

SECTION 2- TANK INSPECTION, REPAIR, AND MAINTENANCE REPORT

Executive Summary

PART A – INTRODUCTION

CHAPTER 1- REPORT INTRODUCTION

1-1 BACKGROUND

Since the inadvertent fuel release from Red Hill Tank 5 that occurred from 9 Dec 2013 to 17 Jan 2014 there have been hundreds of phone calls, written communications, and face-to-face meetings among the stakeholders at Navy, DLA, EPA, and HODOH; interested parties including the Oahu Board of Water Supply, the Honolulu media; state and local elected officials; and the general public. All want to know what happened, why it happened, the nature of the threat to the fresh water aquifer on Oahu, what can be done to stop the fuel before it reaches the aquifer, and what can be done to make sure something like this never happens again. The end result of all the dialogue is the Administrative Order on Consent (AOC) between Navy/DLA and EPA/HODOH that was finalized and signed in September 2015. The AOC outlines a way forward to answer the questions raised and plans an overall course of action comprised of multiple sub-courses of action to resolve the issues at hand. This report expands on the AOC outline as described in the following paragraph.

1-2 PURPOSE AND SCOPE

The purpose of the TIRM report is to review and expand upon the issues that have been agreed to by Navy/DLA and EPA/HODOH in the Administrative Order on Consent (AOC) as important for the future inspection, repair, and maintenance of the Red Hill tanks to insure that the goal of keeping the tanks permanently leak-free going forward can be met. The report examines the pros and cons of past, current, and emerging means and methods for work on the tanks in order to decide on a strategy that can best achieve the goal of leak-free tanks.

1-3 HISTORY OF TIRM AT RED HILL

This section will discuss the historical TIRM standards that have been performed in the past.

CHAPTER 2 – GENERAL CONSTRUCTION ISSUES

- 2-1 LOCATION
 - 2-1.1 MOBILIZATION
 - a. Transportation of Equipment And Material From/To Mainland
 - b. Transportation of Equipment And Material From/To Tank
 - 2-1.2 Qualified Personnel
- 2-2 SECURITY
 - 2-2.1 Qualified personnel with clean record
 - 2-2.2 Time to obtain security clearances
- 2-3 POWER
 - 2-3.1 Equipment that needs power
 - 2-3.2 Clean Air Act vs Generators
- 2-4 WATER
 - 2-4.1 Location of closest water source
 - 2-4.2 Quantity of water required
- 2-5 VENTILATION
 - 2-5.1 Confined Space Permit Requirements
 - 2-5.2 Equipment Requirements
- 2-5 FUEL INVENTORY
 - 2-5.1 Mission Requirements (not detailed)
- 2-6 ACCESS TO TANK
 - 2-6.1 Tunnels
 - 2-6.2 Manway
 - 2-6.3 Equipment

PART B - TANK 5 CLEANING, INSPECTION, REPAIR AND MAINTENANCE PRACTICES

CHAPTER 3 – TANK 5 CLEANING

- 3-1 INTRODUCTION
- 3-2 SUMMARY OF THE PROCESS SELECTED
- 3-3 BASIS FOR WHY THIS PARTICULAR PROCESS FOR CLEANING WAS IMPLEMENTED
- 3-4 SUMMARY OF RECORDS
- 3-5 ALL IMPORTANT AND SUPPORTING RECORDS CONTAINED IN REPORT APPENDIX
- 3-6 QUALITY ASSURANCE AND QUALITY CONTROL PROGRAM FOR CLEANING

CHAPTER 4 – TANK 5 INSPECTION

- 4-1 INTRODUCTION

- 4-2 SUMMARY OF THE PROCESS SELECTED
 - 4-2.1 Non-Destructive Testing – Inspection
 - 4-2.1.1 Low-frequency electromagnetic testing (LFET)
 - 4-2.1.2 Balanced-field electromagnetic testing (BFET)
 - 4-2.1.3 Longitudinal Ultrasonic Testing (UT)
 - 4-2.1.4 SHEAR WAVE ULTRASONIC TESTING
 - 4-2.1.5 General: Unspecified If Longitudinal or Shearwave UT

- 4-3 TEST PERSONNEL AND CERTIFICATIONS

- 4-4 TANK INSPECTION PROCESS
 - 4-4.1 Tank Inspection Test Order of Work
 - 4-4.2 General
 - 4-4.3 Scheduling

- 4-5 OTHER INSPECTIONS (coatings, structural, checklist)

- 4-6 NOZZLE INSPECTIONS

- 4-7 TANK CLEANING PROCESS METHODOLOGY
 - Basis for why this particular process for inspection was implemented

- 4-8 SUMMARY OF RECORDS
 - 4-8.1 All Important and Supporting Records Contained In Report Appendix

- 4-9 QUALITY ASSURANCE AND QUALITY CONTROL PROGRAM FOR INSPECTION
 - 4-9.1 Process of Verifying Proper Operation Of Test Equipment
 - 4-9.2 Quality Control During Inspection And Testing

CHAPTER 5 – TANK 5 REPAIR

- 5-1 INTRODUCTION

- 5-2 NON-DESTRUCTIVE TESTING – REPAIR
 - 5-2.1 VISUAL INSPECTION
 - 5-2.2 Magnetic-particle testing (MT)
 - 5-2.3 Dye-penetrant testing
 - 5-2.4 Vacuum testing:

- 5-3 TEST PERSONNEL AND CERTIFICATIONS

- 5-4 OTHER INSPECTIONS (coatings, structural, checklist)
Provide a summary of the structural integrity of the center column, and any repairs that were required prior to inspection of the tank.

- 5-5 REPAIR RECOMMENDATIONS

- 5-6 REPAIRS – WELDING
 - 5-6.1 Provide a narrative of what needed to be welded, and the type of weld that is required (ie: fillet weld).
Discuss the drilling of the hole in the tank prior to welding. Why it was done.
 - 5-6.2 Provide an Appendix G of the Welder Qualifications, Weld Procedure Qualifications, and Weld Procedure Records. – The PQR & WPS's are on EPA's web site.

- 5-7 TANK REPAIRS – MISCELLANEOUS
 - 5-7.1 Provide a list of other repairs that were required.
 - 5-7.2 Provide description of how the repairs were performed.

- 5-8 TANK REPAIR PROCESS METHODOLOGY
Basis for why this particular process for inspection was implemented

- 5-9 SUMMARY OF RECORDS
 - 5-9.1 All important and supporting records contained in Report Appendix

- 5-10 QUALITY ASSURANCE AND QUALITY CONTROL PROGRAM FOR REPAIR
 - 5-10.1 Welder Identification Marking

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- Provide a narrative of how each weld was marked by each welder, and then also included in Willbros' QC log.
- 5-10.2 Weld Visual Inspection
Provide a narrative of how each weld was visually inspected and documented in Willbros' QC log.
- 5-10.3 QC Log Of Inspections
Provide a description of Willbros's QC
- 5-10.4 QA Review Of Log Of Inspections
Provide a description of Government's QA

CHAPTER 6 – TANK 5 REPAIR VERIFICATION (WARRENTY WORK)

- 6-1 INTRODUCTION
- 6-2 SUMMARY OF THE PROCESS SELECTED
- 6-3 TANK REPAIR VERIFICATION PROCESS METHODOLOGY
Basis for why this particular process for inspection was implemented
- 6-4 SUMMARY OF RECORDS
- 6-4.1 All important and supporting records contained in Report Appendix
- 6-5 QUALITY ASSURANCE AND QUALITY CONTROL PROGRAM FOR REPAIR VERIFICATION

CHAPTER 7 – RECOMMISSIONING

- 7-1 INTRODUCTION
- 7-2 SUITABILITY FOR SERVICE STATEMENT
Provide a narrative of documentation received from Willbros stating that the tank was suitable for service and that it can go back into service. This statement is a requirement of the SOW (include excerpt from SOW and the suitability for service statement).
- 7-3 TANK FILLING PROCESS
 - 7-3.1 Provide a narrative of how the filling process was monitored.
 - 7-3.2 Reference MO-230 and UFC 3-460-03 if applicable.
- 7-4 TANK RECOMMISSIONING PROCESS METHODOLOGY
Basis for why this particular process for recommissioning was implemented
- 7-5 SUMMARY OF RECORDS
 - 7-5.1 All important and supporting records contained in Report Appendix

CHAPTER 8 – ADDITIONAL INFORMATION TASK 5

8-1 INTRODUCTION

8-2 RECORD KEEPING

- Provide a narrative of the documents that are required to be kept as part of the Contract file. Reference the Instruction (I need that training again) that mandates this requirement.
- Provide a narrative of the documents that are required to be kept per API 653 and/or the State of Hawaii (33CFR??).
- Provide how these documents are stored.

8-3 MAINTENANCE OF TANKS IN RED HILL

8-3.1 Provide the list of tank maintenance requirements from MO-230.

8-3.2 Provide the maintenance checklist for Tank 5 (From FLC).

8-4 BASKET POSITIONING (SCAFFOLDING)

- General usage note: The Willbros report states, “After all of the structural repairs (on the center tower) were completed and checked, Willbros installed two (2) boom systems on the tower structure with man baskets. The man baskets were utilized to access all the internal surfaces areas of the tank for testing and inspection” (p. 19).
- Use in lower dome
- Use in barrel
- Use in upper dome
- Positioning
- Basket positioning process methodology

PART C – LESSONS LEARNED

CHAPTER 9 – OBSERVATIONS AND INCIDENT INVESTIGATION

- 9-1 INTRODUCTION

- 9-2 TANK 5 INCIDENT INVESTIGATION
 - 9-2.1 Incident Cause
 - 9-2.1.1 Repairs
 - Provide narrative that the Contractor was not working from drawings or repair procedures. The welds were not good and the hole was not plugged.
 - 9-2.1.2 Incident Reporting and Process
 - 9-2.1.3 Design Errors and Omissions and Construction Warranty
 - Provide the Government's process for reporting and responding to errors and omissions in the design and warranty issues during construction. (FAR clauses).

- 9-4 FILLING PROCEDURES
 - 9-4.1 Provide the Government's process that was used to fill Tank 5.
 - 9-4.2 Provide discussion about the new filling instruction.

- 9-5 ANY ADDITIONAL DETAILS NAVY/ DLA WANT TO ADD

- 9-6 ADDITIONAL OBSERVATIONS
 - 9-6.1 Inspection Discussion
 - Inspection methods were sound. Provide narrative that the API 653 inspection was sound, used the right equipment and personnel.

- 9-7 PREVIOUS TANKS INFORMATION AND OUTCOMES
 - 9-7.1 Provide documents and other information
 - Provide a narrative stating why there was a failure in Tank 5, but not the other tanks. Provide documentation that the inspection was the same. Provide documentation of what was repaired in the other tanks. Provide information concerning the other prime contractor's quality control procedures.

CHAPTER 10 - Lesson #1 Contracting

- 10-1 INTRODUCTION
- 10-2 SUMMARY OF FAR REQUIREMENTS
 - 10-2.1 Contracts: The Government is required to abide by the Federal Acquisition Regulations (FAR)
- 10-3 CONTRACTING FOR TANKS PRIOR TO TANK 5
 - 10-3.1 From the contract information in Appendix D, the following is a list of the contracts for the five tanks in the order they were worked prior to Tank 5:
 - 10-3.2 Type of Contract
 - 10-3.3 Process to Award
 - 10-3.4 Observations for tanks Prior to Tank 5
 - 10-3.5 Inclusion of Available Contracts in Report Appendix
- 10-4 CONTRACTING FOR TANK 5
 - 10-4.1 Type of Contract
 - 10-4.2 Provide a general overview of the type of contract that was used for Tank 5. (Services vs Construction)
 - 10-4.3 Inclusion of Tank 5 Contracts in Report Appendix
- 10-5 BACKGROUND TO DEVELOP STATEMENT OF WORK
 - Provide the background of the development of the Statement of Work.
- 10-6 PROCESS TO AWARD
 - Provide a general overview of the process to award this type of delivery order.
- 10-7 FUNDING AND WORK CLASSIFICATION
 - Provide a general overview of the funding – minor construction, repair, and maintenance.
- 10-8 OBSERVATIONS AND SHORTCOMINGS OF CONTRACTING FOR TANK 5
 - Lesson learned: The contract must be more specific to explain expectations. As a lesson learned, the Navy/DLA is changing their process to require drawings and procedures. More on this topic will be explained in Chapter 16 Quality Control and Assurance of TIRM and Chapter 17 Options for improving current TIRM.

10-9 CONTRACTING SOLUTION OR IMPROVEMENT

CHAPTER 11 - LESSON #2 CONTRACTOR QUALITY CONTROL

11-1 INTRODUCTION

11-2 OBSERVATION AND SHORTCOMING

11-2.1 Contractor Quality Control

- Provide a summary of how the Contractor's Quality Control system was not effective since the Project Manager was also the Quality Control Manager. Provide a narrative on the lack of specifications and drawings.

11-3 SOLUTION OR IMPROVEMENT

- Reference Chapter 16.

CHAPTER 12 - LESSON #3 REFILLING PROCEDURE

12-1 INTRODUCTION

12-2 OBSERVATION AND SHORTCOMING

12-2.1 Tank Filling Procedures

12-2.2 Provide the Government's process that was used to fill Tank 5.

12-3 SOLUTION OR IMPROVEMENT

- Provide discussion about the new filling instruction.

CHAPTER 13 - LESSON #4 GOVERNMENT QUALITY ASSURANCE

13-1 INTRODUCTION

13-2 OBSERVATION AND SHORTCOMING

13-2.1 Government Quality Assurance

- Provide a narrative of why there was limited Government Quality Assurance provided during the execution of this contract. Include confined space requirements. Discuss the lack of a good Quality Assurance Surveillance plan. Since there was a lack of specifications and drawings, the Government QA engineer had no basis to determine if the work was per the contract or not.

13-3 SOLUTION OR IMPROVEMENT

- More Detail in Chapter 16

CHAPTER 14 – LESSON #5 CLEANING AND INITIAL INSPECTION

14-1 INTRODUCTION

14-2 OBSERVATION AND SHORTCOMING

14-2.1 Pressure Washing

- a. The Government specification does not specify the maximum allowable pressure and temperature for pressure washing.
- b. Reference 1, Section 4.5.1.2. “A high pressure spray wash of the tank interior and internal components shall be conducted.” The pressure for cleaning Tank 5 is not specified.
- c. Reference 1, Appendix D, SOP #5 Water Blasting. Specification lists the following categories of water blasting:
- d. Reference 2, Section 1.0. “Willbros cleaned the tank by high pressure washing all internal surfaces.” The actual pressure used for cleaning Tank 5 is not specified.
- e. Reference 2, Section 6.1, Summary of Indications and Flaws. “The coating has disbonded, flaked, or deteriorated over 80% of all internal surface areas.”

NOTE: In none of the previous five tanks was the coating in the Upper Dome and Barrel so badly deteriorated. The condition of the coating in the Lower Dome was consistent with the previous tanks.

14-3 SOLUTION OR IMPROVEMENT

14-3.1 Lessons learned for Tank Cleaning

- a. Government specifications shall specify the maximum allowable pressure and temperature for washing the tank with pressure sprayers (water blasters).
- b. Government shall review the contractor’s Work Plan to insure that the maximum allowable pressure and temperature are specified.
- c. Government personnel shall oversee xx percent of the contractor’s tank cleaning operation, i.e., on the work platform or in the man-basket with the tank cleaning personnel to insure that the maximum allowable pressure and temperature of the wash spray (water blast) is not exceeded; and to insure that back-seepage, dis-bonded coating, and blisters in the coating are carefully checked and marked for further inspection.

~~Chapter 3.8—Lesson #6 Ventilation (moved to Chapter 2)~~
~~Observation and Shortcoming~~
~~Solution or Improvement~~

**CHAPTER 15 – LESSON #6 – ANY ADDITIONAL LESSONS NAVY/DLA
WISH TO ADD**

15-1 INTRODUCTION

15-2 OBSERVATION AND SHORTCOMING

15-3 SOLUTION OR IMPROVEMENT

PART D – IMPROVEMENTS AND FUTURE OF TIRM

CHAPTER 16- QUALITY CONTROL AND QUALITY ASSURANCE AFTER TANK 5

- 16-1 INTRODUCTION
 - Provide a brief description of the content included in this section of the report. This section will address Quality Control and Assurance of TIRM
- 16-1.1 Provide the definition of Quality Control
- 16-1.2 Provide the definition of Quality Assurance

- 16-2 NEW POL MACC CONTRACT INFORMATION
 - 16-2.1 Provide the description of the new POL MACC contract

- 16-3 EXISTING SPECIFICATIONS
 - 16-3.1 Reference Whole Building Design Guide that has UFCs and UFGSs
<https://www.wbdg.org/>
 - 16-3.2 Reference the web site that has the standard designs (AST, Cut and Cover, etc.) <http://apps.hnc.usace.army.mil/stdqgn/Library.aspx>

- 16-4 GOVERNMENT QUALITY ASSURANCE
 - 16-4.1 Submittal Reviews
 - 16-4.2 On-site inspections
 - a. Government personnel requirements
 - (1) Safety regulations
 - (2) Education & experience & certifications
 - b. Third party requirements
 - (1) Safety Regulations
 - (2) Education & experience & certifications
 - 16-4.3 Development of a Specification for Tank Inspections
 - The Tank Inspection Performance specifications will include detailed submittal requirements such as the certification of the inspectors and NDE technicians. Part 3 of the specification provides requirements for “Workmanship”. This Part can include more “requirements” than can be prescriptive in nature. (ie: Provide test equipment that has a POD of xx and that is verifiable in accordance with API xxx).
 - 16-4.4 Development of a Specification for Tank Repairs
 - The Tank Repair Performance specifications will include detailed submittal requirements such as the certification of the welders, NDE technicians and materials. Part 3 of the specification provides requirements for “Workmanship”. This Part can include more “requirements” than can be prescriptive in nature. (ie: Plug test hole prior to welding on patch plate by ...).

- 16-5 CONTRACTOR QUALITY CONTROL PLAN

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- 16-5.1 Describe the UFGS for Contractor Quality Control. Provide how the roles and responsibilities are addressed for the site manager and the Quality Control manager.
- 16-5.2 Describe the UFGS for Submittals and how Quality Control is managed thru the submittal process. Also, describe the submittal section in each individual technical specification section.
- 16-5.3 Describe the UFGS for Contractor Safety, and that the SSHO cannot be dual-hatted unless specifically stated in the contract.

- 16-6 GOVERNMENT QUALITY ASSURANCE SURVEILLANCE PLAN (QASP)
 - 16-6.1 Describe the requirements of the plan per the BMS documents.
 - 16-6.2 Describe the requirements of performing and documenting the efforts of the Quality Assurance.
 - 16-6.3 Describe the roles and responsibilities between NAVFAC EXWC and NAVFAC HI. Discuss the Project Manager, Construction Manager, Design Manager, Engineer Tech, etc. qualifications. List all of the training each one requires to perform their role generically and technically.

- 16-7 THIRD PARTY QUALITY ASSURANCE
 - 16-7.1 Describe the features of third part quality assurance (API 653, NACE, ASNT, QP5 etc. certifications).
 - 16-7.2 Discuss the pros and cons (cost, additional time, better inspection & product)
 - 16-7.3 Discuss that the contract has to have this additional inspections included so that the ktr doesn't claim Government caused delays. (Add to new specs).

- 16-8 QA/QC HISTORY FOR THE PREVIOUS TANKS AT RED HILL
 - 16-8.1 Provide any lessons learned from the past
 - 16-8.2 Provide any knowledge transfer between the Contracting Officers, the internal peer review system.
 - 16-8.3 Provide a narrative of the history of the Clean, Inspect, Repair SOW template. (Note that it is not used in anymore due to the new 6-part format, but it will be cannibalized in developing the new specifications and the "General Requirements" part).

CHAPTER 17- OPTIONS FOR IMPROVING THE TIRM PROCEDURE

- 17-1 INTRODUCTION
 - Provide a brief description of the content included in this section of the report.
 - This section will address options for improving the TIRM Procedures

- 17-2 DEVELOPMENT OF A NEW SPECIFICATION FOR TANK INSPECTION
 - 17-2.1 Provide what will be in this specification

 - 17-2.2 Provide Corrosion Detection Discussion
 - 17-2.2.1 Provide narrative on API's method of determining corrosion rates.
 - 17-2.2.2 Provide narrative on method to obtain a high confidence in locating pits and corrosion using the testing methods that is available.
 - 17-2.2.3 Provide narrative on determining metallurgical information on the existing plates and any new patch plates.
 - 17-2.2.4 Provide narrative in the potential of corrosion when dissimilar metals are welded together (ie: new plate to old plate).
 - 17-2.2.5 Provide narrative in the potential of performing destructive testing during the inspection. Include the issue of welding (which is considered construction) during an "inspection" process. Also the issue of old/new plate corrosion.

- 17-3 DEVELOPMENT OF A NEW SPECIFICATION FOR TANK REPAIR
 - 17-3.1 Provide what will be in this specification

- 17-4 COMPARISON OF EQUIPMENT USED OVER THE YEARS FOR PERSONNEL ACCESS TO THE TANK SHELL IN THE UPPER DOME, BARREL, AND LOWER DOME.
 - 17-4.1 1940-1943 Original tank construction.
 - 17-4.2 1960-1962 Clean, repair, modify, and coat Tanks 17-20.
 - 17-4.3 1970 Clean, repair, and modify Tanks 5, 6, and 12.
 - 17-4.4 1978-1985 Clean, repair, modify, and coat Tanks 1-16.

- 17-5 OTHER METHODS OF ACCESS FOR INSPECTION AND REPAIR
 - 17-5.1 Scaffolding
 - Provide a narrative of scaffolding.
 - 17-5.1.1 Pros for Scaffolding
 - 17-5.1.2 Cons for Scaffolding
 - 17-5.2 Any other methods?

- 17-6 COATINGS
 - 17-6.1 Coating History
 - 17-6.1.1 1962 – Tanks 17-20.
 - 17-6.1.2 1982 – Tanks 1-16.
 - 17-6.1.3 1994 to present – Tanks 2, 4, 5, 6, 7, 8, 10, 14, 15, 16, 17, and 20
 - 17-6.2 LOW VOC POLYSULFIDE INTERIOR COATING OF WELDED STEEL PETROLEUM FUEL TANKS (UFGS SECTION 09 97 13.15)

- 17-6.2.1 Background
- 17-6.2.2 Performance
- 17-6.2.3 Quality Control
- 17-6.2.4 Environmental Regulations
- 17-6.2.5 Long Term Repair

- 17-7 TANK COMMISSIONING
- 17-7.1 Tank Out-of-Service
- 17-7.2 Prepare tank for refilling
 - Provide a description on how to prepare the tank for refilling
- 17-7.3 Refill the tank for leak test
 - Provide a description on how to fill the tank and hold points.
- 17-7.4 Monitor the skin valves for leakage.
 - Provide a description on how to monitor the skin valves.
- 17-7.5 Monitor the casing pipes for the sample lines and the slop line (if slip-lined) for leakage.
 - Provide a description on how to monitor the casing pipes.
- 17-7.6 Monitor the tank level.
 - Provide a description on how to monitor the tank level.

CHAPTER 18- DESTRUCTIVE TESTING

18-1 INTRODUCTION

18-2 DESTRUCTIVE TESTING

- a. No specific destructive Testing was performed on Tank 5.
- b. A section of shell plate that was removed from Tank 16 in May 2006 by Dunkin and Bush resides in Pittsburgh with TesTex and has been used by them to test and calibrate their LFET equipment. The plate section was removed because it was covered with backside corrosion. The average remaining thickness was 0.153-inch and ranged from 0.000-inch (two holes) to 0.200-inch. Dimensions of the plate were 10-feet high by 4 to 7-feet wide. The report on Tank 16 by Weston Solutions with photos of the plate in question is available on EPA's Red Hill website.

18-3 MATERIAL VERIFICATION

18-3.1 Metal Alloy Identification Techniques

18-4 PATCH PLATES

(See Report for Section 5)

18-5 RECOMMENDATION

CHAPTER 19- SCHEDULE/ FREQUENCY OF MODIFIED API 653 TIRM

- 19-1 INTRODUCTION
- Provide a brief description of the content included in this section of the report. This section will address the schedule/frequency of modified American Petroleum Institute (“API”) 653 tank inspections, repairs, and maintenance.
- 19-2 API 653 INSPECTIONS
- This section will address the frequency requirements as stated in API 653.
- 19-3 API RP 580 RISK-BASED INSPECTION, DOWNSTREAM SEGMENT
- 19-2.1 This section will discuss the API RP 580 and its philosophy on the determination of the frequency of inspection based on Probability of Failure and Consequence of Failure.
- 19-3.2 This section will discuss the Navy/DLA’s analysis of the process as defined in the API RP 580. The Navy/DLA has different Consequences of Failure than that stated in API RP 580, therefore analysis section needs to be revised to be more in-line with the requirements of the Navy/DLA.
- 19-4 CONSTRAINTS FOR SCHEDULING THE CLEAN, INSPECT, AND REPAIR OF THE TANKS
- Refer to Chapter 2
- 19-5 ACQUISITION TIMELINE
- This section will address the activities that take place from the time to start working on a tank project to the time the Contractor mobilizes to the site. A Gantt Chart may be included.
- 19-6 DETERMINATION OF ORDER OF TANKS
- This section will provide a narrative on the decision of the order to clean, inspect, and repair the tanks.
- 19-7 PREVIOUS HISTORY
- This section will provide background information on the timelines that it has taken to perform the previous contracts.

CHAPTER 20 - PLANNED ACTIONS UNDERWAY INDEPENDENT OF TANK UPGRADE

- 20-1 INTRODUCTION
- Provide a brief description of the content included in this section of the report. This section will address the actions that can be taken throughout the facility, as soon as practicable, to reduce risk of release that can be implemented independent of tank upgrades.
- 20-2 CONTINUE REPAIRING TANK 5.
- After the repair, place it back into service per the NAVSUP instruction, and improved procedures.
 - Provide additional detail information – what we are currently doing, timeline, etc.
- 20-3 Continue WITH PERFORMING THE CLEAN, INSPECT, AND REPAIR OF THE TANKS IN THE ORDER PROPOSED IN SECTION 6 ABOVE.
- Provide additional detail information – what we are currently doing, timeline, etc.
- 20-4 ADAPT THE PROPOSED NEW QUALITY CONTROL AND QUALITY ASSURANCE PROCESSES
- Provide additional detail information – what we are currently doing, timeline, etc.
- 20-5 INSTALL NEW FIRE SUPPRESSION SYSTEM WITH OIL TIGHT DOORS
- Provide additional detail information – what we are currently doing, timeline, etc.
- 20-6 INCREASE FREQUENCY OF TESTING OF THE TANKS VIA THE LEAK DETECTION SYSTEM.
- Provide additional detail information – what we are currently doing, timeline, etc.
- 20-7 INVESTIGATE UPDATING AND/OR VALIDATING THE EXISTING LEAK DETECTION SYSTEMS
- Provide additional detail information – what we are currently doing, timeline, etc.

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- 20-8 INCORPORATE FINDINGS DEVELOPED BY THE CORROSION AND METAL FATIGUE PRACTICES
- Provide additional detail information – what we are currently doing, timeline, etc.
- 20-9 UPDATE THE POWER CAPABILITY IN THE TUNNEL.
- Provide additional detail information – what we are currently doing, timeline, etc.