

RESULTS OF CONFIRMATORY SAMPLING PROGRAM

FORMER GENERAL MOTORS FAIRFAX I PLANT
KANSAS CITY, KANSAS

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Rick Sullivan
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1.0 INTRODUCTION

Conestoga-Rovers & Associates (CRA) was retained by General Motors Corporation to conduct soil and groundwater investigations at the former General Motors (GM) Fairfax I Plant Site in Kansas City, Kansas (Site).

CRA's August 2001 Voluntary Cleanup Investigation (VCI) report entitled "Pre-Design Investigations Work Plan" was submitted to the Kansas Department of Health and Environment (KDHE) for review and comment. In a July 23, 2002 response to GM, KDHE requested that additional soil and groundwater samples be collected across the Fairfax I Plant property to verify previous investigation activities. KDHE also requested that the monitoring wells to be sampled under the pre-design investigations include additional parameters. GM agreed to perform the additional sampling. The supplemental work was outlined in the September 10, 2004 letter from CRA to KDHE entitled "Amendment to Pre-Design Work Plan". KDHE reviewed the work plan amendment and stated in a November 24, 2004 letter to GM that the VCI work plan appears to be complete and is therefore approved. CRA conducted the supplemental confirmatory sampling at the former Fairfax I Plant Site in December 2004.

While both the pre-design investigations sampling and the supplemental confirmatory sampling were conducted at the same time, this report does not discuss the groundwater natural attenuation portion or the soil sampling portion of the pre-design investigations sampling. The results of the pre-design investigations groundwater natural attenuation sampling and soil sampling will be discussed in a separate report.

1.1 SITE LOCATION AND DESCRIPTION

The Former Fairfax I Plant Site is located at 100 Kindelberger Road in Kansas City, Kansas in an industrial area known as the Fairfax District. The Site is located south of a bend in the Missouri River, with the river located north, east, and southeast of the Site. A levee is present between the Site and the Missouri River. The Site location is shown on Figure 1.1, and the Site plan is shown on Figure 1.2.

The Fairfax I Plant is no longer operating and was decommissioned in 1987. Previously the facility consisted of several buildings totaling approximately 2.2 million square feet of covered work area on a Site comprised of roughly 132 acres. As is typical of large industrial facilities, several support buildings, such as a power house, cooling towers, and maintenance areas, were present along with above and below ground product tanks and various waste storage areas.

1.2 ENVIRONMENTAL SETTING

The Site is located in the floodplain of the Missouri River. The geology of underlying soils typically consists of an upper layer of silty clay ranging in thickness from approximately 7 to 15 feet. The silty clay is underlain by fine to medium sands to depths of 25 to 40 feet that grade into medium to coarse sands with some gravel and clay interbeds to depths of 60 to 80 feet. This layer is underlain by medium to coarse sands and gravels to the top of the bedrock. The thick sequence of sands and gravels comprise alluvial deposits that are underlain by shale bedrock at approximately 102 to 117 feet below grade. This was determined during a 1985 subsurface investigation at the adjacent Fairfax II Plant.

The present Missouri River channel follows a deeper valley cut into the bedrock by the ancestral Missouri River.

1.3 OPERATIONAL HISTORY

The Fairfax I Plant consisted of several buildings, a tank farm, rail support, and drum storage areas. The assembly building and former aircraft hangar provided over 2.2 million square feet of covered work space. The U.S. Government constructed the Fairfax I Plant in 1940 for North American Aviation. North American Aviation assembled B-25 bombers at the facility through 1944 for use in World War II. In 1945, GM negotiated a lease for this facility from the U.S. Government and began assembling automobiles. During the Korean conflict GM assembled F84F jet aircraft in addition to continuing to assemble automobiles. GM purchased the facility from the U.S. Government in 1960 and continued automobile assembly operations until 1986/1987. Prior to demolition a number of environmental studies were performed by GM, including monitoring well installation and sampling. Some of these monitoring wells remain on the Fairfax I Plant Site.

1.4 PLANT DECOMMISSIONING

In May of 1987, automobile production at the Site was permanently terminated at the Site. In preparation of the demolition of the buildings associated with this facility an Environmental Site Assessment (ESA) was performed between August of 1987 and January of 1988. Asbestos abatement activities were completed from June to October of

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1988. All above ground storage tanks (ASTs) and underground storage tanks (USTs) were cleaned and removed from the Site during this same time period. The demolition of the Site buildings was conducted from July 1988 to May of 1989.

1.5 PREVIOUS INVESTIGATIONS

Previous ESA investigative activities conducted by HDR Engineering, Inc. (HDR) in 1987/1988 focused on, but were not limited to, the following areas which represented the greatest potential for impacted media:

- above ground or underground storage tanks;
- product conveyance lines;
- waste and paint storage areas;
- process sumps;
- refuse burning areas;
- fueling stations; and
- areas where historic spill incidents occurred.

Areas of concern (AOCs), shown on Figure 1.3, were identified for potential investigation during the ESA. Given the nature of the facility, the majority of the areas identified for potential investigation focused on bulk product storage tanks and their associated conveyance lines. Product was historically stored at the Site using a combination of ASTs and USTs. The majority of the USTs were removed concurrent with the performance of the ESA in August 1987. ASTs associated with the Site were also removed later in the decommissioning process.

In general, soil and groundwater samples collected by HDR in 1987/1988 were from the identified AOCs from locations most likely to have been impacted by past Site activities. Sampling locations were determined by HDR based on the past use of the Site, and in conjunction with information previously submitted to KDHE concerning environmental impacts documented during the operation of the Site (i.e., areas where historic spill incidents occurred).

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1.5.1 HOLLOW STEM AUGER SOIL SAMPLING

In total, 76 soil borings were advanced during the ESA performed by HDR in 1987/1988. Although these borings were advanced in areas most likely to have been impacted by plant operations, they were also placed to ensure that a representative characterization of the Site was developed during the ESA. Figure 1.4 provides the locations of the borings advanced during the ESA.

Soil borings S-1 through S-41 and S-101 through S-124 were advanced to depths of 30 feet below ground surface (bgs) using hollow stem auger drilling techniques. Soil borings S-101 through S-106, S-109, S-110, S-113, S-123, and S-124 were sampled for stratigraphic logging purposes only. Eleven additional borings (F-11 through F-16 and F-23 through F-26, and F-28) were advanced to 5 feet bgs.

Soil samples were collected from the majority of these borings for chemical analyses using split-spoon sampling procedures at 5-foot intervals to the base of the boring. Soil was taken for analyses from the lower 2.5 feet of each 5-foot interval. The three 5-foot sample intervals from the upper 15 feet of each boring were analyzed. The remaining samples from the lower portion of the boring were archived pending the results from the upper 15 feet of the boring. Samples from borings S-8, S-29, and S-37 were the only borings in which analyses of the lower three sample intervals were requested.

1.5.2 HOLLOW STEM AUGER GROUNDWATER SAMPLING

In addition to soil sampling, groundwater samples were collected by HDR in 1987/1988 from the 30-foot borings during both phases of the investigation. Soil borings S-101 through S-106, S-109, S-110, S-113, S-123, and S-124 were sampled for groundwater only during the January 1988 phase of the investigation. Figure 1.4 provides the boring locations.

Groundwater samples were collected directly from the borehole using the hollow stem augers as casing. Samples were collected using a Teflon bailer and without purging any volume of groundwater prior to sample collection.

1.5.3 THE AREA OF INTEREST

Soil and groundwater contamination was discovered at the north end of the main plant building in the area of a rail spur and an above ground tank farm in 1987 during the

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ESA that was completed prior to demolition of the Fairfax I Plant. The primary sources of contamination of soil and groundwater discovered at the Site during the ESA were determined to be gasoline and paint thinner from a tank farm. In addition, suspect historic releases of perchloroethylene (PCE), which likely occurred prior to GM operations (U.S. Government) or from adjacent properties, have been determined.

Subsurface environmental investigations and remediation systems were completed by GM in this Area of Interest (AOI) subsequent to discovery of soil and groundwater contamination. GM initiated its own voluntary cleanup program in 1988, which included semi-annual groundwater monitoring, groundwater contamination plume definition, and remedial design and construction. The remediation system for the small tank farm area included groundwater extraction and treatment by air stripping along with soil vapor extraction and treatment by thermal oxidation. The remedial action was initiated in 1991 and shut down in 1994. The semi-annual groundwater monitoring (which included analysis for benzene, toluene, ethylbenzene, and xylenes (BTEX); and 1,2-dichloroethylene (1,2-DCE)) was also discontinued in 1994.

Groundwater quality data collected in October 1998 by CRA indicated that a localized area of groundwater contaminated by volatile organic compounds (VOCs) remains in this area. Soil and groundwater investigations have delineated the source and extent of this localized area of contamination.

2.0 CONFIRMATORY SAMPLING SCOPE OF WORK

Activities completed at the Site by CRA in December 2004 included:

- Located and marked ten AOCs prior to sampling;
- Collected soil samples from ten AOCs and submitted the samples for laboratory analysis of target compound list (TCL) VOCs, TCL semivolatile organic compounds (SVOCs), and target analyte list (TAL) metals;
- Collected water level measurements from 11 monitoring wells;
- Collected groundwater samples from eight monitoring wells¹ and submitted the samples for laboratory analysis of TCL VOCs, TCL SVOCs, and TAL total metals; and
- Surveyed the soil boring locations for location and elevation.

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¹ More wells were planned to be sampled. However, MW-106 has been damaged, MW-107 was not located, MW-103A contained free product, and low water table conditions prevented sampling at MW-102A, MW-104, MW-108, and MW-115A.

3.0 FIELD ACTIVITIES

The following section describes the field procedures and analytical protocols used in the soil and groundwater sampling conducted in December 2004.

3.1 SOIL BORING ADVANCEMENT

Plains Environmental Services (Plains) of Salina, Kansas provided Geoprobe drilling services. A total of ten soil borings were advanced, one in each of the ten AOCs. Each soil boring was advanced to a predetermined depth ranging from 6 to 12 feet bgs. Soil samples were collected continuously for field screening and stratigraphic classification. The soil sample collected at the base of each borehole was submitted for laboratory analysis. Soil boring locations are shown on Figure 3.1.

Before initiating intrusive activities and between each borehole location, down hole equipment was decontaminated using an Alkonox™ detergent and potable water wash and a potable water rinse to prevent cross-contamination from the previous location. Decontamination water was collected in a 55-gallon drum and staged on Site pending disposal.

Soil borings were completed using a Geoprobe direct push technology (DPT) rig. Soil borings were sampled continuously in 5-foot intervals using the DPT sampling device.

At each location, drilling proceeded as described below:

- i) A decontaminated DPT sampler with acetate liner was driven 5 feet into the soil.
- ii) The sampler was retrieved and the acetate liner was removed and cut open.
- iii) A representative sample was obtained from the opened sampler and placed in a clean plastic bag for head space analysis. The remaining sample was retained for visual examination, and the sample from the base of the borehole was retained for laboratory analysis. Soils were described according to the Uniform Soil Classification System (USCS).
- iv) The soil samples placed in a plastic bag for head space analysis were monitored with a photoionization detector (PID) for total organic vapor content.
- v) Soil samples were placed in appropriate laboratory-supplied containers, labeled, and placed in a cooler that contained sealed plastic bags of ice.

- vi) Upon completion of each boring, each borehole was backfilled with cement-bentonite grout tremmied from the bottom up. Soil cuttings were collected in a 55-gallon drum and staged on Site pending disposal.

Soil samples were shipped under chain-of-custody protocol to Severn Trent Labs (STL) of North Canton, Ohio via overnight courier.

Stratigraphic logs from the soil borings are presented in Appendix A.

3.2 MONITORING WELL SAMPLING

Groundwater monitoring wells were sampled on December 20 and 21, 2004. As outlined in the September 10, 2004 letter from CPA to KDHE entitled "Amendment to Pre-Design Work Plan", the intent was to sample five monitoring wells, MW-1A, MW-106, MW-107, MW-110, and MW-111. However, only three wells were sampled. Monitoring well MW-106 has been damaged and cannot be sampled, and monitoring well MW-107 was not located. Monitoring well locations are shown on Figure 3.2.

The procedures used for groundwater sampling are summarized below:

- i) The depth to water and the total depth were measured at each monitoring well prior to sampling using an electronic water level probe that was decontaminated with Alconox™ and distilled water.
- ii) A minimum of three well volumes were purged prior to sampling using an electronic submersible pump or a peristaltic pump. Sample collection occurred once three consistent field parameter readings of pH, conductivity, and temperature were obtained and had stabilized.
- iii) Upon stabilization, groundwater samples were collected for analyses of TCL VOCs, TCL SVOCs, and TAL total metals.
- iv) Quality assurance/quality control (QA/QC) samples including one duplicate sample and a matrix spike/matrix spike duplicate (MS/MSD) sample were collected during the monitoring well sampling activities.
- v) Groundwater samples were collected in laboratory-supplied containers, labeled, and placed in a cooler that contained sealed plastic bags of ice.

Groundwater samples were shipped under chain-of-custody protocol to STL via overnight courier.

Purging parameters are presented in Table 3.1.

3.3 HYDRAULIC MONITORING

On December 20, 2004, water level measurements were obtained from 11 groundwater monitoring wells. Monitoring well locations are shown on Figure 3.2. Water levels were measured to the nearest 0.01 feet using an electronic water level indicator that was decontaminated after each use, and these measurements were recorded in the field logbook.

3.4 DATA VALIDATION

All analytical data were validated and the precision and accuracy of the analyses were assessed based on surrogate spike recoveries, MS/MSD recoveries and relative percent differences, sample/sample duplicate relative percent differences, field duplicate sample results, and check sample results. The results of the data quality assessment and validation procedure indicated that the soil and groundwater data are suitable for the intended use with the qualifications presented in the validation memorandum. Laboratory data and chain-of-custody forms are provided in Appendix B, and a copy of the data validation memorandum is provided in Appendix C.

3.5 SURVEYING

Anderson Survey Company (Anderson) of Lee's Summit, Missouri provided surveying services.

Based on historical facility drawings, historical surveys, and historical photos, Anderson staked the corners of the ten AOCs prior to field work being conducted. After the soil borings were advanced, Anderson surveyed the borehole locations for location and elevation². The horizontal locations were referenced to the GM Plant Grid Coordinate System.

² Monitoring wells locations and elevations were surveyed previously by Anderson.

4.0 SUMMARY OF CONFIRMATORY SOIL SAMPLING

Soil samples were collected by CRA in December 2004 at locations identified in previous studies as AOCs. The following provides a brief description of the AOC sampled, the rationale for the sampling, and a summary of samples collected. HDR sample locations are presented on Figure 1.4, and CRA December 2004 sample locations ("SB" designations) are presented on Figure 3.1. The December 2004 soil samples were analyzed for TCL VOCs, TCL SVOCs, and TAL metals.

4.1 UNDERGROUND STORAGE TANKS 1 AND 2

UST 1 contained gasoline and diesel fuel, and UST 2 contained automatic transmission fluid. The tanks, associated soil, and appurtenances were removed in August 1987. HDR collected three soil samples at the base of the excavation at that time. Ethylbenzene at 2,200 micrograms per kilogram ($\mu\text{g}/\text{kg}$) and xylenes at 17,000 $\mu\text{g}/\text{kg}$ were detected in one of the soil samples while the other two samples had no detections. Soil from S-39, S-119, and S-120 and groundwater from S-119 and S-120 did not contain VOCs. Toluene was detected in groundwater at S-39 at a concentration of 39 micrograms per liter ($\mu\text{g}/\text{L}$).

CRA collected soil sample SB-111 in the vicinity of USTs 1 and 2 at a depth of 10 to 12 feet bgs to verify that soil at the approximate depth of the base of the tanks is not impacted at levels above KDHE risk based standards.

4.2 UNDERGROUND STORAGE TANKS B AND C

USTs B and C contained gasoline. HDR advanced three borings proximal to the USTs. Soil from boring S-40 did not contain VOCs. VOCs detected in groundwater at S-109 were 1,2-dichloroethene (1,2-DCE) (23 $\mu\text{g}/\text{L}$) and trichloroethene (TCE) (7 $\mu\text{g}/\text{L}$); at S-110 were 1,2-DCE (16 $\mu\text{g}/\text{L}$), TCE (13 $\mu\text{g}/\text{L}$), and tetrachloroethene (PCE) (5 $\mu\text{g}/\text{L}$); and at S-40 was 1,2-DCE (13 $\mu\text{g}/\text{L}$).

CRA collected soil sample SB-112 in the vicinity of USTs B and C at a depth of 10 to 12 feet bgs to verify that soil at the approximate depth of the base of the tanks is not impacted at levels above KDHE risk based standards.

4.3 FUEL ISLAND AND TRUCK MAINTENANCE FACILITY

Five USTs at the fuel island contained gasoline, diesel fuel, lubricating oil, and antifreeze. These five USTs were removed in August 1987. Two of the three soil samples collected from beneath the fuel island had VOCs detected. Sample 87-204 contained ethylbenzene at 15,000 µg/kg and xylenes at 26,000 µg/kg. Sample 87-205 contained xylenes at 620 µg/kg. Three soil and groundwater samples (S-1, S-2, and S-3) collected in August 1987 in the vicinity of the fuel island had no VOC detections.

Four USTs at the truck maintenance facility contained fuel oil and waste oil and were removed August 1987. Soils samples beneath these USTs were not analyzed at that time due to exceeding the sample holding times. Three soil and groundwater samples collected in August 1987 in the vicinity of the truck maintenance building had no VOC detections, with one exception. Groundwater collected from boring S-4 contained benzene (82 µg/L), toluene (40 µg/L), ethylbenzene (63 µg/L), and xylenes (31 µg/L).

This area includes two AOCs, the fuel island and the truck maintenance facility. CRA collected soil samples to verify that soil at the approximate depth of the base of the tanks is not impacted at levels above KDHE risk based standards. Soil sample SB-115 was collected in the vicinity of the fuel island at a depth 10 to 12 feet bgs, and soil sample SB-114 was collected in the vicinity of the truck maintenance facility at a depth 10 to 12 feet bgs.

4.4 UNDERGROUND STORAGE TANK 10 AND BALER ROOM

The baler room was used to collect general plant refuse and contained a large trash compactor/baler. UST 10, which contained unleaded gasoline and was removed August 1987, was located adjacent to the northern exterior wall of the baler room. Soil boring S-8 contained PCE at 10 feet bgs (2,500 µg/kg) and 15 feet bgs (760 µg/kg). Groundwater collected from S-8 contained 1,2-DCE (110/140 µg/L), PCE (160/180 µg/L), and TCE (93/100 µg/L). Soil boring S-9 did not contain VOCs. Groundwater from S-9 contained benzene (25 µg/L) and toluene (14 µg/L). Soil borings S-107 and S-108, installed in January 1988, contained no VOCs. 1,2-DCE was detected in groundwater from S-107 (197/202 µg/L) and S-108 (29 µg/L).

CRA collected soil sample SB-113 in the vicinity of UST 10 and the baler room at a depth of 10 to 12 feet bgs to verify that soil at the approximate depth of the base of the tank is not impacted at levels above KDHE risk based standards.

4.5 POWERHOUSE AREA

Eight USTs in the powerhouse area contained diesel fuel, waste fuel oil, and gasoline. These tanks were removed in August 1987.

Three soil samples were collected beneath USTs 3 and 4. No VOCs were detected in one of the August 1987 soil samples while ethylbenzene was detected at 87-209 (7,300 µg/kg) and toluene was detected in 87-211 (1,200 µg/kg). No VOCs were detected in soil collected at S-15 (August 1987) or S-111 (January 1988). 1,2-DCE was detected in groundwater at S-111 (15 µg/L).

Three soil samples were collected beneath USTs 5, 6, and 11. No VOCs were detected in two of the August 1987 soil samples while PCE (626 µg/kg) and xylenes (1,100 µg/kg) were detected in 87-206. No VOCs were detected in soil collected in August 1987 at S-16, S-17, and S-18 or in soil collected in January 1988 at S-112. No VOCs were detected in groundwater at S-16 and S-18. 1,2-DCE was detected in groundwater at S-17 (16 µg/L) and S-112 (133 µg/L). PCE and 1,2-DCE were detected in groundwater at S-17 (16 µg/L).

No VOCs were detected in soil collected August 1987 in the vicinity of USTs 7, 8, and 9 (samples S-19 through S-22).

Three AOCs (USTs 3 and 4; USTs 5, 6, and 11; and USTs 7, 8, and 9) are located in the powerhouse area. CRA collected soil samples at a depth of 10 to 12 feet bgs to verify that soil at the approximate depth of the base of the tanks is not impacted at levels above KDHE risk based standards. Soil sample SB-110 collected in the vicinity of USTs 3 and 4, soil sample SB-109 was collected in the vicinity of USTs 5, 6, and 11, and soil sample SB-108 was collected in the vicinity of USTs 7, 8, and 9.

4.6 WASTE AND PAINT SLUDGE SUMP

Soil collected in August 1987 at boring S-37 at 15 feet bgs contained toluene (3,000 µg/kg), ethylbenzene (870 µg/kg), and xylenes (1,800 µg/kg). Soil collected at 20 feet bgs contained only toluene (650 µg/kg). No VOCs were detected in groundwater at S-37 or in soil or groundwater at boreholes S-121 and S-122, installed in January 1988.

CRA collected soil sample SB-116 at a depth of 4 to 6 feet bgs to verify that soil in the vicinity of the sump is not impacted at levels above KDHE risk based standards.

4.7 PAIN MIX AND SLUDGE STORAGE/PAINT SLUDGE OVERFLOW
TANKS

No VOCs were detected in soil and groundwater collected in August 1987 at borehole S-38 which was placed near these tanks.

CRA collected soil sample SB-117 at a depth of 4 to 6 feet bgs to verify that soil in this area is not impacted at levels above KDHE risk based standards.

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5.0 INVESTIGATIVE RESULTS Aug 06, 2009 09:22**5.1 SOIL ANALYTICAL DATA**

Soil analytical results were compared to KDHE Tier 2 non-residential scenario soil pathway and soil to groundwater protection pathway values.³ Soil analytical data are summarized in Table 5.1 and on Figure 5.1. STL analytical data are provided in Appendix B.

5.1.1 UNDERGROUND STORAGE TANKS 1 AND 2

No VOCs or SVOCs were detected at concentrations above KDHE Tier 2 values at SB-111. Arsenic was detected above the Tier 2 soil to groundwater protection pathway value of 5.84 mg/kg at a concentration of 8.5 mg/kg at a depth of 10 to 12 feet bgs.

5.1.2 UNDERGROUND STORAGE TANKS B AND C

No VOCs, SVOCs, or metals were detected at concentrations above Tier 2 values at SB-112.

5.1.3 FUEL ISLAND AND TRUCK MAINTENANCE FACILITIES

No VOCs or SVOCs were detected at concentrations above Tier 2 values at SB-114 (truck maintenance facility) and SB-115 (fuel island). Arsenic was detected above the Tier 2 soil to groundwater protection pathway value of 5.84 mg/kg at a concentration of 6.7 mg/kg at SB-114 at a depth of 10 to 12 feet bgs and at a concentration of 6.6 mg/kg at SB-115 at a depth of 10 to 12 feet bgs.

5.1.4 UNDERGROUND STORAGE TANK 10 AND BALER ROOM

No VOCs, SVOCs, or metals were detected at concentrations above Tier 2 values at SB-113.

³ Estimated detection concentrations were not considered exceedences of the Tier 2 objectives.

5.1.5 POWERHOUSE AREA

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No SVOCs or metals were detected at concentrations above Tier 2 values at SB-110. PCE was detected above the soil to groundwater protection pathway value of 0.18 mg/kg at a concentration of 0.19 mg/kg at a depth of 10 to 12 feet bgs.

No VOCs, SVOCs, or metals were detected at concentrations above Tier 2 values at SB-109 or SB-108.

5.1.6 WASTE AND PAINT SLUDGE SUMP

No VOCs or SVOCs were detected at concentrations above Tier 2 values at SB-116. Arsenic was detected above the Tier 2 soil to groundwater protection pathway value of 5.84 mg/kg at a concentration of 6.6 mg/kg at a depth of 10 to 12 feet bgs.

5.1.7 PAINT MIX AND SLUDGE STORAGE/PAINT SLUDGE OVERFLOW TANKS

No VOCs, SVOCs, or metals were detected at concentrations above Tier 2 values at SB-117.

5.2 GROUNDWATER ANALYTICAL DATA

Groundwater analytical results were compared to KDHE Tier 2 non-residential scenario groundwater pathway values.⁴ Groundwater analytical data is summarized in Table 5.2 and on Figure 5.2. STL analytical data is provided in Appendix B.

At monitoring well MW-111, cis-1,2-dichloroethene was detected above the Tier 2 value of 0.07 mg/L at a concentration of 0.15 mg/L, and vinyl chloride was detected above the Tier 2 value of 0.002 mg/L at a concentration of 0.017 mg/L.

Bis(2-ethylhexyl)phthalate was detected at monitoring well MW-1A above the Tier 2 value of 0.006 mg/L at a concentration of 0.024 mg/L.

Arsenic was detected at monitoring well MW-1A above the Tier 2 value of 0.01 at a concentration of 0.015 mg/L. Manganese was detected at concentrations above the

⁴ Estimated detection concentrations were not considered exceedences of the Tier 2 objectives.

Tier 2 value of 0.05 mg/L at monitoring wells MW-105 (1.5 mg/L) and MW-109 (1.9 mg/L). Selenium was detected at monitoring well MW-1 above the Tier 2 value of 0.05 mg/L at a concentration of 0.19 mg/L.

5.3 HYDRAULIC MONITORING RESULTS

The general groundwater flow direction measured in December 2004 is to the north and east, toward the Missouri River. Groundwater flow direction, however, is seasonal, and is influenced by the amount of precipitation that has occurred and the elevation of the water in the Missouri River.

Groundwater elevation data are summarized in Table 5.3. Figure 5.3 presents the December 2004 groundwater contour map.

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6.0 SUMMARY AND CONCLUSIONS

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The purpose of the Confirmatory Sampling Program completed at the Fairfax I Site in December 2004 was to verify and validate previous studies and remedial actions completed at AOCs. This sampling program was outlined in CRA's September 10, 2004 Work Plan and focused on a number of AOCs identified at the Site previously. Many of these AOCs included former underground storage tanks, above ground storage tanks, sumps, and other historical operations at the Fairfax I Facility. Soil sample locations and parameters were selected to address each specific AOC. In addition, a round of groundwater sampling from existing wells was also planned in order to evaluate current conditions of groundwater near and around the AOCs.

Soil Data

The results of soil sample analyses from the Confirmatory Sampling Program validated the historical sample data and indicated that each AOC does not pose a risk to human health or the environment. A total of ten soil samples were collected as part of the program with laboratory analyses for the full list of TEL VOCs and SVOCs and TAL metals (over 120 parameters). There were only two parameters, in five soil samples, that were detected above the RSK Tier 2 soil to groundwater protection criteria. PCE was detected (0.19 mg/kg) at one location, just slightly above the Tier 2 criteria of 0.18 mg/kg. Arsenic was detected over the Tier 2 criteria of 5.84 mg/kg at four locations (range of 6.6 to 8.5 mg/kg).

The PCE in the soil at this location is expected to be an isolated incident and not representative of the materials handled at this AOC (the powerhouse area where USTs contained fuel oil and gasoline). The arsenic detections are likely a reflection of Site wide conditions and are not related to any activity at these specific AOCs. Arsenic was detected above the Tier 2 soil to groundwater protection criteria at soil boring locations that contained former USTs used for fuels, fuel oils, and petroleum products. The arsenic is not likely associated with the USTs, but with the natural quality of the soils.

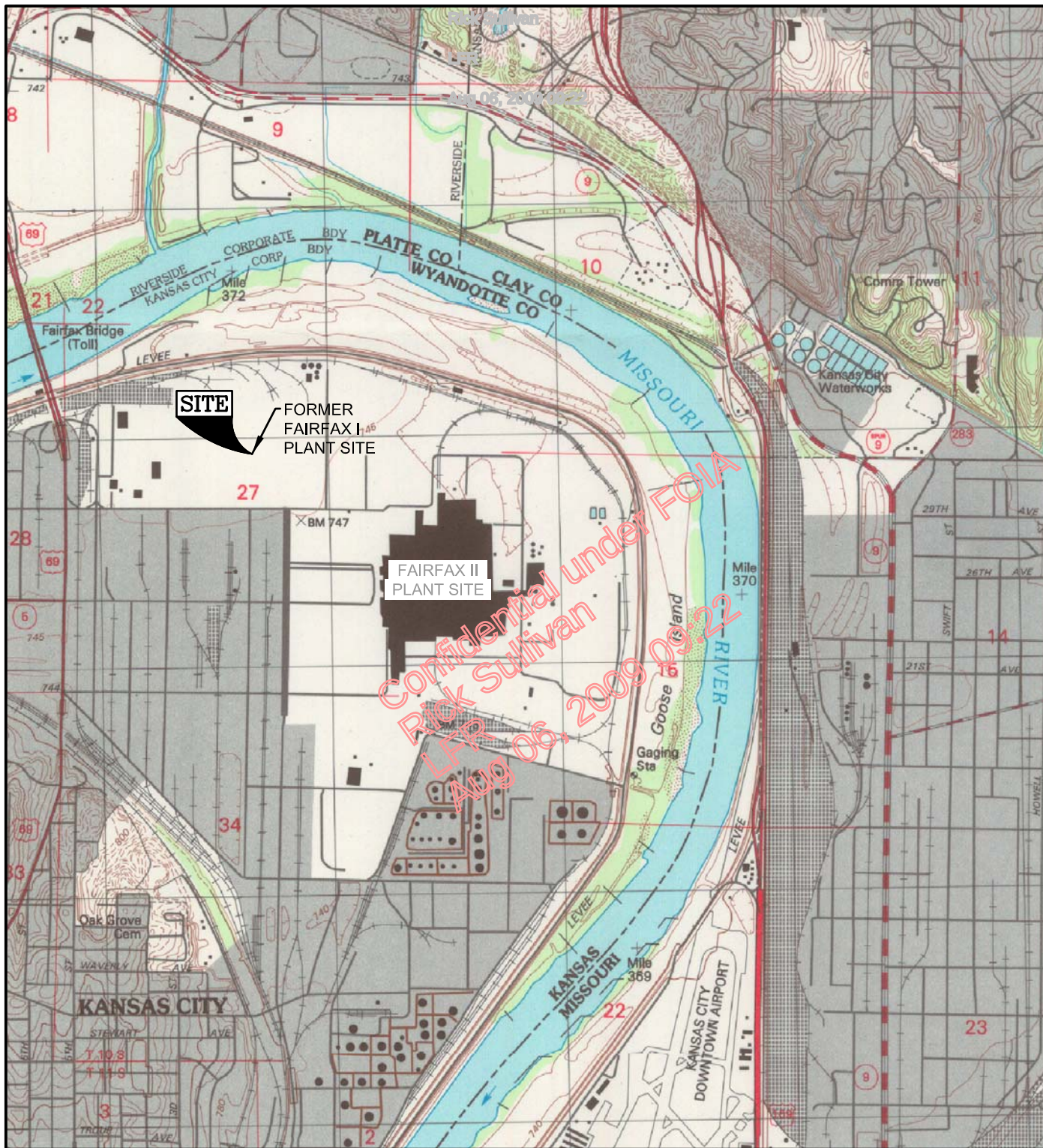
The PCE and arsenic detections above the Tier 2 criteria are not considered to be representative of soils impacted by the AOCs. The PCE and arsenic exceed the Tier 2 soil to groundwater (groundwater protection) criteria. Although the PCE and arsenic detections above the Tier 2 criteria are not considered to be representative of soils impacted by the AOCs, they will be addressed by the groundwater use prohibition (land use restriction) which GM is planning to implement for the Fairfax I property. This prohibition against groundwater use will eliminate any potential hypothetical exposure to the soils containing the PCE and arsenic exceedences.

Groundwater Data

Confirmation sampling data collected from the existing monitoring wells further support previous conclusions reached at the Fairfax I Site, specifically, (1) that there is a localized area of groundwater contamination (and soil contamination) in the vicinity of MW 103A; and (2) that there are plume(s) of VOC migrating onto the Fairfax property from industrial areas located south of the Site. There were isolated incidences of detections of metals (i.e., manganese, arsenic, and selenium) above the Tier 2 criteria in samples of groundwater collected during this event. These metals are considered to be either a result of natural background conditions (e.g., manganese) or due to the regional industrial area located upgradient of the Site. Detections of chlorinated solvents were found above the Tier 2 criteria in MW-111, which is upgradient of sources on the Fairfax I property. The groundwater quality of this well more likely represents the contamination originating from off-Site sources located in the industrial park area south of the Fairfax I property.

The historical exceedences of Tier 2 criteria detected in past sampling events in groundwater near and around MW-103A will be addressed through the remedial program currently being designed by GM. The exceedences in other areas of the Site which are likely a result of either background or of off-Site and upgradient sources will be addressed through the groundwater use prohibition which is planned for the property.

In summary, delineation is complete, and the results of the recently completed soil and groundwater confirmation sampling program have not changed the remedial plans currently being pursued by GM for the Fairfax I property.



BASE SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE;
NORTH KANSAS CITY, MO-KS 1990

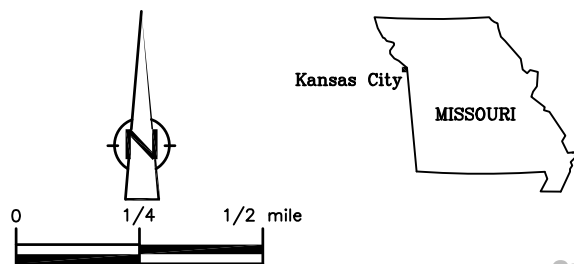


figure 1.1

SITE LOCATION MAP
FORMER FAIRFAX I PLANT SITE
Kansas City, Kansas

CRA

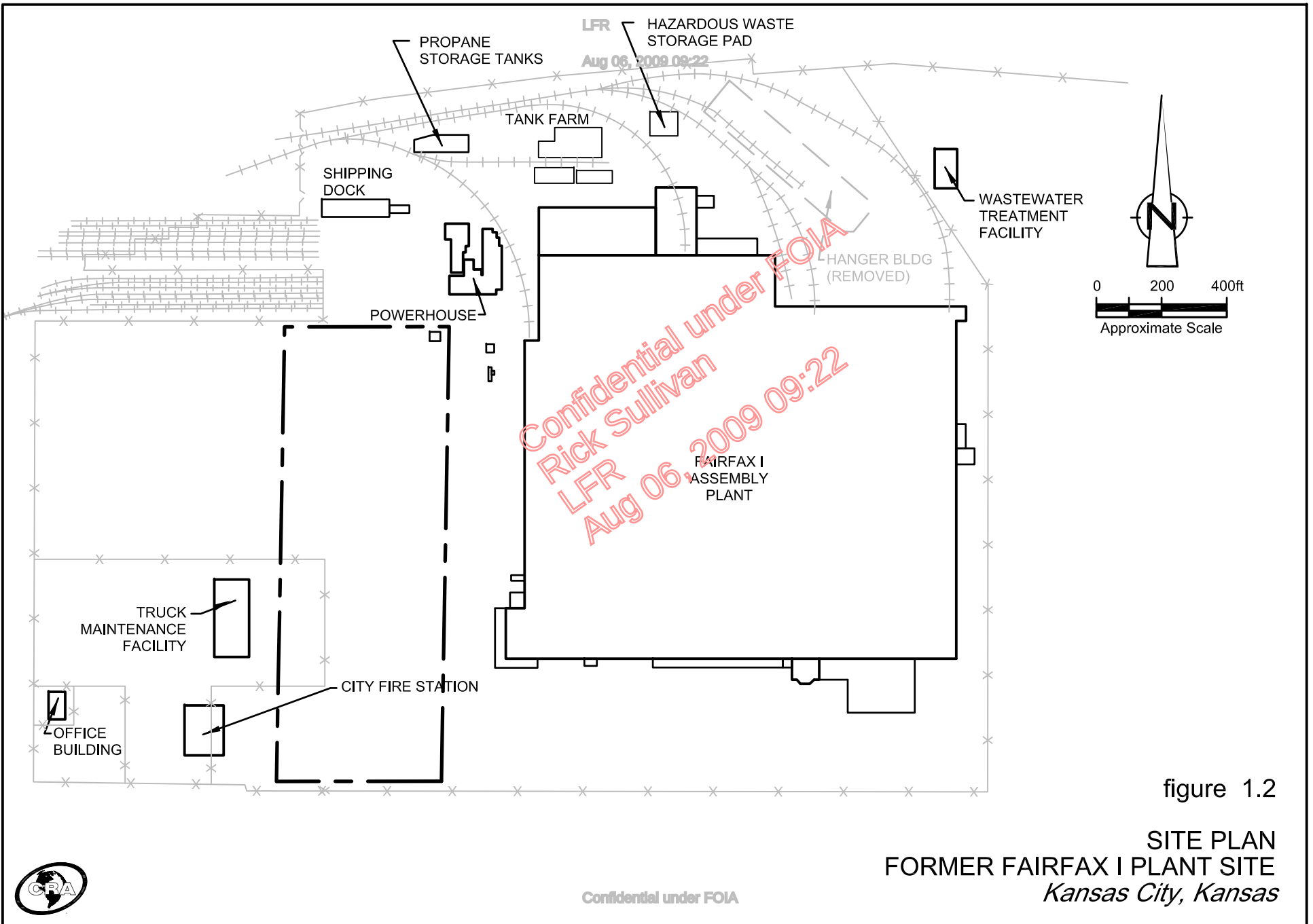
012559-53(010)GN-CO003 MAR 23/2005

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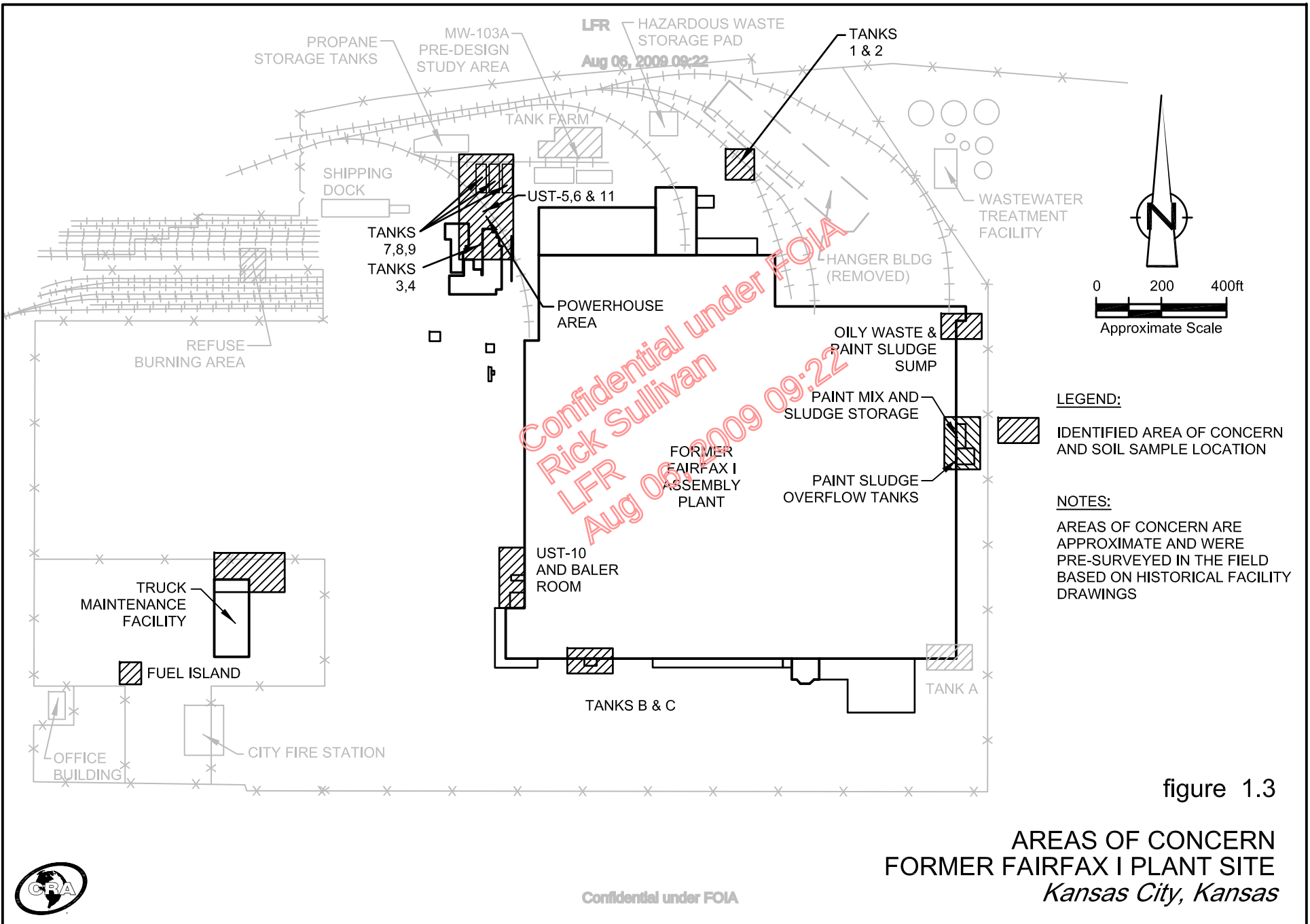
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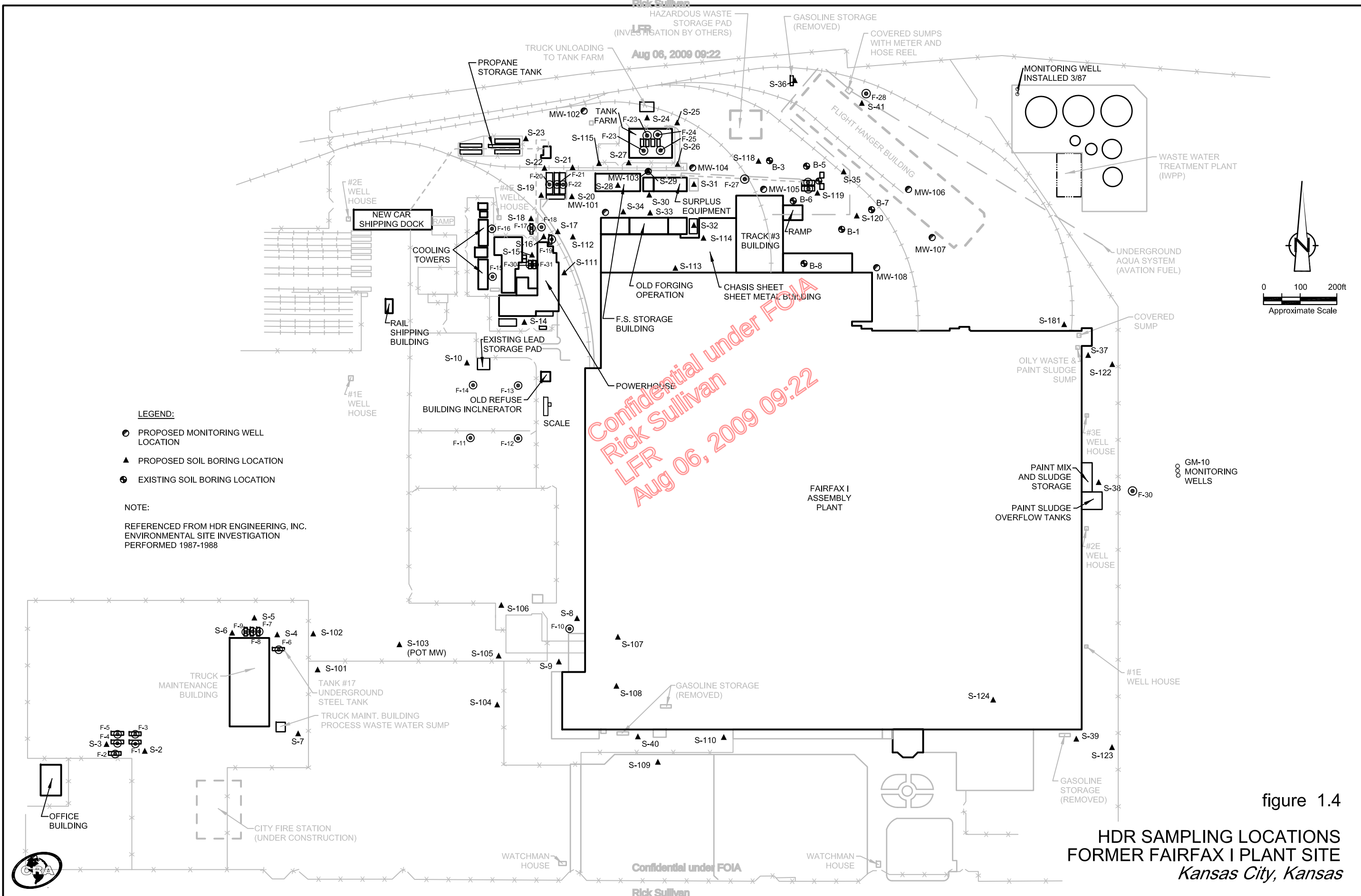
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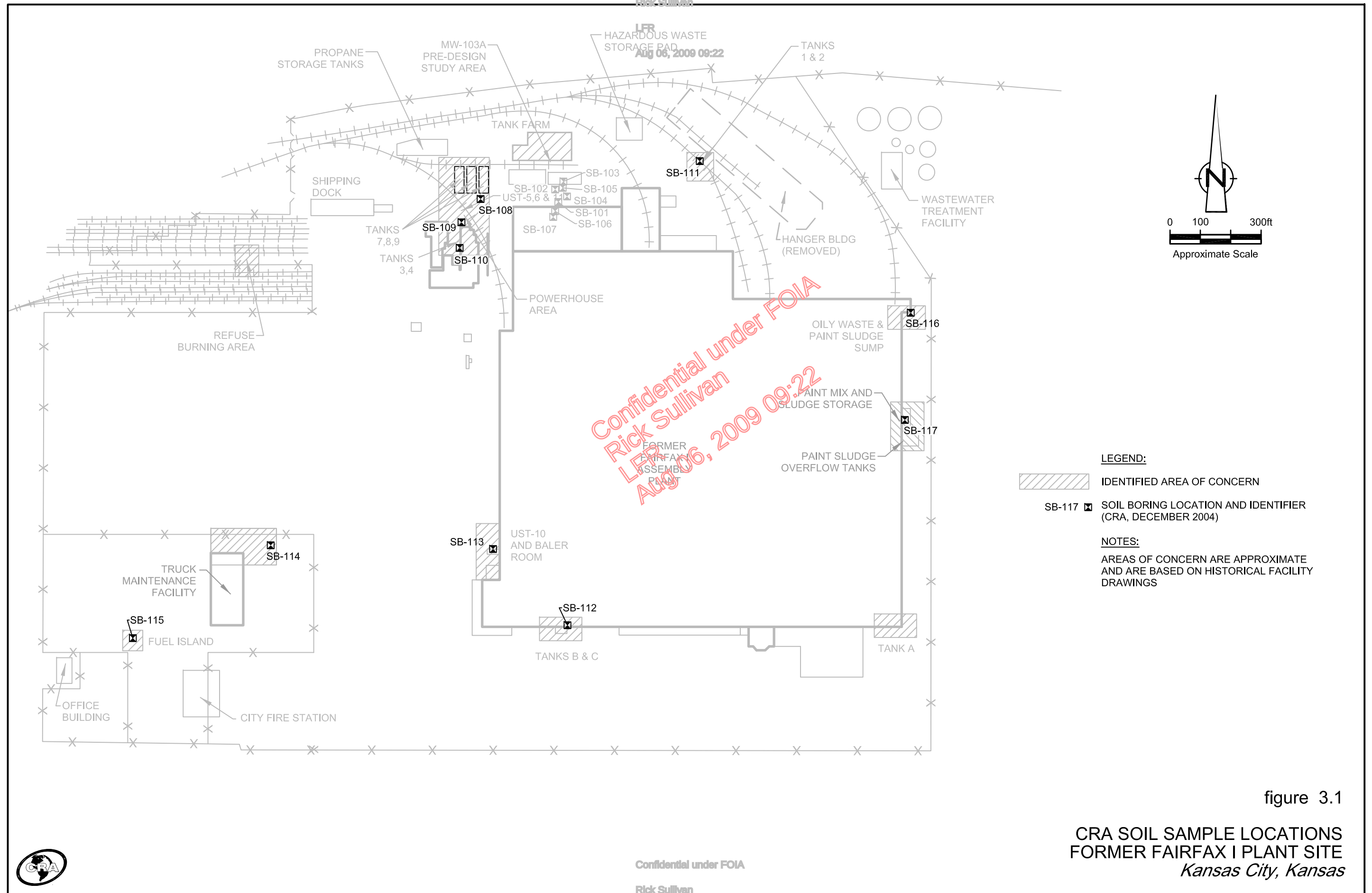
LEGEND:

- PROPOSED MONITORING WELL LOCATION
- ▲ PROPOSED SOIL BORING LOCATION
- ⊙ EXISTING SOIL BORING LOCATION

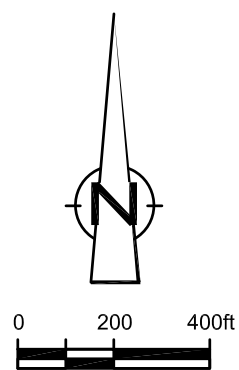
NOTE:

REFERENCED FROM HDR ENGINEERING, INC.
ENVIRONMENTAL SITE INVESTIGATION
PERFORMED 1987-1988





MISSOURI RIVER



LEGEND:

- x—x—x— FENCE LINE
- +++++ RAILROAD TRACK
- MW-1 ● EXISTING MONITORING WELL LOCATION AND IDENTIFIER
- MW-3 ○ FORMER MONITORING WELL LOCATION AND IDENTIFIER

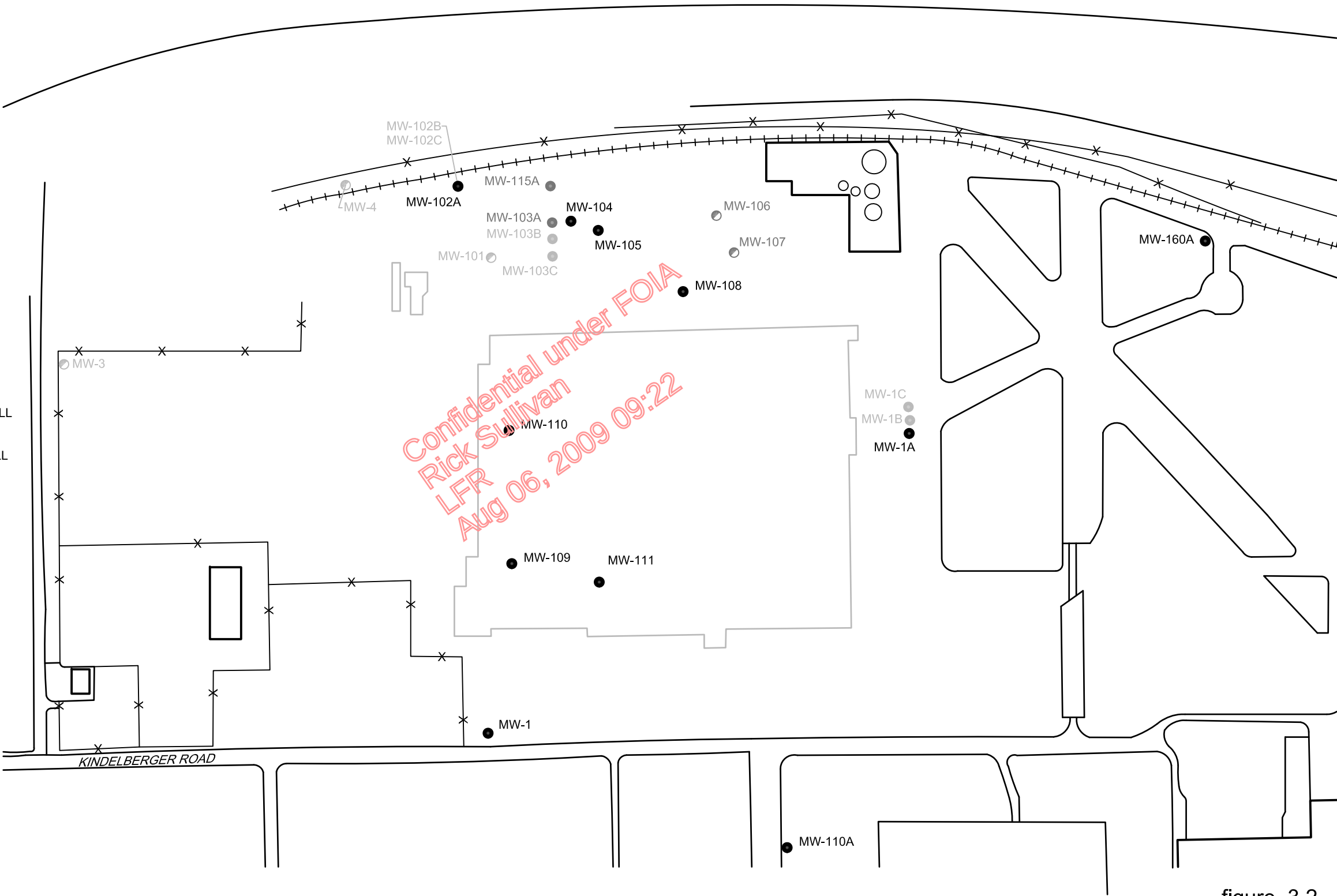
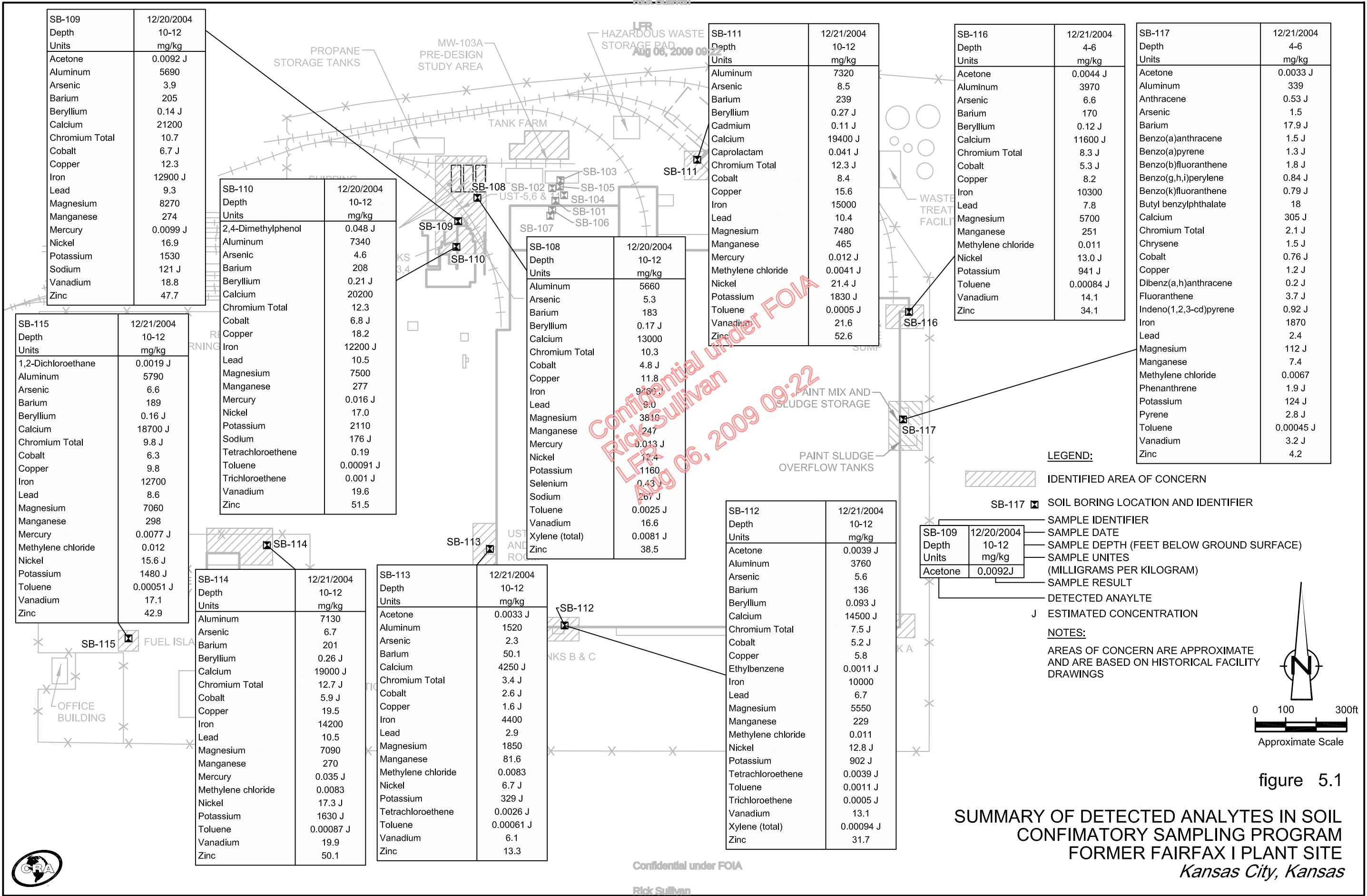


figure 3.2

MONITORING WELL LOCATIONS
FORMER FAIRFAX I PLANT SITE
Kansas City, Kansas



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MISSOURI RIVER

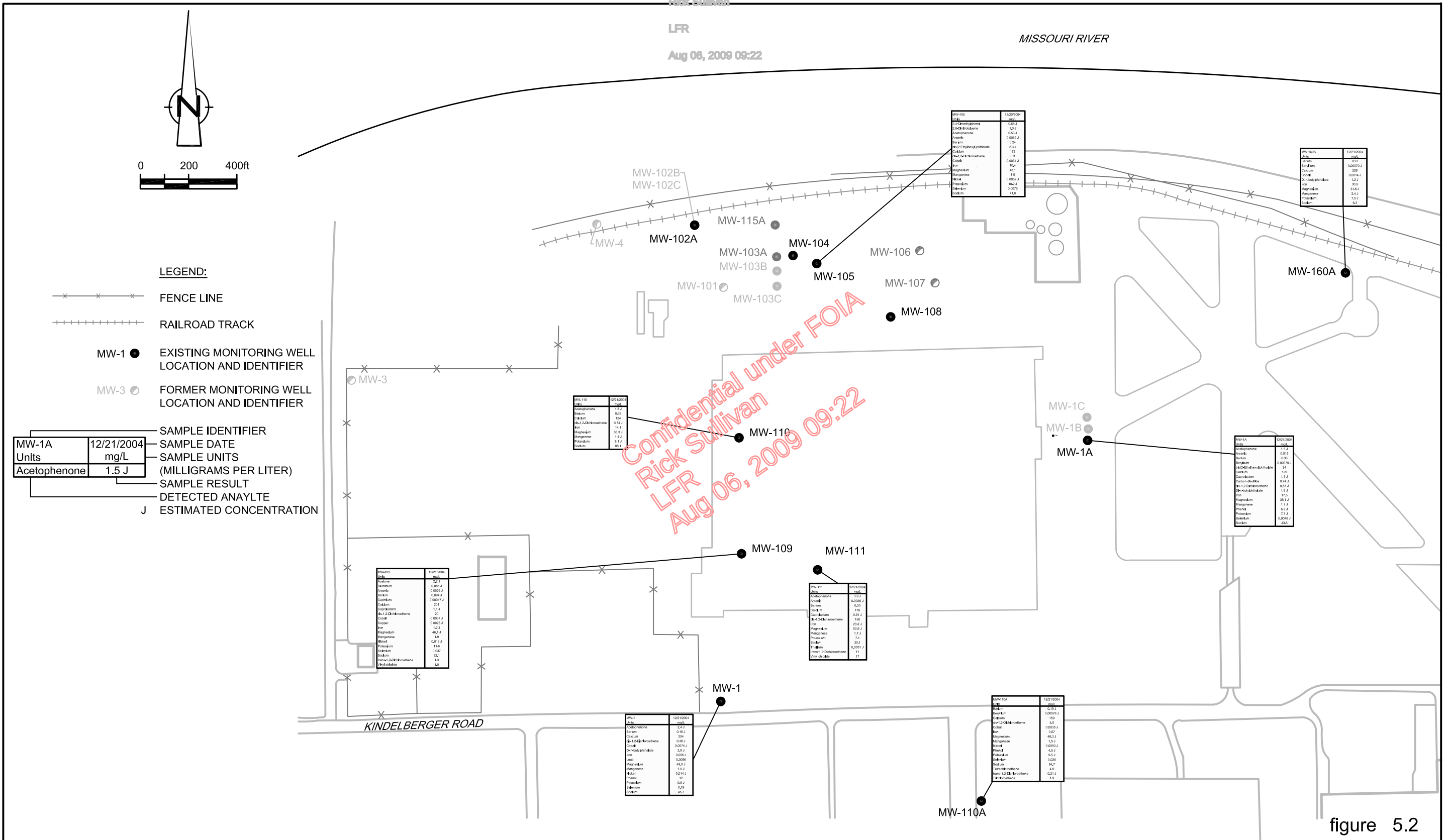


figure 5.2

SUMMARY OF DETECTED ANALYTES IN GROUNDWATER
CONFIRMATORY SAMPLING PROGRAM
FORMER FAIRFAX I PLANT SITE
Kansas City, Kansas



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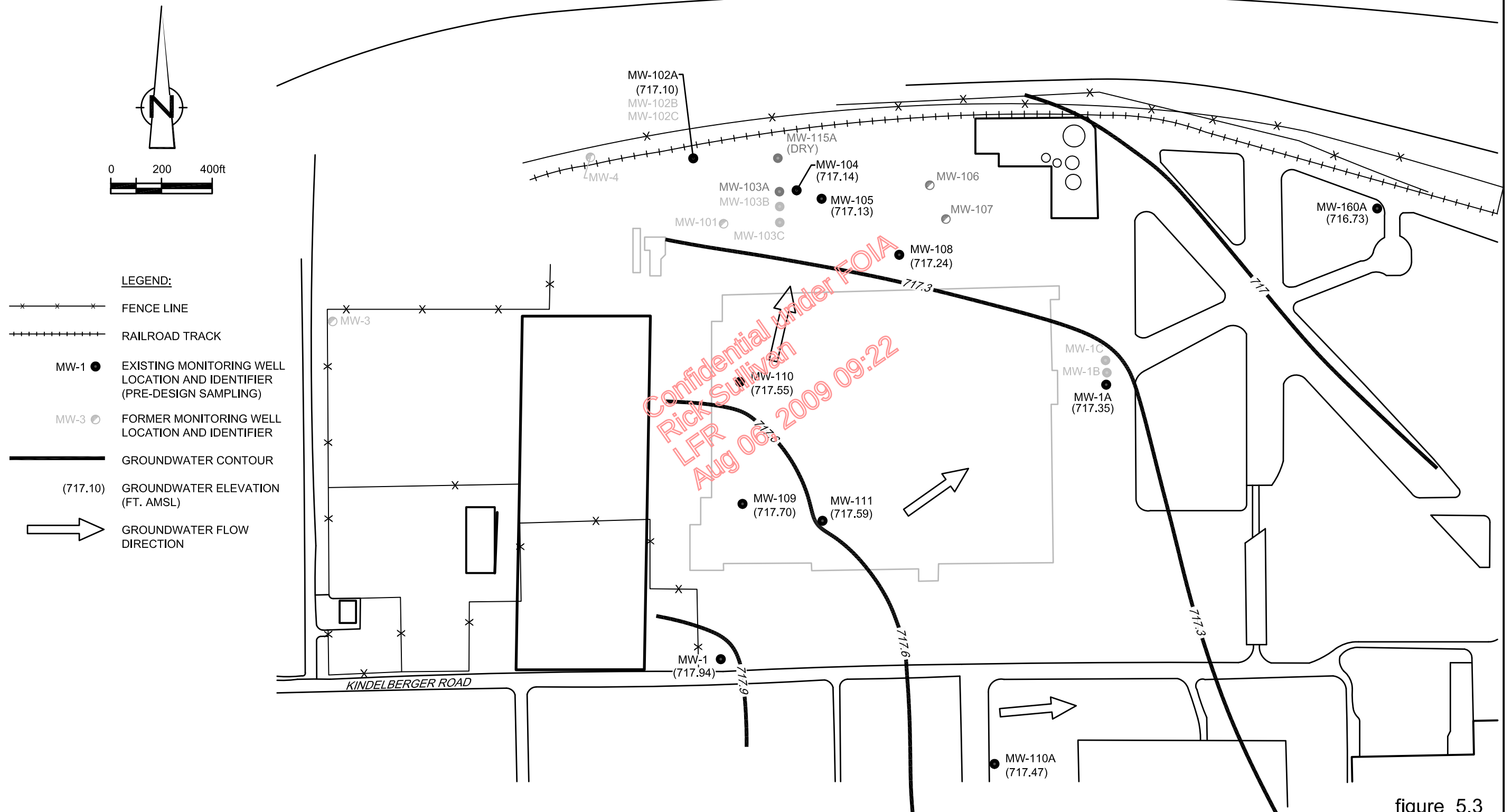


figure 5.3
GROUNDWATER CONTOUR MAP
DECEMBER 2004
FORMER FAIRFAX I PLANT SITE
Kansas City, Kansas



**SUMMARY OF MONITORING WELL PURGING PARAMETERS
CONFIRMATORY SAMPLING PROGRAM
FORMER GM FAIRFAX I PLANT SITE
KANSAS CITY, KANSAS**

<i>Well Number</i>	<i>Date Conducted</i>	<i>Depth to Water (ft BTOC) ¹</i>	<i>Total Depth (ft BTOC)</i>	<i>Well Volume (gallons)</i>	<i>Volume Removed (gallons)</i>	<i>pH (standard units)</i>	<i>Conductivity (μS/cm) ²</i>	<i>Temperature (°C) ³</i>	<i>Dissolved Oxygen (mg/L) ⁴</i>	<i>ORP (mV) ⁵</i>	<i>Pump</i>
MW-1	12/21/04	28.49	32.25	0.6	1.5	6.87	1,352	16.6	3.25	95.4	Whale
					3.0	6.84	1,355	18.3	0.52	117.6	
					4.5	6.75	1,363	18.3	NM ⁶	119.2	
MW-1A	12/21/04	28.58	37.19	1.4	3	7.14	926	15.1	0.58	NM	Whale
					4	7.04	926	15.2	0.25	NM	
					6	7.00	931	15.2	0.16	-111.5	
					8	7.00	931	15.2	0.14	-112.0	
MW-105	12/20/04	29.37	32.75	0.5	0.5	7.05	1,391	13.4	5.5	-30.7	Whale
					1.0	6.87	1,402	14.7	NM	-51.9	
					1.5	6.82	1,405	15.0	NM	NM	
					2.0	6.78	1,404	15.1	NM	NM	
					2.5	6.77	1,402	15.1	NM	-67.6	
MW-109	12/21/04	28.41	32.50	0.7	1.25	6.83	1,302	14.6	NM	76.7	Peristaltic
					2.50	6.76	1,348	15.6	0.9	61.2	
					3.75	6.75	1,357	15.6	0.7	59.2	
					5.00	6.94	1,359	15.7	0.5	73.8	
MW-110	12/21/04	28.24	63.71	5.7	6	7.10	1,270	14.4	0.3	-126.0	Whale
					12	7.10	1,270	14.6	0.65	-144.5	
					17	7.00	1,260	14.7	0.25	-150.3	

**SUMMARY OF MONITORING WELL PURGING PARAMETERS
CONFIRMATORY SAMPLING PROGRAM
FORMER GM FAIRFAX I PLANT SITE
KANSAS CITY, KANSAS**

<i>Well Number</i>	<i>Date Conducted</i>	<i>Depth to Water (ft BTOC) ¹</i>	<i>Total Depth (ft BTOC)</i>	<i>Well Volume (gallons)</i>	<i>Volume Removed (gallons)</i>	<i>pH (standard units)</i>	<i>Conductivity (μS/cm) ²</i>	<i>Temperature (°C) ³</i>	<i>Dissolved Oxygen (mg/L) ⁴</i>	<i>ORP (mV) ⁵</i>	<i>Pump</i>
MW-110A	12/21/04	26.42	36.45	1.6	4	6.90	1,295	16.9	0.67	45.7	Whale
					6	6.85	1,300	17.0	0.55	37.8	
					7	6.82	1,303	17.0	0.40	31.4	
MW-111	12/21/04	28.37	61.10	5.2	6	6.92	1,351	16.9	0.12	NM	Whale
					12	6.87	1,379	15.1	0.5	NM	
					19	6.86	1,381	15.1	0.3	-50.2	
MW-160A	12/21/04	29.83	37.55	1.2	1.5	6.75	1,336	16.0	0.38	-91.2	Peristaltic
					3	6.78	1,353	16.2	0.33	-99.9	
					5	6.78	1,342	16.4	0.39	-110.5	
					7	6.78	1,349	16.4	0.37	-113.5	
					10	6.39	1,360	13.4	0.37	-118.2	

¹ ft BTOC - feet below top of casing² μS/cm - microsiemens per centimeter³ °C - degrees celcius⁴ mg/L - milligrams per liter⁵ ORP (mV) - oxidation-reduction potential (millivolts)⁶ NM - not measured

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TABLE 5.1

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SUMMARY OF SOIL DETECTED ANALYTICAL DATA
 CONFIRMATORY SAMPLING PROGRAM
 FORMER GM FAIRFAX I PLANT SITE
 KANSAS CITY, KANSAS

Sample Location:		SB-108	SB-109	SB-110	SB-111	SB-112
Sample ID:		S-122004-DS-115	S-122004-DS-116	S-122004-DS-117	S-122104-DS-118	S-122104-DS-119
Sample Date:	RSK ¹	12/20/2004	12/20/2004	12/20/2004	12/21/2004	12/21/2004
Sample Depth (ft bgs) ² :	Tier 2	10 - 12 ft	10 - 12 ft	10 - 12 ft	10 - 12 ft	10 - 12 ft
Parameters (mg/kg) ³ :						
Volatile Organic Compounds						
1,2-Dichloroethane	0.04	0.0046 U ⁴	0.0065 U	0.0063 U	0.0061 U	0.0061 U
Acetone	3.8	0.018 U	0.0092 J ⁵	0.025 U	0.025 U	0.0039 J
Ethylbenzene	55	0.0046 U	0.0065 U	0.0063 U	0.0061 U	0.0011 J
Methylene chloride	0.03	0.0046 U	0.0065 U	0.0063 U	0.0041 J	0.011
Tetrachloroethene	0.18	0.0046 U	0.0065 U	0.0063 U	0.0061 U	0.0039 J
Toluene	40	0.0025 J	0.0065 U	0.00091 J	0.0005 J	0.0011 J
Trichloroethene	0.20	0.0046 U	0.0065 U	0.001 J	0.0061 U	0.0005 J
Xylene (total)	700	0.0081 J	0.013 U	0.013 U	0.012 U	0.00094 J
Semivolatile Organic Compounds						
2,4-Dimethylphenol	81	0.39 U	0.45 U	0.048 J	0.44 U	0.41 U
Anthracene	13	0.39 U	0.45 U	0.45 U	0.44 U	0.41 U
Benzo(a)anthracene	26	0.39 U	0.45 U	0.45 U	0.44 U	0.41 U
Benzo(a)pyrene	2.6	0.39 U	0.45 U	0.45 U	0.44 U	0.41 U
Benzo(b)fluoranthene	19	0.39 U	0.45 U	0.45 U	0.44 U	0.41 U
Benzo(g,h,i)perylene	NS ⁷	0.39 U	0.45 U	0.45 U	0.44 U	0.41 U
Benzo(k)fluoranthene	10	0.39 U	0.45 U	0.45 U	0.44 U	0.41 U
Butyl benzylphthalate	1500	0.39 U	0.45 U	0.45 U	0.44 U	0.41 U
Caprolactam	NS	0.39 U	0.45 U	0.45 U	0.041 J	0.41 U
Chrysene	6.4	0.39 U	0.45 U	0.45 U	0.44 U	0.41 U
Dibenz(a,h)anthracene	2.6	0.39 U	0.45 U	0.45 U	0.44 U	0.41 U
Fluoranthene	220	0.39 U	0.45 U	0.45 U	0.44 U	0.41 U
Indeno(1,2,3-cd)pyrene	0.76	0.39 U	0.45 U	0.45 U	0.44 U	0.41 U
Phenanthrene	NS	0.39 U	0.45 U	0.45 U	0.44 U	0.41 U
Pyrene	140	0.39 U	0.45 U	0.45 U	0.44 U	0.41 U

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TABLE 5.1

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SUMMARY OF SOIL DETECTED ANALYTICAL DATA
 CONFIRMATORY SAMPLING PROGRAM
 FORMER GM FAIRFAX I PLANT SITE
 KANSAS CITY, KANSAS

Sample Location:		SB-108	SB-109	SB-110	SB-111	SB-112
Sample ID:		S-122004-DS-115	S-122004-DS-116	S-122004-DS-117	S-122104-DS-118	S-122104-DS-119
Sample Date:		RSK ¹ 12/20/2004	12/20/2004	12/20/2004	12/21/2004	12/21/2004
Sample Depth (ft bgs) ² :		Tier 2 10 - 12 ft	10 - 12 ft	10 - 12 ft	10 - 12 ft	10 - 12 ft
Parameters (mg/kg) ³ :						
Metals						
Aluminum	NS	5660	5690	7340	7320	3760
Arsenic	5.84	5.3	3.9	4.6	8.5	5.6
Barium	140000	183	205	208	239	136
Beryllium	4100	0.17 J	0.24 J	0.21 J	0.27 J	0.093 J
Cadmium	1000	0.20 U	0.15 U	0.19 U	0.11 J	0.61 U
Calcium	NS	13000	21200	30200	19400 J	14500 J
Chromium Total	4000	10.3	10.2	12.3	12.3 J	7.5 J
Cobalt	NS	4.8 J	6.7 J	6.8 J	8.4	5.2 J
Copper	76000	11.8	12.3	18.2	15.6	5.8
Iron	NS	9460 J	12900 J	12200 J	15000	10000
Lead	1000	9.0	9.3	10.5	10.4	6.7
Magnesium	NS	3810	8270	7500	7480	5550
Manganese	95000	247	274	277	465	229
Mercury	20	0.013 J	0.0099 J	0.016 J	0.012 J	0.12 U
Nickel	41000	12.4	16.9	17.0	21.4 J	12.8 J
Potassium	NS	1160	1530	2110	1830 J	902 J
Selenium	10000	0.43 J	0.68 U	0.69 U	0.67 U	0.61 U
Sodium	NS	267 J	121 J	176 J	189 U	121 U
Vanadium	14000	16.6	18.8	19.6	21.6	13.1
Zinc	610000	38.5	47.7	51.5	52.6	31.7

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TABLE 5.1

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SUMMARY OF SOIL DETECTED ANALYTICAL DATA
CONFIRMATORY SAMPLING PROGRAM
FORMER GM FAIRFAX I PLANT SITE
KANSAS CITY, KANSAS

Sample Location:		SB-113	SB-114	SB-115	SB-116	SB-117
Sample ID:		S-122104-DS-120	S-122104-DS-121	S-122104-DS-122	S-122104-DS-123	S-122104-DS-124
Sample Date:		RSK ¹	12/21/2004	12/21/2004	12/21/2004	12/21/2004
Sample Depth (ft bgs) ² :		Tier 2	10 - 12 ft	10 - 12 ft	4 - 6 ft	4 - 6 ft
Parameters (mg/kg) ³ :						
Volatile Organic Compounds						
1,2-Dichloroethane	0.04	0.0057 U	0.006 U	0.0019 J	0.0079 U	0.0048 U
Acetone	3.8	0.0033 J	0.024 U	0.023 U	0.0044 J	0.0033 J
Ethylbenzene	55	0.0057 U	0.006 U	0.0059 U	0.0079 U	0.0048 U
Methylene chloride	0.03	0.0083	0.0083	0.012	0.011	0.0067
Tetrachloroethene	0.18	0.0026 J	0.006 U	0.0059 U	0.0079 U	0.0048 U
Toluene	40	0.00061 J	0.0063 J	0.00051 J	0.00084 J	0.00045 J
Trichloroethene	0.20	0.0057 U	0.006 U	0.0059 U	0.0079 U	0.0048 U
Xylene (total)	700	0.011 U	0.012 U	0.012 U	0.016 U	0.0096 U
Semivolatile Organic Compounds						
2,4-Dimethylphenol	81	0.35 U	0.46 U	0.41 U	0.42 U	4.2 U
Anthracene	13	0.35 U	0.46 U	0.41 U	0.42 U	0.53 J
Benzo(a)anthracene	26	0.35 U	0.46 U	0.41 U	0.42 U	1.5 J
Benzo(a)pyrene	2.6	0.35 U	0.46 U	0.41 U	0.42 U	1.3 J
Benzo(b)fluoranthene	19	0.35 U	0.46 U	0.41 U	0.42 U	1.8 J
Benzo(g,h,i)perylene	NS ⁷	0.35 U	0.46 U	0.41 U	0.42 U	0.84 J
Benzo(k)fluoranthene	10	0.35 U	0.46 U	0.41 U	0.42 U	0.79 J
Butyl benzylphthalate	1500	0.35 U	0.46 U	0.41 U	0.42 U	18
Caprolactam	NS	0.35 U	0.46 U	0.41 U	0.42 U	4.2 U
Chrysene	6.4	0.35 U	0.46 U	0.41 U	0.42 U	1.5 J
Dibenz(a,h)anthracene	2.6	0.35 U	0.46 U	0.41 U	0.42 U	0.2 J
Fluoranthene	220	0.35 U	0.46 U	0.41 U	0.42 U	3.7 J
Indeno(1,2,3-cd)pyrene	0.76	0.35 U	0.46 U	0.41 U	0.42 U	0.92 J
Phenanthrene	NS	0.35 U	0.46 U	0.41 U	0.42 U	1.9 J
Pyrene	140	0.35 U	0.46 U	0.41 U	0.42 U	2.8 J

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TABLE 5.1

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**SUMMARY OF SOIL DETECTED ANALYTICAL DATA
CONFIRMATORY SAMPLING PROGRAM
FORMER GM FAIRFAX I PLANT SITE
KANSAS CITY, KANSAS**

Sample Location:		SB-113	SB-114	SB-115	SB-116	SB-117
Sample ID:		S-122104-DS-120	S-122104-DS-121	S-122104-DS-122	S-122104-DS-123	S-122104-DS-124
Sample Date:	RSK¹	12/21/2004	12/21/2004	12/21/2004	12/21/2004	12/21/2004
Sample Depth (ft bgs)²:	Tier 2	10 - 12 ft	10 - 12 ft	10 - 12 ft	4 - 6 ft	4 - 6 ft
Parameters (mg/kg)³:						
Metals						
Aluminum	NS	1520	7130	5790	3970	339
Arsenic	5.84	2.3	6.7	6.6	6.6	1.5
Barium	140000	50.1	201	189	170	17.9 J
Beryllium	4100	0.52 U	0.26 J	0.16 J	0.12 J	0.51 U
Cadmium	1000	0.52 U	0.70 U	0.62 U	0.63 U	0.51 U
Calcium	NS	4250 J	19000 J	18700 J	11600 J	305 J
Chromium Total	4000	3.4 J	12.7 J	9.8 J	8.3 J	2.1 J
Cobalt	NS	2.6 J	5.9 J	6.3	5.3 J	0.76 J
Copper	76000	1.6 J	19.5	9.8	8.2	1.2 J
Iron	NS	4400	14200	12700	10300	1870
Lead	1000	2.9	10.5	8.6	7.8	2.4
Magnesium	NS	1850	7090	7060	5700	112 J
Manganese	95000	81.6	270	298	251	7.4
Mercury	20	0.10 U	0.035 J	0.0077 J	0.13 U	0.10 U
Nickel	41000	6.7 J	17.3 J	15.6 J	13.0 J	1.2 U
Potassium	NS	329 J	1630 J	1480 J	941 J	124 J
Selenium	10000	0.52 U	0.70 U	0.62 U	0.63 U	0.51 U
Sodium	NS	523 U	144 U	154 U	218 U	514 U
Vanadium	14000	6.1	19.9	17.1	14.1	3.2 J
Zinc	610000	13.3	50.1	42.9	34.1	4.2

¹ Risk Based Standards for Kansas (RSK Manual), Appendix A, Tier 2, Non-Residential Scenarios, Kansas Department of Health and Environment, March 1, 2003; the value listed is the lowest objective of the soil and the soil to ground water protection pathways.

² ft bgs - feet below ground surface

³ mg/kg - milligrams per kilogram

⁴ U - not detected at the associated value

⁵ J - estimated at the associated value

⁶ 0.19 - shading denotes existence of regulatory standard

⁷ NS - no regulatory standard

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**SUMMARY OF GROUNDWATER DETECTED ANALYTICAL DATA
CONFIRMATORY SAMPLING PROGRAM
FORMER GM FAIRFAX I PLANT SITE
KANSAS CITY, KANSAS**

Sample Location:		MW-1	MW-1A	MW-105	MW-109	MW-110
Sample ID:		GW-122104-DS-006	GW-122104-DS-013	GW-122004-DS-003	GW-122104-DS-005	GW-122104-DS-012
Sample Date:	RSK ¹	12/21/2004	12/21/2004	12/20/2004	12/21/2004	12/21/2004
QA/QC ² :	Tier 2					
Parameters (mg/L)³:						
Volatile Organic Compounds						
Acetone	0.93	0.01 U ⁴	0.01 U	0.01 U	0.0022 J ⁵	0.01 U
Carbon disulfide	0.03	0.001 U	0.00074 J	0.0013	0.001 U	0.001 U
cis-1,2-Dichloroethene	0.07	0.00036 J	0.00087 J	0.0063	0.02	0.00074 J
Tetrachloroethene	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,2-Dichloroethene	0.1	0.001 U	0.001 U	0.001 U	0.0013	0.001 U
Trichloroethene	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	0.002	0.001 U	0.001 U	0.001 U	0.001	0.001 U
Semivolatile Organic Compounds						
2,4-Dimethylphenol	1.8	0.01 U	0.01 U	0.00055 J	0.01 U	0.01 U
2,6-Dinitrotoluene	0.004	0.01 U	0.01 U	0.001 J	0.01 U	0.01 U
Acetophenone	0.00006	0.0024 J	0.0015 J	0.00053 J	0.01 U	0.0013 J
bis(2-Ethylhexyl)phthalate	0.006	0.01 U	0.024 ⁶	0.0023 J	0.01 U	0.01 U
Caprolactam	NS ⁷	0.01 U	0.0013 J	0.01 U	0.0011 J	0.01 U
Di-n-butylphthalate	NS	0.0028 J	0.0018 J	0.01 U	0.01 U	0.01 U
Phenol	58	0.012	0.0062 J	0.01 U	0.01 U	0.01 U
Metals						
Aluminum	NS	0.064 U	0.054 U	0.033 U	0.085 J	0.066 U
Arsenic	0.01	0.010 U	0.015	0.0062 J	0.0029 J	0.010 U
Barium	2.0	0.16 J	0.33	0.24	0.094 J	0.69
Beryllium	0.004	0.00074 U	0.00079 J	0.0050 U	0.0050 U	0.00078 U
Cadmium	0.005	0.00051 U	0.0050 U	0.0050 U	0.00047 J	0.0050 U
Calcium	NS	204	129	172	201	124
Cobalt	NS	0.0074 J	0.050 U	0.0034 J	0.0037 J	0.050 U
Copper	1.3	0.025 U	0.025 U	0.025 U	0.0023 J	0.025 U
Iron	NS	0.096 J	17.5	10.4	1.2 J	14.1
Lead	0.015	0.0086	0.0030 U	0.0030 U	0.0030 U	0.0030 U
Magnesium	NS	49.0 J	35.1 J	43.1	46.1 J	33.3 J

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SUMMARY OF GROUNDWATER DETECTED ANALYTICAL DATA
CONFIRMATORY SAMPLING PROGRAM
FORMER GM FAIRFAX I PLANT SITE
KANSAS CITY, KANSAS

<i>Sample Location:</i>		MW-1	MW-1A	MW-105	MW-109	MW-110
<i>Sample ID:</i>		GW-122104-DS-006	GW-122104-DS-013	GW-122004-DS-003	GW-122104-DS-005	GW-122104-DS-012
<i>Sample Date:</i>		12/21/2004	12/21/2004	12/20/2004	12/21/2004	12/21/2004
<i>QA/QC²:</i>		RSK ¹				
		Tier 2				
<i>Parameters (mg/L)³:</i>						
<i>Metals</i>						
Manganese	0.05	1.5 J	1.7 J	1.5	1.9	1.4 J
Nickel	0.10	0.014 J	0.040 U	0.0052 U	0.015 J	0.040 U
Potassium	NS	9.6 J	7.7 J	16.2 J	11.6	8.1 J
Selenium	0.05	0.19	0.0048 J	0.0076	0.037	0.0050 U
Sodium	NS	45.7	43.3	71.8	32.1	88.1
Thallium	NS	0.0067 U	0.010 U	0.010 U	0.010 U	0.009 U

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**SUMMARY OF GROUNDWATER DETECTED ANALYTICAL DATA
CONFIRMATORY SAMPLING PROGRAM
FORMER GM FAIRFAX I PLANT SITE
KANSAS CITY, KANSAS**

<i>Sample Location:</i>		<i>MW-110</i>	<i>MW-110A</i>	<i>MW-111</i>	<i>MW-160A</i>
<i>Sample ID:</i>		GW-122104-DSDUP	GW-122104-DS-008	GW-122104-DS-011	GW-122104-DS-007
<i>Sample Date:</i>	RSK ¹	12/21/2004	12/21/2004	12/21/2004	12/21/2004
<i>QA/QC²:</i>	Tier 2	Duplicate			
<i>Parameters (mg/L)³:</i>					
Volatile Organic Compounds					
Acetone	0.93	0.01 U	0.01 U	0.05 U	0.01 U
Carbon disulfide	0.03	0.00049 J	0.001 U	0.005 U	0.001 U
cis-1,2-Dichloroethene	0.07	0.00067 J	0.004	0.15	0.001 U
Tetrachloroethene	0.005	0.001 U	0.0048	0.005 U	0.001 U
trans-1,2-Dichloroethene	0.1	0.001 U	0.00021 J	0.011	0.001 U
Trichloroethene	0.005	0.001 U	0.0019	0.005 U	0.001 U
Vinyl chloride	0.002	0.001 U	0.001 U	0.017	0.001 U
Semivolatile Organic Compounds					
2,4-Dimethylphenol	1.8	0.01 U	0.01 U	0.01 U	0.01 U
2,6-Dinitrotoluene	0.004	0.01 U	0.01 U	0.01 U	0.01 U
Acetophenone	0.00006	0.0027 J	0.01 U	0.0039 J	0.01 U
bis(2-Ethylhexyl)phthalate	0.006	0.01 U	0.01 U	0.01 U	0.01 U
Caprolactam	NS ⁷	0.001 J	0.01 U	0.00091 J	0.01 U
Di-n-butylphthalate	NS	0.01 U	0.01 U	0.01 U	0.0012 J
Phenol	58	0.01 U	0.0045 J	0.01 U	0.01 U
Metals					
Aluminum	NS	0.073 U	0.053 U	0.20 U	0.094 U
Arsenic	0.01	0.010 U	0.010 U	0.0035 J	0.010 U
Barium	2.0	0.80	0.19 J	0.50	0.23
Beryllium	0.004	0.00079 U	0.00078 J	0.0050 U	0.00070 J
Cadmium	0.005	0.0050 U	0.00061 U	0.0050 U	0.0050 U
Calcium	NS	141	159	176	228
Cobalt	NS	0.050 U	0.0035 J	0.050 U	0.0014 J
Copper	1.3	0.025 U	0.025 U	0.025 U	0.025 U
Iron	NS	16.0	0.57	23.2 J	30.9
Lead	0.015	0.0030 U	0.0030 U	0.0030 U	0.0030 U
Magnesium	NS	38.0 J	48.3 J	50.9 J	31.6 J

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**SUMMARY OF GROUNDWATER DETECTED ANALYTICAL DATA
CONFIRMATORY SAMPLING PROGRAM
FORMER GM FAIRFAX I PLANT SITE
KANSAS CITY, KANSAS**

<i>Sample Location:</i>		<i>MW-110</i>	<i>MW-110A</i>	<i>MW-111</i>	<i>MW-160A</i>
<i>Sample ID:</i>		<i>GW-122104-DSDUP</i>	<i>GW-122104-DS-008</i>	<i>GW-122104-DS-011</i>	<i>GW-122104-DS-007</i>
<i>Sample Date:</i>	<i>RSK¹</i>	<i>12/21/2004</i>	<i>12/21/2004</i>	<i>12/21/2004</i>	<i>12/21/2004</i>
<i>QA/QC²:</i>	<i>Tier 2</i>	<i>Duplicate</i>			
<i>Parameters (mg/L)³:</i>					
<i>Metals</i>					
Manganese	0.05	1.5 J	1.5 J	1.7 J	2.4 J
Nickel	0.10	0.040 U	0.009 U	0.040 U	0.040 U
Potassium	NS	9.3 J	9.3 J	7.1	7.5 J
Selenium	0.05	0.0050 U	0.026	0.0050 U	0.0050 U
Sodium	NS	101	84.7	30.1	6.3
Thallium	NS	0.0061 U	0.010 U	0.0051 J	0.010 U

¹ RSK - Appendix A, Tier 2, non-residential groundwater pathway objective in "Risk Based Standards for Kansas (RSK Manual)", Kansas Department of Health and Environment, March 1, 2003

² QA/QC - Quality Assurance/Quality Control

³ mg/L - milligrams per liter

⁴ U - not detected at the associated value

⁵ J - estimated at the associated value

⁶ 0.024 - shading denotes exceedence of regulatory standard

⁷ NS - no regulatory standard

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**SUMMARY OF GROUNDWATER ELEVATIONS
CONFIRMATORY SAMPLING PROGRAM
FORMER GM FAIRFAX I PLANT SITE
KANSAS CITY, KANSAS**

Monitoring Well	Top of Casing Elevation (ft AMSL) ¹	Total Depth (ft BTOC) ²	October 1998		May 1999		December 2004	
			Groundwater		Groundwater		Groundwater	
			Water Level (ft BTOC)	Elevation (ft AMSL)	Water Level (ft BTOC)	Elevation (ft AMSL)	Water Level (ft BTOC)	Elevation (ft AMSL)
MW-1	746.43	32.25	19.23	727.20	16.84	729.59	28.49	717.94
MW-1A	745.93	37.19	18.95	726.98	15.54	726.98	28.58	717.35
MW-102A	748.82	31.02	NM ³	NM	17.24	731.58	31.72	717.10
MW-103A	747.71	32.30	20.99	726.72	16.27	731.44	NM	NM
MW-104	746.51	30.05	NM	NM	15.02	731.49	29.37	717.14
MW-105	746.70	32.75	NM	NM	15.29	731.41	29.57	717.13
MW-108	747.17	31.61	19.40	727.77	16.08	731.09	29.93	717.24
MW-109	746.11	32.50	19.03	727.08	16.07	730.04	28.41	717.70
MW-110	745.79	63.71	18.83	726.96	15.26	730.53	28.24	717.55
MW-110A	743.89	36.45	16.35	727.54	15.58	728.31	26.42	717.47
MW-111	745.96	61.10	NM	NM	NM	NM	28.37	717.59
MW-115A	748.07	29.35	NI ⁴	NI	16.52	731.55	Dry	NM
MW-160A	746.56	37.55	20.35	726.21	15.11	731.45	29.83	716.73

¹ ft AMSL - feet above mean sea level² ft BTOC - feet below top of casing³ NM - not measured at this time⁴ NI - well not yet installed

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