-up site visit of November 6-8, 1989, recent log sheets were reviewed to verify that the project action resolved this concern. Numerous cases were found of out-of-tolerance parameters which were not circled in red. No action was taken to correct the out-of-tolerance condition as required by the operating procedure.

The finding is open.

FINDING NO. 14 (B-3.8): INADEQUATE VENTILATION FOR BATTERY ROOM

ACCEPTANCE CRITERIA:

Verify that the emergency electrical systems are operable and are available for use. Follow-up to DOE/AL Findings #33 and #39.

ORIGINAL FINDING:

Ventilation for the battery room is inadequate. Some battery degradation is evident. This finding along with B-3.2, B-3.3, and B-3.5 all lend to concerns regarding the adequacy of the UPS.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 3) contained a schedule for installing air conditioning equipment along with the appropriate engineering and work request forms.

During the follow-up visit of November 6-8, 1989, the battery room ventilation was found to be adequate. While minor adjustments are planned during the installation of the new battery (scheduled for about 1/90), these are not of a significant nature.

The project response is adequate and the finding is closed.

FINDING NO. 15 (B-3.9): INSUFFICIENT EMERGENCY LIGHTING

ACCEPTANCE CRITERIA:

DOE Order 6430.1A, 1655-1, requires that emergency lighting comply with NFPA 110, "Standard for Emergency and Standby Power Systems". Follow-up to DOE/AL Phase II Item #43.

ORIGINAL FINDING:

Emergency lighting does not exist in areas accessed by personnel during emergency conditions. This includes the substations, the UPS room, and the EOC.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 3) identified modifications which had been implemented to alleviate this concern.

During the follow-up site visit, November 6-8, 1989, emergency lighting was observed in the substations, the UPS room, and the EOC.

Lighting was deemed to be adequate and the finding is closed.

FINDING NO. 16 (B-4.1): INACCURATE EQUIPMENT TRACKING LIST

ACCEPTANCE CRITERIA:

Critical instrumentation should be properly identified.

ORIGINAL FINDING:

The equipment list, which is the source of computerized tracking on facility components, is incorrect for sampled LCO instrumentation. Specifically, Station A alpha CAM is identified in the equipment list as #151, but is labeled on panel as A153 and Station B alpha CAM is identified in the equipment list as #153, but is labeled on panel as A151.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 3) consisted of an in-depth action plan to resolve the above concern. The response did not include a description of the changes made to correct the errors discovered during the RRI. The revised response (Reference 9) contained the completed work requests and the actual changes made to the equipment list referencing appropriate engineering documents.

During the follow-up site visit, November 6-8, 1989, the revised equipment list was reviewed and compared to a sample of equipment labels in the facility.

Implementation of the work specified by the project has been completed and found to be adequate. The finding is closed.

FINDING NO. 17 (C-1.1): CERTIFICATION OF FACILITY OPERATIONS SHIFT SUPERVISORS

ACCEPTANCE CRITERIA:

DOE Order 5480.5 requires that those people supervising nuclear facilities operations must be certified.

ORIGINAL FINDING:

Based on interviews with the two shift supervisors and a review of records, neither have completed the shift supervisor certification. Discussions with the two shift supervisors indicated this to be a generic problem.

PROJECT RESPONSE AND EH EVALUATION:

The project's response (Reference 3) noted that certification cards had been developed for shift supervisors and that oral examination boards had been completed. Documentation of the exams and copies of the certification cards were provided.

EH reviewed the material provided by the project and found it adequate and complete. The project was advised (Reference 7) that no additional information was required.

The finding is closed.

FINDING NO. 18 (C-1.2.2): PERFORM A TASK ANALYSIS FOR TRAINING

ACCEPTANCE CRITERIA:

A formal and uniform program for equipment and/or task training, qualification, and certification is chartered by the Operations Program Plan and is implemented in the WIPP Facility Training Program (FSAR, Chapter 9).

ORIGINAL FINDING:

The program does not include task analysis definition.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 3) contained justification for delaying initiation of the training task analysis. One factor mentioned was that the final DOE Order on this topic had not yet been issued.

EH advised the project (Reference 7) that the justification was inadequate and that work to initiate the training task analysis should not be delayed.

The project's revised response (Reference 9) noted the interim measures being used prior to performing a task analysis. This included the revision of the Training Manual WP.14-1 and the use of a qualification card system. The project also provided a tentative schedule for the WIPP Training Accreditation Program.

During the follow-up visit on November 6-8, 1989, the EH staff reviewed: (1) a job analysis for Emergency Services Technicians; (2) a draft of a job analysis for Electrical Technicians; (3) a "Final Task List, Training Matrix, List of Classroom Lessons, Objectives Matrix for WIPP Health Physics Technician Training," dated June 28, 1989; and (4) a notebook entitled "Health Physics Technician Qualification Cards." Plans for preparing job analyses for other types of technicians and engineers have not been written. WPO should provide a plan (including specific tasks, milestones, and decision points) for performing training task analysis, or additional written justification for not performing training task analysis at this time (e.g., a viable alternative).

The finding is open.

FINDING NO. 19 (C-1.2.1): INADEQUATE TRAINING STAFF

ACCEPTANCE CRITERIA:

A formal and uniform program for equipment and/or task training, qualification, and certification is chartered by the Operations Program Plan and is implemented in the WIPP Facility Training Program (FSAR, Chapter 9).

ORIGINAL FINDING:

The training staff only has two people and the acting training manager, who has other responsibilities.

Based on the scope of the training program (e.g., maintenance, operations, mining, radiological work) and the number of people requiring training, the number of people in the training staff is not adequate.

PROJECT RESPONSE AND EH EVALUATION:

The original project response (Reference 3) did not include a copy of the manpower needs analysis conducted by the project, position descriptions for the seven new training positions, documentation of management approval of the positions, and dates by which the positions would be filled. EH advised the project of the need for this information (Reference 7).

The project's revised response (Reference 7) provided the manpower needs analysis, position descriptions, and documentation of management approval of the positions. The project noted that recruiting efforts to fill the positions have commenced.

An evaluation before startup should be made to assure that a reasonable number of the positions have actually been filled.

The finding is open.

FINDING NO. 20 (C-1.3): IMPROVE SUPERVISOR TRAINING PROGRAM

ACCEPTANCE CRITERIA:

Supervisor training programs shall include training on design control, procedure changes and unusual occurrences per DOE Order 5480.5.

ORIGINAL FINDING:

The Supervisor Training Program does not include design control, procedure changes, and UORs. Also, there is no formal requirement for documenting or tracking training to ensure it has been accomplished.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 4) noted that procedure WP 14-101, "Systematic Monitoring, Evaluation and Incorporation of Changes/Events into Training" had been issued and implemented. A copy of the procedure was provided. The project advised EH that 53 change documents were under review to determine their impact on the WIPP training program.

EH reviewed the procedure and found it acceptable. The implementation was also judged adequate. The project was advised (Reference 8) of the results of the EH review and that EH had no request for additional information in this area.

The project response is adequate and the finding is closed.

FINDING NO. 21 (C-2.1): FILL POSITION FOR MANAGER OF OPERATIONAL HEALTH PHYSICS

ACCEPTANCE CRITERIA:

The facility organization and administration ensures effective implementation of the radiological controls program.

ORIGINAL FINDING:

An offer for the position of the Manager of Operational Health Physics has been accepted by an individual who apparently has significant plutonium experience and this position is scheduled to be filled in June 1989 (resume of this individual was not reviewed). The filling of this position with someone with significant plutonium experience is necessary for waste receipt.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 2) identified that the vacant Manager of Operational Health Physics position was filled June 13, 1989. A resume detailing the newly hired individual's qualifications and experience was provided.

Review of the above resume identified that the individual's qualifications and experience were satisfactory and included significant plutonium related operational health physics experience. The EH reviewer also contacted the new Manager of Operational Health Physics by telephone on August 22, 1989, to further discuss and verify stated experience. The project was advised (Reference 7) that no additional information would be required.

The project response is adequate and the finding is closed.

FINDING NO. 22 (C-2.2): HEALTH PHYSICS PERSONNEL LACK EXPERIENCE

ACCEPTANCE CRITERIA:

The facility organization and administration ensures effective implementation of the radiological controls program.

ORIGINAL FINDING:

The Radiation Safety Section currently has three in-house Health Physics (HP) technicians, and seven contractor, Health Physics technicians. All house technicians have acceptable education/technical training experience, but have no operational experience. No administrative limits on their ability to perform job coverage are in place.

Two of the three primary radiological engineers are also lacking in operational Health Physics experience.

The acceptance criteria is not met.

PROJECT RESPONSE AND EH EVALUATION:

The original project response (Reference 2) identified that three out of four HP technicians and all three radiological engineers completed a 2 week training assignment at the West Valley project to receive hands-on operational HP experience. The original response did not provide adequate detail to evaluate the training assignment and additional detail was requested. The original response also failed to address the administrative limits portion of the original concern.

The project's revised response (Reference 9) provided additional detail concerning the West Valley training assignment. The project also provided a copy of WP 12-12, "HP Technician Training Manual," which discusses technician limited certification status (see finding No. 23).

Training records and certification status for the WIPP HP technicians and selected engineers was reviewed during the RRI follow-up. Technician staffing requirements to support start-up was also discussed. This review also identified that WIPP HP technicians completed an additional training assignment at the Inhalation Toxicology Research Institute in October 1989.

EH review determined that although the level of operational experience among the HP technician staff is limited, adequate compensatory measures have been taken. These include the hiring of an experienced manager to provide supervisory oversight (see finding No. 21), the development of an extensive technician training program (see finding Nos. 23 and 24), and the practice of sending HP personnel offsite for operational training assignments.

Finding No. 22 (C-2.2) (cont'd)

A concern was identified related to the Radiation Safety Section staffing. The section has identified the following numbers of personnel are necessary to meet staffing requirements and provide adequate technician support for 24 hour technician coverage: one additional professional for the Operational HP section; two professionals for the Technical HP section; and six additional HP technicians (eight are currently onsite). Of the six additional HP technicians, the project intends to hire four with operational experience.

The project response and proposed staffing is adequate. Prior to startup verify that an adequate number of staff is available.

The finding is open.

FINDING NO. 23 (C-2.3.1) AND NO. 24 (C-2.3.2): IMPROVE HEALTH PHYSICS TRAINING PROGRAM AND UPGRADE HEALTH PHYSICS QUALIFICATION CARDS

ACCEPTANCE CRITERIA:

Procedures, lesson plans, and qualified personnel are in place to ensure radiation workers and HP technicians receive training adequate to safely perform their duties and comply with DOE Order 5480.11 requirements.

ORIGINAL FINDING:

23. Section 3.0 of the Radiation Safety Manual only generally describes HP technician training and does not include specific reference to the qualification card system currently in place. The current HP technician training program relies heavily on pre-employment technical training, as formal classroom training included in the WIPP technician program is limited to Radiation Worker A training, MSHA Underground Safety Training, General Employee Training, Respirator Training, and WIPP First Responders Training. This is not reflective of industry standard. Plans for future qualification training for HP technicians are in the conceptual stage.
24. The current HP technician qualification card is oriented to instrumentation and routine survey performance, and does not require technicians to demonstrate acceptable performance of operational work coverage tasks (i.e., TRUPACT receipt, unloading). The qualification card also does not require demonstration of acceptable accident-situation performance (i.e., contaminated-injured man drill, spill drill) for technician qualification. Based on the limited operational experience of several of the technicians, these sign-offs should be included.

PROJECT RESPONSE AND EH EVALUATION:

The project initiated development of an HP Technician Training Manual in response to the concern. Portions of the draft manual, along with the associated job task analysis and qualification cards were submitted as part of the original response (Reference 4).

A revised Section 3.0 of the Radiation Safety Manual was also submitted which referenced the training manual and addressed training requirements for contractor technicians. Review of the original response identified specific deficiencies in qualification cards and that HP technician qualification requirements were not consistent with ANSI/ANS-3.1-1987, "Selection, Qualification and Training of Personnel for Nuclear Power Plants," although this was the stated intent of the manual. The project's revised response (Reference 9) resolved the concerns and provided a copy of the approved WP 12-12, "HP Technician Training Manual."

The project's HP technician training program, as described in WP 12-12, represents a significant program upgrade and meets DOE requirements and relevant industry (ANSI/ANS-3.1-1987) standards. Full technician certification requires completion of formal classroom training, qualification cards, and site walk-through and oral boards.

Finding No. 23 (C-2.3.1) and No. 24 (C-2.3.2) cont'd

Lesson plan development is ongoing and technician qualification cards have been developed. Classroom training is scheduled to begin during November 1989. Full certification of the initial five technicians entering the training program is expected by May 1990. This full certification has been identified by the Radiation Safety Section as a necessary prerequisite to support backshift operation during waste receipt.

The commitments made in the project response appear adequate. Prior to startup, verify that the training program has been implemented and an adequate number of HP technicians fully certified.

Finding No. 23 is open.

Qualification cards for HP technician certification developed by the project are adequate and address the deficiencies identified during the original finding. Full technician certification requires completion of the qualification cards, in addition to formal classroom training and completion of a site walk-through and an oral board.

The project's response to Finding No. 24 is adequate.

Finding No. 24 is closed.

FINDING NO. 25 (C-2.3.3) QUALIFICATION OF CONTRACTOR
HEALTH PHYSICS PERSONNEL

ACCEPTANCE CRITERIA:

Procedures, lesson plans, and qualified personnel are in place to ensure radiation workers and HP technicians receive training adequate to safely perform their duties and comply with DOE Order 5480.11 requirements.

ORIGINAL FINDING:

Current Radiation Safety procedures do not address training/qualification requirements for contractor technicians. Currently, seven contractor technicians are onsite. None have completed their qualification cards and are limited to performing surveys, etc. Complete qualification of these technicians to augment the house technician staff is necessary to support operations.

PROJECT RESPONSE AND EH EVALUATION:

As stated in the project's response to Findings Nos. 23-24, the project initiated development of an HP Technician Training Manual in response to the concern.

The revised Section 3.0 of the Radiation Safety Manual, along with the referenced HP Technician Training Manual, adequately addresses contractor technician training and certification. The project response is adequate.

The finding is closed.

FINDING NO. 26 (C-2.4): ESTABLISH INTERNAL DOSIMETRY PROGRAM

ACCEPTANCE CRITERIA:

An effective program is in place to: 1) monitor, 2) limit, and 3) evaluate worker internal exposures.

ORIGINAL FINDING:

An internal dosimetry (bioassay) program is not in place. Procedures outlining bioassay sample collection, sample custody, shipment for vendor analysis, etc., have not been developed. The WIPP staff is initiating baseline lung counting of selected workers at LANL; however, long-term use of this option has not been evaluated or decided upon.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 2) provided WP 02-2, "Dosimetry Program Manual." Review of this manual identified a lack of detail and specificity related to internal dosimetry calculations, models and assumptions to be used, required minimum detectable activity levels (MDAs), and QC guidance.

The project's revised response (Reference 9) provided additional detail relative to internal dosimetry methodology which addressed the above concerns. The project indicated this detail would be added to the procedures. The project also identified bioassay MDA levels were specified in the vendor contract.

Revised procedures were reviewed during the RRI follow-up on November 6-8, 1989, to ensure an adequate level of detail for the above areas had been incorporated. MDA requirements as specified in the vendor contract were consistent with ANSI Standard N13.30.

The area of medical intervention (i.e., chelation therapy) was not adequately addressed in the Dosimetry Program Manual. Subsequent to the RRI follow-up visit, the project took adequate corrective action and provided the necessary guidance (see Reference 13).

The finding is closed.

FINDING NO. 27 (C-2.5): DEMONSTRATE ADEQUACY OF CONTINUOUS AIR MONITORS

ACCEPTANCE CRITERIA:

An effective program is in place to: 1) monitor, 2) limit, and 3) evaluate worker internal exposures.

ORIGINAL FINDING:

The Continuous Air Monitoring (CAMs) system requires additional evaluation and validation to demonstrate system adequacy prior to start-up. Open issues include:

- o Location of the CAMs, which affects representativeness of the air sampled to the worker's breathing air.
- o Sample head collection efficiency versus anticipated particle size.
- o Effects of salt loading on the sample filters.

PROJECT RESPONSE AND EH EVALUATION:

The original project response (Reference 5) provided the results of ventilation system smoke testing that was performed in June 1989 to evaluate CAM placement. The response also provided preliminary data related to sample head collection efficiency. Discussion with project staff identified the Inhalation Toxicology Research Institute (ITRI) was reviewing operational test data and would be preparing an overall evaluation of CAM adequacy.

EH requested additional information as to the qualifications of the engineer performing the smoke testing, an implementation plan for the six recommendations in the report, and a copy of the ITRI report when available.

The revised response (Reference 9) stated that the above six recommendations were tracked by the plant work request system through an implementation plan. Work requests were provided. During EH review of these requests it was not obvious that all recommendations were addressed. The response also identified qualifications/experience of the responsible engineer were available at WIPP for review. A copy of the ITRI report was also provided.

EH reviewed the draft ITRI and smoke test reports and noted that several recommendations were made to improve CAM effectiveness. EH efforts during the RRI follow-up on November 6-8, 1989, included the following: (1) the experience/qualifications of the engineer performing the smoke test were reviewed; and (2) verification that the smoke test and ITRI recommendations have been incorporated.

Finding No. 27 (C-2.5) cont'd

The EH review noted that CAMs for underground use and the modified radial entry sample heads have not yet been installed. The project stated that to prolong equipment life, they would be installed and calibrated once startup is imminent. This item must be verified prior to startup.

The finding is open.

FINDING NO. 28 (C-2.6): ESTABLISH EXTERNAL DOSIMETRY PROGRAM

ACCEPTANCE CRITERIA:

A program is in place to adequately monitor external exposure in accordance with DOE Order 5480.11 requirements.

ORIGINAL FINDING:

The dosimetry staff is planning to use vendor supplied TLDs to provide external exposure monitoring capability to support waste receipt. Procedures necessary to implement an interim program (TLD collection, processing, etc.) have not been approved. A system to monitor external exposure is necessary for startup.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 2) provided WP 02-2, "Dosimetry Program Manual," which included 13 procedures to address the dosimetry program and the use of vendor TLDs. The project was advised (Reference 8) of the need to update the FSAR to reflect the use of a vendor TLD system and to provide additional information relative to the numbers, technical background and the training/qualification program for the dosimetry staff.

The project's revised response (Reference 9) stated that an FSAR update was not necessary, due to the temporary use of vendor TLDs. The project now plans to have their in-house TLD system fully DOELAP approved prior to waste receipt. A discussion of educational/experience background for the dosimetry staff was also provided.

EH agrees that an FSAR update is not required assuming that DOELAP Accreditation is received prior to startup.

EH reviewed the Dosimetry Program Manual and found the program adequately covered. The in-house dosimetry program has recently passed the DOELAP Performance Evaluation Program. A site visit by DOELAP assessors was conducted November 28-29, 1989, to assess the programmatic aspects of the dosimetry program. The project's response is adequate.

Verification of DOELAP Accreditation is necessary prior to startup.

The finding is open.

FINDING NO. 29 (C-2.7): IMPROVE RESPIRATORY PROTECTION PROGRAM

ACCEPTANCE CRITERIA:

An effective program is in place to: 1) monitor, 2) limit, and 3) evaluate worker internal exposures.

The WIPP Respiratory Protection Program is committed to the requirements of ANSI Z88.2-1980, "Practices for Respiratory Protection," per FSAR Section 6.1.5.4. This ANSI standard requires that written operating procedures shall cover a complete respirator program, including respirator issue, cleaning, and maintenance.

This standard also requires that personnel performing respirator issue and respirator maintenance receive specific training.

ORIGINAL FINDING:

The following deficiencies were noted relative to the acceptance criteria:

- o Although most respiratory program aspects are covered, the above procedures do not address respirator issue, respirator cleaning, and respirator maintenance.
- o Respirator issue for Waste Handling Building functions is performed by HP technicians. No formal, documented training is given to the technicians on respirator issue. HP technicians interviewed were unaware of respirator qualification requirements. Additionally, no positive method was in place for the issuing technician to positively verify worker respirator qualifications (e.g., a qualified respirator users list). A list had been developed, but was not distributed to the HP Technicians.
- o No formal training/certification program was in place to qualify the technician performing respirator inspections and maintenance.

PROJECT RESPONSE AND EH EVALUATION:

The project's initial response (Reference 2) included a revised procedure WP-12-106, "Respiratory Protection Program." The response identified a respirator user qualification and system had been developed and that specific training on respirator issue and cleaning/maintenance had been presented to responsible staff. Review of the original response identified the revised procedure did not contain adequate detail, lesson plans were brief and general in nature, and specifics as to technician and respirator maintenance personnel certification were not provided.

The revised response (Reference 9) included additional revisions to procedures WP 12-106 and WP 12-819, "Respirator Inspection," which generally provided adequate detail. One concern related to the procedural order in which respirators are cleaned and inspected was identified. The response also identified that lesson plans would be expanded. The response failed to identify the mechanism by which respirator inspection/maintenance personnel are certified.

FINDING NO. 29 (C-2.7) (cont'd)

During the RRI follow-up on November 6-8, 1989, EH reviewed the revised lesson plans, procedure status and qualification requirements for respirator inspection/maintenance personnel.

Procedures WP 12-106 and 12-819 were not in final form. A qualification card for respirator inspection/maintenance personnel had been developed but was in a draft form. The qualification card for respirator issue was being revised. The project indicated WP 12-819 would be revised to re-order the steps related to respirator cleaning and inspection.

To close out this finding, WPO should provide a copy of: (1) issued procedures WP 12-106 and 12-819 (procedure 12-819 should include revised procedural steps), and (2) qualification cards for respirator issue, inspection, and maintenance personnel.

The finding is open.

FINDING NO. 30 (C-2.8): IMPLEMENT LIMITING CONDITIONS FOR OPERATION

ACCEPTANCE CRITERIA:

Commitments made in FSAR Chapter 10 have been fully implemented. When remote monitors for local fixed Continuous Air Monitors (CAMs), effluent monitor CAMs, and differential pressure monitors are inoperative, appropriate alternative devices are to be continuously monitored by qualified personnel (FSAR, Chapter 10).

ORIGINAL FINDING:

Limiting conditions for operations as stated in the FSAR are not yet implemented in WID operating procedures.

PROJECT RESPONSE AND EH EVALUATION:

The project (Reference 2) revised five procedures: WP-12-514; 12-518; 12-530; 12-531; and 12-534. The revised procedures included the requested statements regarding the use of alternate monitoring devices. WP-12-514, "Operation of Beta/Gamma Continuous Air Monitors," Rev. 2 (4/28/89), now contains a statement in Section 4.2 that if the remote alarm capability on the CAMs is not operable, that a radiation worker shall monitor the local alarm continuously and that when a CAM is inoperable, it will be replaced with portable equipment. Similar requirements for effluent monitors are in Section 4.3. Comparable requirements are in: WP-12-518, "Radiological Monitoring System Operability Checks," Rev. 2 (06/20/89), Sections 4.3, 4.4, and 4.5; WP-12-534, "Radiological Monitoring System Functional Checks," Rev. 1 (2/14/89), Sections 4.3 and 4.5; WP-12-530, "Operation of Alpha Continuous Air Monitors," Rev. 2 (4/28/89), Sections 4.3 and 4.4; and WP-12-531, "Calibration of Area Radiation Monitors," Rev. 1 (6/15/89), Section 4.4.

EH reviewed the procedures and found the revisions to be satisfactory.

The project's response is adequate and the finding is closed.

FINDINGS NOS. 31 THROUGH 36 (C-2.9.1 TO C-2.9.6):
EVALUATION OF DROPPED DRUM DRILL

ACCEPTANCE CRITERIA:

The WIPP Operations and Radiation Safety staff can effectively respond to radiological emergency situations. This response should adequately protect personnel and control potential radiological releases.

ORIGINAL FINDING:

The following 6 findings were made as a result of the drill performance.

31. Little direction or supervision of the initial entry to the area was given by the HP Supervisor. The pre-entry briefing was held by the Waste Handling Supervisor and was not attended by the HP Supervisor.
32. Time from the initiation of the incident to the control of the spill was approximately one and one-half hours. Although radiological conditions did not require immediate response, this response time appeared excessive to the EH reviewer. This may have stemmed, in part, from an over-reliance on one HP technician and an apparent excess of time-consuming re-entry survey measurements around the immediate vicinity of the dropped drum.
33. A waste handling technician, with no formal training and obvious unfamiliarity with a radiation survey instrument, was directed by the HP technician to make gamma survey measurements.
34. Radiological spill kits (containing supplies for spill response) were not pre-staged on the CH handling floor.
35. Drill observations indicate additional radiological incident training is required.
36. No information was supplied that would have enabled operating personnel to determine the external radiation level of the drum; and operating personnel actions were consistent with a very low external radiation level (some CH drums in the future may have radiation intensities approaching 100 mrem/hr and can be as high as 200 mrem/hr).

Successful performance of an additional radiological incident drill is required prior to waste receipt.

PROJECT RESPONSE AND EH EVALUATION:

The original response (Reference 2) identified that the FSAR assumptions of immediate worker evacuation in response to an accident were unrealistic. The response identified FSAR dose calculations would be recalculated using an assumed worker stay time of 2 minutes. Revised calculations were subsequently provided to EH to satisfactorily resolve SER Item No. 13 (see memorandum from M. Frei, DOE/DP-12, to J. Knight, DOE/EH-33, entitled "Final Response to DOE/HQ EH Safety Evaluation Report," dated October 11, 1989).

FINDINGS NOS. 31 THROUGH 36 (C-2.9.1 TO C-2.9.6) (cont'd)

The original response to finding 31 above stated that HP supervision currently attends all drill related actions and pre-entry briefings. No procedural revisions were provided, however, to implement this requirement. The project's revised response (Reference 9) identified that procedure WP 12-914, "Response to Contamination Events," had been revised to require HP supervision assistance in conducting reentry pre-briefings.

The project's original response to finding 33 above referenced existing procedures which require that only qualified HP technicians conduct surveys. No information was given, however, as to why the procedural violation occurred or what corrective actions were taken. The revised response provided documentation to demonstrate that all HP technicians were briefed concerning the subject concern subsequent to the RRI.

The project's original response to finding 34 above identified that a radiological spill kit had been staged in the Waste Handling Building airlock, immediately adjacent to the waste handling floor. The response did not indicate, however, whether additional spill kits had been staged elsewhere or whether a formal program existed to inspect and replenish kits.

The revised response identified additional locations throughout the facility where radiological spill kits will be pre-staged. WP 12-5, "Radiation Safety Manual," was revised to require quarterly inventory of spill kits.

The project's original response to findings 32, 35, and 36 identified that four additional "dropped drum" drills were held subsequent to the original EH RRI. The response indicated the drills were performed successfully and overall response time was significantly improved. Insufficient documentation was provided, however, to allow in-depth evaluation of performance.

A contaminated, injured man drill was observed as part of the RRI follow-up review, November 6-8, 1989, to evaluate accident response timeliness and performance in other areas of previously identified concerns. Overall drill performance was evaluated as adequate and incident response time was noted to be significantly improved. The basis for closing this finding is primarily the improved incident response time. Several deficiencies were noted, however, which the project should consider in developing future training exercises.

These findings are closed.

FINDINGS NO. 37 (C-2.10.1): OFFSITE MONITORING
AND NO. 38 (C-2.10.2) DOSE ESTIMATES

ACCEPTANCE CRITERIA:

The emergency plan and supporting procedures contains sufficient guidance to ensure appropriate response for emergency situations.

ORIGINAL FINDING:

No. 37: The WIPP Emergency Plan and supporting procedures do not address the performance of radiological monitoring and sampling in the environment in response to radiological emergencies with potential offsite effects. Discussion with the Environmental Monitoring and Radiation Safety Sections identified they were unsure as to who has this responsibility.

No. 38: The current Emergency Plan also fails to address responsibilities for offsite dose calculations or projections.

PROJECT RESPONSE AND EH EVALUATION:

The project (Reference 2) revised the WIPP Emergency Plan to identify the Regulatory and Environmental Programs Section (REPS) personnel for offsite radiological monitoring, sampling, and calculating doses during an accident. Discussions were also held with the REPS and Radiation Safety staff to clarify these responsibilities. Initially, the project did not identify who was responsible for radiological monitoring outside facility buildings but inside the facility fence line. EH requested this clarification, along with project procedures for monitoring and assessing offsite doses.

Subsequently, the project revised the WIPP Emergency Plan to clarify the above concern. The response also identified that procedures were being developed to control offsite radiological monitoring or dose assessment.

During the RRI follow-up, a tabletop exercise was conducted with selected REPS personnel to evaluate project offsite dose assessment capability. This exercise included calculating offsite doses using specific source terms and meteorology.

The review identified that a methodology for timely offsite dose calculation is not fully in place. The project intends to use CHIEF as the post-accident dose calculation computer code; however, additional hardware (VAX system and 9600 baud lines) and software upgrades are needed to make this system operational. A procedure has not been developed for use of the CHIEF dose calculation code. Draft procedures describing offsite radiological monitoring and sample analysis are in place but have not been finalized. A procedure for using and calibrating the portable offsite air samplers is not in place. Training for personnel on the above procedures still has to be carried out.

Closure of this item will require the following: (1) verification that the CHIEF code is fully operational; (2) approval of procedures for use of the dose assessments code and for offsite radiological sampling and analysis; and (3) completion of training on the above procedures.

Both findings are open.

FINDING NO. 39 (C-2.11): INSTRUMENTS FOR RADIATION SAFETY GROUP

ACCEPTANCE CRITERIA:

An effective program is in place to: 1) monitor, 2) limit, and 3) evaluate worker internal exposures.

ORIGINAL FINDING:

The WIPP Radiation Safety Section currently does not have adequate instrumentation to perform response-type air sampling. During this review, five portable air samplers were on site; however, one was in use in a semipermanent, bolted down configuration, two had not been calibrated, and the other two were partially disassembled. None of the portable samplers were capable of running on battery power. Consequently, no capability was in place to perform air-sampling outside buildings, etc., on the WIPP site.

Additional portable air samplers, including samplers with the capability of running on battery power, are required to provide an acceptable level of response-type air sampling capability. Specific procedures must be developed to accompany this equipment.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 4) identified the purchase of additional (battery operated and mobile cart) air-samplers. In addition, a draft procedure, lesson plan and documentation of training was provided. However, the information provided did not address use of the air-samplers for incident response use, and required more specificity (e.g., type of filters, recommended flow rates, volumes, etc.). The project was advised of this in Reference 8 and additional information was requested.

The project provided (Reference 9) two new procedures, WP 12-543 and WP 12-545, a revised lesson plan, and test examination results.

The revised procedures deleted previously existing calibration steps. Instead, it was stated that instrument calibrations would be performed by the Calibration Lab. No calibration procedures, however, were referenced. The following specific deficiencies were identified with WP 12-543:

- for quick-response situations, air sampling flow rates are reduced from 5 to 3 cfm rather than increased; and
- the stated sampling time and flow rate does not result in the specified Lower Limit of Detection.

EH review during the RRI follow-up noted that the calibration lab will send the equipment to the original manufacturer for calibration; therefore, no calibration procedures are necessary. Health physics technician training completion status was verified and the procedural deficiencies identified above were resolved.

This item is closed.

FINDING NO. 40 (C-2.12): CALIBRATION OF POCKET AND ALARMING DOSIMETERS

ACCEPTANCE CRITERIA:

Procedures and programs are in place to ensure facility radiological areas are adequately identified, posted, monitored, and controlled in accordance with DOE Order 5480.11 requirements.

ORIGINAL FINDING:

Facility alarming and pocket dosimeters have not been entered into the calibration program and are currently used for training/simulation purposes in a "indication only" fashion. These instruments require calibration prior to operation.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 2) stated that all alarming and pocket dosimeters have been calibrated. In addition, procedures were supplied that addressed the tracking and calibration of these instruments. However, deficiencies were identified with the procedures. The project was advised of this in Reference 8, and the project revised the procedures for the operation and calibration of the dosimeters.

EH review of the project's response (Reference 9) identified several deficiencies in procedure WP 12-528, specifically: (1) the dose increment in Step 4, Section 5.1, was not defined; (2) Step 2 of Section 5.2 and the associated "Note" is contradictory as to exposure times and dose rate; (3) Steps 2-4 of Section 5.2 are out of sequence and need to be reversed; (4) Step 6 of Section 5.2 is confusing in that it compares dose to exposure rate; and (5) Step 7 of Section 5.2 and the associated "Note" is contradictory as to exposure rates.

EH discussed the above items with the project during the RRI follow-up and procedural deficiencies were resolved. In addition, several alarming pocket dosimeters were reviewed for calibration status.

The finding is closed.

FINDING NO. 41 (C-2.13.1): ACTION LEVELS FOR EXTERNAL RADIATION

ACCEPTANCE CRITERIA:

Procedures and programs are in place to ensure facility radiological areas are adequately identified, posted, monitored, and controlled in accordance with DOE Order 5480.11 requirements.

ORIGINAL FINDING:

Procedure WP 05-105 does not include action levels for additional radiological controls based on external radiation readings. Additionally, the HP technician performing initial receipt surveys was not aware of DOT radioactive material labeling categories and corresponding dose rate restrictions. Consequently, if a TRUPACT shipment came in with high external radiation levels or improperly labeled, it might not be immediately recognized or appropriately controlled.

The HP technician training does not include training on DOT labeling requirements.

PROJECT RESPONSE AND EH EVALUATION:

Initially, the project (Reference 2) revised procedure WP 05-105 to require the HP technician, upon determining contact radiation dose rates in excess of 100 mRem/hr, to institute procedure WP 05-112, "High Dose Rate Handling." The original response did not specifically address the need to evaluate TRUPACT dose rates against DOT labeling requirements.

The project's revised response (Reference 9) noted that additional procedural revisions to WP 05-105 had been initiated to require the HP technician to specifically evaluate incoming TRUPACT dose rates against DOT labeling requirements.

During the EH follow-up visit on November 6-8, 1989, the incorporation of the revisions to WP 05-105 were verified.

The finding is closed.

FINDING NO. 42 (C-2.13.2): TRAINING SHOULD INCLUDE DOT LABELING REQUIREMENTS

ACCEPTANCE CRITERIA:

Procedures and programs are in place to ensure facility radiological areas are adequately identified, posted, monitored, and controlled in accordance with DOE Order 5480.11 requirements.

ORIGINAL FINDING:

The HP technician training does not include training on DOT labeling requirements.

PROJECT RESPONSE AND EH EVALUATION:

The project's initial response identified that training on DOT labeling requirements was presented to project HP technicians on June 1, 1989. The response identified this training had been added to the technicians training task list and qualification card system. The project's revised response provided additional information on training course content and instructor qualifications. Although no test was given at the completion of the June 1, 1989, training, the revised response identified that future HP technician formal training on this topic will include testing.

The finding is closed.

FINDING NO. 43 (C-2.14): PROCEDURAL CONTROLS FOR HIGH RADIATION AREAS

ACCEPTANCE CRITERIA:

Procedures and programs are in place to ensure facility radiological areas are adequately identified, posted, monitored, and controlled in accordance with DOE Order 5480.11 requirements.

ORIGINAL FINDING:

1. Procedural guidance is not in place to effectively implement WIPP's intended key control for "High Radiation Areas" (i.e, the shielded storage area).
2. Procedural guidance included in Section 7.0 of the WIPP Radiation Safety Manual to address administrative and key control for "Very High Radiation Areas" needs to be expanded to effectively meet DOE Order 5480.11 requirements. This procedure should specifically identify key control authorities, qualification requirements, and accountability.

PROJECT RESPONSE AND EH EVALUATION:

The project (Reference 2) revised pages to Section 7.0 of the Radiation Safety Manual. This revision, however, did not contain specific requirements for the administrative control over Very High Radiation Areas or the keys to these areas. The project was advised of this in Reference 8, and in response (Reference 9) drafted revisions to Section 7.0 to address the specific concerns.

The project's suggested revisions included in their revised response were adequate to address the specific concerns. EH verified that revisions to Section 7.0 were completed during the RRI follow-up on November 6-8, 1989. The project response was found to be adequate.

The finding is closed.

FINDING NO. 44 (C-3.1): NO SPRINKLERS IN SHIELDED STORAGE ROOM

ACCEPTANCE CRITERIA:

Mitigation of a spontaneously ignited waste drum located above ground is by minimizing the time the waste drums are allowed to be temporarily stored above ground and relying on the Waste Handling Building (WHB) sprinkler system located over the Shielded Storage Room (FSAR, Chapters 5, 7, and 10).

ORIGINAL FINDING:

The fire risk of a spontaneous ignited waste drum was not analyzed in Chapter 7 of the FSAR. EH-30 was told the basis for considering this accident incredible was due to the time restraint (1 week) that waste drums can stay above ground out of the TRUPACT and reliance on the WHB automatic sprinkler system. The FSAR issue will be addressed and tracked in EH-30's Safety Evaluation Report for the WIPP FSAR.

A partially sprinklered building is not consistent with sound fire protection engineering.

PROJECT RESPONSE AND EH EVALUATION:

The project's response (Reference 5) was to extend the fire protection sprinkler system in the Waste Handling Building so that it now provides coverage of the shielded storage room. The work was completed on July 17, 1989.

During the November 6-8, 1989, follow-up visit, an inspection was made of the shielded storage room to confirm the installation of the sprinklers.

The project's response is adequate and the finding is closed.

FINDING NO. 45 (C-3.3): NO ELECTRICAL DISCONNECT FOR COMPUTERS

ACCEPTANCE CRITERIA:

The facility must be designed, constructed, and tested in accordance with "Improved Risk" or "Highly Protected Risk" criteria.

ORIGINAL FINDING:

The Central Monitoring Room (CMR) computer based controls and monitors are not protected by an electrical disconnect switch as required by NFPA 75, paragraph 7.3. Compliance with the National Fire Codes (NFC) is required by DOE Orders 6430.1 and 5480.7.

Fire damage to sensitive electronic equipment is not as low as reasonably achievable.

PROJECT RESPONSE AND EH EVALUATION:

The project's response (Reference 5) was to install disconnect switches at each exit to the CMR. This gives a capability to de-energize sensitive electronic equipment in the room in compliance with the National Fire Codes.

During the November 6-8, 1989, follow-up site visit, an inspection of the CMR was made to confirm the installation of the disconnect switches. The project response was adequate.

The finding is closed.

FINDING NO. 46 (C-3.2): NO SPRINKLERS IN FORKLIFT BATTERY CHARGING AREA

ACCEPTANCE CRITERIA:

The facility must be designed, constructed, and tested in accordance with "Improved Risk" or "Highly Protected Risk" criteria.

ORIGINAL FINDING:

The forklift battery charging area "hood" near the CH TRUPACT staging docks in the WHB are not protected by automatic sprinklers.

This is not in compliance with NFPA-13, paragraphs 4-4.11 and 4-4.13 and DOE Order 5480.7.

PROJECT RESPONSE AND EH EVALUATION:

The project's response (Reference 5) was to extend the Waste Handling Building fire protection sprinkler system so that the forklift battery charging area is covered. The work was completed on July 17, 1989.

During the November 6-8, 1989, follow-up site visit, an inspection of the forklift battery charging area was made to confirm that the installation of the sprinklers was complete.

The project response is adequate and the finding is closed.

FINDING NO. 47 (C-5.1): MAINTENANCE PROCEDURES NEED UPGRADING

ACCEPTANCE CRITERIA:

The maintenance procedures were adequate for the scope of maintenance performed. The format, document control, technical content, work definition, organization, plant conclusions, and completed conditions of the system and equipment are clear.

ORIGINAL FINDING:

Maintenance procedures do not meet the standards that are acceptable for nuclear facilities. As a minimum, the maintenance procedures for the safety systems specified in the FSAR require upgrading to meet the acceptance criteria.

PROJECT RESPONSE AND EH EVALUATION:

The project's response (Reference 5) was to commit to upgrade all procedures related to operational safety requirements and limiting conditions for operation (OSR/LCO) by September 30, 1989. The project noted that the Preventive Maintenance Instructions for battery charger checks and specific gravity testing for both emergency generators had been completed.

During the follow-up visit on November 6-8, 1989, EH staff reviewed six selected maintenance procedures for equipment related to OSR/LCO (References 14-19) for format. Procedures are being revised according to the "INPO format" as described in Reference 21. The maintenance procedures were reviewed against a "procedures evaluation checklist" (Reference 20, Appendix C). EH determined that: (1) one of the procedures was in the "INPO format" and adequate (Reference 14); (2) four of the procedures while not in the "INPO format" were adequate for startup (References 15-18); and (3) one of the procedures was not in the "INPO format" and inadequate (Reference 19).

In addition, it was determined that "all procedures related to OSR/LCO" could not be readily identified although a computer program is being developed to identify these procedures. To close out this finding, WPO should provide: (1) a list of all procedures related to OSR/LCO; (2) confirmation that all procedures related to OSR/LCO have been upgraded to a minimally acceptable form prior to startup (e.g., data sheets are included, instructions are specific; equipment, tools and references are specifically identified); and (3) a plan (including specific tasks, milestones, and decision points) for upgrading all procedures related to OSR/LCO to the "INPO format."

The finding is open.

FINDING NO. 48 (C-6.1): COMPLETE INTERNAL READINESS REVIEW

ACCEPTANCE CRITERIA:

Westinghouse shall complete its Operational Readiness Review (ORR) process for WIPP and formally document the results.

ORIGINAL FINDING:

Westinghouse had not completed the ORR process for WIPP as of 5/10/89. This acceptance criterion has not been met.

PROJECT RESPONSE AND EH EVALUATION:

The project's final response (Reference 9) failed to clearly define the status of completing the ORR process for Westinghouse's internal review.

A review of the status of the Westinghouse Readiness Review Process was made during the November 6-8, 1989, follow-up visit.

The Westinghouse Readiness Review Process is a continuing activity with new items being added and old items being deleted. During the follow-up visit on November 6-8, 1989, 32 open items were listed on the computer printout. Open items included items internal to WIPP as well as those generated by external audits of WIPP. For example, five WIPP Blue Ribbon Panel reports were issued on October 23, 1989, and these have findings that will be added to Westinghouse's open items list. Some items on Westinghouse's open items list are not directly under Westinghouse's control (e.g., land withdrawal legislation). Prior to startup, Westinghouse must issue a Readiness Review report documenting closure of all prestart findings.

The finding is open.

FINDING NO. 49 (C-6.2): NO INSPECTION PROCEDURE FOR SEISMIC DAMAGE

ACCEPTANCE CRITERIA:

Response to Emergency Interruptions is identified (FSAR Section 5.5.3.2).

ORIGINAL FINDING:

A procedure does not exist identifying immediate inspections after a seismic event that may be required for critical structures or equipment, e.g., Hoist Tower and Waste Hoist, required for evacuation of personnel from the mine. The time required to develop such a procedure after the event occurred would delay evacuation and rescue operations.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 3) included procedure WP 12-907. This procedure, however, did not discuss the shutdown/recovery actions necessary to ensure personnel safety and put the facility in a safe condition. EH requested additional information in Reference 8. A revised procedure was prepared and submitted (Reference 9).

EH reviewed the revised procedure and concluded that procedure WP 12-907 adequately addresses this finding. The procedure includes the immediate inspections after a seismic event, lists the critical structures, systems requiring inspections, and states who the technical people are that may perform the inspections.

The finding is closed.

FINDING NO. 50 (C-6.3): HEPA TEST PROCEDURES INADEQUATE

ACCEPTANCE CRITERIA:

The operating procedures cover routine interruptions, e.g., scheduled/unscheduled maintenance and plant inspections. These procedures monitor the plant parameters during the interruption to ensure no radiological problems are encountered. Specific surveillance requirements during the interruption is documented in the procedures (FSAR, Chapter 5).

ORIGINAL FINDING:

Procedure WP 04-706 contains insufficient detail on specific steps that would need to be taken for each of the HEPA filter units covered by this procedure. More specific procedures need to be written for each type of HEPA installation. These more specific procedures should identify the plant parameters that will be monitored during maintenance to ensure no radiological problems will be encountered.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 3) included procedure WP 04-706. This procedure, however, did not contain any specific requirements for monitoring nor for testing the HEPA filters. The project was advised of this in Reference 6 and additional information was requested.

The project's revised response (Reference 9) noted that specific procedures would be developed by the vendor selected by the project to test the filters. Vendor selection has not yet been made. The project committed to a review and approval of the vendor procedures prior to testing. The project has also committed to completing the HEPA filter tests prior to startup.

Prior to startup, the procedures must be written by the vendor, reviewed and approved by the project, and the tests successfully completed.

The action committed to by the project appears adequate, but the tests need to be completed and the results reviewed by EH.

The finding is open.

FINDING NO. 51 (C-6.4): PERFORM CASUALTY DRILLS WITHOUT ADVANCE NOTICE

ACCEPTANCE CRITERIA:

Casualty drills (covering all anticipated significant casualties) are conducted without advance notification to Operations personnel; and these drills have been repeated as necessary so that full casualty control capability has been built within each operating crew. Sufficient information shall be provided at the start of and during each drill to present the personnel being drilled with a realistic and fully representative set of drill circumstances.

ORIGINAL FINDING:

Both drills were conducted after several hours of advance notice to WIPP personnel. All shift crews should be trained, using casualty drills without advance notice, until all crews are competent to cope with all significant prospective casualties.

This acceptance criterion has not yet been met.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 3) did not provide evidence regarding unannounced drills. Instead, the submitted drill plan reinforced the finding that all drills were preplanned.

The project's second response (Reference 9) provided examples of unannounced drill plans and the evaluations.

EH reviewed these unannounced drills (FO-FS-02, FO-FS-03, and FO-NO-09) and found them objective, appropriately challenging, and adequately critiqued.

The finding is closed.

FINDING NO. 52 (C-6.5): ISSUE DOE/WPO MANAGEMENT PLAN

ACCEPTANCE CRITERIA:

WIPP shall develop a DOE/WPO Management Plan that defines the organizational structure for implementation of site programs and operations. The plan shall address management policy, organizational responsibilities, level of document approval, and committees and their charters.

ORIGINAL FINDING:

Preparation of a DOE/WPO Management Plan was not complete as of 5/10/89. The FSAR, Section 1.4 in general terms identifies that DOE/AL has contracted with Westinghouse for site management and operation, and with Sandia for experimental work to evaluate geologic disposal at the site. However, specific functions and responsibility assignments are not described in the FSAR, nor are they defined in any document to the degree necessary to resolve numerous contractor interface issues significant to such matters as safety throughout the site.

This acceptance criterion has not been met.

PROJECT RESPONSE AND EH EVALUATION:

EH requested (Reference 7) and reviewed a copy of "Department of Energy Management Plan for the Waste Isolation Pilot Plant," dated August 18, 1989 (DOE/WIPP 103, Reference 10). DOE/WIPP 103 contains management directives for 11 functional areas: (1) Engineering; (2) Experimental Program Support; (3) Safety, Health, and Environmental Support Activities; (4) Quality Control Activities; (5) Project Administration; (6) Construction Management; (7) Start-up Testing; (8) Security and Emergency Preparedness; (9) TRU System Integration and Transportation; (10) Public Affairs; and (11) Operations.

The management directives state the purpose (i.e., management's policy) of the directives, and list specific activities that the WPO and the contractor are required to do. Although DOE/WIPP 103 describes activities for controlling documents (e.g., see Management Directive 4.2.2), the level of approval for various types of documents is not stated. For example, it is not clear what level of approval is needed for revising DOE/WIPP 103, the Safety Analysis Report, or individual Management Directives (although signatures are provided, the organization of the signer is not given). MD 4.2.2 does not state the various types of documents that will be controlled.

DOE/WIPP 103 does not list any committees (e.g., Facility Safety Committee, and/or Facility Engineering Design Review Committee) or contain the charter for any committees. The safety committees (and their charters, functions, and member qualifications) that will be needed to operate WIPP should be listed or referenced in DOE/WIPP 103. The Management Plan should be refined during the initial operation of WIPP; however, the project response is adequate for startup of WIPP.

The finding is closed.

FINDING NO. 53 (C-6.6): DEVELOP A FORMAL MANAGEMENT DIRECTIVES SYSTEM

ACCEPTANCE CRITERIA:

DOE/WPO shall develop a formal management directive system that establishes authorities, responsibilities, requirements, and criteria for management direction, correspondence control, and safety overviews with the operating contractor and others as appropriate.

ORIGINAL FINDING:

DOE/WPO direction of the management and operating contractor is accomplished informally by means other than the Standard Operating Procedures (SOP) that have been written to cover some matters. To replace the SOP system, DOE/WPO is preparing a set of management directives that will be an appendix to the DOE/WPO Management Plan. Preparation of the management directives was not complete as of 5/10/89.

This acceptance criterion has not been met.

PROJECT RESPONSE AND EH EVALUATION:

"DOE/WIPP 103, "DOE Management Plan and Directives for WIPP" have been issued. The approval of the management plan occurred on May 18, 1989."

EH requested (Reference 7) and reviewed a copy of "Department of Energy Management Plan for the Waste Isolation Pilot Plant," dated August 18, 1989 (DOE/WIPP 103, Reference 10). DOE/WIPP 103 describes activities of various organizations. Although responsibilities for various activities are described, the authority is not described. Some of the Management Directives (MD) (e.g., see MD 6.3.1, 7.1.1) contain guidelines (i.e., criteria).

MD 4.2.2 provides a formal system regarding document control that would presumably include correspondence control. MD 3.9.1 assigns responsibilities for internal audits (i.e., safety overview).

The project response is adequate and the finding is closed.

FINDING NO. 54 (C-6.7): DEFINE INTERFACES AMONG PROJECT PARTICIPANTS

ACCEPTANCE CRITERIA:

Central WIPP management oversight and control, to assure safety throughout the site and continuity and integrity of all waste management activities, shall be provided by the WIPP Management and Operations Contractor (MOC) and applies to all activities on the site--including those of the Scientific Advisor (SA). A written definition of functions and responsibilities covering MOC-SA interrelations shall be established and shall be operational.

ORIGINAL FINDING:

The established interfaces between the MOC and SA do not appear to be sufficient to ensure WIPP design or configuration control, maintainability, safety, or the assurance of quality of their respective activities.

The above acceptance criteria have not been met.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 3) failed to commit to FSAR changes that clearly defined interface activities and the role of DOE/WPO.

The revised response (Reference 9) clearly defined the interface activities and the role of DOE/WPO. The recently issued DOE Management Plan, DOE/WIPP 103, contained management directives (specifically in Part II, Directives 2.2.1 and 2.3.1) that clearly expressed the roles of the experimental contractor (Sandia) and the Management and Operating Contractor (Westinghouse) as well as the role of DOE/WPO.

The project response is adequate and the finding is closed.

FINDING NO. 55 (C-6.8): DEVELOP CHECKLIST FOR INSPECTING SHIPPING TRAILERS

ACCEPTANCE CRITERIA:

A routine checklist item is necessary, requiring audits to ensure that TRUPACT II shipping trailers are being satisfactorily maintained by their maintenance subcontractor. These trailers are U.S. Government property, and their proper maintenance is a direct Government responsibility.

ORIGINAL FINDING:

The Trailer Maintenance Manual has not yet been delivered by the trailer manufacturer. This acceptance criterion has not been met.

PROJECT RESPONSE AND EH EVALUATION:

The project committed to issuing the Operation and Maintenance Manual for fleet unit trailers by October 31, 1989.

An EH review of this trailer maintenance manual is required prior to closing this item.

The finding is open.

FINDING NO. 56 (C-6.9): DEVELOP RETRIEVAL PROCEDURE FOR HIGH RADIATION

ACCEPTANCE CRITERIA:

The retrieval steps for CH-TRU wastes specified in Section 5.3 of the FSAR is documented in an Operational Manual.

ORIGINAL FINDING:

Both documents do not discuss what will be done if high radiation levels are encountered during the retrieval operation. Yet, Section 5.3, paragraph 3 of the FSAR, commits to specific steps once high radiation levels are encountered during retrieval operations.

PROJECT RESPONSE AND EH EVALUATION:

The project revised procedures WP 05-110, WP 05-112, and the Waste Handling Operations Manual WP 05-1 to include the actions required when handling a high radiation dose package during the retrieval operations and posting high radiation dose packages. This is commensurate with the Section 5.3 FSAR commitments.

EH's review determined that these changes are adequate and satisfy the Section 5.3 FSAR commitment regarding retrieval of high radiation level CH-TRU wastes.

The finding is closed.

FINDING NO. 57 (C-6.10): CENTRALIZED CONTROL OF TAG OUTS

ACCEPTANCE CRITERIA:

Central Management and Supervision of nuclear facility operations.

ORIGINAL FINDING:

The Equipment Tag Out/Lock Out, Jumper Lift Lead and Work Authorizations are issued and approved by four different shift supervisors. The Facility Operation management or any other management group does not have overall cognizance of these authorizations.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 5) failed to specifically define who has authority for issuing tags. The project was advised of this in Reference 8 and submitted a revised response in Reference 9. The revised response included a revised procedure, WP 04-001, that requires the Facility Operations supervisor to concur in placement of all tagouts/lockouts and jumper lifter leads that affect any Operational Safety Requirements equipment or Radioactive Material Area boundaries.

The project response is adequate and the finding is closed.

FINDING NO. 58 (C-7.1): DEVELOP WASTE HANDLING PROCEDURES FOR HIGH RADIATION

ACCEPTANCE CRITERIA:

The FSAR requires the Waste Handling Operations Manual, WP 05-1, to include all CH TRU process procedures (FSAR, Chapter 5).

ORIGINAL FINDING:

Procedures WP 05-106 and WP 05-109 do not include specific action steps to handle expected or unexpected high radiation level waste containers (i.e., greater than 100 mrem/hr at 30 cm). Specifically, many actions taken during the "end-to-end" demonstration were performed, but not specified in the procedure or Radiation Work Permit (RWP). For example, marking the drum with the unexpected high radiation levels, writing a new RWP, specifying a new radiation ALARA limit, calling a critique, and writing a UOR. Some additional controls not simulated during the drill, and important to consider, are:

- o Posting the stored drum or area with a permanent sign, both for future storing operations and possible retrieval operations.
- o Initiating action to correct the WIPP Waste Inventory System shipment data.
- o Performing more radiological surveys than during normal operations.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response submitted procedures WP 05-106, WP 05-112, WP 05-109, and WP 05-110 (Reference 3). EH submitted comments requesting additional information regarding these procedures in Reference 8. The project's revised response (Reference 8) adequately addressed EH's concerns. In addition, the demonstration conducted on November 6, 1989, on the unexpected HRA drum exercised these procedures satisfactorily.

EH's review of these procedures together with the demonstration conducted on November 6, 1989, provides an adequate basis for concluding that the operating procedures include the specific action steps to handle expected or unexpected high radiation level waste containers.

The finding is closed.

FINDING NO. 59 (C-7.2): IMPROVEMENTS FOR PROCEDURE REVISION SYSTEM

ACCEPTANCE CRITERIA:

For all Waste Management operating procedures, a current list of effective procedures, by revision numbers and dates, shall be continuously accessible to the shift operations supervisor. Waste Management operations personnel at the beginning of each work shift shall verify that the procedures on hand to be used in waste operations on that shift are current. Standard practice shall be that any field change made shall within three working days be incorporated in reissued pages of the affected procedure

ORIGINAL FINDING:

The procedure revision system does not provide the Operations Shift Supervisor with an immediately accessible current list of effective procedures, to assure him that all his procedures are the correct revision.

The above acceptance criteria have not been met.

PROJECT RESPONSE AND EH EVALUATION:

The project has committed to issue procedure WP 15-101, Rev. 5, by 11/30/89. This procedure discusses the requirements to ensure that a listing is available that identifies the most current operating procedures.

EH needs to review procedure WP 15-101 when issued to assure that the findings are satisfied.

The finding is open.

FINDING NO. 60 (C-7.3): MONITORING EQUIPMENT TRAINING FOR HEALTH PHYSICS PERSONNEL

ACCEPTANCE CRITERIA:

All personnel assigned to use chemical and radiological contamination measuring equipment involved in operations with TRUPACT II containers shall be trained and fully qualified to accomplish their assignments. This training should include comprehensive activities with transuranic contaminants, using the same or similar equipment, at a suitable site.

ORIGINAL FINDING:

Personnel presently lack adequate familiarity with some of this (i.e., alpha and beta contamination measurement and gas sample analysis) equipment (which has only recently been received).

The above acceptance criteria have not been met.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 5) included additional documentation of training on gas sample analysis and radionuclide analysis equipment. However, the response did not satisfactorily resolve the concerns, and additional information was requested (Reference 8).

The project's revised response (Reference 9) noted that facility/procedural modifications negate the need for real-time gas sample analysis during unloading.

The project's revised response was not satisfactory in that it did not address required changes to procedure WP 05-106 or any additional procedures that may be required to address the changes in gas sampling methodology. In addition, the revised response did not provide the requested radionuclide analysis training documentation (qualification card QC203) for all Health Physics technicians.

During the November 6-8, 1989, follow-up visit, EH reviewed the revised procedures for TRUPAC-II unloading operations and found them to adequately address the necessary changes. EH also interviewed HP technicians during the follow-up visit and observed a contaminated/high radiation TRUPAC-II drill to evaluate technician familiarity with the radionuclide analysis equipment. Project response was adequate.

The finding is closed.

FINDING NO. 61 (C-7.4): ATMOSPHERE CONTROL WHILE OPENING TRUPACT CONTAINERS

ACCEPTANCE CRITERIA:

Adequate control or confinement of the air at the top of a TRUPACT II container shall exist while the container is being opened and unloaded, to provide satisfactory personnel protection and acceptably low risk of an inadvertent spread of contamination. Adequate air particulate monitoring in the immediate vicinity of the container opening shall be provided.

ORIGINAL FINDING:

Adequate control or confinement of the air at the top of a TRUPACT container does not exist, and therefore this acceptance criterion has not been met. A suitably fixtured HEPA filtered air exhaust trunk, positioned opposite the workers, would draw the air away from the workers and might provide sufficient air control. The filtered air would be released into the building's HVAC exhaust ducting. Additionally, continuous air particulate monitoring in the worker's breathing zone during opening of the TRUPACT container could provide adequate localized air particulate monitoring.

PROJECT RESPONSE AND EH EVALUATION:

The project has developed a prototype vent hood and has performed smoke tests (work order number 1063-2) demonstrating its ability to provide adequate negative pressure during the TRUPACT lid removal phase. This vent hood is required by the operating procedures until it has been determined by both air sample and contamination swipes that there is no airborne or surface contamination. The final product (purchase request 36818, dated 10/30/89) will be available by mid April 1990 and additional smoke tests will be performed. In addition, the TRUPACT handling demonstration conducted on 11/6/89 exercised this vent hood and EH observed adequate negative pressure by the inward collapse of the vent bag.

The finding is closed.

FINDING NO. 62 (C-7.5): INCONSISTENT DATA REQUIREMENTS FOR WIPP WAC AND WIPP WWIS

ACCEPTANCE CRITERIA:

The WIPP Waste Information System (WWIS) shall provide a computerized data base providing data on each waste container and its storage location, as shown in FSAR, Table 5.5-1, and covering all requirements of DOE Order 5820.2A, Chapter II (FSAR, Section 5.5.4).

ORIGINAL FINDING:

The following WIPP Waste Acceptance Criteria (WAC) requirements do not appear to be covered precisely in the WWIS:

- o WIPP WAC requires that "radionuclide data" be recorded; The WWIS records data on transuranic radionuclides, but nothing regarding any others; some of which could be significant heat emitters (if from a waste generator where fission/activation products are included in the TRU waste). Clarification is needed regarding what is meant by the WIPP WAC requirements for "radionuclide data", and the WWIS should then be modified if necessary. NOTE: Although the WIPP WAC requires and the WWIS records "thermal power," if the waste generators and WIPP are considering only the thermal power generated by transuranic materials, significant amounts of generated thermal power may be overlooked and possibly this could have an adverse effect on the disposed TRU waste.
- o WIPP WAC requires "weight"; The WIPP WWIS records "package weight". It is unclear whether this is the weight the WIPP WAC wants recorded, or whether "net weight" is what is wanted.

PROJECT RESPONSE AND EH EVALUATION:

The project provided the additional WAC sections that discuss the WIPP/DOE-157 requirements (i.e., gross package weight and radionuclide data).

EH reviewed this additional information and agrees that it satisfactorily resolves the finding.

The finding is closed.

FINDING NO. 63 (C-7.6): PROCEDURE TO SEGREGATE CH TRU AND RH TRU

ACCEPTANCE CRITERIA:

Operational procedures specify that during the five-year pilot plant phase, CH TRU and RH TRU wastes will not be emplaced in the same room (FSAR, Chapter 5).

ORIGINAL FINDING:

No such working document or procedure exists specifying that during the five-year pilot plant phase, CH TRU and RH TRU wastes will not be emplaced in the same room.

PROJECT RESPONSE AND EH EVALUATION:

The project provided procedure WP 05-109 that requires during the 5-year pilot plant phase that CH TRU and RH TRU wastes will not be emplaced in the same room.

EH has reviewed this procedure and agrees that this change satisfactorily resolves the finding.

The finding is closed.

FINDING NO. 64 (C-7.7): RADIATION SURVEYS FOR CONTAINERS LEFT OUTSIDE OVERNIGHT

ACCEPTANCE CRITERIA:

Validate that a working procedure exists that requires more detailed radiation surveys in accordance with the Radiation Safety Manual for TRUPACT II containers left outside the Radiologically Controlled Area (RCA) overnight (FSAR, Chapter 5).

ORIGINAL FINDING:

No such requirement is specified in the Radiation Survey procedure, WP 12-505 or the receipt inspection procedure, WP 05-105.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 3) did not include the new DOE Order 5480.11 requirements concerning high radiation sources outside a controlled area.

The project's revised response (Reference 9) provided procedure WP-05-105 and adequately captures the required posting and survey requirements for TRUPACT II containers located outside the Radiation Controlled Area (RCA).

EH review of WP-05-105 determined that the additional radiation surveys and DOE Order 5480.11 requirements for containers located outside an RCA are included.

The finding is closed.

FINDING NO. 65 (C-7.8): STORAGE TIME LIMIT FOR CH WASTE IN SHIELDED STORAGE ROOM

ACCEPTANCE CRITERIA:

The shielded storage room will be used for drums in excess of 100 mrem/hr that cannot be placed U/G by the end of a shift or that cannot be left in the TRUPACT II. Waste containers will not be left in the shielded storage room for more than one week (FSAR, Chapter 3).

ORIGINAL FINDING:

The Radiation Safety Manual, WP 12-5, or the Operations Manual, WP 5-01, does not have a procedure limiting the time that CH TRU waste may be stored in the shielded storage room.

PROJECT RESPONSE AND EH EVALUATION:

The project provided procedures WP 05-112 (Section 4.1) with the new steps limiting the time that CH TRU waste may be stored in the shielded storage room.

EH reviewed procedure WP 05-112 and agrees that this additional step adequately limits the time and is in accordance with the FSAR (Chapter 3) commitment.

The finding is closed.

FINDING NO. 66 (D-1.1): AUTHORITY OF QA MANAGER

ACCEPTANCE CRITERIA

The organizational structure, functional responsibilities, levels of authority, and lines of communication for activities affecting quality shall be documented. Persons or organizations responsible for assuring that an appropriate quality assurance program has been established and verifying that activities affecting quality have been correctly performed, shall have sufficient authority, access to work areas, and organizational freedom.

Such persons and organizations shall have direct access to responsible management at a level where appropriate action can be effected. Such persons or organizations shall report to a management level such that required authority and organization freedom are provided, including sufficient independence from cost and schedule considerations.

ORIGINAL FINDING:

The WPO QA and Safety Manager do not have sufficient authority or independence to carry out their responsibilities.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 3) proposed a reorganization, but did not provide a copy of the reorganization plan, a schedule for implementing the plan, nor a commitment by senior management to implement the plan. This information was requested of the project by EH in Reference 6.

The project's revised response (Reference 9) provided details of the reorganization, showed approval of the positions in the new organization, and demonstrated a management commitment to implementing the new organization.

The project commitments appear adequate, but the vacant positions need to be filled prior to startup. Prior to startup, verify that a reasonable number of the positions in the new organization have been filled.

The finding is open.

FINDING NO. 67 (D-1.2): STOP WORK AUTHORITY FOR PROJECT MANAGER

ACCEPTANCE CRITERIA:

The organizational structure, functional responsibilities, levels of authority, and lines of communication for activities affecting quality shall be documented. Persons or organizations responsible for assuring that an appropriate quality assurance program has been established and verifying the activities affecting quality have been correctly performed shall have sufficient authority, access to activities work areas, and organizational freedom.

ORIGINAL FINDING:

The DOE/WPO Manager has no formal, contractual authority to direct Sandia's work. He also lacks contractual authority to stop unsatisfactory work.

PROJECT RESPONSE AND EH EVALUATION:

The projects original response (Reference 5) did not provide convincing arguments that the WPO manager had formal, contractual authority to direct Sandia's work and to stop unsatisfactory work. The project was advised of this in Reference 7 and provided a revised response in Reference 9.

The contracting officer in the DOE Albuquerque Operations Office has given formal, documented authority to the WPO manager to direct work and to stop unsatisfactory work on all WIPP-related activities undertaken by Sandia (Reference 11). This authority has also been documented in the FSAR (Reference 11).

The project response is adequate and the finding is closed.

FINDING NO. 68 (D-3.1): QUALITY LEVEL ASSIGNMENTS FOR PROCUREMENT REQUESTS

ACCEPTANCE CRITERIA:

Applicable design basis and other requirements necessary to assure adequate quality shall be included or referenced in documents for procurement of items and services. To the extent necessary, procurement documents shall require suppliers to have a quality assurance program consistent with the applicable requirements of NQA-1.

ORIGINAL FINDING:

Some Procurement Requests (PRs) have been assigned to quality levels in a manner inconsistent with procedures and to levels lower than that warranted considering their importance to safety.

PROJECT RESPONSE AND EH EVALUATION:

The project's initial response (Reference 3) noted that PRs had been examined, but it was unclear whether a comprehensive examination of the PRs had been conducted by WPO. The project was advised of EH's concern in Reference 6. The project's revised response (Reference 9) likewise did not address the extent of the re-examination made of PRs.

During the follow-up visit November 6-8, 1989, an examination of the extent of the project's review of PRs was made. It was concluded that the equipment being procured was in fact commercially available, off-the-shelf equipment that was described in sufficient detail that a determination could be made that it would meet the project's technical specifications. Because of this, it was not necessary to assign the PRs to a higher quality level than was done.

The project's response is adequate and the finding is closed.

FINDING NO. 69 (D-5.1): POTENTIALLY COUNTERFEIT HIGH STRENGTH BOLTS

ACCEPTANCE CRITERIA:

The procurement of items and services shall be controlled to assure conformance with specified requirements. Such control shall provide for the following as appropriate: source evaluation and selection, evaluation of objective evidence of quality furnished by the Supplier, source inspection, audit, and examination of items or services upon delivery or completion.

ORIGINAL FINDING:

It is not clear that the corrective action taken has been sufficient. It is not possible to confirm that surveys of all critical systems and components were completed. It is also not possible to confirm that potentially nonconforming bolts discovered in the surveys that have been done have been replaced.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 3) described which buildings had been examined but did not contain sufficient details on the buildings and equipment surveyed, the basis for the selection of the buildings and equipment, and the method used to determine which bolts were potentially counterfeit. Additional details were requested by EH in Reference 6.

The project's revised response (Reference 9) provided details of the buildings and equipment surveyed, the basis for their selection, and the basis for determination of potentially counterfeit bolts. Corrective action taken when potentially counterfeit bolts were discovered was also described.

During the November 6-8, 1989, follow-up visit, the documentation of the surveys was examined. Several examples of instances in which potentially counterfeit bolts were discovered and replaced were noted. In other instances where potentially counterfeit bolts were discovered, it could be demonstrated that engineering staff had determined that high strength bolts were not required.

The project's response is adequate and the finding is closed.

FINDING NO. 70 (D-6.2): QUALIFICATION REQUIREMENTS FOR TESTING PERSONNEL
NOT SPECIFIED

ACCEPTANCE CRITERIA:

Calibration and operational testing procedures are documented. These procedures should identify calibration intervals and the required personnel qualifications.

ORIGINAL FINDING:

The following procedures:

WP 04-703 (Rev 0, 2/8/89) Underground Ventilation System Automatic Filtration Mode Shifting Compliance Procedure,

WP 04-704 (Rev 0, 2/14/89) WHB HVAC Differential Pressure Alarm Compliance Procedure, and

WP 04-705 (Rev 0, 3/2/89) U/G RMA Differential Pressure Alarm compliance Procedure

do not specify the required qualifications for those individuals allowed to perform the procedure.

PROJECT RESPONSE AND EH EVALUATION:

The project provided (Reference 3) procedure WP 04-7 which stated that personnel performing the procedure must be qualified but failed to list specific requirements or make reference to any clarifying documents. This was judged inadequate. Qualification requirements in WP 04-7 were vague and circuitous. Additional information was requested in Reference 6.

The project (Reference 9) revised the Administrative Plan, WP 04-7, "WIPP Operational Safety Requirements Administrative Plan," Rev. 1 (10/13/89), and revised implementing procedures WP 04-701, 702, 703, 704, 705, and 706. The new procedures specify the qualifications required in Section 4.3.1. The implementing procedures now reference the requirements in Section 4.3.1 of WP 04-7 and the specific certification cards.

During the November 6-8, 1989, follow-up visit, an examination of selected certification cards was made. The cards examined contained position requirements, formal classroom training requirements, equipment qualification requirements, and proficiency certification for specific operations. A sample qualification card (for Exhaust Filter Building, Equipment Operator Qualification Card) was also examined. The card contained specific requirements to demonstrate academic knowledge of the system a "walk-through" section to demonstrate a "hands-on" familiarity with the system, and a practical section that requires the trainee to perform various system operations and checks.

The project response is adequate and the finding is closed.

FINDING NO. 71 (D-6.3): OUT OF DATE INSTRUMENT CALIBRATIONS

ACCEPTANCE CRITERIA:

A master schedule for calibration of all equipment exists.

ORIGINAL FINDING:

Six items on the IDC index are past due for calibration. No explanation is given.

PROJECT RESPONSE AND EH EVALUATION:

The project's response (Reference 3) was to institute a Maintenance Management and Procurement System (MMPS) and to install a terminal using the system in the instrument and calibration laboratory. The IDC Index system was replaced with the MMPS computer index. The new system reflects the real calibration status of instruments and avoids the delay between the actual field calibrations performed and updates that were done using the IDC Index.

During the November 6-8, 1989, follow-up visit, an examination of the MMPS was made at the main computer and a visit to the calibration laboratory was made. The IDC Index system is no longer used. The MMPS is used to schedule calibration of measuring and test equipment and has proved effective in reducing the delay between performance of a calibration and updating of the MMPS data base.

The project response is adequate and the finding is closed.

FINDING NO. 72 (D-6.1): AIR MONITORING EQUIPMENT OPERABILITY TESTING OVERDUE

ACCEPTANCE CRITERIA:

Adequate records of calibration and testing are maintained by the facility. An adequate system of recall has been established.

ORIGINAL FINDING:

1. The delinquent list and several of the MMPS record folders were checked. Several Continuous Air Monitors (CAMs), specifically required by the FSAR (Section 10.2), are listed on the delinquent list. Looking into the corresponding records showed that there was no monthly operability test report. Recall of these critical items should be handled more rigorously. Effort should be made to move equipment off the delinquent list quickly.

PROJECT RESPONSE AND EH EVALUATION:

The project's original response (Reference 3) and revised response (Reference 9) were unclear on the following points:

- o Was WP 04-7 revised in response to EH's finding?
- o Will critical items (such as CAMs) continue to routinely show up on the delinquent list?

During the November 6-8, 1989, follow-up visit, a check was made to determine what corrective action had been taken in response to the finding. The reason the monthly operability tests had not been performed was determined to be the lack of an implementing procedure for performing these tests. Instruction number EQ071000, "Monthly Functional Test of Beta Radiation Continuous Air Monitors," Rev. 0, and EQ07001, "Monthly Functional Test of Alpha Radiation Continuous Air Monitors," Rev. 0, were both approved on 10/31/89. One test using procedure EQ071001 has been performed (on 11/6/89). The results were satisfactory.

The project response is adequate and the finding is closed.

FINDING NO. 73 (D-10.1): INADEQUATE QA AUDITS PERFORMED

ACCEPTANCE CRITERIA

Planned and scheduled audits shall be performed to verify compliance with all aspects of the quality assurance program and to determine its effectiveness. These audits shall be performed in accordance with written procedures or checklists by personnel who do not have direct responsibility for performing the activities being audited. Audit results shall be documented and reported to and reviewed by responsible management. Follow-up action shall be taken where indicated.

ORIGINAL FINDING:

WPO QA has not satisfactorily implemented adequate QA oversight of the program for which they are responsible. The WPO QA Manager has not had sufficient resources to perform the required audits of Major Project Participants. Auditors from one project contractor have been used to support WPO overviews of another contractor. This approach is not desirable because it compromises the independence required for the audit process.

PROJECT RESPONSE AND EH EVALUATION:

The project (References 3 and 9) proposed new positions for QA personnel, but noted that final approval had not been granted by the Albuquerque Operations Office. EH requested additional information on the number of slots, grade levels, type of positions, schedule and scope of audits planned for the coming year, and evidence that future audits would be comprehensive. The revised response did not provide these details.

EH's concerns about adequate QA oversight and sufficient QA resources has been largely satisfied by the project's response to EH's Safety Evaluation Report (Reference 12), item number 1a. The project's proposed reorganization establishing an office of Quality and Regulatory Assurance, staffed by a manager, three engineers, and a secretary, will resolve EH's concerns in this area.

Prior to start-up, verify that a reasonable staffing level has been achieved in the new organization.

The project's commitment appears adequate, but the vacant positions in the new organization need to be filled.

The finding is open.

FINDING NO. 74 (NEW): PA SYSTEM IN WHB IS UNINTELLIGIBLE

ACCEPTANCE CRITERIA:

Warnings and instructions given over the Public Address (PA) system in the Waste Handling Building (WHB) should be intelligible.

FINDING (NEW):

During the November 6-8, 1989, follow-up visit, it was noticed that messages given over the PA system in the WHB were frequently not intelligible.

PROJECT RESPONSE AND EH EVALUATION:

The project noted that plans have been made to upgrade the PA system in the WHB.

The finding is open.

FINDING NO. 75 (NEW): SOME CONTROLLED NOTEBOOKS NOT UP-TO-DATE

ACCEPTANCE CRITERIA:

Instructions, procedures, and drawings important to safety shall be issued in a controlled manner such that personnel requiring them are assured of receiving revisions in a timely fashion. A system to implement this and the conduct of periodic checks to assure compliance is required.

FINDING (NEW):

Some controlled notebooks were examined during the November 6-8, 1989, follow-up visit and were found to be incomplete.

PROJECT RESPONSE AND EH EVALUATION:

The project has committed to take corrective action.

The finding is open.

FINDING NO. 76 (NEW): FAILURE OF WASTE HOIST BEARING

ACCEPTANCE CRITERIA:

The Waste Hoist system shall be designed, operated, and maintained in accordance with all applicable requirements.

FINDING (NEW):

After the EH visit in May 1989, the project discovered a failed waste hoist drum bearing.

PROJECT RESPONSE AND EH EVALUATION:

The project has initiated an investigation into the cause of failure and has committed to take appropriate corrective action once the cause of failure is confirmed.

EH feels that an independent review of the project action should be performed, documented, and verified.

The finding is open.

FINDING NO. 77 (NEW): ACTION PLAN FOR POST STARTUP FINDING

ACCEPTANCE CRITERIA:

A plan and schedule must be established by the project, and appropriately committed to by project management, for each of the 117 post startup findings reported in the June 2, 1989, EH RRI Report (Reference 1). This must be completed prior to startup.

FINDING (NEW):

The project has drafted schedules and an outline for some findings (Reference 22), but has not yet fully completed the required plans and schedules.

PROJECT RESPONSE AND EH EVALUATION:

The project intends to complete the required plans and to furnish them to EH for review.

The finding is open.

III. REFERENCES

1. U.S. Department of Energy, Office of Safety, Health and Quality Assurance, "EH-30 Readiness Review Inspection of the Waste Isolation Pilot Plant," June 2, 1989.
2. Memorandum, Jack B. Tillman, DOE/AL, WPO, to Shirley Olinger, DOE/HQ, EH-332, "EH-30 Readiness Review Inspection Responses," July 20, 1989.
3. Memorandum, Jack B. Tillman, DOE/AL, WPO, to Shirley Olinger, DOE/HQ, EH-332, "EH-30 Readiness Review Inspection Responses," July 27, 1989.
4. Memorandum, Jack B. Tillman, DOE/AL, WPO, to Shirley Olinger, DOE/HQ, EH-332, "EH-30 Readiness Review Inspection Responses," August 11, 1989.
5. Memorandum, Jack B. Tillman, DOE/AL, WPO, to Shirley Olinger, DOE/HQ, EH-332, "EH-30 Readiness Review Inspection Responses," August 18, 1989.
6. Memorandum, Harry J. Pettengill, DOE/HQ, EH-332, to Jack B. Tillman, DOE/AL, WPO, "EH-30 Review of WIPP Responses to RRI Findings," August 16, 1989.
7. Memorandum, James P. Knight, DOE/HQ, EH-33, to Stephen P. Cowan, DOE/HQ, DP-12, "EH-30 Review of WIPP Responses to RRI Findings," August 29, 1989.
8. Memorandum, Harry J. Pettengill, DOE/HQ, EH-332, to Critz H. George, DOE/HQ, DP-123, "EH-30 Review of WIPP Responses to RRI Findings," September 13, 1989.
9. Memorandum, Mark W. Frei, DOE/HQ, EM-34, to James P. Knight, DOE/HQ, EH-33, "Additional Information for EH-30 RRI Findings," October 12, 1989.
10. U.S. Department of Energy, WIPP Project Office, "Department of Energy Management Plan for the Waste Isolation Pilot Plant," DOE/WIPP 103, August 18, 1989.
11. Memorandum, Albert R. Chernoff (DOE/AL) to Jack B. Tillman (DOE-AL, WPO), September 1, 1989.
12. Memorandum, Mark W. Frei, DOE/HQ, EM-34, to James P. Knight, DOE/HQ, EH-33, "Final responses to DOE/HQ-EH Safety Evaluation Report (SER)," October 11, 1989.
13. Memorandum, R. D. Boyer, WID, to Chuan-Fu Wu, WID, "Contact Points for Notification on Medical Staff," WIN 887-8393, November 14, 1989.
14. "Semi-Annual Inspection, Cleaning and Electrical Maintenance of Exhaust Fan," PM041004, Rev. 0, October 13, 1989.
15. "Loop Calibration Check of Filter Differential, Pressure Detectors and Associated Equipment," WL0003 (Loop 41F051014-16), Rev. 1, undated.

16. "Electrical PM Instructions Report: Battery and Charger," 25-P-E-5044, Rev. 0, May 16, 1989.
17. "Mechanical PM Instructions Report: Exhaust Fan," 41-B-860C, Rev. 1, June 2, 1989.
18. "Electrical PM Instructions Report: Circuit Breaker," 25P-SWG04/1-CBG, Rev. 1, October 13, 1988.
19. "Electrical PM Instructions Report: Underground Exhaust Fan Motor," 41-B-860C, Rev. 0, February 16, 1988.
20. R. L. Brune, and M. Weinstein, "Development of a Checklist for Evaluating Maintenance Test and Calibration Procedures Used in Nuclear Power Plants," NUREG/CR-1368, May 1980.
21. "The Writers Guide for Waste Isolation Pilot Plant (WIPP) Instruction," WP 10-3, draft, October 1989.
22. Memorandum, Mark W. FRei, DOE/HQ, EM-34, to James P. Knight, DOE/HQ, EH-33, "WIPP Readiness Review Followup Commitments," December 1, 1989.

APPENDIX A

TEAM MEMBERS AND OBSERVERS

The following individuals were members of the EH-30 Readiness Review Inspection Team for the WIPP facility during the November 6-8, 1989, follow-up visit, or observed the follow-up visit:

Carl Newton, DOE, Office of Safety Appraisals - Team Leader

Edward F. Branagan, Jr., Office of Safety Appraisals - Operational Maintenance and Plant Management

Robert Loesch, DOE, Office of Safety Policy and Standards - Radiological Protection and Emergency Response

Shirley Olinger, DOE, Office of Safety Appraisals - Acceptance Testing, Plant Management, and Waste Management

Anthony Weadock, DOE, Office of Safety Policy and Standards - Radiological Protection and Emergency Response

L. B. Gannon, SAIC - Technical Observer for Defense Programs

William Gunther, Brookhaven National Laboratory - Electrical Equipment and Instrumentation and Control

Rob Woolley, SAIC - Technical Observer for Defense Programs

APPENDIX B

EH-30 EVALUATION OF LOSS OF UTILITY POWER DRILL

EH EVALUATION

On November 7, 1989, an announced drill of the loss of offsite power occurred. The purpose of this drill was to observe that the concerns raised during observations of the May 11, 1989, drill had been resolved. These concerns were identified in the June 2, 1989, RRI report (Ref. 1).

FINDINGS/CONCERNS (from May 1989 drill)

1. The shift supervisor is burdened with too many field tasks. This affects his ability to assess site conditions and direct emergency response activities.
2. The assumption of responsibility by the Operations Assist Team occurred without adequate turnover and without notifying the shift supervisor.
3. The implementing procedure WP 04-110 contains several errors which require correction.
4. Important equipment such as circuit breakers are not uniquely identified. For example, several CB-2, CB-3, etc., breakers exist in the facility.
5. Emergency lighting for the Emergency Operations Center (EOC) was not adequate.
6. OSR related Radiation Monitoring System instrumentation in the Waste Handling Building were inoperable during the loss of power event.
7. The loss of offsite power drill should be a permanent part of the operator training program.

During the November 7, 1989, drill, critical areas were monitored by the inspection team including the Central Monitoring Room (CMR), the Waste Handling Building (WHB), the Station A and B instrumentation rooms, and the diesel generators (DGs). In addition team members monitored the activities of the shift supervisor in various areas, including the plant substation, Substation 3, the exhaust filter building, and the central uninterruptible power supply (UPS) room.

Drill Inspection

The drill was initiated at 10:04 a.m., on November 7, 1989 (per log), by the lead drill controller who opened the utility supply circuit breaker CB-1. Diesel generator (DG) No. 2 was started at 10:05 a.m., and was warmed up per procedure WP-04-111 prior to closing its output breaker at 10:10 a.m. The diesel loading commenced per procedure WP 04-110, Rev. 2, as coordinated by the shift supervisor and the CMR operator. By 10:30 a.m., all essential loads had been powered by DG No. 2 and work was initiated to shed nonessential loads to achieve a diesel loading of 800 to 950 kw as per Step 8(h) of the procedure

WP-04-110. This was accomplished at 11:15 a.m., at which time the drill was declared over, and the power restoration process was initiated.

Assessment

The team found that improvements were made in several areas as compared to the May 1989 drill.

These were:

1. The equipment and personnel responded very well during the scenario in that power was restored quickly, without any significant problems.
2. The Operations Assist Team provided good support and leadership.
3. The procedure WP-04-110 appeared to flow smoothly due to the changes made per field change No. 2, approved on October 31, 1989.
4. Emergency lighting was available and operable at the substations, UPS, and EOC.
5. OSR related instrumentation in the Waste Handling Building was made operable by health physics in a timely manner.

On the other hand, several negative observations made during the May 1989 drill were again noted:

1. The shift supervisor is still burdened with too many field tasks. Project initiatives to add personnel to the shifts have not been completed.
2. Important equipment such as circuit breakers are not uniquely identified. Project actions were initiated in May; however, results have not been obtained to date.
3. A 45 kw difference exists between the local DG output reading and the CMR indications. The difference should be resolved, and direction given to the operators regarding which one to use for meeting the procedure requirements.
4. The central UPS battery meter indicated that the battery was still discharging well after the diesel was powering the facility. This should be resolved.

Overall, the drill was found to be satisfactory. Permanent incorporation of the field change for WP 04-110 should be expedited, as well as follow-up to the negative observations noted above.

APPENDIX E

OFFSITE DOSE DRILL EVALUATION

On November 6, 1989, a tabletop exercise was conducted with selected project personnel to evaluate offsite dose assessment capability. During this exercise, simulated source term, release, and meteorological conditions were provided to the project for dose assessment purposes. The status of applicable procedures were also reviewed.

EH evaluation during the exercise identified that a methodology for offsite dose calculation is not fully in place. Specific observations are:

- o The project intends to use the computer code CHIEF for offsite dose assessments. Additional hardware upgrades (VAX system and 9600 baud lines) are needed to make this system operational. The code currently only does dispersion calculations and does not provide a dose estimate.
- o The project also attempted to use the AIRDOSE/EPA code, utilizing accident rather than annual average release conditions, to provide dose estimates. This code required complicated data entry methods and was noted to be unsuitable for incident situations. Results obtained using this code were unrealistic; further review identified errors had been made while inputting data.
- o No procedures are in place to direct or control the use of the above codes and the performance of offsite dose assessments.
- o Draft procedures describing offsite radiological monitoring have been developed but have not been finalized or approved.
- o Training for personnel on the above activities has not been carried out.