

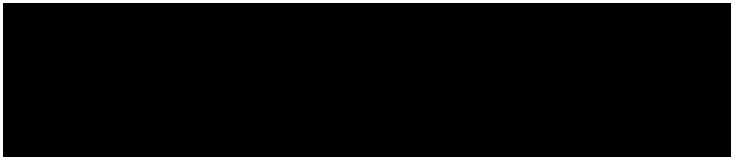
**FINAL
SITE DRAINAGE WATER TRIP REPORT
FOR THE
STONEY CREEK TECHNOLOGIES SITE
TRAINER, DELAWARE COUNTY, PENNSYLVANIA**

Prepared for

U.S. Environmental Protection Agency Region III
Hazardous Site Cleanup Division
1650 Arch Street
Philadelphia, Pennsylvania 19103

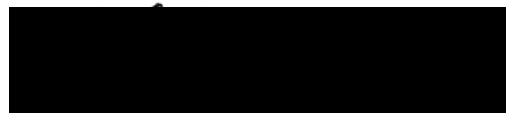
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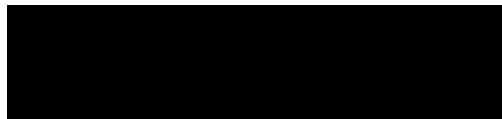
April 15, 2013

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Stoney Creek Technologies Site
Trainer, Delaware County, Pennsylvania



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ACRONYMS

µg/kg	micrograms per kilogram
µg/L	micrograms per liter
AOC	Area of Concern
EPA	U.S. Environmental Protection Agency
ESAT	Environmental Services Assistance Team
GRO	Gasoline Range Organics
NPL	National Priority List
OSC	On-Scene Coordinator
ppm	parts per million
QAPP	Quality Assurance Project Plan
QC	quality control
SACI	Saturated Atmosphere Corrosion Inhibitor
SOP	Standard Operating Procedure
START	Superfund Technical Assessment and Response Team
TDD	Technical Direction Document
TPH-DRO/GRO	Total Petroleum Hydrocarbons-Diesel Range Organics/Gasoline Range Organics
WESTON®	Weston Solutions, Inc.
WWTP	Waste Water Treatment Plant

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1. INTRODUCTION

Under Eastern Area Superfund Technical Assessment and Response Team (START) Contract No. [REDACTED] Technical Direction Document (TDD) No. [REDACTED], U.S. Environmental Protection Agency (EPA) Region III tasked Weston Solutions, Inc. (WESTON®) to collect surface water samples to characterize water drainage throughout the site. The purpose of the sampling was to determine if surface and storm-sewer system decontamination activities were effective at reducing concentrations of site related contaminants in storm water discharging to Stoney Creek.

This trip report provides site background in **Section 2.0**, describes site surface water sampling activities in **Section 3.0**, and summarizes analytical results in **Section 4.0**. All references cited in this report are provided in **Section 5.0**.

2. BACKGROUND

This section describes the site location, presents a description and history of the Site, and summarizes previous site investigations.

2.1 SITE LOCATION

The Stoney Creek Technologies Site (Site) is located in a mixed industrial and residential area of Trainer, Delaware County, Pennsylvania as shown in Figure 1. The approximate geographic coordinates of the Site are 39.8300000 north and -75.3975000 west. The Site abuts an active railroad line that traffics freight and passenger trains along its northwest boundary. Residences are located directly across the street from the Site to the southeast. Fisher Tank borders the Site to the East and Lou's Auto Salvage is to the West.

2.2 SITE DESCRIPTION AND HISTORY

The Site includes a former chemical manufacturing facility consisting of about 230 tanks, several buildings, a laboratory, a wastewater treatment facility, and many processing vessels (equipment items, systems, and pipelines) which were used in, or are related to, the chemical manufacturing processes. The Site consists mainly of concrete or asphalt ground surfaces. The building structures are generally intact, though the physical integrity is deteriorating. Chemicals used at

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the former facility included various petroleum mixtures, oleum and sulfuric acid, caustics, methanol, heptane, and mineral spirits.

In February 2009, EPA initiated removal actions at the site. Removal activities included: removing chemicals from storage tanks, process lines and equipment; decontaminating surfaces and the storm sewer system; excavating contaminated surface soils; operating the waste water treatment plant (WWTP) and transporting waste offsite for disposal.

In June 2012, EPA contractors modified the WWTP and storm sewer system to allow storm water to flow freely to Stoney Creek. EPA and EPA contractors demobilized from the site in October 2012.

3. SITE ACTIVITIES

This section describes the five surface water sampling events conducted at the Site from December 2010 to December 2012. Part of EPA's goal in conducting the removal action was to reduce the potential for offsite migration of contaminants via surface runoff and in storm water. Removal actions included cleaning paved and concrete surfaces, emptying tanks, clearing lines, cleaning and clearing process equipment, and cleaning the drainage system.

3.1 SURFACE WATER SAMPLE COLLECTION

Surface water samples were collected for laboratory analyses during four rain events that produced at least 1 inch of measurable rain. Upon completion of removal activities, a fifth sampling event was conducted during site closeout procedures, at the newly constructed storm water outfall, to determine the water quality of storm water draining into Stoney Creek.

EPA and EPA contractors identified a total of ten sampling locations throughout the site, ranging from drainage trenches throughout the site to the WWTP. Seven of these locations represented the lowest common points of the drainage trench systems in process areas. One sample point was located at the WWTP 10'x10' (pretreatment). Additionally, the WWTP oil/water separator overflow basin and a sump located adjacent to the south side of the WWTP were sampled. Both

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of these locations fill with seeping groundwater. Neither the overflow basin nor the sump directly receives storm water through drainage piping from the process areas of the plant. These two locations were filled with rock and concrete during removal activities to restrict ground water from directly impacting surface runoff.

Samples were submitted to the laboratory for Total Petroleum Hydrocarbons-Diesel Range Organics/Gasoline Range Organics (TPH-DRO/GRO), methanol, oil and grease, and chromium analyses. The following list summarizes the locations of the surface water samples (**Figure 2**):

- SCT-120110-WS-01-01: Drop box under roll off bin containing fly ash material
- SCT-120110-WS-01-02: Drop box adjacent to T-104
- SCT-120110-WS-01-03: Trench drain in the vicinity T-495
- SCT-120110-WS-01-04: Trench drain between T-134 and Main Stack
- SCT-120110-WS-01-05: Intersection of trenches bordering outer fence by rail yard
- SCT-120110-WS-01-06: Under manhole cover in middle of road in the Saturated Atmosphere Corrosion Inhibitor (SACI) area
- SCT-120110-WS-01-07: Pooled water in containment area adjacent to closed off drain
- SCT-120110-WS-01-08: Sump at WWTP (predominately ground water)
- SCT-120110-WS-01-09: 10 feet x 10 feet catch box at WWTP (storm water prior to treatment)
- SCT-120110-WS-01-10: Water surrounding vault box at WWTP (predominately ground water)

The final sampling location was the out-fall discharge (only collected 12/18/2012)

- C0042/MC0042: Out-fall discharge into Stoney Creek.
- C0043/MC0043: Out-fall discharge into Stoney Creek (duplicate sample of location C0042/MC0042)

3.2 SAMPLE NOMENCLATURE

WESTON assigned each sample a unique number. The project samples were identified using the following format:

SCT-[Date]-[Sample Type]-[Station ID]-[Sample Number]

SCT – Abbreviation of Stoney Creek Technologies site.

Date – The date the sample was collected indicated as MMDDYY.

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Sample Type – Unique two-digit identifier indicating the type of sample collected:

- “WS” – Water Sample – Site Drainage Sample
- “EB” – Equipment Blank (quality control [QC] sample)
- “FB” – Field Blank (QC sample)

Station ID – Unique four digit identifier used to identify an Area of Concern (AOC).

Sample Number – Unique three digit identifier used to identify the specific sample.

Examples of the sample identifications for the site are as follows:

- SCT-100410-WS-04-001: Water sample #1 collected on October 04, 2010 from AOC 04 at the Stoney Creek Technologies Site.

3.3 SAMPLE HANDLING PROCEDURES

Samples were handled and packaged in accordance with the *START-4 Program-Wide Uniform Federal Policy Act Quality Assurance Project Plan (QAPP)* (WESTON, 2010). A photographic documentation log is included in **Appendix A**. Shipping coolers were properly labeled with chain-of-custody seals and shipped via FedEx[®] to the EPA Region 3 Laboratory located at Fort Meade, Maryland. Coolers were shipped with signed chain-of-custody forms (**Appendix B**). WESTON personnel conducted photographic and written documentation of sampling activities. Field logbook documentation was conducted in accordance with WESTON’s QAPP for START (WESTON, 2010).

4. ANALYTICAL RESULTS

This section discusses the analytical results of the surface water sampling collected at the Site in December 2010, September 2011, February 2012, June 2012 and December 2012. Note that the laboratory methods have been modified since the first round of sampling. Refer to the *Final Trip Report for the Stoney Creek Technologies Site, September 2011* (WESTON, 2011) for laboratory methods used during the first round of sampling.

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TDD No. WS01-10-07-005
Contract No. EP-S3-10-05

Samples were analyzed in accordance with the following methods:

Parameters	Method
Methanol	EPA8015B
TPH- DRO/GRO	SOM1.2 (modified)
Oil and Grease	EPA1664A
Chromium	ILM01.2

Analytical results were validated by the EPA Region 3 Environmental Services Assistance Team (ESAT) contractor. A copy of the laboratory analytical data packages from EPA Region 3 Laboratory and the ESAT-validated report are included in **Appendix B** of this report.

4.1 SURFACEWATER SAMPLING RESULTS SUMMARY

A summary of all the analytical results from each sampling event is provided in **Table 1**.

The concentration level of all contaminants reported for the five sampling events (conducted from December 2010 to June 2012) yielded mixed results. Analyte concentrations from Round 1 trended to decrease as cleanup progressed to the Round 4 sampling event of June of 2012. During the decontamination process, EPA contractors power washed and scraped heavily contaminated surfaces. As a result, loose material was present in some areas of the plant during the time that samples were collected and may have influenced the samples. During the second round of sampling, decontamination was being conducted in the vicinity of WS-02 and WS-03 and its tributary drainages. Portions of the drainage system were obstructed with sandbags which were being used to block the flow of contaminated waste water to the WWTP. Waste water was being removed from the drains with a vacuum truck and staged in tanks and profiled for separate treatment. Additionally, elevated levels of chromium identified in tank 460 disposal profile may be related to elevated levels of chromium found in the WS-03 sample location. Tank 460 had leaked between the two sampling events and soda ash was used to neutralize the spill. Approximately 6

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inches of soda ash and precipitate accumulated in the WS-03 location, which has a drop-box style cleanout in the bottom of the drain.

Methanol was only detected during the 3rd round of sampling, collected in February 2012. During this sampling round, methanol was detected at locations WS-03, WS-07, WS-08 and WS-10.

The final sampling of the water quality of storm water discharged into Stoney Creek was conducted December 2012 at the outfall drainage point into Stoney Creek. Sample analysis indicated results as non-detect for oil and grease, methanol, and GRO. Chromium was detected at 2.5 µg/L in sample C0042/MC0042, but was not detected in the associated duplicate sample, C0043/MC0043. DRO were detected in the outfall sample at a concentration of 210 µg/L, and 260 µg/L in the duplicate sample. The analytical results from the outfall sampling represent an overall improvement in the extent of contamination in the Site's drainage system. The surface and storm-sewer system decontamination activities, conducted by EPA and EPA contractors as part of the removal action, were effective at reducing concentrations of site related contaminants in storm water discharging to Stoney Creek.

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5. REFERENCES

- EPA. 2008a. *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*. Office of Superfund Remediation and Technology Innovation. June 2008.
- EPA. 2008b. *Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*, USEPA-540-R-08-01. June 2008.
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- WESTON. 2006c. SOP No. 203, Surface Water Sampling. September 2006.
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TABLES

Table 1: SURFACE WATER ANALYTICAL RESULTS

First Round Surface Water Sampling - December 01, 2010

Sample ID → Sample Date → Sample Type → Process Area →	WS-01-01 01/Dec/10 Surface Water LimOH	WS-01-02 01/Dec/10 Surface Water LimOH	WS-01-03 01/Dec/10 Surface Water Magnesium	WS-01-04 01/Dec/10 Surface Water Magnesium	WS-01-05 01/Dec/10 Surface Water Magnesium	WS-01-06 01/Dec/10 Surface Water SACI	WS-01-07 01/Dec/10 Surface Water SACI	WS-01-08 01/Dec/10 Ground Water SUMP	WS-01-09 01/Dec/10 Surface Water WWTP	WS-01-10 01/Dec/10 Ground Water WWTP
[Analytes]	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Chromium (ug/L)	2.9 J	1.8 J	39.9	1.5 J	ND	1.2 J	0.66 J	14.1	8.2 J	9.2 J
Oil and Grease (mg/L)	5.6	6.4	6.3	6.0	ND	ND	ND	297	18.8	64.7
Methanol (ug/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TPH Compounds (ug/L)										
Gasoline Range Organics	ND	ND	ND	ND	ND	ND	ND	1,700	580	1,700
Diesel Range Organics	600 B	610 B	520 B	1,200	2,700	450 B	290 B	3,500	3,800	5,800

Second Round Surface Water Sampling - September 6, 2011

Sample ID → Sample Date → Sample Type → Process Area →	WS-02-01 06/Sep/11 Surface Water LimOH	WS-02-02 06/Sep/11 Surface Water LimOH	WS-02-03 06/Sep/11 Surface Water Magnesium	WS-02-04 06/Sep/11 Surface Water Magnesium	WS-01-05 06/Sep/11 Surface Water Magnesium	WS-02-06 06/Sep/11 Surface Water SACI	WS-02-07 06/Sep/11 Surface Water SACI	WS-02-08 06/Sep/11 Ground Water Sump	WS-02-09 06/Sep/11 Surface Water WWTP	WS-02-10 06/Sep/11 Ground Water WWTP
[Analytes]	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Chromium (ug/L)	ND	ND	716	ND	ND	ND	ND	21	7.6 J	ND
Oil and Grease (mg/L)	3.5 J	1.8 J	10	8.6	73.4	ND	1.7 J	495	3.9 J	ND
Methanol (ug/L)	ND	ND	ND	0.85 B	ND	1.2 B	ND	ND	ND	ND
TPH Compounds (ug/L)										
Gasoline Range Organics	ND	180	140	ND	ND	ND	ND	2000	140	940
Diesel Range Organics	ND	430	730	770	9100	ND	ND	19000	1000	2100

Third Round Surface Water Sampling - February 24, 2012

Sample ID → Sample Date → Sample Type → Process Area →	WS-03-01 24/Feb/12 Surface Water LimOH	WS-03-02 24/Feb/12 Surface Water LimOH	WS-03-03 24/Feb/12 Surface Water Magnesium	WS-03-04 24/Feb/12 Surface Water Magnesium	WS-03-05 24/Feb/12 Surface Water Magnesium	WS-03-06 24/Feb/12 Surface Water SACI	WS-03-07 24/Feb/12 Surface Water SACI	WS-03-08 24/Feb/12 Ground Water Sump	WS-03-09 24/Feb/12 Surface Water WWTP	WS-03-10 24/Feb/12 Ground Water WWTP
[Analytes]	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Chromium (ug/L)	ND	ND	44.3	ND	ND	18.9B	ND	ND	ND	ND
Oil and Grease (mg/L)	1.8 J	3.7 J	4.2 J	2.1 J	13.1	20	2.9 J	1.6 J	1.2 J	8.5
Methanol (ug/L)	ND	ND	23000	ND	ND	ND	1700	5900	ND	1900
TPH Compounds (ug/L)										
Gasoline Range Organics	270	68	240	71 J	ND	ND	ND	100	ND	360
Diesel Range Organics	910	910	NS	920	4100	2800	1200	1800	720	15000

Notes:

ND = Non-Detect

J = Analyte present, reported valued may not be accurate or precise

B = Not detected substantially above the levels found in blanks

NS = Not sampled or no analysis was able to be performed due to a compromised sample.

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

R = Unusable result. Analyte may or may not be present in the sample. Supporting data is necessary to confirm result.

Table 1: SURFACE WATER ANALYTICAL RESULTS



Fourth Round Surface Water Sampling - June 01, 2012

Sample ID →	WS-01	WS-02	WS-03	WS-04	WS-05	WS-06	WS-07	WS-08	WS-09	WS-10
Sample Date →	01/Jun/12	01/Jun/12	01/Jun/12	01/Jun/12	01/Jun/12	01/Jun/12	01/Jun/12	01/Jun/12	01/Jun/12	01/Jun/12
Sample Type →	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Ground Water	Surface Water	Ground Water
Process Area →	LimOH	LimOH	Magnesium	Magnesium	Magnesium	SACI	SACI	SUMP	SUMP	WWTP
[Analytes]	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
Chromium (ug/L)	1.6 J	ND	73.3	1.7 J	ND	27.5	2.3 J	NS	5.5 J	ND
Oil and Grease (mg/L)	ND	ND	ND	ND	13	ND	ND	NS	ND	21
Methanol (ug/L)	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
TPH Compounds (ug/L)										
Gasoline Range Organics	ND	ND	ND	ND	ND	ND	ND	NS	ND	390
Diesel Range Organics	450	590	320	910	1400	770	410	NS	130	2700

Final Outfall Surface Water Sampling - December 18, 2012

Sample ID →	MC0042/C0042	MC0043/C0043 (Duplicate Sample)
Sample Date →	18/Dec/12	18/Dec/12
Sample Type →	Surface Water	Surface Water
Process Area →	WWTP	WWTP
[Analytes]	Result	Result
Chromium (ug/L)	10 U R	2.5 J
Oil and Grease (mg/L)	ND	ND
Methanol (ug/L)	ND	ND
TPH Compounds (ug/L)		
Gasoline Range Organics	ND	ND
Diesel Range Organics	210	260

Notes:

ND = Non-Detect

J = Analyte present, reported valued may not be accurate or precise

B = Not detected substantially above the levels found in blanks

NS = Not sampled or no analysis was able to be performed due to a compromised sample.

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

R = Unusable result. Analyte may or may not be present in the sample. Supporting data is necessary to confirm result.

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FIGURES



Legend

Site Boundary

Source: ESRI, USGS Quads
 Marcus Hook, PA, NJ, Del 1989
 Photorevised 1993



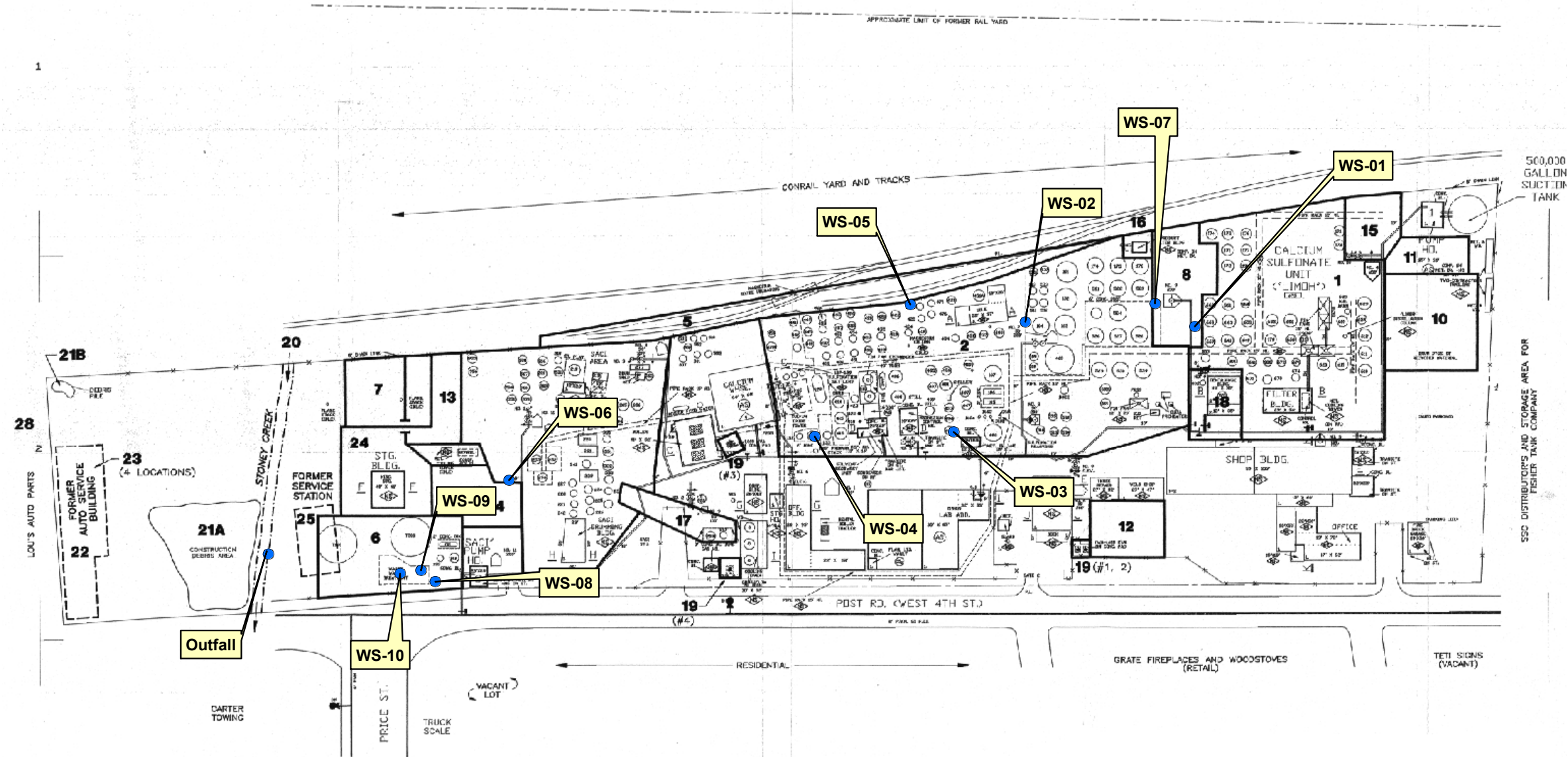
0 1,500
 Feet

PA State Plane, NAD83, feet

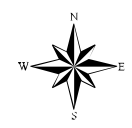
Figure 1
 Site Location Map

Stoney Creek Technologies
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Legend
 ● Surface Water Sample Location



Stoney Creek Technologies
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Figure 2
 Surface Water
 Sample Locations

