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# Reliability Centered Maintenance Pilot System Implementation 241-AP Tank Farm Primary Ventilation System Final Report

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Abstract:
This report details the implementation of RCM on a pilot system in Tank Farms.

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## EXECUTIVE SUMMARY

When the Hanford Site Tank Farms' mission was safe storage of radioactive waste in underground storage tanks, maintenance activities focused on time-based preventive maintenance. Tank Farms' new mission to deliver waste to a vitrification plant where the waste will be processed into a form suitable for permanent storage requires a more efficient and proactive approach to maintenance. Systems must be maintained to ensure that they are operational and available to support waste feed delivery on schedule with a minimum of unplanned outages. This report describes the Reliability Centered Maintenance (RCM) pilot system that was implemented in the 241-AP Tank Farm Primary Ventilation System under PI-ORP-009 of the contract between the U.S. Department of Energy, Office of River Protection and CH2M HILL Hanford Group Inc. (CHG). The RCM analytical techniques focus on monitoring the condition of operating systems to predict equipment failures so that maintenance activities can be completed in time to prevent or mitigate unplanned equipment outages. This approach allows maintenance activities to be managed with minimal impact on plant operations. The pilot demonstration provided an opportunity for CHG staff training in RCM principles and tailoring of the RCM approach to the Hanford Tank Farms' unique needs.

The RCM methodology used for this activity was selected as the most cost-effective approach, considering the age and condition of existing systems within Tank Farms and the mission of transferring waste to a vitrification plant. RCM uses a graded approach to maintenance by identifying systems and functions that are critical to mission success and prioritizing maintenance efforts on those critical systems.

An RCM consultant provided training to representatives from management, maintenance crafts, work control, engineers, trainers, and procedure writers, and assisted in the analysis and implementation of RCM on a pilot system.

The RCM pilot activity resulted in the following recommendations, which are described in Section 4.0 of this report.

- Recommendation to change the operational surveillances on continuous air monitors and differential pressure (dP) readings on high-efficiency particulate air (HEPA) filters from 12- to 24-hour frequencies.[1] *Note: It was decided not to implement this recommendation at this time, pending further evaluation in FY 2002.*

- Formalize vibration monitoring for exhaust fan bearings.

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[1] The current requirement for 24-hour frequencies is mandated by Washington Department of Health (WDOH). These periodicities may be extended after an appropriate trending period.

The following recommendations were identified for implementation early in fiscal year 2002 or soon thereafter:

- Incorporate thermographic imaging of Motor Control Center (MCC) internals
- Pilot electronic data gathering during operational rounds using a data logger
- Trend operational/maintenance data to support maintenance optimization
- Use Age Exploration, along with other techniques, to identify optimum condition monitoring and preventive maintenance periodicities
- Change radiological control survey frequency for HEPA filter housing dose rates from weekly to quarterly.

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## TERMS

| | |
|---|---|
| CAM | continuous air monitor |
| CHG | CH2M HILL Hanford Group, Inc. |
| DOE | U.S. Department of Energy |
| dP | differential pressure |
| FMEA | Failure Modes and Effects Analysis |
| HEPA | high-efficiency particulate air |
| LCO | Limiting Condition for Operation |
| MCC | motor control center |
| MEL | Master Equipment List |
| M&RE | Maintenance and Reliability Engineering |
| RAM | Reliability, Availability, and Maintainability |
| RCM | reliability centered maintenance |
| SEL | Safety Equipment List |
| SSC | structure, system, and component |
| SPM | Shock Pulse Monitoring |
| TMACS | Tank Monitoring and Control System |
| TSR | Technical Safety Requirement |
| WDOH | Washington Department of Health |

## 1.0 BACKGROUND

Operational equipment at the Hanford Tank Farms varies widely in age and condition. Some of the equipment is being replaced or upgraded in preparation for transfer of radioactive waste from underground storage tanks to a vitrification facility where the waste will be converted into glass for permanent long-term storage. Pretreatment activities include the consolidation of waste by way of waste transfers between various tanks.

Historically, maintenance in Hanford Tank Farms has focused on preventive or time-based activities, with a few informal condition-monitoring activities introduced in recent years. In addition, maintenance history records are few and those that do exist are difficult and time-consuming to recover. Records that are recovered may not be complete, resulting in low confidence in their value for accurately tracking and trending structure, system, and component (SSC) performance and condition. A Reliability, Availability, and Maintainability (RAM) Analysis completed in November 1999 and updated in October 2000 in support of waste feed delivery, found that Hanford-specific information from which to establish failure rates was not readily available (HNF-2863). The RAM Analysis was therefore completed using, primarily, failure rates derived for the Savannah River Site.

The Waste Feed Delivery mission requires an improved level of equipment/system reliability to ensure timely delivery of waste to the vitrification facility. U.S. Department of Energy (DOE) Order 4330.4B and O 430.1A require that equipment history data be collected, tracked, and trended to support cost-effective maintenance decisions; that predictive maintenance techniques be used to forecast equipment degradation so that maintenance can be performed before equipment failure; and that feedback to the maintenance program be effective to optimize the maintenance activities.

The analysis completed for the pilot system, 241-AP Tank Farm Primary Ventilation System, relies upon experience and judgment of Tank Farm engineering, maintenance, and operations staff, along with input from the expert reliability centered maintenance (RCM) consultant to augment the minimal maintenance history that was available. An upgrade to the Computer Maintenance Management System software will provide additional support to the activities necessary to prepare for the Waste Feed Delivery mission, including improved maintenance/operational history.

## 2.0 OBJECTIVES/SCOPE

CH2M Hill Hanford Group, Inc. (CHG), is implementing an RCM maintenance program on critical systems and components to minimize unplanned schedule delays caused by system/component failures and to optimize planning and scheduling equipment maintenance activities. This report details the activities completed in fiscal year 2001 to implement a pilot RCM-based maintenance on the 241-AP Tank Farm Primary Ventilation System.

## 3.0 RELIABILITY CENTERED MAINTENANCE APPROACH

CHG has chosen a graded approach to RCM in which safety and mission critical systems and their components receive a thorough RCM analysis. Non-critical components are considered for preventive maintenance (PM) program optimization, RCM with reduced effort, or root cause failure analysis as described in Section 4.5.

Activities used to implement this RCM-based maintenance pilot program are listed below.

- Contract with RCM consultant for CHG staff training and assistance in pilot system RCM implementation
- Train selected CHG staff for pilot system implementation
- Perform RCM analyses for pilot system and components
- Develop/modify maintenance procedures as required
- Procure condition-monitoring (predictive maintenance) equipment
- Develop interim maintenance history data collection process.

Future activities identified during the pilot system activities, but to be completed after the pilot system implementation include:

- Train maintenance staff in additional condition monitoring equipment use for future systems
- Continue to identify and recommend programmatic improvements to facilitate compiling equipment operational and maintenance histories
- Monitor and trend equipment maintenance and performance
- Analyze equipment operational/maintenance history and provide feedback to improve system availability.

## 4.0 PILOT SYSTEM IMPLEMENTATION PROCESS

The RCM-based program was implemented on a pilot system in parallel with several other activities, which normally would have been completed before implementing RCM. Critical activities in this category are development of an accurate Tank Farms Master Equipment List (MEL), assessment of Tank Farm equipment condition, and updating of the Safety Equipment List (SEL). These activities provide data that are essential in the equipment analyses required for RCM. In addition, an overall operations and maintenance strategy was being developed during the pilot system activity. Coordination with the organizations performing these other activities has been maintained during the activities associated with implementing RCM on the pilot

system; however, because these activities were completed concurrently, minor changes to the RCM-based maintenance program are expected. These changes are consistent with the RCM being a "living" program that takes advantage of lessons learned, experience, and changing operating/equipment conditions to continually enhance the maintenance program. During the pilot system analysis, some tools were identified that may not apply to the pilot system, but will apply to other systems as RCM is implemented throughout Tank Farms. Some of these tools were purchased as part of the pilot program to expedite further implementation of RCM.

## 4.1 SELECTION OF RELIABILITY CENTERED MAINTENANCE CONSULTANT

CHG Maintenance and Reliability Engineering (M&RE) staff researched various approaches to RCM. The Internet was used to identify resources and background material. Several text books were purchased and studied, including text books used by one consultant company in their training and seminars presented to companies throughout industry, including the nuclear industry. After several consulting companies were identified that appeared to have academic knowledge and hands-on experience in RCM implementation, a request for proposal was prepared. After the responses were evaluated, a consultant company was contracted to provide training and mentoring during the implementation of RCM on a pilot system. The consultant company has many years of experience in the Navy nuclear program in both areas of operations and maintenance, including a DOE nuclear site in Portsmouth, Ohio.

## 4.2 DEFINE THE SYSTEM AND SCOPE OF THE RELIABILITY CENTERED MAINTENANCE ANALYSIS

A decision was made in the early stages of this activity to adopt a graded approach, which is RCM-based, but concentrates on the critical systems rather than conducting RCM analysis on every system and its components. The graded approach considers the safety significance, life-cycle phase, equipment condition, availability of resources, and remaining mission of the facility and applies classical RCM only to those systems and components where the commitment of resources is cost-effective. The 241-AP Tank Farm Primary Ventilation System was chosen for the pilot system for RCM implementation because the tank farm is clean and inspection of the components is relatively easy. While not overly complex, the system has a variety of components representative of those expected to be encountered in future RCM system implementation.

Classical RCM techniques bring together a team consisting of representatives from all organizations having expertise with the system being analyzed and the analysis is completed in a group setting. For this pilot system implementation, M&RE performed the analysis and other subject matter experts reviewed the results on an as-needed basis. This technique matched the available resources and resulted in an acceptable analysis without unduly impacting other organizations and their commitments.

## 4.3 DEFINE THE SYSTEM BOUNDARIES AND IDENTIFY THE SYSTEM COMPONENTS

The boundaries of the 241-AP Primary Ventilation System were identified for this activity as the various tank inlet air passageways (e.g., leakage paths through cover blocks) through the primary exhaust stack. The tank headspace was included for air passage only. Included are all electrical components (to the circuit breaker providing power to the motor control centers), mechanical components, and instrumentation (H-14-020103, Rev. 4). The interfacing systems were identified as the electrical distribution system, Tank Monitoring and Control System (TMACS), and the tank.

## 4.4 DETERMINE SYSTEM FUNCTIONS

The AP Primary Ventilation System has five functions, the first four of which are defined as critical functions required from the system:

1. Control contamination
2. Maintain safe tank atmosphere
3. Maintain tank waste temperature
4. Control and monitor emissions
5. Control discharge of emissions.

The fifth function, control discharge of emissions, is a design feature in the form of the stack. Because the stack requires no maintenance, no analyses were completed on the stack; however, monitoring equipment mounted on or in the stack was analyzed.

## 4.5 IDENTIFY, EVALUATE, AND ANALYZE SYSTEM COMPONENTS

> Note: The analysis process used in RCM uses Failure Modes and Effects Analysis (FMEA). The use of this analysis technique in RCM is specifically used in the context of identifying failures that can be prevented, delayed, or mitigated by maintenance actions and should not be confused with an FMEA used for other purposes such as analysis for nuclear safety

The Component Labeling Database was used to identify the system components, and the accuracy of the list was verified through Hanford Site drawings and by interfacing with the design authorities and cognizant engineering staff (system engineers). Once a list of all components making up the system was compiled, each component was evaluated to determine the effect of its failure on the critical functions of the system. Each component was identified as either critical or not critical to the system's ability to perform its critical functions. Components

were defined as critical if their failure resulted in loss of a critical function or resulted in any of the following:

- Significant risk to onsite or offsite personnel
- Significant risk to the environment (either onsite or offsite)
- Significant operational impact to the facility.

The criteria for defining a component as "critical" were determined initially by M&RE and were reviewed by system engineering, design engineers, maintenance and operations. Future RCM implementation may refine the criteria used to define "critical" components for this pilot system. While modifying the definition of "critical" may result in some minor changes in the critical component designation, these changes will be part of an ongoing process improvement of the RCM program and are not expected have a major impact on implementation of RCM for this pilot system.

The next step in the process was to perform an FMEA on the critical components. All potential failure modes were identified along with their corresponding failure causes. In addition, the following four maintenance actions were considered:

- Condition-directed tasks, which include condition monitoring inspections and/or data collection;
- Failure-finding tasks for systems and equipment not normally in operation;
- Time-directed tasks for those items subject to wearing out or where the cost of performing the task is less than the cost to implement condition monitoring; and
- Design-change or modification recommendations.

Condition monitoring technologies and activities that could be used to monitor and identify the condition of components were identified. RCM expands the condition monitoring activities beyond those completed by the maintenance organization and includes performance monitoring (e.g., operational round sheet data and data taken by the radiological control [radcon] technicians — see Section 4.6). The information collected from these sources and technologies is used to identify equipment operational problems and to allow them to be corrected in advance of equipment failures, thus avoiding unplanned outages. At various stages during this process, design authorities, cognizant engineers (system engineers), and maintenance craft were brought into the process to review and provide input to the analysis.

Each failure cause and the possible maintenance or condition monitoring tasks that would mitigate or prevent the failure were evaluated and compared to one another. If more than one task could be applied, a decision was made as to which task could be applied earliest and/or most cost effectively. Multiple condition monitoring tasks were not recommended for a component unless there was a clear benefit to each task.

After the failure modes and causes were analyzed, critical components were evaluated against existing preventive maintenance procedures, data sheets, operational round sheets, and radcon round sheets. All existing maintenance activities and proposed new activities were evaluated to determine that activities are or will be both applicable and effective. These are the basic

requirements for any maintenance activity. RCM includes as a fundamental tenet, the requirement that any maintenance activity must be applicable; i.e., must address a potential failure cause and must be effective — must be worth doing. One of the last steps in the analysis process was to look at all maintenance activities, both preventive and predictive to determine which ones actually should be included. For example, in some cases several technologies might be used to monitor bearing condition. Both vibration monitoring and temperature monitoring can be used to indicate a developing problem with a particular bearing. For this particular situation, vibration monitoring can identify a problem more reliably and further in advance than temperature monitoring; therefore, only vibration monitoring was selected for routine bearing condition monitoring. It is possible that additional technologies might be useful in particular unique circumstances, but not cost effective on a routine basis.

For those components and subsystems not in the critical category the following options were considered:

- **PM Program Optimization** for those components that have existing preventive maintenance actions in the current maintenance program:
  - Apply condition-monitoring tasks as appropriate
  - Evaluate the current maintenance tasks for applicability, effectiveness, and their relationship to component functions that may justify the retention of the maintenance task as is or in a modified format
  - Analyze industry accepted tasks and frequencies for applicability and effectiveness
  - Adjust existing PM actions as appropriate based on the results of the evaluation.
- **RCM With Reduced Effort:**
  - Conduct reliability-based analysis as a lower priority effort with reduced resources and extended time schedules.
- **Root Cause Failure Analysis Living Program:**
  - "Run to failure" and then repair or replace the component
  - Perform root-cause-failure analysis on failed component if deemed economically feasible to do so (cost of analysis versus cost of component)
  - Determine if a reliability-based maintenance task should be implemented for component or leave in "run to failure" category.

  Note: Root-cause-failure analysis is used to analyze system components that are "run-to-failure" when cost effective. This technique is used in lieu of an FMEA that is used in the reliability-based analysis for critical components.

## 4.6 REVIEW EXISTING OPERATIONS AND MAINTENANCE PROCEDURES AND SURVEILLANCES

### 4.6.1 OPERATOR ROUNDS – TF-OR-A-03

Round sheets for 241-AP and 241-AW tank farms are found in Tank Farm Plant Operating Procedure, TF-OR-A-03. Fifty-nine individual round sheets are contained in this procedure. Four of these sheets were identified as applicable to the 241-AP Tank Farm Primary Ventilation System performance. These four were reviewed in detail to determine if the data collected could be used to monitor condition of SSCs within the primary ventilation system. This review also evaluated the frequencies of the data collection activities against *Tank Farms Technical Safety Requirements* (TSR) (HNF-SD-WM-TSR-006) and environmental requirements for data collection (surveillances). Two sets of data collected on round sheets were identified as data that can be used to monitor SSC conditions.

On page 10 of 60 - AP296-VTP-CAM-510, Primary Stack Radiation Readings:

- Check once each during day shift and night shift. TSR Limiting Condition for Operation (LCO) 3.1.4 requires a surveillance every 48 hours for the stack continuous air monitor (CAM) interlock system and LCO 3.1.8 requires a surveillance every 48 hours for the differential pressure (dP) interlock system. A corrective action imposed by the Washington Department of Health (WDOH) has resulted in a 24-hour surveillance requirement. After a sufficient period of trending based on 24-hour surveillances, it is expected that the periodicity for these two surveillances can be significantly extended.

#### 4.6.1.1 Recommendations

The following recommendations were made regarding CAM and high-efficiency particulate air (HEPA) filters

- Reduce periodicity of CAM surveillances from 12 hours to 24 hours
- Reduce periodicity of HEPA filter dP readings to 24 hours (HEPA filters do not load fast enough to justify more frequent readings).
- *Note: It was decided not to implement this recommendation at this time, pending further evaluation in FY 2002.*

#### 4.6.1.2 RCM Data Requirements

- AP Primary Ventilation System Prefilters Delta P (in. $H_2O$),
- AP Primary Ventilation System 1st Stage HEPA filter Delta P (in. $H_2O$),
- AP Primary Ventilation System 2nd stage HEPA filter Delta P (in. $H_2O$), and
- AP Primary Ventilation System Filter Train Total Delta P (in. $H_2O$).

### 4.6.2 RADCON SURVEY ROUTINES

The weekly survey routine completed as Task No. TFC-W005 was reviewed. This task description requires dose rate surveys of tank farm HEPA filter housings on a weekly schedule. The action level limit is specified as 200 mrem/h, with a requirement to notify the Shift Operations Manager if contact dose rates are found greater than the Alert Level of 130 mrem/h. All recently completed HEPA filter housing surveys were reviewed. The survey periods varied between 9 months and 2 ½ years. In no case did the dose rate approach the Alert Level. In fact, the highest reading was 80 mrem/h in 13 ½ months in the 241-SY Tank Farm, with the initial reading being 30 mrem/h. Another reading was 80 mrem/h in 2 ½ years after starting the period with 70 mrem/h (1st HEPA filter in Train B in AW farm). Based on this review, a periodicity of every 3 months (quarterly) is recommended for normal tank farms operations.

### 4.6.3 Mechanical Maintenance Procedures Review

#### 4.6.3.1 Procedures and Data Sheets

The following procedures, data sheets and round sheets have been reviewed.

| Equipment Identification Number | Component | Maintenance/Ops Procedure No. | Data Sheet No. | Round Sheet No. |
|---|---|---|---|---|
| AP241-VTP-FLT-301 | Prefilter, Train A | 3-VB-156TF | Data Sheet 1-6 | TF-OR-A-03 |
| AP241-VTP-FLT-302 | 1st HEPA Filter, Train A | 3-VB-156TF | Data Sheet 1-6 | Modify TF-OR-A-03 |
| AP241-VTP-FLT-303 | 2nd HEPA Filter, Train A | 3-VB-156TF | Data Sheet 1-6 | Modify TF-OR-A-03 |
| | | | | |
| AP241-VTP-FLT-401 | Prefilter Train B | 3-VB-156TG | Data Sheet 1-6 | TF-OR-A-03 |
| AP241-VTP-FLT-402 | 1st HEPA Filter, Train B | 3-VB-156TG | Data Sheet 1-6 | Modify TF-OR-A-03 |
| AP241-VTP-FLT-403 | 2nd HEPA Filter, Train B | 3-VB-156TG | Data Sheet 1-6 | Modify TF-OR-A-03 |
| | | | | |
| AP241-VTP-M-001 | Exhaust Fan Motor, Train A | 6-TF-237 | | TF-OR-A-03 |
| AP241-VTP-M-002 | Exhaust Fan Motor, Train B | 6-TF-237 | | TF-OR-A-03 |
| | | | | |
| AP241-VTP-EF-001 | Exhaust Fan, Train A | Modify 6-TF-237 | | TF-OR-A-03 |
| AP241-VTP-EF-002 | Exhaust Fan, Train B | Modify 6-TF-237 | | TF-OR-A-03 |

| Equipment Identification Number | Component | Maintenance/Ops Procedure No. | Data Sheet No. | Round Sheet No. |
|---|---|---|---|---|
| | | | | |
| AP241-VTP-MOV-301 | Inlet Motor Op Valve, Train A | Modify TO-060-340 | | TF-OR-A-03 |
| AP241-VTP-MOV-401 | Inlet Motor Op Valve, Train B | Modify TO-060-340 | | TF-OR-A-03 |

## 4.7 HEPA AND PREFILTER MAINTENANCE AND ROUND SHEET PROCEDURES

### 4.7.1 3-VB-156TF – AP241-VTP-EF-001 Tank Exhauster 296-A-40 HEPA Filter Aerosol Test Data Sheets

This procedure was reviewed to determine its completeness and adequacy for testing and inspection of the HEPA and Prefilters of the 241-AP Tank Farm Train A Primary Ventilation System on a yearly basis. Six data sheets were reviewed. The items addressed in the data sheets include instrument calibration, pre-job survey, visual inspection checklist, dP readings, system air flow readings, filter aerosol test readings, and final disposition.

No changes were identified to this maintenance test procedure or its data sheets for the purpose of the RCM program.

#### 4.7.1.1 RCM Data Requirements

1. Train A Prefilters, Delta P (in. $H_2O$),
2. Train A 1st Stage HEPA filter, Delta P (in. $H_2O$),
3. Train 2nd stage HEPA filter Delta P (in. $H_2O$),
4. Train Total Delta P (in. $H_2O$), and
5. Aerosol Penetration Factors for Train A.

### 4.7.2 3-VB-156TG – AP241-VTP-EF-002 Tank Exhauster 296-A-40 HEPA Filter Aerosol Test Data Sheets

This procedure was reviewed to determine its completeness and adequacy for testing and inspection of the HEPA filters and prefilters of the 241-AP Tank Farm Train B Primary Ventilation System on a yearly basis. Six data sheets were reviewed. The items addressed in the data sheets include instrument calibration, pre-job survey, visual inspection checklist, differential pressure readings, system air flow readings, filter aerosol test readings, and final disposition.

No changes were identified to this maintenance test procedure or its data sheets for the purpose of the RCM program.

#### 4.7.2.1 RCM Data Requirements

1. Train B Prefilters, Delta P (in. $H_2O$),
2. Train B, 1st Stage HEPA filter, Delta P (in. $H_2O$),
3. Train B 2nd stage HEPA filter Delta P (in. $H_2O$),
4. Train B Total Delta P (in. $H_2O$), and
5. Aerosol Penetration Factors for Train B.

## 4.8 EXHAUST FAN AND MOTOR MAINTENANCE AND ROUND SHEET PROCEDURES

### 4.8.1 6-TF-237 - Supply and Exhaust Fans, Inspection

Part of this procedure covers the Shock Pulse Monitoring (SPM) vibration-monitoring program.

RCM FMEA identifies temperature monitoring of exhaust fan and fan motor as a potential maintenance task. The temperature monitoring would be used to indicate the condition of the bearings being monitored. There is currently an SPM vibration-monitoring program for all of these bearings. The SPM vibration-monitoring program will provide warning of a potential bearing failure with an ample lead-time to facilitate replacement. A temperature-monitoring program could also be used to predict impending failures of bearings and would result in a duplication of the SPM vibration-monitoring program from that standpoint. As such a temperature-monitoring program is not justified for these sets of bearings.

#### 4.8.1.1 Recommendation

Formalize the vibration monitoring program by revising the procedure.

## 4.9 INLET MOTOR OPERATED VALVES OPERATIONAL PROCEDURE

### 4.9.1 TO-060-340 – Tank Farm Plant Operating Procedure

This operational procedure calls for the switching of the operating and standby ventilation tank primary exhaust fans on a weekly basis (5.3). There is no specific call out to check for the proper positioning of the inlet motor operated valves.

#### 4.9.1.1 Recommendation

Add Operating System/Valve Position table of Section 5.1.15 to Section 5.3 as 5.3.9. Have operations verify that the valves are aligned in proper positions.

## 4.10 INSTRUMENTATION MAINTENANCE PROCEDURE REVIEW

### 4.10.1 Scope

Review existing Instrumentation maintenance procedures, data sheets, round sheets and make recommended changes applies to those that apply to AP Tank Farm Primary Ventilation System.

### 4.10.2 Procedure and Data Sheets

Procedures and data sheets that were reviewed are listed in the following table and described further in the paragraphs that follow the table.

| Maintenance Procedure No | Data Sheet No | Round Sheet No | Equipment Identification Number | Manufacturer | Review Results |
|---|---|---|---|---|---|
| 6-FCD-077 | EE-00609 | | AP296-VTP-FSL-512 | | Acceptable as is |
| 6-GENI-354 | EE-00654 | | AP271-VTP-FSL-509 | | Acceptable as is |
| 6-PCD-373 | ET-07465 | | AP241-VTP-PDIT-429 | Yokogawa | Acceptable as is |
| 6-PCD-373 | ET-07478 | | AP241-VTP-PDIT-327 | Yokogawa | Acceptable as is |
| 6-PCD-373 | ET-07479 | | AP241-VTP-PDIT-328 | Yokogawa | Acceptable as is |
| 6-PCD-373 | ET-07480 | | AP241-VTP-PDIT-427 | Yokogawa | Acceptable as is |
| 6-PCD-373 | ET-07481 | | AP241-VTP-PDIT-428 | Yokogawa | Acceptable as is |
| 6-PCD-373 | ET-07482 | | AP241-VTP-PDIT-329 | Yokogawa | Acceptable as is |
| 6-PCD-508 | EE-00577 | | AP241-VTP-PDS-325 | Dwyer | Update scope to apply to "majority of tank farm locations. |
| 6-PCD-508 | EE-00577 | | AP241-VTP-PDS-425 | Dwyer | Acceptable as is |
| 6-PCD-514 | EE-00488 | | AP241-VTP-PDIS-145 | Dwyer | Acceptable as is |
| 6-PCD-514 | EE-00489 | | AP241-VTP-PDIS-146 | Dwyer | Acceptable as is |
| 6-RM-168 | ET-07351 | | AP296-VTP-CAM-510 | Eberline | Acceptable as is |
| 6-TF-077 | | | AP296-VTP-FSL-522 | | Acceptable as is |
| 6-TF-237 | TBA | | AP241-VTP-M-001 | | Acceptable as is |
| 6-TF-237 | TBA | | AP241-VTP-M-002 | | Acceptable as is |
| TF-FT-279-005 | ET-07152 | | AP296-VTP-CAM-510 | Eberline | Change wiring diagram drawing no. in section 2.3 to H-14-102747 |
| TF-FT-279-018 | ET-07526 | TF-OR-A-03 | AP241-VTP-PDIT-429 | Yokogawa | Acceptable as is |

| Maintenance Procedure No | Data Sheet No | Round Sheet No | Equipment Identification Number | Manufacturer | Review Results |
|---|---|---|---|---|---|
| TF-FT-279-018 | ET-07526 | | AP241-VTP-PDIT-327 | Yokogawa | Acceptable as is |
| TF-FT-279-018 | ET-07526 | | AP241-VTP-PDIT-328 | Yokogawa | Acceptable as is |
| TF-FT-279-018 | ET-07526 | | AP241-VTP-PDIT-329 | Yokogawa | Acceptable as is |
| TF-FT-279-018 | ET-07526 | | AP241-VTP-PDIT-427 | Yokogawa | Acceptable as is |
| TF-FT-279-018 | ET-07526 | | AP241-VTP-PDIT-428 | Yokogawa | Acceptable as is |
| TF-FT-279-018 | | | AP241-VTP-K-601 | Allen-Bradley | Acceptable as is |
| TF-FT-279-018 | | | AP241-VTP-K-602 | Potter & Brumfield | Acceptable as is |
| TF-FT-279-018 | | TF-OR-A-03 | AP241-VTP-PDS-325 | Dwyer | Acceptable as is |
| TF-FT-279-018 | | TF-OR-A-03 | AP241-VTP-PDS-425 | Dwyer | Acceptable as is |
| TF-FT-279-018 | | | AP271-VTP-YYC-300 | Allen-Bradley | Acceptable as is |
| TF-FT-279-018 | | | AP271-VTP-YYC-300 | Allen-Bradley | Acceptable as is |
| | | TF-OR-A-03 | AP241-VTP-K-601 | Allen-Bradley | Acceptable as is |
| TBA | | TF-OR-A-03 | AP241-EDS-MCC-002 | | Acceptable as is |
| | EE-00327 | | AP241-VTP-TSH-426B | United Elec. Temperature | Acceptable as is |
| | EE-00246 | | AP241-VTP-TSH-326B | United Elec. Temperature | Acceptable as is |

**6-PCD-373 – Yokogawa Instruments EJA 110 & 120 Differential Pressure Transmitter**

This procedure applies only to Yokogawa EJA 110 & 120 Differential Pressure Transmitter.

Recommendation: After reviewing this procedure, no comment is made to this procedure.

**6-PCD-508 – Calibrate Pressure Switches**

The scope and purpose of this procedure is to provide a safe, uniform method of calibrating pressure switches at all tank farm locations. There are no descriptions of the types of pressure switches that can be calibrated by this procedure. Tank Farm has different types of pressure switches;e.g., differential pressure switches, photohelic pressure switches. Some of these procedures are calibrated by other procedures.

Recommendation: Update scope of this procedure to apply "at the majority of tank farm locations."

**6-PCD-514 – Dwyer Photohelic Series 3000 and Capsu-Photohelic Series 43000 Differential Switches and Gauges**

This procedure provides a safe, uniform method for calibration of Dwyer Photohelic Series 3000 and Capsu-Photohelic Series 43000 differential pressure switches and gauges.

Recommendation: After reviewing this procedure, no comment is made to this procedure.

**TF-FT-279-005 – Perform Functional Test for 241-AP Tank Farm Primary Exhaust Stack Continuous Air Monitor**

TF-FT-279-005 verifies AP296-VTP-CAM-510 and AP tank farm primary pump interlock system be operable. These requirements are described in the *Tank Farms Technical Safety Requirements*, LCO 3.1.4 "Ventilation Stack Continuous Air Monitor (CAM) Interlock", and LCO 3.2.1 "DST and AWF Tank Ventilation Systems." LCO 3.1.4 specifies Ventilation Stack CAM interlock systems (HNF-SD-WM-TSR-006).

*Tank Farms Technical Safety Requirements* (HNF-SD-WM-TSR-006) also states that "For ventilation systems that have HEPA filter dP interlock systems (LCO 3.1.8) and HEPA filter controls (AC 5.18) implemented, the option exists to use either the ventilation stack CAM interlock system or HEPA filter dP interlock system (and HEPA filter controls)."

AP P&ID drawing H-14-020103, sheet 2 shows CAM-510 provides input to relay in the Motor Control Center AP241-EDS-MCC-002, and have the control line connected to the ventilation fan per engineering drawing H-14-102747. This design performs the CAM interlock.

TF-FT-279-005 section 2.3 refers lists drawing "H-14-102764" for both Stack Monitor installation and Stack Monitor Wiring Diagram. The wiring diagram drawing should be H-14-102747, not H-14-102764.

Recommendation: The drawing number should be changed.

**TF-FT-279-018 – Functional Test for 241-AP Primary Exhauster HEPA Filter Differential Pressure Interlock System**

RPP-6546, "Computer Software for the HEPA Filter Differential Pressure Fan Interlock System" and RPP-5977 "HEPA Filter Differential Pressure Fan Interlock System Functional Requirements and Technical Design Requirements" specify the dP interlock functional requirements.

### 4.10.3 Data Sheet Review

**EE-00327 and EE-00246 – K1-1, K1-2 High Temperature Cutout Switches**

These two data sheets test the updated heating elements and their associated controls, which provides heated inlet air before it reaches the HEPA filters. Because interlock controls have been removed, this procedure does provide a simple check to prevent inlet air from overheating.

## 4.11 PERIODICITIES

Periodicities for preventive maintenance, failure finding, and condition monitoring tasks for a mature operating facility are based on operational and maintenance experience, manufacturer's recommendations, industry standards, regulatory requirements, or a combination of these factors.

Given the incomplete maintenance history available for tank farms systems and the existing maintenance periodicities, a RCM technique known as Age Exploration is recommended where existing periodicities exist. This technique is a means to identify the optimum periodicities for existing condition monitoring and time-directed activities. Age Exploration involves starting at the current periodicity and for every period where no evidence of wear-out, aging signs, or developing adverse condition is identified the periodicity will be extended by some incremental change. The incremental change added to the periodicity may vary depending on several factors such as relationship to outage schedules, known operational history, and consequence of failure. Incremental changes are continued until signs of degradation are observed. At this point the periodicity will be adjusted to provide adequate warning so that unplanned failures/equipment outages can be avoided without unnecessary maintenance activities. This method can result in optimized periodicities faster than accumulating statistical data over relatively long periods of time. After sufficient maintenance history is accumulated, other means for optimizing periodicities will be added. Age Exploration is recommended for incorporation as soon as enough like or similar systems have been analyzed for RCM to provide data representative of all these systems.

Existing periodicities for existing preventive maintenance and operational surveillance tasks were evaluated, resulting in several recommended changes.

- The daily operational rounds currently require data to be manually recorded twice a day, once on day shift and once on night shift for CAM and HEPA filter dP readings. The surveillance requirements in LCO 3.1.4 and LCO 3.1.8 are once every 48 hours. The requirement for trending for environmental considerations has been set at once every 24 hours as a result of a corrective action required by WDOH. The RCM evaluation recommends that the current surveillance period for CAM and dP readings be changed from 12 hours to 24 hours. *Note: It was decided not to implement this recommendation at this time, pending further evaluation in FY 2002.* After a suitable period of monitoring and trending data from 24-hour surveillances, an extension may be requested from WDOH. Another change was to formalize the existing vibration monitoring activities on the primary ventilation system. This was completed as a revision to Maintenance Procedure Number 5-VT-237.

## 5.0 TRAINING

Training was completed for a minimum number of staff required for support of the RCM implementation on the pilot system. CHG staff training included a presentation to management outlining the fundamentals of RCM as well as the approach to the pilot system RCM implementation for Tank Farms. Key CHG engineering, maintenance, operations, production control, procedures, and training staff were provided a basic one-day training session describing RCM and the CHG approach to its implementation. The M&RE RCM team received detailed training from the consultant, who assisted in performing an FMEA and other activities required to implement RCM. An additional session was conducted for M&RE RCM team members on root-cause failure analysis. Sessions, which were considered "training" sessions, were documented on training rosters and included both engineering and maintenance staff. Several workshop sessions with the consultant were not considered training sessions, but were

considered working sessions on the pilot system analysis. In addition, a 3- to 4-hour class covering the fundamentals of the CHG RCM implementation approach was presented to approximately 50 systems engineers as a requirement in their qualification process.

Maintenance craft personnel have been trained in the use of vibration monitoring equipment. No additional training is to be done for those craft personnel previously trained. Additional recommended training requirements for condition monitoring technologies will be identified by M&RE as these technologies are implemented in tank farms or new staff are included in their use.

## 6.0 RESULTS

The following are recommended changes to the current maintenance/operations procedures.

- Extend periodic dP surveillance from 12 hours to 24 hours (TF-OR-A-03). Note: It was decided not to implement this recommendation at this time, pending further evaluation in FY 2002.

- Extend periodic Continuous Air Monitor (CAM) surveillance from 12 hours to 24 hours (TF-OR-A-03). *Note: It was decided not to implement this recommendation at this time, pending further evaluation in FY 2002.*

- Formalize vibration monitoring in procedure for exhaust fan bearings (5-VT-237).

- Copy Operating System/Valve Position table from Section 5.1.15 to Section 5.3 as new Section 5.3.9 (TO-060-340).

- Require Operations verify valves are aligned in proper positions (TO-060-340).

Note: Items 1 & 2 are limited to 24 hour due to corrective actions mandated by WDOH. These periodicities may be significantly extended after an appropriate trending period.

The following actions were identified as candidates for implementation early in fiscal year 2002 or soon thereafter.

1. Incorporate annual thermographic imaging of internals of Motor Control Center (MCC).

2. Pilot a trial for electronic gathering of round sheet data. If successful it is expected that electronic data sheets can be included in the future.

3. Adjust periodicities for CAM and dP readings of HEPA filter rounds. Periodicities (every 24 hours) for CAM and dP readings of HEPA filter rounds are presently driven by trending requirements from the WDOH as corrective actions. It is expected that this periodicity can be substantially extended after a suitable period of data trending at the 24-hour periodic surveillances.

4. Implement additional procedural and periodicity changes as RCM analyses are performed on additional ventilation systems. Most procedures, round sheets, and some data sheets are performed on multiple systems, limiting the changes that can be justified until analyses are completed on all systems covered.

5. Identify full RCM Analysis Team, including maintenance craft and operators, for further RCM implementation.

6. Using an Age Exploration process, extend periodicities period until optimum periodicity is reached. (See Section 4.12, Periodicities). Because periodicities are set for multiple systems, this action will be implemented when an appropriate number of systems have been analyzed for RCM implementation.

7. Change radiation surveys of exhaust system HEPA filter housings from weekly to quarterly.

Two actions were identified which were not within the scope of this pilot, but are noted to correct the subject documents. These actions will be completed when resources are available.

1. Update scope of this procedure to apply "at the majority of tank farm locations" (6-PCD-508).

2. Change the wiring diagram drawing number to H-14-102747. The wiring diagram drawing in section 2.3 lists drawing H-14-102764 for both Stack Monitor installation and Stack Monitor Wiring Diagram (TF-FT-279-005).

## 7.0 REFERENCES

DE-AC27-99RL14047, 2001, *CH2M HILL Hanford Group, Inc., Contract*, U.S. Department of Energy, Office of River Protection, Richland, Washington.

DOE Order 4330.4B, *Maintenance Management Program,* U.S. Department of Energy, Washington, D.C.

DOE O 430.1A, Life-Cycle Asset Management, U.S. Department of Energy, Washington, D.C.

Hanford Site Drawing:

- H-14-020103, Ventilation Tank Primary System (VPT) O&M System P&ID, Rev. 4

Hanford Site Procedures:

- 5-VT-237, "Supply and Exhaust Fans Inspection and Vibration Monitoring"
- TF-OR-A-03, "AP, AW Tank Farms Daily Rounds"
- TO-060-340, "Operate the 241-AP Tank Farm Primary Ventilation System (VTP)"

HNF-SD-WM-TSR-006, 2001, *Tank Farms Technical Safety Requirements*, Rev. 2E, CH2M HILL Hanford Group, Inc., Richland, Washington.

HNF-IP-0842, *RPP Administration*, Volume 4 – Engineering, CH2M HILL Hanford Group, Inc., Richland, Washington.

HNF-2863, Waste Feed Delivery System Phase 1, Preliminary RAM Analysis, Rev. 2, CH2M HILL Hanford Group, Inc., Richland, Washington.

## 8.0 BIBLIOGRAPHY

Advancing Maintenance, Jack R. Nicholson Jr., P.E., & R. Keith Young

Reliability-Centered Maintenance, Anthony M. Smith 1993

Reliability-centered Maintenance, Second Edition, John Moubray 1997

Uptime, Strategies for Excellence in Maintenance Management, John Dixon Campbell, 1995

# APPENDIX A

# FAILURE MODES AND EFFECTS ANALYSIS

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| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 1 | AP241-EDS-MCC-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| SIEM | 9-001-52498-01 |

**Component**

Motor Control Center

**Failure Mode**

Loss of Control

**Failure Cause**

Failure of Internal Subcomponent

**Effects**

Loss of power to ventilation fan

**Failure Importance**

Critical

**Failure Importance Justification**

Failure of MCC shuts down ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Temperature Monitoring | To be incorporated in FY02 |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Temp Mon - Pri Imaging, Alt | Maintenance | Annual |

**Periodicity Justification**

Common Industry Standard

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**

Implement in FY02 after delivery of Thermal Imaging System ordered late FY01

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 5-EDS-146 | ET-06944 | | | JE Wells |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 2 | AP241-EDS-MCC-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| SIEM | 9-001-52498-01 |

**Component**

Motor Control Center

**Failure Mode**

Bus Failure

**Failure Cause**

High Resistance connections

**Effects**

Loss of power to ventilation fan

**Failure Importance**

Critical

**Failure Importance Justification**

Failure of MCC shuts down ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Temperature Monitoring | To be incorporated in FY02 |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Temp Mon - Pri Imaging, Alt | Maintenance | Annual |

**Periodicity Justification**

Common Industry Standard

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**

Implement in FY02 after delivery of Thermal Imaging System ordered late FY01

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 5-EDS-146 | ET-06944 | | | JE Wells |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 3 | AP241-EDS-MCC-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| SIEM | 9-001-52498-01 |

**Component**

Motor Control Center

**Failure Mode**

Breaker Failure

**Failure Cause**

Internal Failure

**Effects**

Loss of power to ventilation fan

**Failure Importance**

Critical

**Failure Importance Justification**

Failure of MCC shuts down ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | To be incorporated in FY02 |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor Fan Operation | Operations | Daily |

**Periodicity Justification**

Existing Round Sheets

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**

Already being done in daily rounds

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 5-EDS-146 | ET-06944 | TF-OR-A-03 | | JE Wells |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 4 | AP241-EDS-MCC-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| SIEM | 9-001-52498-01 |

**Component**

Motor Control Center

**Failure Mode**

Breaker Failure

**Failure Cause**

Internal Failure

**Effects**

Loss of power to ventilation fan

**Failure Importance**

Critical

**Failure Importance Justification**

Failure of MCC shuts down ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | X | | | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Cleaning | Maintenance | Annual |

**Periodicity Justification**

Common Industry Standard

| Maint Action | Activity Type |
|---|---|
| Clean | TD |

**Recommendation/Comment**

Low voltage circuit breaker are checked for smooth operation and proper function. Replaced if failed. No cleaning for small breakers.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 5-EDS-146 | ET-06944 | | | JE Wells |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 5 | AP241-EDS-MCC-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| SIEM | 9-001-52498-01 |

**Component**
Motor Control Center

**Failure Mode**
Contactor Failure

**Failure Cause**
Overload

**Effects**
Loss of power to ventilation fan

**Failure Importance**
Critical

**Failure Importance Justification**
Failure of MCC shuts down ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Insulation resistance mo | Not at this time |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Insulation resistance monitor | Maintenance | Annual |

**Periodicity Justification**
Common Industry Standard

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Check for existing insulation monitoring, None being done at this time (Maint) Evaluate larger population during subsequent analyses

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 5-EDS-146 | ET-06944 | | | JE Wells |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 6 | AP241-EDS-MCC-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| SIEM | 9-001-52498-01 |

**Component**
Motor Control Center

**Failure Mode**
Contactor Failure

**Failure Cause**
Overload

**Effects**
Loss of power to ventilation fan

**Failure Importance**
Critical

**Failure Importance Justification**
Failure of MCC shuts down ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | X | | | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Cleaning | Maintenance | Annual |

**Periodicity Justification**
Common Industry Standard

| Maint Action | Activity Type |
|---|---|
| Cleaning | TD |

**Recommendation/Comment**
Low voltage components are checked for proper function and replaced if failed. No change recommended

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 5-EDS-146 | ET-06944 | | | JE Wells |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 10 | AP241-VTP-CP-301 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
Control Panel - Train A

**Failure Mode**
Cabinet Seal Failure

**Failure Cause**
dirt

**Effects**
Unsealed Cabinet

**Failure Importance**
Major

**Failure Importance Justification**
System does not immediately fail if control panel door seal is lost

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure | Maintenance | Annual |

**Periodicity Justification**
Common Industry Standard

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | |

**Recommendation/Comment**
Door seal is not a critical component- Run to failure & replace when necessary

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 11 | AP241-VTP-CP-401 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
Control Panel - Train B

**Failure Mode**
Cabinet Seal Failure

**Failure Cause**
dirt

**Effects**
Unsealed Cabinet

**Failure Importance**
Major

**Failure Importance Justification**
System does not immediately fail if control panel door seal is lost

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure | Maintenance | Not Applicable |

**Periodicity Justification**
Not Applicable

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | |

**Recommendation/Comment**
Door seal is not a critical component- Run to failure and replace when necessary.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 12 | AP241-VTP-DMPR-301 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
Outlet Damper - Train A

**Failure Mode**
Fails to operate at startup or shutdown

**Failure Cause**
Physical Damage

**Effects**
Restricted Air Flow

**Failure Importance**
Major

**Failure Importance Justification**
Frequency of occurance is low

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | Maintenance | Not Applicable |

**Periodicity Justification**
Not Applicable

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | |

**Recommendation/Comment**
This component is checked during switch-over of fan trains. Probability of failure due to damage is estimated to be extremely low. Run to failure with root cause analysis.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 13 | AP241-VTP-DMPR-401 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
Outlet Damper - Train B

**Failure Mode**
Fails to operate at startup or shutdown

**Failure Cause**
Physical Damage

**Effects**
Restricted Air Flow

**Failure Importance**
Major

**Failure Importance Justification**
Frequency of occurance is low

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | Maintenance | Not Applicable |

**Periodicity Justification**
Not Applicable

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | |

**Recommendation/Comment**
This component is checked during switch-over of fan trains. Probability of failure due to damage is estimated to be extremely low. Run to failure with root cause analysis.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 14 | AP241-VTP-DMST-001 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
Train A De-entrainer

**Failure Mode**
Loss of Function

**Failure Cause**
Mechanical Failure

**Effects**
HEPA Filter Moisture Loading

**Failure Importance**
Major

**Failure Importance Justification**
Long time before structural failure occurs

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | Operations | Not Applicable |

**Periodicity Justification**
Not Applicable

| Maint Action | Activity Type |
|---|---|
| Flush | CD |

**Recommendation/Comment**
Run to failure with root cause analysis if appropriate. Structural failure is considered to be extremely unlikely.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|
| 15 AP241-VTP-DMST-002 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
Train A De-entrainer

**Failure Mode**
High Dose

**Failure Cause**
Radiological Contamination

**Effects**
Restricted Personnel Access

**Failure Importance**
Major

**Failure Importance Justification**
Slow buildup of radiological contamination on filters

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | Operations | Not Applicable |

**Periodicity Justification**
Not Applicable

| Maint Action | Activity Type |
|---|---|
| Flush | CD |

**Recommendation/Comment**
Run to failure with root cause analysis if appropriate. Structural failure is considered to be extremely unlikely.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 16 | AP241-VTP-EF-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | ARR-12 PB-9 |

**Component**
Exhaust Fan (A)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Unbalanced Fan

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Unbalanced fan can result in multiple component failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Visual Inspection, Audible | Operations | Daily |

**Periodicity Justification**
Existing Round Sheet

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Operations completes daily rounds. Any visible or audible signs of an unbalanced fan will be reported to Shift Manager.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 17 | AP241-VTP-EF-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | ARR-12 PB-9 |

**Component**
Exhaust Fan (A)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Unbalanced Fan

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Unbalanced fan can result in multiple component failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Vibration Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor shock pulse | Maintenance | Monthly |

**Periodicity Justification**
Existing SPM Program

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Procedure 5-VT-237 has been revised to formalize vibration monitoring. This is done monthly.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 5-VT-237 | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 18 | AP241-VTP-EF-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | ARR-12 PB-9 |

**Component**
Exhaust Fan (A)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Metal Fatigue

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Major

**Failure Importance Justification**
Metal Fatigue takes place over a long period of time and is not likely to be identified by a cost effective maintenance action

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | Maintenance | Not Applicable |

**Periodicity Justification**
Not Applicable

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | |

**Recommendation/Comment**
See Failure Importance Justification

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 19 | AP241-VTP-EF-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | ARR-12 PB-9 |

**Component**
Exhaust Fan (A)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Misalignment

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Misalignment will result in premature component failure, shutting down the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Visual Inspection, Audible In | Operation | Daily |

**Periodicity Justification**
Alignment is verified during monthly fan inspection. Any misalignment occurring between inspections is unlikely and will be identified during daily round be operations. If found will be reported to Shift Manager

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
General Round Sheet

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 20 | AP241-VTP-EF-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | ARR-12 PB-9 |

**Component**
Exhaust Fan (A)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Misalignment

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Misalignment will result in premature component failure, shutting down the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Vibration Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor shock pulse | Maintenance | Monthly |

**Periodicity Justification**
Existing SPM Program

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | |

**Recommendation/Comment**
Procedure 5-VT-237 has been revised to formalize vibration monitoring monthly.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 5-VT-237 | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 21 | AP241-VTP-EF-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | ARR-12 PB-9 |

**Component**
Exhaust Fan (A)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Mechanical Contact with Housing (Parts)

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Major

**Failure Importance Justification**
Mechanical contact with housing will only happen if a programmatic failure occurs, ie improper bearing/support maintenance or duct damage

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Visual Inspection, Audible | Operations | Daily |

**Periodicity Justification**
Existing Round Sheet

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | |

**Recommendation/Comment**
This failure will be easily identified during daily rounds and reported to the Shift Manager

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 22 | AP241-VTP-EF-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | ARR-12 PB-9 |

**Component**
Exhaust Fan (A)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Bearing Failure

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Bearing failure will cause an immediate shutdown of the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Visual Inspection, Audible | Operation | Daily |

**Periodicity Justification**
Existing Round Sheet

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
This failure will be easily identified during daily rounds and reported to the Shift Manager

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 23 | AP241-VTP-EF-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | ARR-12 PB-9 |

**Component**
Exhaust Fan (A)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Bearing Failure

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Bearing failure will cause an immediate shutdown of the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Vibration Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor shock pulse | Maintenance | Monthly |

**Periodicity Justification**
Existing SPM Program

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | |

**Recommendation/Comment**
Procedure 5-VT-237 has been revised to formalize vibration monitoring monthly.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-TF-237 | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 24 | AP241-VTP-EF-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | ARR-12 PB-9 |

**Component**
Exhaust Fan (A)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Lubrication

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Improper Lubrication can result in bearing failure during critical operational activities

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Visual Inspection | Operation | Daily |

**Periodicity Justification**
Existing Round Sheet

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Operations Daily Rounds will identify any bearing condition bad enough to be detected by visual or audible methods. This is a backup to routine monthly inspections/vibration montoring by Maintenance.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-TF-237 | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 25 | AP241-VTP-EF-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | ARR-12 PB-9 |

**Component**
Exhaust Fan (A)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Lubrication

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Improper Lubrication can result in bearing failure during critical operational activities

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Vibration Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor shock pulse | Maintenance | Monthly |

**Periodicity Justification**
Existing SPM Program

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | |

**Recommendation/Comment**
Procedure 5-VT-237 has been revised to formalize vibration monitoring monthly.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-TF-237 | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 26 | AP241-VTP-EF-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | ARR-12 PB-9 |

**Component**
Exhaust Fan (A)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Physical Damage

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Major

**Failure Importance Justification**
Physical damage is a programmatic failure, such as vehicle collision with duct resulting in fan damage.

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Visual Inspection, Audible In | Operations | Daily |

**Periodicity Justification**
Existing Round Sheet

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | |

**Recommendation/Comment**
This condition is only expected to occur from a programmatic failure such as vehicle collision with duct or catastrophic mechanical failure which considered to be extremely unlikely.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 27 | AP241-VTP-EF-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | ARR-12 PB-9 |

**Component**
Exhaust Fan (A)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Shaft Failure

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Major

**Failure Importance Justification**
Shaft failure during operation is extremely unlikely and is not expected to result in undetected immediate failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | Maintenance | Not Applicable |

**Periodicity Justification**
Not Applicable

| Maint Action | Activity Type |
|---|---|
| repair/replace | |

**Recommendation/Comment**
Run to Failure with root cause analysis

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| N/A | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 28 | AP241-VTP-EF-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | ARR-12 PB-9 |

**Component**
Exhaust Fan (A)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Corrosion

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Major

**Failure Importance Justification**
Corrosion failure takes place over very long periods of time and maintenance activities to detect are not cost effective

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | Maintenance | Not Applicable |

**Periodicity Justification**
Not Applicable

| Maint Action | Activity Type |
|---|---|
| Repair/replace | |

**Recommendation/Comment**
Run to Failure/Root Cause Failure Analysis

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 29 | AP241-VTP-EF-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | PB-9 ARR-12 |

**Component**
Exhaust Fan (B)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Unbalanced Fan

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Unbalanced fan can result in multiple component failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Visual Inspection, Audible In | Operations | Daily |

**Periodicity Justification**
Existing Round Sheet

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Operations completes daily rounds. Any visible or audible signs of an unbalanced fan will be reported to Shift Manager.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 30 | AP241-VTP-EF-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | PB-9 ARR-12 |

**Component**
Exhaust Fan (B)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Unbalanced Fan

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Unbalanced fan can result in multiple component failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Vibration Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor shock pulse | Maintenance | Monthly |

**Periodicity Justification**
Existing SPM Program

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Procedure 5-VT-237 has been revised to formalize vibration monitoring. This is done monthly.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-TF-237 | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 31 | AP241-VTP-EF-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | PB-9 ARR-12 |

**Component**
Exhaust Fan (B)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Metal Fatigue

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Major

**Failure Importance Justification**
Metal Fatigue takes place over a long period of time and is not likely to be identified by a cost effective maintenance action

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | Maintenance | Not Applicable |

**Periodicity Justification**
Not Applicable

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 32 | AP241-VTP-EF-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | PB-9 ARR-12 |

**Component**
Exhaust Fan (B)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Physical Damage

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Major

**Failure Importance Justification**
Physical damage is a programmatic failure, such as vehicle collision with duct resulting in fan damage.

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Performance Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | Operations | Daily |

**Periodicity Justification**
Existing Round Sheet

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 33 | AP241-VTP-EF-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | PB-9 ARR-12 |

**Component**
Exhaust Fan (B)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Shaft Failure

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Major

**Failure Importance Justification**
Shaft failure during operation is extremely unlikely and is not expected to result in undetected immediate failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | Maintenance | Not Applicable |

**Periodicity Justification**
Not Applicable

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 34 | AP241-VTP-EF-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | PB-9 ARR-12 |

**Component**
Exhaust Fan (B)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Corrosion

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Major

**Failure Importance Justification**
Corrosion failure takes place over very long periods of time and maintenance activities to detect are not cost effective

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | Maintenance | Not Applicable |

**Periodicity Justification**
Not Applicable

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 35 | AP241-VTP-EF-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | PB-9 ARR-12 |

**Component**
Exhaust Fan (B)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Misalignment

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Misalignment will result in premature component failure, shutting down the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Visual Inspection | Operations | Daily |

**Periodicity Justification**
Existing Round Sheet

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 36 | AP241-VTP-EF-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | PB-9 ARR-12 |

**Component**
Exhaust Fan (B)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Misalignment

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Misalignment will result in premature component failure, shutting down the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Vibration Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor shock pulse | Maintenance | Monthly |

**Periodicity Justification**
Existing SPM Program

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 37 | AP241-VTP-EF-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | PB-9 ARR-12 |

**Component**
Exhaust Fan (B)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Mechanical Contact with Housing

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Major

**Failure Importance Justification**
Mechanical contact with housing will only happen if a programmatic failure occurs, ie improper bearing/support maintenance or duct damage

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | Maintenance | Not Applicable |

**Periodicity Justification**
Not Applicable

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 38 | AP241-VTP-EF-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | PB-9 ARR-12 |

**Component**
Exhaust Fan (B)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Bearing Failure

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Bearing failure will cause an immediate shutdown of the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Visual Inspection | Operations | Daily |

**Periodicity Justification**
Existing Round Sheet

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 39 | AP241-VTP-EF-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | PB-9 ARR-12 |

**Component**
Exhaust Fan (B)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Bearing Failure

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Bearing failure will cause an immediate shutdown of the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Vibration Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor shock pulse | Maintenance | Monthly |

**Periodicity Justification**
Existing SPM Program

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 40 | AP241-VTP-EF-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | PB-9 ARR-12 |

**Component**
Exhaust Fan (B)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Lubrication

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Improper Lubrication can result in bearing failure during critical operational activities

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Visual Inspection | Operations | Daily |

**Periodicity Justification**
Existing Round Sheet

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 41 | AP241-VTP-EF-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Pace Fan Co. | PB-9 ARR-12 |

**Component**
Exhaust Fan (B)

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Lubrication

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Improper Lubrication can result in bearing failure during critical operational activities

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Vibration Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor shock pulse | Maintenance | Monthly |

**Periodicity Justification**
Existing SPM Program

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 42 | AP241-VTP-EJ-101 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Expansion Jnt (A)

**Failure Mode**
Structural Failure

**Failure Cause**
Aging, Corrosion

**Effects**
Direct Unmitigated Release of Contamination

**Failure Importance**
Major

**Failure Importance Justification**
Unexpected Expansion Joint failure is considered very unlikely and repair could be planned for in advance

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | Maintenance | Not Applicable |

**Periodicity Justification**
Not Applicable

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 43 | AP241-VTP-EJ-102 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Expansion Jnt (B)

**Failure Mode**
Structural Failure

**Failure Cause**
Aging, Corrosion

**Effects**
Direct Unmitigated Release of Contamination

**Failure Importance**
Major

**Failure Importance Justification**
Unexpected Expansion Joint failure is considered very unlikely and repair could be planned for in advance

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | Maintenance | Not Applicable |

**Periodicity Justification**
Not Applicable

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 44 | AP241-VTP-EJ-DUCT (Rel) | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Ducting

**Failure Mode**
Ducting Failure, common to all

**Failure Cause**
Corrosion, Riser Open, Riser Damaged

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Major

**Failure Importance Justification**
Enclosure failure will take place over extended period of time and will not be immediate/unanticipated

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | Maintenance | Not Applicable |

**Periodicity Justification**
Not Applicable

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 45 | AP241-VTP-EJ-STACK (Rel) | To Be Added, SEL being updated | | | | | X |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Exhaust Stack

**Failure Mode**
Stack Collapse

**Failure Cause**
Programmatic

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Major

**Failure Importance Justification**
Stack failure will take place over extended period of time and will not be immediate/unanticipated

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | Maintenance | Not Applicable |

**Periodicity Justification**
Not Applicable

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 46 | AP241-VTP-ENCL-110 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Instrument enclosure

**Failure Mode**
Structural Failure

**Failure Cause**
Aging, Corrosion

**Effects**
Exposure to Environmental Effects

**Failure Importance**
Minor

**Failure Importance Justification**
Enclosure failure will take place over extended period of time and will not be immediate/unanticipated

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | Maintenance | Not Applicable |

**Periodicity Justification**
Not Applicable

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 47 | AP241-VTP-ENCL-120 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Instrument enclosure

**Failure Mode**
Structural Failure

**Failure Cause**
Aging, Corrosion

**Effects**
Exposure to Environmental Effects

**Failure Importance**
Major

**Failure Importance Justification**
Enclosure failure will take place over extended period of time and will not be immediate/unanticipated

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | Maintenance | Not Applicable |

**Periodicity Justification**
Not Applicable

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 48 | AP241-VTP-F-120 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Enclosure Cooling Fan

**Failure Mode**
Structural Failure

**Failure Cause**
Aging, Corrosion

**Effects**
Exposure to Environmental Effects

**Failure Importance**
Major

**Failure Importance Justification**
Enclosure cooling fan failure will not immediately result in system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | Maintenance | Not Applicable |

**Periodicity Justification**
Not Applicable

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 49 | AP241-VTP-F-142A | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Not Available | Not Available |

**Component**
Enclosure Cooling Fan

**Failure Mode**
Structural Failure

**Failure Cause**
Aging, Corrosion

**Effects**
Exposure to Environmental Effects

**Failure Importance**
Major

**Failure Importance Justification**
Enclosure cooling fan failure will not immediately result in system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | Maintenance | Not Applicable |

**Periodicity Justification**
Not Applicable

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 50 | AP241-VTP-F-142B | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Not Available | Not Available |

**Component**
Enclosure Cooling Fan

**Failure Mode**
Structural Failure

**Failure Cause**
Aging, Corrosion

**Effects**
Exposure to Environmental Effects

**Failure Importance**
Major

**Failure Importance Justification**
Enclosure cooling fan failure will not immediately result in system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | Maintenance | Not Applicable |

**Periodicity Justification**
Not Applicable

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 51 | AP241-VTP-FLT-301 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Farris | 30-30 |

**Component**
Prefilters Train A

**Failure Mode**
Filter Failure

**Failure Cause**
Loading

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Prefilter failure due to loading is interlocked and results in immediate system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor dP | Operations | Daily |

**Periodicity Justification**
Authorization Basis

| Maint Action | Activity Type |
|---|---|
| Flush | CD |

**Recommendation/Comment**
Monitor Prefilters

No AB Periodicity Requirement
Round Sheet Applicable

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 52 | AP241-VTP-FLT-301 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Farris | 30-30 |

**Component**
Prefilters Train B

**Failure Mode**
Filter Failure

**Failure Cause**
Loading

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Prefilter failure due to loading is interlocked and results in immediate system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor Dose | RCT | Weekly |

**Periodicity Justification**
RadCon Manual

| Maint Action | Activity Type |
|---|---|
| Flush | CD |

**Recommendation/Comment**
Monitor Prefilters

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 53 | AP241-VTP-FLT-302 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
1st HEPA Filter (A)

**Failure Mode**
Filter Failure

**Failure Cause**
Breach

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor dP | Operations | 12 hours |

**Periodicity Justification**
Authorization Basis (48 hours)

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 54 | AP241-VTP-FLT-302 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
1st HEPA Filter (A)

**Failure Mode**
Filter Failure

**Failure Cause**
Breach

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | DOP Test | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| DOP Test | Vent and Balance | Annually |

**Periodicity Justification**
Regulatory

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 3-VB-156TF | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 55 | AP241-VTP-FLT-302 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
1st HEPA Filter (A)

**Failure Mode**
Filter Failure

**Failure Cause**
Loading

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor dP | Operations | 12 hours |

**Periodicity Justification**
Authorization Basis (48 hours)

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 56 | AP241-VTP-FLT-302 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
1st HEPA Filter (A)

**Failure Mode**
Filter Failure

**Failure Cause**
Leakage Around

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor dP | Operations | 12 hours |

**Periodicity Justification**
Authorization Basis (48 hours)

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 57 | AP241-VTP-FLT-302 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
1st HEPA Filter (A)

**Failure Mode**
Filter Failure

**Failure Cause**
Leakage Around

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | DOP Test | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| DOP Test | Vent and Balance | Annually |

**Periodicity Justification**
Regulatory

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 3-VB-156TF | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 58 | AP241-VTP-FLT-302 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
1st HEPA Filter (A)

**Failure Mode**
Filter Failure

**Failure Cause**
Physical Damage

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor dP | Operations | 12 hours |

**Periodicity Justification**
Authorization Basis (48 hours)

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
FSAR surveillance requirement=48 hours, Environmental requirement= 24 hours

No AB Periodicity Requirement
Round Sheet Applicable
EC: WAC 246-247-075

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 59 | AP241-VTP-FLT-302 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
1st HEPA Filter (A)

**Failure Mode**
Filter Failure

**Failure Cause**
Physical Damage

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | DOP Test | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| DOP Test | Vent and Balance | Annually |

**Periodicity Justification**
Regulatory

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
EC WAC 246-247-075

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 3-VB-156TF | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 60 | AP241-VTP-FLT-303 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
2nd HEPA Filter (A)

**Failure Mode**
Filter Failure

**Failure Cause**
Breach

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor dP | Operations | 12 hours |

**Periodicity Justification**
Authorization Basis (48 hours)

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
FSAR surveillance= 48 hours, environmental= 24 hours

No AB Periodicity Requirement
Round Sheet Applicable

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 61 | AP241-VTP-FLT-303 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
2nd HEPA Filter (A)

**Failure Mode**
Filter Failure

**Failure Cause**
Breach

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | DOP Test | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| DOP Test | Vent and Balance | Annually |

**Periodicity Justification**
Regulatory

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 3-VB-156TF | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 62 | AP241-VTP-FLT-303 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
2nd HEPA Filter (A)

**Failure Mode**
Filter Failure

**Failure Cause**
Loading

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor dP | Operations | 12 hours |

**Periodicity Justification**
Authorization Basis (48 hours)

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 63 | AP241-VTP-FLT-303 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
2nd HEPA Filter (A)

**Failure Mode**
Filter Failure

**Failure Cause**
Leakage Around

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor dP | Operations | 12 hours |

**Periodicity Justification**
Authorization Basis (48 hours)

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 64 | AP241-VTP-FLT-303 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
2nd HEPA Filter (A)

**Failure Mode**
Filter Failure

**Failure Cause**
Leakage Around

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | DOP Test | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| DOP Test | Vent and Balance | Annually |

**Periodicity Justification**
Regulatory

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 3-VB-156TF | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 65 | AP241-VTP-FLT-303 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
2nd HEPA Filter (A)

**Failure Mode**
Filter Failure

**Failure Cause**
Physical Damage

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor dP | Operations | 12 hours |

**Periodicity Justification**
Authorization Basis (48 hours)

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 66 | AP241-VTP-FLT-303 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
2nd HEPA Filter (A)

**Failure Mode**
Filter Failure

**Failure Cause**
Physical Damage

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | DOP Test | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| DOP Test | Vent and Balance | Annually |

**Periodicity Justification**
Regulatory

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 3-VB-156TF | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 67 | AP241-VTP-FLT-401 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Farr | 30-30 |

**Component**
Prefilters Train B

**Failure Mode**
Filter Failure

**Failure Cause**
Loading

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Prefilter failure due to loading is interlocked and results in immediate system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor dP | Operations | Daily |

**Periodicity Justification**
Authorization Basis

| Maint Action | Activity Type |
|---|---|
| Flush | CD |

**Recommendation/Comment**
Monitor Prefilters
Round Sheet Applicability

No AB Periodicity Requirement
Round Sheet Applicable

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 68 | AP241-VTP-FLT-401 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Farr | 30-30 |

**Component**
Prefilters Train B

**Failure Mode**
Filter Failure

**Failure Cause**
Loading

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Prefilter failure due to loading is interlocked and results in immediate system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor Dose | RCT | Weekly |

**Periodicity Justification**
RadCon Manual

| Maint Action | Activity Type |
|---|---|
| Flush | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 69 | AP241-VTP-FLT-402 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
1st HEPA Filter (B)

**Failure Mode**
Filter Failure

**Failure Cause**
Breach

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor dP | Operations | 48 hours |

**Periodicity Justification**
Authorization Basis (48 hours)

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 70 | AP241-VTP-FLT-402 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
1st HEPA Filter (B)

**Failure Mode**
Filter Failure

**Failure Cause**
Breach

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | DOP Test | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| DOP Test | Vent and Balance | Annually |

**Periodicity Justification**
Regulatory

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 3-VB-156TF | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 71 | AP241-VTP-FLT-402 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
1st HEPA Filter (B)

**Failure Mode**
Filter Failure

**Failure Cause**
Loading

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor dP | Operations | 48 hours |

**Periodicity Justification**
Authorization Basis

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 72 | AP241-VTP-FLT-402 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
1st HEPA Filter (B)

**Failure Mode**
Filter Failure

**Failure Cause**
Leakage Around

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor dP | Operations | 48 hours |

**Periodicity Justification**
Authorization Basis

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 73 | AP241-VTP-FLT-402 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
1st HEPA Filter (B)

**Failure Mode**
Filter Failure

**Failure Cause**
Leakage Around

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | DOP Test | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| DOP Test | Vent and Balance | Annually |

**Periodicity Justification**
Regulatory

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 3-VB-156TF | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 74 | AP241-VTP-FLT-402 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
1st HEPA Filter (B)

**Failure Mode**
Filter Failure

**Failure Cause**
Physical Damage

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor dP | Operations | 48 hours |

**Periodicity Justification**
Authorization Basis

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 75 | AP241-VTP-FLT-402 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
1st HEPA Filter (B)

**Failure Mode**
Filter Failure

**Failure Cause**
Physical Damage

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | DOP Test | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| DOP Test | Vent and Balance | Annually |

**Periodicity Justification**
Regulatory

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 3-VB-156TF | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 76 | AP241-VTP-FLT-403 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
2nd HEPA Filter (B)

**Failure Mode**
Filter Failure

**Failure Cause**
Breach

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor dP | Operations | 48 hours |

**Periodicity Justification**
Authorization Basis

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 77 | AP241-VTP-FLT-403 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
2nd HEPA Filter (B)

**Failure Mode**
Filter Failure

**Failure Cause**
Breach

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | DOP Test | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| DOP Test | Vent and Balance | Annually |

**Periodicity Justification**
Regulatory

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 3-VB-156TF | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 78 | AP241-VTP-FLT-403 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
2nd HEPA Filter (B)

**Failure Mode**
Filter Failure

**Failure Cause**
Loading

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor dP | Operations | 48 hours |

**Periodicity Justification**
Authorization Basis

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 79 | AP241-VTP-FLT-403 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
2nd HEPA Filter (B)

**Failure Mode**
Filter Failure

**Failure Cause**
Leakage Around

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor dP | Operations | 48 hours |

**Periodicity Justification**
Authorization Basis

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 80 | AP241-VTP-FLT-403 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
2nd HEPA Filter (B)

**Failure Mode**
Filter Failure

**Failure Cause**
Leakage Around

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | DOP Test | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| DOP Test | Vent and Balance | Annually |

**Periodicity Justification**
Regulatory

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 3-VB-156TF | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 81 | AP241-VTP-FLT-403 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
2nd HEPA Filter (B)

**Failure Mode**
Filter Failure

**Failure Cause**
Physical Damage

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Monitor dP | Operations | 48 hours |

**Periodicity Justification**
Authorization Basis

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 82 | AP241-VTP-FLT-403 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Flanders | T-007-W-43-05-NU-S1-23-GG-FUS |

**Component**
2nd HEPA Filter (B)

**Failure Mode**
Filter Failure

**Failure Cause**
Physical Damage

**Effects**
Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
HEPA filter failure is interlocked by CAM sensors or dP sensors and immediately shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | DOP Test | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| DOP Test | Vent and Balance | Annually |

**Periodicity Justification**
Regulatory

| Maint Action | Activity Type |
|---|---|
| Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 3-VB-156TF | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 83 | AP241-VTP-FTP-109 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Flow Test Port - Train A

**Failure Mode**
Structural Failure

**Failure Cause**
Physical Damage

**Effects**
Inflow of Air

**Failure Importance**
Minor

**Failure Importance Justification**
Flow test port failure is extremely unlikely; maintenance task not cost effective

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 84 | AP241-VTP-FTP-110 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Flow Test Port - Train B

**Failure Mode**
Structural Failure

**Failure Cause**
Physical Damage

**Effects**
Inflow of Air

**Failure Importance**
Minor

**Failure Importance Justification**
Flow test port failure is extremely unlikely; maintenance task not cost effective

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 85 | AP241-VTP-FTP-301 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Inlet Flow Test Port - Train A, 1st HEPA

**Failure Mode**
Structural Failure

**Failure Cause**
Physical Damage

**Effects**
Inflow of Air

**Failure Importance**
Minor

**Failure Importance Justification**
Flow test port failure is extremely unlikely; maintenance task not cost effective

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 86 | AP241-VTP-FTP-302 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Inlet Flow Test Port - Train A, 1st HEPA

**Failure Mode**
Structural Failure

**Failure Cause**
Physical Damage

**Effects**
Inflow of Air

**Failure Importance**
Minor

**Failure Importance Justification**
Flow test port failure is extremely unlikely; maintenance task not cost effective

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 87 | AP241-VTP-FTP-303 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Outlet Flow Test Port - Train A, 1st HEPA

**Failure Mode**
Structural Failure

**Failure Cause**
Physical Damage

**Effects**
Inflow of Air

**Failure Importance**
Minor

**Failure Importance Justification**
Flow test port failure is extremely unlikely; maintenance task not cost effective

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 88 | AP241-VTP-FTP-304 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Inlet Flow Test Port - Train A, 2nd HEPA

**Failure Mode**
Structural Failure

**Failure Cause**
Physical Damage

**Effects**
Inflow of Air

**Failure Importance**
Minor

**Failure Importance Justification**
Flow test port failure is extremely unlikely; maintenance task not cost effective

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 89 | AP241-VTP-FTP-305 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Outlet Flow Test Port - Train A, 2nd HEPA

**Failure Mode**
Structural Failure

**Failure Cause**
Physical Damage

**Effects**
Inflow of Air

**Failure Importance**
Minor

**Failure Importance Justification**
Flow test port failure is extremely unlikely; maintenance task not cost effective

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 90 | AP241-VTP-FTP-401 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Inlet Flow Test Port - Train A, 1st HEPA

**Failure Mode**
Structural Failure

**Failure Cause**
Physical Damage

**Effects**
Inflow of Air

**Failure Importance**
Minor

**Failure Importance Justification**
Flow test port failure is extremely unlikely; maintenance task not cost effective

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 91 | AP241-VTP-FTP-402 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Inlet Flow Test Port - Train A, 1st HEPA

**Failure Mode**
Structural Failure

**Failure Cause**
Physical Damage

**Effects**
Inflow of Air

**Failure Importance**
Minor

**Failure Importance Justification**
Flow test port failure is extremely unlikely; maintenance task not cost effective

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 92 | AP241-VTP-FTP-403 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Outlet Flow Test Port - Train A, 1st HEPA

**Failure Mode**
Structural Failure

**Failure Cause**
Physical Damage

**Effects**
Inflow of Air

**Failure Importance**
Minor

**Failure Importance Justification**
Flow test port failure is extremely unlikely; maintenance task not cost effective

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 93 | AP241-VTP-FTP-404 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Inlet Flow Test Port - Train A, 2nd HEPA

**Failure Mode**
Structural Failure

**Failure Cause**
Physical Damage

**Effects**
Inflow of Air

**Failure Importance**
Minor

**Failure Importance Justification**
Flow test port failure is extremely unlikely; maintenance task not cost effective

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 94 | AP241-VTP-FTP-405 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Outlet Flow Test Port - Train A, 2nd HEPA

**Failure Mode**
Structural Failure

**Failure Cause**
Physical Damage

**Effects**
Inflow of Air

**Failure Importance**
Minor

**Failure Importance Justification**
Flow test port failure is extremely unlikely; maintenance task not cost effective

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 95 | AP241-VTP-HS-120 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| | |

**Component**
dP Interlock Bypass Switch

**Failure Mode**
Loss of Switch Function

**Failure Cause**
Inability to Change Contact State

**Effects**
dP Interlock inoperative if switch fails in bypass

**Failure Importance**
Critical

**Failure Importance Justification**
Failure of by-pass switch in the closed position would defeat the interlock, preventing is safety function

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | X | Functional Test | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test | Maintenance | Annually |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
Functional Test of the Switch is part of the dP Interlock Functional Test

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TF-FT-279-018 | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 96 | AP241-VTP-HTR-001 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Not Available | Not Available |

**Component**
Heater for Train A

**Failure Mode**
Loss of Power

**Failure Cause**
Overload

**Effects**
Moisture Loading on Filters

**Failure Importance**
Major

**Failure Importance Justification**
Heater failure will not result in immediate filter failure or system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | |

**Recommendation/Comment**
Heater is controlled with a manual switch (On/Off) and has a high temp cutout switch - Monitored in daily rounds

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 97 | AP241-VTP-HTR-001 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Not Available | Not Available |

**Component**
Heater for Train A

**Failure Mode**
Electrical Failure

**Failure Cause**
Heater Failure

**Effects**
Moisture Loading on Filters

**Failure Importance**
Major

**Failure Importance Justification**
Heater failure will not result in immediate filter failure or system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | |

**Recommendation/Comment**
Heater is controlled with a manual switch (On/Off) and has a high temp cutout switch - Monitored in daily rounds

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 98 | AP241-VTP-HTR-002 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Not Available | Not Available |

**Component**
Heater for Train B

**Failure Mode**
Loss of Power

**Failure Cause**
Overload

**Effects**
Moisture Loading on Filters

**Failure Importance**
Major

**Failure Importance Justification**
Heater failure will not result in immediate filter failure or system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | |

**Recommendation/Comment**
Heater is controlled with a manual switch (On/Off) and has a high temp cutout switch - Monitored in daily rounds

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 99 | AP241-VTP-HTR-002 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Not Available | Not Available |

**Component**
Heater for Train B

**Failure Mode**
Electrical Failure

**Failure Cause**
Heater Failure

**Effects**
Moisture Loading on Filters

**Failure Importance**
Major

**Failure Importance Justification**
Heater failure will not result in immediate filter failure or system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | |

**Recommendation/Comment**
Heater is controlled with a manual switch (On/Off) and has a high temp cutout switch - Monitored in daily rounds

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 100 | AP241-VTP-HTR-101 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Not Available | Not Available |

**Component**
Enclosure Heater - Train A/B

**Failure Mode**
Electrical Failure

**Failure Cause**
Heater Failure

**Effects**
Loss of Temperature Control

**Failure Importance**
Minor

**Failure Importance Justification**
Heater failure will not result in immediate filter failure or system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 101 | AP241-VTP-HTR-120A | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Not Available | Not Available |

**Component**
Enclosure Heater - Train A

**Failure Mode**
Electrical Failure

**Failure Cause**
Heater Failure

**Effects**
Loss of Temperature Control

**Failure Importance**
Minor

**Failure Importance Justification**
Heater failure will not result in immediate filter failure or system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 102 | AP241-VTP-HTR-120B | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Not Available | Not Available |

**Component**
Enclosure Heater - Train B

**Failure Mode**
Electrical Failure

**Failure Cause**
Heater Failure

**Effects**
Loss of Temperature Control

**Failure Importance**
Minor

**Failure Importance Justification**
Heater failure will not result in immediate filter failure or system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

***Periodicity Justification***

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 103 | AP241-VTP-K-601 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Allen-Bradley | 700-HX86SA17 |

**Component**
dP Interlock Watchdog Relay

**Failure Mode**
Failure to Operate

**Failure Cause**
Internal Failure

**Effects**
Loss of Dp Interlock

**Failure Importance**
Critical

**Failure Importance Justification**
Loss of this watchdog relay results in interlock failure/loss of safety function

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | X | Functional Test | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test | Maintenance | Annually |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TF-FT-279-018 | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 106 | AP241-VTP-K-602 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Potter & Brumfield | KRPA-14AG-120 |

**Component**
dP Interlock Relay

**Failure Mode**
Failure to Operate

**Failure Cause**
Internal Failure

**Effects**
Loss of Dp Interlock

**Failure Importance**
Critical

**Failure Importance Justification**
Loss of this relay results in loss of interlock safety function

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Functional Test | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test | Maintenance | Annually |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TF-FT-279-018 | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 107 | AP241-VTP-LDE-141 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Not Available | Not Available |

**Component**
Leak Detector Element Seal Pot Trains A/B

**Failure Mode**
Failure to Operate

**Failure Cause**
Element Failure

**Effects**
Loss of Leak Detection

**Failure Importance**
Major

**Failure Importance Justification**
This component is located in a pit, its failure will not result in an immediate system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 108 | AP241-VTP-LSHL-140 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Not Available | Not Available |

**Component**
Seal Pot Trains A/B Level Switch Hi/Lo

**Failure Mode**
Failure to Operate

**Failure Cause**
Internal Failure

**Effects**
Loss of Level Detection

**Failure Importance**
Major

**Failure Importance Justification**
This component is located in a pit, its failure will not result in an immediate system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 109 | AP241-VTP-M-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Lincoln | 5 HP, K1-5-1, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train A

**Failure Mode**
Motor Failure

**Failure Cause**
dirt

**Effects**
Overheating

**Failure Importance**
Major

**Failure Importance Justification**
Overheating due to dirt inside the motor is considered an unlikely failure cause

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 110 | AP241-VTP-M-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Lincoln | 5 HP, K1-5-1, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train A

**Failure Mode**
Motor Failure

**Failure Cause**
dirt

**Effects**
Internal Bearing Failure

**Failure Importance**
Critical

**Failure Importance Justification**
Bearing failure will cause an immediate system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Vibration Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Vibration Monitoring | Maintenance | Monthly |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
Sealed Bearings

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 111 | AP241-VTP-M-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Lincoln | 5 HP, K1-5-1, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train A

**Failure Mode**
Motor Failure

**Failure Cause**
dirt

**Effects**
Internal Bearing Failure

**Failure Importance**
Critical

**Failure Importance Justification**
Bearing failure will cause an immediate system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Temp Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Temp Monitoring | Maintenance | Monthly |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
Sealed Bearings,

SPM Program Covers Monitoring of Motor Bearing

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 112 | AP241-VTP-M-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Lincoln | 5 HP, K1-5-1, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train A

**Failure Mode**
Motor Failure

**Failure Cause**
eccentricity

**Effects**
Internal Bearing Failure

**Failure Importance**
Major

**Failure Importance Justification**
With proper procurement requirements eccentricity is considered an unlikely occurrence

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 113 | AP241-VTP-M-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Lincoln | 5 HP, K1-5-1, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train A

**Failure Mode**
Motor Failure

**Failure Cause**
shaft degradation

**Effects**
Shaft Failure

**Failure Importance**
Major

**Failure Importance Justification**
Shaft degradation is considered to be a long term failure with plenty of advanced notice and should not result in an unplanned system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 114 | AP241-VTP-M-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Lincoln | 5 HP, K1-5-1, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train A

**Failure Mode**
Motor Failure

**Failure Cause**
Bearings; wear

**Effects**
Bearing failure

**Failure Importance**
Critical

**Failure Importance Justification**
Bearing failure will cause an immediate system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Vibration Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Vibration Monitoring | Maintenance | Monthly |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Procedure 5-VT-237 has been revised to formalize vibration monitoring. This is done monthly.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-TF-237 | TBA | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 115 | AP241-VTP-M-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Lincoln | 5 HP, K1-5-1, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train A

**Failure Mode**
Motor Failure

**Failure Cause**
Bearings; wear

**Effects**
Bearing failure

**Failure Importance**
Critical

**Failure Importance Justification**
Bearing failure will cause an immediate system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Temperature Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Temperature Monitoring | Maintenance | Monthly |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Procedure 5-VT-237 has been revised to formalize vibration monitoring. This is done monthly.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TBA | TBA | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 117 | AP241-VTP-M-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Lincoln | 5 HP, K1-5-1, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train A

**Failure Mode**
Motor Failure

**Failure Cause**
Bearings, lubrication

**Effects**
Bearing failure

**Failure Importance**
Major

**Failure Importance Justification**
Bearings are sealed requiring no lubrication

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
Sealed Bearings

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 118 | AP241-VTP-M-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Lincoln | 5 HP, K1-5-1, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train A

**Failure Mode**
Motor Failure

**Failure Cause**
Bearings, mount degradation

**Effects**
Bearing failure

**Failure Importance**
Major

**Failure Importance Justification**
Bearing mount degradation in this environment is considered unlikely to cause an unplanned system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 119 | AP241-VTP-M-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Lincoln | 5 HP, K1-5-1, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train A

**Failure Mode**
Motor Failure

**Failure Cause**
balance

**Effects**
*Internal Bearing Failure*

**Failure Importance**
Critical

**Failure Importance Justification**
Improperly balance components attached to these motors could result in unplanned bearing failure and system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Vibration Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Vibration Monitoring | Maintenance | Monthly |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Procedure 5-VT-237 has been revised to formalize vibration monitoring. This is done monthly.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-TF-237 | TBA | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 120 | AP241-VTP-M-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Lincoln | 5 HP, K1-5-1, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train A

**Failure Mode**
Motor Failure

**Failure Cause**
balance

**Effects**
Internal Bearing Failure

**Failure Importance**
Critical

**Failure Importance Justification**
Improperly balance components attached to these motors could result in unplanned bearing failure and system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Temperature Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Temperature Monitoring | Maintenance | Monthly |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Procedure 5-VT-237 has been revised to formalize vibration monitoring. This is done monthly.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TBA | TBA | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 121 | AP241-VTP-M-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Lincoln | 5 HP, K1-5-1, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train A

**Failure Mode**
Motor Failure

**Failure Cause**
alignment

**Effects**
Internal Bearing Failure

**Failure Importance**
Critical

**Failure Importance Justification**
Improper alignment of components attached to this motor could result in overloading of bearings, causing unplanned bearing failure and system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Vibration Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Vibration Monitoring | Maintenance | Monthly |

***Periodicity Justification***

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-TF-237 | TBA | | | LOHRASBI, J |

| ID EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|
| 122 AP241-VTP-M-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Lincoln | 5 HP, K1-5-1, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train A

**Failure Mode**
Motor Failure

**Failure Cause**
alignment

**Effects**
Internal Bearing Failure

**Failure Importance**
Critical

**Failure Importance Justification**
Improper alignment of components attached to this motor could result in overloading of bearings, causing unplanned bearing failure and system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Temperature Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Temperature Monitoring | Maintenance | Monthly |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Procedure 5-VT-237 has been revised to formalize vibration monitoring. This is done monthly.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TBA | TBA | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 123 | AP241-VTP-M-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Lincoln | 5 HP, K1-5-1, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train A

**Failure Mode**
Motor Failure

**Failure Cause**
installation errors

**Effects**
Loss of motive force to fan

**Failure Importance**
Critical

**Failure Importance Justification**
Installation errors can result in unnplanned component failure and system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Vibration Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Vibration Monitoring | Maintenance | Monthly |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-TF-237 | TBA | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 124 | AP241-VTP-M-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Lincoln | 5 HP, K1-5-1, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train A

**Failure Mode**
Motor Failure

**Failure Cause**
insulation failure

**Effects**
Loss of motive force to fan

**Failure Importance**
Major

**Failure Importance Justification**
Motor insulation failure in the dry atmosphere where used is not expected to result in unplanned component failures

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 125 | AP241-VTP-M-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Lincoln | 5 HP, K1-5-1, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train A

**Failure Mode**
Motor Failure

**Failure Cause**
electrical imbalance (inductance)

**Effects**
Loss of motive force to fan

**Failure Importance**
Major

**Failure Importance Justification**
Not expected to be problem for the motors used in this application

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 126 | AP241-VTP-M-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Lincoln | 5 HP, K1-5-1, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train A

**Failure Mode**
Motor Failure

**Failure Cause**
Opens (windings)

**Effects**
Loss of motive force to fan

**Failure Importance**
Major

**Failure Importance Justification**
Not expected to be problem for the motors used in this application

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 127 | AP241-VTP-M-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Lincoln | 5 HP, K1-5-1, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train A

**Failure Mode**
Motor Failure

**Failure Cause**
stray electrical currents

**Effects**
Loss of motive force to fan

**Failure Importance**
Major

**Failure Importance Justification**
Not expected to be problem for the motors used in this application

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 128 | AP241-VTP-M-001 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Lincoln | 5 HP, K1-5-1, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train A

**Failure Mode**
Motor Failure

**Failure Cause**
Overload, electrical failure

**Effects**
Loss of motive force to fan

**Failure Importance**
Major

**Failure Importance Justification**
Not expected to be problem for the motors used in this application

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 129 | AP241-VTP-M-001 (Rel) | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| World | Not Applicable |

**Component**
Fan Belt

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Wear

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Failure of Fan Belt will result in loss of negative pressure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Visual Inspection | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Visual Inspection | Maintenance | Quarterly |

**Periodicity Justification**
During Outage

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-TF-237 | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 130 | AP241-VTP-M-001 (Rel) | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| World | Not Applicable |

**Component**
Fan Belt

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Sheave

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Failure of Fan Belt will result in loss of negative pressure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Visual Inspection | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Visual Inspection | Maintenance | Quarterly |

**Periodicity Justification**
During Outage

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-TF-237 | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 131 | AP241-VTP-M-001 (Rel) | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| World | Not Applicable |

**Component**
Fan Belt

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Tension

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Failure of Fan Belt will result in loss of negative pressure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Visual Inspection | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Visual Inspection | Maintenance | Quarterly |

**Periodicity Justification**
During Outage

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-TF-237 | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 132 | AP241-VTP-M-001 (Rel) | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| World | Not Applicable |

**Component**
Fan Belt

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Alignment

**Effects**
Loss of Negative Pressure, Unmitigated Release of Contamination

**Failure Importance**
Critical

**Failure Importance Justification**
Failure of Fan Belt will result in loss of negative pressure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Visual Inspection | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Visual Inspection | Maintenance | Quarterly |

**Periodicity Justification**
During Outage

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-TF-237 | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 133 | AP241-VTP-M-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Century | 5 HP, K1-5-2, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train B

**Failure Mode**
Motor Failure

**Failure Cause**
dirt

**Effects**
Overheating

**Failure Importance**
Major

**Failure Importance Justification**
Overheating due to dirt inside the motor is considered an unlikely failure cause

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 134 | AP241-VTP-M-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Century | 5 HP, K1-5-2, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train B

**Failure Mode**
Motor Failure

**Failure Cause**
dirt

**Effects**
Internal Bearing Failure

**Failure Importance**
Critical

**Failure Importance Justification**
Bearing failure will cause an immediate system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Vibration Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Vibration Monitoring | Maintenance | Monthly |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
Sealed Bearings

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 135 | AP241-VTP-M-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Century | 5 HP, K1-5-2, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train B

**Failure Mode**
Motor Failure

**Failure Cause**
dirt

**Effects**
Internal Bearing Failure

**Failure Importance**
Critical

**Failure Importance Justification**
Bearing failure will cause an immediate system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Temp Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Temp Monitoring | Maintenance | Monthly |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
Sealed Bearings,

SPM Program Covers Monitoring of Motor Bearing

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 136 | AP241-VTP-M-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Century | 5 HP, K1-5-2, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train B

**Failure Mode**
Motor Failure

**Failure Cause**
eccentricity

**Effects**
Internal Bearing Failure

**Failure Importance**
Major

**Failure Importance Justification**
With proper procurement requirements eccentricity is considered an unlikely occurrence

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 137 | AP241-VTP-M-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Century | 5 HP, K1-5-2, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train B

**Failure Mode**
Motor Failure

**Failure Cause**
shaft degradation

**Effects**
Shaft Failure

**Failure Importance**
Major

**Failure Importance Justification**
Shaft degradation is considered to be a long term failure with plenty of advanced notice and should not result in an unplanned system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 138 | AP241-VTP-M-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Century | 5 HP, K1-5-2, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train B

**Failure Mode**
Motor Failure

**Failure Cause**
Bearings; wear

**Effects**
Bearing failure

**Failure Importance**
Critical

**Failure Importance Justification**
Bearing failure will cause an immediate system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Vibration Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Vibration Monitoring | Maintenance | Monthly |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Procedure 5-VT-237 has been revised to formalize vibration monitoring. This is done monthly.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-TF-237 | TBA | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 139 | AP241-VTP-M-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Century | 5 HP, K1-5-2, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train B

**Failure Mode**
Motor Failure

**Failure Cause**
Bearings; wear

**Effects**
Bearing failure

**Failure Importance**
Critical

**Failure Importance Justification**
Bearing failure will cause an immediate system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Temperature Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Temperature Monitoring | Maintenance | Monthly |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Procedure 5-VT-237 has been revised to formalize vibration monitoring. This is done monthly.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TBA | TBA | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 141 | AP241-VTP-M-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Century | 5 HP, K1-5-2, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train B

**Failure Mode**
Motor Failure

**Failure Cause**
Bearings, lubrication

**Effects**
Bearing failure

**Failure Importance**
Major

**Failure Importance Justification**
Bearings are sealed requiring no lubrication

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
Sealed Bearings

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 142 | AP241-VTP-M-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Century | 5 HP, K1-5-2, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train B

**Failure Mode**
Motor Failure

**Failure Cause**
Bearings, mount degradation

**Effects**
Bearing failure

**Failure Importance**
Major

**Failure Importance Justification**
Bearing mount degradation in this environment is considered unlikely to cause an unplanned system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 143 | AP241-VTP-M-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Century | 5 HP, K1-5-2, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train B

**Failure Mode**
Motor Failure

**Failure Cause**
balance

**Effects**
Internal Bearing Failure

**Failure Importance**
Critical

**Failure Importance Justification**
Improperly balance components attached to these motors could result in unplanned bearing failure and system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Vibration Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Vibration Monitoring | Maintenance | Monthly |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Procedure 5-VT-237 has been revised to formalize vibration monitoring. This is done monthly.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-TF-237 | TBA | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 144 | AP241-VTP-M-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Century | 5 HP, K1-5-2, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train B

**Failure Mode**
Motor Failure

**Failure Cause**
balance

**Effects**
Internal Bearing Failure

**Failure Importance**
Critical

**Failure Importance Justification**
Improperly balance components attached to these motors could result in unplanned bearing failure and system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Temperature Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Temperature Monitoring | Maintenance | Monthly |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Procedure 5-VT-237 has been revised to formalize vibration monitoring. This is done monthly.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | TBA | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 145 | AP241-VTP-M-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Century | 5 HP, K1-5-2, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train B

**Failure Mode**
Motor Failure

**Failure Cause**
alignment

**Effects**
Internal Bearing Failure

**Failure Importance**
Critical

**Failure Importance Justification**
Improper alignment of components attached to this motor could result in overloading of bearings, causing unplanned bearing failure and system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Vibration Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Vibration Monitoring | Maintenance | Monthly |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-TF-237 | TBA | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 146 | AP241-VTP-M-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Century | 5 HP, K1-5-2, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train B

**Failure Mode**
Motor Failure

**Failure Cause**
alignment

**Effects**
Internal Bearing Failure

**Failure Importance**
Critical

**Failure Importance Justification**
Improper alignment of components attached to this motor could result in overloading of bearings, causing unplanned bearing failure and system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Temperature Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Temperature Monitoring | Maintenance | Monthly |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Procedure 5-VT-237 has been revised to formalize vibration monitoring. This is done monthly.

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | TBA | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 147 | AP241-VTP-M-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Century | 5 HP, K1-5-2, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train B

**Failure Mode**
Motor Failure

**Failure Cause**
Installation errors

**Effects**
Loss of motive force to fan

**Failure Importance**
Critical

**Failure Importance Justification**
Installation errors can result in unnplanned component failure and system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Vibration Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Vibration Monitoring | Maintenance | Monthly |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-TF-237 | TBA | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 148 | AP241-VTP-M-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Century | 5 HP, K1-5-2, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train B

**Failure Mode**
Motor Failure

**Failure Cause**
Insulation failure

**Effects**
Loss of motive force to fan

**Failure Importance**
Major

**Failure Importance Justification**
Motor insulation failure in the dry atmosphere where used is not expected to result in unplanned component failures

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 149 | AP241-VTP-M-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Century | 5 HP, K1-5-2, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train B

**Failure Mode**
Motor Failure

**Failure Cause**
Electrical imbalance (inductance)

**Effects**
Loss of motive force to fan

**Failure Importance**
Major

**Failure Importance Justification**
Not expected to be problem for the motors used in this application

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 150 | AP241-VTP-M-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Century | 5 HP, K1-5-2, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train B

**Failure Mode**
Motor Failure

**Failure Cause**
Opens (windings)

**Effects**
Loss of motive force to fan

**Failure Importance**
Major

**Failure Importance Justification**
Not expected to be problem for the motors used in this application

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 151 | AP241-VTP-M-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Century | 5 HP, K1-5-2, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train B

**Failure Mode**
Motor Failure

**Failure Cause**
Stray electrical currents

**Effects**
Loss of motive force to fan

**Failure Importance**
Major

**Failure Importance Justification**
Not expected to be problem for the motors used in this application

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 152 | AP241-VTP-M-002 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Century | 5 HP, K1-5-2, EDS-MCC-302 BKR C4 (Local MCC) |

**Component**
Exhaust Fan Motor Train B

**Failure Mode**
Motor Failure

**Failure Cause**
Overload, electrical failure

**Effects**
Loss of motive force to fan

**Failure Importance**
Major

**Failure Importance Justification**
Not expected to be problem for the motors used in this application

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 153 | AP241-VTP-M-002 (Rel) | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
Fan Belt

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Wear

**Effects**
Loss of Negative Pressure, Unm

**Failure Importance**
Critical

**Failure Importance Justification**
Failure of Fan Belt will result in loss of negative pressure in tanks

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Visual Inspection | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Visual Inspection | Maintenance | Quarterly |

**Periodicity Justification**
During Outage

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Part of monthly PM

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-TF-237 | | | | LOHRASBI, J |

| ID EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|
| 154 AP241-VTP-M-002 (Rel) | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
Fan Belt

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Sheave

**Effects**
Loss of Negative Pressure, Unm

**Failure Importance**
Critical

**Failure Importance Justification**
Failure of Fan Belt will result in loss of negative pressure in tanks

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Visual Inspection | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Visual Inspection | Maintenance | Quarterly |

**Periodicity Justification**
During Outage

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Part of monthly PM

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-TF-237 | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 155 | AP241-VTP-M-002 (Rel) | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
Fan Belt

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Tension

**Effects**
Loss of Negative Pressure, Unm

**Failure Importance**
Critical

**Failure Importance Justification**
Failure of Fan Belt will result in loss of negative pressure in tanks

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitoring | Operations | Daily |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
failure will be detected during daily rounds or alarm

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-TF-237 | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 156 | AP241-VTP-M-002 (Rel) | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
Fan Belt

**Failure Mode**
Fan Failure - Loss of Flow

**Failure Cause**
Alignment

**Effects**
Loss of Negative Pressure, Unm

**Failure Importance**
Critical

**Failure Importance Justification**
Failure of Fan Belt will result in loss of negative pressure in tanks

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitoring | Operations | Daily |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
failure will be detected during daily rounds or alarm

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-TF-237 | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 157 | AP241-VTP-M-101 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
A&B Trains Seal Pot Sump Pump Motor

**Failure Mode**
Motor Failure

**Failure Cause**
Overload, electrical failure

**Effects**
Loss of motive force to pump

**Failure Importance**
Major

**Failure Importance Justification**
This motor is located in a pit beneath a cover block and its failure will NOT result in an immediate unplanned system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
not critical and is in pit- run to failure and replace when failed

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| . | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 158 | AP241-VTP-MOV-301 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
Inlet Motor Operated Valve Train A

**Failure Mode**
Failure to Operate

**Failure Cause**
Mechanical Failure

**Effects**
Improper Flow

**Failure Importance**
Critical

**Failure Importance Justification**
This inlet motor operated valve is required to be operated properly to ensure ventilation flow

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Peformance Monitor | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Verify Operation of Valve at | Operations | Start-up/Shutdown |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Valve position is verified in procedure to switch trains- dP interlock will trip if failure occurs during fan operation

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TO-060-340 (Ops) | N/A | N/A | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 159 | AP241-VTP-MOV-301 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
Inlet Motor Operated Valve Train A

**Failure Mode**
Failure to Operate

**Failure Cause**
Internal Electrical Failure

**Effects**
Improper Flow

**Failure Importance**
Critical

**Failure Importance Justification**
This inlet motor operated valve is required to be operated properly to ensure ventilation flow

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Peformance Monitor | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Verify Operation of Valve at | Operations | Start-up/Shutdown |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Valve position is verified in procedure to switch trains- dP interlock will trip if failure occurs during fan operation

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TO-060-340 (Ops) | N/A | N/A | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 160 | AP241-VTP-MOV-401 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
Inlet Motor Operated Valve Train B

**Failure Mode**
Failure to Operate

**Failure Cause**
Mechanical Failure

**Effects**
Improper Flow

**Failure Importance**
Critical

**Failure Importance Justification**
This inlet motor operated valve is required to be operated properly to ensure ventilation flow

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Peformance Monitor | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Verify Operation of Valve at | Operations | Start-up/Shutdown |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Valve position is verified in procedure to switch trains- dP interlock will trip if failure occurs during fan operation

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TO-060-340 (Ops) | N/A | N/A | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 161 | AP241-VTP-MOV-401 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
Inlet Motor Operated Valve Train B

**Failure Mode**
Failure to Operate

**Failure Cause**
Internal Electrical Failure

**Effects**
Improper Flow

**Failure Importance**
Critical

**Failure Importance Justification**
This inlet motor operated valve is required to be operated properly to ensure ventilation flow

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Peformance Monitor | X |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Verify Operation of Valve at | Operations | Start-up/Shutdown |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Valve position is verified in procedure to switch trains- dP interlock will trip if failure occurs during fan operation

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TO-060-340 (Ops) | N/A | N/A | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 162 | AP241-VTP-MS-101 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
A&B Trains Seal Pot Sump Pump Manual Switch

**Failure Mode**
Failure to Operate

**Failure Cause**
Mechanical Failure

**Effects**
Erroneous Indication

**Failure Importance**
Major

**Failure Importance Justification**
Failure of this manual switch will NOT result in and unplanned system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 163 | AP241-VTP-P-101 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
A&B Trains Seal Pot Sump Pump

**Failure Mode**
Pump Failure

**Failure Cause**
Mechanical Failure

**Effects**
Erroneous Indication

**Failure Importance**
Major

**Failure Importance Justification**
Failure of this manual switch will NOT result in and unplanned system shutdown

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 164 | AP241-VTP-PB-400A | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
PLC Reset Push Button

**Failure Mode**
Failure to Operate

**Failure Cause**
Internal Failure

**Effects**
Erroneous Indication

**Failure Importance**
Major

**Failure Importance Justification**
Failure of this push button will NOT shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 165 | AP241-VTP-PB-400B | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
Lamp Test Push Button

**Failure Mode**
Failure to Operate

**Failure Cause**
Internal Failure

**Effects**
Erroneous Indication

**Failure Importance**
Major

**Failure Importance Justification**
Failure of this indicator switch will NOT shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 166 | AP241-VTP-PDIS-145 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Dwyer | 3004-SRH/LT-ED |

**Component**
Train A De-entrainer dP Indicator Switch

**Failure Mode**
Failure to Operate

**Failure Cause**
Internal Failure

**Effects**
Erroneous Indication

**Failure Importance**
Major

**Failure Importance Justification**
Failure of this indicator switch will NOT shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
Alarm Only

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 169 | AP241-VTP-PDIS-146 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Dwyer | 3004 |

**Component**
Train B De-entrainer dP Indicator Switch

**Failure Mode**
Failure to Operate

**Failure Cause**
Internal Failure

**Effects**
Erroneous Indication

**Failure Importance**
Major

**Failure Importance Justification**
Failure of this indicator switch will NOT shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
Alarm Only

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 172 | AP241-VTP-PDIS-322 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Dwyer | 3004 |

**Component**
Train A Prefilter dP Indicator Switch

**Failure Mode**
Failure to Operate

**Failure Cause**
Internal Failure

**Effects**
Erroneous Indication

**Failure Importance**
Major

**Failure Importance Justification**
Failure of this indicator switch will NOT shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
Alarm Only

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 175 | AP241-VTP-PDIS-422 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Dwyer | 3004 |

**Component**
Train B Prefilter dP Indicator Switch

**Failure Mode**
Failure to Operate

**Failure Cause**
Internal Failure

**Effects**
Erroneous Indication

**Failure Importance**
Major

**Failure Importance Justification**
Failure of this indicator switch will NOT shut down the system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
Alarm Only

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 178 | AP241-VTP-PDIT-327 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Yokogawa | EJA110A |

**Component**
dP Indicator Transmitter (Flt 302)

**Failure Mode**
*Failure to Operate*

**Failure Cause**
Out of Calibration

**Effects**
Erroneous Indication

**Failure Importance**
Critical

**Failure Importance Justification**
Loss of Dp indication will shutdown the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Calibration | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Calibration Monitoring | Maintenance | Annually |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-PCD-373 | ET-07478 | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 179 | AP241-VTP-PDIT-327 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Yokogawa | EJA110A |

**Component**
dP Indicator Transmitter (Flt 302)

**Failure Mode**
Failure to Operate

**Failure Cause**
Internal Failure

**Effects**
Erroneous Indication

**Failure Importance**
Critical

**Failure Importance Justification**
Loss of Dp indication will shutdown the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test | Maintenance | Annually |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TF-FT-279-018 | ET-07526 | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 180 | AP241-VTP-PDIT-328 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Yokogawa | EJA110A |

**Component**
dP Indicator Transmitter (Flt 303)

**Failure Mode**
Failure to Operate

**Failure Cause**
Out of Calibration

**Effects**
Erroneous Indication

**Failure Importance**
Critical

**Failure Importance Justification**
Loss of Dp indication will shutdown the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Calibration | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Calibration Monitoring | Maintenance | Annually |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-PCD-373 | ET-07479 | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 181 | AP241-VTP-PDIT-328 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Yokogawa | EJA110A |

**Component**
dP Indicator Transmitter (Flt 303)

**Failure Mode**
Failure to Operate

**Failure Cause**
Internal Failure

**Effects**
Erroneous Indication

**Failure Importance**
Critical

**Failure Importance Justification**
Loss of Dp indication will shutdown the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test | Maintenance | Annually |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TF-FT-279-018 | ET-07526 | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 182 | AP241-VTP-PDIT-329 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Yokogawa | EJA110A |

**Component**
dP Indicator Transmitter (Flt 302/303)

**Failure Mode**
Failure to Operate

**Failure Cause**
Out of Calibration

**Effects**
Erroneous Indication

**Failure Importance**
Critical

**Failure Importance Justification**
Loss of Dp indication will shutdown the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Calibration | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Calibration Monitoring | Maintenance | Annually |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-PCD-373 | ET-07482 | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 183 | AP241-VTP-PDIT-329 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Yokogawa | EJA110A |

**Component**
dP Indicator Transmitter (Flt 302/303)

**Failure Mode**
Failure to Operate

**Failure Cause**
Internal Failure

**Effects**
Erroneous Indication

**Failure Importance**
Critical

**Failure Importance Justification**
Loss of Dp indication will shutdown the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test | Maintenance | Annually |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TF-FT-279-018 | ET-07526 | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 184 | AP241-VTP-PDIT-427 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Yokogawa | EJA110A |

**Component**
dP Indicator Transmitter (Flt 402)

**Failure Mode**
Failure to Operate

**Failure Cause**
Out of Calibration

**Effects**
Erroneous Indication

**Failure Importance**
Critical

**Failure Importance Justification**
Loss of Dp indication will shutdown the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Calibration | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Calibration Monitoring | Maintenance | Annually |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-PCD-373 | ET-07480 | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 185 | AP241-VTP-PDIT-427 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Yokogawa | EJA110A |

**Component**
dP Indicator Transmitter (Flt 402)

**Failure Mode**
Failure to Operate

**Failure Cause**
Internal Failure

**Effects**
Erroneous Indication

**Failure Importance**
Critical

**Failure Importance Justification**
Loss of Dp indication will shutdown the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test | Maintenance | Annually |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TF-FT-279-018 | ET-07526 | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 186 | AP241-VTP-PDIT-428 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Yokogawa | EJA110A |

**Component**
dP Indicator Transmitter (Flt 403)

**Failure Mode**
Failure to Operate

**Failure Cause**
Out of Calibration

**Effects**
Erroneous Indication

**Failure Importance**
Critical

**Failure Importance Justification**
Loss of Dp indication will shutdown the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Calibration | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Calibration Monitoring | Maintenance | Annually |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-PCD-373 | ET-07481 | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 187 | AP241-VTP-PDIT-428 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Yokogawa | EJA110A |

**Component**
dP Indicator Transmitter (Flt 403)

**Failure Mode**
Failure to Operate

**Failure Cause**
Internal Failure

**Effects**
Erroneous Indication

**Failure Importance**
Critical

**Failure Importance Justification**
Loss of Dp indication will shutdown the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test | Maintenance | Annually |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TF-FT-279-018 | ET-07526 | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 188 | AP241-VTP-PDIT-429 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Yokogawa | EJA110A |

**Component**
dP Indicator Transmitter (Flt 402/403)

**Failure Mode**
Failure to Operate

**Failure Cause**
Out of Calibration

**Effects**
Erroneous Indication

**Failure Importance**
Critical

**Failure Importance Justification**
Loss of Dp indication will shutdown the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Calibration | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Calibration Monitoring | Maintenance | Annually |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-PCD-373 | ET-07465 | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 189 | AP241-VTP-PDIT-429 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Yokogawa | EJA110A |

**Component**
dP Indicator Transmitter (Flt 402/403)

**Failure Mode**
Failure to Operate

**Failure Cause**
Internal Failure

**Effects**
Erroneous Indication

**Failure Importance**
Critical

**Failure Importance Justification**
Loss of Dp indication will shutdown the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test | Maintenance | Annually |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TF-FT-279-018 | ET-07526 | TF-OR-A-03 | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 190 | AP241-VTP-PDS-325 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Dwyer | 1626-5 |

**Component**
Pressure Differential Switch Train A

**Failure Mode**
Failure to Operate

**Failure Cause**
Out of Calibration

**Effects**
Loss of Dp Interlock

**Failure Importance**
Critical

**Failure Importance Justification**
Loss of Dp indication will shutdown the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Calibration | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Calibration Monitoring | Maintenance | Annually |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-PCD-508 | EE-00577 | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 193 | AP241-VTP-PDS-425 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Dywer | 1626-5 |

**Component**
Pressure Differential Switch Train B

**Failure Mode**
Failure to Operate

**Failure Cause**
Out of Calibration

**Effects**
Loss of Dp Interlock

**Failure Importance**
Critical

**Failure Importance Justification**
Loss of Dp indication will shutdown the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Calibration | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Calibration Monitoring | Maintenance | Annually |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-PCD-508 | EE-00577 | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 196 | AP241-VTP-RCPT-120 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
120 Volt Receptacle

**Failure Mode**
Failure to Operate

**Failure Cause**
Internal Failure

**Effects**
Loss of Function

**Failure Importance**
Minor

**Failure Importance Justification**
Non critical electrical supply

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 197 | AP241-VTP-RTD-120 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
120 Volt RTD

**Failure Mode**
Failure to Operate

**Failure Cause**
Internal Failure

**Effects**
Loss of Function

**Failure Importance**
Minor

**Failure Importance Justification**
Non critical electrical supply

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 198 | AP241-VTP-SP-101 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
Train A/B Seal Pot

**Failure Mode**
Structural Failure

**Failure Cause**
Aging, Corrosion

**Effects**
Structural Failure

**Failure Importance**
Minor

**Failure Importance Justification**
Does not directly affect the function of the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 199 | AP241-VTP-SS-326 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
Primary Exhaust Heater Selector Switch Train A

**Failure Mode**
Failure to Operate

**Failure Cause**
Internal Failure

**Effects**
Loss of Function

**Failure Importance**
Minor

**Failure Importance Justification**
Extended time period before HEPA filters fail due to moisture loading

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
Run to failure

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 200 | AP241-VTP-SS-426 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| Unavailable | Unavailable |

**Component**
Primary Exhaust Heater Selector Switch Train B

**Failure Mode**
Failure to Operate

**Failure Cause**
Internal Failure

**Effects**
Loss of Function

**Failure Importance**
Minor

**Failure Importance Justification**
Extended time period before HEPA filters fail due to moisture loading

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
Run to failure

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 201 | AP241-VTP-TDC-326 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Chromalox-Emerson Elec. | 8669-00150 |

**Component**
Heater Tempearture Differential Controller Train A

**Failure Mode**
Loss of Control

**Failure Cause**
Internal Failure

**Effects**
Loss of Function

**Failure Importance**
Major

**Failure Importance Justification**
Extended time period before HEPA filters fail due to moisture loading

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Functional Test, Calibrat | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test, Calibration | Maintenance | TBA |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair, Replace | CD |

**Recommendation/Comment**
Run to failure

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 202 | AP241-VTP-TDC-426 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Chromalox-Emerson Elec. | 3914401XX |

**Component**
Heater Temperature Differential Controller Train B

**Failure Mode**
Loss of Control

**Failure Cause**
Internal Failure

**Effects**
Loss of Function

**Failure Importance**
Major

**Failure Importance Justification**
Extended time period before HEPA filters fail due to moisture loading

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Functional Test, Calibrat | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test, Calibration | Maintenance | TBA |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair, Replace | CD |

**Recommendation/Comment**
Run to failure

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 203 | AP241-VTP-TDS-326 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| | 3111101410 |

**Component**
Temperature Differential Switch Train A

**Failure Mode**
Loss of Control

**Failure Cause**
Internal Failure

**Effects**
Loss of Function

**Failure Importance**
Major

**Failure Importance Justification**
Extended time period before HEPA filters fail due to moisture loading

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Functional Test, Calibrat | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test, Calibration | Maintenance | TBA |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair, Replace | CD |

**Recommendation/Comment**
Run to failure

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 204 | AP241-VTP-TDS-426 | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| | 3111101401 |

**Component**
Temperature Differential Switch Train B

**Failure Mode**
Loss of Control

**Failure Cause**
Internal Failure

**Effects**
Loss of Function

**Failure Importance**
Major

**Failure Importance Justification**
Extended time period before HEPA filters fail due to moisture loading

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Functional Test, Calibrat | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test, Calibration | Maintenance | TBA |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair, Replace | CD |

**Recommendation/Comment**
Run to failure

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 205 | AP241-VTP-TE-326A Disconn | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Temperature Sensing Element Train A Inlet

**Failure Mode**
Loss of Control

**Failure Cause**
Sensor Failure

**Effects**
Loss of Signal

**Failure Importance**
Major

**Failure Importance Justification**
Extended time period before HEPA filters fail due to moisture loading

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Functional Test, Calibrat | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test, Calibration | Maintenance | TBA |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair, Replace | CD |

**Recommendation/Comment**
Run to failure

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 206 | AP241-VTP-TE-326B Disconn | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Temperature Sensing Element Train A Inlet

**Failure Mode**
Loss of Control

**Failure Cause**
Sensor Failure

**Effects**
Loss of Signal

**Failure Importance**
Major

**Failure Importance Justification**
Extended time period before HEPA filters fail due to moisture loading

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Functional Test, Calibrat | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test, Calibration | Maintenance | TBA |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair, Replace | CD |

**Recommendation/Comment**
Run to failure

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 207 | AP241-VTP-TE-326C Disconn | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Temperature Sensing Element Train A Outlet

**Failure Mode**
Loss of Control

**Failure Cause**
Sensor Failure

**Effects**
Loss of Signal

**Failure Importance**
Major

**Failure Importance Justification**
Extended time period before HEPA filters fail due to moisture loading

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Functional Test, Calibrat | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test, Calibration | Maintenance | TBA |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair, Replace | CD |

**Recommendation/Comment**
Run to failure

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 208 | AP241-VTP-TE-326D Disconn | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Temperature Sensing Element Train A Outlet

**Failure Mode**
Loss of Control

**Failure Cause**
Sensor Failure

**Effects**
Loss of Signal

**Failure Importance**
Major

**Failure Importance Justification**
Extended time period before HEPA filters fail due to moisture loading

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Functional Test, Calibrat | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test, Calibration | Maintenance | TBA |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair, Replace | CD |

**Recommendation/Comment**
Run to failure

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 209 | AP241-VTP-TE-426A Discson | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Temperature Sensing Element Train B Inlet

**Failure Mode**
Loss of Control

**Failure Cause**
Sensor Failure

**Effects**
Loss of Signal

**Failure Importance**
Major

**Failure Importance Justification**
Extended time period before HEPA filters fail due to moisture loading

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Functional Test, Calibrat | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test, Calibration | Maintenance | TBA |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair, Replace | CD |

**Recommendation/Comment**
Run to failure

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 210 | AP241-VTP-TE-426B Discson | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Temperature Sensing Element Train B Inlet

**Failure Mode**
Loss of Control

**Failure Cause**
Sensor Failure

**Effects**
Loss of Signal

**Failure Importance**
Major

**Failure Importance Justification**
Extended time period before HEPA filters fail due to moisture loading

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Functional Test, Calibrat | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test, Calibration | Maintenance | TBA |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair, Replace | CD |

**Recommendation/Comment**
Run to failure

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 211 | AP241-VTP-TE-426C Discson | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Temperature Sensing Element Train B Outlet

**Failure Mode**
Loss of Control

**Failure Cause**
Sensor Failure

**Effects**
Loss of Signal

**Failure Importance**
Major

**Failure Importance Justification**
Extended time period before HEPA filters fail due to moisture loading

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Functional Test, Calibrat | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test, Calibration | Maintenance | TBA |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair, Replace | CD |

**Recommendation/Comment**
Run to failure

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 212 | AP241-VTP-TE-426D Discson | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Not Applicable | Not Applicable |

**Component**
Temperature Sensing Element Train B Outlet

**Failure Mode**
Loss of Control

**Failure Cause**
Sensor Failure

**Effects**
Loss of Signal

**Failure Importance**
Major

**Failure Importance Justification**
Extended time period before HEPA filters fail due to moisture loading

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Functional Test, Calibrat | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test, Calibration | Maintenance | TBA |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair, Replace | CD |

**Recommendation/Comment**
Run to failure

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 213 | AP241-VTP-TI-301 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| REO TEMP | Not Available |

**Component**
Primary Exhaust Train A Heater Inlet□Temperature Indicator

**Failure Mode**
Loss of Indication

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 214 | AP241-VTP-TI-302 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| REO TEMP | Not Available |

**Component**
Primary Exhaust Train A Heater Inlet☐Temperature Indicator

**Failure Mode**
Loss of Indication

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 215 | AP241-VTP-TI-326A (Not on | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| OMEGA | DP116-MF2 |

**Component**
Primary Exhaust Train A Heater☐Inlet Temperature Indicator

**Failure Mode**
Loss of Indication

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 216 | AP241-VTP-TI-326D (Not on | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| OMEGA | DP116-MF2 |

**Component**
Primary Exhaust Train A Filter Bank□Outlet Temerature Indicator

**Failure Mode**
Loss of Indication

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 217 | AP241-VTP-TI-401 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| REO TEMP | Not Available |

**Component**
Primary Exhaust Train B Heater Inlet□Temperature Indicator

**Failure Mode**
Loss of Indication

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 218 | AP241-VTP-TI-402 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| REO TEMP | Not Available |

**Component**
Primary Exhaust Train B Heater Inlet□Temperature Indicator

**Failure Mode**
Loss of Indication

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 219 | AP241-VTP-TI-426A Not on | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| OMEGA | DP116-MF2 |

**Component**
Primary Exhaust Train B Heater☐Inlet Temperature Indicator

**Failure Mode**
Loss of Indication

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 220 | AP241-VTP-TI-426D | Not on To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| OMEGA | DP116-MF2 |

**Component**
Primary Exhaust Train B Filter Bank☐Outlet Temperature Indicator

**Failure Mode**
Loss of Indication

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 221 | AP241-VTP-TIT-120 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| PRECISION | Not Available |

**Component**
VTP-ENCL-120 Temperature□Indication Transmitter

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 222 | AP241-VTP-TS-142 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Not Available | Not Available |

**Component**
PRI EXH A Trains A & B Instrument☐Enclosure Fans Temp Switch

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 223 | AP241-VTP-TSH-326A | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| UNITED ELECTRIC | Not Available |

**Component**
Temperature Switch High

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Why are we functionally testing if these are not critical? Check to see if we actually functionally test.

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Functional Test, Calibrat | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test, Calibration | Maintenance | TBA |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair, Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TBA | TBA | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 224 | AP241-VTP-TSH-326B | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| UNITED ELECTRIC | B122-9014 |

**Component**
Temperature Switch High

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Why are we functionally testing if these are not critical? Check to see if we actually functionally test

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Functional Test, Calibrat | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test, Calibration | Maintenance | TBA |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair, Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TBA | TBA | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 225 | AP241-VTP-TSH-426A | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| UNITED ELECTRIC | Not Available |

**Component**
Temperature Switch High

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Why are we functionally testing if these are not critical? Check to see if we actually functionally test.

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Functional Test, Calibrat | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test, Calibration | Maintenance | TBA |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair, Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TBA | TBA | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 226 | AP241-VTP-TSH-426B | To Be Added, SEL being updated | X | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| UNITED ELECTRIC | 54G639014 |

**Component**
Temperature Switch High

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Why are we functionally testing if these are not critical?

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Functional Test, Calibrat | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test, Calibration | Maintenance | TBA |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair, Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TBA | TBA | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 227 | AP241-VTP-V-119 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train A De-Entrainer☐Inlet Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Ventilation Flow

**Failure Importance**
Major

**Failure Importance Justification**
Failure of De-entrainer inlet valve resulting in loss of flow is of low frequency

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 228 | AP241-VTP-V-120 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train A De-Entrainer☐Outlet Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Ventilation Flow

**Failure Importance**
Major

**Failure Importance Justification**
Failure of De-entrainer outlet valve resulting in loss of flowis of low frequency

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 229 | AP241-VTP-V-121 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train B De-Entrainer☐Inlet Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Ventilation Flow

**Failure Importance**
Major

**Failure Importance Justification**
Failure of De-entrainer inlet valve resulting in loss of flow is of low frequency

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 230 | AP241-VTP-V-122 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train B De-Entrainer☐Outlet Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Ventilation Flow

**Failure Importance**
Major

**Failure Importance Justification**
Failure of De-entrainer outlet valve resulting in loss of flowis of low frequency

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 231 | AP241-VTP-V-123 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train A De-Entrainer☐Pressure Differential Indicator Hi Side Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 232 | AP241-VTP-V-124 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train A De-Entrainer☐Pressure Differential Indicator Hi Side Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 233 | AP241-VTP-V-125 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train A De-Entrainer☐Pressure Differential Indicator Low Side Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 234 | AP241-VTP-V-126 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train A De-Entrainer☐Pressure Differential Indicator Low Side Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 235 | AP241-VTP-V-127 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train B De-Entrainer☐Pressure Differential Indicator Hi Side Valve

**Failure Mode**
Loss of Function

**Failure Cause**
*Internal Failure*

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 236 | AP241-VTP-V-128 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train B De-Entrainer☐Pressure Differential Indicator Hi Side Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 237 | AP241-VTP-V-129 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train B De-Entrainer☐Pressure Differential Indicator Low Side Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 238 | AP241-VTP-V-130 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train B De-Entrainer☐Pressure Differential Indicator Low Side Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 239 | AP241-VTP-V-131 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train A De-Entrainer☐Upper Spray Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 240 | AP241-VTP-V-132 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train A De-Entrainer ☐Lower Spray Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 241 | AP241-VTP-V-133 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train B De-Entrainer☐Upper Spray Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 242 | AP241-VTP-V-134 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train B De-Entrainer☐Lower Spray Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 243 | AP241-VTP-V-135 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Trains A & B□Seal Pot Fill Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 244 | AP241-VTP-V-136 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Trains A & B Seal Pot Sump ☐Pump Discharge Check Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 245 | AP241-VTP-V-301 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train A Pre-filter□Pressure Differential Indicator Hi Side Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 246 | AP241-VTP-V-302 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train A Pre-filter□Pressure Differential Indicator Low Side Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 247 | AP241-VTP-V-303 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train A 1st HEPA Filter□Pressure Differential Indicator High Side Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 248 | AP241-VTP-V-304 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train A 1st HEPA Filter□Pressure Differential Indicator Low Side Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 249 | AP241-VTP-V-305 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train A 2nd HEPA Filter□Pressure Differential Indicator High Side Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 250 | AP241-VTP-V-306 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train A 2nd HEPA Filter☐Pressure Differential Indicator Low Side Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 251 | AP241-VTP-V-307 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train A Exhaust Fan☐Inlet Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Failure of De-entrainer outlet valve resulting in loss of flow is of low frequency

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 252 | AP241-VTP-V-308 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train A□Drain Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 253 | AP241-VTP-V-309 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train A□Drain Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 254 | AP241-VTP-V-310 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
PDIT-329 High Side□Isolation Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 255 | AP241-VTP-V-311 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
PDIT-329 Low Side□Isolation Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| *Run to Failure/Root Cause F* | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 256 | AP241-VTP-V-401 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train B Pre-Filter☐Pressure Differential Indicator High Side Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Pressure Indication

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 257 | AP241-VTP-V-402 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train B Pre-filter☐Pressure Differential Indicator Low Side Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Pressure Indication

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 258 | AP241-VTP-V-403 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train B 1st HEPA Filter□Pressure Differential Indicator High Side Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Pressure Indication

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 259 | AP241-VTP-V-404 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train B 1st HEPA Filter□Pressure Differential Indicator Low Side Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Pressure Indication

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 260 | AP241-VTP-V-405 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train B 2nd HEPA Filter□Pressure Differential Indicator High Side Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Pressure Indication

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 261 | AP241-VTP-V-406 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train B 2nd HEPA Filter☐Pressure Differential Indicator Low Side Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Pressure Indication

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 262 | AP241-VTP-V-407 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train B Exhaust Fan☐Inlet Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 263 | AP241-VTP-V-408 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train B□Drain Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 264 | AP241-VTP-V-409 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Train B□Drain Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 265 | AP241-VTP-V-410 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
PDIT-329 High Side□Isolation Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Pressure Indication/Signal

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 266 | AP241-VTP-V-411 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
PDIT-329 Low Side□Isolation Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
*Loss of Pressure Indication/Signal*

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| *Run to Failure/Root Cause F* | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 267 | AP241-VTP-YYC-300 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| ALLEN-BRADLEY | Not Available |

**Component**
D/P Interlock System PLC

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**

**Failure Importance**
Major

**Failure Importance Justification**
Not critical to the operation of the Primary Exhaust System,does not result in shutdown of system upon failure

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 270 | AP271-VTP-FAL-509 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| BETA | Not Available |

**Component**
Stack Flow Alarm Low

**Failure Mode**
Loss of Output

**Failure Cause**
Internal Failure

**Effects**
Loss of Flow Monitoring

**Failure Importance**
Major

**Failure Importance Justification**
Failure of Stack Flow Alarm Low does not affect operation of stack sampling system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 271 | AP271-VTP-FAL-512B | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| BETA | Not Available |

**Component**
Stack CAM Sample Flow Alarm Low

**Failure Mode**
Loss of Output

**Failure Cause**
Internal Failure

**Effects**
Loss of Flow Monitoring

**Failure Importance**
Major

**Failure Importance Justification**
Failure of Stack CAM Flow Alarm Low does not affect operation of stack sampling system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 271 | AP271-VTP-FAL-512B | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| BETA | Not Available |

**Component**
Stack CAM Sample Flow Alarm Low

**Failure Mode**
Loss of Output

**Failure Cause**
Internal Failure

**Effects**
Loss of Flow Monitoring

**Failure Importance**
Major

**Failure Importance Justification**
Failure of Stack CAM Flow Alarm Low does not affect operation of stack sampling system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

***Periodicity Justification***

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 272 | AP271-VTP-FAL-522B | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| BETA | Not Available |

**Component**
Stack Record Sampler Flow Alarm Low

**Failure Mode**
Loss of Output

**Failure Cause**
Internal Failure

**Effects**
Loss of Flow Monitoring

**Failure Importance**
Major

**Failure Importance Justification**
Failure of Stack Record Sampler Flow Alarm Low does not affect operation of stack sampling system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 273 | AP271-VTP-FIT-509 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Sierra | Not Available |

**Component**
Stack Flow Indicating Transmitter

**Failure Mode**
Improper Sensing

**Failure Cause**
Internal Failure

**Effects**
Incorrect Alarm

**Failure Importance**
Major

**Failure Importance Justification**
Failure of Stack Flow transmitter does not affect operationof stack sampling system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Calibration Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Calibration Monitoring | Maintenance | TBA |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Value used to determine discharge to the environment

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TBA | TBA | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 274 | AP271-VTP-FIT-509 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Sierra | Not Available |

**Component**
Stack Flow Indicating Transmitter

**Failure Mode**
Improper Sensing

**Failure Cause**
Loss of Power

**Effects**
Incorrect Alarm

**Failure Importance**
Major

**Failure Importance Justification**
Failure of Stack Flow transmitter does not affect operationof stack sampling system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Performance Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitoring | Operations | Daily |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
Value used to determine discharge to the environment

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | TBA | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 275 | AP271-VTP-FSL-509 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| BAILEY CON | 744210AAAA |

**Component**
Stack Flow Switch Low

**Failure Mode**
Incorrect Control Signal

**Failure Cause**
Loss of Power

**Effects**
Incorrect Alarm

**Failure Importance**
Major

**Failure Importance Justification**
Failure of Stack Flow Switch does not affect operationof stack sampling system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Performance Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitoring | Operations | Daily |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 276 | AP271-VTP-FSL-509 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| BAILEY CON | 744210AAAA |

**Component**
Stack Flow Switch Low

**Failure Mode**
Incorrect Control Signal

**Failure Cause**
Internal Failure

**Effects**
Incorrect Alarm

**Failure Importance**
Major

**Failure Importance Justification**
Failure of Stack Flow Switch does not affect operationof stack sampling system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Calibration Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Calibration Monitoring | Maintenance | Annually |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-GENI-354 | EE-00654 | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 277 | AP271-VTP-LAH-140 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Seal Pot Level Alarm High

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of High Level Alarm

**Failure Importance**
Major

**Failure Importance Justification**
Seal Pot component not critcial to operation of Primary Exhaust System

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 278 | AP271-VTP-LAL-140 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Seal Pot Level Alarm Low

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Low Level Alarm

**Failure Importance**
Major

**Failure Importance Justification**
Seal Pot component not critcial to operation of Primary Exhaust System

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 279 | AP271-VTP-LDA-141 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Sump Leak Detection Alarm

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Leak Detection Alarm

**Failure Importance**
Major

**Failure Importance Justification**
Sump Leak Detection system is not interlocked to the Primary Exhaust Control System

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 280 | AP271-VTP-LDXA-141 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Sump Leak Detection System Failure Alarm

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Failure Alarm

**Failure Importance**
Major

**Failure Importance Justification**
Sump Leak Detection system is not interlocked to the Primary Exhaust Control System

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 281 | AP271-VTP-PDAH-145 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| | |

**Component**
De-entrainer Pressure Differential Alarm Train A

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of De-entrainer Pres Dif Monitoring for Train A

**Failure Importance**
Major

**Failure Importance Justification**
Deentrainer differential pressure alarm is not interlocked to the Primary Exhaust Control System

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 282 | AP271-VTP-PDAH-146 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| | |

**Component**
De-entrainer Pressure Differential Alarm Train B

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of De-entrainer Pres Dif Monitoring for Train B

**Failure Importance**
Major

**Failure Importance Justification**
Deentrainer differential pressure alarm is not interlocked to the Primary Exhaust Control System

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 283 | AP271-VTP-PDAH-322 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Prefilter dP Train A

**Failure Mode**
Loss of Output

**Failure Cause**
Internal Failure

**Effects**
Loss of Pre-Filter Pres Dif Monitoring

**Failure Importance**
Major

**Failure Importance Justification**
Pre-filter differential pressure signal Train A is not interlocked to the Primary Exhaust Control System

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 284 | AP271-VTP-PDAH-323 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| | |

**Component**
1st HEPA Filter A Press Dif Alarm High

**Failure Mode**
Loss of Output

**Failure Cause**
Internal Failure

**Effects**
Loss of HEPA Filter Pres Dif Monitoring

**Failure Importance**
Major

**Failure Importance Justification**
Loss of 1st HEPA Filter A Press Dif Alarm High does not affect performance of Primary Exhaust system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitoring, Fun | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 285 | AP271-VTP-PDAH-422 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Prefilter dP Train B

**Failure Mode**
Loss of Output

**Failure Cause**
Internal Failure

**Effects**
Loss of Pre-Filter Pres Dif Monitoring

**Failure Importance**
Major

**Failure Importance Justification**
Pre-filter differential pressure signal Train B is not interlocked to the Primary Exhaust Control System

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 286 | AP271-VTP-PDAH-423 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| | |

**Component**
1st HEPA Filter B Press Dif Alarm High

**Failure Mode**
Loss of Output

**Failure Cause**
Internal Failure

**Effects**
Loss of HEPA Filter Pres Differential Monitoring

**Failure Importance**
Major

**Failure Importance Justification**
Loss of 1st HEPA Filter A Press Dif Alarm High does not affect performance of Primary Exhaust system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitoring, Fun | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 287 | AP271-VTP-PDAL-400 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| | |

**Component**
Train A & B Low dP HEPA Filter Alarm

**Failure Mode**
Loss of Output

**Failure Cause**
Internal Failure

**Effects**
Loss of HEPA Filter Pres Differential Monitoring

**Failure Importance**
Major

**Failure Importance Justification**
Loss of Low HEPA Filter Train A & B Press Differential Alarm High does not affect performance of Primary Exhaust system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitoring, Fun | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 288 | AP271-VTP-RAH-510B | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| | |

**Component**
Stack CAM Sample Radiation Alarm High

**Failure Mode**
Loss of Output

**Failure Cause**
Internal Failure

**Effects**
Loss of Radiological Monitoring

**Failure Importance**
Major

**Failure Importance Justification**
Failure of Stack CAM Sample Radiation Alarm High does not effect the continued operation of the Primary Exhaust System

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Performance Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitoring, Fun | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 290 | AP271-VTP-TAHL-501B | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| BETA | |

**Component**
Cabinet Temperature Alarm

**Failure Mode**
Loss of Output

**Failure Cause**
Internal Failure

**Effects**
Loss of Temperature Alarm for Cabinet

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 291 | AP271-VTP-XA-325 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| | |

**Component**
Train A & B Exhaust Fans Failure Alarm

**Failure Mode**
Loss of Output

**Failure Cause**
Internal Failure

**Effects**
Loss of Alarm Capability

**Failure Importance**
Major

**Failure Importance Justification**
Failure of the Train A & B Exhaust Fans Failure Alarm does not directly affect the function of the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitoring | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 292 | AP271-VTP-XA-326 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Train A & B Exhaust Heater Failure Alarm

**Failure Mode**
Loss of Output

**Failure Cause**
Internal Failure

**Effects**
Loss of Alarm Capability

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 293 | AP271-VTP-XA-401 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| | |

**Component**
Train A & B dP Failure Alarm

**Failure Mode**
Loss of Output

**Failure Cause**
Internal Failure

**Effects**
Loss of HEPA Filter Pres Dif Monitoring

**Failure Importance**
Major

**Failure Importance Justification**
Failure of the Train A & B dP Failure Alarm does notdirectly affect the function of the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 294 | AP271-VTP-XA-510B | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| BETA | Not Available |

**Component**
Stack CAM Failure Alarm

**Failure Mode**
Loss of Output

**Failure Cause**
Internal Failure

**Effects**
Loss of CAM Monitoring

**Failure Importance**
Major

**Failure Importance Justification**
Failure of the Stack CAM Failure Alarm does not directly affect the function of the ventilation system

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 295 | AP271-VTP-YYC-300 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Allen-Bradley | Not Available |

**Component**
PLC dP Interlock System

**Failure Mode**
Incorrect Control Signal

**Failure Cause**
dPI PLC - Loss of Power

**Effects**
Trip Watchdog Interlock

**Failure Importance**
Critical

**Failure Importance Justification**
Frailure results in shutdown of Primary Exhaust System

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Functional Test | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test | Maintenance | Annually |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TF-FT-279-018 | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 296 | AP271-VTP-YYC-300 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Allen-Bradley | Not Available |

**Component**
PLC dP Interlock System

**Failure Mode**
Incorrect Control Signal

**Failure Cause**
PLC internal Failure

**Effects**
Trip Watchdog Interlock

**Failure Importance**
Critical

**Failure Importance Justification**
Frailure results in shutdown of Primary Exhaust System

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Functional Test | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test | Maintenance | Annually |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TF-FT-279-018 | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 297 | AP296-VTP-CAM-510 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Eberline | AMS-4 |

**Component**
Stack CAM

**Failure Mode**
Loss of Detection

**Failure Cause**
Loss of Power

**Effects**
Loss of Radiological Monitoring

**Failure Importance**
Critical

**Failure Importance Justification**
Frailure results in shutdown of Primary Exhaust System

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitoring | Operations | Daily |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 298 | AP296-VTP-CAM-510 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Eberline | AMS-4 |

**Component**
Stack CAM

**Failure Mode**
Loss of Detection

**Failure Cause**
Internal Failure

**Effects**
Loss of Radiological Monitorin

**Failure Importance**
Critical

**Failure Importance Justification**
Frailure results in shutdown of Primary Exhaust System

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Functional Test | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Functional Test | Maintenance | Quarterly |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| TF-FT-279-005 | ET-07152 | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 299 | AP296-VTP-CAM-510 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Eberline | AMS-4 |

**Component**
Stack CAM

**Failure Mode**
Loss of Detection

**Failure Cause**
Out of Calibration

**Effects**
Inaccurate Monitoring

**Failure Importance**
Critical

**Failure Importance Justification**
Frailure results in shutdown of Primary Exhaust System

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Calibration Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Calibration Monitoring | Maintenance | Annually |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | CD |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-RM-168 | ET-07351 | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 300 | AP296-VTP-ENCL-500 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Stack CAM☐Instrument Enclosure

**Failure Mode**
Structural Failure

**Failure Cause**
Weather and Aging

**Effects**
Loss of Equipment and Instrument Protection

**Failure Importance**
Major

**Failure Importance Justification**
Primary Exhaust Stack CAM Instrument Enclosure failure will not result in immediate failure of components

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 301 | AP296-VTP-F-506A | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
CAM Enclosure Cooling Fan

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Temperature Control

**Failure Importance**
Major

**Failure Importance Justification**
CAM Enclosure Cooling Fan failure will not result in an immediatefailure of critical system components contained within

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 302 | AP296-VTP-F-506B | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaut Stack CAM☐Instrument Enclosure

**Failure Mode**
Structural Failure

**Failure Cause**
Weather and Aging

**Effects**
Loss of Equipment and Instrument Protection

**Failure Importance**
Major

**Failure Importance Justification**
Primary Exhaut Stack CAM Instrument Enclosure is a structural system which will fail over a long period of time

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 303 | AP296-VTP-FAL-512A | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| Chemtech | Not Available |

**Component**
Stack CAM Sample Flow Alarm Low

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of CAM Monitoring

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 304 | AP296-VTP-FAL-522A | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Stack Record Sampler Flow Alarm Low

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Stack Record Sampler Flow Monitoring

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 305 | AP296-VTP-FAL-522A (Rel) | To Be Added, SEL being updated | | | | X | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Record Sampler Supply Line

**Failure Mode**
Line Fails

**Failure Cause**
Plugs

**Effects**
Fails to Take Accurate Sample

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitor | Operations | Daily |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 306 | AP296-VTP-FAL-522A (Rel) | To Be Added, SEL being updated | | | | X | |

| Mech | IC | Elect |
|---|---|---|
| X | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Record Sampler Supply Line

**Failure Mode**
Line Fails

**Failure Cause**
Leakage

**Effects**
Fails to Take Accurate Sample

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitor | Operations | Daily |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 307 | AP296-VTP-FCV-513 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| EBERLINE | RAP-1 |

**Component**
Stack CAM Sample Flow Control Valve

**Failure Mode**
Loss of Flow Control

**Failure Cause**
Internal Failure

**Effects**
Loss of Radiological Monitoring

**Failure Importance**
Critical

**Failure Importance Justification**
Affects Washington State Monitoring Emission Requirement

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitoring | Operations | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
Need Round Sheet Number

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | ? | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 308 | AP296-VTP-FCV-523 | To Be Added, SEL being updated | | | | X | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| EBERLINE | RAP-1 |

**Component**
Stack Record Sampler Flow Control Valve

**Failure Mode**
Loss of Flow Control

**Failure Cause**
Internal Failure

**Effects**
Improper Flow

**Failure Importance**
*Critical*

**Failure Importance Justification**
Affects Washington State Monitoring Emission Requirement

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitor | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitor | Operations | Daily |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Rep | |

**Recommendation/Comment**
Need Round Sheet Number

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | ? | | *LOHRASBI, J* |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 309 | AP296-VTP-FE-509 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Stack Flow Element Probe

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Improper Flow Indication

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 310 | AP296-VTP-FI-520 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| DWYER | RMC-103PF |

**Component**
Stack Record Sampler Flow Indicator

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Improper Flow Indication

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 311 | AP296-VTP-FIT-509 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| SIERRA | 600/L06/E3/20/PS/V4/DR |

**Component**
Stack Flow Indicating Transmitter

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Improper Flow Indication

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 312 | AP296-VTP-FLT-520 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Stack Flow Filter

**Failure Mode**
Loss of Function

**Failure Cause**
Plugging/Blow Through

**Effects**
Loss of Monitoring

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 313 | AP296-VTP-FQI-520 | To Be Added, SEL being updated | | | | X | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| HANFORD | Not Available |

**Component**
Stack Record Sampler Flow Totalizer

**Failure Mode**
Loss of Output

**Failure Cause**
Internal Failure

**Effects**
Incorrect Flow Total

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Performance Monitor | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Calibrate, Performance Monit | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Rep | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 314 | AP296-VTP-FSL-512 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| CHEMTECH | 500-B-BP |

**Component**
Stack CAM Sample Flow Switch Low

**Failure Mode**
Loss of Output

**Failure Cause**
Internal Failure

**Effects**
Loss of Flow Monitoring

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitoring | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 315 | AP296-VTP-FSL-512 | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| CHEMTECH | 500-B-BP |

**Component**
Stack CAM Sample Flow Switch Low

**Failure Mode**
Loss of Output

**Failure Cause**
Internal Failure

**Effects**
Loss of Flow Monitoring

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Calibration | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-FCD-077 | EE-00609 | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 316 | AP296-VTP-FSL-522 | To Be Added, SEL being updated | | | | X | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| CHEMTECH | 500-B-BP |

**Component**
Stack Record Sampler Flow Switch Low

**Failure Mode**
Loss of Output

**Failure Cause**
Internal Failure

**Effects**
Loss of Monitoring

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Performance Monitor | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitor | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Rep | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| 6-TF-077 | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos Temp | Emis | Disch |
|---|---|---|---|---|---|---|
| 317 | AP296-VTP-FTP-502 | To Be Added, SEL being updated | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Stack Flow Test Port

**Failure Mode**
Structural Failure

**Failure Cause**
Weather and Aging

**Effects**
Loss of Confinement

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 318 | AP296-VTP-FTP-503 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Stack Flow Test Port

**Failure Mode**
Structural Failure

**Failure Cause**
Weather and Aging

**Effects**
Loss of Confinement

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 319 | AP296-VTP-FTP-504 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Stack Flow Test Port

**Failure Mode**
Structural Failure

**Failure Cause**
Weather and Aging

**Effects**
Loss of Confinement

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 320 | AP296-VTP-FTP-505 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Stack Flow Test Port

**Failure Mode**
Structural Failure

**Failure Cause**
Weather and Aging

**Effects**
Loss of Confinement

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 321 | AP296-VTP-FTP-506 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Stack Flow Test Port

**Failure Mode**
Structural Failure

**Failure Cause**
Weather and Aging

**Effects**
Loss of Confinement

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 322 | AP296-VTP-HM-524 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Pump Run Time Hour Meter

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Improper Pump Time

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 323 | AP296-VTP-HTR-507 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Instrument Enclosure Heater

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Temperature Control

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 324 | AP296-VTP-P-514 | To Be Added, SEL being updated | | | | X | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| EBERLINE | Not Available |

**Component**
Stack Sample Pump, CAM

**Failure Mode**
Loss of Power

**Failure Cause**
Pump Stops

**Effects**
Fails to Take Accurate Sample

**Failure Importance**
Critical

**Failure Importance Justification**
Affects Washington State Monitoring Emission Requirement

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitor | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitor | Operations | Daily |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | |

**Recommendation/Comment**
HPT Round Sheets

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 325 | AP296-VTP-P-514 | To Be Added, SEL being updated | | | | X | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| EBERLINE | Not Available |

**Component**
Stack Sample Pump, CAM

**Failure Mode**
Pump Fails

**Failure Cause**
Internal Failure

**Effects**
Fails to Take Accurate Sample

**Failure Importance**
Critical

**Failure Importance Justification**
Affects Washington State Monitoring Emission Requirement

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitor | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitor | Operations | Daily |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Replace | |

**Recommendation/Comment**
HPT Round Sheet

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 326 | AP296-VTP-P-524 | To Be Added, SEL being updated | | | | X | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| EBERLINE | Not Available |

**Component**
Stack Sample Pump, Record Sampler

**Failure Mode**
Loss of Power

**Failure Cause**
Pump Stops

**Effects**
Fails to Take Accurate Sample

**Failure Importance**
Critical

**Failure Importance Justification**
Affects Washington State Monitoring Emission Requirement

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitor | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitor | Operations | Daily |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Repair/Replace | |

**Recommendation/Comment**
HPT Round Sheet

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 327 | AP296-VTP-P-524 | To Be Added, SEL being updated | | | | X | |

| Mech | IC | Elect |
|---|---|---|
| | | X |

| MFG | Model No |
|---|---|
| EBERLINE | Not Available |

**Component**
Stack Sample Pump, Record Sampler

**Failure Mode**
Pump Fails

**Failure Cause**
Internal Failure

**Effects**
Fails to Take Accurate Sample

**Failure Importance**
Critical

**Failure Importance Justification**
Affects Washington State Monitoring Emission Requirement

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitor | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitor | Operations | Daily |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| Replace | |

**Recommendation/Comment**
HPT Round Sheet

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 328 | AP296-VTP-PI-511 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| MARSH | J4805 |

**Component**
Stack CAM Sample Pump Line Pressure Indicator

**Failure Mode**
Loss of Function/Indication

**Failure Cause**
Internal Failure

**Effects**
Improper Pressure Indication

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 329 | AP296-VTP-PI-521 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| ASHCROFT | 2DP |

**Component**
Stack Record Sample Pump Line Press Indicator

**Failure Mode**
Loss of Function/Indication

**Failure Cause**
Internal Failure

**Effects**
Improper Pressure Indication

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 330 | AP296-VTP-RAH-510A | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| | |

**Component**
Stack CAM Sample Radiation Alarm High

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of CAM Monitoring

**Failure Importance**
Critical

**Failure Importance Justification**
Affects Washington State Monitoring Emission Requirement

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| X | | | Performance Monitoring | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitoring, Fun | Maintenance | Quarterly |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 331 | AP296-VTP-TAHL-501A | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Enclosure Temperature Alarms

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Temperature Monitoring

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 332 | AP296-VTP-TS-506 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Insturment Enclosure Fan Temperature Switch

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Temperature Control

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 333 | AP296-VTP-TS-507 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Insturment Enclosure Heater Temperature Switch

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Temperature Control

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 334 | AP296-VTP-TSH-501 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
CAM Enclosure Temperature Switch High

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Temperature Control

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 335 | AP296-VTP-TSL-501 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
CAM Enclosure Temperature Switch Low

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of Temperature Control

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 336 | AP296-VTP-XA-510A | To Be Added, SEL being updated | X | X | X | | |

| Mech | IC | Elect |
|---|---|---|
| | X | |

| MFG | Model No |
|---|---|
| | |

**Component**
Stack CAM Failure Alarm

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of CAM Monitoring

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Performance Monitoring, Fun | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 337 | AP901-VTP-FTP-101 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 101 Outlet☐Flow Test Port

**Failure Mode**
Structural Failure

**Failure Cause**
Weather and Aging

**Effects**
Loss of Confinement

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 338 | AP901-VTP-FTP-103 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 103 Outlet☐Flow Test Port

**Failure Mode**
Structural Failure

**Failure Cause**
Weather and Aging

**Effects**
Loss of Confinement

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 339 | AP901-VTP-PI-102 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| MAGNEHELIC | 2320-LT |

**Component**
Primary Exhaust Tank 102 Outlet□Pressure Indicator

**Failure Mode**
Loss of Function/Indication

**Failure Cause**
Internal Failure

**Effects**
Improper Pressure Indication

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 340 | AP901-VTP-PI-104 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| MAGNEHELIC | 2320-LT |

**Component**
Primary Exhaust Tank 104 Outlet□Pressure Indicator

**Failure Mode**
Loss of Function/Indication

**Failure Cause**
Internal Failure

**Effects**
Improper Pressure Indication

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 341 | AP901-VTP-V-101 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 101 Outlet□Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of air flow from tank

**Failure Importance**
Major

**Failure Importance Justification**
Failure of Waste Tank Outlet valve resulting in loss of flow from tankis of low frequency

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 342 | AP901-VTP-V-103 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 103 Outlet□Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of air flow from tank

**Failure Importance**
Major

**Failure Importance Justification**
Failure of Waste Tank Outlet valve resulting in loss of flow from tankis of low frequency

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 343 | AP901-VTP-V-112 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 102 Outlet□Pressure Indicator Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of pressure indication

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 344 | AP901-VTP-V-114 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 104 Outlet☐Pressure Indicator Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of pressure indication

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 345 | AP902-VTP-FTP-102 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 102 Outlet☐Flow Test Port

**Failure Mode**
Structural Failure

**Failure Cause**
Weather and Aging

**Effects**
Loss of Confinement

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 346 | AP902-VTP-FTP-104 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 104 Outlet☐Flow Test Port

**Failure Mode**
Structural Failure

**Failure Cause**
Weather and Aging

**Effects**
Loss of Confinement

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 347 | AP902-VTP-PI-101 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| MAGNEHELIC | 2320-LT |

**Component**
Primary Exhaust Tank 101 Outlet□Pressure Indicator

**Failure Mode**
Loss of Function/Indication

**Failure Cause**
Internal Failure

**Effects**
Improper Pressure Indication

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 348 | AP902-VTP-PI-103 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| MAGNEHELIC | 2320-LT |

**Component**
Primary Exhaust Tank 103 Outlet☐Pressure Indicator

**Failure Mode**
Loss of Function/Indication

**Failure Cause**
Internal Failure

**Effects**
Improper Pressure Indication

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 349 | AP902-VTP-V-102 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 102 Outlet☐Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of air flow from tank

**Failure Importance**
Major

**Failure Importance Justification**
Failure of Waste Tank Outlet valve resulting in loss of flow from tankis of low frequency

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 350 | AP902-VTP-V-104 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 104 Outlet☐Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of air flow from tank

**Failure Importance**
Major

**Failure Importance Justification**
Failure of Waste Tank Outlet valve resulting in loss of flow from tankis of low frequency

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 351 | AP902-VTP-V-111 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 101 Outlet☐Pressure Indicator Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of pressure indication

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 352 | AP902-VTP-V-113 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 103 Outlet□Pressure Indicator Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of pressure indication

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 353 | AP903-VTP-FTP-105 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 105 Outlet
Flow Test Port

**Failure Mode**
Structural Failure

**Failure Cause**
Weather and Aging

**Effects**
Loss of Confinement

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 354 | AP903-VTP-FTP-107 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 107 Outlet
Flow Test Port

**Failure Mode**
Structural Failure

**Failure Cause**
Weather and Aging

**Effects**
Loss of Confinement

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 355 | AP903-VTP-PI-105 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| MAGNEHELIC | 2320-LT |

**Component**
Primary Exhaust Tank 105 Outlet Pressure Indicator

**Failure Mode**
Loss of Function/Indication

**Failure Cause**
Internal Failure

**Effects**
Improper Pressure Indication

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 356 | AP903-VTP-PI-107 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| MAGNEHELIC | 2320-LT |

**Component**
Primary Exhaust Tank 107 Outlet Pressure Indicator

**Failure Mode**
*Loss of Function/Indication*

**Failure Cause**
Internal Failure

**Effects**
Improper Pressure Indication

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 357 | AP903-VTP-V-105 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 105 Outlet Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of air flow from tank

**Failure Importance**
Major

**Failure Importance Justification**
Failure of Waste Tank Outlet valve resulting in loss of flow from tankis of low frequency

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 358 | AP903-VTP-V-107 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 107 Outlet Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of air flow from tank

**Failure Importance**
Major

**Failure Importance Justification**
Failure of Waste Tank Outlet valve resulting in loss of flow from tankis of low frequency

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 359 | AP903-VTP-V-115 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 105 Outlet Pressure Indicator Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of pressure indication

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 360 | AP903-VTP-V-117 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 107 Outlet Pressure Indicator Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of pressure indication

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 361 | AP904-VTP-FTP-106 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 106 Outlet
Flow Test Port

**Failure Mode**
Structural Failure

**Failure Cause**
Weather and Aging

**Effects**
Loss of Confinement

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 362 | AP904-VTP-FTP-108 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 108 Outlet
Flow Test Port

**Failure Mode**
Structural Failure

**Failure Cause**
Weather and Aging

**Effects**
Loss of Confinement

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 363 | AP904-VTP-PI-106 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| MAGNEHELIC | 2320-LT |

**Component**
Primary Exhaust Tank 106 Outlet Pressure Indicator

**Failure Mode**
Loss of Function/Indication

**Failure Cause**
Internal Failure

**Effects**
Improper Pressure Indication

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 364 | AP904-VTP-PI-108 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| MAGNEHELIC | 2320-LT |

**Component**
Primary Exhaust Tank 108 Outlet Pressure Indicator

**Failure Mode**
Loss of Function/Indication

**Failure Cause**
Internal Failure

**Effects**
Improper Pressure Indication

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | LOHRASBI, J |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 365 | AP904-VTP-V-106 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 106 Outlet Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of air flow from tank

**Failure Importance**
Major

**Failure Importance Justification**
Failure of Waste Tank Outlet valve resulting in loss of flow from tankis of low frequency

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 366 | AP904-VTP-V-108 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 108 Outlet Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of air flow from tank

**Failure Importance**
Major

**Failure Importance Justification**
Failure of Waste Tank Outlet valve resulting in loss of flow from tankis of low frequency

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 367 | AP904-VTP-V-116 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 106 Outlet Pressure Indicator Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of pressure indication

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

| ID | EIN | Safety Classification | Contam | Atmos | Temp | Emis | Disch |
|---|---|---|---|---|---|---|---|
| 368 | AP904-VTP-V-118 | To Be Added, SEL being updated | | | | | |

| Mech | IC | Elect |
|---|---|---|
| | | |

| MFG | Model No |
|---|---|
| | |

**Component**
Primary Exhaust Tank 108 Outlet Pressure Indicator Valve

**Failure Mode**
Loss of Function

**Failure Cause**
Internal Failure

**Effects**
Loss of pressure indication

**Failure Importance**
Major

**Failure Importance Justification**
Does not directly affect the function of the ventilation system orcritical monitoring functions

| CM | TD | FF | Monitoring Method | Selected |
|---|---|---|---|---|
| | | | Not Applicable | |

| Maintenance Task | Who | Periodicity |
|---|---|---|
| Run to Failure/Root Cause F | | |

**Periodicity Justification**

| Maint Action | Activity Type |
|---|---|
| | |

**Recommendation/Comment**
No Comments

| Maint Procedure No | Data Sheet No | Round Sheet No | Radcon Round Sheet No | System Engineer |
|---|---|---|---|---|
| | | | | EVERETT, BK |

# APPENDIX B

# HIGH-EFFICIENCY PARTICULATE AIR (HEPA) FILTER SURVEYS

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| | | | | | |
|---|---|---|---|---|---|
| **AZ-702 Ventilation System** | | | | | |
| (Dates converted to Excel format) | | 36090 | | | |
| (JCS Number) | | **2E-98-01791** | **2E-98-02428/P** | **2E-99-00200/P** | **2E-99-1269/P** |
| **AZ-702 EXHAUSTER** | | 10/22/98 | 12/30/98 | 3/15/99 | 8/18/99 |
| AZ-K1-4-2B | 2ND HEPA FILTER B TRN | <0.5 | <0.5 | <0.5 | <0.5 |
| AZ-K1-4-1A | 1ST HEPA FILTER A TRN | <0.5 | <0.5 | <0.5 | <0.5 |
| AZ-K1-4-1B | 1ST HEPA FILTER B TRN | <0.5 | <0.5 | <0.5 | <0.5 |
| AZ-K1-4-2A | 2ND HEPA FILTER A TRN | <0.5 | <0.5 | <0.5 | <0.5 |
| AZ-K1-10-1A | HEGA A TRN | <0.5 | <0.5 | <0.5 | <0.5 |
| AZ-K1-10-1B | HEGA B TRN | <0.5 | <0.5 | <0.5 | <0.5 |
| | | | | | |
| "Radcon" indicates data from HEPA Filter Data Sheets. | | | | | |
| | | | | | |
| | | 36681 | | | |
| **RadCon** | **2E-99-01816/P** | **RadCon** | | | |
| 3/28/00 | 5/9/00 | 6/4/00 | | | |
| <0.5 | <0.5 | <0.5 | | | |
| <0.5 | <0.5 | <0.5 | | | |
| <0.5 | <0.5 | <0.5 | | | |
| <0.5 | <0.5 | <0.5 | | | |
| <0.5 | <0.5 | <0.5 | | | |
| <0.5 | <0.5 | <0.5 | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| C-106 Sluicing was conducted beginning in November 1998 and completing in October 1999. | | | | | |
| Kelly Carothers told me that the C-006 exhauster was run during actual sluicing operations. | | | | | |
| The P-16 exhauster was run when sluicing was not going on. | | | | | |
| | | | | | |
| **C-006** | | | | | |
| **C-006 HEPA's** | | **Dec-98** | **Mar-99** | **Jul-99** | **Sep-99** |
| | | | | | |
| HEP-1361 | (1st HEPA) | <0.5 | <0.5 | <0.5 | <0.5 |
| HEP-1362 | (1st HEPA) | <0.5 | <0.5 | <0.5 | <0.5 |
| | | | | | **No detectable buildup.** |

| | | | | | |
|---|---|---|---|---|---|
| **C-106 P-16 Before Sluicing** | | | | | |
| **Before Sluicing** | | | | | |
| | | | 35810 | 35901 | 36003 |
| | | **2E-97-01864/P** | **2E-97-02348/P** | **2E-98-00650/P** | **2E-98-01115/P** |
| **C-106 P-16** | | 10/23/97 | 1/15/98 | 4/16/98 | 7/27/98 |
| P-16-FLT-105 | C-105 Inlet Filter | 1.2 | <0.5 | 0.8 | 1 |
| P-16-FLT-106 | C-106 Inlet Filter | <0.5 | <0.5 | <0.5 | <0.5 |
| P-16-FLT-105/106 | BNK 1 EAST | Blank | 65 | 70 | 70 |
| P-16-FLT-105/106 | BNK 1 WEST | Blank | 40 | 70 | 70 |
| P-16-FLT-105/106 | BNK 2 EAST | | | | |
| P-16-FLT-105/106 | BNK 2 WEST | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36090 | | | | | |
| **2E-98-01791** | | | | | |
| 10/22/98 | | | | | |
| 20 | | | | | |
| <0.5 | | | | | |
| 70 | | | | | |
| 70 | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| **C-106 P-16 During Sluicing** | | | | | |
| **C-106 P-16** | | | | | |
| | | 36159 | 36234 | 36390 | 36655 |
| | | **2E-98-02428/P** | **2E-99-00200/P** | **2E-99-1269/P** | **2E-99-01816/P** |
| | | 12/30/98 | 3/15/99 | 8/18/99 | 5/9/00 |
| P-16-FLT-105 | C-105 Inlet Filter | 0.8 | 10 | 0.5 | 0.9 |
| P-16-FLT-106 | C-106 Inlet Filter | <0.5 | 50 | <0.5 | <0.5 |
| P-16-FLT-105/106 | BNK 1 EAST | 30 | 35 | 35 | 30 |
| P-16-FLT-105/106 | BNK 1 WEST | 45 | 50 | 50 | 45 |
| P-16-FLT-105/106 | BNK 2 EAST | 20 | 20 | 20 | 20 |
| P-16-FLT-105/106 | BNK 2 WEST | 25 | 23 | 20 | 30 |
| | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **AW Farm** | | | | | |
| | (Dates converted to Excel format) | 35726 | 35810 | 35901 | 36003 |
| | (JCS Number) | **2E-97-01864/P** | **2E-97-02348/P** | **2E-98-00650/P** | **2E-98-01115/P** |
| **241-AW** | | **10/23/97** | **1/15/98** | **4/16/98** | **7/27/98** |
| AW241-VTP-FLT-302 | PRI EXH A TRN 1ST HEPA FILTER | 30 | 28 | 28 | 25 |
| AW241-VTP-FLT-402 | PRI EXH B TRN 1ST HEPA FILTER | 70 | 70 | 70 | 70 |
| AW241-VTP-FLT-303 | PRI EXH A TRN 2ND HEPA FILTER | 5 | 6 | 5 | 7 |
| AW241-VTP-FLT-403 | PRI EXH B TRN 2ND HEPA FILTER | 5 | 6 | 5 | 6 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36090 | 36159 | 36234 | 36390 | 36655 | |
| **2E-98-01791** | **2E-98-02428/P** | **2E-99-00200/P** | **2E-99-1269/P** | **2E-99-01816/P** | |
| **10/22/98** | **12/30/98** | **3/15/99** | **8/18/99** | **5/9/00** | |
| 26 | 25 | 30 | 32 | 46 | |
| 70 | 70 | 80 | 70 | 80 | |
| 4.2 | 5 | 6 | 10 | 12 | |
| 5 | 8 | 10 | 10 | 14 | |
| | | | | | |
| | | | | | |
| | | | | | |
| **AP Farm** | | | | | |
| | (Dates converted to Excel format) | 35726 | 35810 | 35901 | 36003 |
| | (JCS Number) | **2E-97-01864/P** | **2E-97-02348/P** | **2E-98-00650/P** | **2E-98-01115/P** |
| **241-AP** | | **10/23/97** | **1/15/98** | **4/16/98** | **7/27/98** |
| AP241-VTP-FLT-302 | PRI EXH A TRN 1ST HEPA FILTER | 15 | 16 | 17 | 14 |
| AP241-VTP-FLT-402 | PRI EXH B TRN 1ST HEPA FILTER | 12 | 13 | 14 | 12 |
| AP241-VTP-FLT-303 | PRI EXH A TRN 2ND HEPA FILTER | 12 | 1.2 | 1.3 | 1.2 |
| AP241-VTP-FLT-403 | PRI EXH B TRN 2ND HEPA FILTER | 8 | 1 | 1 | 1 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36090 | 36159 | 36234 | 36390 | 36655 | |
| **2E-98-01791** | **2E-98-02428/P** | **2E-99-00200/P** | **2E-99-1269/P** | **2E-99-01816/P** | |
| **10/22/98** | **12/30/98** | **3/15/99** | **8/18/99** | **5/9/00** | |
| 15 | 15 | 20 | 31 | 35 | |
| 13 | 14 | 15 | 24 | 27 | |
| 1.3 | 1.4 | 2 | 3.5 | 4 | |
| 1 | 1.2 | 2 | 3 | 3 | |

| AN Farm | | | | | |
|---|---|---|---|---|---|
| | | 35726 | 35810 | 35901 | 36003 |
| | (JCS Number) | 2E-97-01864/P | 2E-97-02348/P | 2E-98-00650/P | 2E-98-01115/P |
| 241-AN | | 10/23/97 | 1/15/98 | 4/16/98 | 7/27/98 |
| AN241-VTP-FLT-302 | PRI EXH A TRN 1ST HEPA FILTER | | | 4.2 | 4.2 |
| AN241-VTP-FLT-402 | PRI EXH B TRN 1ST HEPA FILTER | | | 2.2 | 2 |
| AN241-VTP-FLT-303 | PRI EXH A TRN 2ND HEPA FILTER | | | 7 | 5 |
| AN241-VTP-FLT-403 | PRI EXH B TRN 2ND HEPA FILTER | | | 5 | 2.5 |
| | | | | | |
| | | All data are "Hi Scan" values in mr/hr. | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36090 | 36159 | 36234 | 36390 | 36655 | |
| 2E-98-01791 | 2E-98-02428/P | 2E-99-00200/P | 2E-99-1269/P | 2E-99-01816/P | |
| 10/22/98 | 12/30/98 | 3/15/99 | 8/18/99 | 5/9/00 | |
| 6 | 4 | 4 | 3.8 | 3.7 | |
| 2.6 | 2 | 2 | 2 | 2 | |
| <0.5 | <0.5 | 0.5 | 0.5 | 0.5 | |
| <0.5 | <0.5 | <0.5 | <0.5 | 0.5 | |
| Limiting Case | 0 | | | 0.5 | |

| A-702 (296-A-17) and Backup (296-P-26) | | | | | |
|---|---|---|---|---|---|
| | | Date converted to Excel format | 35726 | 35810 | 35901 |
| | | Job Work Pkg. Number | **2E-97-01864/P** | **2E-97-02348/P** | **2E-98-00650/P** |
| | **A 702 (296-A-17) and Backup (296-P-26)** | | 10/23/97 | 1/15/98 | 4/16/98 |
| (A-702 BKUP) | P-26-EXH-FLT-1 | BACKUP, TWO READINGS ON BOX | 50 | 48 | 48 |
| (A-702 BKUP) | P-26-EXH-FLT-2 | BACKUP, TWO READINGS ON BOX | 50 | 48 | 48 |
| (A-702) | A-17-FLT-BK-1 | ONE OF SIX PARALLEL FILTERS | 2.5 | 2.5 | 2.5 |
| (A-702) | A-17-FLT-BK-2 | ONE OF SIX PARALLEL FILTERS | 2 | 2.2 | 2.2 |
| (A-702) | A-17-FLT-BK-3 | ONE OF SIX PARALLEL FILTERS | 1.4 | 1.6 | 1.2 |
| (A-702) | A-17-FLT-BK-4 | ONE OF SIX PARALLEL FILTERS | 1 | 1.2 | 1.2 |
| (A-702) | A-17-FLT-BK-5 | ONE OF SIX PARALLEL FILTERS | 1.4 | 1.4 | 1.4 |
| (A-702) | A-17-FLT-BK-6 | ONE OF SIX PARALLEL FILTERS | 1 | 1.2 | 1.3 |
| | | | | | |
| | | | | | |
| | | | | | |
| 36003 | | | | | |
| **2E-98-01115/P** | | | | | |
| 7/27/98 | | | | | |
| 48 | | | | | |
| 48 | | | | | |
| 2.2 | | | | | |
| 2 | | | | | |
| 1.7 | | | | | |
| 1.5 | | | | | |
| 1.2 | | | | | |
| 1.2 | | | | | |

| SY Farm (P-23) | | | | | |
|---|---|---|---|---|---|
| | | 36353 | 36367 | 36388 | 36395 |
| **SY-101 (P-23)** | | **7/12/1999 RadCon** | **7/26/99 RadCon** | **8/16/1999 RadCon** | **8/23/1999 RadCon** |
| Exh. SY-2 | N End of 1st HEPA (Face of Prefilter) | 30 | 30 | 35 | 34 |
| Exh. SY-3 | E Side of 1st HEPA (1st HEPA) | 22 | 25 | 32 | 33 |
| | | | | | |
| 241-SY K1-4-1 TK EXH FLT K1-3-1 | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36409 | 36479 | 36493 | 36507 | 36521 | 36528 |
| **9/6/1999 RadCon** | **11/15/1999 RadCon** | **11/29/1999 RadCon** | **12/13/1999 RadCon** | **12/27/2000 RadCon** | **1/3/2000 RadCon** |
| 35 | 35 | 37 | 37 | 35 | 34 |
| 35 | 14 | 15 | 15 | 15 | 16 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36542 | 36556 | 36556 | 36598 | 36598 | 36626 |
| **1/17/2000 RadCon** | **1/31/2000 RadCon** | **1/31/2000 RadCon** | **3/13/2000 RadCon** | **3/13/2000 RadCon** | **4/10/2000 RadCon** |
| 34 | 26 | 26 | 34 | 29 | 32 |
| 18 | 12 | 12 | 18 | 17 | 20 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36640 | 36668 | 36682 | 36724 | 36738 | 36752 |
| **4/24/2000 RadCon** | **5/22/2000 RadCon** | **6/5/2000 RadCon** | **7/17/2000 RadCon** | **7/31/2000 RadCon** | **8/14/2000 RadCon** |
| 29 | 34 | 38 | 37 | 45 | 55 |
| 20 | 24 | 27 | 32 | 42 | 55 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36766 | | | | | |
| **8/28/2000 RadCon** | | | | | |
| 50 | | | | | |
| 60 | | | | | |
| | | | | | |

| SY Farm (P-23) | | | | | |
|---|---|---|---|---|---|
| | | 36353 | 36367 | 36388 | 36395 |
| **SY-101 (P-23)** | | **7/12/1999 RadCon** | **7/26/99 RadCon** | **8/16/1999 RadCon** | **8/23/1999 RadCon** |
| Exh. SY-6 | W Side of 1st HEPA (1st HEPA) | 30 | 30 | 38 | 37 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36409 | 36479 | 36493 | 36507 | 36521 | 36528 |
| **9/6/1999 RadCon** | **11/15/1999 RadCon** | **11/29/1999 RadCon** | **12/13/1999 RadCon** | **12/27/2000 RadCon** | **1/3/2000 RadCon** |
| 43 | 33 | 33 | 35 | 31 | 32 |
| | | | | | |
| | | | | | |
| | | | | | |
| 36542 | 36556 | 36556 | 36598 | 36598 | 36640 |
| ***1/17/2000 RadCon*** | ***1/31/2000 RadCon*** | ***1/31/2000 RadCon*** | ***3/13/2000 RadCon*** | ***3/13/2000 RadCon*** | ***4/24/2000 RadCon*** |
| 37 | 25 | 25 | 37 | 30 | 36 |
| | | | | | |
| | | | | | |
| | | | | | |
| 36668 | 36682 | 36724 | 36738 | 36752 | 36766 |
| **5/22/2000 RadCon** | **6/5/2000 RadCon** | **7/17/2000 RadCon** | **7/31/2000 RadCon** | **8/14/2000 RadCon** | **8/28/2000 RadCon** |
| 43 | 60 | 60 | 70 | 70 | 80 |

| | | | | | |
|---|---|---|---|---|---|
| **SY Farm (P-23)** | | | | | |
| | | Date converted to Excel format. | | 36000 | 36087 |
| | | | | **7/24/98** | **10/19/98** |
| ***241-SY (P-23)*** | | JCS Work Pkg. *Number* | | **2W-98-01106/P 2W-98-01219/P** | **2W-98-01414/P** |
| Exh. SY-4 | E Side of 2nd HEPA (2nd HEPA) | | | | |
| Exh. SY-5 | W Side of 2nd HEPA (2nd HEPA) | | | | |
| Exh. SY-1 | Rockstopper On The Inlet | | | 65 | 65 |
| | | | | | |
| | | | | | |
| | | | | | |
| 36112 | 36353 | 36367 | 36388 | 36395 | 36409 |
| **11/13/98** | **7/12/1999 RadCon** | **7/26/99 RadCon** | **8/16/1999 RadCon** | **8/23/1999 RadCon** | **9/6/1999 RadCon** |
| **2W-98-01543/P** | | | | | |
| | 12 | 15 | 14 | 13 | 15 |
| | 12 | 15 | 14 | 13 | 15 |
| 25 | 60 | 55 | 110 | 110 | 100 |
| | | | | | |
| | | | | | |
| | | | | | |
| 36451 | 36465 | 36479 | 36493 | 36507 | 36521 |
| **10/18/1999 RadCon** | **11/1/1999 RadCon** | **11/15/1999 RadCon** | **11/29/1999 RadCon** | **12/13/1999 RadCon** | **12/27/1999 RadCon** |
| | | | | | |
| 15 | 17 | 8 | 10 | 8 | 9 |
| 16 | 17 | 10 | 11 | 1 | 10 |
| N/A | N/A | N/A | N/A | N/A | 25 |
| | | | | | |
| | | | | | |
| | | | | | |
| 36528 | 36542 | 36556 | 36598 | 36598 | 36626 |
| **1/3/2000 RadCon** | **1/17/2000 RadCon** | **1/31/2000 RadCon** | **3/13/2000 RadCon** | **3/13/2000 RadCon** | **4/10/2000 RadCon** |
| | | | | | |
| 8 | 13 | 6 | 13 | 9 | 10 |
| 11 | 13 | 8 | 13 | 11 | 10 |
| HRA | | HRA | N/A | HRA | N/A |
| | | | | | |
| | | | | | |
| | | | | | |
| 36640 | 36668 | 36682 | 36724 | 36738 | 36762 |
| **4/24/2000 RadCon** | **5/22/2000 RadCon** | **6/5/2000 RadCon** | **7/17/2000 RadCon** | **7/31/2000 RadCon** | **8/14/2000 RadCon** |
| | | | | | |
| 10 | 10 | 12 | 13 | 16 | 21 |
| 11 | 13 | 16 | 17 | 19 | 21 |
| HRA | N/A | 60 | N/A | N/A | 80 |
| | | | | | |
| | | | | | |
| | | | | | |
| 36766 | | | | | |
| **8/28/2000 RadCon** | | | | | |
| | | | | | |
| 22 | | | | | |
| 24 | | | | | |
| N/A | | | | | |

| SY Farm (P-28) | | | | | |
|---|---|---|---|---|---|
| | 36388 | 36409 | 36437 | 36465 | 36479 |
| | **8/16/1999 RadCon** | **9/6/1999 RadCon** | **10/4/1999 RadCon** | **11/1/1999 RadCon** | **11/15/1999 RadCon** |
| **P-28** | | | | | |
| Exh. #3 (North Side of Duct) | 0.6 | 0.5 | 0.6 | 1.5 | 1.8 |
| (1st HEPA) | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36493 | 36507 | 36521 | 36528 | 36542 | 36556 |
| **11/29/1999 RadCon** | **12/13/1999 RadCon** | **12/27/1999 RadCon** | **1/3/2000 RadCon** | **1/17/2000 RadCon** | **1/31/2000 RadCon** |
| | | | | | |
| 1.8 | 1.7 | 1.5 | 1.7 | 1.5 | 1.6 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36598 | 36598 | 36598 | 36626 | 36640 | 36668 |
| **3/13/2000 RadCon** | **3/13/2000 RadCon** | **3/13/2000 RadCon** | **4/10/2000 RadCon** | **4/24/2000 RadCon** | **5/22/2000 RadCon** |
| | | | | | |
| 1.5 | 2.2 | 2.2 | 2.5 | 2.2 | 2.4 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36682 | 36724 | 36738 | 36752 | 36766 | |
| **6/5/2000 RadCon** | **7/17/2000 RadCon** | **7/31/2000 RadCon** | **8/14/2000 RadCon** | **8/28/2000 RadCon** | |
| | | | | | |
| 2.2 | 2.8 | 2.8 | 2.6 | 3 | |
| | | | | | |

| SY Farm (P-28) | | | | | |
|---|---|---|---|---|---|
| | 36353 | 36367 | 36388 | 36395 | 36409 |
| | **7/12/1999 RadCon** | **7/26/99 RadCon** | **8/16/1999 RadCon** | **8/23/1999 RadCon** | **9/6/1999 RadCon** |
| **P-28** | | | | | |
| Exh. #4 (W Side of Duct Near End) | 1 | 1 | 1.2 | 1.5 | 1.2 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36437 | 36451 | 36465 | 36479 | 36493 | 36507 |
| **10/4/1999 RadCon** | **10/18/1999 RadCon** | **11/1/1999 RadCon** | **11/15/1999 RadCon** | **11/29/1999 RadCon** | **12/13/1999 RadCon** |
| | | | | | |
| 1.4 | 1.3 | 1.6 | 1.6 | 1.9 | 1.8 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36521 | 36528 | 36528 | 36542 | 36556 | 36598 |
| **12/27/2000 RadCon** | **1/3/2000 RadCon** | **1/3/2000 RadCon** | **1/17/2000 RadCon** | **1/31/2000 RadCon** | **3/13/2000 RadCon** |
| | | | | | |
| 1.3 | 1.3 | 1.3 | 1.5 | 1.4 | 1.5 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36598 | 36626 | 36640 | 36668 | 36682 | 36724 |
| **3/13/2000 RadCon** | **4/10/2000 RadCon** | **4/24/2000 RadCon** | **5/22/2000 RadCon** | **6/5/2000 RadCon** | **7/17/2000 RadCon** |
| | | | | | |
| 1.4 | 1.8 | 1.7 | 2 | 1.7 | 2.7 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36738 | 36752 | 36766 | | | |
| **7/31/2000 RadCon** | **8/14/2000 RadCon** | **8/28/2000 RadCon** | | | |
| | | | | | |
| 2.9 | 2.7 | 3.1 | | | |

| | | | | | |
|---|---|---|---|---|---|
| **244-A DCRT** | | | | | |
| | | 36003 | 36090 | 36159 | 36390 |
| | | **2E-98-01115/P** | **2E-98-01791** | **2E-98-02428/P** | **2E-99-1269/P** |
| | | 7/27/98 | 10/22/98 | 12/30/98 | 8/18/99 |
| **244A LIFT STATION** | | | | | |
| K1-3-3 | 244A DCRT EXH FLT BK/EAST BANK | 10 | 6.5 | 10 | 12 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36655 | | | | | |
| **2E-99-01816/P** | | | | | |
| 5/9/00 | | | | | |
| | | | | | |
| 20 | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **244-A DCRT** | | | | | |
| | | 36003 | 36090 | 36159 | 36234 |
| | | **2E-98-01115/P** | **2E-98-01791** | **2E-98-02428/P** | **2E-99-00200/P** |
| | | 7/27/98 | 10/22/98 | 12/30/98 | 3/15/99 |
| **244A LIFT STATION** | | | | | |
| K1-3-2 | 244A DCRT EXH FLT BK/WEST BANK | 10 | 15 | 14 | 20 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36390 | 36655 | | | | |
| **2E-99-1269/P** | **2E-99-01816/P** | | | | |
| 8/18/99 | 5/9/00 | | | | |
| | | | | | |
| 12 | 20 | | | | |

| 244-CR Vault | | | | | |
|---|---|---|---|---|---|
| | | 35901 | 36003 | 36159 | 36234 |
| | | **2E-98-00650/P** | **2E-98-01115/P** | **2E-98-02428/P** | **2E-99-00200/P** |
| | | 4/16/98 | 7/27/98 | 12/30/98 | 3/15/99 |
| **244CR VAULT** | | | | (mr/hr) | |
| C-5-EXH-FLT-1 | *244CR VAULT EXH* FLT 1 (ONE TRAIN) | 40 | 10 | 80 | 80 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36390 | 36655 | | | | |
| **2E-99-1269/P** | **2E-99-01816/P** | | | | |
| 8/18/99 | 5/9/00 | | | | |
| | | | | | |
| 40 | 50 | | | | |

| 244-CR Vault | | | | | |
|---|---|---|---|---|---|
| | | 2E-98-00650/P | 2E-98-01115/P | 2E-98-01791 | 2E-98-02428/P |
| | | 4/16/98 | 7/27/98 | 10/22/98 | 12/30/98 |
| 244CR VAULT | | | | (mr/hr) | |
| C-5-EXH-FLT-2 | 244CR VAULT EXH FLT 2 (ONE TRAIN) | 40 | 80 | 50 | 80 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 2E-99-00200/P | 2E-99-1269/P | 2E-99-01816/P | | | |
| 3/15/99 | 8/18/99 | 5/9/00 | | | |
| | | | | | |
| 80 | 40 | 50 | | | |

| SX Farm | | | | | |
|---|---|---|---|---|---|
| | | | 36353 | 36367 | 36388 |
| | | | 7/12/1999 RadCon | 7/26/99 RadCon | 8/16/1999 RadCon |
| | | | | | |
| | | 241-SX | | | |
| B Train | North 1st | Exh. #1 | 1.5 | 1.2 | 1.5 |
| B Train | North 2nd | Exh. #2 | 1 | 1.1 | 1 |
| A Train | South 2nd | Exh. #3 | 1 | 1.1 | 1 |
| A Train | South 1st | Exh. #4 | 1.5 | 1.5 | 1.7 |
| | | | | | |
| | (Filter identification from Joel Radford.) | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36395 | 36409 | 36437 | 36451 | 36465 | 36479 |
| 8/23/1999 RadCon | 9/6/1999 RadCon | 10/4/1999 RadCon | 10/18/1999 RadCon | 11/1/1999 RadCon* | 11/15/1999 RadCon* |
| | | | | | |
| | | | | | |
| 1.5 | 2 | 2 | 1.6 | 0.25 | 0.25 |
| 1.2 | 1.2 | 1.4 | 1 | 0.25 | 0.25 |
| 1.3 | 1.1 | 1 | 1 | 0.25 | 0.25 |
| 2 | 2.1 | 1.9 | 1.9 | 1.2 | 0.25 |
| | | | | | |
| | | | | | (Terry Kaiser says there was no filter change out here.) |
| | | | *The 0.25 values in this column are actually <0.5 values on the data sheets. | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36493 | 36507 | 36521 | 36528 | 36542 | 36556 |
| 11/29/1999 RadCon | 12/13/1999 RadCon | 12/27/2000 RadCon | 1/3/2000 RadCon | 1/17/2000 RadCon | 1/31/2000 RadCon |
| | | | | | |
| | | | | | |
| 1.4 | 2 | 1.6 | 1.3 | 1.5 | 1.7 |
| 0.9 | 1.2 | 1.2 | 0.8 | 1.2 | 1.2 |
| 0.8 | 1.2 | 1 | 0.7 | 1.3 | 1.1 |
| 1.8 | 2 | 2 | 1.6 | 2 | 1.9 |
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| | | | | | |
| | | | | | |
| 36598 | 36598 | 36626 | 36640 | 36668 | 36682 |
| 3/13/2000 RadCon | 3/13/2000 RadCon | 4/10/2000 RadCon | 4/24/2000 RadCon | 5/22/2000 RadCon | 6/5/2000 RadCon |
| | | | | | |
| | | | | | |
| 1.5 | 2.1 | 2 | 1.8 | 1.8 | 2.1 |
| 1.2 | 1.2 | 1.4 | 1.2 | 1 | 1.4 |
| 1.3 | 1 | 1.2 | 1 | 0.9 | 1.1 |
| 2 | 1.8 | 2 | 1.8 | 1.7 | 2 |
| | | | | | |
| | | | | | |
| | | | | | |
| 36724 | 36738 | 36752 | 36766 | 36782 | |
| 7/17/2000 RadCon | 7/31/2000 RadCon | 8/14/2000 RadCon | 8/28/2000 RadCon | 9/13/00 2W-00-00957/P | |
| | | | | 2W-00-01109/P | |
| | | | | | |
| 1.9 | 2.1 | 1.6 | 2.2 | 2.3 | |
| 1.3 | 1.4 | 1.1 | 1.4 | 1.4 | |
| 1 | 1.2 | 0.8 | 1 | 1 | |
| 2 | 2 | 1.4 | 1.8 | 1.8 | |

| 101-AZ Air Lift Circulator Test | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| Dates changed to Excel format | 36494.875 | 36494.88889 | 36495.08333 | 36495.22917 | 36495.39583 |
| | **11/30/99 21:00** | **11/30/99 21:20** | **12/1/99 2:00** | **12/1/99 5:30** | **12/1/99 9:30** |
| | | | | | |
| **1st Stage HEPA*** | 6 | 6 | 7 | 6 | 7 |
| | | | | | |
| | | | | | |
| *Based on data from Interoffice Memo, Gary Tardiff to G.P. Duncan et.al., *241-AZ-101 Air Lift Circulator Functional Test Report*, April 17, 2001. | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| 36495.5625 | 36495.72917 | 36495.77083 | 36495.9375 | 36496.10417 | 36496.26042 |
| **12/1/99 13:30** | **12/1/99 17:30** | **12/1/99 18:30** | **12/1/99 22:30** | **12/2/99 2:30** | **12/2/99 6:15** |
| | | | | | |
| 7 | 6 | 6 | 6 | 6 | 6 |
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| | | | | | |
| | | | | | |
| 36496.39583 | 36496.60417 | | | | |
| **12/2/99 9:30** | **12/2/99 14:30** | | | | |
| | | | | | |
| 7 | 7 | | | | |

# APPENDIX C

# TRAINING ROSTERS

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# COURSE COMPLETION ROSTER

Records Use Only

| Course No. | Course Title | Date Completed |
|---|---|---|
| | Reliability Centered Maintenance Overview | 9-6-01 |
| **Session No.** (Records Use Only) | **Location** | **Beginning Date/Time** |
| | MO 277/131A | 9-6-01 / 10:00AM |

NOTE: IN ORDER TO OBTAIN CREDIT FOR CLASS, FILL OUT FORM ACCURATELY:
1. PRINT NAME IN FORMAT LAST, FIRST, MI (UNLESS NAME IS ALREADY PROVIDED).
2. SIGN NAME IN BLACK INK AND PROVIDE REQUESTED INFORMATION.
3. IF YOU DO NOT HAVE A HID OR PAYROLL NUMBER, CONTACT YOUR INSTRUCTOR TO COMPLETE A TRAINING COMPLETION RECORD, FORM A-6001-539.

Billing Info
- ☐ BILLABLE CLASS
- ☐ NON-BILLABLE CLASS

| | Hanford ID (HID) or Payroll Number | Print Name (Last, First, MI) | Signature | Company | CACN (Charge Code) | Billing Code *See Billing Codes Below |
|---|---|---|---|---|---|---|
| 1 | 86658 | Cook, Randy W.M. | Randy W.M. Cook | CHG | | |
| 2 | 84824 | TUCKER, RON P. | [illegible] | CUL | | |
| 3 | 57180 | POPIELARCZYK, R.S. | R. Popielarczyk | CHG | | |
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| Instructor's Name (Printed/Signature) | Date/MSIN | Authenticator's Name (Printed/Signature) | Date/MSIN |
|---|---|---|---|
| Thomas L. Moore - Thomas L. Moore | 9/6/01 R3-83 | | |

COMMENTS:
Video presentation by R. Keith Young

*BILLING CODES: (CB) Complete Bill, (CN) Complete No-Bill, (FB) Fail Bill, (IB) Incomplete Bill, (IN) Incomplete No-Bill, (NB) No Show Bill, (XX) Cancel. IF BLANK, WILL DEFAULT TO COMPLETE BILL (CB).

DISTRIBUTION: ORIGINAL TO TRAINING RECORDS, G6-60

A-6001-541 (04/00)

RCM Presentation / 1/25/01 4 hrs
Training

| Name | Org. Name |
|---|---|
| John Comer | PROCEDURES |
| JACK EDWARDS | PROCEDURES |
| RANDY LEE | SST MAINTENANCE |
| B.J. Sloemake | CPO MAINT. |
| D.H. Shuford | DST M&RE |
| R.A. Dode | DST & WFD Operations. |
| GN HANSON | DST OPS |
| TOM Frater | SST Closure M&R Eng |
| Tom Moore | DST M&RE |

Instructors Name/signature R.K. Young 1/25/01

# COURSE COMPLETION ROSTER

| Course No. | Course Title | Date Completed |
|---|---|---|
| | Reliability Centered Maintenance | 1/29/01 |
| Session No. | Location | Beginning Date/Time |
| Records Use Only | MO-277/131A | |

Records Use Only

Billing Info
☐ BILLABLE CLASS
☒ NON-BILLABLE CLASS

NOTE: IN ORDER TO OBTAIN CREDIT FOR CLASS, FILL OUT FORM ACCURATELY:
1. PRINT NAME IN FORMAT LAST, FIRST, MI (UNLESS NAME IS ALREADY PROVIDED).
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3. IF YOU DO NOT HAVE A HID OR PAYROLL NUMBER, CONTACT YOUR INSTRUCTOR TO COMPLETE A TRAINING COMPLETION RECORD, FORM A-6001-539.

| | Hanford ID (HID) or Payroll Number | Print Name (Last, First, MI) | Signature | Company | CACN (Charge Code) | Billing Code *See Billing Codes Below |
|---|---|---|---|---|---|---|
| 1 | 40018891 | DUNN, ROBERT B | Robert Dunn | CHG | | |
| 2 | H0039211 | Berg Greg | Greg Berg | CHG | | |
| 3 | H4724265 | ERHART, STEVEN | Steven W Erhart | CHG | | |
| 4 | H0089494 | Thomas L. Moore | Thomas L. Moore | CHG | | |
| 5 | H7101961 | EDWARDS, JACK | Jack E | CHG | | |
| 6 | H0090549 | LaPointe, J.R. | J A | CHG | | |
| 7 | H0082033 | YEH. ZP. | Z | CHG | | |
| 8 | H0066153 | WALLACE, BENNETT, L | B | CHG | | |
| 9 | | HEIN TC | T | CHG | | |
| 10 | 6A584 | ADLER R K | [illegible] | CHG | | |
| 11 | 83157 | PAGE, PERRY, A | [illegible] | CHG | | |
| 12 | 56549 | Scott, Del | [illegible] | CHG | | |
| 13 | 059489 | DAVIS, Steve | [illegible] | CHG | | |
| 14 | | | | | | |
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| 16 | | | | | | |

| Instructor's Name (Printed/Signature) | Date/MSIN | Authenticator's Name (Printed/Signature) | Date/MSIN |
|---|---|---|---|
| R.K. YOUNG | 1/29/01 | R.K. Young | 1/29/01 |

COMMENTS:

*BILLING CODES: (CB) Complete Bill, (CN) Complete No-Bill, (FB) Fail Bill, (IB) Incomplete Bill, (IN) Incomplete No-Bill, (NB) No Show Bill, (XX) Cancel. IF BLANK, WILL DEFAULT TO COMPLETE BILL (CB).

A-6001-541 (04/00)

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# COURSE COMPLETION ROSTER

Records Use Only

| Course No. | Course Title | Date Completed |
|---|---|---|
| | Reliability Centered Maintenance | 1/30/01 |
| **Session No.** | **Location** | **Beginning Date/Time** |
| | MO-277/ | |

*Records Use Only*

Billing Info
☐ BILLABLE CLASS
☐ NON-BILLABLE CLASS

NOTE: IN ORDER TO OBTAIN CREDIT FOR CLASS, FILL OUT FORM ACCURATELY:
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| | Hanford ID (HID) or Payroll Number | Print Name (Last, First, MI) | Signature | Company | CACN (Charge Code) | Billing Code *See Billing Codes Below |
|---|---|---|---|---|---|---|
| 1 | h0089494 | Moore, Thomas L. | Thomas L. Moore | CHG | | |
| 2 | H472-4265 | EHART STEVEN W | Steven W. Ehart | CHG | | |
| 3 | H0036652 | David Brown | David J. Brown | CHG | | |
| 4 | how82033 | ~~[illegible]~~ YEH, Tim P. | [illegible] | CHG | | |
| 5 | H0090549 | LaPointe J. R. | [illegible] | CHG | | |
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| Instructor's Name (Printed/Signature) | Date/MSIN | Authenticator's Name (Printed/Signature) | Date/MSIN |
|---|---|---|---|
| R.R. YOUNG, R.R. Young | 1/30/01 | | |

COMMENTS:

*BILLING CODES: (CB) Complete Bill, (CN) Complete No-Bill, (FB) Fail Bill, (IB) Incomplete Bill, (IN) Incomplete No-Bill, (NB) No Show Bill, (XX) Cancel. IF BLANK, WILL DEFAULT TO COMPLETE BILL (CB).

A-6001-541 (04/00)

DISTRIBUTION: ORIGINAL TO TRAINING RECORDS, G6-60

# COURSE COMPLETION ROSTER

Records Use Only

| Course No. | Course Title | Date Completed |
|---|---|---|
| | Reliability Centered Maintenance | 1/31/01 |
| **Session No.** (Records Use Only) | **Location** M0277 | **Beginning Date/Time** |

NOTE: IN ORDER TO OBTAIN CREDIT FOR CLASS, FILL OUT FORM ACCURATELY:
1. PRINT NAME IN FORMAT LAST, FIRST, MI (UNLESS NAME IS ALREADY PROVIDED).
2. SIGN NAME IN BLACK INK AND PROVIDE REQUESTED INFORMATION.
3. IF YOU DO NOT HAVE A HID OR PAYROLL NUMBER, CONTACT YOUR INSTRUCTOR TO COMPLETE A TRAINING COMPLETION RECORD, FORM A-6001-539.

Billing Info
☐ BILLABLE CLASS
☐ NON-BILLABLE CLASS

| | Hanford ID (HID) or Payroll Number | Print Name (Last, First, MI) | Signature | Company | CACN (Charge Code) | Billing Code *See Billing Codes Below |
|---|---|---|---|---|---|---|
| 1 | H0090549 | LaPointe James R | [signature] | CHG | | |
| 2 | H0036654 | Braun David J. | [signature] | CHG | | |
| 3 | H0089494 | Moore, Thomas L. | [signature] | | | |
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| Instructor's Name (Printed/Signature) | Date/MSIN | Authenticator's Name (Printed/Signature) | Date/MSIN |
|---|---|---|---|
| R.K. YOUNG [signature] | 1/31/01 | | |

COMMENTS:

*BILLING CODES: (CB) Complete Bill, (CN) Complete No-Bill, (FB) Fail Bill, (IB) Incomplete Bill, (IN) Incomplete No-Bill, (NB) No Show Bill, (XX) Cancel. IF BLANK, WILL DEFAULT TO COMPLETE BILL (CB).

DISTRIBUTION: ORIGINAL TO TRAINING RECORDS, G6-60

A-6001-541 (04/00)

RPP-8736 REV. 0, Appendix C

C3

# COURSE COMPLETION ROSTER

Records Use Only

| Course No. | Course Title | Date Completed |
|---|---|---|
| | Reliability Centered Maintenance | 2/1/01 |
| **Session No.** (Records Use Only) | **Location** MO 277 | **Beginning Date/Time** |

NOTE: IN ORDER TO OBTAIN CREDIT FOR CLASS, FILL OUT FORM ACCURATELY:
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2. SIGN NAME IN BLACK INK AND PROVIDE REQUESTED INFORMATION.
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Billing Info
☐ BILLABLE CLASS
☐ NON-BILLABLE CLASS

| | Hanford ID (HID) or Payroll Number | Print Name (Last, First, MI) | Signature | Company | CACN (Charge Code) | Billing Code *See Billing Codes Below |
|---|---|---|---|---|---|---|
| 1 | h0082033 | YEH Timothy P. | [illegible] | CHG | | |
| 2 | h0055983 | Braun, David J. | David J Braun | CHG | | |
| 3 | h0089494 | Moore, Thomas L. | Thomas L. Moore | CHG | | |
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| Instructor's Name (Printed/Signature) | Date/MSIN | Authenticator's Name (Printed/Signature) | Date/MSIN |
|---|---|---|---|
| R.K. YOUNG R.K. Young | 2/1/01 | | |

COMMENTS:

*BILLING CODES: (CB) Complete Bill, (CN) Complete No-Bill, (FB) Fail Bill, (IB) Incomplete Bill, (IN) Incomplete No-Bill, (NB) No Show Bill, (XX) Cancel. IF BLANK, WILL DEFAULT TO COMPLETE BILL (CB).

DISTRIBUTION: ORIGINAL TO TRAINING RECORDS, G6-60

A-6001-541 (04/00)

# COURSE COMPLETION ROSTER

Records Use Only

| Course No. | Course Title | Date Completed |
|---|---|---|
| | Reliability Centered Maintenance | 2/20/01 - 3/1/01 |
| Session No. | Location | Beginning Date/Time |
| Records Use Only | MO 277/ | |

Billing Info
☐ BILLABLE CLASS
☐ NON-BILLABLE CLASS

NOTE: IN ORDER TO OBTAIN CREDIT FOR CLASS, FILL OUT FORM ACCURATELY:
1. PRINT NAME IN FORMAT LAST, FIRST, MI (UNLESS NAME IS ALREADY PROVIDED).
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| | Hanford ID (HID) or Payroll Number | Print Name (Last, First, MI) | Signature | Company | CACN (Charge Code) | Billing Code *See Billing Codes Below |
|---|---|---|---|---|---|---|
| 1 | h0089494 | Moore, Thomas L. | Thomas L. Moore | CHG | | |
| 2 | h0082033 | YEH T.P. | [illegible] | CHG | | |
| 3 | h0055983 | Braun, David J. | David J. Braun | CHG | | |
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| Instructor's Name (Printed/Signature) | Date/MSIN | Authenticator's Name (Printed/Signature) | Date/MSIN |
|---|---|---|---|
| R.K. YOUNG R.K. Young | 2/20/01 | | |

COMMENTS:

*BILLING CODES: (CB) Complete Bill, (CN) Complete No-Bill, (FB) Fail Bill, (IB) Incomplete Bill, (IN) Incomplete No-Bill, (NB) No Show Bill, (XX) Cancel. IF BLANK, WILL DEFAULT TO COMPLETE BILL (CB).

A-6001-541 (04/00)

DISTRIBUTION: ORIGINAL TO TRAINING RECORDS, G6-60

# COURSE COMPLETION ROSTER

Records Use Only

| Course No. | Course Title | Date Completed |
|---|---|---|
| | Reliability Centered Maintenance | 4/12/01 |
| **Session No.** (Records Use Only) | **Location** | **Beginning Date/Time** |
| | MO 277/112 | 4/12/01 8:00 AM |

NOTE: IN ORDER TO OBTAIN CREDIT FOR CLASS, FILL OUT FORM ACCURATELY:
1. PRINT NAME IN FORMAT LAST, FIRST, MI (UNLESS NAME IS ALREADY PROVIDED).
2. SIGN NAME IN BLACK INK AND PROVIDE REQUESTED INFORMATION.
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Billing Info
☐ BILLABLE CLASS
☐ NON-BILLABLE CLASS

| | Hanford ID (HID) or Payroll Number | Print Name (Last, First, MI) | Signature | Company | CACN (Charge Code) | Billing Code *See Billing Codes Below |
|---|---|---|---|---|---|---|
| 1 | H0089494 | Moore, Thomas L. | Thomas L. Moore | | 110336 | |
| 2 | H3683737 | Stowell, Phil A | Phil Stowell | | | |
| 3 | H0082033 | YEH, Tim P | [illegible] | | 110336 | |
| 4 | H0004506 | Wilmotte RK | [illegible] | | | |
| 5 | H0032089 | Aguilar, E J | [illegible] | | | |
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| Instructor's Name (Printed/Signature) | Date/MSIN | Authenticator's Name (Printed/Signature) | Date/MSIN |
|---|---|---|---|
| R.K. YOUNG R.K. Young | 4/12/01 | | |

COMMENTS:

*BILLING CODES: (CB) Complete Bill, (CN) Complete No-Bill, (FB) Fail Bill, (IB) Incomplete Bill, (IN) Incomplete No-Bill, (NB) No Show Bill, (XX) Cancel. IF BLANK, WILL DEFAULT TO COMPLETE BILL (CB).

DISTRIBUTION: ORIGINAL TO TRAINING RECORDS, G6-60

A-6001-541 (04/00)

# COURSE COMPLETION ROSTER

Records Use Only

| Course No. | Course Title Root Cause Failure Analysis ~~Reliability Centered Maintenance~~ | Date Completed 4/30/01 |
|---|---|---|
| Session No. Records Use Only | Location MO 277/112 | Beginning Date/Time 4/30/01 12:30PM |

NOTE: IN ORDER TO OBTAIN CREDIT FOR CLASS, FILL OUT FORM ACCURATELY:
1. PRINT NAME IN FORMAT LAST, FIRST, MI (UNLESS NAME IS ALREADY PROVIDED).
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Billing Info
☐ BILLABLE CLASS
☐ NON-BILLABLE CLASS

| | Hanford ID (HID) or Payroll Number | Print Name (Last, First, MI) | Signature | Company | CACN (Charge Code) | Billing Code *See Billing Codes Below |
|---|---|---|---|---|---|---|
| 1 | h0089494 | Moore, Thomas L. | Thomas L. Moore | CHG | | |
| 2 | h0039952 | Brown, David J. | David J Brown | CHG | | |
| 3 | | | | | | |
| 4 | | | | | | |
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| 15 | | | | | | |
| 16 | | | | | | |

| Instructor's Name (Printed/Signature) | Date/MSIN | Authenticator's Name (Printed/Signature) | Date/MSIN |
|---|---|---|---|
| R.K. YOUNG R.K. Young | 4/30/01 | | |

COMMENTS:

*BILLING CODES: (CB) Complete Bill, (CN) Complete No-Bill, (FB) Fail Bill, (IB) Incomplete Bill, (IN) Incomplete No-Bill, (NB) No Show Bill, (XX) Cancel. IF BLANK, WILL DEFAULT TO COMPLETE BILL (CB).

A-6001-541 (04/00)

DISTRIBUTION: ORIGINAL TO TRAINING RECORDS, G6-60

# COURSE COMPLETION ROSTER

Records Use Only

| Course No. | Course Title | Date Completed |
|---|---|---|
| 350866 | Reliability Centered Maintenance | 8/7/01 |
| **Session No.** (Records Use Only) | **Location** 2101 M | **Beginning Date/Time** 8/7/01 7:00 AM |

NOTE: IN ORDER TO OBTAIN CREDIT FOR CLASS, FILL OUT FORM ACCURATELY:
1. PRINT NAME IN FORMAT LAST, FIRST, MI (UNLESS NAME IS ALREADY PROVIDED).
2. SIGN NAME IN BLACK INK AND PROVIDE REQUESTED INFORMATION.
3. IF YOU DO NOT HAVE A HID OR PAYROLL NUMBER, CONTACT YOUR INSTRUCTOR TO COMPLETE A TRAINING COMPLETION RECORD, FORM A-6001-539.

Billing Info
☐ BILLABLE CLASS
☐ NON-BILLABLE CLASS

| | Hanford ID (HID) or Payroll Number | Print Name (Last, First, MI) | Signature | Company | CACN (Charge Code) | Billing Code *See Billing Codes Below |
|---|---|---|---|---|---|---|
| 1 | H0085164 | ESVELT, CHAD A. | [signature] | CHG | | |
| 2 | H0065534 | LAMPHERE, J.E. | [signature] | CHG | | |
| 3 | H0020837 | Safus, R.R. | [signature] | NHC | | |
| 4 | H0050198 | BLAAK, TODD | [signature] | CHG | | |
| 5 | H0037236 | Brown, Mark H | [signature] | CHC | | |
| 6 | H0013790 | BRAGG, DAVID A | [signature] | CHG | | |
| 7 | H0071199 | Swaney, Stephen L | [signature] | BASSR | | |
| 8 | H0060016 | Kaiser, TERRY D | [signature] | CHG | | |
| 9 | H0026685 | Doeler, JN | [signature] | CHG | | |
| 10 | H0064961 | DeFoit-Price, Cherri | [signature] | CHG | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |

| Instructor's Name (Printed/Signature) | Date/MSIN | Authenticator's Name (Printed/Signature) | Date/MSIN |
|---|---|---|---|
| Keith Young [signature] | 8/07/01 | | |

COMMENTS:

*BILLING CODES: (CB) Complete Bill, (CN) Complete No-Bill, (FB) Fail Bill, (IB) Incomplete Bill, (IN) Incomplete No-Bill, (NB) No Show Bill, (XX) Cancel. IF BLANK, WILL DEFAULT TO COMPLETE BILL (CB).

DISTRIBUTION: ORIGINAL TO TRAINING RECORDS, G6-60

A-6001-541 (04/00)

**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8-7-01 Instructor: R. Keith Young

Course Number: 350866 Course Name: Reliability Centered Maintenance

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 | |
|---|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | ✓ | | | a bit warm |
| 2. The training was relevant to my job. | | ✓ | | | | |
| 3. The training objectives were clear to me. | | ✓ | | | | |
| 4. The training course was well organized | ✓ | | | | | |
| 5. The handout material will be a good reference when I return to my job. | | ✓ | | | | |
| 6. The visual aids used during the class were helpful and effective. | | ✓ | | | | |
| 7. The exercises were job related. Needed to do one | | | | | | |
| 8. The exercises were helpful in learning the material. | | ✓ | | | | |
| 9. The instructor presented the material well. | | | ✓ | | | |
| 10. The instructor responded to my questions. | ✓ | | | | | |
| 11. The instructor was knowledgeable of the subject. | | ✓ | | | | |
| 12. The instructor made me feel like an important part of the class. | | | | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/7/2K1 Instructor: Keith Yang

Course Number: 350866 Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | X | | | |
| 2. The training was relevant to my job. | X | | | | |
| 3. The training objectives were clear to me. | X | | | | |
| 4. The training course was well organized | X | | | | |
| 5. The handout material will be a good reference when I return to my job. | X | | | | |
| 6. The visual aids used during the class were helpful and effective. | X | | | | |
| 7. The exercises were job related. | | X | | | |
| 8. The exercises were helpful in learning the material. | | X | | | |
| 9. The instructor presented the material well. | X | | | | |
| 10. The instructor responded to my questions. | | X | | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | |
| 12. The instructor made me feel like an important part of the class. | | X | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?
Hand Outs

How would you improve the training received?
Practical Exercises

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 7/07/01 Instructor: K. Young

Course Number: 350866 Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | X | | | | |
| 2. The training was relevant to my job. | X | | | | |
| 3. The training objectives were clear to me. | X | | | | |
| 4. The training course was well organized | X | | | | |
| 5. The handout material will be a good reference when I return to my job. | X | | | | |
| 6. The visual aids used during the class were helpful and effective. | X | | | | |
| 7. The exercises were job related. | X | | | | |
| 8. The exercises were helpful in learning the material. | X | | | | |
| 9. The instructor presented the material well. | X | | | | |
| 10. The instructor responded to my questions. | X | | | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | |
| 12. The instructor made me feel like an important part of the class. | X | | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8-7-01 Instructor: Keith Young

Course Number: 350866 Course Name: _____

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | | X | |
| 2. The training was relevant to my job. | | | X | | |
| 3. The training objectives were clear to me. | | X | | | |
| 4. The training course was well organized | | X | | | |
| 5. The handout material will be a good reference when I return to my job. | | | X | | |
| 6. The visual aids used during the class were helpful and effective. | | | X | | |
| 7. The exercises were job related. | | | | X | |
| 8. The exercises were helpful in learning the material. | | X | | | |
| 9. The instructor presented the material well. | | X | | | |
| 10. The instructor responded to my questions. | | X | | | |
| 11. The instructor was knowledgeable of the subject. | | X | | | |
| 12. The instructor made me feel like an important part of the class. | | X | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/7/01 Instructor: Keith Young

Course Number: 350866 Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | | X | |
| 2. The training was relevant to my job. | | X | | | |
| 3. The training objectives were clear to me. | | X | | | |
| 4. The training course was well organized | | X | | | |
| 5. The handout material will be a good reference when I return to my job. | X | | | | |
| 6. The visual aids used during the class were helpful and effective. | | X | | | |
| 7. The exercises were job related. | | N/A | | | |
| 8. The exercises were helpful in learning the material. | | N/A | | | |
| 9. The instructor presented the material well. | X | | | | |
| 10. The instructor responded to my questions. | | X | | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | |
| 12. The instructor made me feel like an important part of the class. | | X | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/7/01 Instructor: Kung

Course Number: 350866 Course Name: 350

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | ✓ | | |
| 2. The training was relevant to my job. | | ✓ | | | |
| 3. The training objectives were clear to me. | | ✓ | | | |
| 4. The training course was well organized | | ✓ | | | |
| 5. The handout material will be a good reference when I return to my job. | | ✓ | | | |
| 6. The visual aids used during the class were helpful and effective. | | ✓ | | | |
| 7. The exercises were job related. | | ✓ | | | |
| 8. The exercises were helpful in learning the material. | | ✓ | | | |
| 9. The instructor presented the material well. | ✓ | | | | |
| 10. The instructor responded to my questions. | | ✓ | | | |
| 11. The instructor was knowledgeable of the subject. | ✓ | | | | |
| 12. The instructor made me feel like an important part of the class. | ✓ | | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CHG Training**

# Student Course Evaluation

Course Date: 08/07/01 Instructor: Keith Young

Course Number: 350866 Course Name: Reliability Centered Maintenance

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. too warm | | | X | | |
| 2. The training was relevant to my job. | X | | | | |
| 3. The training objectives were clear to me. | X | | | | |
| 4. The training course was well organized | X | | | | |
| 5. The handout material will be a good reference when I return to my job. | X | | | | |
| 6. The visual aids used during the class were helpful and effective. | X | | | | |
| 7. The exercises were job related. | | X | | | |
| 8. The exercises were helpful in learning the material. | | X | | | |
| 9. The instructor presented the material well. | X | | | | |
| 10. The instructor responded to my questions. | X | | | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | |
| 12. The instructor made me feel like an important part of the class. | | X | | | |

What part of the training did you like LEAST?

CLASSROOM WAS TOO WARM

What part of the training did you like BEST?

HANDOUTS & REPETITION OF INFORMATION

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CHG Training**

# Student Course Evaluation

Course Date: 8/7/01 Instructor: KEITH YOUNG

Course Number: 350866 Course Name: RELIABILITY MAINT.

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | | X | |
| 2. The training was relevant to my job. | X | | | | |
| 3. The training objectives were clear to me. | X | | | | |
| 4. The training course was well organized | X | | | | |
| 5. The handout material will be a good reference when I return to my job. | X | | | | |
| 6. The visual aids used during the class were helpful and effective. | X | | | | |
| 7. The exercises were job related. | X | | | | |
| 8. The exercises were helpful in learning the material. | X | | | | |
| 9. The instructor presented the material well. | X | | | | |
| 10. The instructor responded to my questions. | X | | | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | |
| 12. The instructor made me feel like an important part of the class. | X | | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/7/01 Instructor: K. YOUNG

Course Number: 350866 Course Name: RELIABILITY CENTERED MAINT.

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | X | | | |
| 2. The training was relevant to my job. | X | | | | |
| 3. The training objectives were clear to me. | | X | | | |
| 4. The training course was well organized | | X | | | |
| 5. The handout material will be a good reference when I return to my job. | X | | | | |
| 6. The visual aids used during the class were helpful and effective. | | X | | | |
| 7. The exercises were job related. | | | X | | |
| 8. The exercises were helpful in learning the material. | | | X | | |
| 9. The instructor presented the material well. | | X | | | |
| 10. The instructor responded to my questions. | X | | | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | |
| 12. The instructor made me feel like an important part of the class. | X | | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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# COURSE COMPLETION ROSTER

| Course No. | Course Title | Date Completed |
|---|---|---|
| 350866 | Reliability Centered Maintenance | 8/7/01 |
| **Session No.** | **Location** | **Beginning Date/Time** |
| Records Use Only | 2101 M | 8/7/01 12:00 PM |

Records Use Only

Billing Info
☐ BILLABLE CLASS
☐ NON-BILLABLE CLASS

NOTE: IN ORDER TO OBTAIN CREDIT FOR CLASS, FILL OUT FORM ACCURATELY:
1. PRINT NAME IN FORMAT LAST, FIRST, MI (UNLESS NAME IS ALREADY PROVIDED).
2. SIGN NAME IN BLACK INK AND PROVIDE REQUESTED INFORMATION.
3. IF YOU DO NOT HAVE A HID OR PAYROLL NUMBER, CONTACT YOUR INSTRUCTOR TO COMPLETE A TRAINING COMPLETION RECORD, FORM A-6001-539.

| | Hanford ID (HID) or Payroll Number | Print Name (Last, First, MI) | Signature | Company | CACN (Charge Code) | Billing Code *See Billing Codes Below |
|---|---|---|---|---|---|---|
| 1 | H0060371 | HORNER, TRACY M | Tracy M. Horner | CHG | | |
| 2 | H0074096 | LANEY, TERANCE | Terance Laney | CHG | | |
| 3 | H0022499 | Nicholson, Robert S | [illegible] | CHG | | |
| 4 | H0086651 | DALE, ROBERT N | [illegible] | CHG | | |
| 5 | [illegible]48 | FARRIS TROY R | [illegible] | CHG | | |
| 6 | 82927 | WELLS, JOHN F | John F. Wells | CHG | | |
| 7 | H0071988 | BROWN, TODD M. | [illegible] | CHG | | |
| 8 | H0025155 | KISON, PAUL F | [illegible] | CHG | | |
| 9 | H0028449 | Parkman David B | D.B. Parkman | CHG | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |

| Instructor's Name (Printed/Signature) | Date/MSIN | Authenticator's Name (Printed/Signature) | Date/MSIN |
|---|---|---|---|
| Keith Young Keith Young | 8/7/01 | | |

COMMENTS:

*BILLING CODES: (CB) Complete Bill, (CN) Complete No-Bill, (FB) Fail Bill, (IB) Incomplete Bill, (IN) Incomplete No-Bill, (NB) No Show Bill, (XX) Cancel. IF BLANK, WILL DEFAULT TO COMPLETE BILL (CB).

A-6001-541 (04/00)

DISTRIBUTION: ORIGINAL TO TRAINING RECORDS, G6-60

**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: ~~350866~~ 8/7/01 Instructor: Kieth Young

Course Number: 350866 Course Name: Reliability Centered Maint

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | X | | |
| 2. The training was relevant to my job. | | X | | | |
| 3. The training objectives were clear to me. | | X | | | |
| 4. The training course was well organized | | | X | | |
| 5. The handout material will be a good reference when I return to my job. | | X | | | |
| 6. The visual aids used during the class were helpful and effective. | | X | | | |
| 7. The exercises were job related. | | | X | | |
| 8. The exercises were helpful in learning the material. | | | X | | |
| 9. The instructor presented the material well. | | X | | | |
| 10. The instructor responded to my questions. | | X | | | |
| 11. The instructor was knowledgeable of the subject. | | X | | | |
| 12. The instructor made me feel like an important part of the class. | | X | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?
FLOW CHARTS IN SLIDE SHOW WERE PRESENTED VERY QUICKLY, WHICH WAS OKAY, BUT THE PRINTED VERSIONS ARE WAY TOO SMALL TO READ

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: _____ Instructor: _____

Course Number: 350866 Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | | X | |
| 2. The training was relevant to my job. | | | | | |
| 3. The training objectives were clear to me. | | X | | | |
| 4. The training course was well organized | | X | | | |
| 5. The handout material will be a good reference when I return to my job. | | X | | | |
| 6. The visual aids used during the class were helpful and effective. | | | X | | |
| 7. The exercises were job related. | | | | | |
| 8. The exercises were helpful in learning the material. | | | | | |
| 9. The instructor presented the material well. | | X | | | |
| 10. The instructor responded to my questions. | | | | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | |
| 12. The instructor made me feel like an important part of the class. | | | | | |

?

What part of the training did you like LEAST?

No connection was made between RCM and system engineering

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: ~~350866~~ 8-7-01 Instructor: Keith Young

Course Number: 350866 Course Name: Reliability Ma.i

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | ✓ | | |
| 2. The training was relevant to my job. | | | ✓ | | |
| 3. The training objectives were clear to me. | | | ✓ | | |
| 4. The training course was well organized | | ✓ | | | |
| 5. The handout material will be a good reference when I return to my job. | | | ✓ | | |
| 6. The visual aids used during the class were helpful and effective. | | | ✓ | | |
| 7. The exercises were job related. | | | ✓ | | |
| 8. The exercises were helpful in learning the material. | | | ✓ | | |
| 9. The instructor presented the material well. | | ✓ | | | |
| 10. The instructor responded to my questions. | | | ✓ | | |
| 11. The instructor was knowledgeable of the subject. | | ✓ | | | |
| 12. The instructor made me feel like an important part of the class. | | | ✓ | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 08/07/01 Instructor: K. YOUNG

Course Number: 350866 Course Name: RC MAINTENANCE

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | X | | |
| 2. The training was relevant to my job. | | | X | | |
| 3. The training objectives were clear to me. | | | X | | |
| 4. The training course was well organized | | X | | | |
| 5. The handout material will be a good reference when I return to my job. | | | X | | |
| 6. The visual aids used during the class were helpful and effective. | | X | | | |
| 7. The exercises were job related. | | | X | | |
| 8. The exercises were helpful in learning the material. | | | X | | |
| 9. The instructor presented the material well. | | X | | | |
| 10. The instructor responded to my questions. | | X | | | |
| 11. The instructor was knowledgeable of the subject. | | X | | | |
| 12. The instructor made me feel like an important part of the class. | | | X | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any *additional* comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8-7-01 Instructor: R. KEITH YOUNG

Course Number: 350866 Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | | X | |
| 2. The training was relevant to my job. | | X | | | |
| 3. The training objectives were clear to me. | | X | | | |
| 4. The training course was well organized | X | | | | |
| 5. The handout material will be a good reference when I return to my job. | X | | | | |
| 6. The visual aids used during the class were helpful and effective. | | X | | | |
| 7. The exercises were job related. | | | X | | |
| 8. The exercises were helpful in learning the material. | | | X | | |
| 9. The instructor presented the material well. | X | | | | |
| 10. The instructor responded to my questions. | X | | | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | |
| 12. The instructor made me feel like an important part of the class. | X | | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/7 Instructor: _____

Course Number: 350866 Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | | X | |
| 2. The training was relevant to my job. | | | X | | |
| 3. The training objectives were clear to me. | | | | X | |
| 4. The training course was well organized | | X | | | |
| 5. The handout material will be a good reference when I return to my job. | | | X | | |
| 6. The visual aids used during the class were helpful and effective. | | | X | | |
| 7. The exercises were job related. | | | | | |
| 8. The exercises were helpful in learning the material. | | | | | |
| 9. The instructor presented the material well. | | X | | | |
| 10. The instructor responded to my questions. | X | | | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | |
| 12. The instructor made me feel like an important part of the class. | | X | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/7/01 Instructor: KEITH YOUNG

Course Number: 350866 Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | ● | | |
| 2. The training was relevant to my job. | | ● | | | |
| 3. The training objectives were clear to me. | ● | | | | |
| 4. The training course was well organized | ● | | | | |
| 5. The handout material will be a good reference when I return to my job. | ● | | | | |
| 6. The visual aids used during the class were helpful and effective. | | | ● | | |
| 7. The exercises were job related. | | | ● | | |
| 8. The exercises were helpful in learning the material. | | ● | | | |
| 9. The instructor presented the material well. | | ● | | | |
| 10. The instructor responded to my questions. | | ● | | | |
| 11. The instructor was knowledgeable of the subject. | | ● | | | |
| 12. The instructor made me feel like an important part of the class. | | | ● | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8-7-01 Instructor: Keith Young

Course Number: 350866 Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. (too hot) | | | | X | |
| 2. The training was relevant to my job. | | | | X | |
| 3. The training objectives were clear to me. | | | | X | |
| 4. The training course was well organized | | | X | | |
| 5. The handout material will be a good reference when I return to my job. | | | X | | |
| 6. The visual aids used during the class were helpful and effective. | | | | X | |
| 7. The exercises were job related. N/A | | | X | | |
| 8. The exercises were helpful in learning the material. N/A | | | | | |
| 9. The instructor presented the material well. | | | X | | |
| 10. The instructor responded to my questions. N/A | | | | | |
| 11. The instructor was knowledgeable of the subject. | | X | | | |
| 12. The instructor made me feel like an important part of the class. | | | X | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: ~~350866~~ 8/7/01 Instructor: _____

Course Number: 350866 Course Name: _____

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|
| 1. | The classroom environment (temperature, lighting, etc.) aided the learning process. | X | | | | |
| 2. | The training was relevant to my job. | X | | | | |
| 3. | The training objectives were clear to me. | X | | | | |
| 4. | The training course was well organized | X | | | | |
| 5. | The handout material will be a good reference when I return to my job. | X | | | | |
| 6. | The visual aids used during the class were helpful and effective. | | X | | | |
| 7. | The exercises were job related. N/A | | | | | |
| 8. | The exercises were helpful in learning the material. N/A | | | | | |
| 9. | The instructor presented the material well. | X | | | | |
| 10. | The instructor responded to my questions. | X | | | | |
| 11. | The instructor was knowledgeable of the subject. | X | | | | |
| 12. | The instructor made me feel like an important part of the class. | X | | | | |

What part of the training did you like LEAST? The details.

What part of the training did you like BEST? The general info

How would you improve the training received? More examples.

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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# COURSE COMPLETION ROSTER

Records Use Only

| Course No. | Course Title | Date Completed |
|---|---|---|
| 350866 | Reliability Centered Maintenance | 8/8/01 |
| **Session No.** (Records Use Only) | **Location** | **Beginning Date/Time** |
| | 2101 M | 8/8/01 7:00 AM |

NOTE: IN ORDER TO OBTAIN CREDIT FOR CLASS, FILL OUT FORM ACCURATELY:
1. PRINT NAME IN FORMAT LAST, FIRST, MI (UNLESS NAME IS ALREADY PROVIDED).
2. SIGN NAME IN BLACK INK AND PROVIDE REQUESTED INFORMATION.
3. IF YOU DO NOT HAVE A HID OR PAYROLL NUMBER, CONTACT YOUR INSTRUCTOR TO COMPLETE A TRAINING COMPLETION RECORD, FORM A-6001-539.

Billing Info
☐ BILLABLE CLASS
☐ NON-BILLABLE CLASS

| | Hanford ID (HID) or Payroll Number | Print Name (Last, First, MI) | Signature | Company | CACN (Charge Code) | Billing Code *See Billing Codes Below |
|---|---|---|---|---|---|---|
| 1 | H6683554 | Hickman, John T | [signature] | CHG | | |
| 2 | H1420637 | BEWICK, JOE A | [signature] | CHG | | |
| 3 | H0047706 | DOMANSKE-RAUCH, LISA A | [signature] | CHG | | |
| 4 | 6B623 | Heath, Rick, E | [signature] | CHG | | |
| 5 | H0071950 | COLEMAN, GEORGE J | [signature] | BABSR | | |
| 6 | H0041413 | RAMOS, Michael T | [signature] | CHG | | |
| 7 | H0051447 | Waldo, Eric J | [signature] | CHG | | |
| 8 | H0072554 | WHITE, DAVID A | [signature] | CHG | | |
| 9 | H0010445 | Clarkson, Arthur W., Jr. | [signature] | CHG | | |
| 10 | H0080973 | Lohrasbi, Jahan | [signature] | CHG | | |
| 11 | H0052124 | HARTY JR, William M. | [signature] | CHG | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |

| Instructor's Name (Printed/Signature) | Date/MSIN | Authenticator's Name (Printed/Signature) | Date/MSIN |
|---|---|---|---|
| Keith Young [signature] | 8/8/01 | | |

COMMENTS:

*BILLING CODES: (CB) Complete Bill, (CN) Complete No-Bill, (FB) Fail Bill, (IB) Incomplete Bill, (IN) Incomplete No-Bill, (NB) No Show Bill, (XX) Cancel. IF BLANK, WILL DEFAULT TO COMPLETE BILL (CB).

DISTRIBUTION: ORIGINAL TO TRAINING RECORDS, G6-60

A-6001-541 (04/00)

**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/8/01 Instructor: Keith Young

Course Number: 350866 Course Name: ADVANCED MAINT.

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 | |
|---|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | X | | | |
| 2. The training was relevant to my job. | | X | | | | |
| 3. The training objectives were clear to me. | | | | X | | |
| 4. The training course was well organized | | X | | | | |
| 5. The handout material will be a good reference when I return to my job. | X | | | | | |
| 6. The visual aids used during the class were helpful and effective. | | X | | | | |
| 7. The exercises were job related. | | | X | | | NA |
| 8. The exercises were helpful in learning the material. | | | X | | | NA |
| 9. The instructor presented the material well. | | X | | | | |
| 10. The instructor responded to my questions. | X | | | | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | | |
| 12. The instructor made me feel like an important part of the class. | | | X | | | |

What part of the training did you like LEAST?

APPLICABILITY TO MY JOB. NO EXAMPLES OF HOW IT WILL BE IMPLEMENTED

What part of the training did you like BEST?

How would you improve the training received?

RELATE IT TO MY JOB HERE AT HANFORD. NOT A DIFFERENT INDUSTRY

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 08/08/01 Instructor: R. Keith Young

Course Number: 350866 Course Name: R. C. M.

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | X | | |
| 2. The training was relevant to my job. | | X | | | |
| 3. The training objectives were clear to me. | | X | | | |
| 4. The training course was well organized | X | | | | |
| 5. The handout material will be a good reference when I return to my job. | X | | | | |
| 6. The visual aids used during the class were helpful and effective. | | X | | | |
| 7. The exercises were job related. | | | | | |
| 8. The exercises were helpful in learning the material. | | | | | |
| 9. The instructor presented the material well. | X | | | | |
| 10. The instructor responded to my questions. | | X | | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | |
| 12. The instructor made me feel like an important part of the class. | | | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/8/01 Instructor: Young

Course Number: 350866 Course Name: KCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | | X | |
| 2. The training was relevant to my job. | | | X | | |
| 3. The training objectives were clear to me. | | | X | | |
| 4. The training course was well organized | | X | | | |
| 5. The handout material will be a good reference when I return to my job. | | X | | | |
| 6. The visual aids used during the class were helpful and effective. | | X | | | |
| 7. The exercises were job related. | | | X | | |
| 8. The exercises were helpful in learning the material. | | | X | | |
| 9. The instructor presented the material well. | | X | | | |
| 10. The instructor responded to my questions. | | X | | | |
| 11. The instructor was knowledgeable of the subject. | | X | | | |
| 12. The instructor made me feel like an important part of the class. | | | X | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/8/01 Instructor: Keith Young

Course Number: 350866 Course Name: Advancing Maintenance

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | X | | |
| 2. The training was relevant to my job. | | | | X | |
| 3. The training objectives were clear to me. | | | X | | |
| 4. The training course was well organized | | | X | | |
| 5. The handout material will be a good reference when I return to my job. | | | | X | |
| 6. The visual aids used during the class were helpful and effective. | | | X | | |
| 7. The exercises were job related. | | | X | | |
| 8. The exercises were helpful in learning the material. | | | X | | |
| 9. The instructor presented the material well. | | | X | | |
| 10. The instructor responded to my questions. | | | X | | |
| 11. The instructor was knowledgeable of the subject. | | X | | | |
| 12. The instructor made me feel like an important part of the class. | | | X | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/8/01 Instructor: KEITH ~~Rather~~ YOUNG

Course Number: 350866 Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | ✓ | | | |
| 2. The training was relevant to my job. | | | | ✓ | |
| 3. The training objectives were clear to me. | | | ✓ | | |
| 4. The training course was well organized | | | ✓ | | |
| 5. The handout material will be a good reference when I return to my job. | | | | ✓ | |
| 6. The visual aids used during the class were helpful and effective. | | | ✓ | | |
| 7. The exercises were job related. | | | | ✓ | |
| 8. The exercises were helpful in learning the material. | | | ✓ | | |
| 9. The instructor presented the material well. | | ✓ | | | |
| 10. The instructor responded to my questions. | | | ✓ | | |
| 11. The instructor was knowledgeable of the subject. | | ✓ | | | |
| 12. The instructor made me feel like an important part of the class. | | | ✓ | | |

What part of the training did you like LEAST?

APPLICABILITY SEEMS PERIPHERAL, AT BEST.

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/8/01 Instructor: Keith Yeas

Course Number: 350866 Course Name: _____

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | X | | |
| 2. The training was relevant to my job. | | X | | | |
| 3. The training objectives were clear to me. | | X | | | |
| 4. The training course was well organized | X | | | | |
| 5. The handout material will be a good reference when I return to my job. | | X | | | |
| 6. The visual aids used during the class were helpful and effective. | | X | | | |
| 7. The exercises were job related. | | X | | | |
| 8. The exercises were helpful in learning the material. | | X | | | |
| 9. The instructor presented the material well. | X | | | | |
| 10. The instructor responded to my questions. | | X | | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | |
| 12. The instructor made me feel like an important part of the class. | | | X | | |

What part of the training did you like LEAST?

What part of the training did you like BEST? The training was very informative and the instructor presented it well.

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/8/01 Instructor: KEITH YOUNG

Course Number: 350866 Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | | X | |
| 2. The training was relevant to my job. | | | X | | |
| 3. The training objectives were clear to me. | | X | | | |
| 4. The training course was well organized | | X | | | |
| 5. The handout material will be a good reference when I return to my job. | | | X | | |
| 6. The visual aids used during the class were helpful and effective. | | X | | | |
| 7. The exercises were job related. | | | X | | |
| 8. The exercises were helpful in learning the material. | | | X | | |
| 9. The instructor presented the material well. | | X | | | |
| 10. The instructor responded to my questions. | X | | | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | |
| 12. The instructor made me feel like an important part of the class. | | X | | | |

too cool

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

more specifics on how applies to Tank Farm Systems

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: ~~350866~~ Aug 8, 2001 Instructor: Keith Young

Course Number: 350866 Course Name: Reliability Centered Maint.

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | X | | | |
| 2. The training was relevant to my job. | | X | | | |
| 3. The training objectives were clear to me. | | X | | | |
| 4. The training course was well organized | X | | | | |
| 5. The handout material will be a good reference when I return to my job. | X | | | | |
| 6. The visual aids used during the class were helpful and effective. | X | | | | |
| 7. The exercises were job related. | | | X | | |
| 8. The exercises were helpful in learning the material. | | | X | | |
| 9. The instructor presented the material well. | X | | | | |
| 10. The instructor responded to my questions. | X | | | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | |
| 12. The instructor made me feel like an important part of the class. | | X | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

more practical Hands on

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/8/01 Instructor: Kieth Young

Course Number: 350 866 Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | X | | | |
| 2. The training was relevant to my job. | | | | X | |
| 3. The training objectives were clear to me. | | X | | | |
| 4. The training course was well organized | | X | | | |
| 5. The handout material will be a good reference when I return to my job. | | | X | | |
| 6. The visual aids used during the class were helpful and effective. | | X | | | |
| 7. The exercises were job related. NA | | | | | |
| 8. The exercises were helpful in learning the material. NA | | | | | |
| 9. The instructor presented the material well. | | X | | | |
| 10. The instructor responded to my questions. | X | | | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | |
| 12. The instructor made me feel like an important part of the class. | | X | X | | |

What part of the training did you like LEAST?

Material Presented did not relate specifically to Tank Farms

What part of the training did you like BEST?

Relationship to Tank Farms

How would you improve the training received?

Make more examples relative to tank farm

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8-8-01 Instructor: Keith Young

Course Number: 350866 Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | | | X |
| 2. The training was relevant to my job. | | | X | | |
| 3. The training objectives were clear to me. | | | | X | |
| 4. The training course was well organized | | | | X | |
| 5. The handout material will be a good reference when I return to my job. | | | X | | |
| 6. The visual aids used during the class were helpful and effective. | | | X | | |
| 7. The exercises were job related. | | | | | X |
| 8. The exercises were helpful in learning the material. | | | | | X |
| 9. The instructor presented the material well. | | | X | | |
| 10. The instructor responded to my questions. | | | X | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | |
| 12. The instructor made me feel like an important part of the class. | | | | | X |

What part of the training did you like LEAST?

Amount of time taken.

What part of the training did you like BEST?

N/A

How would you improve the training received?

Web based / present material in a timely manner.

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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# COURSE COMPLETION ROSTER

Records Use Only

| Course No. | Course Title | Date Completed |
|---|---|---|
| 350866 | Reliability Centered Maintenance | 8/8/01 |
| **Session No.** (Records Use Only) | **Location** | **Beginning Date/Time** |
| | 2101 M | 8/8/01 12:00 PM |

NOTE: IN ORDER TO OBTAIN CREDIT FOR CLASS, FILL OUT FORM ACCURATELY:
1. PRINT NAME IN FORMAT LAST, FIRST, MI (UNLESS NAME IS ALREADY PROVIDED).
2. SIGN NAME IN BLACK INK AND PROVIDE REQUESTED INFORMATION.
3. IF YOU DO NOT HAVE A HID OR PAYROLL NUMBER, CONTACT YOUR INSTRUCTOR TO COMPLETE A TRAINING COMPLETION RECORD, FORM A-6001-539.

Billing Info
☐ BILLABLE CLASS
☐ NON-BILLABLE CLASS

| | Hanford ID (HID) or Payroll Number | Print Name (Last, First, MI) | Signature | Company | CACN (Charge Code) | Billing Code *See Billing Codes Below |
|---|---|---|---|---|---|---|
| 1 | H0054601 | Bowers David E | D.E. Bowers | CHG | | |
| 2 | HD02312B | Winkelman, Wayne D. | Wayne Winkelman | CHG | | |
| 3 | 85027 | Bowman, TERRY J | T.J. Bowman | CHG | | |
| 4 | H0034677 | Cockrell Andrew D | [illegible] | AT/CHG | | |
| 5 | 84900 | Brown Roland G | [illegible] | CHG | | |
| 6 | 52858 | Wanner, Dale D | Dale Wanner | CHG | | |
| 7 | H0021511 | DEFORD, DK | D. Deford | CHG | | |
| 8 | 80842 | MEEUWSEN, WE | [illegible] | CHG | | |
| 9 | 69204 | Tandoff, GR | Gary Tandoff | | | |
| 10 | 54285 | Johns, Bruce R | B.R. Johns | Cogema | | |
| 11 | 8A839 | Boettger, Jeffrey S | J. Boettger | CHG | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |

| Instructor's Name (Printed/Signature) | Date/MSIN | Authenticator's Name (Printed/Signature) | Date/MSIN |
|---|---|---|---|
| Keith Young K.R. Young | 8/8/01 | | |

COMMENTS:

*BILLING CODES: (CB) Complete Bill, (CN) Complete No-Bill, (FB) Fail Bill, (IB) Incomplete Bill, (IN) Incomplete No-Bill, (NB) No Show Bill, (XX) Cancel. IF BLANK, WILL DEFAULT TO COMPLETE BILL (CB).

**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/8/01 Instructor: Keith Young

Course Number: 350866 Course Name: RO Liability Control/Maint.

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | | X | |
| 2. The training was relevant to my job. | | | X | | |
| 3. The training objectives were clear to me. | | | | X | |
| 4. The training course was well organized | | X | | | |
| 5. The handout material will be a good reference when I return to my job. | | X | | | |
| 6. The visual aids used during the class were helpful and effective. | | | X | | |
| 7. The exercises were job related. | | | X | | |
| 8. The exercises were helpful in learning the material. | | | | X | |
| 9. The instructor presented the material well. | | | X | | |
| 10. The instructor responded to my questions. | | | X | | |
| 11. The instructor was knowledgeable of the subject. | | X | | | |
| 12. The instructor made me feel like an important part of the class. | | | X | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

Spell out accronyms

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/8/01 Instructor: Keith Young

Course Number: 350866 Course Name: _____

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | X | | | |
| 2. The training was relevant to my job. | | | X | | |
| 3. The training objectives were clear to me. | | | X | | |
| 4. The training course was well organized | | | X | | |
| 5. The handout material will be a good reference when I return to my job. | | X | | | |
| 6. The visual aids used during the class were helpful and effective. | | | X | | |
| 7. The exercises were job related. | | | | | |
| 8. The exercises were helpful in learning the material. | | X | | | |
| 9. The instructor presented the material well. | | X | | | |
| 10. The instructor responded to my questions. | | X | | | |
| 11. The instructor was knowledgeable of the subject. | | X | | | |
| 12. The instructor made me feel like an important part of the class. | | X | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**
**CHG Training**

# Student Course Evaluation

Course Date: 8/8/01 Instructor: Keith Young

Course Number: 350866 Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | X | | | |
| 2. The training was relevant to my job. | X | | | | |
| 3. The training objectives were clear to me. | | X | | | |
| 4. The training course was well organized | X | | | | |
| 5. The handout material will be a good reference when I return to my job. | X | | | | |
| 6. The visual aids used during the class were helpful and effective. | | X | | | |
| 7. The exercises were job related. | | | X | | |
| 8. The exercises were helpful in learning the material. | | | X | | |
| 9. The instructor presented the material well. | | X | | | |
| 10. The instructor responded to my questions. | | | X | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | |
| 12. The instructor made me feel like an important part of the class. | | | X | | |

What part of the training did you like LEAST? General overview, but not specific to my systems.

What part of the training did you like BEST? Good overview

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/8/1 Instructor: YOUNG

Course Number: 350866 Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | ✓ | | | | |
| 2. The training was relevant to my job. | | ✓ | | | |
| 3. The training objectives were clear to me. | ✓ | | | | |
| 4. The training course was well organized | ✓ | | | | |
| 5. The handout material will be a good reference when I return to my job. | ✓ | | | | |
| 6. The visual aids used during the class were helpful and effective. | ✓ | | | | |
| 7. The exercises were job related. | | | ✓ | | |
| 8. The exercises were helpful in learning the material. | | | ✓ | | |
| 9. The instructor presented the material well. | ✓ | | | | |
| 10. The instructor responded to my questions. | | | ✓ | | |
| 11. The instructor was knowledgeable of the subject. | ✓ | | | | |
| 12. The instructor made me feel like an important part of the class. | | | ✓ | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

KNOWLEDGABLE INSTRUCTOR

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/8/01 Instructor: Keith Young

Course Number: 350866 RCM Course Name: _____

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | X | | |
| 2. The training was relevant to my job. | | | | X | |
| 3. The training objectives were clear to me. | X | | | | |
| 4. The training course was well organized | | X | | | |
| 5. The handout material will be a good reference when I return to my job. | | | X | | |
| 6. The visual aids used during the class were helpful and effective. | | X | | | |
| 7. The exercises were job related. | | | X | | |
| 8. The exercises were helpful in learning the material. | | X | | | |
| 9. The instructor presented the material well. | | X | | | |
| 10. The instructor responded to my questions. | | X | | | |
| 11. The instructor was knowledgeable of the subject. | | X | | | |
| 12. The instructor made me feel like an important part of the class. | | X | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/8/01 Instructor: KEITH YOUNG

Course Number: 350866 Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | X | | |
| 2. The training was relevant to my job. | | X | | | |
| 3. The training objectives were clear to me. | | X | | | |
| 4. The training course was well organized | | X | | | |
| 5. The handout material will be a good reference when I return to my job. | | | X | | |
| 6. The visual aids used during the class were helpful and effective. | | | X | | |
| 7. The exercises were job related. | | X | | | |
| 8. The exercises were helpful in learning the material. | | | X | | |
| 9. The instructor presented the material well. | | X | | | |
| 10. The instructor responded to my questions. | | | X | | |
| 11. The instructor was knowledgeable of the subject. | | X | | | |
| 12. The instructor made me feel like an important part of the class. | | | X | | |

What part of the training did you like LEAST?

CLASSROOM PRESENTATION RATHER THAN CBT

What part of the training did you like BEST?

SHORT, TO THE POINT

How would you improve the training received?

COMPUTER BASED TRAINING

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/8/01 Instructor: Keith Young

Course Number: 350866 Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 | |
|---|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | ✓ | | | |
| 2. The training was relevant to my job. | | | ✓ | | | |
| 3. The training objectives were clear to me. | | ✓ | | | | |
| 4. The training course was well organized | | | ✓ | | | |
| 5. The handout material will be a good reference when I return to my job. | | ✓ | | | | |
| 6. The visual aids used during the class were helpful and effective. | | ✓ | | | | |
| 7. The exercises were job related. | | | | | | none |
| 8. The exercises were helpful in learning the material. | | | | | | none |
| 9. The instructor presented the material well. | | ✓ | | | | |
| 10. The instructor responded to my questions. | | | | | | none |
| 11. The instructor was knowledgeable of the subject. | ✓ | | | | | |
| 12. The instructor made me feel like an important part of the class. | | | ✓ | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/8/01 Instructor: K. Young

Course Number: 350866 Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | ✓ | | | | |
| 2. The training was relevant to my job. | | | ✓ | | |
| 3. The training objectives were clear to me. | | | ✓ | | |
| 4. The training course was well organized | | | ✓ | | |
| 5. The handout material will be a good reference when I return to my job. | | | ✓ | | |
| 6. The visual aids used during the class were helpful and effective. | | | ✓ | | |
| 7. The exercises were job related. | | | | ✓ | |
| 8. The exercises were helpful in learning the material. | | | ✓ | | |
| 9. The instructor presented the material well. | | | ✓ | | |
| 10. The instructor responded to my questions. | ✓ | | | | |
| 11. The instructor was knowledgeable of the subject. | | ✓ | | | |
| 12. The instructor made me feel like an important part of the class. | | ✓ | | | |

What part of the training did you like LEAST?

Too general needed Hanford examples

What part of the training did you like BEST?

Short

How would you improve the training received?

—

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8-8-01 Instructor: _____

Course Number: 350 866 Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | X | | |
| 2. The training was relevant to my job. | | | X | | |
| 3. The training objectives were clear to me. | | X | | | |
| 4. The training course was well organized | | X | | | |
| 5. The handout material will be a good reference when I return to my job. | | | X | | |
| 6. The visual aids used during the class were helpful and effective. | | | X | | |
| 7. The exercises were job related. | | | X | | |
| 8. The exercises were helpful in learning the material. | | | | X | |
| 9. The instructor presented the material well. | | X | | | |
| 10. The instructor responded to my questions. | | | X | | |
| 11. The instructor was knowledgeable of the subject. | | X | | | |
| 12. The instructor made me feel like an important part of the class. | | | X | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: ~~350866 RCM~~ 6/8/10 Instructor: Young

Course Number: 350866RCM Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | X | | |
| 2. The training was relevant to my job. | X | | | | |
| 3. The training objectives were clear to me. | X | | | | |
| 4. The training course was well organized | X | | | | |
| 5. The handout material will be a good reference when I return to my job. | | X | | | |
| 6. The visual aids used during the class were helpful and effective. | | X | | | |
| 7. The exercises were job related. | | | X | | |
| 8. The exercises were helpful in learning the material. | | | X | | |
| 9. The instructor presented the material well. | X | | | | |
| 10. The instructor responded to my questions. | X | | | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | |
| 12. The instructor made me feel like an important part of the class. | | X | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/8/01 Instructor: _____

Course Number: 350866 Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | X | | |
| 2. The training was relevant to my job. | | | X | | |
| 3. The training objectives were clear to me. | | | | X | |
| 4. The training course was well organized | | | X | | |
| 5. The handout material will be a good reference when I return to my job. | | | X | | |
| 6. The visual aids used during the class were helpful and effective. | | X | | | |
| 7. The exercises were job related. | | | X | | |
| 8. The exercises were helpful in learning the material. | | | X | | |
| 9. The instructor presented the material well. | | X | | | |
| 10. The instructor responded to my questions. | | | X | | |
| 11. The instructor was knowledgeable of the subject. | | X | | | |
| 12. The instructor made me feel like an important part of the class. | | | X | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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# COURSE COMPLETION ROSTER

| Course No. | Course Title | Date Completed |
|---|---|---|
| 350866 | Reliability Centered Maintenance | 15 AUGUST 01 |
| **Session No.** (Records Use Only) | **Location** | **Beginning Date/Time** |
| | 2101 M | 8AM 8/15/01 |

Records Use Only

NOTE: IN ORDER TO OBTAIN CREDIT FOR CLASS, FILL OUT FORM ACCURATELY:
1. PRINT NAME IN FORMAT LAST, FIRST, MI (UNLESS NAME IS ALREADY PROVIDED).
2. SIGN NAME IN BLACK INK AND PROVIDE REQUESTED INFORMATION.
3. IF YOU DO NOT HAVE A HID OR PAYROLL NUMBER, CONTACT YOUR INSTRUCTOR TO COMPLETE A TRAINING COMPLETION RECORD, FORM A-6001-539.

Billing Info
☐ BILLABLE CLASS
☐ NON-BILLABLE CLASS

| | Hanford ID (HID) or Payroll Number | Print Name (Last, First, MI) | Signature | Company | CACN (Charge Code) | Billing Code *See Billing Codes Below |
|---|---|---|---|---|---|---|
| 1 | 94385 | ROBERTS JAY B. | Jay Roberts | CHG | | |
| 2 | 82689 | Kregsrud, L.S. | L S Kregsrud | CHG | | |
| 3 | 98038 | HULL, KEIN J | K Hull | CHG | | |
| 4 | H0055560 | REBERGER, DAN W | Dan Reberger | CHG | | |
| 5 | ~~H0039579~~ | ~~Tardiff, Gary R~~ | ~~Gary Tardiff~~ | ~~CHG~~ | | |
| 6 | H0050013 | Erhart, michael F | M F Erhart | CHG | | |
| 7 | H0031279 | KOCH, MICHAEL R | M R Koch | CHG | | |
| 8 | H0091248 | BINGHAM, JAMES D | James D Bingham | CHG | | |
| 9 | H0024690 | Everett, Brian K | Brian K Everett | CHG | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | | | | | | |
| 16 | | | | | | |

| Instructor's Name (Printed/Signature) | Date/MSIN | Authenticator's Name (Printed/Signature) | Date/MSIN |
|---|---|---|---|
| Keith Young Keith Young | 8/15/01 | | |

COMMENTS:

*BILLING CODES: (CB) Complete Bill, (CN) Complete No-Bill, (FB) Fail Bill, (IB) Incomplete Bill, (IN) Incomplete No-Bill, (NB) No Show Bill, (XX) Cancel. IF BLANK, WILL DEFAULT TO COMPLETE BILL (CB).

DISTRIBUTION: ORIGINAL TO TRAINING RECORDS, G6-60

A-6001-541 (04/00)

**CH2MHILL Hanford Group**
**CHG Training**

# Student Course Evaluation

Course Date: 8/15/01 Instructor: KEITH YOUNG

Course Number: _____ Course Name: Reliability Centered MAINT

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | X | | | |
| 2. The training was relevant to my job. | | | X | | |
| 3. The training objectives were clear to me. | | | X | | |
| 4. The training course was well organized | | X | | | |
| 5. The handout material will be a good reference when I return to my job. | | X | | | |
| 6. The visual aids used during the class were helpful and effective. | | | X | | |
| 7. The exercises were job related. | | | X | | |
| 8. The exercises were helpful in learning the material. | | | X | | |
| 9. The instructor presented the material well. | X | | | | |
| 10. The instructor responded to my questions. | X | | | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | |
| 12. The instructor made me feel like an important part of the class. | X | | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

*How would you improve the training received?*

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

T:\TOOLS\FORMS\Student Course Evaluation.doc

**CH2MHILL Hanford Group**
**CHG Training**

# Student Course Evaluation

**Course Date:** 8/15/01 **Instructor:** Keith Young

**Course Number:** _____ **Course Name:** RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | X | | | | |
| 2. The training was relevant to my job. | X | | | | |
| 3. The training objectives were clear to me. | X | | | | |
| 4. The training course was well organized | X | | | | |
| 5. The handout material will be a good reference when I return to my job. | X | | | | |
| 6. The visual aids used during the class were helpful and effective. | | X | | | |
| 7. The exercises were job related. N/A | | | | | |
| 8. The exercises were helpful in learning the material. N/A | | | | | |
| 9. The instructor presented the material well. | X | | | | |
| 10. The instructor responded to my questions. | X | | | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | |
| 12. The instructor made me feel like an important part of the class. | X | | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?
Possibly expand on specific example noted for tank forms (AP vent system) RCM findings. more details

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

T:\TOOLS\FORMS\Student Course Evaluation.doc

**CH2MHILL Hanford Group**
**CHG Training**

# Student Course Evaluation

Course Date: 8/15/01 Instructor: Keith Young

Course Number: _____ Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | X | | | |
| 2. The training was relevant to my job. | | X | | | |
| 3. The training objectives were clear to me. | | X | | | |
| 4. The training course was well organized | | | X | | |
| 5. The handout material will be a good reference when I return to my job. | | X | | | |
| 6. The visual aids used during the class were helpful and effective. | | X | | | |
| 7. The exercises were job related. | | X | | | |
| 8. The exercises were helpful in learning the material. | | | X | | |
| 9. The instructor presented the material well. | | X | | | |
| 10. The instructor responded to my questions. | | X | | | |
| 11. The instructor was knowledgeable of the subject. | | X | | | |
| 12. The instructor made me feel like an important part of the class. | | X | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**
**CHG Training**

# Student Course Evaluation

Course Date: 8·15·01 Instructor: YOUNG

Course Number: _____ Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | ✓ | | | | |
| 2. The training was relevant to my job. | ✓ | | | | |
| 3. The training objectives were clear to me. | ✓ | | | | |
| 4. The training course was well organized | ✓ | | | | |
| 5. The handout material will be a good reference when I return to my job. | ✓ | | | | |
| 6. The visual aids used during the class were helpful and effective. | ✓ | | | | |
| 7. The exercises were job related. | | | | | |
| 8. The exercises were helpful in learning the material. | | | | | |
| 9. The instructor presented the material well. | | ✓ | | | |
| 10. The instructor responded to my questions. | ✓ | | | | |
| 11. The instructor was knowledgeable of the subject. | ✓ | | | | |
| 12. The instructor made me feel like an important part of the class. | | | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): [illegible]

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**CH2MHILL Hanford Group**
**CHG Training**

# Student Course Evaluation

Course Date: 8/15/01 Instructor: Keith Young

Course Number: _____ Course Name: RCM

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | X | | | |
| 2. The training was relevant to my job. | | | X | | | |
| 3. The training objectives were clear to me. | | | X | | | |
| 4. The training course was well organized | | | X | | | |
| 5. The handout material will be a good reference when I return to my job. | | | X | | | |
| 6. The visual aids used during the class were helpful and effective. | ~~N/A~~ | | X | | | |
| 7. The exercises were job related. | N/A | | | | | |
| 8. The exercises were helpful in learning the material. | N/A | | | | | |
| 9. The instructor presented the material well. | | | X | | | |
| 10. The instructor responded to my questions. | | | X | | | |
| 11. The instructor was knowledgeable of the subject. | | | X | | | |
| 12. The instructor made me feel like an important part of the class. | | | X | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**
**CHG Training**

# Student Course Evaluation

Course Date: 8/15/01 Instructor: KEITH YOUNG

Course Number: _____ Course Name: RELIABILITY MAINT.

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | X | | |
| 2. The training was relevant to my job. | | X | | | |
| 3. The training objectives were clear to me. | | | X | | |
| 4. The training course was well organized | | X | | | |
| 5. The handout material will be a good reference when I return to my job. | | X | | | |
| 6. The visual aids used during the class were helpful and effective. | | X | | | |
| 7. The exercises were job related. | | X | | | |
| 8. The exercises were helpful in learning the material. | | X | | | |
| 9. The instructor presented the material well. | | X | | | |
| 10. The instructor responded to my questions. | | X | | | |
| 11. The instructor was knowledgeable of the subject. | | X | | | |
| 12. The instructor made me feel like an important part of the class. | | X | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**
**CHG Training**

# Student Course Evaluation

Course Date: Aug 15, 2001 Instructor: ~~Kee~~ Keith Young

Course Number: _____ Course Name: Reliability Centered Maintenance

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | X | | |
| 2. The training was relevant to my job. | X | | | | |
| 3. The training objectives were clear to me. | X | | | | |
| 4. The training course was well organized | X | | | | |
| 5. The handout material will be a good reference when I return to my job. | X | | | | |
| 6. The visual aids used during the class were helpful and effective. | X | | | | |
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| 9. The instructor presented the material well. | X | | | | |
| 10. The instructor responded to my questions. | X | | | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | |
| 12. The instructor made me feel like an important part of the class. | X | | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

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**CH2MHILL Hanford Group**

**CHG Training**

# Student Course Evaluation

Course Date: 8/15/01 Instructor: Keith Young

Course Number: _____ Course Name: RCM for System Engineers

*Instructions:* Please answer by placing an "X" in the appropriate column or filling in the space provided. If an area is "Not Applicable," please leave the column blank.

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

| | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 1. The classroom environment (temperature, lighting, etc.) aided the learning process. | | | X | | |
| 2. The training was relevant to my job. | | X | | | |
| 3. The training objectives were clear to me. | | | X | | |
| 4. The training course was well organized | X | | | | |
| 5. The handout material will be a good reference when I return to my job. | | X | | | |
| 6. The visual aids used during the class were helpful and effective. | | X | | | |
| 7. The exercises were job related. | | X | | | |
| 8. The exercises were helpful in learning the material. | | X | | | |
| 9. The instructor presented the material well. | X | | | | |
| 10. The instructor responded to my questions. | X | | | | |
| 11. The instructor was knowledgeable of the subject. | X | | | | |
| 12. The instructor made me feel like an important part of the class. | | X | | | |

What part of the training did you like LEAST?

What part of the training did you like BEST?

How would you improve the training received?

SAFETY: Please list any safety concerns and/or suggestions for safety improvements on the back of this form.

CHG Training thanks you for completing this Post-Training Evaluation. Please provide any additional comments or suggestions on the back of the form by referencing the number(s) above.

Student Name (optional): _____

T:\TOOLS\FORMS\Student Course Evaluation.doc

# COURSE COMPLETION ROSTER

| Course No. | Course Title | Date Completed |
|---|---|---|
| | RCM Briefing Video | 9/20/01 |
| Session No. | Location | Beginning Date/Time |
| *Records Use Only* | | |

Records Use Only

NOTE: IN ORDER TO OBTAIN CREDIT FOR CLASS, FILL OUT FORM ACCURATELY:
1. PRINT NAME IN FORMAT LAST, FIRST, MI (UNLESS NAME IS ALREADY PROVIDED).
2. SIGN NAME IN BLACK INK AND PROVIDE REQUESTED INFORMATION.
3. IF YOU DO NOT HAVE A HID OR PAYROLL NUMBER, CONTACT YOUR INSTRUCTOR TO COMPLETE A TRAINING COMPLETION RECORD, FORM A-6001-539.

Billing Info
☐ BILLABLE CLASS
☐ NON-BILLABLE CLASS

| | Hanford ID (HID) or Payroll Number | Print Name (Last, First, MI) | Signature | Company | CACN (Charge Code) | Billing Code *See Billing Codes Below |
|---|---|---|---|---|---|---|
| 1 | H5988700 | Hissong Terry L. | [signature] | CHG | | |
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| 15 | | | | | | |
| 16 | | | | | | |

| Instructor's Name (Printed/Signature) | Date/MSIN | Authenticator's Name (Printed/Signature) | Date/MSIN |
|---|---|---|---|
| [signature] | | | |

COMMENTS:

*BILLING CODES: (CB) Complete Bill, (CN) Complete No-Bill, (FB) Fail Bill, (IB) Incomplete Bill, (IN) Incomplete No-Bill, (NB) No Show Bill, (XX) Cancel. IF BLANK, WILL DEFAULT TO COMPLETE BILL (CB).

A-6001-541 (04/00)

DISTRIBUTION: ORIGINAL TO TRAINING RECORDS, G6-60

# APPENDIX D

# TRAINING MATERIALS

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# RELIABILITY MAINTENANCE PROGRAM PROCEDURE

## Tank Farm

**KEITH YOUNG**
**Senior Associate**
**Maintenance Quality Systems LLC**

# Maintenance Actions in Program

- Time-directed tasks.
- Condition-directed tasks.
- Failure finding tasks.

# Procedure Overview

- Select system for analysis from priority list.
- Form RCM Team.
- Define boundaries, interfaces; list components.
- Determine and prioritize system functions.
- Identify system functional failures.

- Evaluate and prioritize system components by relation to system function.
- For each component determine (FMEA):
  - Functional failures.
  - Failure modes and causes.
  - Effect of failures.
  - Priority of component failures based on the above.

- Based on priority, divide component failures into RCM analysis and "Other" categories.
- Evaluate maintenance task options for RCM:
  - Condition Directed.
  - Time Directed.
  - Failure Finding.
  - Design/modification recommendation.

For "Other" component failures assign to:

- Continue/convert existing program tasks.
- One-time run to failure with RCFA.
- Reduced effort/stretched RCM analysis.
- Deliberate run to failure.

# Implementation

- Compile the total maintenance program from RCM and "Other" categories.
- Assign resources to maintenance tasks.
- Develop new technologies as needed.
- Publish schedule for tasks.
- Train personnel.
- Develop MOE and measure.

- Establish maintenance task feedback.
  - Review and document results.
  - Evaluate results.
  - Adjust task content or periodicities.
  - Add RCFA-derived tasks as they become available.

# Living Root Cause Failure Analysis

**KEITH YOUNG**

**Senior Associate**

**Maintenance Quality Systems LLC**

# Profiting from Failure

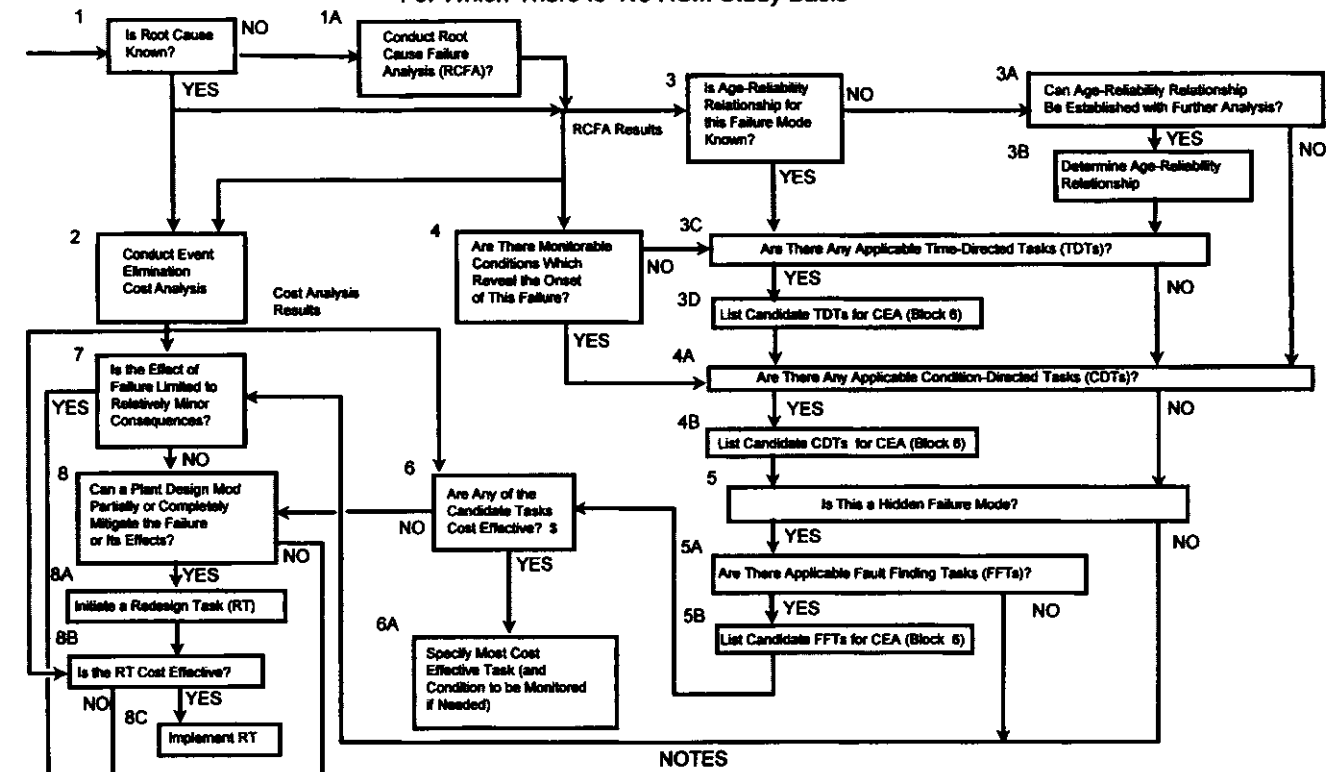
- Non-critical failures can be tolerated and used to improve equipment reliability.
- Root cause failure analysis can be used in place of the FMEA of RCM to determine preventive maintenance tasks to prevent the recurrence of the failure.

# Living RCFA

- Considers individual failures case by case.
- Keeping and analyzing failure data is key.
- Get age-reliability data whenever possible.
- "Backs into" RCM by using RCFA in place of FMEA.

## "LIVING RCM PROGRAM"

### A Proactive Approach to Resolving Significant Failures For Which There Is No RCM Study Basis




NOTES

* Causes facility downtime, impacts quality or safety or affects maintenance burden.

$ The cost analysis of a candidate task must include:

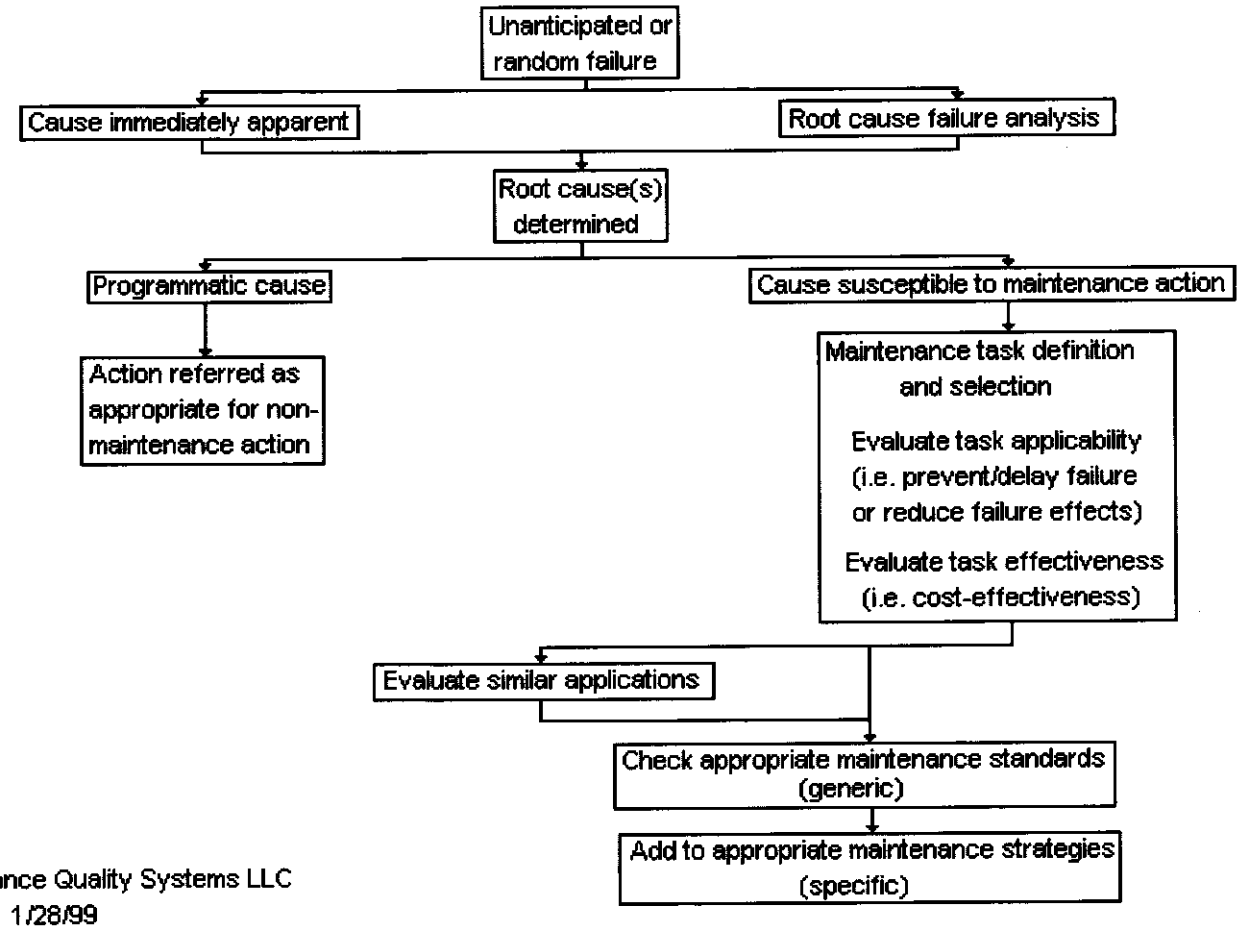
- Capital cost of condition monitoring capability to be acquired.
- Cost of any modification needed to monitor the condition selected.
- Manpower, training and other logistics costs for any candidate task.

Rev 04 05/03/96

Abbreviations

| | | |
|---|---|---|
| CDT Condition Directed Task | FFT Fault Finding Task | RTF Run to Failure |
| TDT Time-Directed Task | RT Redesign Task | CEA Cost Effectiveness Analysis |

## Root Cause Failure Analysis
## Living Program (Simplified)




Maintenance Quality Systems LLC
1/28/99

# Using Failures Positively

- Is the root cause of the failure known?
  - If not, conduct a root cause analysis.
- Is the failure cause preventable through maintenance action?
  - If not, then the cause of the failure has programmatic roots and action should be taken outside of maintenance.

- If yes, then select an appropriate maintenance action;
  - Condition-directed
  - Failure finding
  - Time-directed
- The root cause analysis is used as a limited-scope FMEA.

# Programmatic Failure Causes

- Frequency & importance often underestimated.
- People causes - human error.
  - Only two causes for individual
    - Inattention
    - Dereliction
- Program causes – management.
  - Policies or procedures
  - Training
  - Others within management control

# Maintenance Task Selection

- A task is used to detect, prevent, delay or mitigate failure.
- Must satisfy:

  *Applicability* - reduce impact or frequency of occurrence of failure due to identified cause.

  *Effectiveness* – be cost-effective.

- Knowing the failure mechanism will suggest technologies of value.
- Similar equipment shares failure mechanisms so technologies may be referenced to equipment type.

# Check for Wider Application

- Are there similar pieces of equipment which could suffer the same failure? If so, apply the maintenance task to them as well.

# Assign a Task Periodicity

- Time directed – periodicity assigned for *actual maintenance activity*.
- Condition directed – periodicity assigned for *condition monitoring activity*. Actual maintenance activity takes place only when called for by equipment condition.
- Failure finding – Periodicity is confidence-level driven.

# Documentation

- Record the maintenance task assigned and enter it into the maintenance program.

# Monitor Results and Feedback

- Monitor results.
- Establish a feedback loop for continuous improvement.
- Be prepared to adjust task content or periodicity if needed.

# Maintenance Program Conversion

**KEITH YOUNG**

**Senior Associate**

**Maintenance Quality Systems LLC**

# Program Conversion Requirements

- Existing maintenance program must well-organized and effectively carried out.
- Check existing tasks for relationship to function, applicability and effectiveness.
- Tasks must satisfy all three requirements to be retained in the maintenance program.

# RCM Principles of Interest

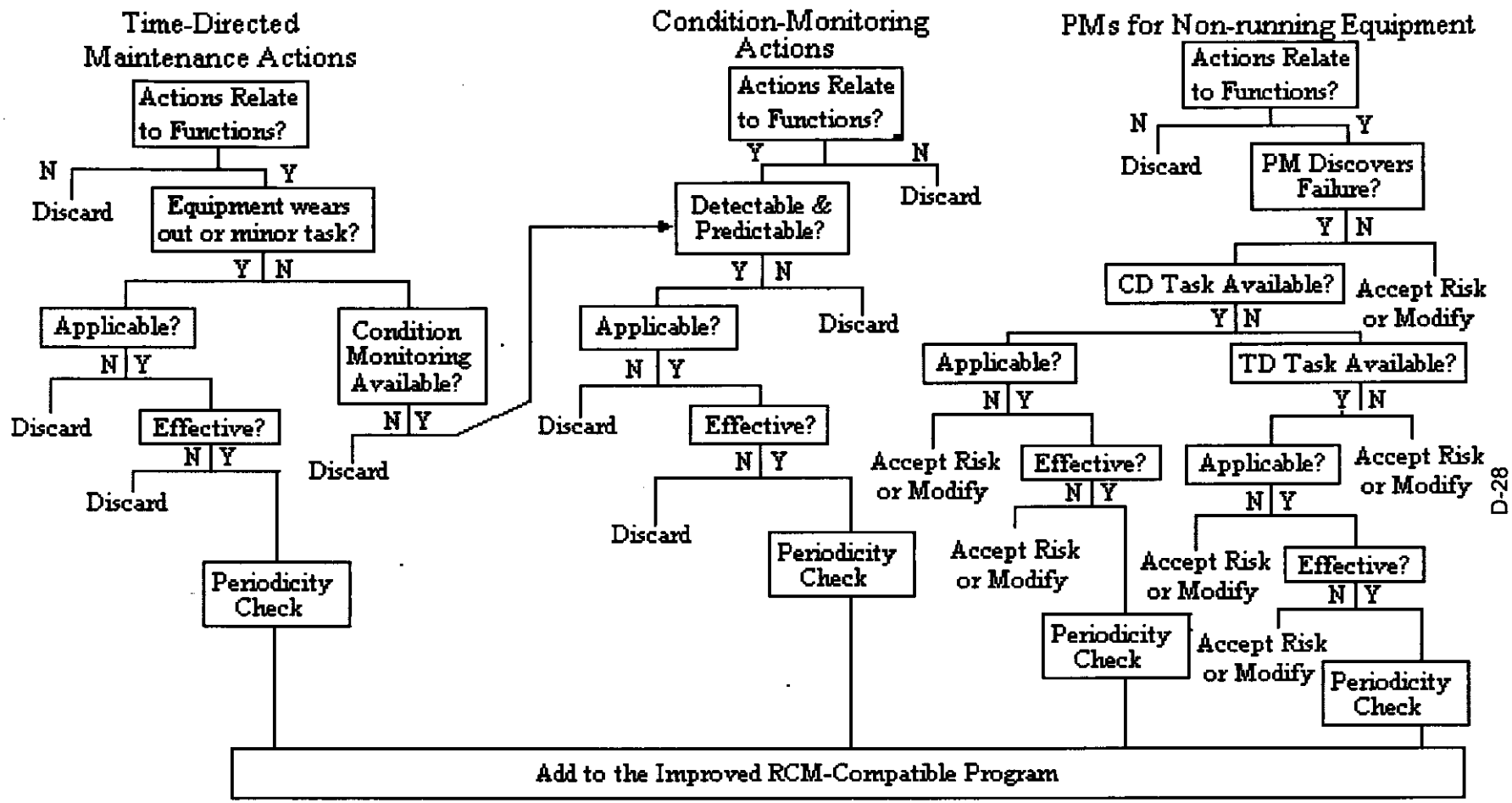
- RCM is function oriented.
- RCM is reliability-centered.
- RCM has three types of maintenance tasks:

  time-directed
  condition-directed
  failure-finding

- RCM maintenance tasks must be effective (worth doing, cost-effective) and applicable (prevent, delay or reduce effect of failures).
- RCM is a living system.

# Organizing the Conversion

- Sort existing maintenance tasks
  - By component and task type
- Evaluate relationship to function
- Check validity of task type
- Evaluate applicability
- Evaluate cost-effectiveness
- Evaluate periodicity of task
- Eliminate task duplication






# Transitioning from an Existing PM Program to an RCM-Compatible Program

6 Jan 99

Maintenance Quality Systems LLC

# Sorting Existing Tasks

- Time-directed maintenance actions
- Condition directed maintenance actions and condition monitoring tasks
- PMs for non-running equipment

# Evaluate Relationship to Function

- Does the maintenance task assist in preserving a needed component and system function?
  - If no, discard the task.
  - If yes, continue the evaluation.

# Check Task-type Validity

- For time-directed – Does equipment "wearout" or is it a minor task?
- For condition-directed – Is the condition detectable and predictable?
- For non-running PMs – Does the task discover hidden failures?

- If the task type is invalid, modify or discard the task.
  - Invalid TD task – Convert to CD, if appropriate. If not, discard.
  - Invalid CD – Consider TD, if appropriate. If not, discard.
  - Non-running PMs – Consider alternative task. Discard existing.

# Evaluate Applicability and Effectiveness

Each task must satisfy:

*Applicability* - reduce impact or frequency of occurrence of failure due to identified cause. Used to detect, prevent, delay or mitigate failure

*Effectiveness* – be cost-effective.

- If a task fails either the test of applicability or of effectiveness, discard it.

# Periodicity

- Check each task for reasonable periodicity
  - Time directed – periodicity assigned for *actual maintenance activity*.
  - Condition directed – periodicity assigned for *condition monitoring activity*. Actual maintenance activity takes place only when called for by equipment condition.
  - Failure finding – Periodicity is confidence-level driven.

# Surviving Task Documentation

- Tasks surviving the screening process have been checked for a positive contribution to maintaining equipment reliability.
- Document these surviving tasks as part of the maintenance program.
- Discontinue and discard tasks which have failed to meet conversion criteria.

# Monitor Results and Feedback

- Monitor results.
- Establish feedback loop for continuous improvement.
- Be prepared to adjust task content and periodicity if needed.

# RCM Pilot System Implementation Final Report

AP Tank Farm Primary Ventilation System

# Recommendations

- Extend periodic CAM surveillance from 12 hours to 24. (AP296-VTP-CAM-510)
- Monitor HEPA filter dP readings every 24 hours vice every 12 hours. (TF-OR-A-03)
- Extend periodic De-entrainer filter surveillance from weekly to monthly. (DPIS-21 and DPIS-22)

- Provide remote temperature indication in control room for instrument enclosure AP241-VTP-ENCL-120.
- Provide remote indicating light visible from control room for A&B PLC Interlock Function Switch, AP296-VTP-HS-420.
- Add check off sheet for proper fan and motor operation to Supply and Exhaust Fan Inspection, 6-TF-237.

- Add checks for proper operating condition of the primary ventilation fans, motors and position and operation of the inlet valves, MOV-301/401. (TF-OR-A-03 and TO-060-340)
- Add specific information on the presence of transmitter disconnects and the specific criteria for installing the optional 250 ohm resistor in Yokogawa EJA 110 &120 Differential Pressure Transmitters. (6-PCD-373)

- The scope of the pressure switch calibration procedures require extension to newly acquired Yokogawa dP switches. (6-PCD-508 and 6-PCD-514)
- The current procedure for testing the HEPA Filter dP Interlock System PLC, TF-FT-279-018, does not test all PLC functions. Revision or exempting certain functions from testing is needed.