STRATEGIC PETROLEUM RESERVE

# ENTERPRISE CHANGE PROPOSAL

## ECP Header

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **ECP #:** | EC-2018-000045 | **Title:** | St. James Terminal Fire Safety Repairs | | | | |
| **In Process Status:** | Open | **Overall Status:** | APPROVED | **Work Status:** | RRB Hold | **Expiration** | |
| **Initiator:** | Rachel Gray | **Created Date:** | May 16, 2018 | **Approver:** | Stephen Brothers | **Approval Date:** | Jun 11, 2018 |
| **Class of Change:** | Class I | **Change Type:** | Engineering Change | **Priority:** | Routine | **ROM Estimate:** | 3674000.00 |
| **Basis for Change:** | To Fix | **Change Ranking:** | 1D - OTHER EQUIP - INOPERATIVE | | | | **(in USD)** |
| **Key Impl Factors:** | <12m | **Risk:** | High | | | | |

**PAN Numbers:** SJ-M/O-4663;

**Sites:** SJ-St. James;

## Description

**Title:** St. James Terminal Fire Safety Repairs

**Problem/Existing Configuration:** Several components of the fire safety system at St. James (Sugarland) Terminal and Dock facility are out of service and inoperable. Shell Pipeline Co. (SPLC) is to repair the system to the state it was in when first taking over the facility lease from the Department of Energy (DOE). Most of the 2018 scope will simply replace inoperable equipment that is beyond repair in the same general configuration as it is today. The current state of the equipment in the defined scope is as follows: (1) Cooling water rings TK 1 thru TK 6. (1a) Tanks 1 thru 6 currently have a fixed cooling water ring around the top of the tanks. Cooling rings are currently out of service and are have leaking issues and internal corrosion. Cooling water is typically not used in SPLC facilities for tank protection. (2) Foam piping TK 1 thru TK 6. (2a) Tanks 1 thru 6 currently have fixed foam rings and foam chambers along the top of each storage tank. Foam rings and chambers are currently out of service and of questionable integrity. (3) TK 5 foam dam. (3a) All tanks other than TK 5 have a foam dam installed around the top of the tank. TK 5 was removed by SPLC due to issues with the tank's floating roof. (4) Foam Proportioner Buildings 714, 715, and 717. (4a) Foam buildings 714, 715, and 717 currently feed the foam rings on the 6 storage tanks as well as the deluge systems on the pump and metering skids. Foam skids are manually activated from each building to distribute foam to various areas of the facility. All foam skids are currently placed out of service. Several components of the foam skids are obsolete and of questionable integrity including the bladder tanks, valves, and other soft goods. (5) Foam Proportioner Buildings 718 (5a) Foam building 718 feeds header along the north side of TK 1 thru 6 in the terminal side of the facility. The foam skid is currently placed out of service. Several components of the foam skid are obsolete and of questionable integrity including the bladder tank, valves, and other soft goods. (6) Deluge and meter skid foam piping. (6a) The foam proportioner buildings 714, 715, and 717 also feed deluge systems on several of the pump and metering skids. All deluge skids are currently out of service. Deluge piping is of questionable integrity. One of the underground lines feeding one of the deluge rings failed a hydrostatic test performed in 2017. (7) Lab building dry chemical (7a) The lab building 705 has a dry chemical suppressions system that is currently out of service. System was placed out of service by SPLC after multiple inadvertent discharges.

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**Proposed Solution:**

SPLC proposes the following actions to repair/restore the components of the fire safety system: (1) Cooling water rings TK 1 thru TK 6. (1a) Existing cooling water rings in TK 1 thru 6 shall be removed and repaired or replaced. External tank exposure protection shall be provided that meets requirements of FM LPDS 7-88, Ignitable Liquid Storage Tanks. (2) Foam piping TK 1 thru TK 6. (2a) Foam piping and foam chambers on TK 1 thru 6 shall be removed and replaced with new piping and foam chambers. Piping and chambers will be of the same configuration as the existing system. (3) TK 5 foam dam. (3a) A new foam dam shall be installed on TK 5. The new dam will be of similar design as the other five tanks/what was originally installed on TK 5. (4) Foam Proportioner Buildings 714, 715, and 717. (4a) Foam skids in proportioner buildings 714, 715, and 717 shall be removed and replaced with new foam skids and concentrate. New foam skids will be of similar construction as the existing skid and will be able to be manually activated and supply foam to the same areas as the existing skids. The systems must be restored to allow activation of both water and foam from the representative foam building location. (5) Foam Proportioner Buildings 718 (5a) Foam building 718 will be placed permanently out of service per discussions between SPLC and DOE. Foam building 718 will clearly be marked as abandoned and out of service as to not create any confusion of whether the system is operable. (6) Deluge and meter skid foam piping. (6a) All skid deluge piping shall be removed and replaced with new deluge piping and nozzles. New deluge systems will be capable of the same area of coverage as the existing system. Underground leaking supply lines shall be replaced. The foam deluge systems for the crude oil pumps, meters, and applicable manifold piping are configured with a UV/IR flame detection system with capability for full automatic water activation and manually activated foam fire suppression. (7) Lab building dry chemical (7a) The lab dry chemical suppression system shall be removed and replaced with a similar system. The system shall be capable of protecting the same areas as the existing lab suppression system. Note: SPLC will bear the cost of implementation. Attachments: 1) Shell's ECP, 2) Shell's Cost Estimate, and 3) Shell's Schedule

**Driving Requirements & Justification:**

The driving requirement is as set forth in Level III Design Criteria, Chapter 12, Fire Protection. Several of the components are beyond repair and require replacement. Replacement components shall be of similar construction so that the fire safety system is capable of supplying the same level of protection as the existing system design. All items not being replaced or restored have been defined by SPLC and DOE as no longer essential.

**Risk:**

If not implemented, the fire safety system will remain out of service and inoperable which will not allow for adequate suppression of fire should it occur.

## SAP Task Package List

| Task Package # | Description | PAN # | SPR Task # | Resp. Engg. | Project Lead | Created By | Created On | Changed By | Changed On |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

## Affected Configuration Items

| Ref. Doc. # | FLN # | ELN # | FLN Status | Site | Service | Equipment Area | Equipment Function |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

## TBL Documents

| Ref. Doc. # | SAP Task Package # | SRP Draw/Spec # | Category | Status | Created By | Created On | Changed By | Changed On |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |

## Reference Documents

| Ref. Doc. # | Description | Task Package # | Status | Created By | Created On | Changed By | Changed On |
|---|---|---|---|---|---|---|---|
| MCD-900037375 | Rachel Gray to L Nicholson Fire Safety R | | AT - Active | Lillian Wils | Aug 9, 2018 | Lillian Wils | Aug 9, 2018 |
| MCD-900037347 | PCCB MINUTES FOR JULY 10, 2018 | | AT - Active | Marion Brown | Jul 12, 2018 | Marion Brown | Jul 12, 2018 |

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# CONFIGURATION CHANGE AFFECTED REPORT

"TO BE COMPLETED BY TECHNICAL REVIEW PROCESS, ENGINEERING AND CONFIGURATION MANAGEMENT ORGANIZATION DEFINED PROCESS"

**ECP #:** EC-2018-000045 **REV.** **Change Classification** ☑ Class I ☐ Class II ☐ FT