

Briefing for PWSRCAC Board of Directors – January 2019

ACTION ITEM

Sponsor: Austin Love
Project number and name or topic: 5052 – Valdez Marine Terminal
Secondary Containment Liner
Integrity

1. **Description of agenda item:** For this agenda item, Mr. Jay Griffin, project engineer with Geosyntec Consultants, Inc., will be presenting the work he and his team performed to identify non-destructive methods that could be used at the Valdez Marine Terminal to test the integrity of the buried, asphalt secondary containment liners in the East Tank Farm.

2. **Why is this item important to PWSRCAC:** This item is important to PWSRCAC because the secondary containment liners in the East Tank Farm, and elsewhere at the Valdez Marine Terminal, are there to prevent the contamination of ground and surface water in the event of an oil or other hazardous liquid spill. If the integrity of these liners is compromised, such as having through holes, cracks, and gaps, then the risk of an oil spill causing preventable environmental damage would increase. To date, visual inspections of the asphalt secondary containment liners in the East Tank Farm have shown areas where the liner integrity was compromised. Visual inspections of the buried liners at the Valdez Marine Terminal are not ideal because it takes a lot of work to uncover relatively small areas of the liner, and that excavation work often ends up accidentally damaging the liner. Therefore, this item is important because it considers non-destructive inspection methods, requiring much less excavation work, which could be used to assess the integrity of relatively large areas of the secondary containment liner in the East Tank Farm.

3. **Previous actions taken by the Board on this item:**

| <u>Meeting</u> | <u>Date</u> | <u>Action</u> |
|----------------|-------------|---|
| XCOM | 8/29/2012 | Approved letter to Alyeska regarding CBA liner integrity review and a report titled VMT Tank Secondary Containment System Catalytically Blown Asphalt Liner Integrity and Testing Options, Phase I. |

4. **Summary of policy, issues, support or opposition:** The Council has been concerned about the integrity of the secondary containment liner in the East Tank Farm for some time now. For example, in the Council’s 2014 comments on the renewal of the Valdez Marine Terminal Contingency Plan, the Council expressed the following concerns about the buried, asphalt secondary containment liner in the East Tank Farm, among others:

- Asphalt liners are vulnerable to mechanical, thermal, and hydraulic stress damage;
- Some other states do not accept asphalt liners for petroleum storage; and
- Damage may have occurred to the asphalt liner in the tank farm due to historical spills and hydrocarbon contamination in the area.

The most recent visual inspection results have shown that existing mechanical damage is commonly found in the asphalt liner. Some results also suggest that other damage modes such as hydraulic stress or chemical degradation may be effecting the integrity of the asphalt liner. From 2015 through 2017, Alyeska conducted three types of testing

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on the asphalt liner in the East Tank Farm: permeability, durability, and visual testing. That testing was done because of a 2014 agreement between Alyeska and ADEC. The permeability testing was geared to answer the question, how fast can oil move through this asphalt liner? The durability testing was geared to answer the question, how fast does oil dissolve this asphalt liner? The visual testing was geared to answer the question, what damage already exists in the as-built asphalt liner? The results of the permeability and durability testing seem to indicate, for undamaged portions of the liner, that it should be able to contain oil long enough for Alyeska to identify and respond to an oil or other hazardous liquid spill. However, the results of the 2015 through 2017 visual testing show that existing damage (e.g. through holes, cracks, gaps) is found in about twenty percent of excavations that expose the buried asphalt liner. Some of that existing damage is reasonably attributable to mechanical damage, e.g. a sample of the liner being cut out with a saw at some unknown point in the past. However, some of that existing damage cannot be reasonably attributed to mechanical damage, so another damage mode, like chemical degradation, is likely the cause. Regardless of the likely cause, existing damage is frequently found in the buried asphalt liner when it is uncovered and visually examined.

The 2015 through 2017 visual testing results led the TOEM Committee to question the overall integrity of the asphalt liner and initiate this project to identify other potential liner testing methods. The non-destructive liner testing methods recommended by Geosyntec Consultants, Inc. could be used to non-destructively test larger areas of the buried asphalt liner in the East Tank Farm, and elsewhere at the Valdez Marine Terminal. One of those liner testing methods has been recommended previously to Alyeska, by their own geotechnical contractor Golder Associates, but Alyeska choose not to act on that non-destructive liner testing recommendation.

Currently, Alyeska believes that the asphalt liner in the East Tank Farm meets the applicable state and federal regulatory standards pertaining to its integrity. Whenever Alyeska finds existing damage to the asphalt liner they repair it. However, to date, only a relatively small overall area of asphalt liner has been visually examined, and those limited inspections have revealed existing damage. Therefore, the 2015-2017 visual testing results of the liner indicate that more undiscovered, unrepaired, existing liner damage likely exists in the East Tank Farm. That likely damage (e.g. through holes, cracks, and gaps) would not meet ADEC's "sufficiently impermeable", EPA's "sufficiently impervious", or BLM's "seepage-free" standards for secondary containment systems, which includes the asphalt liner in East Tank Farm.

To date, the Council is unaware of any follow up action taken by ADEC, BLM, or EPA regarding the 2015-2017 asphalt liner testing results.

5. **Committee Recommendation:** The TOEM Committee recommends that the Board accept the report by Geosyntec Consultants, Inc. titled, "Secondary Containment Liner Integrity Evaluation."
6. **Relationship to LRP and Budget:** This project is in the approved FY2019 budget and annual workplan.

5052--Secondary Containment Liner Integrity - As of December 19, 2018

| | |
|-------------------------|--------------------|
| Original FY 2019 Budget | \$32,000.00 |
| Modifications | (\$7,115.00) |
| Revised Budget | <u>\$24,885.00</u> |

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Actual and Commitments

| | |
|-------------------------------------|--------------------|
| Actual Year-to-Date | \$11,996.95 |
| Commitments (Professional Services) | \$12,887.82 |
| Actual + Commitments | <u>\$24,884.77</u> |
| Amount Remaining | <u>\$0.23</u> |

7. **Action Requested of the Board of Directors:**

- Accept the report by Geosyntec Consultants, Inc. titled, "Secondary Containment Liner Integrity Evaluation."
- Approve letter transmitting the report, and advising that ADEC, EPA, and BLM work with Alyeska to consider implementing the "pilot study program" described by Geosyntec Consultants, Inc. in their report titled, *Secondary Containment Liner Integrity Evaluation*, in the out-of-service West Tank Farm at the Valdez Marine Terminal.

8. **Alternatives:** None recommended.

9. **Attachments:**

A: Final report from Geosyntec Consultants, Inc. titled, "Secondary Containment Liner Integrity Evaluation."

B: Draft letter to Alyeska, ADEC, EPA, and BLM provided under separate cover.