Stericycle
Environmental Solutions

August 3, 2016

Mr. David Slayton
Michigan Department of Environmental Quality
Permits and Corrective Action Unit
Hazardous Waste Section
PO Box 30241
Lansing, MI 48909

Subject: **PCE Source Assessment**
Petro-Chem Processing Group of Nortru, LLC
Detroit, MI MID 980 615 298

Dear Mr. Slayton:

As a follow up to our July 27, 2016 conference call to discuss analytical data collected adjacent to the former White Tower Laundry facility, a report summarizing available information regarding the origin of the PCE and related chemicals found in those sample locations is enclosed.

As discussed in our July 27 call, we are also assessing the presence of utilities in the St. Jean Ave right of way that could influence groundwater flow from the west side of the Petro-Chem facility.

If you have any questions, please contact me at 425-227-6170.

Sincerely,

Andy Maloy
Director, SHC Liability Management

cc: Ed Burke, Stericycle
Kellie Wing, Bureau Veritas

Report on White Tower Laundry & Cleaner Facility PCE Source
Nortru, LLC
Petro-Chem Processing Group Facility
421 Lycaste Street, Detroit, MI

August 3, 2016

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, 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.

John A. Maloy
Director, EH&S Risk Management

Report on White Tower Laundry & Cleaner Facility PCE Source

Stericycle Environmental Solutions, Inc.,
Petro-Chem Processing Group Facility
421 Lycaste Street
Detroit, Michigan

August 3, 2016
11016-000171.00

Prepared for:
Stericycle Environmental Solutions, Inc.
Detroit, Michigan

BUREAU VERITAS

For the benefit of business and people

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Chlorinated volatile organic compounds (CVOCs) were detected in the shallow soil, deeper soil, and groundwater at sample location BSB-48, which is located on the west side of St. Jean Avenue, adjacent to the former White Tower Laundry & Cleaner facility. The specific CVOCs which have been detected are tetrachloroethene (PCE) and the likely degradation chemicals trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2–DCE), and vinyl chloride (VC). As discussed in more detail below, the most likely source for the CVOCs detected at Soil Boring BSB-48 is the former White Tower Laundry & Cleaner facility.

Petro-Chem Processing Group Facility

Facility Operations. Parts of the Petro-Chem facility historically operated as a Standard Oil Company/Amoco refinery from at least 1929 until circa 1982. The site currently operates as a fuel blending and solvent recycling plant. Spent solvents, rags, fuel sludges, and tank bottoms are brought to the facility where these materials are either cleaned and recycled, or sold as fuel to cement kilns.

Known contamination at the Petro-Chem facility includes non-chlorinated volatile organic compounds (NCVOCs) and CVOCs in soil and groundwater. Groundwater at the facility is sampled on a semi-annual basis and more than 40 soil borings have been conducted onsite since 2010.

Former White Tower Laundry & Cleaner Facility

Facility Operations. According to historic records, White Tower Laundry & Cleaner (White Tower) occupied the property located at 401 St. Jean Street, adjacent to and downgradient of the Petro-Chem Facility. City directories indicated that White Tower Laundry & Cleaners occupied the property from at least 1968 through 1997, while fire insurance maps indicate that White Tower occupied the property from at least 1977 through 2002. A survey map prepared for the Petro-Chem Facility in 1995 indicates the presence of “White Industrial Tower Laundry and Cleaners” to the west of the Petro-Chem Facility. Additionally, the map shows that White Tower also occupied a building labeled as 500 St. Jean, which is currently part of the Petro-Chem Facility.

Information obtained from the Michigan Department of Environmental Quality (MDEQ) Waste Data System (WDS) indicates that the facility became active as a large quantity generator (LQG) in 1986 and was inactive/out of business by 2000. However, White Tower was present at the site since at least 1968 and electronic records are simply not available for that timeframe.

The Right-To-Know Network website, www.rtknet.org, provided information regarding annual reporting for the facility for the years 1989 through 1997. Data shows that approximately 300,000 pounds of PCE waste was generated in a typical year while the White Tower facility was in operation. A summary of the reporting is shown below.

- **1989** – Waste description: Oil and solvent still bottoms from dry cleaning, perchloroethylene and oil; Tons of waste generated : 161.293 tons
- **1991** – Waste description: Oil and solvent still bottoms from dry cleaning, perchloroethylene and oil; Tons of waste generated : 136.909 tons
- **1993** – Waste description: Combustible waste liquid from dry cleaning, perchloroethylene and oil; Tons of waste generated : 149.029 tons; Waste description: Flammable liquid, oil and solvent, stillbottoms from dry cleaning, perchloroethylene; Tons of waste generated : 23.06 tons
- **1995** – Waste description: Combustible waste liquid from dry cleaning, perchloroethylene and oil; Tons of waste generated : 152.704 tons; Waste description: Flammable liquid, oil and solvent, stillbottoms from dry cleaning, perchloroethylene; Tons of waste generated : 17.886 tons
- **1997** – Waste description: Combustible waste liquid from dry cleaning, perchloroethylene and oil; Tons of waste generated : 124.087 tons; Waste description: Flammable liquid, oil and solvent, stillbottoms from dry cleaning, perchloroethylene; Tons of waste generated : 9.573 tons

Soil and Groundwater Data

Soil

- PCE is present in the unsaturated zone soil in Soil Boring BSB-48 at a concentration (28,000 ppb) higher than in any soil sample collected at the Petro-Chem facility. The highest concentration of PCE in unsaturated or saturated soil collected at the Petro-Chem facility was from Soil Boring BSB-43 at a concentration of 5,000 parts per billion (ppb), which is significantly lower than that found offsite at Soil Boring BSB-48. Both soil samples were collected from the unsaturated zone. Figures 1 and 2 show concentrations of PCE and related CVOCs in soil above and below the saturated zone.

- The array of contaminants detected in soil at the Petro-Chem facility differ greatly from those which were encountered offsite. While only CVOCs were detected offsite, the contaminants located at the Petro-Chem facility along the west property boundary include many NCVOCs (i.e., benzene, toluene, ethylbenzene, xylenes, etc.) which were not seen in soils adjacent to the former White Tower facility. Figures 3 and 4 show concentrations of BTEX in soil above and below the saturated zone.

- The highest concentrations of CVOCs in soil detected offsite, at Soil Boring BSB-48, were found in samples collected at a depth of 3 to 5 feet, at least 2 feet above the groundwater table. Therefore, CVOCs present in the soil at BSB-48 were not likely to have migrated from the Petro-Chem facility through groundwater. Additionally, CVOCs in BSB-48 were detected at higher concentrations in the unsaturated zone than in the saturated zone.

- The other four soil borings conducted at the White Tower facility, Soil Borings BSB-28, 29, 30, and 47, also have detections of PCE in the unsaturated zone. In three of the soil borings, concentrations of PCE exceeded the cleanup criteria. Additionally, PCE was the only VOC detected in soil in these soil borings. There were no VOCs detected in the deep soil samples collected from these soil borings.

Groundwater

- Groundwater data collected from the Petro-Chem facility at locations most immediately upgradient of Soil Boring BSB-48 and on the downgradient edge of the facility boundary (Soil Borings BSB-7, 13, and 42) have similar, if not lower, concentrations of CVOCs than those detected in the Soil Boring BSB-48. The three locations on the Petro-Chem facility (BSB-7, 13, and 42) generally have concentrations of NCVOCs that are ten times the concentrations of CVOCs. Data collected from the borings adjacent to the former White Tower facility show the opposite chemical profile – CVOCs are generally 10X or more the concentration of NCVOCs. No NCVOCs were detected in groundwater on the White Tower property at concentrations exceeding cleanup criteria. Figures 5 and 6 demonstrate the differences in chemical profile of the groundwater collected adjacent to the former White Tower facility versus groundwater collected from the Petro-Chem facility.

- Groundwater samples collected from the other four soil borings at the White Tower facility, BSB-28, 29, 30, and 47, did not contain VOCS at concentrations which exceeded cleanup criteria.

Summary

The evidence strongly supports the finding that the PCE related CVOCs detected in Soil Boring BSB-48 originated from the former White Tower Laundry facility, and are not related to operations at the Petro-Chem facility. Evidence supporting this conclusion includes:

- The White Tower Laundry facility operated from at least 1968 through 1997. Public disclosures show that the facility typically generated approximately 300,000 pounds of PCE waste per year.

- Concentrations of the PCE-related CVOCs detected in unsaturated soil from Soil Boring BSB-48 are higher than concentrations of those chemicals detected in soil anywhere on the Petro-Chem property.

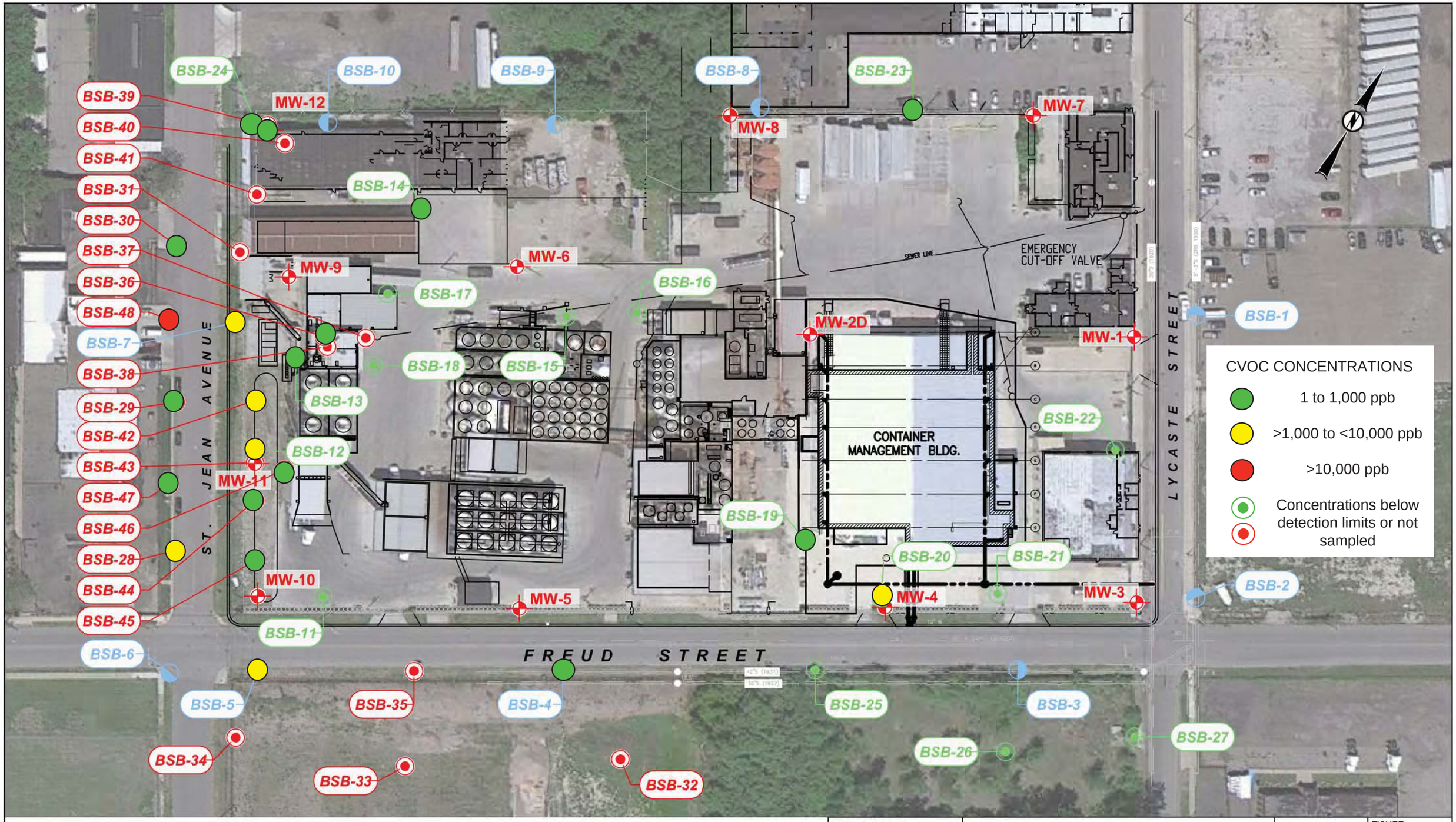
- Concentrations of the PCE-related CVOCs are higher in the shallow, unsaturated soil sample from Soil Boring BSB-48 than in the deeper sample collected at the water table from the same boring.

- No NCVOCs, including fuel-related VOCs (BTEX), were detected in soil from Soil Boring BSB-48, while very high concentrations of fuel-related VOCs were detected in soil and groundwater just across St. Jean Street on the Petro-Chem facility.

- While CVOCs were detected in soil and groundwater from borings on the west side of the Petro-Chem facility, just upgradient of Soil Boring BSB-48, the ratio of NCVOCs/CVOCs is generally 10:1, while the ratio of NCVOCs/CVOCs in BSB-48 is reversed (1:10).

- PCE was detected in shallow, unsaturated soil at the other four borings located on the west side of St. Jean, adjacent to the former White Tower facility (BSB-28, 29, 30, and 47), while PCE was not detected in deeper samples collected from three of those four soil borings.

FIGURES



LEGEND

MW-# MONITORING WELL

BSB-# 2014 SOIL BORING

BSB-# 2013 SOIL BORING

BSB-# 2010 SOIL BORING

SCALE IN FEET

0 40 80 160

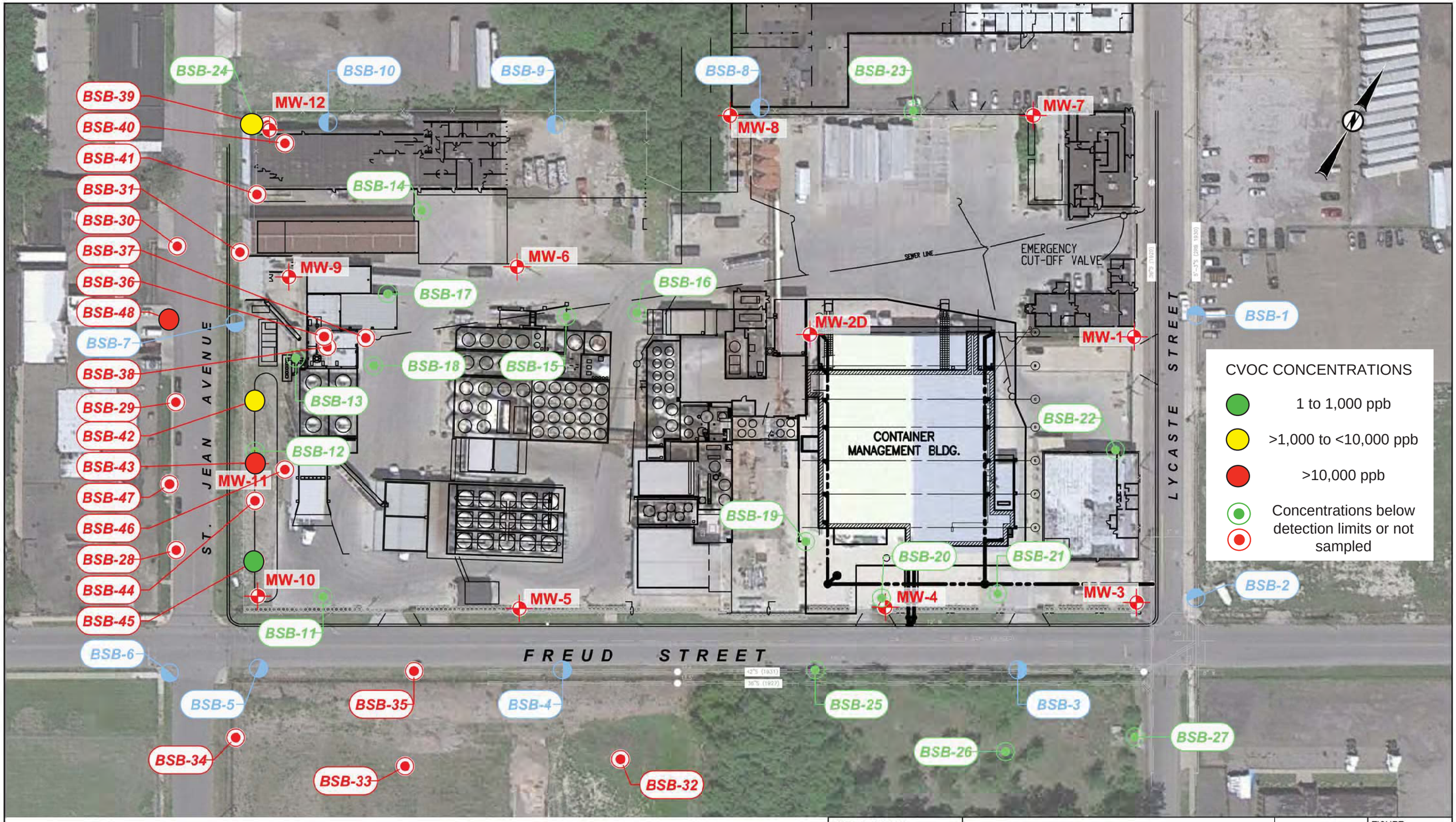
CHECK BY	KW
DRAWN BY	JL
DATE	8/3/2016
SCALE	AS SHOWN
CAD NO.	11.16.075.00sb
PRJ NO.	11016-000075.00

CVOC CONCENTRATIONS IN SOIL ABOVE THE WATER TABLE

PETRO-CHEM PROCESSING GROUP
421 LYCASTE STREET
DETROIT, MICHIGAN

BUREAU VERITAS

FIGURE 1



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CVOC CONCENTRATIONS IN SOIL BELOW THE WATER TABLE

PETRO-CHEM PROCESSING GROUP
421 LYCASTE STREET
DETROIT, MICHIGAN

BUREAU VERITAS

FIGURE 2

BSB-24 BSB-10 BSB-9 BSB-8 BSB-23

MW-12 MW-8 MW-7

BSB-39 BSB-40 BSB-41 BSB-31 BSB-30 BSB-37 BSB-36 BSB-48 BSB-7 BSB-38 BSB-29 BSB-42 BSB-43 BSB-47 BSB-46 BSB-28 BSB-44 BSB-45

BSB-14

MW-9 MW-6

BSB-17 BSB-16

BSB-18 BSB-15 BSB-13

MW-2D MW-1

BSB-1

BSB-22

BSB-12

MW-11

MW-10 MW-5 MW-4 MW-3

BSB-11 BSB-19 BSB-20 BSB-21 BSB-2

BSB-6 BSB-5 BSB-35 BSB-4 BSB-25 BSB-3 BSB-27

BSB-34 BSB-33 BSB-32 BSB-26

JEAN AVENUE

ST.

LYCASTE STREET

FREUD STREET

SEWER LINE

EMERGENCY CUT-OFF VALVE

CONTAINER MANAGEMENT BLDG.

BTEX CONCENTRATIONS

- 1 to 1,000 ppb
- >1,000 to <5,000 ppb
- >5,000 ppb
- Concentrations below detection limits or not sampled

LEGEND

- MW-# MONITORING WELL
- BSB-# 2014 SOIL BORING
- BSB-# 2013 SOIL BORING
- BSB-# 2010 SOIL BORING

SCALE IN FEET

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BTEX CONCENTRATIONS IN SOIL ABOVE THE WATER TABLE

PETRO-CHEM PROCESSING GROUP
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DETROIT, MICHIGAN

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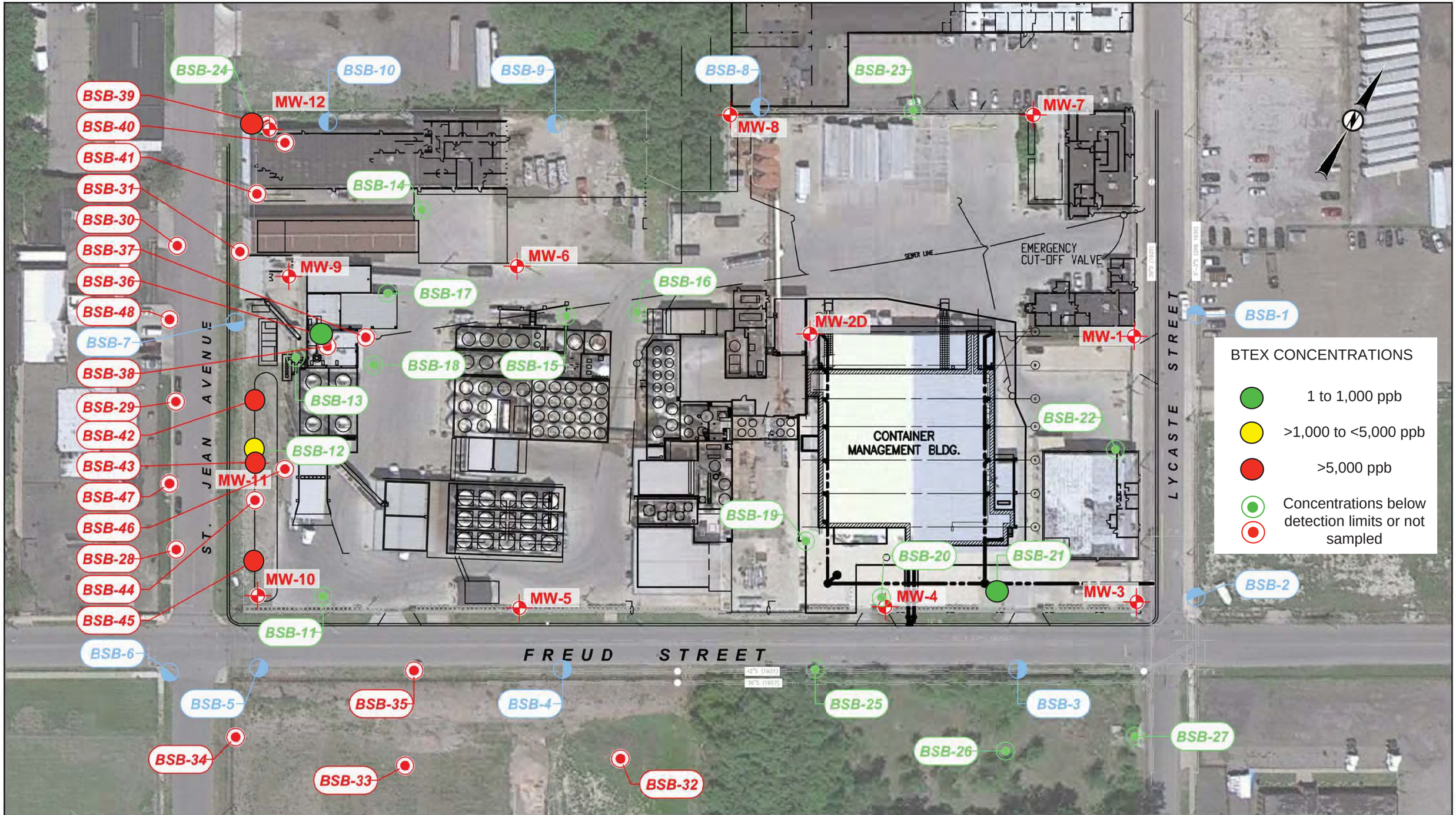
FIGURE 3



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BTEX CONCENTRATIONS IN SOIL BELOW THE WATER TABLE

PETRO-CHEM PROCESSING GROUP
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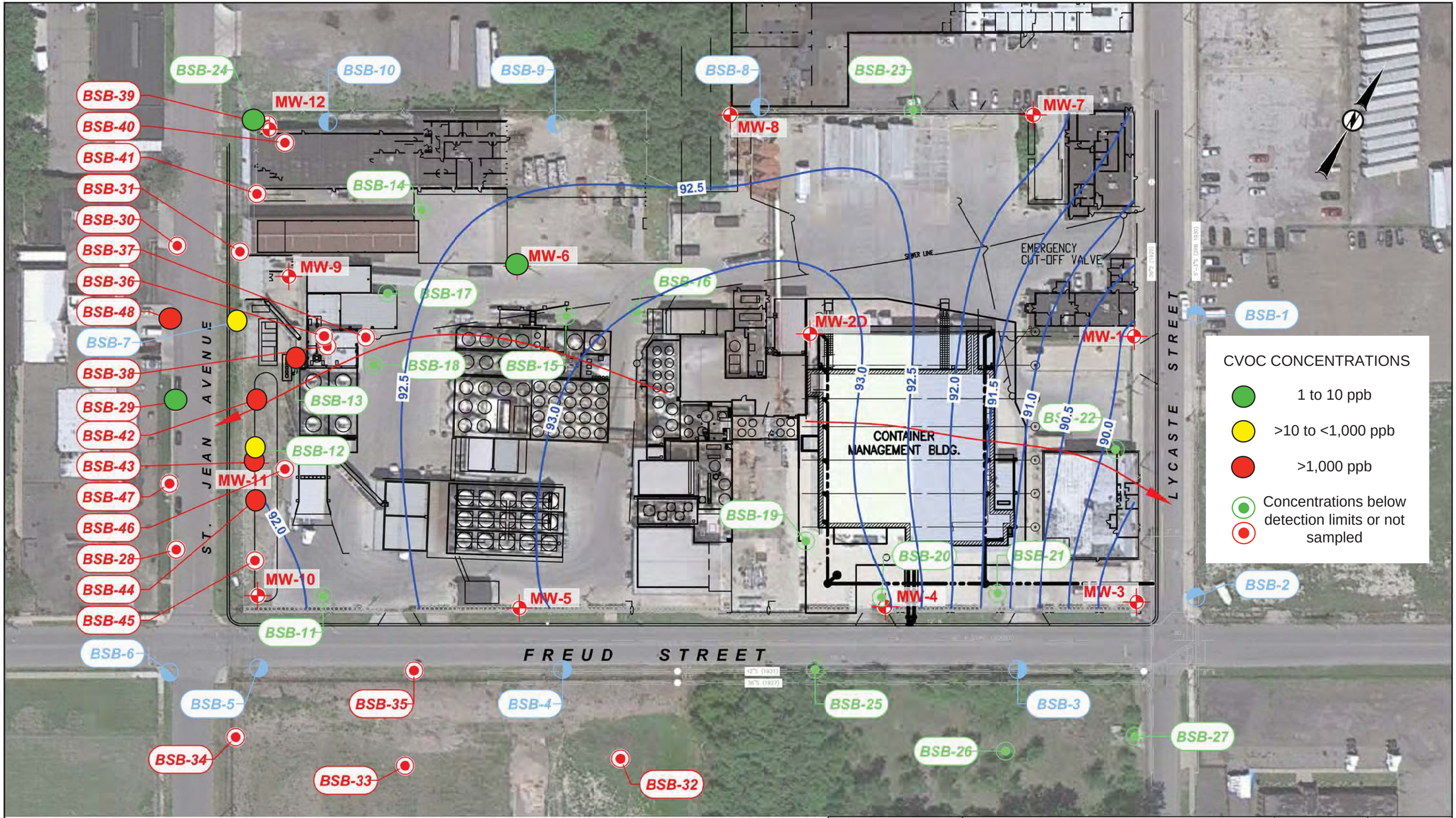
FIGURE 4



LEGEND

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BSB-# 2014 SOIL BORING

BSB-# 2013 SOIL BORING

BSB-# 2010 SOIL BORING

SCALE IN FEET

0 40 80 160

CHECK BY	KW
DRAWN BY	JL
DATE	8/2/2016
SCALE	AS SHOWN
CAD NO.	11.16.075.00s2
PRJ NO.	11016-000075.00

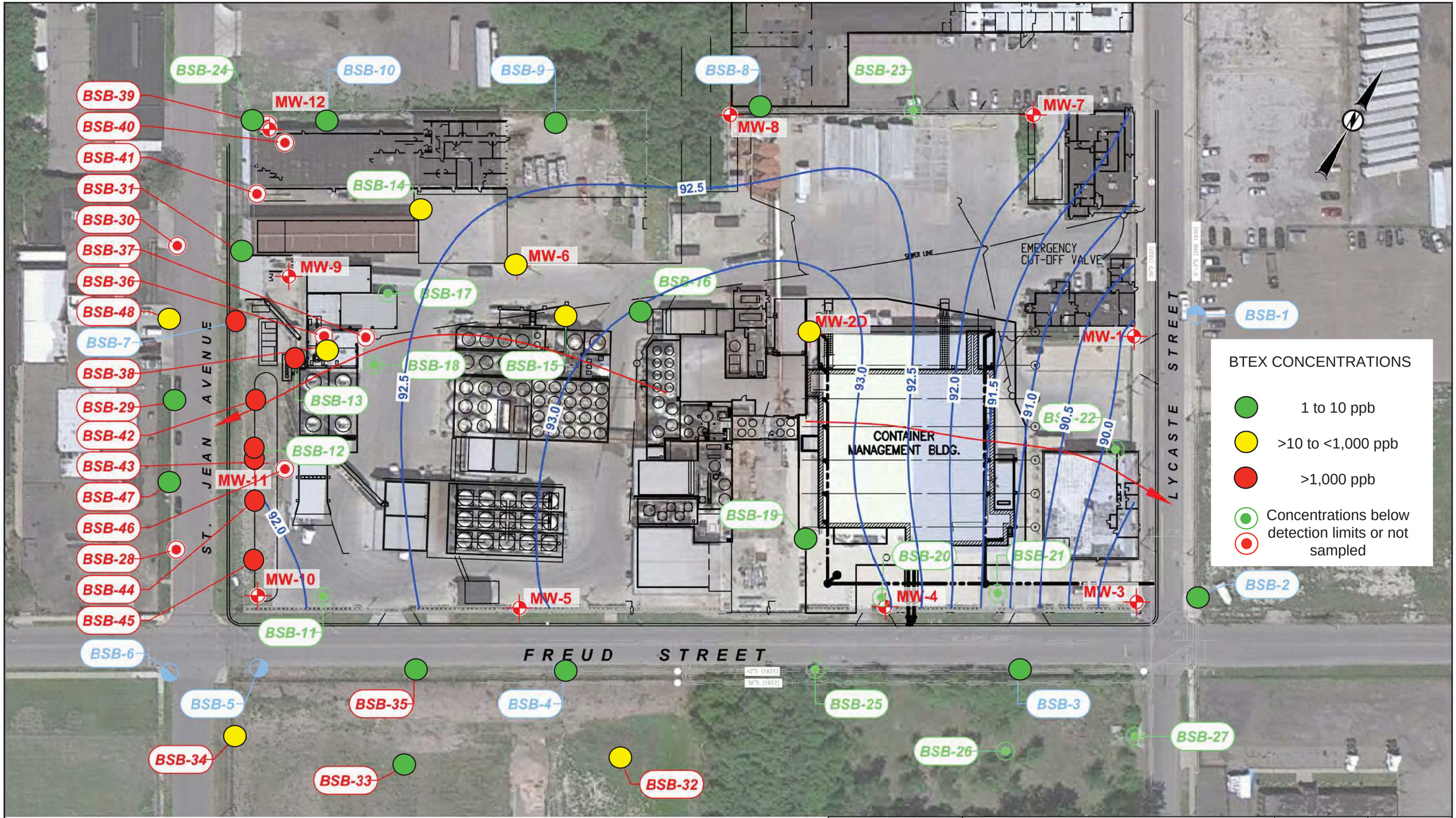
CVOC CONCENTRATIONS IN GROUNDWATER

PETRO-CHEM PROCESSING GROUP
421 LYCASTE STREET
DETROIT, MICHIGAN

BUREAU VERITAS

FIGURE

5



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BTEX CONCENTRATIONS IN GROUNDWATER

PETRO-CHEM PROCESSING GROUP
421 LYCASTE STREET
DETROIT, MICHIGAN

BUREAU VERITAS

FIGURE 6