UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF

SR-6J

February 10, 2004

Pat Likins, Project Manager
Office of Land Quality - Remedial Services Branch
IDEM
P.O. Box 6015
Indianapolis IN 46206-6015

Re: Continental Steel Superfund Site
Report - Soil Gas and Indoor Air Screening Sampling Results

Dear Ms. Likins:

Enclosed you will find the results of the soil gas and air sampling survey conducted by U.S. EPA and its contractor on June 16-18, 2003. In particular, please note the sections dealing with uncertainties associated with this initial sampling survey, conclusions we reached given the limitations of the survey, and recommendations. While this office does not believe a response action is warranted at this point, your office may want to consider conducting a followup survey to fill the gaps left by this screening survey. EPA would be glad to offer assistance on this work, if requested.

If you have any questions, please contact me at (312) 886-6195.

Sincerely,

Ross del Rosario
Remedial Project Manager

Encl

cc: Mike Joyce
Community Involvement Coordinator

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CH2M HILL
135 South 84th Street
Suite 325
Milwaukee, WI 53214-1456
Tel 414.272.2426
Fax 414.272.4408

CH2MHILL

February 4, 2004

184243.PP.03.01

Ross del Rosario, Work Assignment Manager, SR-6J
U. S. Environmental Protection Agency
Region 5
77 West Jackson Blvd.
Chicago, IL 60604-3590

Subject: *Soil Gas and Indoor Air Screening of the Residential Community Surrounding the Markland Avenue Quarry (Continental Steel)*
Continental Steel Superfund Site, WA No. 222-RDRD-05BW
Contract No. 68-W6-0025

Dear Mr. del Rosario:

Enclosed please find two copies of the revised *Soil Gas and Indoor Air Screening of the Residential Community Surrounding the Markland Avenue Quarry (Continental Steel)* technical memorandum.

If you have any questions or concerns, please feel free to contact me at (414) 272-2426, extension 222.

Sincerely,

CH2M HILL

Daniel J. Plomb
Site Manager

c: Stephen Nathan, PO/USEPA
Dave Alberts, CO/USEPA
Ike Johnson, PM/CH2M HILL
Matt Kluge, KA/CH2M HILL
Gina Bayer, QAM/CH2M HILL
Cherie Wilson, AA/CH2M HILL

Soil Gas and Indoor Air Screening of the Residential Community Surrounding the Markland Avenue Quarry (Continental Steel)

PREPARED FOR: Ross del Rosario/USEPA, Region 5

PREPARED BY: Dave Shekoski/CH2M HILL, MKE

COPIES: Dan Plomb/CH2M HILL, MKE

DATE: February 4, 2004

Introduction

This memorandum documents the post–field investigation activities performed for the Continental Steel Superfund Site by CH2M HILL between June 16 and June 18, 2003. The analytical results are also summarized.

Purpose and Scope

Residential properties surround the Markland Avenue Quarry, which is one of the operable units of the Continental Steel Superfund Site in Kokomo, Indiana. Uncertainty about whether volatile organic compounds (VOCs) have migrated to the surrounding residential community prompted an investigation of the area where VOCs from the quarry would most likely be found. This investigation included collections of soil gas samples and indoor air samples to see if VOCs migrating through the soil are entering homes through defects in basement walls, drain-tile sumps, dirt floors, etc. During the investigation, samples were collected from 23 soil gas locations and four basement locations, with additional samples submitted for quality assurance/quality control (three field duplicates and two field blanks).

Uncertainty and Conclusions

The air samples collected in June 2003 were done as an initial assessment of potential impacts to the residential community surrounding the Markland Avenue Quarry. The conclusions and uncertainties of this study are the following:

- VOCs have been detected in soil gas and indoor air in areas downgradient of the quarry.
- Chlorinated hydrocarbons associated with the quarry have been detected in soil gas near homes, and methylene chloride was detected in one indoor air sample collected from a basement. Although the exact source of these chemicals cannot be determined within the scope of this study, it can be concluded that the quarry is a potential source of these chemicals, and potential impacts to residents may be occurring as a result.
- The presence of VOCs in soil gas and indoor air in the vicinity of residential homes near the quarry, regardless of the source(s), suggests that exposure may occur via the inhalation pathway.

- The sources of these chemicals cannot be positively determined by the current available information. Of the volatile organic constituents detected in soil gas and indoor air, some do not appear to be consistent with chemicals historically associated with the quarry. However, sources of these chemicals have not been explored, and natural degradation of site chemicals as a potential source has not been evaluated.
- All indoor air samples were collected within a relatively short period of time in early summer, thus making them subject to seasonal variability. This variability may be the result of physical influences (temperature, pressure, wind speed and direction, and fluctuating perched groundwater elevations) as well as human behavioral patterns (opening windows and doors, using indoor fans for ventilation, etc.).

Recommendations

The purpose of this study was to determine if natural transport mechanisms could result in subsurface migration of volatiles to offsite residential locations. Since chemicals known to exist in quarry media have been detected in basements and in soil gas near homes, as well as other chemicals with known toxicity, further evaluation of the vapor intrusion pathway is worth considering. The screening investigation was a snapshot in time and represented a small and limited set of conditions. In order to better characterize and predict the effects of contaminant migration, the following items are proposed for consideration.

Extend the Study Area

The study was limited to an area large enough to determine if there is reason for concern, however much too small to determine the extent of lateral distribution of migrating chemicals. Extending the study area to include properties to the north and west of the current study area and upgradient locations will help determine the area and nature of impact.

Collect Onsite Samples

Collection of air samples onsite will help determined if chemicals are actually emanating from the quarry or are they from another undetermined local source.

Assess the Effects of Seasonal Variability

It is unknown if concentrations of volatile chemicals vary between summer, when the samples were collected, and winter when the ground is frozen. In addition to the effects of cold temperatures and ground frost, it is unknown if concentrations in indoor air increase in the winter when air exchange within homes is minimized.

Sampling and Analysis

Properties to the north and west of the Markand Avenue Quarry were identified as potential sampling locations on the basis of their proximity to the quarry and the known direction of groundwater flow. Owners were contacted for permission to access their properties and homes, and underground utility clearance was obtained prior to field mobilization.

Soil gas and indoor air samples were collected June 16–18, 2003 by Dave Shekoski/CH2M HILL and Ross del Rosario/USEPA with the assistance of Steve Peterson and Tom Sedlacek, whom operated USEPA's Geoprobe unit. Pat Likins/IDEM was also present. Sample collection locations are shown on Figure 1.

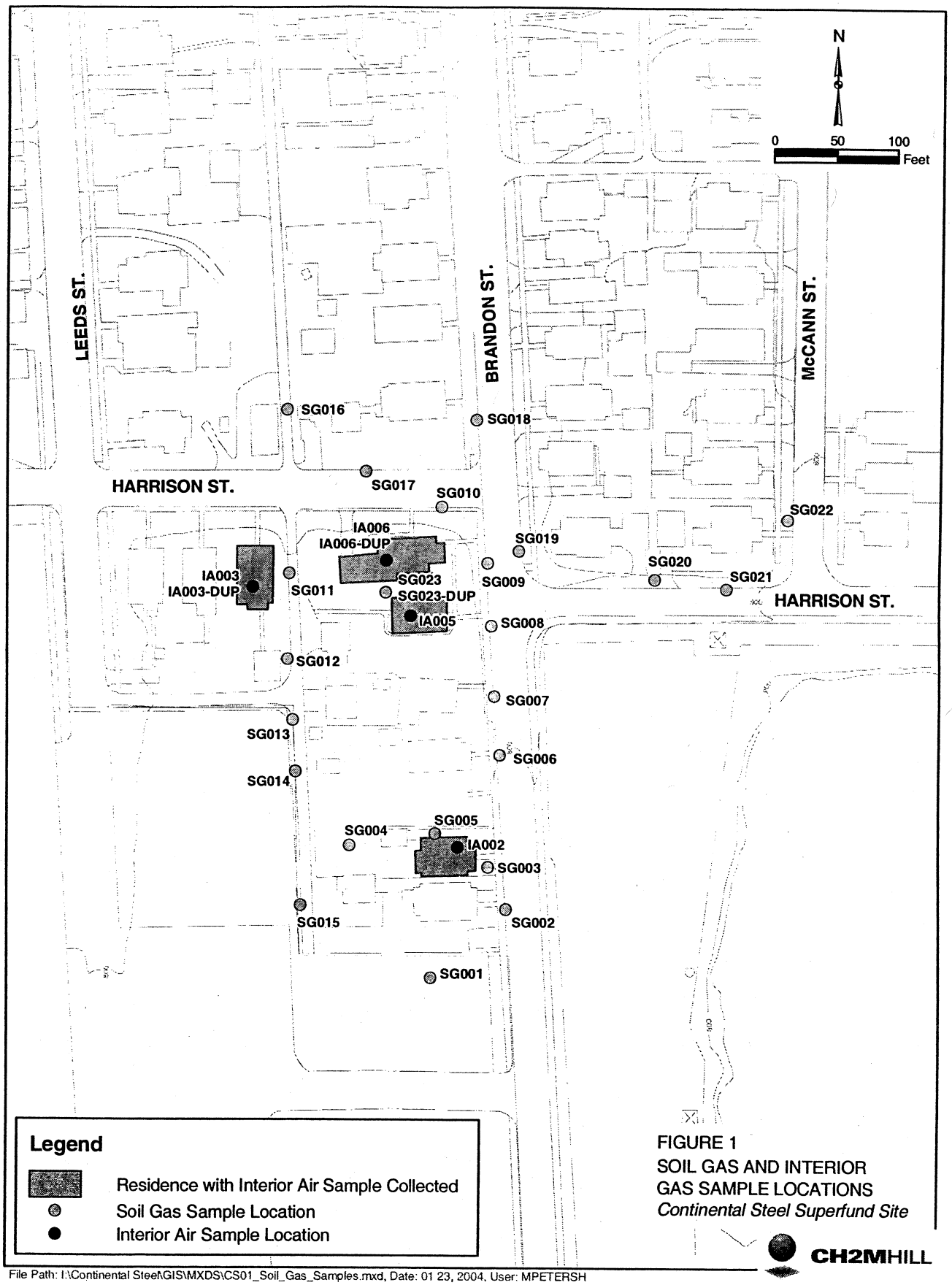


FIGURE 1
SOIL GAS AND INTERIOR
GAS SAMPLE LOCATIONS
Continental Steel Superfund Site

CH2MHILL

File Path: I:\Continental Steel\GIS\MXDS\CS01_Soil_Gas_Samples.mxd, Date: 01 23, 2004, User: MPETERSH

Air samples were collected in SUMMA canisters and analyzed by USEPA Method TO-14 for volatiles in air. Air Toxics, Ltd., of Folsom, California, supplied the canisters and associated equipment and performed the analyses.

Canisters were set up on site immediately prior to the start of sampling. Canister setup activities included removing the protective end cap from each canister, installing flow controllers and particulate filters, reinstalling the protective end cap on each canister, and opening/closing each valve to obtain initial vacuum readings. Flow controllers were the non-variable type, which provided a fixed flow rate to achieve a sample time of approximately 1 hour.

After sampling was completed, a final vacuum reading was obtained, the valve was closed, the flow controller and filter were removed, and the canister was sealed with a protective end cap.

Soil Gas Samples

Soil gas samples were collected from soil gas probes mechanically driven into the ground to a depth just above the water table or refusal. The original intent was to collect soil gas samples from depths of up to 8 ft where possible, but not less than 5 ft near the foundations of homes, however the local geology did not allow these depths to be achieved.

A USEPA-owned, hydraulically-operated mobile Geoprobe unit was used to advance and remove the probes. With the probe set to the appropriate depth, an end nut fitting equipped with an O-ring seal to prevent surface leakage was installed, and the probe was purged with a peristaltic pump. After purging, the SUMMA canister assembly was fitted with a section of Teflon tubing and attached to the end-nut fitting on the Geoprobe section, and the sampling was begun. Sampling was terminated when the canister vacuum reached approximately 3–5 in/Hg. To prevent cross contamination, the section of Teflon tubing was also purged with a peristaltic pump between samples. Where the owner granted access, soil gas samples were collected on the property as close to the home as possible in areas free of buried utilities and where damages to private property would be avoided. Where access was not given, soil gas samples were collected from the right-of-way areas beyond the property boundaries. Where right-of-way samples were collected below blacktop, the surface was restored with blacktop sealer at the completion of the sampling.

Indoor Air Samples

Indoor air samples were collected in basements at locations near where VOCs were most likely to enter the home, such as walls facing the contamination source, sump pump crocks, foundation cracks, and dirt floors. Before choosing a location, the surrounding area was assessed to identify other potential VOC-generating sources within the home. These observations were considered in choosing a representative location and noted in the field logbook.

When a suitable location was chosen, the SUMMA canister valve was opened and sampling was begun. Sampling was terminated when the canister vacuum reached approximately 3–5 in/Hg.

A 1-hour indoor sample interval was chosen because this was a screening effort and household activities could be limited and monitored. If a longer sampling period had been chosen, we would have increased the potential for household activities to occur, which could have impacted samples (the use of household chemicals, cleaning agents, painting materials, etc.) and reduced control over the sampling environment. It also minimized inconvenience to residents.

The samples were collected in the basements during times when household activities which could have impacted the samples were not performed. Sampling was done under "reasonably closed" conditions (for example, there were no open windows or doors in the basements, or mechanical ventilation devices in operation), which would not be assured if a longer sampling intervals would have been chosen.

Analytical Results

The samples were analyzed by Air Toxics, Ltd., in accordance with the standards provided in the *Continental Steel Quality Assurance Project Plan—Addendum III* (CH2M HILL, May 6, 2003). A summary of the chemicals detected in all samples and field comments are presented in Attachment 1. Attachment 1 also shows the reporting limits, concentrations in air, and a comparison of detected chemical concentrations to ambient air standards.

Data Evaluation

Detected chemicals can be screened against those historically linked to the quarry and those from other known sources to establish a hierarchy of probability that chemicals are indeed site-related.

Acetone

Acetone was detected in all environmental samples at concentrations ranging from 11 to 630 $\mu g/m^3$. Acetone was also detected in both field blanks at 21 and 15 $\mu g/m^3$. Since acetone is a common laboratory contaminant and it was also found in the two field blanks, it can be assumed that acetone concentrations less than 210 $\mu g/m^3$ may be false positives (based on the "10 ×" rule for blank contaminants), and levels above 210 $\mu g/m^3$ should be considered "estimated."[1] Since acetone was only detected in one sediment sample and one groundwater sample at the quarry, it is most likely not site-related.

BTEX and Trimethylbenzenes

Chemicals detected included benzene, toluene, ethylbenzene, and xylenes ("BTEX") and trimethylbenzenes (1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene), which were reported in a significant number of samples and were evenly distributed over the study area.

Toluene was reported in 31 samples, of which 26 also had benzene, 20 had xylene(s), and 11 had ethylbenzene. This suggests that toluene, benzene, xylene(s), and possibly

[1] "Region 5 Standard Operating Procedure for Validation of CLP Organic Data," USEPA Central Regional Laboratory, August 1993.

ethylbenzene, are colocated. These compounds, which are the "fingerprint" of gasoline, have been detected in most soil gas and indoor air samples.

Trimethylbenzenes, which are typically associated with diesel fuel, heating oil, gasoline, and their combustion products, were reported in 12 samples, one of which was a field blank. Benzene, toluene, ethylbenzene, and xylene(s) were detected in 10 of these 12 samples. Both benzene and xylene(s) were detected in one of these samples, indicating that BTEX and trimethylbenzenes are probably colocated.

BTEX compounds and trimethylbenzenes were not detected in quarry sediments or groundwater; therefore, they are not likely to be site-related.

Chlorinated Hydrocarbons

If a chemical is found in both quarry media and offsite samples, it may be site-related. The VOCs found in quarry media were primarily chlorinated hydrocarbons. Chloroform, cis-1,2-dichloroethene, trichloroethene, and methylene chloride were detected in gas collected in the study area as well as in quarry media sampled during the 2001 predesign investigation, indicating that the quarry may be a potential source of these chemicals. 1,1-dichloroethene was also detected in the study area as well as a 1995 soil gas study within the quarry site boundary, indicating that the quarry may also be a source of this chemical. Other chlorinated hydrocarbons that were found in air samples include tetrachloroethene, 1,1,1-trichloroethane, and chloromethane, but these are not consistent with chemicals historically associated with the quarry and are probably not site-related.

The chlorinated hydrocarbons were distributed throughout the study area; however, the highest concentrations were found in CSS-SG 010-01, which included trichloroethene (150 $\mu g/m^3$), 1,1,1-trichoroethane (370 $\mu g/m^3$), cis-1,2-dichloroethene (20 $\mu g/m^3$—the only location where this compound was detected), and 1,1-dichlorothene (32 $\mu g/m^3$).

Miscellaneous Chemicals

Other chemicals detected in air samples, which are not considered chemicals of concern in the quarry, are 2-butanone (MEK) and 2-hexanone. Styrene was detected in one field blank.

A summary of chemicals detected in quarry media is presented in Attachment 2.

The relative distributions of acetone, benzene, chloroform, methylene chloride, tetrachloroethene, trichloroethene, and cis-1,2-dichloroethene are shown on Figures 2 through 7.

Comparison to Ambient Air Standards

A comparison was done between the chemicals detected in indoor air and soil gas to ambient air standards as defined in the USEPA draft guidance for evaluating vapor intrusion.[2] These reference concentrations were developed using USEPA risk assessment models and assumptions, and establish concentrations that represent the point of departure between "acceptable" and "unacceptable" risk levels based on daily intake by the inhalation pathway. For chemical carcinogens, this is the level needed to achieve a 1×10^{-6} cancer risk, which is the probability of one additional cancer case per million people exposed, generally considered the "acceptable" level of cancer risk. For chemicals that do not possess known carcinogenic potential, this is the level needed to achieve a Hazard Quotient of 1.0, which is the ratio of a chemical concentration to the level capable of causing a measurable adverse health effect. Where both carcinogenic and noncarcinogenic levels are available, the lower of the two was used.

For the comparison, indoor air levels were used "as is" since these were the actual concentrations found inside homes. Chemicals found in soil gas were adjusted as recommended in the guidance document since these levels were not subject to the dilution effects that would occur if they were to enter a home. The guidance document's method for determining ambient air standards resulted in levels that were comparable to the USEPA Region 9 Preliminary Remediation Goals (PRGs) and the USEPA Region 3 Risk-Based Concentrations (RBCs), with two exceptions: First, the ambient air standard for xylenes was 70 times higher than what was promulgated by both the Region 3 RBCs and Region 9 PRGs; therefore, the Region 3/Region 9 level was used. Second, 2-hexanone did not have toxicity values for the calculation of an ambient air standard, and it did not appear in the Region 3/Region 9 tables, so comparison to an air standard could not be made. To provide some prospective, the NIOSH threshold limit value for an 8-hour time-weighted average was provided. The results of these comparisons are presented in Attachment 1.

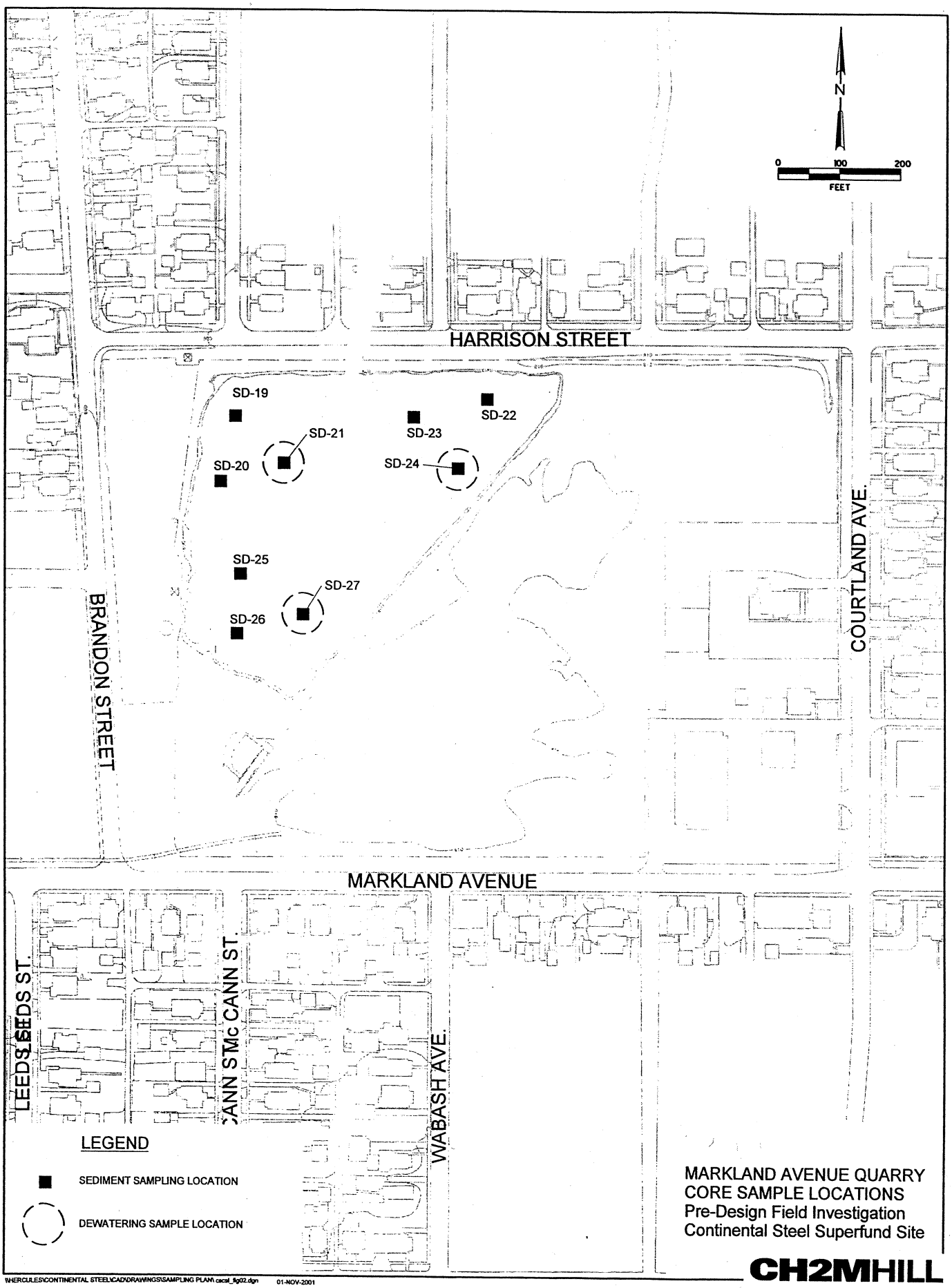
A listing of chemicals detected above ambient air standards in the study area are shown in Table 1.

TABLE 1
Chemicals Detected Above Ambient Air Standards
Continental Steel Superfund Site

Chemical	Number of Exceedances	Locations (Less Field Duplicates and Blanks)
Benzene	21	18 soil gas, 3 indoor air
Chloroform	6	Soil gas
Chloromethane	1	Indoor air
Ethyl Benzene	2	Soil gas
Tetrachloroethene	1	Soil gas
Trichloroethene	2	Soil gas

It should be noted that these standards are to be used as general guidance only, in that they use default assumptions that are conservative in nature. In addition, these chemicals were detected in basements near potential points of entry (where the concentrations may be highest), or in soil gas outside the homes and could enter basements only if preferential pathways exist.

[2] "Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils," USEPA Office of Solid Waste and Emergency Response (OSWER), 2002



MARKLAND AVENUE QUARRY
CORE SAMPLE LOCATIONS
Pre-Design Field Investigation
Continental Steel Superfund Site

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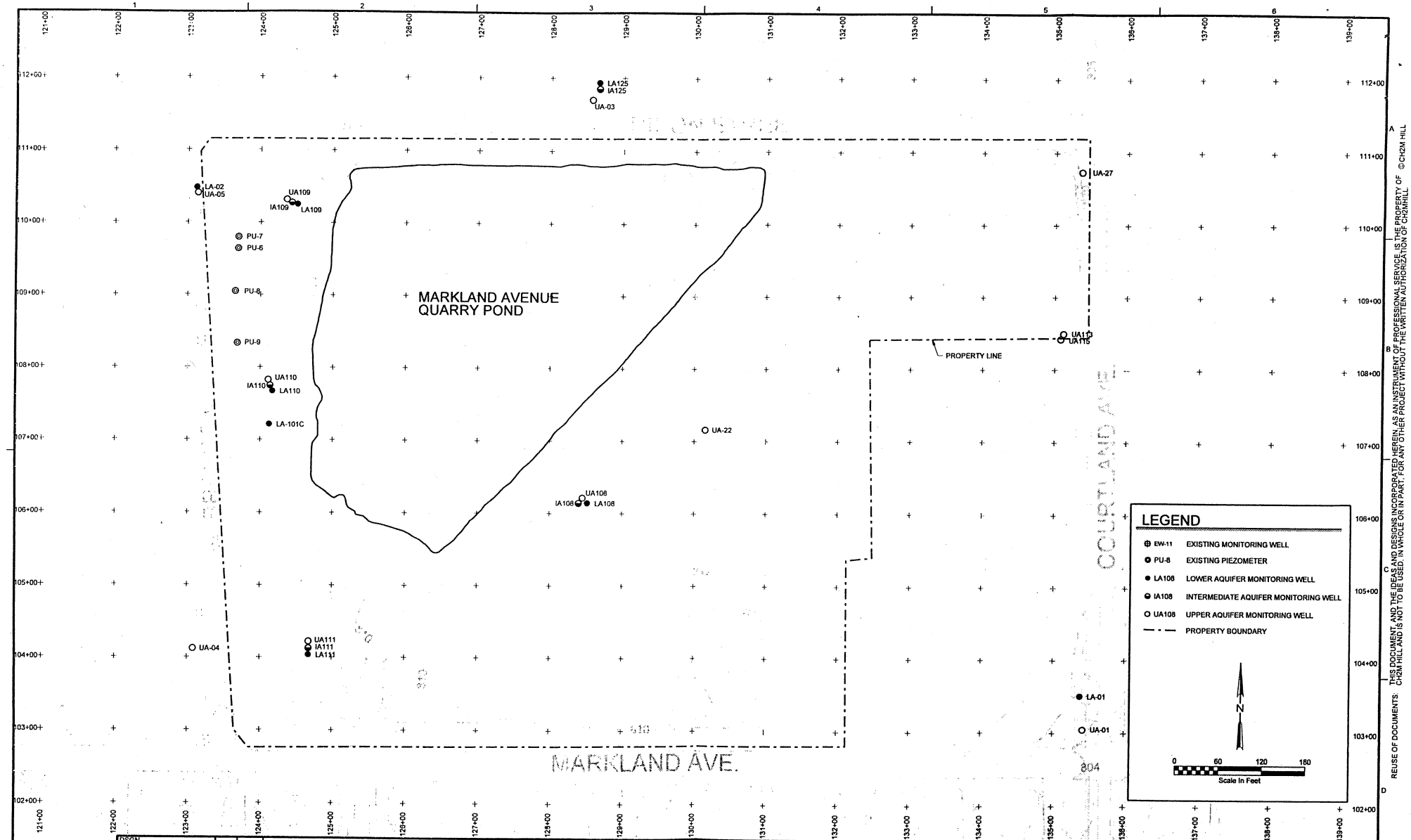

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DR D.J.WOODBECK						BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	
CHK							
APVD	NO.	DATE	REVISION	BY	APVD		

CONTINENTAL STEEL SUPERFUND SITE
KOKOMO, INDIANA

MARKLAND QUARRY

DESIGN CRITERIA REPORT
MARKLAND AVENUE QUARRY
CONTINENTAL STEEL SUPERFUND SITE
KOKOMO, INDIANA

SHEET 1
DWG DRAWING-NO
DATE MARCH 2002
PROJ 162558.PD.01

FILENAME: cs3c01d.dgn PLOT DATE: 24-SEP-2002 PLOT TIME: 10:49:14

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Attachment 1

ATTACHMENT 1

Indoor Air/Soil Gas Sampling (TO-14)

Continental Steel Superfund Site, February 2004

Station Location: CSS-IA 002-01
Sample No. 03CP12-02
Sample Date: 06/16/2003

Indoor Air

Compound	Reporting Limits (ppbv)	Reporting Limits ($\mu g/m^3$)	Concentrations in Air (ppbv)	Concentrations in Air ($\mu g/m^3$)	Adjusted Concentration[a] in Air ($\mu g/m^3$)	Reference Concentration[b] ("Air Quality Standard") ($\mu g/m^3$)	Is Air Quality Standard Exceeded?	Note
Toluene	0.8	3.1	**9.8**	**38**	38	400	No	b
Acetone	3.2	7.8	**8.9**	**21**	21	350	No	b
2-Butanone (MEK)	3.2	9.6	**4.9**	**14**	14	1000	No	b

General Comments: Basement has dirt floor, wet/muddy. **Observations:** Basement has sump. paint cans stored, not opened recently. A can of "Car Car" is open - VOCs not suspected. **Area:** ~930 sq ft, basement vol ~6050 cu ft. **Location:** Samples collected in NW corner of house in separage room around corner from sump; other VOC sources not suspected.

Station Location: CSS-IA 003-01
Sample No. 03CP12-03
Sample Date: 06/17/2003

Indoor Air

Compound	Reporting Limits (ppbv)	Reporting Limits ($\mu g/m^3$)	Concentrations in Air (ppbv)	Concentrations in Air ($\mu g/m^3$)	Adjusted Concentration[a] in Air ($\mu g/m^3$)	Reference Concentration[b] ("Air Quality Standard") ($\mu g/m^3$)	Is Air Quality Standard Exceeded?	Note
Chloromethane	0.88	1.8	**1.6**	**3.4**	3.4	2.4	Yes	c
Methylene Chloride	0.88	3.1	**1.1**	**3.9**	3.9	5.2	No	c
Benzene	0.88	2.8	**0.99**	**3.2**	3.2	0.31	Yes	c
Toluene	0.88	3.4	**1.4**	**5.2**	5.2	400	No	b
Acetone	3.5	8.4	**4.6**	**11**	11	350	No	b

General Comments: Cement floor with ~1 inch standing water in half of basement. No sump or major defects in foundation. **Observations:** No sources of volatiles suspected. Old paint can in wooden cabinet near southern wall. Can has not been opened "in years." **Area:** ~1125 sq ft, of which ~338 sq ft is crawl space. **Volume (including crawl space):** is ~6469 cu ft. **Location:** Sample collected in area of standing water a little south of approximate center of house.

Station Location: CSS-IA 003FR-01 *Field Duplicate*
Sample No. 03CP12-42
Sample Date: 06/17/2003

Indoor Air

Compound	Reporting Limits (ppbv)	Reporting Limits ($\mu g/m^3$)	Concentrations in Air (ppbv)	Concentrations in Air ($\mu g/m^3$)	Adjusted Concentration[a] in Air ($\mu g/m^3$)	Reference Concentration[b] ("Air Quality Standard") ($\mu g/m^3$)	Is Air Quality Standard Exceeded?	Note
Chloromethane	0.88	1.8	**1.6**	**3.4**	3.4	2.4	Yes	c
Benzene	0.88	2.8	**0.94**	**3.1**	3.1	0.31	Yes	c
Toluene	0.88	3.4	**1.3**	**5**	5	400	No	b
Acetone	3.5	8.4	**7.3**	**18**	18	350	No	b

Comments: See above.

For Explanation of Footnotes, See Page 13

ATTACHMENT 1
Indoor Air/Soil Gas Sampling (TO-14)
Continental Steel Superfund Site, February 2004

Station Location: CSS-IA 005-01 Sample No. 03CP12-05 Sample Date: 06/18/2003	**Indoor Air**							
	Reporting Limits		***Concentrations in Air***		*Adjusted Concentration[a] in Air*	*Reference Concentration[b] ("Air Quality Standard")*	*Is Air Quality Standard Exceeded?*	
Compound	*(ppbv)*	*(µg/m³)*	***(ppbv)***	***(µg/m³)***	*(µg/m³)*	*(µg/m³)*		*Note*
Benzene	0.84	2.7	**1.9**	**6.3**	6.3	0.31	Yes	c
Toluene	0.84	3.2	**2.6**	**10**	10	400	No	b
m,p-Xylene	0.84	3.7	**1.1**	**4.8**	4.8	100	No	b, d
Acetone	3.4	8.1	**8.5**	**20**	20	350	No	b

General Comments: Cement floor in basement, with sump. **Observations:** Many paint cans stored in room along southern wall. All sealed and none opened recently (house is an estate). No VOC sources suspected. **Area:** ~1008 sq ft, volume ~6500 cu ft. **Location:** Sample collected in west half of house ~12' from sump near entrance to paint storage room.

Station Location: CSS-IA 006-01 Sample No. 03CP12-06 Sample Date: 06/18/2003	**Indoor Air**							
	Reporting Limits		***Concentrations in Air***		*Adjusted Concentration[a] in Air*	*Reference Concentration[b] ("Air Quality Standard")*	*Is Air Quality Standard Exceeded?*	
Compound	*(ppbv)*	*(µg/m³)*	***(ppbv)***	***(µg/m³)***	*(µg/m³)*	*(µg/m³)*		*Note*
Benzene	0.8	2.6	**2**	**6.6**	6.6	0.31	Yes	c
Toluene	0.8	3.1	**3.7**	**14**	14	400	No	b
m,p-Xylene	0.8	3.6	**1.4**	**6.4**	6.4	100	No	b, d
Acetone	3.2	7.8	**8.6**	**21**	21	350	No	b

General comments: Cement floor in basement with dirt in large crawl space. Sump along west wall. **Observations:** 3 unopened cans latex paint, non-solvent cleaning agents. **Area:** basement area ~1008 sq ft, volume of basement ~6500 cu ft with dimensions of crawlspace unknown. **Location:** Samples collected ~3' from sump.

Station Location: CSS-IA 006 FR-01 *Field Duplicate* Sample No. 03CP12-08 Sample Date: 06/18/2003	**Indoor Air**							
	Reporting Limits		***Concentrations in Air***		*Adjusted Concentration[a] in Air*	*Reference Concentration[b] ("Air Quality Standard")*	*Is Air Quality Standard Exceeded?*	
Compound	*(ppbv)*	*(µg/m³)*	***(ppbv)***	***(µg/m³)***	*(µg/m³)*	*(µg/m³)*		*Note*
Benzene	0.8	2.6	**2**	**6.6**	6.6	0.31	Yes	c
Toluene	0.8	3.1	**3.7**	**14**	14	400	No	b
m,p-Xylene	0.8	3.6	**1.4**	**6.4**	6.4	100	No	b, d
Acetone	3.2	7.8	**9.8**	**24**	24	350	No	b

Comments: See above.

For Explanation of Footnotes, See Page 13

ATTACHMENT 1

Indoor Air/Soil Gas Sampling (TO-14)

Continental Steel Superfund Site, February 2004

Station Location: CSS-SG 001-01
Sample No. 03CP12-10
Sample Date: 06/17/2003

Compound	Reporting Limits (ppbv)	Reporting Limits (µg/m³)	Soil Gas Concentrations in Air (ppbv)	Soil Gas Concentrations in Air (µg/m³)	Adjusted Concentration[a] in Air (µg/m³)	Reference Concentration[b] ("Air Quality Standard") (µg/m³)	Is Air Quality Standard Exceeded?	Note
Benzene	0.8	2.6	**1.6**	**5.2**	0.52	0.31	Yes	c
Toluene	0.8	3.1	**3**	**11**	1.1	400	No	b
m,p-Xylene	0.8	3.6	**1.2**	**5.1**	0.51	100	No	b, d
Acetone	3.2	7.8	**69**	**170**	17	350	No	b
2-Butanone (MEK)	3.2	9.6	**10**	**30**	3	1000	No	b

Comment: Depth Soil gas (Geoprobe) sample ~5.5 bgs, north side of Syndicate Sales parking lot ~13 ft south of fence.

Station Location: CSS-SG 002-01
Sample No. 03CP12-11
Sample Date: 06/17/2003

Compound	Reporting Limits (ppbv)	Reporting Limits (µg/m³)	Soil Gas Concentrations in Air (ppbv)	Soil Gas Concentrations in Air (µg/m³)	Adjusted Concentration[a] in Air (µg/m³)	Reference Concentration[b] ("Air Quality Standard") (µg/m³)	Is Air Quality Standard Exceeded?	Note
Methylene Chloride	0.8	2.8	**1.3**	**4.7**	0.47	5.2	No	c
Benzene	0.8	2.6	**2.4**	**8**	0.8	0.31	Yes	c
Toluene	0.8	3.1	**5.4**	**21**	2.1	400	No	b
Ethyl Benzene	0.8	3.6	**2.1**	**1**	0.1	2.2	No	c
m,p-Xylene	0.8	3.6	**3.9**	**17**	1.7	100	No	b, d
o-Xylene	0.8	3.6	**1.7**	**7.5**	0.75	100	No	b, d
1,2,4-Trimethylbenzene	0.8	4	**1.9**	**9.5**	0.95	6.0	No	b
Acetone	3.2	7.8	**34**	**81**	8.1	350	No	b
2-Butanone (MEK)	3.2	9.6	**5.4**	**16**	1.6	1000	No	b

Comment: Soil Gas (Geoprobe) ~4.6' bgs, on west side of Brandon Street, in ROW.

Station Location: CSS-SG 003-01
Sample No. 03CP12-12
Sample Date: 06/17/2003

Compound	Reporting Limits (ppbv)	Reporting Limits (µg/m³)	Soil Gas Concentrations in Air (ppbv)	Soil Gas Concentrations in Air (µg/m³)	Adjusted Concentration[a] in Air (µg/m³)	Reference Concentration[b] ("Air Quality Standard") (µg/m³)	Is Air Quality Standard Exceeded?	Note
Methylene Chloride	0.84	3	**0.92**	**3.2**	0.32	5.2	No	c
Toluene	0.84	3.2	**0.91**	**3.5**	0.35	400	No	b
Acetone	3.4	8.1	**42**	**100**	10	350	No	b
2-Butanone (MEK)	3.4	10	**3.4**	**10**	1	1000	No	b

Comment: Soil Gas (Geoprobe): ~5.5' bgs, in front yard of residence.

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ATTACHMENT 1

Indoor Air/Soil Gas Sampling (TO-14)

Continental Steel Superfund Site, February 2004

Station Location: CSS-SG 004-01 Sample No. 03CP12-13 Sample Date: 06/17/2003	**Soil Gas**				*Adjusted Concentration[a] in Air*	*Reference Concentration[b] ("Air Quality Standard")*	*Is Air Quality Standard Exceeded?*	
	Reporting Limits		***Concentrations in Air***					
Compound	*(ppbv)*	*(µg/m³)*	***(ppbv)***	***(µg/m³)***	*(µg/m³)*	*(µg/m³)*		*Note*
Methylene Chloride	0.79	2.8	**0.84**	**3**	0.3	5.2	No	c
Toluene	0.79	3	**1.4**	**5.2**	0.52	400	No	b
m,p-Xylene	0.79	3.5	**1.1**	**4.8**	0.48	100	No	b,d
1,2,4-Trimethylbenzene	0.79	3.9	**0.95**	**4.7**	0.47	6.0	No	b
Acetone	3.2	7.6	**130**	**310**	31	350	No	b
2-Butanone (MEK)	3.2	9.5	**18**	**55**	5.5	1000	No	b
Comment: Soil Gas (Geoprobe): ~3.0' bgs, in back yard of residence.								

Station Location: CSS-SG 005-01 Sample No. 03CP12-14 Sample Date: 06/17/2003	**Soil Gas**				*Adjusted Concentration[a] in Air*	*Reference Concentration[b] ("Air Quality Standard")*	*Is Air Quality Standard Exceeded?*	
	Reporting Limits		***Concentrations in Air***					
Compound	*(ppbv)*	*(µg/m³)*	***(ppbv)***	***(µg/m³)***	*(µg/m³)*	*(µg/m³)*		*Note*
Benzene	0.76	2.5	**1.3**	**4.1**	0.41	0.31	Yes	c
Toluene	0.76	2.9	**1.7**	**6.5**	0.65	400	No	b
m,p-Xylene	0.76	3.4	**0.83**	**3.7**	0.37	100	No	b, d
Acetone	3	7.3	**100**	**240**	24	350	No	b
2-Butanone (MEK)	3	9.1	**11**	**32**	3.2	1000	No	b
Comment: Soil Gas (Geoprobe): ~4.0 ft bgs, in side yard north of the residence.								

Station Location: CSS-SG 006-01 Sample No. 03CP12-15 Sample Date: 06/17/2003	**Soil Gas**				*Adjusted Concentration[a] in Air*	*Reference Concentration[b] ("Air Quality Standard")*	*Is Air Quality Standard Exceeded?*	
	Reporting Limits		***Concentrations in Air***					
Compound	*(ppbv)*	*(µg/m³)*	***(ppbv)***	***(µg/m³)***	*(µg/m³)*	*(µg/m³)*		*Note*
Acetone	3.2	7.8	**240**	**590**	59	350	No	b
2-Butanone (MEK)	3.2	9.6	**28**	**82**	8.2	1000	No	b
Comment: Soil Gas (Geoprobe): ~4.5' bgs, on west side of Brandon Street, in ROW.								

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ATTACHMENT 1

Indoor Air/Soil Gas Sampling (TO-14)

Continental Steel Superfund Site, February 2004

Station Location: CSS-SG 007-01
Sample No. 03CP12-16
Sample Date: 06/17/2003

Compound	Soil Gas Reporting Limits (ppbv)	Soil Gas Reporting Limits (µg/m³)	Soil Gas Concentrations in Air (ppbv)	Soil Gas Concentrations in Air (µg/m³)	Adjusted Concentration[a] in Air (µg/m³)	Reference Concentration[b] ("Air Quality Standard") (µg/m³)	Is Air Quality Standard Exceeded?	Note
Benzene	0.79	2.6	**2**	**6.5**	0.65	0.31	Yes	c
Toluene	0.79	3	**5.6**	**21**	2.1	400	No	b
Ethyl Benzene	0.79	3.5	**2.6**	**12**	1.2	2.21	No	c
m,p-Xylene	0.79	3.5	**2.9**	**13**	1.3	100	No	b, d
o-Xylene	0.79	3.5	**1.3**	**5.7**	0.57	100	No	b, d
1,2,4-Trimethylbenzene	0.79	3.9	**1.7**	**8.7**	0.87	6.0	No	b
Acetone	3.2	7.6	**130**	**300**	30	350	No	b
2-Butanone (MEK)	3.2	9.5	**12**	**37**	3.7	1000	No	b

Comment: Soil Gas (Geoprobe): ~5.3' bgs, on west side of Brandon Street, in ROW.

Station Location: CSS-SG 008-01
Sample No. 03CP12-17
Sample Date: 06/17/2003

Compound	Soil Gas Reporting Limits (ppbv)	Soil Gas Reporting Limits (µg/m³)	Soil Gas Concentrations in Air (ppbv)	Soil Gas Concentrations in Air (µg/m³)	Adjusted Concentration[a] in Air (µg/m³)	Reference Concentration[b] ("Air Quality Standard") (µg/m³)	Is Air Quality Standard Exceeded?	Note
Benzene	0.84	2.7	**4.3**	**14**	1.4	0.31	Yes	c
Toluene	0.84	3.2	**12**	**46**	4.6	400	No	b
Ethyl Benzene	0.84	3.7	**5.4**	**24**	2.4	2.21	Yes	c
m,p-Xylene	0.84	3.7	**7.5**	**33**	3.3	100	No	b, d
o-Xylene	0.84	3.7	**3.4**	**15**	1.5	100	No	b, d
1,3,5-Trimethylbenzene	0.84	4.2	**1.2**	**6.2**	0.62	6.0	No	b
1,2,4-Trimethylbenzene	0.84	4.2	**4.6**	**23**	2.3	6.0	No	b
Acetone	3.4	8.1	**150**	**360**	36	350	No	b
2-Butanone (MEK)	3.4	10	**19**	**58**	5.8	1000	No	b
2-Hexanone	3.4	14	**8.9**	**37**	3.7	-- See note --		e

Comment: Soil Gas (Geoprobe): ~3.5' bgs, on west side of Brandon Street, in ROW.

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ATTACHMENT 1

Indoor Air/Soil Gas Sampling (TO-14)

Continental Steel Superfund Site, February 2004

Station Location: CSS-SG 009-01 Sample No. 03CP12-18 Sample Date: 06/17/2003	**Soil Gas**							
	Reporting Limits		***Concentrations in Air***		*Adjusted Concentration[a] in Air*	*Reference Concentration[b] ("Air Quality Standard")*	*Is Air Quality Standard Exceeded?*	
Compound	*(ppbv)*	*(µg/m³)*	***(ppbv)***	***(µg/m³)***	*(µg/m³)*	*(µg/m³)*		*Note*
Benzene	0.84	2.7	**3.3**	**11**	1.1	0.31	Yes	c
Toluene	0.84	3.2	**14**	**54**	5.4	400	No	b
Ethyl Benzene	0.84	3.7	**5**	**22**	2.2	2.21	No	c
m,p-Xylene	0.84	3.7	**5.3**	**23**	2.3	100	No	b, d
o-Xylene	0.84	3.7	**2**	**9.1**	0.91	100	No	b, d
1,3,5-Trimethylbenzene	0.84	4.2	**1.1**	**5.4**	0.54	6.0	No	b
1,2,4-Trimethylbenzene	0.84	4.2	**3.2**	**16**	1.6	6.0	No	b
Acetone	3.4	8.1	**140**	**330**	33	350	No	b
2-Butanone (MEK)	3.4	10	**20**	**60**	6	1000	No	b
Comment: Soil Gas (Geoprobe): ~3.5' bgs, on west side of Brandon Street, in ROW.								

Station Location: CSS-SG 010-01 Sample No. 03CP12-19 Sample Date: 06/17/2003	**Soil Gas**							
	Reporting Limits		***Concentrations in Air***		*Adjusted Concentration[a] in Air*	*Reference Concentration[b] ("Air Quality Standard")*	*Is Air Quality Standard Exceeded?*	
Compound	*(ppbv)*	*(µg/m³)*	***(ppbv)***	***(µg/m³)***	*(µg/m³)*	*(µg/m³)*		*Note*
1,1-Dichloroethene	0.86	3.4	**7.8**	**32**	3.2	200	No	b
cis-1,2-Dichloroethene	0.86	3.4	**5.1**	**20**	2	35	No	b
1,1,1-Trichloroethane	0.86	4.7	**67**	**370**	37	2200	No	b
Benzene	0.86	2.8	**5.2**	**17**	1.7	0.31	Yes	c
Trichloroethene	0.86	4.7	**27**	**150**	15	0.02	Yes	c
Toluene	0.86	3.3	**12**	**45**	4.5	400	No	b
Ethyl Benzene	0.86	3.8	**4.4**	**20**	2	2.21	No	c
m,p-Xylene	0.86	3.8	**7.3**	**32**	3.2	100	No	b, d
o-Xylene	0.86	3.8	**3**	**13**	1.3	100	No	b, d
1,2,4-Trimethylbenzene	0.86	4.3	**2.4**	**12**	1.2	6.0	No	b
Acetone	3.4	8.2	**160**	**390**	39	350	No	b
2-Butanone (MEK)	3.4	10	**24**	**71**	7.1	1000	No	b
Comment: Soil Gas (Geoprobe): ~5' bgs (refusal), on south side of Harrison Street, in ROW.								

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Indoor Air/Soil Gas Sampling (TO-14)

Continental Steel Superfund Site, February 2004

Station Location: CSS-SG 011-01
Sample No. 03CP12-20
Sample Date: 06/17/2003

Compound	Soil Gas Reporting Limits (ppbv)	Soil Gas Reporting Limits ($\mu g/m^3$)	Soil Gas Concentrations in Air (ppbv)	Soil Gas Concentrations in Air ($\mu g/m^3$)	Adjusted Concentration[a] in Air ($\mu g/m^3$)	Reference Concentration[b] ("Air Quality Standard") ($\mu g/m^3$)	Is Air Quality Standard Exceeded?	Note
Benzene	0.86	2.8	**1.6**	**5.1**	0.51	0.31	Yes	c
Toluene	0.86	3.3	**2.1**	**8**	0.8	400	No	b
Tetrachloroethene	0.86	5.9	**0.92**	**6.3**	0.63	0.81	No	c
Acetone	3.4	8.2	**180**	**420**	42	350	No	b
2-Butanone (MEK)	3.4	10	**19**	**57**	5.7	1000	No	b

Comment: Soil Gas (Geoprobe): ~4.0' bgs, west side of alley behind Brandon St., south of Harrison St.

Station Location: CSS-SG 012-01
Sample No. 03CP12-21
Sample Date: 06/17/2003

Compound	Soil Gas Reporting Limits (ppbv)	Soil Gas Reporting Limits ($\mu g/m^3$)	Soil Gas Concentrations in Air (ppbv)	Soil Gas Concentrations in Air ($\mu g/m^3$)	Adjusted Concentration[a] in Air ($\mu g/m^3$)	Reference Concentration[b] ("Air Quality Standard") ($\mu g/m^3$)	Is Air Quality Standard Exceeded?	Note
Benzene	0.82	2.7	**5.2**	**17**	1.7	0.31	Yes	c
Toluene	0.82	3.1	**25**	**95**	9.5	400	No	b
Tetrachloroethene	0.82	5.6	**1.3**	**9.3**	0.93	0.81	Yes	c
Ethyl Benzene	0.82	3.6	**10**	**45**	4.5	2.21	Yes	c
m,p-Xylene	0.82	3.6	**13**	**57**	5.7	100	No	b, d
o-Xylene	0.82	3.6	**5.3**	**23**	2.3	100	No	b, d
1,3,5-Trimethylbenzene	0.82	4.1	**3.5**	**17**	1.7	6.0	No	b
1,2,4-Trimethylbenzene	0.82	4.1	**10**	**53**	5.3	6.0	No	b
Acetone	3.3	7.9	**120**	**280**	28	350	No	b
2-Butanone (MEK)	3.3	9.8	**16**	**50**	5	1000	No	b

Comment: Soil Gas (Geoprobe): ~5.5' bgs, west side of alley behind Brandon St., south of Harrison St.

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ATTACHMENT 1

Indoor Air/Soil Gas Sampling (TO-14)

Continental Steel Superfund Site, February 2004

Station Location: CSS-SG 013-01
Sample No. 03CP12-22
Sample Date: 06/18/2003

Compound	Soil Gas Reporting Limits (ppbv)	Soil Gas Reporting Limits (µg/m³)	Soil Gas Concentrations in Air (ppbv)	Soil Gas Concentrations in Air (µg/m³)	Adjusted Concentration[a] in Air (µg/m³)	Reference Concentration[b] ("Air Quality Standard") (µg/m³)	Is Air Quality Standard Exceeded?	Note
Benzene	0.84	2.7	**1.5**	**4.9**	0.49	0.31	Yes	c
Toluene	0.84	3.2	**2.5**	**9.8**	0.98	400	No	b
m,p-Xylene	0.84	3.7	**0.86**	**3.8**	0.38	100	No	b, d
Acetone	3.4	8.1	**58**	**140**	14	350	No	b
2-Butanone (MEK)	3.4	10	**7.8**	**24**	2.4	1000	No	b

Comment: Soil Gas (Geoprobe): ~2.6 ft bgs, west side of alley behind Brandon St, south of Harrison St., SW corner.

Station Location: CSS-SG 014-01
Sample No. 03CP12-23
Sample Date: 06/17/2003

Compound	Soil Gas Reporting Limits (ppbv)	Soil Gas Reporting Limits (µg/m³)	Soil Gas Concentrations in Air (ppbv)	Soil Gas Concentrations in Air (µg/m³)	Adjusted Concentration[a] in Air (µg/m³)	Reference Concentration[b] ("Air Quality Standard") (µg/m³)	Is Air Quality Standard Exceeded?	Note
Benzene	0.79	2.6	**1.3**	**4.2**	0.42	0.31	Yes	c
Toluene	0.79	3	**3.5**	**14**	1.4	400	No	b
Ethyl Benzene	0.79	3.5	**1**	**4.4**	0.44	2.21	No	c
m,p-Xylene	0.79	3.5	**1.1**	**5.1**	0.51	100	No	b, d
Acetone	3.2	7.6	**54**	**130**	13	350	No	b
2-Butanone (MEK)	3.2	9.5	**3.6**	**11**	1.1	1000	No	b

Comment: Soil Gas (Geoprobe): ~3.25' bgs, west side of alley behind Brandon St., south of Harrison St.

Station Location: CSS-SG 015-01
Sample No. 03CP12-24
Sample Date: 06/18/2003

Compound	Soil Gas Reporting Limits (ppbv)	Soil Gas Reporting Limits (µg/m³)	Soil Gas Concentrations in Air (ppbv)	Soil Gas Concentrations in Air (µg/m³)	Adjusted Concentration[a] in Air (µg/m³)	Reference Concentration[b] ("Air Quality Standard") (µg/m³)	Is Air Quality Standard Exceeded?	Note
1,1,1-Trichloroethane	0.84	4.6	**1.7**	**9.4**	0.94	2200	No	b
Benzene	0.84	2.7	**0.95**	**3.1**	0.31	0.31	No	c
Toluene	0.84	3.2	**1.5**	**5.7**	0.57	400	No	b
Tetrachloroethene	0.84	5.8	**0.88**	**6.1**	0.61	0.81	No	c
Acetone	3.4	8.1	**48**	**120**	12	350	No	b
2-Butanone (MEK)	3.4	10	**5.5**	**16**	1.6	1000	No	b

Comment: Soil Gas (Geoprobe): ~5.5 ft bgs, west side of alley behind Brandon St., south of Harrison St.

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ATTACHMENT 1

Indoor Air/Soil Gas Sampling (TO-14)

Continental Steel Superfund Site, February 2004

Station Location: CSS-SG 016-01 Sample No. 03CP12-25 Sample Date: 06/18/2003	**Soil Gas**				*Adjusted Concentration[a] in Air*	*Reference Concentration[b] ("Air Quality Standard")*	*Is Air Quality Standard Exceeded?*	
	Reporting Limits		***Concentrations in Air***					
Compound	*(ppbv)*	*(µg/m³)*	***(ppbv)***	***(µg/m³)***	*(µg/m³)*	*(µg/m³)*		*Note*
Chloroform	0.78	3.8	**2.2**	**11**	1.1	0.11	Yes	c
Benzene	0.78	2.5	**0.77 J**	**2.5 J**	0.25	0.31	No	c
Toluene	0.78	3	**0.92**	**3.5**	0.35	400	No	b
Acetone	3.1	7.5	**51**	**120**	12	350	No	b
2-Butanone (MEK)	3.1	9.3	**11**	**33**	3.3	1000	No	b

Comment: Soil Gas (Geoprobe): ~ 4 ft bgs, east side of alley behind Brandon St., north of Harrison St.

Station Location: CSS-SG 017-01 Sample No. 03CP12-26 Sample Date: 06/18/2003	**Soil Gas**				*Adjusted Concentration[a] in Air*	*Reference Concentration[b] ("Air Quality Standard")*	*Is Air Quality Standard Exceeded?*	
	Reporting Limits		***Concentrations in Air***					
Compound	*(ppbv)*	*(µg/m³)*	***(ppbv)***	***(µg/m³)***	*(µg/m³)*	*(µg/m³)*		*Note*
Benzene	0.86	2.8	**4.4**	**14**	1.4	0.31	Yes	c
Toluene	0.86	3.3	**10**	**40**	4	400	No	b
Ethyl Benzene	0.86	3.8	**2.4**	**11**	1.1	2.2	No	c
m,p-Xylene	0.86	3.8	**8**	**35**	3.5	100	No	b, d
o-Xylene	0.86	3.8	**2.9**	**13**	1.3	100	No	b, d
1,2,4-Trimethylbenzene	0.86	4.3	**1.8**	**8.8**	0.88	6.0	No	b
Acetone	3.4	8.2	**110**	**260**	26	350	No	b
2-Butanone (MEK)	3.4	10	**23**	**68**	6.8	1000	No	b

Comment: Soil Gas (Geoprobe): ~2.6 ft bgs, between house and garage in gravel ROW on north side of Harrison St.

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ATTACHMENT 1

Indoor Air/Soil Gas Sampling (TO-14)

Continental Steel Superfund Site, February 2004

Station Location: CSS-SG 018-01 Sample No. 03CP12-27 Sample Date: 06/18/2003	**Soil Gas**				*Adjusted Concentration[a] in Air*	*Reference Concentration[b] ("Air Quality Standard")*	*Is Air Quality Standard Exceeded?*	
	Reporting Limits		***Concentrations in Air***					
Compound	*(ppbv)*	*(µg/m³)*	***(ppbv)***	***(µg/m³)***	*(µg/m³)*	*(µg/m³)*		*Note*
Chloroform	0.94	4.6	**1.2**	**6.1**	0.61	0.11	Yes	c
Benzene	0.94	3	**4**	**13**	1.3	0.31	Yes	c
Toluene	0.94	3.6	**5.9**	**22**	2.2	400	No	b
Ethyl Benzene	0.94	4.1	**1.7**	**7.6**	0.76	2.2	No	c
m,p-Xylene	0.94	4.1	**3.9**	**17**	1.7	100	No	b, d
o-Xylene	0.94	4.1	**1.4**	**6.1**	0.61	100	No	b, d
1,2,4-Trimethylbenzene	0.94	4.7	**1.9**	**9.7**	0.97	6.0	No	b
Acetone	3.7	9	**51**	**120**	12	350	No	b
2-Butanone (MEK)	3.7	11	**7.3**	**22**	2.2	1000	No	b

Comment: Soil Gas (Geoprobe): ~5.3 ft bgs on west side of Brandon St. in ROW.

Station Location: CSS-SG 019-01 Sample No. 03CP12-28 Sample Date: 06/18/2003	**Soil Gas**				*Adjusted Concentration[a] in Air*	*Reference Concentration[b] ("Air Quality Standard")*	*Is Air Quality Standard Exceeded?*	
	Reporting Limits		***Concentrations in Air***					
Compound	*(ppbv)*	*(µg/m³)*	***(ppbv)***	***(µg/m³)***	*(µg/m³)*	*(µg/m³)*	*Exceeded?*	*Note*
1,1-Dichloroethene	0.86	3.4	**4.8**	**20**	2	200	No	b
Chloroform	0.86	4.2	**1.1**	**5.4**	0.54	0.11	Yes	c
1,1,1-Trichloroethane	0.86	4.7	**40**	**220**	22	2200	No	b
Benzene	0.86	2.8	**1.8**	**5.8**	0.58	0.31	Yes	c
Toluene	0.86	3.3	**3**	**11**	1.1	400	No	b
m,p-Xylene	0.86	3.8	**1.3**	**5.8**	0.58	100	No	b, d
Acetone	3.4	8.2	**95**	**230**	23	350	No	b
2-Butanone (MEK)	3.4	10	**12**	**37**	3.7	1000	No	b

Comment: Soil Gas (Geoprobe): ~2.9 ft bgs on east side of Brandon St. in ROW.

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ATTACHMENT 1

Indoor Air/Soil Gas Sampling (TO-14)

Continental Steel Superfund Site, February 2004

Station Location: CSS-SG 020-01 Sample No. 03CP12-29 Sample Date: 06/18/2003	**Soil Gas**				*Adjusted Concentration[a] in Air*	*Reference Concentration[b] ("Air Quality Standard")*	*Is Air Quality Standard Exceeded?*	
	Reporting Limits		***Concentrations in Air***					
Compound	*(ppbv)*	*(µg/m³)*	***(ppbv)***	***(µg/m³)***	*(µg/m³)*	*(µg/m³)*		*Note*
Chloroform	0.72	3.6	**0.77**	**3.8**	0.38	0.11	Yes	c
1,1,1-Trichloroethane	0.72	4	**1.9**	**10**	1	2200	No	b
Benzene	0.72	2.3	**1.3**	**4.4**	0.44	0.31	Yes	c
Toluene	0.72	2.8	**1.6**	**6.3**	0.63	400	No	b
Acetone	2.9	7	**110**	**280**	28	350	No	b
2-Butanone (MEK)	2.9	8.6	**19**	**58**	5.8	1000	No	b

Comment: Soil Gas (Geoprobe): ~5.7 ft bgs north side of Harrison St., between driveways in ROW.

Station Location: CSS-SG 021-01 Sample No. 03CP12-30 Sample Date: 06/18/2003	**Soil Gas**				*Adjusted Concentration[a] in Air*	*Reference Concentration[b] ("Air Quality Standard")*	*Is Air Quality Standard Exceeded?*	
	Reporting Limits		***Concentrations in Air***					
Compound	*(ppbv)*	*(µg/m³)*	***(ppbv)***	***(µg/m³)***	*(µg/m³)*	*(µg/m³)*		*Note*
Chloroform	0.8	4	**1.1**	**5.6**	0.56	0.11	Yes	c
Benzene	0.8	2.6	**2.3**	**7.5**	0.75	0.31	Yes	c
Trichloroethene	0.8	4.4	**1.1**	**6.1**	0.61	0.02	Yes	c
Toluene	0.8	3.1	**5**	**19**	1.9	400	No	b
Ethyl Benzene	0.8	3.6	**3**	**13**	1.3	2.21	No	c
m,p-Xylene	0.8	3.6	**4.9**	**22**	2.2	100	No	b, d
o-Xylene	0.8	3.6	**2.4**	**11**	1.1	100	No	b, d
1,2,4-Trimethylbenzene	0.8	4	**2.6**	**13**	1.3	6.0	No	b
Acetone	3.2	7.8	**86**	**210**	21	350	No	b
2-Butanone (MEK)	3.2	9.6	**16**	**47**	4.7	1000	No	b

Comment: Soil Gas (Geoprobe): ~4.1 ft bgs north side of Harrison St., east of driveways in ROW.

For Explanation of Footnotes, See Page 13

ATTACHMENT 1

Indoor Air/Soil Gas Sampling (TO-14)

Continental Steel Superfund Site, February 2004

Station Location: CSS-SG 022-01
Sample No. 03CP12-31
Sample Date: 06/18/2003

Soil Gas

Compound	Reporting Limits (ppbv)	Reporting Limits ($\mu g/m^3$)	Concentrations in Air (ppbv)	Concentrations in Air ($\mu g/m^3$)	Adjusted Concentration[a] in Air ($\mu g/m^3$)	Reference Concentration[b] ("Air Quality Standard") ($\mu g/m^3$)	Is Air Quality Standard Exceeded?	Note
Chloroform	0.76	3.8	**4.4**	**22**	2.2	0.11	Yes	c
Benzene	0.76	2.5	**2.6**	**8.4**	0.84	0.31	Yes	c
Toluene	0.76	2.9	**6**	**23**	2.3	400	No	b
Ethyl Benzene	0.76	3.4	**2.7**	**12**	1.2	2.21	No	c
m,p-Xylene	0.76	3.4	**3.6**	**16**	1.6	100	No	b, d
o-Xylene	0.76	3.4	**1.8**	**8.2**	0.82	100	No	b, d
1,2,4-Trimethylbenzene	0.76	3.8	**2.1**	**10**	1	6.0	No	b
Acetone	3	7.3	**80**	**190**	19	350	No	b
2-Butanone (MEK)	3	9.1	**13**	**38**	3.8	1000	No	b

Comment: Soil Gas (Geoprobe): ~3.8 ft bgs east side of McCann St., north of private walk in ROW.

Station Location: CSS-SG 023-01
Sample No. 03CP12-32
Sample Date: 06/18/2003

Soil Gas

Compound	Reporting Limits (ppbv)	Reporting Limits ($\mu g/m^3$)	Concentrations in Air (ppbv)	Concentrations in Air ($\mu g/m^3$)	Adjusted Concentration[a] in Air ($\mu g/m^3$)	Reference Concentration[b] ("Air Quality Standard") ($\mu g/m^3$)	Is Air Quality Standard Exceeded?	Note
Benzene	0.82	2.7	**2.8**	**9.2**	0.92	0.31	Yes	c
Toluene	0.82	3.1	**4.3**	**16**	1.6	400	No	b
m,p-Xylene	0.82	3.6	**0.97**	**4.3**	0.43	100	No	b, d
Acetone	3.3	7.9	**260**	**630**	63	350	No	b
2-Butanone (MEK)	3.3	9.8	**34**	**100**	10	1000	No	b

Comment: Soil Gas (Geoprobe): ~3.9 ft bgs, in yard between homes west of Brandon St.

Station Location: CSS-SG 023 FR-01 *Field Duplicate*
Sample No. 03CP12-39
Sample Date: 06/18/2003

Soil Gas

Compound	Reporting Limits (ppbv)	Reporting Limits ($\mu g/m^3$)	Concentrations in Air (ppbv)	Concentrations in Air ($\mu g/m^3$)	Adjusted Concentration[a] in Air ($\mu g/m^3$)	Reference Concentration[b] ("Air Quality Standard") ($\mu g/m^3$)	Is Air Quality Standard Exceeded?	Note
Benzene	0.8	2.6	**1.6**	**5.3**	0.53	0.31	Yes	c
Toluene	0.8	3.1	**3.2**	**12**	1.2	400	No	b
Acetone	3.2	7.8	**190**	**470**	47	350	No	b
2-Butanone (MEK)	3.2	9.6	**25**	**75**	7.5	1000	No	b

Comment: See above.

For Explanation of Footnotes, See Page 13

ATTACHMENT 1

Indoor Air/Soil Gas Sampling (TO-14)

Continental Steel Superfund Site, February 2004

Station Location: CSS-FB 001-01 Sample No. 03CP12-40 Sample Date: 06/17/2003	**Field Blank**							
	Reporting Limits		***Concentrations in Air***		*Adjusted Concentration[a] in Air*	*Reference Concentration[b] ("Air Quality Standard")*	*Is Air Quality Standard Exceeded?*	
Compound	*(ppbv)*	*(µg/m³)*	***(ppbv)***	***(µg/m³)***	*(µg/m³)*	*(µg/m³)*		*Note*
Acetone	3.4	8.1	**8.8**	**21**	*Field Blank not associated with study area.*			
Comment: Collected offsite ~15' from back parking lot of Signature inn on Hwy 31, upwind of asphalt & highway, using identical setup used for soilgas samples.								

Station Location: CSS-FB 002-01 Sample No. 03CP12-41 Sample Date: 06/18/2003	**Field Blank**							
	Reporting Limits		***Concentrations in Air***		*Adjusted Concentration[a] in Air*	*Reference Concentration[b] ("Air Quality Standard")*	*Is Air Quality Standard Exceeded?*	
Compound	*(ppbv)*	*(µg/m³)*	***(ppbv)***	***(µg/m³)***	*(µg/m³)*	*(µg/m³)*		*Note*
Toluene	0.84	3.2	**8.5**	**32**	*Field Blank not associated with study area.*			
Styrene	0.84	3.6	**2**	**8.9**				
1,3,5-Trimethylbenzene	0.84	4.2	**1.1**	**5.4**				
alpha-Chlorotoluene (Chlorobenzene)	0.84	4.4	**4.7**	**25**				
Acetone	3.4	8.1	**6.1**	**15**				
Comment: Collected offsite ~15' from back parking lot of Signature inn on Hwy 31, upwind of asphalt & highway, using identical setup used for soilgas samples.								

a. **Adjusted Concentration:** Concentration x Attenuation Factor (0.1 for "soil gas to indoor air" intrusion; 1.0 for indoor air samples). Source, "Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils," EPA Office of Solid Waste and Emergency Response (OSWER), 2002.

b. Target indoor air concentration for **noncarcinogenic endpoint toxicity**, USEPA 2002 guidance.

c. Target indoor air concentration for **carcinogenic endpoint toxicity**, USEPA 2002 guidance.

d. Reference Concentration (RfC) of 0.1 mg/m³ (100 µg/m³) used for target indoor air concentration. This closely matches the Region 9 Risk-based Concentration of 109.5 µg/m³. USEPA 2002 guidance suggests an RfD of 7, which results in a target concentration of 7,000 µg/m³.

e. Toxicity values for the determination of target air concenttrations are not available. NIOSH (National Institute for Occupational Safety and Health) sets the 8-hour time weighted average exposure at 4,000 µg/m³.

For Explanation of Footnotes, See Page 13

Attachment 2

ATTACHMENT 2
Chemicals Detected in Markland Avenue Quarry Media
Continental Steel Superfund Site

Media	Location	Chemical	Concentration	Sample Date
Groundwater	LA-109	Acetone	24 µg/L	09/26/2001
Groundwater	UA-108	cis-1,2-Dichloroethene	25 µg/L	09/25/2001
Groundwater	IA-109	cis-1,2-Dichloroethene	2700 µg/L	09/17/2001
Groundwater	IA-109	cis-1,2-Dichloroethene	3200 µg/L	09/17/2001
Groundwater	LA-109	cis-1,2-Dichloroethene	450 µg/L	09/26/2001
Groundwater	LA-109	cis-1,2-Dichloroethene	400 µg/L	09/26/2001
Groundwater	UA-109	cis-1,2-Dichloroethene	130 µg/L	10/01/2001
Groundwater	IA-110	cis-1,2-Dichloroethene	37 µg/L	09/18/2001
Groundwater	LA-110	cis-1,2-Dichloroethene	1100 µg/L	09/26/2001
Groundwater	LA-110	cis-1,2-Dichloroethene	1100 µg/L	09/26/2001
Groundwater	IA-111	cis-1,2-Dichloroethene	2900 µg/L	09/18/2001
Groundwater	IA-111	cis-1,2-Dichloroethene	3500 µg/L	09/18/2001
Groundwater	LA-111	cis-1,2-Dichloroethene	17 µg/L	09/26/2001
Groundwater	UA-111	cis-1,2-Dichloroethene	1900 µg/L	09/25/2001
Groundwater	UA-111	cis-1,2-Dichloroethene	2700 µg/L	09/25/2001
Groundwater	IA-109	trans-1,2-Dichloroethene	39 µg/L	09/17/2001
Groundwater	IA-111	trans-1,2-Dichloroethene	55 µg/L	09/18/2001
Groundwater	UA-111	trans-1,2-Dichloroethene	11 µg/L	09/25/2001
Groundwater	UA-108	Trichloroethene	54 µg/L	09/25/2001
Groundwater	IA-109	Trichloroethene	10 µg/L	09/17/2001
Groundwater	LA- 109	Trichloroethene	14 µg/L	09/26/2001
Groundwater	UA-109	Trichloroethene	500 µg/L	10/01/2001
Groundwater	UA-109	Trichloroethene	380 µg/L	10/01/2001
Groundwater	IA-110	Trichloroethene	19 µg/L	09/18/2001
Groundwater	UA-111	Trichloroethene	69 µg/L	09/25/2001
Groundwater	IA-111	Vinyl Chloride	100 µg/L	09/18/2001
Groundwater	UA-111	Vinyl Chloride	1300 µg/L	09/25/2001
Groundwater	UA-111	Vinyl Chloride	1800 µg/L	09/25/2001
Sediment	SD023	0–1 ft Acetone	110 µg/kg	08/22/2001
Sediment	SD019	0–1 ft cis-1,2-Dichloroethene	130 µg/kg	08/21/2001
Sediment	SD019	0–1 ft cis-1,2-Dichloroethene	180 µg/kg	08/21/2001

ATTACHMENT 2
Chemicals Detected in Markland Avenue Quarry Media
Continental Steel Superfund Site

Media	Location		Chemical	Concentration	Sample Date
Sediment	SD020	0–1 ft	cis-1,2-Dichloroethene	21 μg/kg	08/21/2001
Sediment	SD019	0–1 ft	Methylene Chloride	190 μg/kg	08/21/2001
Sediment	SD020	0–1 ft	Methylene Chloride	41 μg/kg	08/21/2001
Sediment	SD019	0–1 ft	Trichloroethene	1700 μg/kg	08/21/2001
Sediment	SD019	0–1 ft	Trichloroethene	3300 μg/kg	08/21/2001
Sediment	SD020	0–1 ft	Trichloroethene	420 μg/kg	08/21/2001
Sediment	SD020	0–1 ft	Trichloroethene	150 μg/kg	08/21/2001
Sediment	SD022	0–1 ft	Trichloroethene	220 μg/kg	08/22/2001
Sediment	SD023	0–1 ft	Trichloroethene	22 μg/kg	08/22/2001
Sediment dewatering	SD027		cis-1,2-Dichloroethene	8 μg/L	08/23/2001
Sediment dewatering	SD021		Trichloroethene	50 μg/L	08/21/2001
Sediment dewatering	SD024		Trichloroethene	16 μg/L	08/15/2001
Sediment dewatering	SD027		Trichloroethene	120 μg/L	08/23/2001