Criteria, Review, and Approach Document
for the Assessment of Operational Readiness
of Vital Safety Systems (VSS)

DNFSB VSS Phase I Operability Review:

Facility: TA-55, PF-4

LANL FM Signatory: *original signed by Eric Ernst 3/01/01*

LANL FMS Signatory: *original signed by Robert Hurdle 3/01/01*

LANL OAB Signatory: *original signed by Patrick R. McCLure 3/01/01*

LANL DNFSB R. 2000-2 Signatory: *original signed by Beverly A Ramsey 3/01/01*

LAAO FR Reviewer: Ivan Trujillo Date: March 1, 2001

Kenneth Zamora, Assistant Area Manager for Facility

Original signed by Kenneth Zamora Date: March 1, 2001

Directions: Complete an Assessment Form for each system assessed using the Review Approach provided. This assessment is intended to be conducted at the **system level,** and is only intended to consider **existing** information and processes (i.e., completion of the assessment does not require development of new or additional information). Where the requested information does not exist, it should be so noted in the Discussion of Results sections of the form. Provide this report to [Program Office Representative name at email address. Sufficient information documenting the Review Approach should be retrievable for demonstrating the quality of the assessment and to support the conclusions reached, but do not submit the information with this form.

Site: LANL

Facility: TA-55, PF-4

System: Fire Suppression System: 1. Fire Suppression Water Supply System (FSWSS); 2. Fire Suppression Sprinkler System (FSSS)

System Classification: Safety Significant

System Safety Function (list):

The fire suppression system comprises the FSWSS and the FSSS. The safety significant portion of the FSSS is the part that protects the laboratory areas on the main floor of PF4. The safety function of the FSWSS is to supply fire suppression water to the FSSS of PF-4. The safety function of the FSSS is to supply pressurized water from the FSWSS to the outlets of sprinkler heads to minimize the spread of potential fires within PF-4 and cool the combustion gases generated by the fire, thus, minimizing the potential release of contamination from PF-4.

1. **Fire Suppression Water Supply System: Accident/Hazard – Defense in depth for fire in the PF4 laboratories; Functional Requirement – The FSWSS is required to supply fire suppression water to the FSSS for two hour in the event of a fire.**
2. **Fire Suppression Sprinkler System: Accident/Hazard – Defense in depth for fire in the PF4 laboratories; Functional Requirement – The FSSS is required to supply fire suppression water to the laboratory sprinklers.**

OBJECTIVE

vss-1

This vital safety system is operational and personnel and processes are in place that ensure its continued operational readiness.

Criteria and Discussion of Results

vss-1.1 **VSS safety functions are defined and understood by responsible line managers, and supporting information/documentation is available and adequate. System testing is adequate to ensure operability.**

Discussion of Results

Facility Safety Documentation

The Authorization Basis for the facility is set forth in the following documents:

- TA-55-PRD-108-01.2 TA-55 FINAL SAFETY ANALYSIS REPORT

Safety Function

The safety function of the FSWSS is to supply fire suppression water to the FSSS of PF-4. The safety function of the FSSS is to supply pressurized water from the FSWSS to the outlets of sprinkler heads to minimize the spread of potential fires within PF-4 and cool the combustion gases generated by the fire, thus, minimizing the potential release of contamination from PF-4.

Functional Requirements

The fire suppression system comprises the FSWSS and the FSSS. The safety significant portion of the FSSS is the part that protects the laboratory areas on the main floor of PF4. The safety function of the FSWSS is to supply fire suppression water to

- Fire Suppression Water Supply System: Accident/Hazard – Defense in depth for fire in the PF4 laboratories; Functional Requirement – The FSWSS is required to supply fire suppression water to the FSSS for two hour in the event of a fire.
- Fire Suppression Sprinkler System: Accident/Hazard – Defense in depth for fire in the PF4 laboratories; Functional Requirement – The FSSS is required to supply fire suppression water to the laboratory sprinklers.

Conditions Requiring Fire Suppression System

- Normal Conditions – None
- Abnormal Conditions – Fires
- Accident Conditions – From Chapter 3 of the FSAR the following accident requires the Fire Suppression System to be Safety Significant: 3.4.2.1 – Laboratory Fire in the Heat Source Production Area

Performance and Acceptance Criteria

FSWSS

- Performance Criteria - The FSWSS is required to have at least 120,000 gal. of water in storage available for fire suppression use.
- Acceptance Criteria - Each of the two 150,000-gal. storage tanks is checked monthly to ensure the fill level is $\geq$ 21 ft, which corresponds to more than 120,000 gal.

- Performance Criteria - The FSWSS must be aligned such that at least one fire pump can deliver water to each in-service PF-4 FSSS riser.
- Acceptance Criteria - Valve alignment is checked monthly, and a quarterly main drain and flow test is performed for each section of the FSSS.

- Performance Criteria - At least one fire pump must start upon falling FSWSS pressure.
- Acceptance Criteria - Monthly fire pump run tests are performed to ensure each of the fire pumps start within $\pm$ 5 psig of their respective target set points.

- Performance Criteria - Enough diesel fuel must be present in at least one diesel supply tank to operate its respective diesel drive fire pump at full load for at least two hours.
- Acceptance Criteria - Each diesel fuel supply tank level is checked monthly to ensure it is $\geq$

20 gal.

- Performance Criteria - Fire suppression water storage tanks must be maintained at a temperature that prevents ice formation.
- Acceptance Criteria - Each fire suppression water storage tank is checked daily during the months of September through April to ensure that the water temperature is $\geq$ 40°F.

- Performance Criteria - Diesel fire pumps and above-ground FSWSS piping must be maintained at a temperature that prevents ice formation.
- Acceptance Criteria - Each pump house is checked daily during the months of September through April to ensure that the pump house temperature is $\geq$ 40°F.

- Performance Criteria - Electric power is available to run the electric fire pumps.
- Acceptance Criteria - The breaker alignment providing power to the two electric fire pumps is checked weekly.

FSSS

- Performance Criteria - The FSSS must be capable of delivering fire suppression water.
- Acceptance Criteria - Valve alignment is checked monthly, and a quarterly main drain and flow test is performed for each section of the FSSS.

Surveillances (TSRs)

This section identifies the assumptions requiring TSRs to ensure performance of the safety functions of the fire suppression system. Listed below are the assumptions made during the process of evaluating the fire suppression system against the performance criteria described above.

- Assumption 1 - Sufficient water is available to support fire suppression activities during a fire.
- TSR Control -The water tanks are checked monthly to ensure that the tank level is $\geq$ 21 feet.

- Assumption 2 - Valve alignment is such that fire suppression water can be conveyed to the fire suppression systems.
- TSR Control - Valve alignment is checked monthly, and a quarterly main drain and flow test is performed on the sprinkler system risers.

- Assumption 3 - At least one fire pump will start upon falling FSWSS pressure.
- TSR Control - The four fire pumps are tested monthly to ensure they start with $\pm$ 5 psig of their respective target set points.

- Assumption 4 - Sufficient fuel is available to support at least one diesel fire pump running at full load for two hours.
- TSR Control - The diesel fire pump fuel supply tank levels are checked monthly to ensure there is ≥ 20 gal.

- Assumption 5 - Water will flow from at least one fire suppression water storage tank.
- TSR Control - The water temperature in each fire suppression water storage tank is checked daily during the months of September through April to ensure it is ≥ 40°F.

- Assumption 6 - Water will flow through the fire pumps and piping system.
- TSR Control - The temperature in each pump house is checked daily during the months of September through April to ensure it is ≥ 40°F. The pump houses are passive design features that will be included in the TSR section on design features.

- Assumption 7 - The FSSS is capable of delivering fire suppression water.
- TSR Control - A quarterly main drain and flow test is performed.

- Assumption 8 - Electric power is available to run the electric fire pumps.
- TSR Control - The breaker alignment providing power to the two electric fire pumps is checked weekly.

Procedures

- NMT8-TSR-004 – Surveillance Rounds
- NMT8-TSR-301 - PF-10 Fire Pump Testing
- NMT8-TSR-302 - PF-11 Fire Pump Testing
- NMT8-TSR-303 - PF-4 Fire Suppression Sprinkler System Surveillance
- NMT8-TSR-304 - PF-4 FSS Control Valve Alignment Inspection

Drawings, Specifications, and Related Documentation

- AB310 - AS-BUILT CRITICAL FACILITY FIRE PROTECTION SYSTEM
- ENG-C 81607 – EAST AND WEST PUMP HOUSE FIRE PROTECTION
- AB156 – FIRE PROTECTION MAPS TA-55 PLUTONIUM PROCESSING FACILITY
- SPECIFICATION NO. 4401-P-1 FIRE SERVICE WATER TANKS
- SPECIFICATION NO. 4401-N-1 UTILITIES
- NMT8-SDD-3310 - Fire Suppression Water Supply System
- NMT8-SDD-3320 - Fire Suppression Sprinkler System

Vss-1.1 Conclusion

For the Fire Suppression System the safety functions are documented in approved safety documentation.

Tests and surveillance's are performed to ensure the system meets the requirements and assumptions of that safety documentation are met. The defined safety functions are understood by personnel responsible for the system.

vss-1.2 **The backlog for surveillances, tests, inspections, maintenance, repair, upgrades, or other work on the system is managed and kept to an appropriate minimum.**

Discussion of Results

Surveillances, Tests, Inspections

There is no backlog for surveillance, tests, or inspections on the Fire Suppression System. TSR surveillances are tracked and scheduled by the Operations Center and a computer assisted maintenance management program (PASSPORT). TSR surveillances are performed by facility technicians, and where required craftsmen from Johnson Controls Northern New Mexico (JCNNM), the laboratory's Support Services Sub-contractor. Variance periods for performance of TSRs are specified in TA-55-PED-108-01.1 TA-55 TECHNICAL SAFETY REQUIREMENTS, and changes in schedule dates are documented and approved by the Facility Manager.

Maintenance

There is no backlog for maintenance on the Fire Suppression System. Maintenance activities are scheduled and work packages are generated by the computer assisted maintenance management program (PASSPORT). The Maintenance Manager controls the administration of the planned maintenance program. The System Engineer responsible for the Fire Suppression System provides technical oversight of the maintenance program implementation.

Repair

There are no outstanding repair actions for the Fire Suppression System. As repairs are required a work request is initiated and processed through the Work Control System.

Upgrades

There are several major upgrade projects for the Fire Suppression System.

- The Fire Suppression Water Supply System has developed numerous corrosion related leaks over the past 10 years. A project is currently underway to replace the water supply piping, and to perform seismic upgrades to components and the fire water storage tanks. Due to the deterioration of the existing underground piping system this project has taken precedence over

upgrades to the Fire Suppression Sprinkler System.

- The Fire Suppression Sprinkler System was evaluated during the Seismic Margins Assessment of PF4. The system had a fairly low High Confidence Low Probability of Failure (HCLPF), 0.11g with an annual probability of failure of 1.09×10^{3}. As funding allows, seismic upgrades to the piping systems on the interior of PF4 will be pursued.
- A Design Change Package (DCP 2000-015) is currently in the final stages of construction to replace the pressure maintenance (Jockey Pumps) in both pump houses. The change also increases the redundancy in the system by providing backup power to various supporting components.

Vss-1.2 Conclusion

There is no backlog of surveillances, tests, inspections, maintenance, or repairs that adversely impact the reliability or availability of this system. Upgrades are planned and scheduled as funding and resources permit.

vss-1.3 Configuration Management and Maintenance programs effectively ensure operational availability of the system.

Discussion of Results

Documentation

The following documents describe the configuration, change control, and work control process at TA-55:

- TA-55-PRD-108-01.2 TA-55 FINAL SAFETY ANALYSIS REPORT
- NMT-AP-017 - WORK CONTROL
- LA-13348-M: TA-55 CHANGE CONTROL MANUAL

Maintenance

The following planned maintenance activities are conducted to help ensure the reliable performance of the Fire Suppression System:

- ASI-021 - (M) -NON PF4 VALVE ALIGN
- ASI-022 FS VALVE OPERABILITY TEST
- ASI-020 - (Q) - NON PF-4 SPRINKLER DRAIN TEST
- HYDRANTS - (A) - INSP/TEST
- PFPD - (M) - PM, DIESEL FIRE PUMP ENGINE
- PFPD - (A) - MECH. DIESEL FIRE PUMP ENGINE
- TI-14533 (A) CALIBRATION
- STANDPIPE1 (A) (PF-4 SPH 1-8)
- STANDPIPE2 (A) (PF-4 # 9-27)
- PFP - (6M) - MECH
- PFP - (A) - MECH
- FIRE PUMPS FLOW TEST (A)
- 76FIRE - (A) - CALIBRATIONS

The procedures are currently being updated and incorporated into the PASSPORT system. The transition will make the maintenance activities specific to the TA-55 facility by including site specific work instructions, hazard documentation, and post maintenance testing.

Configuration Management

The configuration management process to control and execute facility modifications is documented in LA-13348-M: TA-55 CHANGE CONTROL MANUAL. Changes to the Fire Suppression System are completed using a design change package which includes system engineering review, the USQ process, updates to the Master Equipment List, updates to as-built drawings, and the archiving of documentation.

Vss-1.3 Conclusion

Formal maintenance and control of changes to the system adequately ensure the operational availability of the system. Supporting configuration documentation for the system is available but needs to be reviewed and updated.

vss-1.4 The system is operable and available to fulfill its safety function when required.

Discussion of Results

Testing

The Fire Suppression System has failed to meet the TSR acceptance criteria on one occasion during the past three years. During the monthly pump run in the east pump house (NMT8-TSR-301), the diesel fire pump failed to start. A stop and recover was initiated and the cause was determined to be a relay that had been knocked out of the controller by adjacent work. The relay was replaced and the pump functioned normally. Due to redundancy, the Fire Suppression System was still available for service during this period.

Reliability

In the past three years the Fire Protection System has been unavailable to support its safety function on one occasion. A leak developed in the lateral which supplies the North half sprinkler for PF4, both basement and first floor laboratories. The leak was found and repaired. During the repair the lateral was isolated for several hours. This means that the system was unavailable to support its safety function for less than 0.02 % of the time during the last three years.

Supporting Systems

The system is supported by the electrical distribution system (EDS). The EDS is not required for the system to fulfill its safety function. The diesel fire pumps in each pump house do not require site electrical power to operate.

Vss-1.4 Conclusion

This system is available to fulfill its safety function. System redundancy has ensured operability is maintained when components are required to be out of service.

Conclusion –

The objective is met for the Fire Suppression System. The system is operational and personnel and processes are in place to ensure its operational readiness. Safety functions are documented, operational requirements are documented, and testing and maintenance are performed to ensure operability. System configuration documentation is being reviewed, refined, and consolidated to support its continued operational readiness.

DOE emplovee who reviewed this assessment: Ivan Trujillo, DOE Representative

Provide an estimate of the number of hours (contractor and DOE) needed to complete the data gathering, assessment, and documentation:

DOE: 10 hours

Contractor: 14 hours

Building/Facility: Chemistry and Metallurgy Research Facility

Facility Manager: Scott Dick, NMT-DO

DOE Cognizant Representative: Veronica Martinez, Joe Houghton

Vital Safety System	System Engineer	Configuration Management	Maintenance	Operations	Assessments/ Audits	Overall
(1)	(2)	(3) Color & arrow	(4) Color & arrow	(5) Color & arrow	(6) Color & arrow	(7) Color & arrow
Fire Suppression System	Jim Tsiagkouris	↗	↗	→	→	↗
Fire Alarm System	Jim Tsiagkouris	↗	↗	→	→	↗
Hot Cells	Thad Hahn	↗	↗	↗	→	↗
Floor Wells	Jim Tsiagkouris	↗	→	→	→	→
Ventilation System	Thad Hahn	↗	↗	→	→	→
Continuous Air Monitoring System	Thad Hahn	→	→	→	→	→
Vault	Jim Tsiagkouris	→	→	→	→	→
Alpha Box	Jim Tsiagkouris	*	*	*	*	*
Building Structure	Jim Tsiagkouris	→	→	→	→	→
Electric Power Screen	To Be Determined					
Type A & B Containers	To Be Determined					
Hood Washdown	To Be Determined					

* Included in the BIO, equipment and controls developed but not installed. Operations and readiness not established.

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(2) **System Engineer** refers to the individual responsible for the system.
(3) **Configuration Management** refers to the set of controlled information that describes the configuration of the system. Green means that configuration management and maintenance programs effectively ensure operational availability of the system; configuration procedures have been identified and implemented; all required documentation is in place and up to date; the "as-is" condition of equipment, components, tools and other controlled items has been verified; and the set of controlled documentation accurately reflects the actual status of the system. Yellow means some controlled documentation of associated or non-vital components of or connecting to the VSS may require periodic updating, have not been verified or are not complete, but it is known that none of these effect the operability of the VSS. Red means configuration management of the VSS is in an unknown state or is known to be deficient to the extent that operability of the VSS may be effected.

(4) **Maintenance** refers to all corrective and preventive maintenance. Green means all maintenance is completed or has certain schedule and funding and the backlog for surveillances, tests, inspections, maintenance, repair, upgrades, or other work on the system is managed and kept to an appropriate minimum. Yellow means some maintenance is not completed or has an uncertain schedule and funding, but the facility is still operational. Red means maintenance is so far behind that the facility's availability for operations is jeopardized.

(5) **Operations** refers to the effect of facility condition on the ability to conduct all operations intended for the facility, even if those operations are not currently authorized or in progress. Green means the system is operable and available to fulfill its safety function when required, system testing is adequate to ensure operability and, subsequently, the facility is reliably available for all intended missions. Yellow means the facility must rely on compensatory measures to continue operations, is not available for all intended missions, or that the facility conditions / breakdowns interrupt operations so frequently that operations are significantly affected. Red means that the facility is so unreliable that it availability affects decisions on the use of the facility.

(6) **Assessments/Audits/Corrective Action Plans** refers to all reviews, formal and informal, which assess facility condition and availability and associated corrective action plans for those assessments already conducted. Green means all corrective actions are up to date and scheduled in a manner that will keep them up to date. Yellow means there are some corrective actions either delinquent or will become delinquent if held as currently scheduled. Red means the facility cannot perform an intended mission because an assessment or audit or corrective action has not been done.

(7) **Overall** refers to the general condition of the facility and represents a subjective weighted average of the Configuration Management, Maintenance, Operations, Assessment / Audits columns with the assurance that the VSS safety functions are identified and understood by responsible line managers, and supporting information / documentation is available and adequate.

Arrows:

slant upward if conditions are improving	↗
are horizontal if conditions are stable	→
slant downward if conditions are deteriorating	↘

Building/Facility: Chemistry and Metallurgy Research Facility

Facility Manager: Scott Dick, NMT-DO

DOE Cognizant Representative: Veronica Martinez, Joe Houghton

Explanation of Yellow/Red Ratings

Vital Safety System	Item	Color & Arrow	Explanation
Note 1	Note 2	Note 3	Note 4
Fire Suppression System	Overall	↗	The overall rating is yellow and improving. Configuration management and maintenance are yellow and improving. System documentation development is in progress and maintenance upgrades are in progress to correct known deficiencies.
Fire Alarm System	Operations	↗	The overall rating is yellow and improving. Configuration management and maintenance are yellow and improving. System documentation development is in progress and maintenance upgrades are in progress to correct known deficiencies.
Hot Cells	Overall	↗	The overall rating is yellow and improving. Configuration management, maintenance and operations are yellow and improving. System documentation development is in progress, maintenance for hydraulic systems and upgrades for lighting, and pressure indications are in progress to correct deficiencies.
Ventilation System	Overall	➔	The overall rating is yellow and stable. Configuration management and operations are yellow and improving. Maintenance is red and improving. System documentation development is in progress. Operational impacts occur frequently due to equipment failure. Maintenance red due to the volume and magnitude of deficiencies associated with the antiquated system and equipment. Positive maintenance actions and response are improving the posture.

1. System name from Page 1
2. Maintenance, Operations, Assessment/Audits, or Overall
3. Color & Arrow for item in 2) from page 1.
4. Explanation of Color & Arrow. Limit to a few sentences

Building/Facility: Chemistry and Metallurgy Research Facility

Facility Manager: Scott Dick, NMT-DO

DOE Cognizant Representative: Veronica Martinez, Joe Houghton

Long Term Needs

Note:
The cost of complete effective implementation of configuration management for all items listed below including the cost of maintenance to the ventilation system is not calculated. As a result of the age and condition of the facility it is estimated to require funding beyond that which will be considered and the schedule will exceed the mission life of the facility. As a part of the CMR Upgrades Project, re-baseline effort, in 1999, a package of upgrades was selected for accomplishment. The selection process focused on protection of the public and workers, and upgrades required for compliance. Items related solely to reliability were not accepted into the final baseline. The yearlong effort used cost benefit analysis, , DOE/LANL workshops, and briefings/comments from all levels of DOE and the DNFSB

Vital Safety System	Change	Date	Cost Estimate	Fund
(1)	(2)	(3)	(4)	(5)
Fire Suppression System	Complete upgrades projects and correct maintenance deficiencies. Long term configuration management costs and schedule associated with fire suppression and alarm system is undetermined (see note above).	2001	500 K	Yes – does not include noted items
Fire Alarm System	CMR Upgrades project scope for the fire suppression system incorporates 90 percent of the fire alarm deficiencies. Some, balance of system maintenance items such as ops center remote alarm monitoring, are carried here.	2001	10 K	Yes - does not include noted items
Hot Cells	Complete CMR Upgrades and correct deficiencies with the hydraulic and pressure monitoring systems. Long term configuration management costs and schedule are not determined (see note above).	2001	250K	Yes – does not include noted items
Ventilation System	Long term configuration management and maintenance cost and schedules are undetermined. Maintenance actions and deficiencies are partially addressed on a year to year basis and depend on	2001	Unknown	Yes – partial FY2001 budget only. Does not

	approved funding (see note above).			include noted items

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(2) **Change** is a short ("25 words or less") description of all planned upgrades, repairs or similar actions needed to take the current facility from its current condition to one which can meet all intended missions, now or in the future, safely.
(3) **Date** is the planned date of commencing the upgrade, repair or similar action.
(4) **Cost** is the best estimate currently available for the action. Use best numbers available, but don't generate any new ones.
(5) **Fund** is "Yes" if the action is in the budget or a budget request and is above target and "No" if otherwise.

Building/Facility: PF-4/Plutonium Facility

Facility Manager: Eric Ernst

DOE Cognizant Representative: Bill Bell

Vital Safety System	System Engineer	Configuration Management	Maintenance	Operations	Assessments/ Audits	Overall
(1)	(2)	(3) Color & arrow	(4) Color & arrow	(5) Color & arrow	(6) Color & arrow	(7) Color & arrow
Ventilation	Guy Baker	↗	↗	↘	→	→
Criticality Alarm System (CAS)	Marc Robbins	→	→	→	→	→
Confinement Structure, Ductwork, Filter Plenums	Stuart McKernan	↗	→	→	→	→
Fire Suppression	Stuart McKernan	↗	↘	↘	↗	→
Vault Racks and Shelving	Stuart McKernan	↗	→	→	→	→
Chemical Storage Tank Berms	Stuart McKernan	→	→	→	→	→
Glovebox & Auxiliaries	Cor/Sandoval	↗	↗	↘	↗	↗
Flammable Gas Supply	Cor/Sandoval	→	→	→	→	→
CAMS	D. Wannigman, M. Robbins	→	→	→	→	→
UPS	Darryl Gutierrez	→	→	→	→	→
Paging System	Ron Aguilar	→	→	→	→	→

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(3) **Configuration Management** refers to the set of controlled information that describes the configuration of the system. Green means that configuration management and maintenance programs effectively ensure operational availability of the system; configuration procedures have been identified and implemented; all required documentation is in place and up to date; the "as-is" condition of equipment, components, tools and other controlled items has been verified; and the set of controlled documentation accurately reflects the actual status of the system. Yellow means some controlled documentation of associated or non-vital components of or connecting to the VSS may require periodic updating, have not been verified or are not complete, but it is known that none of these effect the operability of the VSS. Red means configuration management of the VSS is in an unknown state or is known to be deficient to the extent that operability of the VSS may be effected.

(4) **Maintenance** refers to all corrective and preventive maintenance. Green means all maintenance is completed or has certain schedule and funding and the backlog for surveillances, tests, inspections, maintenance, repair, upgrades, or other work on the system is managed and kept to an appropriate minimum. Yellow means some maintenance is not completed or has an uncertain schedule and funding, but the facility is still operational. Red means maintenance is so far behind that the facility's availability for operations is jeopardized.

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(6) **Assessments/Audits/Corrective Action Plans** refers to all reviews, formal and informal, which assess facility condition and availability and associated corrective action plans for those assessments already conducted. Green means all corrective actions are up to date and scheduled in a manner that will keep them up to date. Yellow means there are some corrective actions either delinquent or will become delinquent if held as currently scheduled. Red means the facility cannot perform an intended mission because an assessment or audit or corrective action has not been done.

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slant upward if conditions are improving	↗
are horizontal if conditions are stable	→
slant downward if conditions are deteriorating	↘

Building/Facility: PF-4/Plutonium Facility

Facility Manager: Eric Ernst

DOE Cognizant Representative: Bill Bell

Explanation of Yellow/Red Ratings

Vital Safety System *Note 1*	**Item** *Note 2*	**Color & Arrow** *Note 3*	**Explanation** *Note 4*
Ventilation	Operations	↘	There are several pieces of critical equipment that at present are operational and reliable. Nevertheless, they have been in service for over 25 years, and are becoming more difficult to maintain and repair due to replacement parts availability. Funding to replace the equipment has been requested the previous three years, but has not been available.
Ventilation	Configuration Management	↗	Lacks complete verification and update of drawings for configuration management.
Confinement Structure, Ductwork, Filter Plenums	Configuration Management	↗	SDD and high level priority drawings are in place and current. Reference drawings identified. Component level documentation is available, but not centrally located.
Fire Suppression	Configuration Management	↗	System documentation (SDDs and Priority Drawings) are not complete. Component level documentation available, but not centrally located.
Fire Suppression	Maintenance	↘	Fire loop has developed corrosion related leaks and is becoming a maintenance burden.
Fire Suppression	Operations	↘	Maintenance outages are increasing in frequency and duration. Operations have not been significantly impacted to date, but could be in the future,
Fire Suppression	Assessments/Audits	↗	Documentation of system performance and seismic capacity are in progress. Fire loop replacement project is in the final design stages. Sprinkler system upgrades (seismic) maybe required.
Vault Racks and Shelves	Configuration Management	↗	Reference drawings available. Component level documentation available, but not centrally located.

Glovebox & Auxiliaries	Configuration Management	↗	System critical documents, including specifications, details and drawings need to be kept up to date, and in some cases significantly upgraded. This is part of the Type – A Corrective Action Plan
Glovebox & Auxiliaries	Assessments/Audits	↗	Several judgments of need resulting from Type A accident investigation require inspections of Boxes against a specification that is being written as part of the Corrective Action Plan

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4. Explanation of Color & Arrow. Limit to a few sentences

Building/Facility: PF-4, Plutonium Facility

Facility Manager: Eric Ernst

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Long Term Needs

Vital Safety System	Change	Date	Cost Estimate	Fund
(1)	(2)	(3)	(4)	(5)
Ventilation	Replacement of three (3) glovebox supply air dryers, required ductwork, and services.	unknown	$1.8M	No
Criticality Alarm System CAS	Replace Crit Heads and electronic modules for increased reliability	December, 2003	$250,000	No
Fire Suppression	1.Fire yard main replacement project. 2.Seismic upgrades to sprinkler system piping (pending analysis results	1. Spring 01 2. Unknown	1. $11M 2. $150K	1. Yes 2. No
Glovebox & Auxiliaries	There is not a specific change, however there is a need to upgrade software and increase staff or use contractor help to complete as built drawings		$200K/ year	No
CAMs	Although CAMs are all green, there is recognigion of the fact that installed CAMs are nearing end of life and must be replaced. NMT division has a multi-year replacement plan which is very funding level dependent	Dec 01 start	$5 million	Yes, above target

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(4) **Cost** is the best estimate currently available for the action. Use best numbers available, but don't generate any new ones.
(5) **Fund** is "Yes" if the action is in the budget or a budget request and is above target and "No" if otherwise.