SEA
SAILORS ENGINEERING ASSOCIATES, INC.
1675 SPECTRUM DRIVE • LAWRENCEVILLE, GEORGIA 30043 • TEL (770) 962-5922 • FAX 962-7964

November 14, 2014

Mr. Jake Carpenter
Response and Remediation Program
2 Martin Luther King, Jr. Drive, S.E.
Suite 1054, East Tower
Atlanta, Georgia 30334

RE: Spalding Corners Shopping Center
7700 Spalding Drive
Sandy Springs, Fulton County, Georgia
HSI #10639

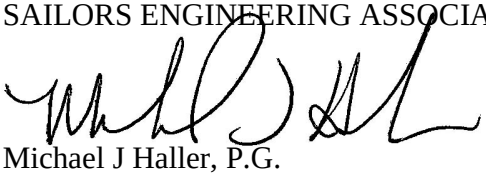
Dear Mr. Carpenter:

In accordance with the October 12, 2010 Voluntary Remediation Plan Approval Letter, Sailors Engineering Associates, Inc. (SEA) appreciates this opportunity to submit this 2nd 2014 Semi-Annual Progress Report on behalf of Selig Enterprises, Inc. for the Spalding Corners Shopping Center Site, HSI #10639 located in Sandy Springs, Fulton County, Georgia.

If you have any questions or need additional information, please contact us at (770) 962-5922. We look forward to working with you on this project.

Respectfully submitted,

SAILORS ENGINEERING ASSOCIATES, INC.



Michael J Haller, P.G.
Manager, Environmental Engineering

w/enclosures
cc: Mr. S. Kevin Curry, Selig Enterprises, Inc w/enclosures

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VRP 2nd 2014 SEMI-ANNUAL PROGRESS REPORT SPALDING CORNERS SHOPPING CENTER 7700 SPALDING DRIVE NORCROSS, FULTON COUNTY, GEORGIA HSI #10639

SEA JOB #102-063

SUBMITTED:
November 14, 2014

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CERTIFICATION

I certify, under penalty of law, that the electronic copy is complete, identical to the paper copy, and virus free.

11-14-2014
Date

Michael J. Haller, P.G.
Project Manager

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VOLUNTARY INVESTIGATION AND REMEDIATION PLAN CERTIFICATION

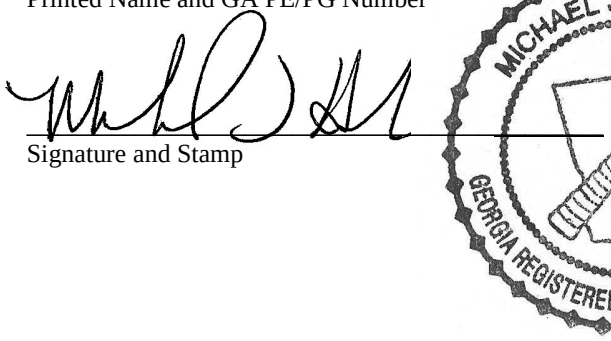
"I certify under penalty of law that this report and all attachments were prepared by me or under my direct supervision in accordance with the Voluntary Remediation Program Act (O.C.G.A. Section 12-8-101, et seq.). I am a professional engineer/professional geologist who is registered with the Georgia State Board of Registration for Professional Engineers and Land Surveyors/ Georgia State Board of Registration for Professional Geologists and I have the necessary experience and am in charge of the investigation and remediation of this release of regulated substances.

Furthermore, to document my oversight of the Voluntary Remediation Plan development, implementation of corrective action, and long term monitoring, I have attached a monthly summary of hours invoiced and description of services provided by me to the Voluntary Remediation Program participant since the previous submittal to the Georgia Environmental Protection Division.

The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Michael J. Haller, P.G.#1062___
Printed Name and GA PE/PG Number

____November 14, 2014___
Date



Signature and Stamp

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1.0 INTRODUCTION

1.1 Purpose

The purpose of this Second 2014 Semi-Annual Voluntary Remediation Program Progress Report is to discuss the current site conditions and any actions taken since the initial Voluntary Remediation Program (VRP) application and the VRP 1st, 2nd, 3rd, 4th and 1st 2014 Semi-Annual Progress Reports.

1.2 Background

The VRP application (the Application") submitted for Spalding Corners Shopping Center HSI #10639 located at 7700 Spalding Drive in Sandy Springs, Fulton County, Georgia, dated May 10, 2010 was approved on October 12, 2010. As discussed in the Application, Monitored Natural Attenuation (MNA) with additional In-Situ Chemical Oxidation, as necessary, were identified as the most likely remedial approach for this site. To determine whether MNA is appropriate, Sailors Engineering Associates, Inc. (SEA) evaluated historical data, including prior remediation efforts, conducted additional testing, and utilize fate and transport models. The first semi-annual sampling event occurred in March 2011. The VRP 1st Semi-Annual Progress Report was submitted on April 12, 2011 and the VRP 2nd Semi-Annual Progress Report was submitted on October 12, 2011. The EPD review letter with comments dated March 6, 2012 was received after the commencement of the third semi-annual sampling event. The VRP 3rd Semi-Annual Progress Report was submitted on April 12, 2012 concurrently with a letter in response to the EPD comment letter under separate cover. The VRP 4th Semi-Annual Progress report was submitted on October 12, 1012, recommending that no additional remediation or monitoring is warranted for this site and that a Compliance Status Report be prepared.

An EPD review letter with comments dated January 10, 2014 stated that certain potential exposure pathways have not been controlled. Specifically, EPD stated that compliance with the residential risk reduction standards (RRS) must be demonstrated or uniform environmental covenants (UEC) must be filed on both properties restricting groundwater use. Further, EPD stated that the vapor intrusion pathway must be evaluated for the existing structures on Parcel 06-0313 LL-009-1 and for future structures on Parcel 06-0313 LL-034-9. EPD also requires continued groundwater monitoring and model calibration until it is demonstrated that impacts will not exceed residential RRS or until the property located west of River Exchange Drive is included as a qualifying property and a UEC is placed on the property.

The VRP 1st 2014 Semi-Annual Progress Report that included responses to the EPD comment letter was submitted on April 11, 2014.

1.3 Summary of Results

Due to the presence of detectible concentrations in what at the time were the most downgradient wells (MW-5S, MW-6S and MW-21S), EPD required an additional permanent monitoring (MW-22S) located on the Sandy Springs Property downgradient of MW-6S. The laboratory results for MW-22S were below reporting limits (BRL), indicating that the Sandy Springs Property is

currently in compliance with the residential RRS.

PCE concentrations continued an overall decreasing trend with the exception of the downgradient wells mentioned above as well as MW-14S and MW-17S.

2.0 SEMI-ANNUAL GROUNDWATER MONITORING EVENTS

A total of 14 monitoring wells and one wetland area well point were sampled as part of the second 2014 semi-annual sampling event. The recently installed downgradient monitoring well located on the Sandy Springs Property, MW-22S, was included in this event. Two monitoring wells, MW-8S and MW-9S, were not sampled since they are located side gradient of the plume and have never shown impacts. The sampled locations represent the plume centerline, down-gradient sampling points, and select upgradient and side-gradient wells. The wells along the centerline of the plume were used to determine the strength of evidence for biotransformation by collecting MNA indicator parameters in addition to the volatile organic compound analysis samples from all chosen sampling points. One monitoring well (MW-7S), three seep water locations (SW-1, SW-2 and SW-3) and one wetland area well point (SW-4) were dry.

The groundwater monitoring wells sampled were purged using a precleaned submersible bladder pump or peristaltic pump. Parameter stabilization was used to determine when the well had been adequately purged prior to sampling.

2.1 Groundwater Monitoring Well Installation

On September 8, 2014, SEA mobilized an ATV-mounted drilling rig to the subject site to install the one additional horizontal delineation groundwater monitoring well as proposed. Monitoring well, MW-22S, was installed approximately 240 feet southwest or downgradient of MW-6 on the undeveloped Sandy Springs Property across River Exchange Drive from the subject property. The boring was advanced in unconsolidated media using hollow-stem auger drilling techniques (nominal 4.25-inch ID) that will produce an 8-inch diameter borehole. Since soil sampling was not performed, a wooden plug was place in the auger head to prevent soil cuttings from entering the interior of the augers. Refusal on shallow rock was encountered at 25 feet below the ground surface (bgs). The groundwater monitoring well was constructed using precleaned, individually wrapped 2-inch diameter Schedule 40 PVC well screen and casing (Silver Line Enviro Pure) within the auger string. One five-foot section and one ten-foot section of 0.010-inch slotted screen were installed and brought to the ground surface with one ten-foot section of solid PVC riser. A lockable, watertight cap was used to seal the well casing. The annulus, the area between the well screen and the wall of the boring, was backfilled with washed and sorted filter sand (FilterSil Filtration Sands and Gravel WG-1) by slowly pouring the sand through the augers to approximately four feet above the well screen. To seal the filter pack, bentonite chips (Cetco PureGold Medium Chips) were slowly poured into the annulus to approximately two feet below the ground surface. The bentonite was allowed to hydrate prior to surface completion. Approximately 0.75 feet of the top portion of the riser was cut off. On September 29, 2014, MW-22S was developed by the over-pumping technique using a variable-speed 12 Volt Proactive Hurricane submersible pump. A well development log was not produced since the well contained little water and was repeatedly pumped dry.

On November 4, 2014, a surface seal of concrete that extends from below the frost line to the surface where a square apron is formed extending outward at least 18 inches from the edge of the borehole was constructed at MW-22S. A protective well cover or manhole was placed over the well casing within the concrete apron. The manhole is of flush-mount design constructed of cast iron with bolt-down, 8-inch diameter removable cover with a gasket placed within 10-inch diameter flanged ring. Attached to the base of the ring is an 8-inch diameter by 10-inch long galvanized steel cylindrical skirt that forms a vault around the top of the well casing. The top of the well casing was cut below the surface to accommodate the manhole set slightly above being flush with the ground surface to allow surface drainage. A boring log and well construction diagram for MW-22S are included in Appendix 7.

2.2 Procedure for Installation of Monitoring Wells

Monitoring well installation was performed in general accordance with published protocols including USEPA Region 4 Science and Ecosystem Support Division "Design and Installation of Monitoring Wells" Guidance (SESDGUID-101-R1, January 29, 2013). The drilling rig and tools are steam-cleaned prior to arrival on-site. Laboratory grade Liqui-Nox® soap is diluted with potable water and used for the wash. At least 24-hours following installation, the monitoring well is properly developed by removing a minimum of three well volumes of groundwater to ensure the removal of fine-grained sediments from the vicinity of the well screen which allows the water to flow freely from the formation into the well and reduces the turbidity of the water during sampling. Well development is usually performed with a small submersible pump. The water level is measured before and after well development. A boring log including an "as built" well construction diagram is prepared for each monitoring well.

2.3 Groundwater Elevation and Flow Direction

The depth to water in each monitoring well was gauged from the top of the well casing (TOC) using an electronic water level indicator (Slope Indicator 100-foot Water Level Indicator Model No. 51670810). On October 6, 2014, prior to purging and sampling, the depth to water in each monitoring well was gauged from the TOC. This monitoring period, with the exception of upgradient wells MW-13S and MW-14S, the groundwater elevations decreased since March 2014. The groundwater flow direction continues to trend southwest toward Crooked Creek. The water level data was used to determine the volume of water to be purged from each well prior to sample collection and to create a potentiometric surface map. A Historic Groundwater Elevation Data Summary is included in Table 4 of Appendix 2. The current potentiometric surface map is included in Appendix 1.

2.4 General Approach and Procedure for Measuring Groundwater Elevations

Groundwater elevation and well depths were measured in general accordance with published protocol USEPA Region 4 Science and Ecosystem Support Division "Groundwater Level and Well Depth Measurement" Operating Procedure (SESDPROC-105-R2, January 29, 2013). Water levels are measured using an electronic water level indicator accurate to 0.01 feet. Groundwater level measurements are made relative to an established reference point on the top of well casing (TOC) identified with a permanent mark. The reference point is tied to an arbitrary datum common to all wells. To minimize the risk of cross-contamination between

wells when conducting water level measurements, the device is decontaminated between wells, in accordance with (SESDPROC-205). When possible, water level measurements are conducted from the least suspected contaminated area to the most suspected contaminated area. Total well depth measurements are collected when necessary.

2.5 General Approach and Procedures for Sampling

Samples were collected in general accordance with published protocols including USEPA Region 4 Science and Ecosystem Support Division "Groundwater Sampling" Operating Procedure (SESDPROC-301-R3, March 6, 2013) with the exception of the recommended tubing material as noted below. Well purging was conducted using either the *"Tubing-in-Screened-Interval" Method* (Section 3.2.2), where the intake was positioned in the approximate mid-portion of the screened interval or the *Purging with Pumps, Peristaltic Pumps* method (Section 3.3.1.1.1), where the intake was placed in the uppermost portion of the water column when the recovery rate was equal to the purge rate. Groundwater samples were obtained from each well either directly from the submersible pump discharge tubing (Section 4.3.1.3) or from *Peristaltic Pump, Direct from Pump Head Tubing* (Section 4.3.1.1) for MNA parameter samples or *Peristaltic Pump/Vacuum Jug* "soda straw" method B (Section 4.3.1.2) for VOC samples. Due to the relatively high cost of the recommended Teflon® tubing disposable polyethylene tubing was utilized for pump intake and discharge. Disposable polyethylene bladders were used in the bladder pump and disposable silicon tubing was used in the peristaltic pump head. New tubing and bladders were used for each well. Samples were collected following *Order of Sampling with Respect to Analytes* (Section 4.7.2). The various MNA parameter samples were collected in laboratory supplied containers in the recommended order followed by the VOC samples at the end. VOC samples were collected in laboratory supplied 40-ml sample vials preserved with HCL. A Teflon®-lined cap was placed on the vial, and the vial was inverted to ensure zero headspace. The samples were immediately packed in ice and transported to the analytical laboratory under chain-of-custody procedures. To minimize the risk of cross-contamination between wells when conducting groundwater sampling, the pumps and instruments are decontaminated between wells, in accordance with (SESDPROC-205). When possible, groundwater sampling was conducted from the least suspected contaminated area to the most suspected contaminated area. Copies of the groundwater sampling logs are included in Appendix 3. Copies of the laboratory data sheets are included in Appendix 5.

2.6 Decontamination Procedures

All downhole and/or reusable field equipment and instruments were properly decontaminated between wells in general accordance with published protocols including USEPA Region 4 Science and Ecosystem Support Division "Field Equipment Cleaning and Decontamination" Operating Procedure (SESDPROC-205-R2, December 20, 2011). The electronic water level meter was decontaminated following *Well Sounders or Tapes* (Section 3.5), where unless conditions warrant, the wetted portion of the meter was decontaminated using the procedure listed below:

1. Wash with laboratory grade Liqui-Nox® detergent diluted with deionized water
2. Rinse with deionized water

The water quality meter was decontaminated following *"Classical Parameter" Sampling Equipment* (Section 3.3), where the meter and flow cell was decontaminated by rinsing with deionized water. The bladder pump was decontaminated following *Sample Collection Equipment Contaminated with Environmental Media* (Section 2.5), where the pump was decontaminated using the procedure listed below:

1. Disassemble the pump and remove and discard the bladder
2. Wash with laboratory grade Liqui-Nox® detergent diluted with deionized water
3. Rinse with deionized water
4. Install a new bladder and reassemble the pump

2.7 Results

The results of the October 2014 monitoring event indicate that a few notable changes have occurred in the seven months since the March 2014 sampling. Slight increases in PCE concentrations were detected in several wells this period. MW-5S increased from 0.048 mg/L to 0.067 mg/L, MW-10S increased from 0.043 mg/L to 0.061 mg/L, MW-14S increased from 0.0019 mg/L to 0.0068 mg/L, MW-15S increased from 0.025 mg/L to 0.200 mg/L, MW-16S increased from 0.170 mg/L to 0.280 mg/L, MW-17S increased from 0.110 mg/L to 0.130 mg/L, MW-18S increased from 0.0055 mg/L to 0.240 mg/L, MW-20S increased from 0.0027 mg/L to 0.018 mg/L and MW-21S increased from 0.0048 mg/L to 0.020 mg/L. PCE concentrations decreased slightly in MW-19S from 0.032 mg/L to 0.017 mg/L this period. The presence of PCE in MW-5S and MW-21S, located at downgradient locations, was detected this period at concentrations of 0.067 mg/L and 0.020 mg/L, respectively. MW-6 also located down gradient had PCE concentration of 0.0032 mg/L. The PCE concentration detected in upgradient well MW-14S was 0.0068 mg/L. TCE was detected at low concentrations (below 0.005 mg/L) in five locations and cDCE was detected in two locations at low concentrations (below 0.070 mg/L). Specifically, TCE was detected in MW-15S, MW-16S, MW-18S, MW-19S and MW-20S below 0.005 mg/L, and cDCE was detected in MW-19S and MW-20S below 0.070 mg/L. VC was not detected in the groundwater samples collected from any of the selected sampling locations this period. Chloroform was detected at three sampling locations at very low concentrations. Chloroform was detected in MW-15S at 0.0054 mg/L, MW-16S at 0.0054 mg/L and MW-17S at 0.013 mg/L. Methyl tert-butyl ether (MTBE) was not detected this period. The current increases in PCE concentrations this period appear to coincide with seasonal fluctuations in the water table. Current and historic laboratory summaries are included in Table 1 and Table 2, respectively, of Appendix 2. Historic Groundwater and Seep Water PCE Trend Graphs are included in Appendix 6.

2.8 Monitored Natural Attenuation Evaluation

The natural attenuation mechanisms active at the site include both biological transformation and non-biological attenuation. Both mechanisms are responsible for the attenuation of the plume at this site. In order to determine the contribution from biotransformation, the Natural Attenuation Screening Protocol portion of the BIOCHLOR model was used to evaluate individual wells. Only seven monitoring wells were sampled for natural attenuation parameters this period.

Although it was proposed, newly installed downgradient well MW-22S was not sampled for these parameters because the well contained too little water to collect numerous samples. Based on the scoring method used in the worksheets, limited evidence of anaerobic biodegradation was only seen in downgradient wells MW-6S, MW-19S and MW-20S. The worksheets indicated inadequate evidence of reductive dechlorination was shown in the "source well", MW-15S, and in downgradient wells MW-16S and MW-18S. The upgradient well, MW-14S, also showed inadequate evidence of reductive dechlorination. SEA interprets the results in MW-19S and MW-20S, where nutrients were injected into the soil and groundwater through the BioNet system in 2006, to indicate that conditions are again favorable for reductive dechlorination. SEA interprets the results in MW-16S and MW-18S, where a chemical oxidation product (sodium persulfate) with an alkaline (NaOH) activator was injected into the groundwater in the vicinity of MW-16S in 2008, to indicate that conditions are not favorable for reductive dechlorination. The Natural Attenuation Screening Protocol worksheets are included in Appendix 4. Copies of the groundwater sampling logs and laboratory data sheets are included in Appendix 3 and Appendix 5, respectively. Table 4 and Table 5 are current and historic tabular summaries, respectively, of the parameters tested with the results and a scoring summary for each of the site monitoring wells. Historic laboratory summaries are included in Table 2 of Appendix 2. A Site Plan depicting the sample locations and Isoconcentration Maps for PCE, TCE, cDCE and Chloroform have been included in Appendix 1.

Based on the results of the biotransformation evaluation, dispersion and dilution are the primary mechanisms responsible for the natural attenuation at the site.

3.0 PROPOSED CORRECTIVE ACTION

Soil and groundwater are impacted with chlorinated solvents and their degradation products at the Spalding Corners Shopping Center Site. As discussed in previous reports, five exposure pathways, soil, vapor intrusion into the existing structure, seep water and sediment, and surface water (Crooked Creek) will not pose a threat to human exposure. While groundwater is currently an incomplete exposure pathway, it is possible that installation of a drinking water well could cause it to become complete in the future. Therefore, the proposed corrective action is to restrict use of groundwater through an institutional control in the form of a restrictive covenant.

3.1 INSTITUTIONAL CONTROLS

Institutional controls will be implemented through the use of Environmental Covenants (UECs) executed in conformance with the Georgia Uniform Environmental Covenants Act (OCGA § 44-16-1) as follows:

- To mitigate the potential groundwater exposure pathway, each of the impacted parcels (06-0313 LL-009-1 and 06-0313 LL-034-9) will require a restriction on non-remedial groundwater use of any kind, unless the constituents of Concern (COC) are treated to below HSRA residential RRS.

Draft UECs, including legal descriptions and tax maps, for the Spalding Corners Shopping Center parcel (06-0313 LL-009-1) and the River Exchange parcel (06-0313 LL-034-9) are included in Appendix 8.

4.0 PLANNED ACTIVITIES

SEA will prepare the Compliance Status Report for this site to be submitted in lieu of First Semi-Annual Progress Report for 2015.

5.0 CONCLUSION AND RECOMMENDATIONS

Fluctuations in contaminant concentrations have been observed in a number of the wells, but the overall trend is a reduction in the concentrations both temporally and with regard to distance from the source area. Coupled with the Groundwater-Surface Water Mixing Calculations presented in the 4th Semi-Annual report, site conditions are adequate to avoid impact to Crooked Creek or a hypothetical groundwater receptor 1000 feet from the site.

EPD has indicated that it would like to see continued groundwater monitoring and model calibration until it is demonstrated that impacts will not exceed residential RRS or until the property west of River Exchange Drive (Sandy Springs Property) is included as a qualifying property and a UEC is placed on the property. The laboratory results for MW-22S were below reporting limits (BRL), indicating that the Sandy Springs Property is in compliance with the residential RRS as calculated under the Rules for Hazardous site Response.

SEA recommends that once the UECs have been approved by EPD and are in place that the Compliance Status Report be prepared and submitted.