Perform Inspections of Pit Coatings

Tank Farm Plant Operating Procedure

Surveillance

USQ # GCX-2

CHANGE HISTORY (≤ LAST 5 REV-MODS)

<table>
<thead>
<tr>
<th>Rev-Mod</th>
<th>Release Date</th>
<th>Justification:</th>
<th>Summary of Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-5</td>
<td>06/26/2018</td>
<td>Inconsequential Change</td>
<td>Changes identified during the Periodic Review process. Update to record section for procedure compliance. Remove “AND” in step 5.1.4.</td>
</tr>
<tr>
<td>D-4</td>
<td>02/22/2018</td>
<td>Update to current process.</td>
<td>Updated Terms and Definitions. Updated equipment list. Revised Section 5.1 title for clarification. Updated list of Inspections performed. Added Note to specify when in-process inspections are required.</td>
</tr>
<tr>
<td>D-3</td>
<td>03/30/2017</td>
<td>Engineering and QA requested changes</td>
<td>Updated procedure to reflect Pit Protective Coating Inspection form (A-6006-537, Rev 2). Added NACE Pit Inspection Flow Chart figure to procedure.</td>
</tr>
<tr>
<td>D-2</td>
<td>08/08/2016</td>
<td>Records Management request.</td>
<td>Updated Records Section and added First and Last to printed signatures.</td>
</tr>
<tr>
<td>D-1</td>
<td>10/06/2015</td>
<td>Engineering and QA requested changes</td>
<td>Add step 5.4.3 for the Responsible Engineer to update asset expiration date in work management system (EAM) to the next due date. This is in response to PER # WRPS-PER-2015-0312.</td>
</tr>
</tbody>
</table>

Table of Contents

1.0 PURPOSE AND SCOPE .................................................................................................................. 3
  1.1 Purpose .................................................................................................................................. 3
  1.2 Scope ...................................................................................................................................... 3

2.0 INFORMATION .............................................................................................................................. 4
  2.1 Terms and Definitions .............................................................................................................. 4
  2.2 General Information ................................................................................................................ 4

3.0 PRECAUTIONS AND LIMITATIONS .......................................................................................... 5
  3.1 Radiation and Contamination Control .................................................................................... 5
  3.2 Environmental Compliance .................................................................................................... 5

4.0 PREREQUISITES ........................................................................................................................ 6
  4.1 Special Tools, Equipment, and Supplies .................................................................................. 6
  4.2 Performance Documents .......................................................................................................... 6
  4.3 Field Preparation .................................................................................................................... 6
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0</td>
<td>PROCEDURE</td>
</tr>
<tr>
<td>5.1</td>
<td>Perform &amp; Document Pit Inspection (Initial/Final Inspection)</td>
</tr>
<tr>
<td>5.2</td>
<td>Pit Intermediate Inspection</td>
</tr>
<tr>
<td>5.3</td>
<td>Report Generation</td>
</tr>
<tr>
<td>5.4</td>
<td>Review of Inspection Documentation</td>
</tr>
<tr>
<td>5.5</td>
<td>Records</td>
</tr>
</tbody>
</table>

Figure 1 – NACE Pit Inspection
1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for performance of pit protective coating inspections.

1.2 Scope

This procedure involves both visual and photographic inspection to validate the conditions of protective pit coatings in pits during equipment installation/removal in compliance with RPP-16922 and RPP-7574.

- This procedure will be performed within a work package.
- This procedure can be performed in multiple locations. A work area and/or location specific hazard analysis must be performed prior to starting the activity for each location per TFC-ESHQ-S_SAF-C-02.
- The user of this procedure is a Quality Assurance Technician (QAT) with NACE International Coating Inspector Level 2 certification (QAT/NACE Level 2 Inspector).
- This procedure will require the FWS, Responsible Engineer and QAT/NACE Level 2 Inspector.
- Equipment area of concern QAT/NACE Level 2 Inspector. This procedure is used in conjunction with an approved equipment work package for the purpose of validating current condition of the pit coatings.
- All Safety (handrails, PPE etc.) and radiological (pre-job and post-job surveys) requirements are addressed in the work package.
- With the exception of inspections and inspection-related tasks, all pit work is performed in the associated work package.
- This procedure also includes an Alternate Method to be used when a QAT/NACE Level 2 Inspector is not available to directly access pits for direct visual examination of the pit coating.
  - Approval for the Alternate Method is on a case by case basis with concurrence from Environmental, Quality Assurance Technician Manager and QAT/NACE Level 2 Inspector.
  - VT-3 Level 2 QAT Inspector will be utilized to photograph the pit coating for examination by a QAT/NACE Level 2 Inspector.
2.0 INFORMATION

2.1 Terms and Definitions
- NACE: NACE International administers the Certified Inspector Program.
- QAT: Quality Assurance Technician
- QAT/NACE Level 2 Inspector: Quality Assurance Technician with a NACE certification CIP Level 2
- VT-3 Level 2 QAT Inspector: Quality Assurance Technician with a current VT-3 Level 2 certification
- Full Inspection: Inspection of all visible areas of pit below the pit lip required to reset the inspection periodicity identified in RPP-7574 Table 7.0.
- Partial Inspection: Inspection of all visible areas of the pit below the pit lip excluding areas under pit covers that do not need to be removed to perform the work identified in the work package (does not reset inspection periodicity identified in RPP-7574 Table 7.0)
- In-process inspection: Inspection to record ambient conditions and curing limits at the time of coating application.

2.2 General Information

2.2.1 Inspections shall include visible areas of pit below the pit lip.

2.2.2 Pit covers, jumpers, and other installed equipment that do not need to be removed to perform the scope of work in the work package do not need to be removed solely for the purpose of inspecting the pit coating.

2.2.3 Pit inspection at a minimum shall be performed in the area below the pit lip that is made visible by the work package. The work area can be expanded at the discretion of the QAT/NACE Level 2 Inspector.

2.2.4 Pit Inspection Report (A-6006-537, A-6006-538, when used and photos) will be completed and approved. The ORIGINAL is placed in the work package prior to close-out of the work package.

2.2.5 Pit inspections should be performed on major parts of the pit that are visible during intermediate steps in the work evolution but will be blocked from view by the final equipment configuration.

2.2.6 Pre-existing damage to the coating or concrete that is discovered during the work evolution and damage that occurs during the work evolution, shall require repeat/perform steps after repair of the pit.

2.2.7 For information and planning, see attached reference NACE Inspection flow sheet.
3.0 PRECAUTIONS AND LIMITATIONS

3.1 Radiation and Contamination Control

When work is performed in or when work will result in a high contamination, high radiation, or an airborne radioactivity area, an approved work package must be developed which is reviewed by Radiological Control per ALARA work planning procedure TFC-ESHQ-RP_RWP-C-03.

3.2 Environmental Compliance

3.2.1 The special protective coating in pits is required in order to maintain secondary containment compliance of the system to WAC 173-303-640 (4) (c). Visual inspection with written and photographic documentation will be used to document continued compliance.

3.2.2 Pits with damaged protective coating are considered non-compliant and must be reported to Environmental. Non-compliant pits may not be used until repair work and re-inspection is complete.

3.2.3 The pit cannot be placed back into service until a QAT/NACE Level 2 inspector has completed the NACE Report and the determination made that the pit coating is found to be acceptable.

3.2.4 Notification to Environmental Field Representative is required for any pit corrective maintenance.
4.0 PREREQUISITES

4.1 Special Tools, Equipment, and Supplies

The following supplies may be needed to perform this procedure:
- High-resolution camera (with 9-mega-pixel photograph resolution or greater)
- Thermometer

4.2 Performance Documents

The following documents may be needed to perform this procedure:

Site Form A-6006-537, Pit Protective Coating Inspection
Site Form A-6006-538, Pit Protective Coating Engineering Review

4.3 Field Preparation

4.3.1 **PERFORM** a work area and/or a location specific hazards analysis per TFC-ESHQ-S-SAF-C-02.

Alternate Method

4.3.2 **IF** Alternate Method will be used, **RECORD** Approval for the Alternate Method below, **IF** not applicable, specify below as N/A:

Work Package #: ________________________________

Pit Identification: ________________________________

_________________________________ / ___________________ / ___________________
Signature                                    Print (First and Last)                          Date

Environmental

_________________________________ / ___________________ / ___________________
Signature                                    Print (First and Last)                          Date

QAT Manager

_________________________________ / ___________________ / ___________________
Signature                                    Print (First and Last)                          Date

QAT/NACE Level 2 Inspector
Perform Inspections of Pit Coatings

5.0 PROCEDURE

NOTE - This procedure is used in conjunction with an approved work package for the purpose of validating current condition of the pit coatings.

- All Safety (Handrails, PPE etc.) and radiological (pre-job and post-job surveys) requirements are addressed in the work package.

5.1 Perform & Document Pit Inspection (Initial/Final Inspection)

Post Pit Cover Removal - Inspections and Documentation

NOTE - Initial pit coating inspection shall be performed after pit cleaning and equipment removal. Items that do not need to be removed for the scope of the work order do not need to be removed for the sole purpose of inspecting the coating unless required for damage evaluation.

- Intermediate pit coating inspection shall be performed if damage was found upon initial coating inspection and prior to equipment installation. If damage/repair is in a region which is not obstructed due to equipment installation, equipment may be installed prior to the inspection. Additional intermediate inspections are at the discretion of the NACE inspector.

- Final pit coating inspection shall be performed after pit work is completed (including pit coating repair) and equipment installation has been completed, prior to installation of cover plate(s)/cover block(s) to categorize the “Final” condition of the pit.

- Steps 5.1.1 through 5.1.3.4 may be performed concurrently and/or repeatedly.

5.1.1 CHECK the pit is cleaned of loose debris to enable an accurate pit coating inspection to be performed.

5.1.2 QAT/NACE Level 2 Inspector PERFORM a direct or the approved Alternate Method visual inspection of special pit protective coating AND CHECK for evidence of damage as follows:

- Rust and rust staining
- Coating gouges, nicks, cuts, chips, scratches, delaminations, sagging, or puddling
- Holes or cracks in the coating or concrete
- Exposed concrete and/or exposed reinforcing metal within the concrete
- Any signs of degradation.
5.1 Perform & Document Pit Inspection (Initial/Final Inspection) (Cont.)

NOTE - Digital camera photographs shall have a resolution of nine (9) mega pixel or greater.

- Close-up photos should be prefaced by a wide-angle photo to provide better indication of location in pit.

5.1.3 PHOTOGRAPH the area of work for evidence of coating conditions, as follows:

NOTE - Steps 5.1.3.1 through 5.1.3.3 may be performed in any logical order.

5.1.3.1 TAKE an overview photograph of work area.

5.1.3.2 IF a single photograph will not cover the work area, TAKE overlapping photos.

5.1.3.3 TAKE close-up photographs of areas on the pit wall or floor that that might warrant further review or have evidence of damage.

5.1.3.4 IF Alternate Method is used, SUPPLY photographs to the QAT/NACE Level 2 Inspector for review of the pit coating for inspection and repair determination.

5.1.4 IF discrepancies/damage is found that would require pit corrective maintenance, NOTIFY FWS.

5.1.4.1 FWS NOTIFY the following:

- Environmental Field Representative
- Shift Office
- Responsible Engineer

5.1.4.2 GO TO Section 5.2.

5.1.5 WHEN inspection is complete, QAT/NACE Level 2 Inspector GO TO Section 5.3.
5.2 Pit Intermediate Inspection

NOTE - Intermediate inspections are any inspections after the initial inspection and prior to the final inspection. Intermediate inspections are generally performed to document repairs when the equipment to be installed will make the repaired area difficult to inspect during the final inspection or to document damage that happened after the initial inspection.

- In process coating inspection shall be performed as part of the intermediate or final inspection to record ambient conditions and curing limits at the time of application, such as, temperature, dew point, overcoating intervals, induction time, to verify that application of coating is performed within the manufacturer’s specifications.

- Intermediate inspections can be performed and documented at the same time as the final inspection (referred to as “Intermediate/Final” inspection) if the equipment to be installed does not obstruct the region requiring inspection. This also applies to Initial/Final inspections which is typically combined when no equipment is to be removed/installed and no damage is found.

5.2.1 IF areas of concern are identified, REVIEW each area of damage/repair

AND

IF repairs are required, INITIATE work package to repair (corrective or maintenance),

OR

USE existing work package.

5.2.2 IF no repairs are required, GO TO Section 5.3.
5.2 Pit Intermediate Inspection (Cont.)

NOTE - Steps 5.2.3 through 5.2.3.2 may be performed concurrently and/or repeatedly.

- If major parts of the pit are visible during intermediate steps in the work package but will be blocked from view by the final equipment configuration, then an intermediate inspection of these areas shall be performed when they are still visible.

5.2.3 IF major parts of the pit will be blocked from view by the final equipment configuration, QAT/NACE Level 2 Inspector PERFORM Steps 5.2.3.1 and 5.2.3.2 of those areas while they are still visible.

5.2.3.1 WHEN repair of damage to pit is completed, QAT/NACE Level 2 Inspector PERFORM a direct or the approved Alternate Method visual inspection of special pit protective coating as follows:

- Rust and rust staining
- Coating gouges, nicks, cuts, chips, scratches, delaminations, sagging, or puddling
- Holes or cracks in the coating or concrete
- Exposed concrete and/or exposed reinforcing metal within the concrete
- Any signs of degradation.

5.2.3.2 PHOTOGRAPH repaired areas.

5.2.4 GO TO Section 5.3.
5.3 Report Generation

NOTE - Steps 5.3.1 through 5.3.6 may be done in any logical order and/or concurrently.

5.3.1 START A-6006-537 and if repairs are needed, A-6006-538.

5.3.2 DESIGNATE initial, intermediate or final inspection on A-6006-537 and on A-6006-538 when used.

5.3.3 DESIGNATE FULL or PARTIAL inspection on A-6006-537 and on A-6006-538.

5.3.4 LABEL each photographic file with the following information:
- Work package number
- Pit Identification number
- Location or orientation. (e.g., North/South/East/West Wall, Floor, etc.)
- initial, intermediate or final inspection
- Initial and Date.

5.3.5 ATTACH photographs to A-6006-537 and A-6006-538 when used.

5.3.6 IF final inspection is needed, RETURN to Section 5.1.

5.3.7 PROVIDE photographic documentation A-6006-537 and A-6006-538 when used to the Responsible Engineer.
5.4 Review of Inspection Documentation

5.4.1 Responsible Engineer REVIEW A-6006-537 and A-6006-538 when used and photographic documentation as follows:

5.4.1.1 REVIEW photographs and narrative for potential areas of concern. (e.g., staining, scratches, cracks, chips, etc.).

5.4.1.2 COMPLETE A-6006-537 and A-6006-538 when used AND SIGN AND DATE.

5.4.1.3 IF areas of concern exist, GO TO Section 5.2.

5.4.2 IF final inspection has not yet been performed, GO TO Section 5.1 as the final inspection.

5.4.3 For FULL/FINAL inspection, Responsible Engineer, NOTIFY Waste Storage and Technical Support Engineering to UPDATE the asset Expiration Date in the work management system (EAM) on the pit asset record to the next Inspection Due Date.

5.4.4 IF final inspection has been completed, CONTINUE to Section 5.5.
5.5 Records

NOTE - The following records are generated during the performance of this procedure and will be scanned in with the associated work package.

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

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

**OR**

5.5.1.2 **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>
</table>

## 4.3 Field Preparation

Step 4.3.2

FORMS

A-6006-537, DST Pit Protective Coating Inspection

A-6006-538, DST Pit Protective Coating Engineering Review

Additional Records

Color Photographs

FWS/OE/Shift Manager **SEND** the completed records with Records Submittal Checklist attached to the Central Shift Office for records retention for Work Package #: ___________________________.

________________________/________________________/________________________

Signature                  Print (First and Last)                  Date

FWS/OE/Shift Manager

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.
Perform Inspections of Pit Coatings

Figure 1 – NACE Pit Inspection
(For Reference only)

- **NOTE**: Additional intermediate NACE reports are at the discretion of the NACE inspector.
Figure 1 – NACE Pit Inspection (Cont.)
(For Reference Only)

*NOTE:* Additional intermediate NACE reports are at the discretion of the NACE inspector.