**Stantec Consulting Services Inc.**
725 East Fireweed Lane Suite 200, Anchorage AK 99503-2245

December 12, 2019

Stantec Project Number: 185751226

Anastasia Duarte, REHS/RS
Retail Environmental Remediation Administrator, Pacific Division
Speedway LLC
3450 South 344th Way, Suite 135
Auburn, Washington 98001-5931

**Reference: Corrective Action Work Plan for 2020**
**Speedway Store 5614 (former Tesoro 2 Go Mart 76)**
3600 East Palmer Wasilla Highway, Wasilla, Alaska
ADEC Facility ID #2986; ADEC File #2265.26.037

Dear Ms. Duarte:

This letter presents the 2020 (calendar year) Corrective Action Work Plan for the investigation and/or remediation of contamination at the above referenced site. This 2020 Corrective Action Work Plan will be presented at the annual Alaska Department of Environmental Conservation (ADEC)/Speedway (former Tesoro Alaska Company) work session scheduled for December 12, 2019, at the Anchorage office of Stantec Consulting Services Inc. (Stantec).

The following section provides a summary of the work plan tasks that were completed under the ADEC-approved 2019 Corrective Action Work Plan. Attached to this letter are the project site plans and analytical test results for samples collected during the completion of the tasks. The site plans and test results will be presented during the December 2019 work session.

**2019 Work Plan Tasks**

- Task 1 – Groundwater Monitoring

  This task was completed in accordance with the approved 2019 work plan.

- Task 2 – Remediation System Operation and Maintenance (O&M)

  This task was completed in accordance with the approved 2019 work plan.

- Task 3 – Install Groundwater Pump and Treat System

  This task was partially completed in accordance with the approved 2019 work plan. Stantec completed the installation and development of the 4-inch diameter remediation well that will be used for groundwater capture and recirculation into the former bio-sparge treatment system. The well was identified as RW-1 and was equipped with a submersible pump that still requires permanent electrical service connection and associated plumbing connections to the former bio-sparge wells. These connections will be completed in 2020 as proposed in the 2020 work plan described below.

**Reference: 2020 Work Plan for Speedway Store 5314 (Former Tesoro 2Go Mart 76)**

The following section presents the proposed tasks for the 2020 Corrective Action Work Plan. The scope of these tasks is based on the results and findings of the monitoring and remediation completed to date at this site.

## Proposed Work Plan Tasks for 2020

- Task 1 –Groundwater Monitoring

  Quarterly monitoring of the groundwater wells and annual monitoring of several existing drinking water wells will be conducted. Sampling locations and analyses for the monitoring and drinking water wells are shown on the 2020 Work Plan Schedule below.

**2020 Work Plan Schedule for Speedway Store 5314 (Former T2GM 76)**

| Work Plan Task | | 1st Quarter | 2nd Quarter | 3rd Quarter | 4th Quarter |
|---|---|---|---|---|---|
| Task 1 | Monitoring Wells: MW-1, MW-2, MW-3, and MW-4 including RW-1 | V, G, D, I | G, D, V, P, I | V, G, D, I | V, G, D, I |
| | On-site Domestic Drinking Water Well | | D, E | | |
| Task 2 | Complete the Installation of the RW-1 Recirculation Groundwater Treatment System | ✓ | ✓ | | |
| Task 3 | Operate the Chemical Oxidation Treatment System | O&M | O&M | O&M | O&M |

Key:
AK – Alaska Test Method
D – Diesel range organics by AK102.
EPA – U.S. Environmental Protection Agency
E – Drinking Water parameters by EPA Test Method 524.2.
G – Gasoline range organics by AK101.
I – Indicators, parameters tested include: dissolved oxygen, specific conductance, oxygen-reduction potential, pH, and temperature.
O&M – Operation and Maintenance
P – Polynuclear aromatic hydrocarbons (PAHs), i.e., semi-volatile organic compounds, by EPA Test Method 8270D Selective Ion Monitoring.
V – Volatile organic compounds by EPA Test Method 8260C.

**Reference: 2020 Work Plan for Speedway Store 5314 (Former Tesoro 2Go Mart 76)**

- Task 2 –Complete the Installation of the Groundwater Pump and Treat System

  During the 4th quarter of 2019, the new 4-inch diameter remediation well (RW-1) was installed/drilled. Stantec plans to install insulated piping system to connect the groundwater recirculation system to the former water lines that were originally proposed for a bio-sparge system located in the footprint of the former UST system. The new RW-1 will be operated on a continuous basis similar to the groundwater treatment system currently in operation at Speedway Store 5315 (former Tesoro 2Go Mart 111) in Fairbanks, Alaska. In addition, the well will be used to deliver the chemox solution (proposed in Task 3). Stantec plans to install the recirculation system during the 1st quarter of 2020 and startup the chemox treatment system by the end of the 2nd quarter of 2020. Stantec will perform quarterly maintenance to operate the recirculation groundwater remediation system. In addition, an iMonnit® sensor will be installed on the electrical wires on the submersible well pump used in RW-1 recirculating well. The pump operation will be monitored several times a day via the internet to ensure the pump is operating properly.

- Task 3 – Operate the Chemical Oxidation Treatment System O&M

  Similar to the operation of the chemox injection system used at Speedway Store 5315 (former Tesoro 2Go Mart 111), Stantec proposes to provide chemical oxidation treatment of the petroleum contaminated soil and groundwater into the three former bio-sparge lines twice a year. The first annual injection will occur in the spring of the year after the winter frost dissipates, and the second injection will take place several months later just prior to winter freeze-up. A minimum of 300 gallons of a prepared solution of the chemical oxidant Klozur One® (a chemical mixture consisting primarily of sodium persulfate) will be injected equally into the three former bio-sparge lines (100 gallons per well). The existing monitoring wells will be sampled quarterly as outlined in Task 1 to assess treatment impact on the groundwater table surrounding the new injection wells. In addition, the wells will be sampled for sodium to check on the distribution/migration of the oxidant.

The Corrective Action Work Plan for the year 2020 will be implemented by Stantec on behalf of Speedway. Groundwater monitoring will be conducted to track migration and trends of contaminants that are present at the site. All sampling activities will be completed in accordance with ADEC's *Underground Storage Tanks Procedures Manual– Standard Sampling Procedures* (March 22, 2017). The methods that will be used for conducting a monitoring event, unless otherwise noted in the monitoring report, will include:

- The static water levels in the monitoring wells will be measured with respect to the top of each well casing. The elevation of the static water level will be based on an arbitrary datum established on-site during a vertical control survey that will be completed by Stantec on an annual basis. The survey will be performed during the summer after the seasonal frost layer thaws.
- The monitoring wells will be purged of a minimum of three well bore volumes prior to collecting the water samples. A new, disposable, Teflon® bailer will be used to sample each well. The first bail of water removed from each well will be examined for petroleum odor, sheen, and any other unique physical features.

**Reference: 2020 Work Plan for Speedway Store 5314 (Former Tesoro 2Go Mart 76)**

- Water and vapor samples will be collected in laboratory-supplied sample containers. The samples will be delivered to an ADEC-approved laboratory in accordance with standard chain-of-custody procedures.
- Additional water samples will be collected from the monitoring wells after the well has been purged, as described above, and tested in the field for chemical and physical intrinsic parameters listed in the 2020 Work Plan Schedule shown above.

If you have any questions or need additional information concerning this 2020 Corrective Action Work Plan, please contact us at (907) 248-8883.

Regards,

**STANTEC CONSULTING SERVICES INC.**

Michael A. Zidek, PMP
Project Manager

Bob Gilfilian, P.E.
Project Technical Lead

Attachments: Site Plans
Analytical Test Results

E. PALMER WASILLA HWY

APPROXIMATE LOCATION OF PROPERTY LINE
3600 PALMER-WASILLA HWY

WATER SUPPLY WELL LOCATION (W)

UNDERGROUND STORAGE TANK

CANOPY

FUEL DISPENSER (TYP)

SEPTIC SYSTEM

MW-1

RW1

CAR WASH

TESORO
2 GO MART #76

RW2

F-UST

UNDERGROUND PIPING

RW3

F-UST

REMEDIATION WELL ACCESS POINT

MW-2

MW-4

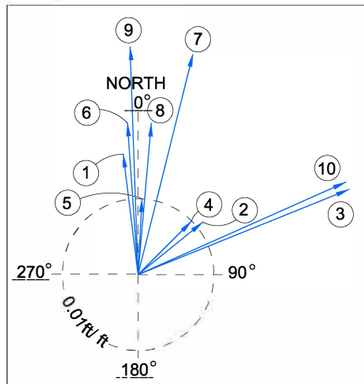
MW-3

***Proposed Location for REM Well***

SEWARD MERIDIAN PKWY

APPROXIMATE
0 20'

CAMERON ACRES
BLOCK 1
LOT 7




GROUNDWATER FLOW SUMMARY

| | DATE | BEARING | GRADIENT (ft/ft) |
|---|---|---|---|
| 1 | OCT. 13, 2016 | 353° | 0.016 |
| 2 | DEC. 9, 2016 | 51° | 0.011 |
| 3 | FEB. 8, 2017 | 68° | 0.03 |
| 4 | APRIL 24, 2017 | 45° | 0.01 |
| 5 | SEP. 1, 2017 | 3° | 0.01 |
| 6 | FEB. 15, 2018 | 356° | 0.02 |
| 7 | JUNE 29, 2018 | 14° | 0.03 |
| 8 | SEP. 11, 2018 | 5° | 0.02 |
| 9 | OCT. 26, 2018 | 358° | 0.03 |
| 10 | FEB. 25, 2019 | 66° | 0.03 |

| MW-1 | |
|---|---|
| Benzene | 0.0037 |
| Ethylbenzene | U(0.003) |
| Toluene | U(0.002) |
| Xylenes | U(0.003) |
| GRO | U(0.25) |
| DRO | 0.19 |
| GW Elev | 76.59 |

| MW-2 | |
|---|---|
| Benzene | **0.092** |
| Ethylbenzene | **0.18** |
| Toluene | 0.22 |
| Xylenes | **0.98** |
| GRO | **5.4** |
| DRO | 1.2 |
| GW Elev | 75.96 |

| MW-3 | |
|---|---|
| Benzene | **0.95** |
| Ethylbenzene | **2.3** |
| Toluene | 0.69 |
| Xylenes | **8.2** |
| GRO | U(1.3) |
| DRO | **4.6** |
| GW Elev | 78.15 |

| MW-3 (Duplicate) | |
|---|---|
| Benzene | **0.92** |
| Ethylbenzene | **2.3** |
| Toluene | 0.69 |
| Xylenes | **8.4** |
| GRO | U(1.3) |
| DRO | **4.6** |

| MW-4 | |
|---|---|
| Benzene | **0.026** |
| Ethylbenzene | 0.0034 |
| Toluene | U(0.002) |
| Xylenes | 0.0089 |
| GRO | U(0.25) |
| DRO | 0.20 |
| GW Elev | 78.3 |

LEGEND:

| | |
|---|---|
| F-UST | FORMER UNDERGROUND STORAGE TANK |
| ▲ | MONITORING WELL LOCATION |
| ● | REMEDIATION WELL LOCATION |
| DRO | DIESEL RANGE ORGANICS |
| GRO | GASOLINE RANGE ORGANICS |
| H | SAMPLE WAS PREPPED OR ANALYZED BEYOND THE SPECIFIED HOLDING TIME |
| RW | REMEDIATION WELL |
| U | UNDETECTED ABOVE PRACTICAL QUANTITATION LIMITS SHOWN IN PARENTHESES |
| (W) | DRINKING WATER WELL |

NOTES:

1. RESULTS SHOWN ARE FOR WELLS SAMPLED ON FEBRUARY 25, 2019
2. RESULTS ARE IN MILLIGRAMS PER LITER
3. BOLD/ RED TEXT INDICATES CONTAMINANT CONCENTRATIONS ABOVE CLEANUP LEVELS FOR THIS SITE

Stantec

TESORO 2 GO MART #76

SITE PLAN
Proposed REM Well for Ground Water Remediation - Pump & Treat

FIGURE 1

185751226.
200.205

FILE: C:\D\CAD\Proj\Tesoro\TGMart076_185751226\MonEvent\2019\February 2019\Fig02 Site Plan with GrndWtr.dgn

TIME: 14-MAR-2019 12:01

## Appendix D
## Tables of Historical Monitoring Data

### Monitoring Well MW-1

| Date | Benzene (mg/L) | Toluene (mg/L) | Ethylbenzene (mg/L) | Xylenes (mg/L) | GRO (mg/L) | DRO (mg/L) | GW Elev (feet) |
|---|---|---|---|---|---|---|---|
| 06-Nov-14 | **0.027** | U (0.0005) | U (0.0005) | U (0.0015) | 0.067 | 0.36 | 76.15 |
| 25-Feb-15 | 0.0013 | U (0.0005) | U (0.0005) | U (0.0015) | U (0.05) | U (0.41) | 76.16 |
| 10-Jun-15 | U (0.002) | U (0.002) | U (0.003) | U (0.002) | U (0.060) | 0.50 | 76.59 |
| 02-Sep-15 | 0.0011 | U (0.001) | U (0.001) | U (0.003) | U (0.1) | U (0.40) | 76.36 |
| 12-Nov-15 | **0.029** | U (0.002) | U (0.003) | U (0.002) | 0.14 | U (0.21) | 78.14 |
| 20-Jan-16 | **0.071** | U (0.002) | U (0.003) | U (0.002) | 0.18 | 0.22 | 77.57 |
| 09-May-16 | **0.026** | U (0.001) | U (0.001) | U (0.003) | 0.1 | U (0.45) | 77.70 |
| 13-Oct-16 | **0.053** | U (0.001) | U (0.001) | U (0.003) | 0.84 | 0.36 | 77.53 |
| 09-Dec-16 | **0.027** | U (0.002) | U (0.002) | U (0.003) | 0.067 | 0.67 | 76.74 |
| 08-Feb-17 | **0.010** | U (0.002) | U (0.003) | U (0.002) | 0.057 | 0.27 | 76.14 |
| 24-Apr-17 | **0.0096** | U (0.002) | U (0.003) | U (0.003) | U (0.001) | U (0.0003) | 77.39 |
| 01-Sep-17 | **0.0068** | U (0.002) | U (0.003) | U (0.002) | U (1.0) | 0.250 | 78.61 |
| 15-Feb-18 | **0.012** | U (0.002) | U (0.003) | U (0.003) | U (1.0) | U (0.13) | 77.07 |
| 29-Jun-18 | **0.026** | U (0.002) | U (0.003) | U (0.003) | U (0.25) H | 0.30 | 76.34 |
| 11-Sep-18 | **0.01** | U (0.001) | U (0.001) | U (0.002) | U (0.15) | U (0.27) | 76.80 |
| 26-Oct-18 | **0.015** | U (0.002) | U (0.003) | U (0.003) | U (0.25) | 0.31 | 76.94 |
| 25-Feb-19 | **0.0037** | U (0.002) | U (0.003) | U (0.003) | U (0.25) | 0.19 | 76.59 |
| 25-Apr-19 | U (0.003) | U (0.002) | U (0.003) | U (0.003) | U (0.25) | U (0.27) | 77.94 |
| 25-Jul-19 | **0.0071** | U (0.002) | U (0.003) | U (0.003) | U (0.25) | 0.27 | 76.78 |
| **GCLs** | **0.0046** | **1.1** | **0.015** | **0.19** | **2.2** | **1.5** | NA |

### Monitoring Well MW-2

| Date | Benzene (mg/L) | Toluene (mg/L) | Ethylbenzene (mg/L) | Xylenes (mg/L) | GRO (mg/L) | DRO (mg/L) | GW Elev (feet) |
|---|---|---|---|---|---|---|---|
| 06-Nov-14 | **0.067** | 0.026 | **0.016** | 0.130 | 0.68 | 0.19 | 77.95 |
| 25-Feb-15 | **0.022** | 0.0045 | 0.0034 | 0.020 | 0.130 | U (0.41) | 77.03 |
| 10-Jun-15 | U (0.002) | U (0.002) | U (0.003) | **1.8** | **6.1** | 1.1 | 76.67 |
| 02-Sep-15 | **0.089** | 0.056 | **0.065** | **1.4** | **U (10)** | **1.8** | 76.48 |
| 12-Nov-15 | **0.091** | 0.11 | **0.13** | 0.179 | **22** | **1.8** | 78.61 |
| 20-Jan-16 | **0.520** | **1.5** | **0.83** | **5.1** | NL | **1.6** | 78.28 |
| 09-May-16 | **0.41** | 0.37 | **0.35** | **2.8** | U (10) | 0.95 | 78.25 |
| 13-Oct-16 | **0.42** | 0.63 | **0.48** | **2.62** | **9.2** | 0.98 | 78.74 |
| 09-Dec-16 | **0.57** | 0.17 | **0.50** | **1.01** | **11** | **1.7** | 77.07 |
| 08-Feb-17 | **0.053** | U (0.002) | **0.02** | 0.096 | 0.58 | 0.20 | 77.32 |
| 24-Apr-17 | **0.036** | 0.012 | **0.035** | **0.66** | **2.6** | 0.94 | 78.01 |
| 01-Sep-17 | **0.083** | 0.026 | **0.450** | **2.330** | **9.7** | 1.3 | 79.31 |
| 15-Feb-18 | **0.067** | 0.02 | **0.14** | **0.97** | **U (10)** | 0.98 | 79.08 |
| 29-Jun-18 | **0.17** | 0.25 | **0.59** | **3.3** | **6.0 H** | 1.2 | 78.34 |
| 11-Sep-18 | **0.094** | 0.13 | **0.18** | **1.08** | **4.8** | 0.74 | 78.88 |
| 26-Oct-18 | **0.17** | 0.28 | **0.48** | **3.01** | **11** | 1.0 | 79.40 |
| 25-Feb-19 | **0.092** | 0.22 | **0.18** | **1.41** | **5.4** | 1.2 | 75.96 |
| 25-Apr-19 | **0.051** | 0.13 | U (0.003) | **1.28** | **3.6** | 0.93 | 79.50 |
| 25-Jul-19 | **0.079** | 0.13 | **0.2** | **1.47** | **5.4** | 0.89 | 77.72 |
| **GCLs** | **0.0046** | **1.1** | **0.015** | **0.19** | **2.2** | **1.5** | NA |

## Appendix D
## Tables of Historical Monitoring Data

### Monitoring Well MW-3

| Date | Benzene (mg/L) | Toluene (mg/L) | Ethylbenzene (mg/L) | Xylenes (mg/L) | GRO (mg/L) | DRO (mg/L) | GW Elev (feet) |
|---|---|---|---|---|---|---|---|
| 06-Nov-14 | **5.0** | **7.4** | **37** | **39** | **240** | **3.5** | 78.38 |
| 25-Feb-15 | **2.9** | **34** | **6.7** | **37** | **180** | **8.6** | 77.98 |
| 10-Jun-15 | **5.2** | **38** | **8.2** | **48** | **210** | **9.5** | 78.40 |
| 02-Sep-15 | **3.7** | **24** | **4.4** | **28** | **U (200)** | **5.1** | 77.88 |
| 12-Nov-15 | **1.3** | **2.1** | **0.21** | **1.69** | **87** | **3.6** | 78.92 |
| 20-Jan-16 | **3.8** | **13** | **4.2** | **25.3** | **120** | **4.1** | 78.50 |
| 09-May-16 | **2.1** | **21** | **2.2** | **33** | **69** | **1.5** | 78.43 |
| 13-Oct-16 | **1.2** | **4.2** | **2.9** | **14.6** | **46** | **2** | 78.75 |
| 09-Dec-16 | **0.17 (E)** | NL | NL | **0.54 (E)** | **100** | **3.3** | 77.80 |
| 08-Feb-17 | **39** | **99** | **53** | **103** | **98** | **3.9** | 77.61 |
| 24-Apr-17 | **2.5** | **14** | **5.2** | **28.9** | U (200) | **6.7** | 78.61 |
| 01-Sep-17 | **0.610** | **9.300** | **3.700** | **21.400** | **75** | **1.9** | 79.33 |
| 15-Feb-18 | **0.3** | **3.8** | **2.9** | **15.6** | **U (100)** | 1.3 | 79.03 |
| 29-Jun-18 | **0.28** | 1.1 | **1.7** | **8.2 H** | **23 H** | 1.1 | 78.78 |
| 11-Sep-18 | **0.29** | 0.53 | **1** | **5.6** | **14** | 0.91 | 79.13 |
| 26-Oct-18 | **0.32** | 0.36 | **0.89** | **4.3** | **15** | 0.93 | 79.40 |
| 25-Feb-19 | **0.95** | 0.69 | **2.3** | **11.4** | U (1.3) | **4.6** | 78.15 |
| 25-Apr-19 | **0.14** | 0.13 | **U (1.5)** | **U (1.5)** | **11** | 0.64 | 79.58 |
| 25-Jul-19 | **0.68** | **1.2** | **2.4** | **11.6** | **41** | **1.9** | 78.38 |
| **GCLs** | **0.0046** | **1.1** | **0.015** | **0.19** | **2.2** | **1.5** | NA |

### Monitoring Well MW-4

| Date | Benzene (mg/L) | Toluene (mg/L) | Ethylbenzene (mg/L) | Xylenes (mg/L) | GRO (mg/L) | DRO (mg/L) | GW Elev (feet) |
|---|---|---|---|---|---|---|---|
| 06-Nov-14 | **0.940** | **1.9** | **0.3** | **1.5** | **13** | 0.45 | 77.81 |
| 25-Feb-15 | **3.7** | **6.6** | **0.56** | **2.7** | **29** | 1.0 | 76.85 |
| 10-Jun-15 | **1.1** | **2.3** | **0.54** | **2.7** | **14** | 1.0 | 76.60 |
| 02-Sep-15 | **0.026** | U (0.001) | 0.007 | 0.03 | 0.3 | U (0.40) | 77.31 |
| 12-Nov-15 | NL | NL | NL | NL | U (0.050) | U (0.21) | 78.99 |
| 20-Jan-16 | 0.0043 | U (0.002) | U (0.003) | U (0.002) | NL | 0.15 | 78.56 |
| 09-May-16 | **0.0092** | U (0.001) | U (0.001) | U (0.003) | U (0.1) | U (0.42) | 78.51 |
| 13-Oct-16 | U (0.00020) | U (0.001) | U (0.001) | U (0.003) | U (0.1) | 0.18 | 78.84 |
| 09-Dec-16 | NL | NL | NL | NL | U (0.05) | 0.18 | 77.93 |
| 08-Feb-17 | **0.017** | U (0.002) | U (0.003) | U (0.002) | U (0.05) | 0.18 | 78.81 |
| 24-Apr-17 | **0.012** | U (0.002) | 0.0049 | U (0.003) | U (0.001) | U (0.0003) | 78.8 |
| 01-Sep-17 | **0.550** | U (0.050) | **0.380** | **0.740** | **5.1** | 0.48 | 79.38 |
| 15-Feb-18 | **0.19** | U (0.10) | **0.26** | **0.438** | **3.3** | 0.29 | 79.14 |
| 29-Jun-18 | **0.09** | U (0.002) | **0.022** | 0.027 | 0.52 | 0.19 | 79.00 |
| 11-Sep-18 | **0.0086** | U (0.001) | 0.0052 | 0.0062 | U (0.15) | U (0.28) | 79.23 |
| 26-Oct-18 | **0.013** | U (0.002) | 0.0045 | 0.0089 | U (0.25) | 0.15 | 79.46 |
| 25-Feb-19 | **0.026** | U (0.002) | 0.0034 | 0.0089 | U (0.25) | 0.20 | 78.30 |
| 25-Apr-19 | U (0.003) | U (0.002) | U (0.003) | U (0.003) | U (0.25) | U (0.27) | 77.23 |
| 25-Jul-19 | **0.051** | U (0.002) | U (0.003) | 0.0078 | U (0.25) | 0.16 | 78.33 |
| **GCLs** | **0.0046** | **1.1** | **0.015** | **0.19** | **2.2** | **1.5** | NA |

## Appendix D
## Tables of Historical Monitoring Data

Key: DRO - diesel range organics
E – There was insufficient sample to perform a re-extraction.
GCL - ground water cleanup level
GRO - gasoline range organics
GW Elev - groundwater elevation
H – Sample was prepped or analyzed beyond the specified holding time.
mg/L - milligrams per liter
NA - not applicable
NM - not measured
NL - Not analyzed due to laboratory error.
U - Undetected above practical quantitation limits.
Xylenes - total xylenes

**Bold**, shade indicates concentration exceeds the GCL.