Chromium Sampling from Tank Farm Stacks

Tank Farm Environmental Procedure

USQ # N/A-4

**CHANGE HISTORY (≤ LAST 5 REV-MODS)**

<table>
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<tr>
<th>Rev-Mod</th>
<th>Release Date</th>
<th>Justification</th>
<th>Summary of Changes</th>
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<td>A-0</td>
<td>09/26/2018</td>
<td>New Procedure</td>
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This is a new revision. The [First Time Use process](TFC-OPS-OPER-C-13) as defined in TFC-OPS-OPER-C-13 can be used during the initial performance of this revision.

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1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for sampling chromium emitted from Tank Farm ventilation exhaust stacks to meet permit conditions. The principles of collection are based upon NIOSH 7301.

1.2 Scope

1.2.1 This procedure applies to ventilation exhaust stacks located in East and West Tank Farms that are permitted by the Washington Department of Ecology (WDOE).

1.2.2 This procedure includes site-specific appendices. Changes or revisions to the instructions may affect the appendices and must be approved by Environmental.

1.2.3 This procedure is worked in accordance with approved work package.
2.0 INFORMATION

NONE.
3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personnel Safety

3.1.1 The Hazards relating to the task(s)/step(s) within the scope of this work package have been analyzed and determined to fall within the General Hazard Analysis.

3.1.2 When liquids are present or handling the absorbent materials, workers need to wear surgeons’ or nitrile gloves.

3.1.3 Contact IH for current and appropriate TVIS (Tank Vapor Information Sheet) and RC (Risk Classification) sampling plan.

3.2 Equipment Safety

CAUTION - Failure to open applicable valve will result in no flow to CAM.

3.2.1 Primary exhauster must be running.

3.2.2 Electrical shielding is in place to allow unqualified electrical workers to change filter paper during sampling activities.

3.2.3 When environmental conditions exist where extreme cold or damp weather conditions could potentially cause condensation to form inside the ventilation system (outside ambient temperature is less than 50 degrees Fahrenheit), absorbent materials should be placed around the filter paper connection when changing out filter paper. This will help to ensure liquids do not drip on electrical components/insulating barriers and maintains the cabinet in an electrically safe condition.

3.2.4 If liquids run down onto electrical components/insulating barriers, personnel shall exit the cabinet & the Shift manager notified that the cabinet must be reevaluated for electrical hazards.
3.3 Radiation and Contamination Control

3.3.1 When this procedure is worked in radiological areas, an approved radiological work permit (RWP) is required. If radiological conditions or work performed falls outside the scope of the RWP, all work activities must be discontinued until a new or revised RWP has been issued in accordance with TFC-ESHQ-RP_RWP-C-03.

3.3.2 The opening of any system or component within a Radiological Area requires the presence of a Health Physics Technician to verify contamination control.

3.4 Environmental Compliance

3.4.1 All planned and unplanned outages of Tank Farm ventilation systems, abatement control equipment and exhaust monitoring systems must be reported to the applicable shift office per TF-REC-001 and Environmental per TFC-ESHQ-ENV_FS-C-01.

3.4.2 Environmental shall be notified in accordance with TFC-ESHQ-ENV_FS-C-01 when damaged or wet sample filter papers are discovered upon filter paper exchange.

3.4.3 Any spills and/or releases shall be immediately reported to the appropriate WRPS Shift Office. This includes water discharges to surface contamination areas.

3.4.4 Sampling shall be conducted in accordance with an approved sampling and analysis plan.
4.0 PREREQUISITES

4.1 Special Tools and Equipment

- Sample Media
- Replacement CAM (Versapor®-3000T, 47 mm) filter paper as required
- Replacement chromium (SKC-West® SKC-225-5-47 47 mm) filter paper, petri dish
- Tweezers for filter handling
- Portable count rate survey instruments
- Key for Interlock Bypass Switch (located Production Operations)
- Small screwdriver for cabinet access
- Handheld Control Unit (HCU) for reading Automated Bar Code Air Sample for Hanford (ABCASH) bar code labels
- Absorbent material
- Surgeons/Nitrile gloves.

4.2 Performance Documents

The current revisions of the following documents may be needed to perform this procedure:

- TO-100-052, Perform Waste Generation, Segregation, Accumulation and Clean-up
- Site-Specific Appendix, as required
- Radiological Survey Tracking Table (A-6006-444)
- Post Job Review (A-6005-438)
- Industrial Hygiene surveys (including forms).

4.2.1 **ENSURE** RadCon personnel meet training requirements listed below:

- IH/HPT initial qualification
- Orientation Checklist (Site Form A-6003-481)
- OJTs and following courses:
  - 356030, Eberline AMS-4 Beta CAM
  - 350979, Source Check and Air Sample Exchange
  - 351572, Daily CAM & Record Inspections
  - 356437, ABCASH
  - HMI Trained (no course Number).
4.3 Field Preparation

4.3.1 PERFORM a documented Pre-Job Briefing prior to working in the field.

NOTE - Steps 4.3.2 through 4.3.6 may be worked concurrently, in any logical order, AND/OR repeated.

4.3.2 CONFIRM ventilation system to be sampled is operating.

4.3.3 CONTACT 222-S lab at least 24 hours in advance AND CONFIRM lab is ready to receive samples.

4.3.4 PREPARE shipping equipment.

4.3.5 ENSURE blue card for shipment is available.

4.3.6 PREPARE chain of custody for samples.

4.3.7 PERFORM Field Preparation for Chromium sampling as follows:

4.3.7.1 PRIOR to the performance of this procedure, ENSURE Shift Manager is notified of work location and work scope.

NOTE - The third sample filter will be used as the field blank.

4.3.7.2 (IHT) PREPARE three (SKC-West® SKC-225-5-47 47 mm) sample filter for hexavalent chromium and sample petri dish.

4.3.7.3 (HPT) PREPARE a CAM filter and a separate CAM filter envelope for the exchange AND RECORD EDP Code and date along outside edge of filter paper.

4.3.7.4 ENSURE Shift Manager/Engineering provides password and username for resetting of the HMI.
5.0 PROCEDURE

NOTE - Sampling may be performed at either Operating A-TRAIN (296-A-048) OR Operating B-TRAIN (296-A-049).

5.1 Perform Chromium Sampling at AP-Farm Primary Stacks

5.1.1 OBTAIN Shift Manager Permission to proceed with air sample exchange and O-Ring inspection at designated CAM(s).

5.1.2 IF during filter exchange the exhaust stack shuts down, IMMEDIATELY NOTIFY Shift Manager that system has shut down.

5.1.3 PERFORM the following:

5.1.3.1 REQUEST Operator to place stack CAM in Interlock BYPASS.

5.1.3.2 CHECK “CAM Bypass Active” on corresponding Exhauster AMS-4 HMI screens.

5.1.4 RECORD required sample As-Found (Off Data) information (Date, Sample Flow Rate, CAM Sampler Lifetime Total Flow) on brown sample envelope or in ABCASH HCU.

<table>
<thead>
<tr>
<th>HMI Screen</th>
<th>ABCASH</th>
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<tr>
<td>CAM Sampler Total Flow - Lifetime</td>
<td>Gas Meter (Cu Ft)</td>
</tr>
<tr>
<td>CAM Sampler Total Runtime - Current</td>
<td>Timer (Hrs.)</td>
</tr>
<tr>
<td>CAM Sampler (scfm)</td>
<td>Rota meter (CuFt/Min)</td>
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5.1.5 IF Train is running, CLOSE valve V-554 for A-Train OR V-654 for B-Train.

5.1.6 OPEN sample holder.

5.1.7 IF open door alarm actuates, ACKNOWLEDGE alarm.

5.1.8 REMOVE CAM filter.

5.1.9 PLACE filter in brown sample envelope.
Perform Chromium Sampling at AP-Farm Primary Stacks (Cont.)

5.1.10 **RESET** HMI timer “CAM Sampler Total Runtime Current” on corresponding Exhauster HMI screen.

5.1.10.1 **CLICK** [RESET] button.

5.1.10.2 **CLICK** on Enter.

5.1.10.3 **IF** unable to reset HMI timer, **NOTIFY** Shift Manager.

5.1.11 **INSPECT** O-Rings AND **NOTIFY** Shift Manager if O-Rings are found to be damaged.

5.1.12 **PLACE** a new clean Chromium sample filter paper on the unit.

5.1.13 **CENTER** on the O-ring.

5.1.14 **CLOSE** sample holder AND **ENSURE** holder is latched.

**CAUTION**

Failure to open applicable valve will result in no flow to CAM.

5.1.15 **IF** Train is running, **OPEN** valve V-554 for A-Train OR V-654 for B-Train.

5.1.16 **AFTER** “READY” Green Light is lit (may take up to 5 minutes), **ACKNOWLEDGE/RESET** actuated alarms.

5.1.16.1 **REQUEST** Operator to clear/reset all alarms.

5.1.16.2 **REQUEST** Shift Manager Permission to return stack CAM interlock Bypass to inactive.

5.1.16.3 **REQUEST** Operator place CAM Interlock Bypass to normal.

5.1.16.4 **NOTIFY** Shift Manager Stack CAM Interlock Bypass has been returned to normal.

**NOTE** - Sample Airflow should be between 1.9 to 2.1 scfm.

5.1.17 **ENSURE** Sample Airflow is correct.
0 Perform Chromium Sampling at AP-Farm Primary Stacks (Cont.)

5.1.18 **RECORD** the following information on TF ENV-004A Appendix A, Data Sheet 1:
- Sample Number
- Starting Time
- Starting Sample Flow Rate.

5.1.19 **CHECK** CAM outlet pressure PI-554 for A-Train or PI-654 for B-Train is \(\leq 11\) in. Hg.

5.1.19.1 **IF** CAM outlet pressure PI-554 for A-Train or PI-654 for B-Train is greater than 11 in. Hg, **NOTIFY** Shift Manager.

5.1.20 **CONTACT** Hanford Weather Forecaster by telephone (373-2716).

5.1.20.1 **REQUEST** Barometric Pressure and Atmospheric Temperature for weather station number 6 AND **RECORD** values and time of reading on Appendix Data Sheet 1.

5.1.21 **OBTAIN** Stack Flow and Stack Temperature information from instrumentation or from Operations by telephone (373-2618) AND **RECORD** on TF ENV-004A Appendix A, Data Sheet 1.

5.1.22 **ENSURE** Chromium sample filter remains on the unit a minimum of 120 minutes.

5.1.23 **OBTAIN** Shift Manager permission to proceed with air sample exchange and O-Ring inspection at designated CAM(s).

5.1.23.1 **IF** during filter exchange the exhaust stack shuts down, **IMMEDIATELY NOTIFY** Shift Manager that system has shut down.

5.1.24 **PERFORM** the following:

5.1.24.1 **REQUEST** Operator to place stack CAM in Interlock BYPASS.

5.1.24.2 **CHECK** “CAM Bypass Active” on corresponding Exhauster AMS-4 HMI screens.
0 Perform Chromium Sampling at AP-Farm Primary Stacks (Cont.)

5.1.25 RECORD the following information on TF ENV-004A Appendix A, Data Sheet 1
- Sample Ending Time
- Ending Flow Rate
- Survey Number.

5.1.26 IF Train is running, CLOSE valve V-554 for A-Train OR V-654 for B-Train.

5.1.27 OPEN sample holder.

5.1.28 IF open door alarm actuates, ACKNOWLEDGE alarm.

5.1.29 REMOVE Chromium sample filter.

5.1.30 PLACE in petri dish.

5.1.31 RESET HMI timer “CAM Sampler Total Runtime Current” on corresponding Exhauster HMI screen.

5.1.31.1 CLICK [RESET] button.

5.1.31.2 CLICK on Enter.

5.1.31.3 IF unable to reset HMI timer, NOTIFY Shift Manager.

5.1.32 INSPECT O-Rings AND

NOTIFY Shift Manager if O-Rings are found to be damaged.

5.1.33 PLACE a new clean Chromium sample filter paper on the unit.

5.1.34 CENTER on the O-ring.

5.1.35 CLOSE sample holder AND

ENSURE holder is latched.
Perform Chromium Sampling at AP-Farm Primary Stacks (Cont.)

**CAUTION**
Failure to open applicable valve will result in no flow to CAM.

5.1.36 IF Train is running, **OPEN** valve V-554 for A-Train OR V-654 for B-Train.

5.1.37 **AFTER** “READY” Green Light is lit (may take up to 5 minutes), **ACKNOWLEDGE/RESET** actuated alarms.

5.1.37.1 **REQUEST** Operator to clear/reset all alarms.

5.1.37.2 **REQUEST** Shift Manager permission to return stack CAM interlock Bypass to inactive.

5.1.37.3 **REQUEST** Operator place CAM Interlock Bypass to normal.

5.1.37.4 **NOTIFY** Shift Manager that Stack CAM Interlock Bypass has been returned to normal.

**NOTE** - Sample Airflow should be between 1.9 to 2.1 scfm.

5.1.38 **ENSURE** Sample Airflow is correct.

5.1.39 **RECORD** the following information on TF ENV-004A Appendix A, Data Sheet 2:
- Sample Number
- Starting Time
- Starting Sample Flow Rate.

5.1.40 **CHECK** CAM outlet pressure PI-554 for A-Train or PI-654 for B-Train is \( \leq 11 \) in. Hg.

5.1.40.1 **IF** CAM outlet pressure PI-554 for A-Train or PI-654 for B-Train is greater than 11 in. Hg, **NOTIFY** Shift Manager.

5.1.41 **CONTACT** Hanford Weather Forecaster by telephone (373-2716).

5.1.41.1 **REQUEST** Barometric Pressure and Atmospheric Temperature for weather station number 6 **AND**

**RECORD** values and time of reading on TF ENV-004A Appendix A, Data Sheet 1.
Chromium Sampling from Tank Farm Stacks

0 Perform Chromium Sampling at AP-Farm Primary Stacks (Cont.)

5.1.42 **OBTAIN** Stack Flow and Stack Temperature information from instrumentation or from Operations by telephone (373-2618) **AND**

**RECORD** on TF ENV-004A Appendix A, Data Sheet 2.

5.1.43 **ENSURE** Chromium sample filter remains on the unit for at least 120 minutes.

5.1.44 **CONTACT AND OBTAIN** Shift Manager permission to proceed with air sample exchange and O-Ring inspection at designated CAM(s).

5.1.44.1 **IF** during filter exchange the exhaust stack shuts down, **IMMEDIATELY NOTIFY** Shift Manager that system has shut down.

5.1.45 **PERFORM** the following:

5.1.45.1 **REQUEST** Operator to place stack CAM in Interlock BYPASS.

5.1.45.2 **CHECK** “CAM Bypass Active” on corresponding Exhauster AMS-4 HMI screens.

5.1.46 **RECORD** the following information on TF ENV-004A Appendix A, Data Sheet 2:

- Sample Ending Time
- Ending Flow Rate
- Survey Number.

5.1.47 **IF** Train is running, **CLOSE** valve V-554 for A-Train OR V-654 for B-Train.

5.1.48 **OPEN** sample holder.

5.1.49 **IF** open door alarm actuates, **ACKNOWLEDGE** alarm.

5.1.50 **REMOVE** Chromium sample filter **AND**

**PLACE** in petri dish.
Perform Chromium Sampling at AP-Farm Primary Stacks (Cont.)

5.1.51  **RESET** HMI timer “CAM Sampler Total Runtime Current” on corresponding Exhauster HMI screen.

5.1.51.1  **CLICK** [RESET] button.

5.1.51.2  **CLICK** on Enter.

5.1.51.3  **IF** unable to reset HMI timer, **NOTIFY** Shift Manager.

5.1.52  **INSPECT** O-Rings AND 
**NOTIFY** Shift Manager if O-Rings are found to be damaged.

5.1.53  **PLACE** a new CAM filter paper on the unit.

5.1.54  **CENTER** on the O-ring.

5.1.55  **CLOSE** sample holder AND 
**ENSURE** holder is latched.

**CAUTION**

Failure to open applicable valve will result in no flow to CAM.

5.1.56  **IF** Train is running, **OPEN** valve V-554 for A-Train OR V-654 for B-Train.

5.1.57  **AFTER** “READY” Green Light is lit (may take up to 5 minutes),  
**ACKNOWLEDGE/RESET** actuated alarms.

**NOTE** - Sample Airflow should be between 1.9 to 2.1 scfm.

5.1.58  **ENSURE** Sample Airflow is correct.

5.1.59  **RECORD** required sample “As- Left” Flow Rate and Total Flow (On Data) information on brown sample envelope or in ABCASH HCU.

5.1.60  **CHECK** CAM outlet pressure PI-554 for A-Train or PI-654 for B-Train is \( \leq \) 11 in. Hg.

5.1.60.1  **IF** CAM outlet pressure PI-554 for A-Train or PI-654 for B-Train is greater than 11 in. Hg, **NOTIFY** Shift Manager.
0 Perform Chromium Sampling at AP-Farm Primary Stacks (Cont.)

5.1.61 PERFORM the following:

5.1.61.1 REQUEST Operator to clear/reset all alarms including RAH 554/654.

5.1.61.2 REQUEST Shift Manager Permission to return stack CAM Interlock Bypass to inactive.

5.1.61.3 REQUEST Operator place CAM Interlock Bypass to normal.

5.1.61.4 NOTIFY Shift Manager that stack CAM Interlock Bypass has been returned to inactive.

5.1.61.5 IMMEDIATELY NOTIFY Shift Manager of the following:
   - Test has been completed
   - CAM/RECORD SYSTEM STATUS: RETURNED TO SERVICE or OUT OF SERVICE.

5.1.61.6 IF ABCASH system is not operable, COMPLETE CHAIN OF CUSTODY.

5.1.61.7 IF ABCASH operable PERFORM the following:
   a. TRANSFER Data to ABCASH Database.
   b. COMPLETE CHAIN OF CUSTODY in ABCASH.

5.1.61.8 (HPT) DELIVER CAM filter samples to approved facility sample storage area.

5.1.61.9 (IHT) DELIVER Chromium sample filters to 222-S Laboratory (or appropriate storage area) using CHAIN OF CUSTODY.
5.2 Perform Chromium Sampling at AY/AZ Primary Stack

5.2.1 REQUEST operator to position CAM INTERLOCK BYPASS SWITCH HS–AZK1-3 to BYPASS position for running primary exhaust fan.

5.2.2 NOTIFY Shift Manager CAM INTERLOCK BYPASS SWITCH is in BYPASS REQUEST Operator PUSH the following to SILENCING:
   - Bell alarm (HS-AZK1-1A1)
   - Horn alarm (HS-AZK1-1B1).

5.2.3 POSITION AZK1-1 CAM outside alarm horn to OFF.

5.2.4 IF CAM is alarming, NOTIFY Shift Manager.

5.2.5 PERFORM steps 5.2.5.1 through 5.2.5.5 to RECORD “As-found” Off Data.

5.2.5.1 SCAN EDP Barcode CAM (E153) located in Cabinet ENCL-AZK1-1 into ABCASH HCU.

5.2.5.2 SCAN barcode on the brown envelope into ABCASH HCU.

5.2.5.3 RECORD analog data from FQI-AZK1-1 “Beta/Gamma Sample Massflow Totalizer” in to ABCASH HCU in box Gasmeter CuFt.

5.2.5.4 RECORD digital SCFM data from FIT-AZK1-1 “Beta/Gamma Massflow Transmitter” into ABCASH HCU in box Rotameter CuFt/min.

5.2.5.5 RECORD analog data from FQI-AZK1-3 “Stack Massflow Totalizer” into ABCASH HCU in box Stack CuFt.

NOTE - For an AMS-4 CAM, the following step will reset the history files and inhibit alarm monitoring until sufficient new history is obtained as indicated by the "READY" light. This also allows time for proper O-Ring inspection. Collection of new history will not occur and the alarm will remain active until the filter door is closed.

5.2.6 OPEN sample holder located in ENCL-AZK1-1.

5.2.7 IF exchanging filter on an AMS-4 CAM, ACKNOWLEDGE alarm that occurs when filter holder is opened.

5.2.8 REMOVE CAM filter.

5.2.9 INSERT CAM filter into envelope.
5.2 Perform Chromium Sampling at AY/AZ Primary Stack (Cont.)

5.2.10 **INSPECT** O-ring(s) AND **NOTIFY** Shift Manager of O-ring condition if O-ring(s) are found to be damaged or missing.

5.2.11 **ENSURE** air sample filter holder and screens are in place and in good condition.

5.2.12 **PLACE** a new clean Chromium sample filter paper on the unit.

5.2.13 **CLOSE** sample holder AND **ENSURE** holder is latched.

5.2.14 **AFTER** "READY" Green Light is lit, **REQUEST** Operator to perform Steps 5.2.14.2 through 5.2.14.4.

5.2.14.1 **OBTAIN** Shift Manager permission to position CAM INTERLOCK BYPASS SWITCH to ENABLE position for the running fan.

5.2.14.2 **ENSURE** RAH-AZK1-1 is not in alarm AND **POSITION** CAM INTERLOCK BYPASS SWITCH HS–AZK1-3 to CAM ENABLE position for the primary exhaust running fan.

5.2.14.3 **NOTIFY** Shift Manager CAM INTERLOCK BYPASS SWITCH is in CAM ENABLE AND **REQUEST** Operator to enable the following:
- Bell alarm (HS-AZK1-1A1)
- Horn alarm (HS-AZK1-1B1).

5.2.14.4 **POSITION** AZK1-1 CAM outside alarm horn to ON.

**NOTE** - Sample Airflow should be between 0.5 to 1.7 cfm.

5.2.15 **ENSURE** Sample Airflow is correct.

5.2.16 **RECORD** the following information on TF ENV-004B Appendix B, Data Sheet 1:
- Sample Number
- Starting Time
- Starting Sample Flow Rate.
5.2 Perform Chromium Sampling at AY/AZ Primary Stack (Cont.)

5.2.17 CONTACT Hanford Weather Forecaster by telephone (373-2716).

5.2.17.1 REQUEST Barometric Pressure and Atmospheric Temperature for weather station number 6 AND RECORD values and time of reading on Appendix Data Sheet 1.

5.2.18 OBTAIN Stack Flow and Stack Temperature information from instrumentation or from Operations by telephone (373-2618) AND RECORD on TF ENV-004B Appendix B, Data Sheet 1.

5.2.19 ENSURE Chromium sample filter remains on the unit for at least 120 minutes.

5.2.20 REQUEST operator to position CAM INTERLOCK BYPASS SWITCH HS–AZK1-3 to BYPASS position for running primary exhaust fan.

5.2.21 NOTIFY Shift Manager CAM INTERLOCK BYPASS SWITCH is in BYPASS REQUEST Operator to push the following to SILENCING:

- Bell alarm (HS-AZK1-1A1)
- Horn alarm (HS-AZK1-1B1).

5.2.22 POSITION AZK1-1 CAM outside alarm horn to OFF.

5.2.23 IF CAM is alarming, NOTIFY Shift Manager.

5.2.24 RECORD the following information on TF ENV-004B Appendix B, Data Sheet 1:

- Sample Ending Time
- Ending Flow Rate
- Survey Number.

5.2.25 OPEN sample holder located in ENCL-AZK1-1.

5.2.26 IF exchanging filter on an AMS-4 CAM, ACKNOWLEDGE alarm that occurs when filter holder is opened.

5.2.27 REMOVE Chromium Sample filter.

5.2.28 PLACE in petri dish.
5.2 Perform Chromium Sampling at AY/AZ Primary Stack (Cont.)

5.2.29 INSPECT O-ring(s) AND

NOTIFY Shift Manager of O-ring condition if O-ring(s) are found to be damaged or missing.

5.2.30 ENSURE air sample filter holder and screens are in place and in good condition.

5.2.31 PLACE a new clean Chromium sample filter paper on the unit.

5.2.32 CLOSE sample holder AND

ENSURE holder is latched.

5.2.33 AFTER "READY" Green Light is lit, REQUEST Operator to perform Steps 5.2.14.2 through 5.2.14.4.

5.2.33.1 OBTAIN Shift Manager permission to position CAM INTERLOCK BYPASS SWITCH to ENABLE position for the running fan.

5.2.33.2 ENSURE RAH-AZK1-1 is not in alarm (MCS graphic 18) AND

POSITION CAM INTERLOCK BYPASS SWITCH HS–AZK1-3 to CAM ENABLE position for the primary exhaust running fan.

5.2.33.3 NOTIFY Shift Manager CAM INTERLOCK BYPASS SWITCH is in CAM ENABLE AND

REQUEST Operator to enable the following:

- Bell alarm (HS-AZK1-1A1)
- Horn alarm (HS-AZK1-1B1).

5.2.33.4 POSITION AZK1-1 CAM outside alarm horn to ON.

NOTE - Sample Airflow should be between 0.5 to 1.7 cfm.

5.2.34 ENSURE Sample Airflow is correct 0.5 to 1.7 cfm.

5.2.35 RECORD the following information on TF ENV-004B Appendix B, Data Sheet 2:

- Sample Number
- Starting Time
- Starting Sample Flow Rate.
5.2 Perform Chromium Sampling at AY/AZ Primary Stack (Cont.)

5.2.36 CONTACT Hanford Weather Forecaster by telephone (373-2716).

5.2.36.1 REQUEST Barometric Pressure and Atmospheric Temperature for weather station number 6 AND RECORD values and time of reading on Appendix Data Sheet 1.

5.2.37 OBTAIN Stack Flow and Stack Temperature information from instrumentation or from Operations by telephone (373-2618) AND RECORD on Appendix Data Sheet 2.

5.2.38 ENSURE Chromium sample filter remains on the unit for 120 minutes.

5.2.39 REQUEST operator to position CAM INTERLOCK BYPASS SWITCH HS–AZK1-3 to BYPASS position for running primary exhaust fan.

5.2.40 NOTIFY Shift Manager CAM INTERLOCK BYPASS SWITCH is in BYPASS.

5.2.40.1 REQUEST Operator PUSH the following to SILENCING:
- Bell alarm (HS-AZK1-1A1)
- Horn alarm (HS-AZK1-1B1).

5.2.41 POSITION AZK1-1 CAM outside alarm horn to OFF.

5.2.42 IF CAM is alarming, NOTIFY Shift Manager.

5.2.43 RECORD the following information on TF ENV-004B Appendix B, Data Sheet 2:
- Sample Ending Time
- Ending Flow Rate
- Survey Number.

5.2.44 OPEN sample holder located in ENCL-AZK1-1.

5.2.45 IF exchanging filter on an AMS-4 CAM, ACKNOWLEDGE alarm that occurs when filter holder is opened.

5.2.46 REMOVE Chromium Sample filter.

5.2.47 PLACE in petri dish.
5.2 **Perform Chromium Sampling at AY/AZ Primary Stack (Cont.)**

5.2.48 **INSPECT** O-ring(s) **AND**

**NOTIFY** Shift Manager of O-ring condition if O-ring(s) are found to be damaged or missing.

5.2.49 **ENSURE** air sample filter holder and screens are in place and in good condition.

5.2.50 **INSTALL** a new CAM filter in sample holder

5.2.51 **CLOSE** sample holder **AND**

**ENSURE** holder is latched.

5.2.52 **RECORD** required sample "ON" information.

5.2.52.1 **RECORD** analog data from FQI-AZK1-1 “Beta/Gamma Sample Massflow Totalizer” into ABCASH HCU in box Gasmeter CuFt.

5.2.52.2 **RECORD** digital SCFM data from FIT-AZK1-1 “Beta/Gamma Massflow Transmitter” into ABCASH HCU in box Rotameter CuFt/min.

5.2.52.3 **RECORD** analog data from FQI-AZK1-3 “Stack Massflow Totalizer” into ABCASH HCU in box Stack CuFt.
5.2 Perform Chromium Sampling at AY/AZ Primary Stack (Cont.)

5.2.53 AFTER "READY" Green Light is lit, REQUEST Operator to perform Steps 5.2.14.2 through 5.2.14.4.

5.2.53.1 OBTAIN Shift Manager permission to position CAM INTERLOCK BYPASS SWITCH to ENABLE position for the running fan.

5.2.53.2 ENSURE RAH-AZK1-1 is not in alarm (MCS graphic 18) AND POSITION CAM INTERLOCK BYPASS SWITCH HS--AZK1-3 to CAM ENABLE position for the primary exhaust running fan.

5.2.53.3 NOTIFY Shift Manager CAM INTERLOCK BYPASS SWITCH is in CAM ENABLE AND REQUEST Operator to enable the following:
- Bell alarm (HS-AZK1-1A1)
- Horn alarm (HS-AZK1-1B1)

5.2.53.4 POSITION AZK1-1 CAM outside alarm horn to ON.

5.2.53.5 IMMEDIATELY NOTIFY Shift Manager the Test has been completed.

5.2.53.6 IF ABCASH system is not operable, COMPLETE CHAIN OF CUSTODY.

5.2.53.7 IF ABCASH operable, PERFORM the following:
   a. TRANSFER Data to ABCASH Database.
   b. COMPLETE CHAIN OF CUSTODY in ABCASH.

5.2.53.8 (HPT) DELIVER CAM filter samples to approved facility sample storage area.

5.2.53.9 (IHT) DELIVER Chromium sample filters to 222-S Laboratory (or appropriate storage area) using CHAIN OF CUSTODY.
5.3 Testing and Restoration

5.3.1 FWS **ENSURE** all caps, valves, plugs and instrumentation have been restored to original configuration **AND**

**CIRCLE** YES or NO on applicable stack farm appendix, Data Sheet 3.

5.3.2 FWS **ENTER** the following on TF ENV-004A Appendix A, Data Sheet 3 AND/OR TF ENV-004B Appendix B, Data Sheet 3:

- Signature
- Printed name (First & Last)
- Date
- Time.

5.3.3 **SEND** work package to the Area Operations Engineer for OPS acceptance.

5.3.4 **FORWARD** to Environmental for review.
5.4 Records

5.4.1 **PERFORM** the following for records identified within this procedure.

5.4.1.1 **RECORD** the number of times the record was generated in applicable column

**OR**

**PLACE** a check mark (✓) in the N/A column.

5.4.1.2 **SUBMIT** the package for verification of completed records.

<table>
<thead>
<tr>
<th>Records Submittal Checklist</th>
<th>Number of times completed</th>
<th>N/A (✓)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FORMS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radiological Survey Tracking Table (A-6006-444)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post Job Review (A-6005-438)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial Hygiene surveys (including forms)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SEND</strong> the completed records to the Central Shift Office for records retention.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

_____________________________/_____________________________/_____________________________
Signature                  Print (First and Last)          Date

Area Ops Engineer

The record custodian identified in the Company Level Records Inventory and Disposition Schedule (RIDS) is responsible for record retention in accordance with TFC-BSM-IRM_DC-C-02.