



Environmental Corporate Remediation Company, Inc.
c/o Mr. David M. Favero, P.G.
Favero Geosciences
1210 South 5th Street, Suite 2
Springfield, Illinois 62703

ARCADIS G&M, Inc.
251 East Ohio Street
Suite 800
Indianapolis
Indiana 46204
Tel 317 231 6500
Fax 317 231 6514
www.arcadis-us.com

ENVIRONMENTAL

Subject:

Former Caustic Tank Area Investigation Report, General Motors Indianapolis
Metal Fabrication, Indianapolis, Indiana

Dear Mr. Favero:

ARCADIS respectfully submits the following report detailing investigation activities completed in the vicinity of a former caustic tank (Area of Interest (AOI) 2) located within the waste water treatment building at the General Motors – Indianapolis Metal Center (the Site). The Site location is shown on Drawing 1.

Subsurface Investigation Activities

Historically, waste water treatment operations utilized caustic as part of water treatment activities completed at the Site. Caustic material was stored in an above ground storage tank (approximately 6,000 gallons in size) located within the main waste treatment building. The caustic storage tank was cleaned (i.e. removal of any remaining caustic, sludges, and residues) in January/February 2006 and is not currently being used. Drawing 2 is a Site map showing the location of the former caustic storage tank within the waste treatment building.

Based on conversations with Indianapolis Metal Center personnel, the concrete in the immediate vicinity of the caustic storage tank was cleaned at the same time the caustic tank was cleaned in early 2006, and based on their observations a white material had precipitated on the concrete surface in the immediate vicinity of the former caustic tank, shortly after cleaning. To evaluate if there are any unacceptable risks to human health from any impacts of past storage of caustic to the subsurface or from precipitate on the concrete floor, ARCADIS advanced three hand augers to approximately 4 feet below grade (ft bg) in the immediate vicinity of the former caustic tank (see Drawing 2 for hand auger placement) and collected a sample of precipitate.

Date:

18 September 2006

Contact:

Mark Fisherkeller

Phone:

317.231.6500x3104

Email:

mfisherkeller@arcadis-us.com

Our ref:

IN000694.0001 T.2



Prior to completing hand auger activities, ARCADIS reviewed proposed locations with Indianapolis Metal Center personnel and reviewed available utility drawings to determine whether underground utilities were present in the vicinity of the proposed locations. Once each of the three locations were cleared of utility concerns, the concrete was cored, and ARCADIS advanced a hand auger to approximately 4 ft bg at each of the three locations. Soil samples were collected from immediately beneath the concrete (approximately 10 inches below grade), and from the 2 to 4 ft bg interval. Soil samples were slated for the following analyses: Target Compound List (TCL) metals utilizing United States Environmental Protection Agency (US EPA) SW 846 Method 6010/7471, pH utilizing US EPA SW 846 Method 9045, and cyanide utilizing US EPA SW 846 Method 9012. All collected soil samples were placed on ice, logged on a chain of custody, and delivered to Pace Analytical Services in Indianapolis, Indiana.

In addition to the soil samples described above, ARCADIS collected a sample of the white powder that had precipitated on the concrete surface in the vicinity of the caustic tank for pH analysis and x-ray diffraction, in an attempt to identify the chemical and physical characteristics of the observed precipitate. The x-ray diffraction was completed by SGS Mineral Services located in Ontario, Canada.

Results

Results of collected soil data are summarized in Table 1, and all laboratory reports are provided as Attachment A. ENVIRON International Corporation (ENVIRON) completed a human health risk evaluation of the soil data, comparing soil results to the following screening criteria:

- USEPA Region 9 Industrial Preliminary Remediation Goals (PRGs) based on a target cancer risk of 10^{-5} and a target HQ of 1 (USEPA 2004);
- Indiana Department of Environmental Management (IDEM) Industrial Risk-Integrated System of Closure (RISC) default closure levels (IDEM 2006).

Based on ENVIRON's risk evaluation, the highest observed concentrations within AOI 2 are within USEPA acceptable risk limits. A summary of ENVIRON's risk evaluation is provided as Attachment B.



Environmental
Corporate Remediation
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September 18, 2006

As stated, ARCADIS collected a sample of the precipitated powder on the concrete surface in the immediate vicinity of the former caustic tank, and had the sample x-ray diffracted and analyzed for pH. The report from the laboratory is included in Attachment A. Based on the x-ray diffraction results it was determined the powder is composed of sodium carbonate hydrate, which is commonly used as an alkaline agent in industrial process. Further, the pH of the powder is 10.7 standard units (S.U.). As such, it appears that the observed precipitate on the concrete surface is likely remnant caustic from waste water treatment operations conducted at the Site.

Conclusion

Based on the results of the subsurface investigation completed in the vicinity of the former caustic tank, and ENVIRON's risk evaluation, no unacceptable human health risk is associated with the soils immediately beneath the former caustic tank. Further, based on information from analysis of the precipitated powder on the concrete surface it appears that this powder is likely a precipitation of the former caustic stored in the tank and there are no unacceptable risks associated with the powder. Precautions taken in handling any caustic should also be taken when handling this precipitated powder.

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September 18, 2006

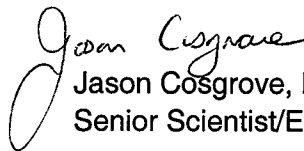
If you have any questions or comments, please contact the undersigned at your convenience.

Sincerely,

ARCADIS, Inc.



Mark P. Fisherkeller, L.P.G.
Staff Scientist/Geologist



Jason Cosgrove, P.E.
Senior Scientist/Engineer

Tables

Table 1 – Summary of Inorganic Soil Analytical Results

Drawings

Drawing 1 – Site Vicinity

Drawing 2 – Site with Hand Auger Locations

Attachments

Attachment A – Laboratory Reports

Attachment B – ENVIRON Memorandum: Screening-Level Human Health Risk
Evaluation, Former Caustic Tank – AOI 2

Copies

Marilyn Dedyne, GM/ENCORE
Janelle DeWolf, GM - Indianapolis Metal Fabrication
CY Jeng/Francis Ramacciotti, ENVIRON
File

Attachments

ARCADIS

Table 1: Summary of Inorganic Soil Results, Former Caustic Tank Subsurface Investigation, General Motors - Indianapolis Metal Center, Indianapolis, Indiana

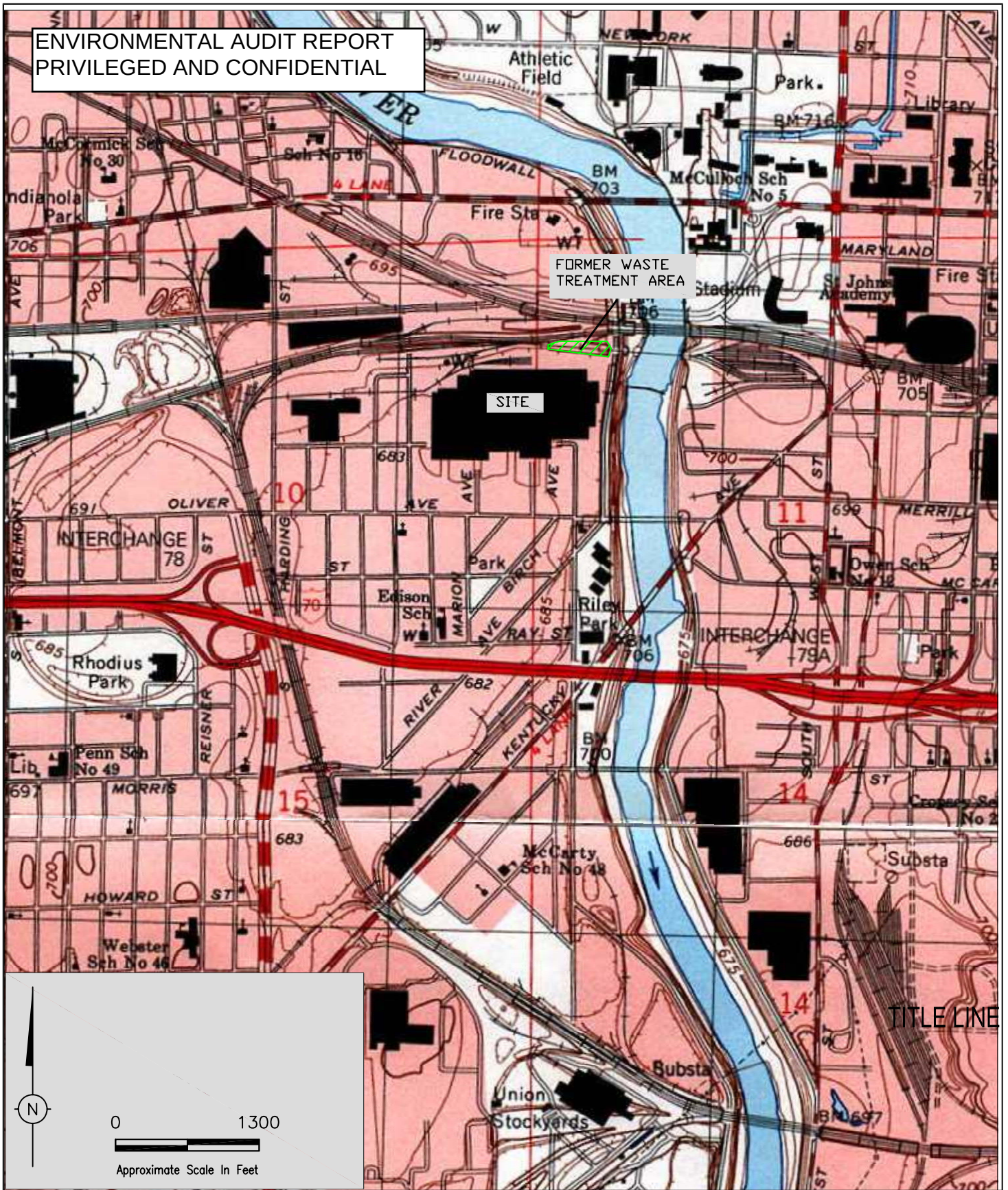
Location	Sample Interval	pH (S.U.)	Cyanide	Antimony	Arsenic	Barium	Berylium	Cadmium	Chromium	Cobalt	Inorganics (mg/L)		Manganese	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	Mercury
											Copper	Lead								
SB-0601	1.5 to 2.0	9.89	<2.12	<2.02	2.82	16	<0.504	<2.02	5.49	6.45	6.01	4.44	175	4.88	<2.02	<2.02	<2.02	5.61	13.6	<1.06
SB-0601	2.0 to 3.0	9.08	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-0602	1.5 to 2.0	11.2	<2.13	<2.09	2.45	12.8	<0.523	<2.09	5.98	183	28.1	4.91	168	5.35	<2.09	<2.09	<2.09	5.69	13.3	<1.07
SB-0602	2.0 to 4.0	9.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SB-0603	1.75 to 2.0	10.3	<2.15	<2.13	2.94	13.8	<0.533	<2.13	5.87	15.8	7.85	6.49	218	5.41	<2.13	<2.13	<2.13	7.74	14.9	<1.08
SB-0603	2.0 to 4.0	8.57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WT-Floor*	Surface	10.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Region 9 PRG			12,000	410	16	67,000	1,900	450	640**	13,000	41,000	750	19,000	20,000	5,100	5,100	68	7,200	310,000	14
IDEM RISC Industrial (updated January 2006)			9.6	37	5.8	10,000	2,300	77	120**	NE	2,900	230	NE	2,700	53	87	10	NE	10,000	32

* - Sample of precipitated powder on concrete surface

** - Hexavalent chromium default closure value used as it is the most conservative

-- - Not analyzed

ENVIRONMENTAL AUDIT REPORT
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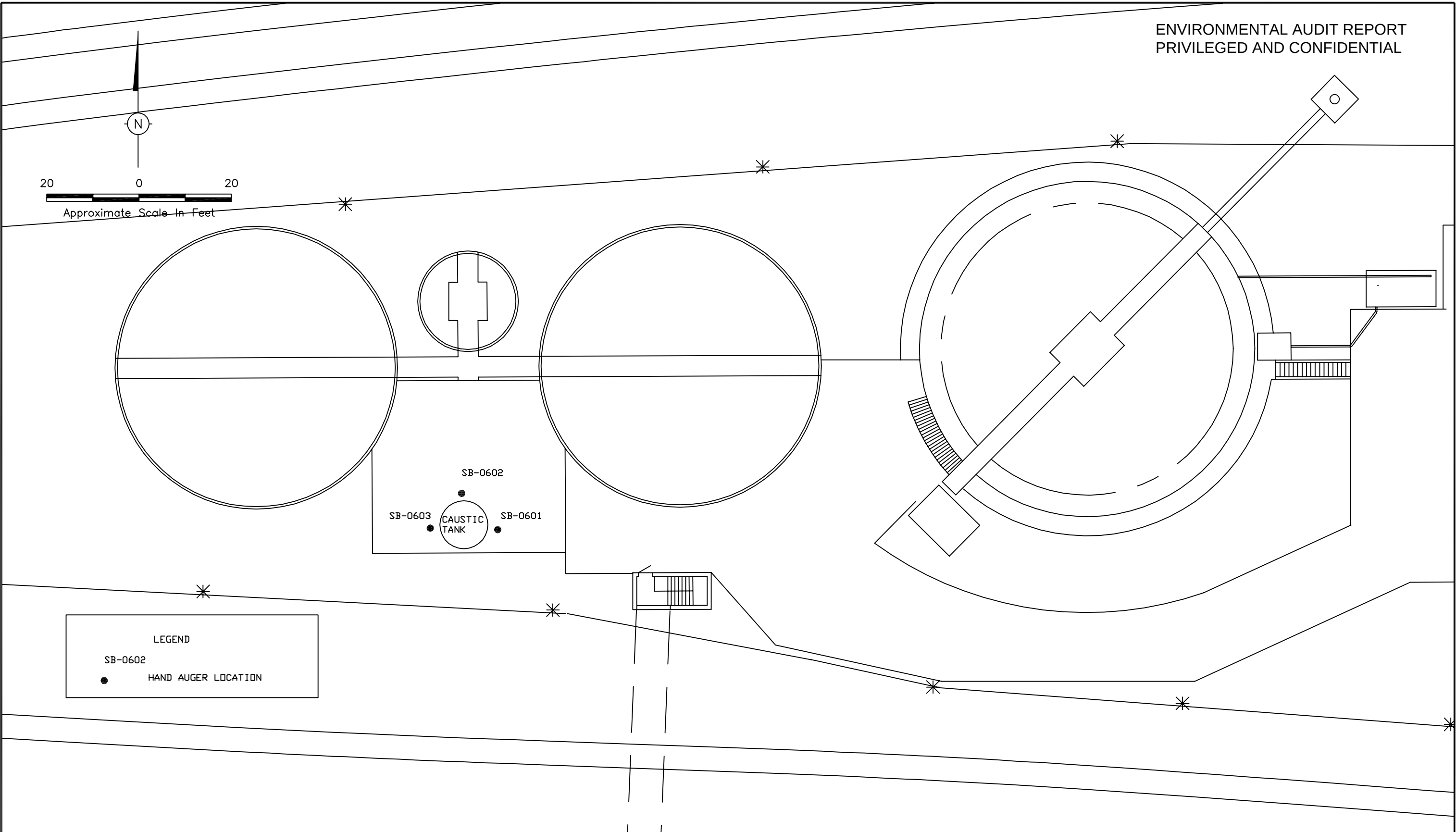
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Current Plotstyle : ByColor

Acad Version : R16.2a (LMS Tech)
User Name : mfisherkeller

© 2006 ARCADIS G&M, Inc. Area Manager S. GLENN Project Director J. COSGROVE Task Manager M. FISHERKELLER Technical Review S. FISHER	ARCADIS 251 East Ohio Street Suite 800 Indianapolis, Indiana 46204 Tel: 317.231.6500 Fax: 317.231.6514 www.arcadis-us.com	GENERAL MOTORS INDIANAPOLIS METAL CENTER SITE VICINITY INDIANAPOLIS, INDIANA	Project Number IN000694.0001 Drawing Date AUGUST 2006 Drawing 1
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Acad Version : R16.2s (LMS Tech) Date\Time : Tue, 15 Aug 2006 - 12:55pm
User Name : mfisherkeller Path\Name : G:\PROJECT\GM-Metal Center - Indy\Wastewater Tank Investigation\Site Mapping Layout



Area Manager S. GLENN	 251 East Ohio Street Suite 800 Indianapolis, Indiana 46204 Tel: 317.231.6500 Fax: 317.231.6514 www.arcadis-us.com
Project Director J. COSGROVE	
Task Manager M. FISHERKELLER	
Technical Review S. FISHER	

Project Number IN000694.0001
Drawing Date AUGUST 2006
Drawing 2

Attachment A

Laboratory Reports

Pace Analytical Laboratory Report



Pace Analytical Services, Inc.

7726 Moller Road
Indianapolis, IN 46268

Phone: 317.875.5894

Fax: 317.872.6189

May 25, 2006

Ms. Susan Scrocchi
Conestoga-Rovers and Assoc
2371 George Urban Blvd
Depew, NY 14043

RE: Lab Project Number: 5053004
Client Project ID: Indy Metal Center WW Tank

Dear Ms. Scrocchi:

Enclosed are the analytical results for sample(s) received by the laboratory May 10, 2006 through May 23, 2006
Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated
in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Donna Spyker
dspsyker@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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SAMPLE SUMMARY

Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

Project Sample Number	Sample Number	Client Sample ID	Matrix	Date Collected	Date Received
5053004-001	505628263	SB-0601(1.5-2.0)	Soil	05/10/06 11:38	05/10/06 16:00
5053004-002	505628313	SB-0601(2.0-3.0)	Soil	05/10/06 11:43	05/10/06 16:00
5053004-003	505628321	SB-0602(1.5-2.0)	Soil	05/10/06 12:40	05/10/06 16:00
5053004-004	505628339	SB-0602(2.0-4.0)	Soil	05/10/06 12:45	05/10/06 16:00
5053004-005	505628388	SB-0603(1.75-2.0)	Soil	05/10/06 13:35	05/10/06 16:00
5053004-006	505628396	SB-0603(2.0-4.0)	Soil	05/10/06 13:40	05/10/06 16:00
5053004-007	505628404	FD-1(051006)	Soil	05/10/06	05/10/06 16:00
5053004-008	505628412	EB-1(051006)	Water	05/10/06 13:50	05/10/06 16:00
5053004-009	505660555	WT-FLOOR	Soil	05/19/06 14:15	05/23/06 09:30

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SAMPLE ANALYTE COUNT

Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

Project Sample Number	Sample No	Client Sample ID	Analysis Code	Analysis Description	Analytes Reported
5053004-001	505628263	SB-0601(1.5-2.0)	%MOISTURE	Percent Moisture	1
			6010T SPAC	Metals, Trace ICP	17
			7471 SEPA	Mercury, CVAAS	1
			9012 SEPA	Cyanide, Total, Soil	1
			9045 SEPA	pH, Soil	1
5053004-002	505628313	SB-0601(2.0-3.0)	9045 SEPA	pH, Soil	1
5053004-003	505628321	SB-0602(1.5-2.0)	%MOISTURE	Percent Moisture	1
			6010T SPAC	Metals, Trace ICP	17
			7471 SEPA	Mercury, CVAAS	1
			9012 SEPA	Cyanide, Total, Soil	1
			9045 SEPA	pH, Soil	1
5053004-004	505628339	SB-0602(2.0-4.0)	9045 SEPA	pH, Soil	1
5053004-005	505628388	SB-0603(1.75-2.0)	%MOISTURE	Percent Moisture	1
			6010T SPAC	Metals, Trace ICP	17
			7471 SEPA	Mercury, CVAAS	1
			9012 SEPA	Cyanide, Total, Soil	1
			9045 SEPA	pH, Soil	1
5053004-006	505628396	SB-0603(2.0-4.0)	9045 SEPA	pH, Soil	1
5053004-007	505628404	FD-1(051006)	%MOISTURE	Percent Moisture	1
			6010T SPAC	Metals, Trace ICP	17
			7471 SEPA	Mercury, CVAAS	1
			9012 SEPA	Cyanide, Total, Soil	1
			9045 SEPA	pH, Soil	1
5053004-008	505628412	EB-1(051006)	6010T WL50	Metals, ICP, Trace	13
			7041 WEPA	Antimony, AAS Furnace	2
			7060 WEPA	Arsenic, AAS Furnace	2
			7470 WEPA	Mercury, CVAAS	1
			7740 WEPA	Selenium, AAS Furnace	2
			7841 WEPA	Thallium, AAS Furnace	2
5053004-009	505660555	WT-FLOOR	9045 SEPA	pH, Soil	1

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Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

Solid results are reported on a dry weight basis

Lab Sample No: 505628263	Project Sample Number: 5053004-001	Date Collected: 05/10/06 11:38
Client Sample ID: SB-0601(1.5-2.0)	Matrix: Soil	Date Received: 05/10/06 16:00

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Metals									
Metals, Trace ICP	Prep/Method: EPA 3050 / EPA 6010								
Antimony	ND	mg/kg	2.02	1.0	05/16/06 01:02	FRW	7440-36-0		
Arsenic	2.82	mg/kg	2.02	1.0	05/16/06 01:02	FRW	7440-38-2		
Barium	16.0	mg/kg	2.02	1.0	05/16/06 01:02	FRW	7440-39-3		
Beryllium	ND	mg/kg	0.504	1.0	05/16/06 01:02	FRW	7440-41-7		
Cadmium	ND	mg/kg	2.02	1.0	05/16/06 01:02	FRW	7440-43-9		
Chromium	5.49	mg/kg	2.02	1.0	05/16/06 01:02	FRW	7440-47-3		
Cobalt	6.45	mg/kg	2.02	1.0	05/16/06 01:02	FRW	7440-48-4		
Copper	6.01	mg/kg	2.02	1.0	05/16/06 01:02	FRW	7440-50-8		
Lead	4.44	mg/kg	2.02	1.0	05/16/06 01:02	FRW	7439-92-1		
Manganese	175.	mg/kg	2.02	1.0	05/16/06 01:02	FRW	7439-96-5		
Nickel	4.88	mg/kg	2.02	1.0	05/16/06 01:02	FRW	7440-02-0		
Selenium	ND	mg/kg	2.02	1.0	05/16/06 01:02	FRW	7782-49-2		
Silver	ND	mg/kg	2.02	1.0	05/16/06 01:02	FRW	7440-22-4		
Thallium	ND	mg/kg	2.02	1.0	05/16/06 01:02	FRW	7440-28-0		
Vanadium	5.61	mg/kg	2.02	1.0	05/16/06 01:02	FRW	7440-62-2		
Zinc	13.6	mg/kg	2.02	1.0	05/16/06 01:02	FRW	7440-66-6		
Date Digested	05/12/06				05/12/06				
Mercury, CVAAS	Method: EPA 7471								
Mercury	ND	mg/kg	1.06	1.1	05/15/06	FRW	7439-97-6		
Wet Chemistry									
Percent Moisture	Method: SM 2540G								
Percent Moisture	5.5	%			1.0 05/15/06	CBA			
Cyanide, Total, Soil	Method: EPA 9012								
Cyanide	ND	mg/kg	2.12	1.1	05/18/06	CLS	57-12-5		
pH, Soil	Method: EPA 9045								
pH	9.89				1.0 05/12/06 11:43	LAD			

Date: 05/25/06

Page: 1 of 23

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Pace Analytical Services, Inc.
7726 Moller Road
Indianapolis, IN 46268
Phone: 317.875.5894
Fax: 317.872.6189

Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

Lab Sample No: 505628313
Client Sample ID: SB-0601(2.0-3.0)

Project Sample Number: 5053004-002
Matrix: Soil

Date Collected: 05/10/06 11:43
Date Received: 05/10/06 16:00

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Wet Chemistry									
pH, Soil	Method: EPA 9045								
pH	9.08				1.0	05/23/06 10:00	LAD		

Date: 05/25/06

Page: 2 of 23

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Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

Lab Sample No: 505628321

Project Sample Number: 5053004-003

Date Collected: 05/10/06 12:40

Client Sample ID: SB-0602(1.5-2.0)

Matrix: Soil

Date Received: 05/10/06 16:00

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Metals									
Metals, Trace ICP	Prep/Method: EPA 3050 / EPA 6010								
Antimony	ND	mg/kg	2.09	1.1	05/16/06 01:30	FRW	7440-36-0		
Arsenic	2.45	mg/kg	2.09	1.1	05/16/06 01:30	FRW	7440-38-2		
Barium	12.8	mg/kg	2.09	1.1	05/16/06 01:30	FRW	7440-39-3		
Beryllium	ND	mg/kg	0.523	1.1	05/16/06 01:30	FRW	7440-41-7		
Cadmium	ND	mg/kg	2.09	1.1	05/16/06 01:30	FRW	7440-43-9		
Chromium	5.98	mg/kg	2.09	1.1	05/16/06 01:30	FRW	7440-47-3		
Cobalt	183.	mg/kg	2.09	1.1	05/16/06 01:30	FRW	7440-48-4		
Copper	28.1	mg/kg	2.09	1.1	05/16/06 01:30	FRW	7440-50-8		
Lead	4.91	mg/kg	2.09	1.1	05/16/06 01:30	FRW	7439-92-1		
Manganese	168.	mg/kg	2.09	1.1	05/16/06 01:30	FRW	7439-96-5		
Nickel	5.35	mg/kg	2.09	1.1	05/16/06 01:30	FRW	7440-02-0		
Selenium	ND	mg/kg	2.09	1.1	05/16/06 01:30	FRW	7782-49-2		
Silver	ND	mg/kg	2.09	1.1	05/16/06 01:30	FRW	7440-22-4		
Thallium	ND	mg/kg	2.09	1.1	05/16/06 01:30	FRW	7440-28-0		
Vanadium	5.69	mg/kg	2.09	1.1	05/16/06 01:30	FRW	7440-62-2		
Zinc	13.3	mg/kg	2.09	1.1	05/16/06 01:30	FRW	7440-66-6		
Date Digested	05/12/06				05/12/06				
Mercury, CVAAS	Method: EPA 7471								
Mercury	ND	mg/kg	1.07	1.1	05/15/06	FRW	7439-97-6		
Wet Chemistry									
Percent Moisture	Method: SM 2540G								
Percent Moisture	6.3	%		1.0	05/15/06	CBA			
Cyanide, Total, Soil	Method: EPA 9012								
Cyanide	ND	mg/kg	2.13	1.1	05/18/06	CLS	57-12-5		
pH, Soil	Method: EPA 9045								
pH	11.2			1.0	05/12/06 11:43	LAD			

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Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

Lab Sample No: 505628339
Client Sample ID: SB-0602(2.0-4.0)

Project Sample Number: 5053004-004
Matrix: Soil

Date Collected: 05/10/06 12:45
Date Received: 05/10/06 16:00

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Wet Chemistry									
pH, Soil	Method: EPA 9045								
pH	9.30			1.0	05/23/06 10:00	LAD			

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Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

Lab Sample No: 505628388

Project Sample Number: 5053004-005

Date Collected: 05/10/06 13:35

Client Sample ID: SB-0603(1.75-2.0)

Matrix: Soil

Date Received: 05/10/06 16:00

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Metals									
Metals, Trace ICP	Prep/Method: EPA 3050 / EPA 6010								
Antimony	ND	mg/kg	2.13	1.1	05/16/06 01:42	FRW	7440-36-0		
Arsenic	2.94	mg/kg	2.13	1.1	05/16/06 01:42	FRW	7440-38-2		
Barium	13.8	mg/kg	2.13	1.1	05/16/06 01:42	FRW	7440-39-3		
Beryllium	ND	mg/kg	0.533	1.1	05/16/06 01:42	FRW	7440-41-7		
Cadmium	ND	mg/kg	2.13	1.1	05/16/06 01:42	FRW	7440-43-9		
Chromium	5.87	mg/kg	2.13	1.1	05/16/06 01:42	FRW	7440-47-3		
Cobalt	15.8	mg/kg	2.13	1.1	05/16/06 01:42	FRW	7440-48-4		
Copper	7.85	mg/kg	2.13	1.1	05/16/06 01:42	FRW	7440-50-8		
Lead	6.49	mg/kg	2.13	1.1	05/16/06 01:42	FRW	7439-92-1		
Manganese	218.	mg/kg	2.13	1.1	05/16/06 01:42	FRW	7439-96-5		
Nickel	5.41	mg/kg	2.13	1.1	05/16/06 01:42	FRW	7440-02-0		
Selenium	ND	mg/kg	2.13	1.1	05/16/06 01:42	FRW	7782-49-2		
Silver	ND	mg/kg	2.13	1.1	05/16/06 01:42	FRW	7440-22-4		
Thallium	ND	mg/kg	2.13	1.1	05/16/06 01:42	FRW	7440-28-0		
Vanadium	7.74	mg/kg	2.13	1.1	05/16/06 01:42	FRW	7440-62-2		
Zinc	14.9	mg/kg	2.13	1.1	05/16/06 01:42	FRW	7440-66-6		
Date Digested	05/12/06				05/12/06				
Mercury, CVAAS	Method: EPA 7471								
Mercury	ND	mg/kg	1.08	1.1	05/15/06	FRW	7439-97-6		
Wet Chemistry									
Percent Moisture	Method: SM 2540G								
Percent Moisture	7.1	%		1.0	05/15/06	CBA			
Cyanide, Total, Soil	Method: EPA 9012								
Cyanide	ND	mg/kg	2.15	1.1	05/18/06	CLS	57-12-5		
pH, Soil	Method: EPA 9045								
pH	10.3			1.0	05/12/06 11:43	LAD			

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Pace Analytical Services, Inc.
7726 Moller Road
Indianapolis, IN 46268
Phone: 317.875.5894
Fax: 317.872.6189

Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

Lab Sample No: 505628396
Client Sample ID: SB-0603(2.0-4.0)

Project Sample Number: 5053004-006
Matrix: Soil

Date Collected: 05/10/06 13:40
Date Received: 05/10/06 16:00

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Wet Chemistry									
pH, Soil	Method: EPA 9045								
pH	8.57				1.0 05/23/06 10:00	LAD			

Date: 05/25/06

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REPORT OF LABORATORY ANALYSIS

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Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

Lab Sample No: 505628404
Client Sample ID: FD-1(051006)

Project Sample Number: 5053004-007
Matrix: Soil

Date Collected: 05/10/06 00:00
Date Received: 05/10/06 16:00

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Metals									
Metals, Trace ICP	Prep/Method: EPA 3050 / EPA 6010								
Antimony	ND	mg/kg	2.10	1.1	05/16/06 02:04	FRW	7440-36-0		
Arsenic	3.21	mg/kg	2.10	1.1	05/16/06 02:04	FRW	7440-38-2		
Barium	12.8	mg/kg	2.10	1.1	05/16/06 02:04	FRW	7440-39-3		
Beryllium	ND	mg/kg	0.525	1.1	05/16/06 02:04	FRW	7440-41-7		
Cadmium	ND	mg/kg	2.10	1.1	05/16/06 02:04	FRW	7440-43-9		
Chromium	6.41	mg/kg	2.10	1.1	05/16/06 02:04	FRW	7440-47-3		
Cobalt	13.5	mg/kg	2.10	1.1	05/16/06 02:04	FRW	7440-48-4		
Copper	7.98	mg/kg	2.10	1.1	05/16/06 02:04	FRW	7440-50-8		
Lead	4.61	mg/kg	2.10	1.1	05/16/06 02:04	FRW	7439-92-1		
Manganese	229.	mg/kg	2.10	1.1	05/16/06 02:04	FRW	7439-96-5		
Nickel	6.66	mg/kg	2.10	1.1	05/16/06 02:04	FRW	7440-02-0		
Selenium	ND	mg/kg	2.10	1.1	05/16/06 02:04	FRW	7782-49-2		
Silver	ND	mg/kg	2.10	1.1	05/16/06 02:04	FRW	7440-22-4		
Thallium	ND	mg/kg	2.10	1.1	05/16/06 02:04	FRW	7440-28-0		
Vanadium	6.33	mg/kg	2.10	1.1	05/16/06 02:04	FRW	7440-62-2		
Zinc	14.8	mg/kg	2.10	1.1	05/16/06 02:04	FRW	7440-66-6		
Date Digested	05/12/06				05/12/06				
Mercury, CVAAS	Method: EPA 7471								
Mercury	ND	mg/kg	1.07	1.1	05/15/06	FRW	7439-97-6		
Wet Chemistry									
Percent Moisture	Method: SM 2540G								
Percent Moisture	6.6	%		1.0	05/15/06	CBA			
Cyanide, Total, Soil	Method: EPA 9012								
Cyanide	ND	mg/kg	2.14	1.1	05/18/06	CLS	57-12-5		
pH, Soil	Method: EPA 9045								
pH	10.6			1.0	05/12/06 11:43	LAD			

REPORT OF LABORATORY ANALYSIS

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Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

Lab Sample No: 505628412
Client Sample ID: EB-1(051006)

Project Sample Number: 5053004-008
Matrix: Water

Date Collected: 05/10/06 13:50
Date Received: 05/10/06 16:00

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Metals									
Metals, ICP, Trace	Prep/Method: EPA 3010 / EPA 6010								
Barium	ND	mg/l	0.100	1.0	05/16/06 02:28	FRW	7440-39-3		
Beryllium	ND	mg/l	0.00400	1.0	05/16/06 02:28	FRW	7440-41-7		
Cadmium	ND	mg/l	0.00500	1.0	05/16/06 02:28	FRW	7440-43-9		
Chromium	ND	mg/l	0.0100	1.0	05/16/06 02:28	FRW	7440-47-3		
Cobalt	ND	mg/l	0.0500	1.0	05/16/06 02:28	FRW	7440-48-4		
Copper	ND	mg/l	0.0200	1.0	05/16/06 02:28	FRW	7440-50-8		
Lead	ND	mg/l	0.00500	1.0	05/16/06 02:28	FRW	7439-92-1		
Manganese	ND	mg/l	0.0150	1.0	05/16/06 02:28	FRW	7439-96-5		
Nickel	ND	mg/l	0.0400	1.0	05/16/06 02:28	FRW	7440-02-0		
Silver	ND	mg/l	0.0100	1.0	05/16/06 02:28	FRW	7440-22-4		
Vanadium	ND	mg/l	0.0500	1.0	05/16/06 02:28	FRW	7440-62-2		
Zinc	ND	mg/l	0.0200	1.0	05/16/06 02:28	FRW	7440-66-6		
Date Digested	05/15/06				05/15/06				
Antimony, AAS Furnace	Prep/Method: EPA 3020 / EPA 7041								
Antimony	ND	ug/l	5.00	1.0	05/19/06 11:13	LAD	7440-36-0		
Date Digested	05/12/06				05/12/06				
Arsenic, AAS Furnace	Prep/Method: EPA 3020 / EPA 7060								
Arsenic	ND	ug/l	5.00	1.0	05/18/06 15:32	LAD	7440-38-2		
Date Digested	05/12/06				05/12/06				
Mercury, CVAAS	Method: EPA 7470								
Mercury	ND	mg/l	0.00020	1.0	05/17/06	FRW	7439-97-6		
Selenium, AAS Furnace	Prep/Method: EPA 3020 / EPA 7740								
Selenium	ND	ug/l	5.00	1.0	05/18/06 12:53	LAD	7782-49-2		
Date Digested	05/12/06				05/12/06				
Thallium, AAS Furnace	Prep/Method: EPA 3020 / EPA 7841								
Thallium	ND	ug/l	2.00	0.4	05/17/06 11:50	LAD	7440-28-0		
Date Digested	05/12/06				05/12/06				

Date: 05/25/06

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REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
7726 Moller Road
Indianapolis, IN 46268
Phone: 317.875.5894
Fax: 317.872.6189

Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

Lab Sample No: 505660555

Client Sample ID: WT-FLOOR

Project Sample Number: 5053004-009

Matrix: Soil

Date Collected: 05/19/06 14:15

Date Received: 05/23/06 09:30

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
Wet Chemistry									
pH, Soil	Method: EPA 9045								
pH	10.7				1.0 05/25/06 10:00	LLB			

Date: 05/25/06

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REPORT OF LABORATORY ANALYSIS

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Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

PARAMETER FOOTNOTES

Dilution factor shown represents the factor applied to the reported result and reporting limit due to changes in sample preparation, dilution of the extract, or moisture content

ND	Not detected at or above adjusted reporting limit
NC	Not Calculable
J	Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
MDL	Adjusted Method Detection Limit

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

QC Batch: 113361
QC Batch Method: EPA 7471
Associated Lab Samples: 505628263 505628321 505628388 505628404

Analysis Method: EPA 7471
Analysis Description: Mercury, CVAAS

METHOD BLANK: 505631556
Associated Lab Samples: 505628263 505628321 505628388 505628404

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Mercury	mg/kg	ND	1.00	

LABORATORY CONTROL SAMPLE: 505631564

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Footnotes
Mercury	mg/kg	0.8333	0.8638	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 505631572 505631580

Parameter	Units	505614370 Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Footnotes
Mercury	mg/kg	0.04008	0.9871	1.042	1.090	102	106	75-125	5	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 505631598 505631606

Parameter	Units	505628263 Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Footnotes
Mercury	mg/kg	0.01041	0.8822	0.8884	0.8923	100	100	75-125	0	20	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

QC Batch: 113518
QC Batch Method: EPA 7470
Associated Lab Samples: 505628412

Analysis Method: EPA 7470
Analysis Description: Mercury, CVAAS

METHOD BLANK: 505640771
Associated Lab Samples: 505628412

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Mercury	mg/l	ND	0.0002	

LABORATORY CONTROL SAMPLE: 505640789

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Footnotes
Mercury	mg/l	0.0050	0.0049	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 505640797 505640805

Parameter	Units	505628412 Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Footnotes
Mercury	mg/l	0.00002	0.0050	0.0047	0.0050	94	99	75-125	6	20	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

QC Batch: 113380
QC Batch Method: EPA 3050
Associated Lab Samples: 505628263 505628321 505628388 505628404

Analysis Method: EPA 6010

Analysis Description: Metals, Trace ICP

METHOD BLANK: 505632182
Associated Lab Samples: 505628263 505628313 505628321 505628339 505628388 505628396 505628404

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Antimony	mg/kg	ND	2.00	
Arsenic	mg/kg	ND	2.00	
Barium	mg/kg	ND	2.00	
Beryllium	mg/kg	ND	0.500	
Cadmium	mg/kg	ND	2.00	
Chromium	mg/kg	ND	2.00	
Cobalt	mg/kg	ND	2.00	
Copper	mg/kg	ND	2.00	
Lead	mg/kg	ND	2.00	
Manganese	mg/kg	ND	2.00	
Nickel	mg/kg	ND	2.00	
Selenium	mg/kg	ND	2.00	
Silver	mg/kg	ND	2.00	
Thallium	mg/kg	ND	2.00	
Vanadium	mg/kg	ND	2.00	
Zinc	mg/kg	ND	2.00	

LABORATORY CONTROL SAMPLE: 505632190

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Footnotes
Antimony	mg/kg	50.00	51.90	104	80-120	
Arsenic	mg/kg	50.00	49.58	99	80-120	
Barium	mg/kg	50.00	49.74	100	80-120	
Beryllium	mg/kg	50.00	49.60	99	80-120	
Cadmium	mg/kg	50.00	48.87	98	80-120	
Chromium	mg/kg	50.00	48.73	98	80-120	
Cobalt	mg/kg	50.00	49.45	99	80-120	
Copper	mg/kg	50.00	48.65	97	80-120	
Lead	mg/kg	50.00	47.99	96	80-120	

Date: 05/25/06

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

LABORATORY CONTROL SAMPLE: 505632190

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Footnotes
Manganese	mg/kg	50.00	49.23	98	80-120	
Nickel	mg/kg	50.00	48.48	97	80-120	
Selenium	mg/kg	50.00	47.88	96	80-120	
Silver	mg/kg	25.00	25.20	101	80-120	
Thallium	mg/kg	50.00	46.72	93	80-120	
Vanadium	mg/kg	50.00	49.74	100	80-120	
Zinc	mg/kg	50.00	48.70	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 505632208 505632216

Parameter	Units	505628263 Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Max RPD	Footnotes
Antimony	mg/kg	0.04252	49.01	31.88	36.08	65	73	75-125	12	20	1,1
Arsenic	mg/kg	2.824	49.01	42.77	45.10	82	86	75-125	5	20	
Barium	mg/kg	15.97	49.01	54.54	53.65	79	76	75-125	2	20	
Beryllium	mg/kg	0.06724	49.01	35.50	38.51	72	78	75-125	8	20	
Cadmium	mg/kg	0.1920	49.01	34.03	36.94	69	74	75-125	8	20	1,1
Chromium	mg/kg	5.485	49.01	39.66	43.21	70	76	75-125	9	20	
Cobalt	mg/kg	6.451	49.01	38.76	40.42	66	69	75-125	4	20	1,1
Copper	mg/kg	6.012	49.01	44.11	46.93	78	83	75-125	6	20	
Lead	mg/kg	4.437	49.01	38.36	39.97	69	72	75-125	4	20	1,1
Manganese	mg/kg	175.5	49.01	363.0	188.7	383	27	75-125	63	20	2,3
Nickel	mg/kg	4.878	49.01	37.16	38.28	66	68	75-125	3	20	1,1
Selenium	mg/kg	0.6362	49.01	38.80	41.84	78	83	75-125	8	20	
Silver	mg/kg	0	24.51	23.12	24.53	94	99	75-125	6	20	
Thallium	mg/kg	1.210	49.01	33.93	36.88	67	72	75-125	8	20	1,1
Vanadium	mg/kg	5.614	49.01	42.62	56.82	76	104	75-125	29	20	4
Zinc	mg/kg	13.55	49.01	48.38	48.15	71	70	75-125	0	20	1,1

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

QC Batch: 113455

QC Batch Method: EPA 3010

Associated Lab Samples: 505628412

Analysis Method: EPA 6010

Analysis Description: Metals, ICP, Trace

METHOD BLANK: 505638718

Associated Lab Samples: 505628412

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Barium	mg/l	ND	0.100	
Beryllium	mg/l	ND	0.0040	
Cadmium	mg/l	ND	0.0050	
Chromium	mg/l	ND	0.0100	
Cobalt	mg/l	ND	0.0500	
Copper	mg/l	ND	0.0200	
Lead	mg/l	ND	0.0050	
Manganese	mg/l	ND	0.0150	
Nickel	mg/l	ND	0.0400	
Silver	mg/l	ND	0.0100	
Vanadium	mg/l	ND	0.0500	
Zinc	mg/l	ND	0.0200	

LABORATORY CONTROL SAMPLE: 505638726

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Footnotes
Barium	mg/l	1.000	0.9973	100	80-120	
Beryllium	mg/l	1.000	0.9751	98	80-120	
Cadmium	mg/l	1.000	0.9775	98	80-120	
Chromium	mg/l	1.000	0.9655	97	80-120	
Cobalt	mg/l	1.000	0.9844	98	80-120	
Copper	mg/l	1.000	0.9736	97	80-120	
Lead	mg/l	1.000	0.9590	96	80-120	
Manganese	mg/l	1.000	0.9691	97	80-120	
Nickel	mg/l	1.000	0.9673	97	80-120	
Silver	mg/l	0.5000	0.5090	102	80-120	
Vanadium	mg/l	1.000	0.9908	99	80-120	
Zinc	mg/l	1.000	0.9648	96	80-120	

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QUALITY CONTROL DATA

Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 505638734 505638742

Parameter	Units	505628412 Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Footnotes
Barium	mg/l	0.07038	1.000	1.067	1.064	100	99	75-125	0	20	
Beryllium	mg/l	0.00004	1.000	0.9967	0.9932	100	99	75-125	0	20	
Cadmium	mg/l	0	1.000	0.9796	0.9740	98	97	75-125	1	20	
Chromium	mg/l	0.00027	1.000	0.9657	0.9621	96	96	75-125	0	20	
Cobalt	mg/l	0.00026	1.000	0.9709	0.9647	97	96	75-125	1	20	
Copper	mg/l	0.00098	1.000	0.9759	0.9751	98	97	75-125	0	20	
Lead	mg/l	0	1.000	0.9587	0.9521	96	95	75-125	1	20	
Manganese	mg/l	0	1.000	0.9688	0.9636	97	96	75-125	1	20	
Nickel	mg/l	0	1.000	0.9529	0.9488	95	95	75-125	0	20	
Silver	mg/l	0.00023	0.5000	0.5159	0.5135	103	103	75-125	0	20	
Vanadium	mg/l	0.00049	1.000	1.002	0.9960	100	100	75-125	1	20	
Zinc	mg/l	0.00214	1.000	0.9600	0.9537	96	95	75-125	1	20	

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QUALITY CONTROL DATA

Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

QC Batch: 113369
QC Batch Method: EPA 3020
Associated Lab Samples: 505628412

Analysis Method: EPA 7041
Analysis Description: Antimony, AAS Furnace

METHOD BLANK: 505631846
Associated Lab Samples: 505628412

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Antimony	ug/l	ND	5.00	
Arsenic	ug/l	ND	5.00	
Thallium	ug/l	ND	2.00	
Selenium	ug/l	ND	5.00	

LABORATORY CONTROL SAMPLE: 505631853

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Footnotes
Antimony	ug/l	25.00	23.51	94	80-120	
Arsenic	ug/l	25.00	23.84	95	80-120	
Thallium	ug/l	10.00	10.74	107	80-120	
Selenium	ug/l	25.00	24.27	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 505631861 505631879

Parameter	Units	505628412 Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Footnotes
Antimony	ug/l	0	25.00	24.04	25.71	96	103	75-125	7	20	
Arsenic	ug/l	0	25.00	23.83	23.30	95	93	75-125	2	20	
Thallium	ug/l	0	10.00	9.384	9.324	94	93	75-125	1	20	
Selenium	ug/l	1.540	25.00	23.08	22.91	86	86	75-125	1	20	

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QUALITY CONTROL DATA

Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

QC Batch: 113367	Analysis Method: EPA 9045
QC Batch Method: EPA 9045	Analysis Description: pH, Soil
Associated Lab Samples:	505628263 505628321 505628388 505628404

SAMPLE DUPLICATE: 505631796

Parameter	Units	505628263 Result	DUP Result	RPD	Max RPD	Footnotes
pH		9.890	10.10	2	20	

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QUALITY CONTROL DATA

Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

QC Batch: 113423	Analysis Method: SM 2540G
QC Batch Method: SM 2540G	Analysis Description: Percent Moisture
Associated Lab Samples:	505628263 505628321 505628388 505628404

SAMPLE DUPLICATE: 505634733

Parameter	Units	505628263 Result	DUP Result	RPD	RPD	Footnotes
Percent Moisture	%	5.500	5.700	4	20	

SAMPLE DUPLICATE: 505634741

Parameter	Units	505632836 Result	DUP Result	RPD	RPD	Footnotes
Percent Moisture	%	7.000	7.200	3	20	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

QC Batch: 113857	Analysis Method: EPA 9045
QC Batch Method: EPA 9045	Analysis Description: pH, Soil
Associated Lab Samples:	505628313 505628339 505628396

SAMPLE DUPLICATE: 505657809

Parameter	Units	505628313 Result	DUP Result	RPD	Max RPD	Footnotes
pH		9.080	9.100	0	20	

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QUALITY CONTROL DATA

Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

QC Batch: 113999
QC Batch Method: EPA 9045
Associated Lab Samples: 505660555

Analysis Method: EPA 9045
Analysis Description: pH, Soil

SAMPLE DUPLICATE: 505668269

Parameter	Units	505662130 Result	DUP Result	RPD	Max RPD	Footnotes
pH		7.640	7.540	1	20	

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QUALITY CONTROL DATA

Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

QC Batch: 113694
QC Batch Method: EPA 9012
Associated Lab Samples: 505628263 505628321 505628388 505628404

Analysis Method: EPA 9012
Analysis Description: Cyanide, Total, Soil

METHOD BLANK: 505648527
Associated Lab Samples: 505628263 505628321 505628388 505628404

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Cyanide	mg/kg	ND	2.00	

LABORATORY CONTROL SAMPLE: 505648535

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Footnotes
Cyanide	mg/kg	5.000	5.002	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 505648543 505648550

Parameter	Units	505628263 Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Footnotes
Cyanide	mg/kg	0.03941	5.293	5.475	5.427	103	102	75-125	1	20	

REPORT OF LABORATORY ANALYSIS

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Lab Project Number: 5053004

Client Project ID: Indy Metal Center WW Tank

QUALITY CONTROL DATA PARAMETER FOOTNOTES

Consistent with EPA guidelines, unrounded concentrations are displayed and have been used to calculate % Rec and RPD values.

- LCS(D) Laboratory Control Sample (Duplicate)
- MS(D) Matrix Spike (Duplicate)
- DUP Sample Duplicate
- ND Not detected at or above adjusted reporting limit
- NC Not Calculable
- J Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
- MDL Adjusted Method Detection Limit
- RPD Relative Percent Difference
- [1] Matrix (MS) and or surrogate spike recovery (S) was affected by the sample matrix. Refer to the batch QC recoveries blank and LCS to demonstrate that the analytical system was operating in control.
- [2] Matrix spike recovery is outside of control limits due to sample non-homogeneity.
- [3] Matrix spike recovery and RPD are outside of control limits due to sample non-homogeneity.
- [4] RPD is outside of control limits due to sample non-homogeneity.

REPORT OF LABORATORY ANALYSIS

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ENCORE

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Required Client Information:

Company:	ARADIS	Report To:	Mark F. Arkholder
Address:	251 E. 04th St.	Copy To:	
	Suite 800	Invoice To:	Terry Smiley
	Indianapolis, IN 46204	P.O.:	IN000694.0001
Phone:	(317) 231-6200	Project Name:	GM Indianapolis Motor Center
Fax:	(317) 231-6514	Project Number:	IN000694.0001
E-mail:	mark.f.arkholder@encore.com		

PAGE 1 OF 1

Laboratory:	Pre Analytical
Laboratory Location:	7726 Miller Rd, Indianapolis, IN 46268
Laboratory Contact:	Deanna Spyer
Requested Due Date:	See TAT
QA/QC Requirements:	Level II
TAT:	Normal

ID # N° 03752

SSOW Ref. Code: E21400X/1 5/11/06

Analysis and Method

E-mail: mf@shelbillerp.com														
Valid Matrix Codes: WG Groundwater WB Borehole Water WS Surface Water SO Soil SE Sediment See Back for Additional Codes														
Matrix Code														
Date Collected														
Time Collected														
# Containers														
Preservative														
HCl														
H2SO4														
HNO3														
NaOH														
Other:														
Metals LOID														
pH														
Total CA														
pH per Mark														
5/10/06														
5/19/06														
5053004														
Remarks/Lab ID														
MS/MID														
505628263														
505628313														
505628321														
505628339														
505628388														
505628396														
505628404														
505628412														
17														
5-10-06														

TOTAL NUMBER OF CONTAINERS 10

SHIPMENT METHOD	NO. OF COOLERS	RELINQUISHED BY / AFFILIATION	DATE	TIME	RECEIVED BY / AFFILIATION	DATE	TIME
Hand Delivery	1	T-CC / ARADIS	5-10-06	4:00pm		5/10/06	4:00p
AIRBILL NO.							

Sample Condition

Temp in C	6°C
Received on Ice	N
Sealed Cooler	N
Samples Intact	N

Additional Comments: Per Mark Johnson 5/10/06 5:15-2.0 and 5:15-2.0 + FD-1

per tot. CD 2-3 + 2-4 all samples 10 (KOD)

WT Arcadis

Sampler Name: Timothy R. Yark

Sampler Signature: T. Yark

Date: 5-10-06



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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

PAGE 1 OF 1

Required Client Information:

Company: ARCADIS, Report To: Mark Fishel, Address: 251 E. Duane St, Suite 800, Indianapolis, IN, P.O.: JND00094.0001, Project Name: 6M Indianapolis Multi-Use, Project Number: JND00094.0001, Fax: 317-231-6514, E-mail: mfishel@arcadis-us.com

Laboratory: Pace, Laboratory Location: Indianapolis, IN, Laboratory Contact: Diana Spitzer, Requested Due Date: TAT: Normal, QA/QC Requirements: Level II

ID # N° 03792

SSOW Ref. Code: E214001

5053004

Analysis and Method

Table with columns: Sample Identification, Matrix Code, Valid Matrix Codes, Date Collected, Time Collected, # Containers, Preservative (HCl, H2SO4, HNO3, NaOH, Other), Analysis and Method, Remarks Lab ID. Row 1: Floor 5th St, WT-Floor, SS, 5/19/06, 1415, 1, Unpreserved, HCl, H2SO4, HNO3, NaOH, Other, H2O, 505660533

TOTAL NUMBER OF CONTAINERS 1

Table with columns: SHIPMENT METHOD, NO. OF COOLERS, RELINQUISHED BY / AFFILIATION, DATE, TIME, RECEIVED BY / AFFILIATION, DATE, TIME. Row 1: Hand, 1, Mark Fishel / ARCADIS, 5/23/06, 0930, [Signature], 5/23/06, 0930

AIRBILL NO.

Sample Condition: Temp in C, Received on Ice, Sealed Cooler, Samples Intact

Additional Comments:

1 OK, PACE DEL.

Sampler Name: Mark Fishel, Sampler Signature: [Signature], Date: 5/23/06

Distribution: WHITE - Fully Executed Copy, YELLOW - Receiving Laboratory Copy, PINK - Sampler Copy

SGS Mineral Services Laboratory Report

Summary of Qualitative X-ray Diffraction Results

Sample	Crystalline Mineral Assemblage (relative proportions based on peak height)			
	Major	Moderate	Minor	Trace
WT-Floor	sodium carbonate hydrate(1)	thermonatrite, trona	gaylussite, quartz, sodium carbonate hydrate(2)	

*Tentative identification due to low concentrations, diffraction line overlap or poor crystallinity

Instrument: Siemens D5000 diffractometer
 Scan Conditions: Co radiation, graphite monochromator, 40 kV, 30 mA, Step:0.02°, Step time:1s
 Interpretations: JCPDS / ICDD powder diffraction files. Siemens Search / Match software.
 Detection Limit: 0.5-2%. Strongly dependent on crystallinity.
 Interpretations do not reflect the presence of non-crystalline / amorphous compounds. Mineral proportions are based on relative peak heights and may be strongly influenced by crystallinity, structural group or preferred orientations.
 Interpretations and relative proportions should be accompanied by supporting petrographic and geochemical data (WRA, ICP-OES).

Mineral	Composition
Gaylussite	$\text{Na}_2\text{Ca}(\text{CO}_3)_2 \cdot 5\text{H}_2\text{O}$
Quartz	SiO_2
Sodium Carbonate Hydrate(1)	$\text{Na}_2\text{CO}_3(\text{H}_2\text{O})_7$
Sodium Carbonate Hydrate(2)	$\text{Na}_2\text{CO}_3 \cdot \text{H}_2\text{O}$
Thermonatrite	$\text{Na}_2\text{CO}_3 \cdot \text{H}_2\text{O}$
Trona	$\text{Na}_3\text{H}(\text{CO}_3)_2(\text{H}_2\text{O})_2$

Note:

N/A

Huyun Zhou, Ph.D.
Mineralogist, XRD

Chris Hamilton, M. Sc., FSAIMM
Process Mineralogist

Attachment B

ENVIRON Memorandum: Screening-Level Human Health Risk Evaluation, Former
Caustic Tank – AOI 2

August 11, 2006

MEMORANDUM

To: David Favero, Favero Geosciences

cc: Marilyn Dedyne, GM
Mark Fisherkeller, ARCADIS

From: Francis Ramacciotti, ENVIRON
C.Y. Jeng, ENVIRON

Subject: Screening-Level Human Health Risk Evaluation, Former Caustic Tank – AOI 2
GM Indianapolis Metal Center, Indianapolis, Indiana

The soil data collected from the area surrounding the former caustic tank within the Waste Treatment Area (AOI 2) at the General Motors (GM) Indianapolis Metal Center (“Site”) were compared with conservative generic screening criteria to evaluate the potential for health significance due to the presence of inorganics in soil. The screening criteria for soil and concrete samples are:

- USEPA Region 9 Industrial Preliminary Remediation Goals (PRGs) based on a target cancer risk of 10^{-5} and a target HQ of 1 (USEPA 2004);
- Indiana Department of Environmental Management (IDEM) Industrial Risk-Integrated System of Closure (RISC) default closure levels (IDEM 2006).

The maximum concentration of each detected chemical at AOI 2 was compared to the above screening criteria. All detected concentrations were conservatively assumed to be site-related, since site-specific soil background data for metals was not available. Results of the quantitative comparison for detected chemicals at AOI 2 are summarized on Table 1, which shows the ratios of the maximum concentrations at AOI 2 to the screening criteria. As shown in Table 1, no constituent concentrations exceeded the screening criteria at this AOI.

The significance of potential exposures to soil contamination via direct contact can be evaluated by estimating the cumulative cancer and noncancer risks associated with potential exposures and comparing them with the USEPA-established limits. Under USEPA policy for cleanup of

Superfund and RCRA Correction Action sites, corrective measures are not warranted when the site-related cumulative cancer risk does not exceed 10^{-4} and the noncancer hazard index (HI) does not exceed 1 (61 FR 19432, May 1, 1996; USEPA 1991).

The bounding estimates of cumulative cancer and noncancer risks for potential exposure of workers to soil at AOI 2 are shown in Table 2. These upper-bound estimates are calculated using the maximum detected concentration of each constituent detected in soil at this area, and the conservative exposure factors that were used to derive the USEPA Region 9 risk-based PRGs for soil in generic commercial/industrial settings (USEPA 2004). High-end cumulative cancer and noncancer risk estimates for this area would be lower if concentrations representative of the area were used instead of the maximum concentrations, site-specific or regional background concentrations for metals were considered, and site-specific exposure factors were used to account for the magnitude, frequency, and duration of exposures appropriate for this area, as would be done in risk assessments following USEPA guidance (1989).

As summarized in Table 2, the bounding estimates of cumulative cancer risk and HI using the maximum detected concentrations for AOI 2 are 2×10^{-6} and 0.05, respectively, which are within USEPA acceptable risk limits.

REFERENCES

- Indiana Department of Environmental Management (IDEM). 2006. Risk Integrated System of Closure (RISC) Default Closure Tables.
- U. S. Environmental Protection Agency (USEPA). 1989. Office of Emergency and Remedial Response. Risk Assessment Guidance for Superfund. Volume I, Human Health Evaluation Manual. Washington, DC. EPA/540-1-89-002. OSWER Directive 9285.7-01a. December.
- U. S. Environmental Protection Agency (USEPA). 1991. Role of the baseline risk assessment in Superfund remedy selection decisions. Memorandum from Don R. Clay to Regional Directors. OSWER Directive 9355.0-30. April 22.
- U. S. Environmental Protection Agency (USEPA). 2004. Region 9 Preliminary Remediation Goals (PRGs) 2004. December.

Table 1: Soil Screening Results - AOI 2
Indianapolis Metal Center Facility, Indianapolis, Indiana

Chem Group	Chemical	CASRN	Carc Class	Analyzed	Detected	Min Detected (mg/kg)	Max Detected (mg/kg)	Industrial PRG Based Criteria (mg/kg)		Ratio of Max Detect to Industrial Criteria	Default Closure Soil Criteria - Industrial (mg/kg)	Ratio of Max Detect to Default Closure Soil Criteria - Industrial
INORG	Antimony	7440-36-0		4				4.1E+02	NC		3.7E+01	
INORG	Arsenic	7440-38-2	A	4	4	2.45E+00	3.21E+00	1.6E+01	C	2.0E-01	5.8E+00	5.5E-01
INORG	Barium	7440-39-3	NC	4	4	1.28E+01	1.60E+01	6.7E+04	NC	2.4E-04	1.0E+04	1.6E-03
INORG	Beryllium	7440-41-7	B1	4				1.9E+03	NC		2.3E+03	
INORG	Cadmium	7440-43-9	B1	4				4.5E+02	NC		7.7E+01	
INORG	Chromium (total)	7440-47-3		4	4	5.49E+00	6.41E+00	2.5E+03	NC	2.5E-03	1.2E+02	5.3E-02
INORG	Cobalt	7440-48-4	B1	4	4	6.45E+00	1.83E+02	1.3E+04	NC	1.4E-02		
INORG	Copper	7440-50-8	D	4	4	6.01E+00	2.81E+01	4.1E+04	NC	6.9E-04	2.9E+03	9.7E-03
INORG	Cyanide (total)	57-12-5	D	4				1.2E+04	NC		9.6E+00	
INORG	Lead	7439-92-1	B2	4	4	4.44E+00	6.49E+00	8.0E+02	NC	8.1E-03	2.3E+02	2.8E-02
INORG	Manganese	7439-96-5	D	4	4	1.68E+02	2.29E+02	1.9E+04	NC	1.2E-02		
INORG	Mercury	7439-97-6	D	4				1.4E+01	NC			
INORG	Nickel	7440-02-0	A	4	4	4.88E+00	6.66E+00	2.0E+04	NC	3.3E-04		
INORG	Selenium	7782-49-2	D	4				5.1E+03	NC		5.3E+01	
INORG	Silver	7440-22-4	D	4				5.1E+03	NC		8.7E+01	
INORG	Thallium	7440-28-0		4				6.7E+01	NC		1.0E+01	
INORG	Vanadium	7440-62-2		4	4	5.61E+00	7.74E+00	1.0E+03	NC	7.6E-03		
INORG	Zinc	7440-66-6	ID	4	4	1.33E+01	1.49E+01	3.1E+05	NC	4.9E-05	1.0E+04	1.5E-03
Notes:												
Only constituents analyzed in AOI 2 are shown.												
The criteria for soil are the lower of the criteria at either the target cancer risk of 10 ⁻⁵ or target hazard quotient of 1.												
The criteria for Chromium (total) are the Region 9 PRGs for Chromium VI for cancer effects and Chromium (total) for noncancer effects.												
The criteria for Chromium (total) are the criteria provided by the agency for Chromium VI, unless otherwise noted.												
The criteria for Mercury are the Region 9 PRGs and are calculated by ENVIRON to account for the vapor inhalation pathway using:												
USEPA Region 9 equations, RfC from IRIS, and chemical properties from USEPA's Soil Screening Guidance.												
Ratios of concentration to the criteria greater than 1 are shaded in bold.												
C - The criterion is based on cancer risk at the indicated cancer risk.												
NC - The criterion is based on noncancer effects at the indicated hazard quotient.												
Chem Group - chemical group												
Carc Class - USEPA Weight-of-Evidence Cancer Classification												

**Table 2: Bounding Cumulative Cancer Risk and Hazard Index for Worker Exposure to Soil
Indianapolis Metal Center Facility, Indianapolis, Indiana**

AOI	Industrial Cumulative Risk	Industrial HI
AOI02	2E-06	5E-02
Notes:		
Cumulative cancer risks and HIs are upper-bound estimates based on the maximum detected concentrations in AOI 2 .		
Values highlighted in bold are above the USEPA risk limits of 10^{-4} or 1 for cancer risk and HI, respectively.		
Cumulative cancer risks and HIs are based on the following exposure pathways: ingestion, dermal contact, and inhalation.		