

# **GREEN WAY**

ENVIRONMENTAL CONSULTING LLC

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September 14, 2010  
SLH-04-0071

**CON12-15**  
**DOC# 34158**

Saint Luke's Hospital  
Attn: Mr. Michael O. Easley  
1026 A Avenue NE  
Cedar Rapids, Iowa 52402

**RE: Groundwater Sampling and Analysis Letter Report, Dental Associates of Cedar Rapids, 1055 3<sup>rd</sup> Avenue SE, Cedar Rapids, Iowa**

Green Way Environmental Consulting, LLC (Green Way) has completed limited groundwater sampling and analysis at the Dental Associates of Cedar Rapids property, located at 1055 3<sup>rd</sup> Avenue SE in Cedar Rapids, Iowa (the Site). The purpose of the investigation is to obtain site-specific information that will facilitate the evaluation of a recognized environmental condition (REC) identified in connection with the Site. Specifically, the Site operated as a gasoline station from the mid 1930s until circa 1970.

## **SITE BACKGROUND**

The Site is located in a long-established commercial and residential area of Cedar Rapids, Iowa, approximately 1,500 feet east of the 8<sup>th</sup> Street NE-Interstate 380 interchange (Figure 1). The Site is comprised of a 0.18-acre parcel hosting a 1,591 ft<sup>2</sup> concrete building hosting a dental clinic (Dental Associates of Cedar Rapids) and associated asphalt-paved parking areas.

Historical records, information supplied by the Property owner, and site reconnaissance revealed that 1055 3<sup>rd</sup> Avenue SE operated as a gasoline station from circa 1930s until circa 1970. Limited investigation in the form of soil sampling has been performed to assess the potential for contamination. Investigation revealed that soil had been impacted, but at levels not exceeding applicable Tier 1 action levels. The historical operation of 1055 3<sup>rd</sup> Avenue SE as a gasoline station constitutes an REC. Previous investigations indicate that soils have not been significantly impacted at the Property; however, the potential for impact to groundwater at the Property has not been previously evaluated. The objective of this investigation was to evaluate the potential for impact to groundwater at the Site in connection with historical operation as a gasoline station.

## **SITE INVESTIGATION**

### **Drilling Activities**

On August 23, 2009, Aquadrill, Inc., under the observation of Mr. Maxwell E. Ostby of Green Way, advanced three exploratory borings (designated B-1 through B-3) at the Site using direct-push (Geoprobe) technology. Soil was continuously sampled to the maximum depth explored, which ranged from 2 8 to 40 feet below grade (bg). Soil sampling equipment that contacted soil was

decontaminated before starting investigative activities and between each sampling location to reduce the possibility of cross-contamination between sample locations. Soil samples were visually classified according to grain size, sorting, plasticity, moisture content, color, recovery, sample interval, and time of sample collection.

Boring location B-1 was advanced to a depth of 28 feet below grade near to the location of former fuel dispenses north of the Site building. Boring B-2 was advanced to a depth of 36-feet south of the Site building in the former location of underground storage tanks (USTs) associated with the former gas station. Boring B-3 was advanced to a depth of 40-feet in the parking lot south of the Site building in a topographically and hydraulically down-gradient location with respect to the former USTs. Boring locations were selected in areas interpreted to have the greatest potential for contamination based on historical site activities and physical characteristics. Boring locations are displayed on Figure 1.

### **Subsurface Conditions**

Subsurface conditions at the Site were generally uniform, consisting of an upper layer of fine sand, followed by a thin layer of silty sand from 9 to 11 feet bg, followed by a clean sand to total depths explored of 40-feet below grade. Hand-drawn soil boring logs are presented as Attachment A.

### **Groundwater Sampling**

Once each soil boring was completed, temporary monitoring wells (TMW-1 through TMW-3) consisting of pre-cleaned, one-inch internal diameter PVC with 0.01-inch slotted screen were placed in each boring. At the completion of drilling activities, no groundwater was detected in the temporary monitoring wells. Green Way returned to the Site on August 24, 2010 to conduct groundwater sampling. Temporary monitoring wells TMW-1 and TMW-2 were dry. TMW-3 yielded groundwater.

Plastic tubing was lowered into TMW-3, and groundwater was evacuated with a peristaltic pump into laboratory-supplied sampling containers. Groundwater was slowly and carefully poured into sampling containers to avoid aeration. Groundwater sample "TMW-3" was labeled with the date and time of collection, packed on ice and delivered to ESC for analysis under chain-of-custody control. Based on historical Site activities, the groundwater sample was analyzed for VOCs (including benzene, toluene, ethylbenzene and xylenes) using EPA method 8260, and total extractable hydrocarbons (TEH) using Iowa Method OA-2.

After groundwater samples were collected, the temporary monitoring wells were removed and the borings were sealed with bentonite and capped at the surface with concrete.

## **Groundwater Analytical Results**

No contaminants were detected in the groundwater sample collected from the Site. The laboratory report presenting analytical results is presented in Attachment B.

## **Conclusions**

Green Way has completed a limited subsurface investigation at the Site consisting of drilling activities and groundwater sampling and analysis. Green Way has arrived at the following conclusions:

- **Finding:** Groundwater from a down-gradient position with respect to former gasoline USTs was sampled at the Site. Groundwater was sampled for VOCs and TEH in order to evaluate whether it had been impacted by historical Site activities. No contaminants were detected in the groundwater.
- **Conclusion:** Green Way has evaluated groundwater at the Site and found no evidence that it has been impacted by previous land-use at the Site.

## **Limitations**

The services, data, and opinions of Green Way performed for and expressed in this report are for the sole and exclusive use of Saint Luke's Hospital. The scope of services for this project may not be appropriate for the needs of others, and the use or re-use of this document and the findings, conclusions, or recommendations expressed herein is at the risk of the user. Reliance by any party on the facts, conclusions, and recommendations in this report is subject to the specific scope of work and the contractual terms and conditions under which this work was authorized and performed.

In performing this investigation, Green Way has striven to conform to generally accepted principles and practices of other consultants conducting similar investigations in the same geographic area. This warranty is in lieu of all others, either expressed or implied. The investigation is limited to the specific project, Site, and date of Green Way's site visit, as described in this report, and its findings should not be relied upon by any party to represent conditions at other properties or at later dates.

The investigation described in this report was also conducted within the context of agency rules, regulations and enforcement policies in effect at the time of its execution; later changes in rules, regulations and policies may result in different conclusions than those expressed in this report.

The scope of the investigation and report was mutually devised by Green Way and Saint Luke's Hospital and is not intended as an audit for regulatory compliance. No activity, including sampling, investigation or evaluation of any material or substance, may be assumed to be included in this investigation unless such activity is expressly considered in the scope of work and this report. Maps and drawings in this report are included only to aid the reader and should not be considered surveys or engineering studies.

The findings of the investigation are probabilities based on Green Way's professional judgment of site conditions as discernible from the limited, and often indirect, information provided by others and obtained or observed by Green Way using the methods specified. Green Way does not warrant the accuracy or completeness of information and independent opinions, conclusions, and recommendations provided or developed by others and assumes no responsibility for documenting conditions detectable with methods or techniques not specified in the scope of work. Green Way's opinion regarding site conditions is not a warranty that all areas within the site and beneath site structures are of the same quality or condition as those observed or sampled.

If you have any questions with regard to this report, please feel free to contact us at 319-365-0466 at your convenience.

Sincerely,  
**Green Way Environmental  
Consulting, LLC**

A handwritten signature in black ink, appearing to read 'Maxwell E. Ostby', is written over a large, loopy, oval-shaped scribble.

Maxwell E. Ostby, CIEC  
Project Geologist

MEO  
Attachments





**GREEN WAY**  
ENVIRONMENTAL CONSULTING LLC

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Figure 1 –Site Location  
Map

1055 3<sup>rd</sup> Ave SE, Cedar Rapids, IA

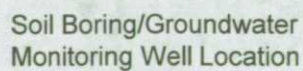
Date:  
9/14/10

Project  
SLH-04-0070

Prepared for  
Saint Luke's Hospital



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CR Dental Associates  
Groundwater Investigation,  
Cedar Rapids, IA

Prepared for  
Saint Luke's Hospital

**ATTACHMENT A**  
**SOIL BORING LOGS**

# GREEN WAY

ENVIRONMENTAL CONSULTANTS

## SOIL BORING LOG

Project: SLH-04-0071		Date: 8-27-10		Field Rep: MEO		Boring No: B-1	
Drilling Method: Geoprobe			Total Depth:			Apparent GW Depth:	
Recovery	Depth	Profile	Grain Size	Color	Moisture	Hardness	Plasticity
							10:25 - 11:50
	1		Fine Sand -	DLG	X	S	N
	2				SLH		
	3						
	4						
	5						
	6						
	7						
	8						
	9						
	10						
	11		clay silt w/ some sand	Br	SLH	M	M
	12		Sand - Very	Dr- Tion			
	13		Few Fines			M	N
	14						
	15						
	16						
	17						
	18						
	19						
	20						
	21						
	22						
	23						
	24						
	25						
	26						
	27						
	28						
			EOB B-1 @ 28' due to boring failure				



# GREEN WAY

ENVIRONMENTAL CONSULTING LLC

## SOIL BORING LOG

Project: <i>SL4-08-0071</i>		Date: <i>8-23</i>		Field Rep: <i>ME0</i>		Boring No: <i>B-2</i>	
Drilling Method: <i>Geo Probe</i>		Total Depth:				Apparent GW Depth:	
Recovery	Depth	Profile	Grain Size	Color	Moisture	Hardness	Plasticity
							<i>12:02 - 1:20</i>
	1		<i>Fine sand - very little clay/silt</i>	<i>Dr. Br.</i>	<i>D</i>	<i>M</i>	<i>N</i>
	2						
	3						
	4						
	5						
	6						
	7						
	8						
	9						
	10		<i>Clay Sandy Silt</i>	<i>Br. G-y</i>	<i>M</i>	<i>M</i>	<i>N</i>
	11						
	12		<i>Sand w/ few fines</i>	<i>Tan</i>	<i>mo</i>	<i>M</i>	<i>N</i>
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						
	21						
	22						
	23						
	24						
	25						
	26						
	27						
	28						
	29						
	30						
	31				<i>M-4</i>		
	32						
	33						
	34		<i>silty sand</i>	<i>Tan</i>	<i>VM</i>	<i>M</i>	<i>N</i>
	35						
	36						

*EOB - B-2 @ 36'*



Project: SLH-04-0071		Date: 8-23-10	Field Rep: JLEO	Boring No: B-3					
Recovery		Depth	Profile	Grain Size	Color	Moisture	Hardness	Plasticity	Notes
	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
	11								
	12								
	13								
	14								
	15								
	16								
	17								
	18								
	19								
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	21								
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	25								
	26								
	27								
	28								
	29								
	30								
	31								
	32								
	33								
	34								
	35								
	36								
	37								
	38								
	39								
	40								
E-C B-3 @ 40'									



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Tax I.D. 62-0814289

Est. 1970

Maxwell Otsby  
Greenway Environmental Consulting  
1678 Burns Ave.  
Iowa City, IA 52240

### Report Summary

Monday August 30, 2010

Report Number: L475448

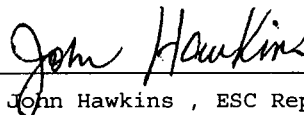
Samples Received: 08/25/10

Client Project: SLH-04-0070

Description: CR Dental Phase 2

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
John Hawkins, ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487  
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140  
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233  
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

This report may not be reproduced, except in full, without written approval from ESC Lab Sciences. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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# REPORT OF ANALYSIS

Maxwell Otsby  
Greenway Environmental Consulting  
1678 Burns Ave.  
Iowa City, IA 52240

August 30, 2010

Date Received : August 25, 2010  
Description : CR Dental Phase 2

ESC Sample # : L475448-01

Sample ID : ~~TMW-3-140-4-1~~

Site ID :

Collected By : Max Ostby  
Collection Date : 08/24/10 05:00

Project # : SLH-04-0070

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Volatile Organics						
Acetone	BDL	0.050	mg/l	8260B	08/25/10	1
Acrolein	BDL	0.050	mg/l	8260B	08/25/10	1
Acrylonitrile	BDL	0.010	mg/l	8260B	08/25/10	1
Benzene	BDL	0.0010	mg/l	8260B	08/25/10	1
Bromobenzene	BDL	0.0010	mg/l	8260B	08/25/10	1
Bromodichloromethane	BDL	0.0010	mg/l	8260B	08/25/10	1
Bromoform	BDL	0.0010	mg/l	8260B	08/25/10	1
Bromomethane	BDL	0.0050	mg/l	8260B	08/25/10	1
n-Butylbenzene	BDL	0.0010	mg/l	8260B	08/25/10	1
sec-Butylbenzene	BDL	0.0010	mg/l	8260B	08/25/10	1
tert-Butylbenzene	BDL	0.0010	mg/l	8260B	08/25/10	1
Carbon tetrachloride	BDL	0.0010	mg/l	8260B	08/25/10	1
Chlorobenzene	BDL	0.0010	mg/l	8260B	08/25/10	1
Chlorodibromomethane	BDL	0.0010	mg/l	8260B	08/25/10	1
Chloroethane	BDL	0.0050	mg/l	8260B	08/25/10	1
2-Chloroethyl vinyl ether	BDL	0.050	mg/l	8260B	08/25/10	1
Chloroform	BDL	0.0050	mg/l	8260B	08/25/10	1
Chloromethane	BDL	0.0025	mg/l	8260B	08/25/10	1
2-Chlorotoluene	BDL	0.0010	mg/l	8260B	08/25/10	1
4-Chlorotoluene	BDL	0.0010	mg/l	8260B	08/25/10	1
1,2-Dibromo-3-Chloropropane	BDL	0.0050	mg/l	8260B	08/25/10	1
1,2-Dibromoethane	BDL	0.0010	mg/l	8260B	08/25/10	1
Dibromomethane	BDL	0.0010	mg/l	8260B	08/25/10	1
1,2-Dichlorobenzene	BDL	0.0010	mg/l	8260B	08/25/10	1
1,3-Dichlorobenzene	BDL	0.0010	mg/l	8260B	08/25/10	1
1,4-Dichlorobenzene	BDL	0.0010	mg/l	8260B	08/25/10	1
Dichlorodifluoromethane	BDL	0.0050	mg/l	8260B	08/25/10	1
1,1-Dichloroethane	BDL	0.0010	mg/l	8260B	08/25/10	1
1,2-Dichloroethane	BDL	0.0010	mg/l	8260B	08/25/10	1
1,1-Dichloroethene	BDL	0.0010	mg/l	8260B	08/25/10	1
cis-1,2-Dichloroethene	BDL	0.0010	mg/l	8260B	08/25/10	1
trans-1,2-Dichloroethene	BDL	0.0010	mg/l	8260B	08/25/10	1
1,2-Dichloropropane	BDL	0.0010	mg/l	8260B	08/25/10	1
1,1-Dichloropropene	BDL	0.0010	mg/l	8260B	08/25/10	1
1,3-Dichloropropane	BDL	0.0010	mg/l	8260B	08/25/10	1
cis-1,3-Dichloropropene	BDL	0.0010	mg/l	8260B	08/25/10	1
trans-1,3-Dichloropropene	BDL	0.0010	mg/l	8260B	08/25/10	1
2,2-Dichloropropane	BDL	0.0010	mg/l	8260B	08/25/10	1
Di-isopropyl ether	BDL	0.0010	mg/l	8260B	08/25/10	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	08/25/10	1
Hexachloro-1,3-butadiene	BDL	0.0010	mg/l	8260B	08/25/10	1
Isopropylbenzene	BDL	0.0010	mg/l	8260B	08/25/10	1
p-Isopropyltoluene	BDL	0.0010	mg/l	8260B	08/25/10	1

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)





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# REPORT OF ANALYSIS

Maxwell Otsby  
Greenway Environmental Consulting  
1678 Burns Ave.  
Iowa City, IA 52240

August 30, 2010

Date Received : August 25, 2010  
Description : CR Dental Phase 2  
Sample ID : TMW-3 40 FT  
Collected By : Max Ostby  
Collection Date : 08/24/10 05:00

ESC Sample # : L475448-01

Site ID :

Project # : SLH-04-0070

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
2-Butanone (MEK)	BDL	0.010	mg/l	8260B	08/25/10	1
Methylene Chloride	BDL	0.0050	mg/l	8260B	08/25/10	1
4-Methyl-2-pentanone (MIBK)	BDL	0.010	mg/l	8260B	08/25/10	1
Methyl tert-butyl ether	BDL	0.0010	mg/l	8260B	08/25/10	1
Naphthalene	BDL	0.0050	mg/l	8260B	08/25/10	1
n-Propylbenzene	BDL	0.0010	mg/l	8260B	08/25/10	1
Styrene	BDL	0.0010	mg/l	8260B	08/25/10	1
1,1,1,2-Tetrachloroethane	BDL	0.0010	mg/l	8260B	08/25/10	1
1,1,2,2-Tetrachloroethane	BDL	0.0010	mg/l	8260B	08/25/10	1
1,1,2-Trichloro-1,2,2-trifluoro	BDL	0.0010	mg/l	8260B	08/25/10	1
Tetrachloroethene	BDL	0.0010	mg/l	8260B	08/25/10	1
Toluene	BDL	0.0050	mg/l	8260B	08/25/10	1
1,2,3-Trichlorobenzene	BDL	0.0010	mg/l	8260B	08/25/10	1
1,2,4-Trichlorobenzene	BDL	0.0010	mg/l	8260B	08/25/10	1
1,1,1-Trichloroethane	BDL	0.0010	mg/l	8260B	08/25/10	1
1,1,2-Trichloroethane	BDL	0.0010	mg/l	8260B	08/25/10	1
Trichloroethene	BDL	0.0010	mg/l	8260B	08/25/10	1
Trichlorofluoromethane	BDL	0.0050	mg/l	8260B	08/25/10	1
1,2,3-Trichloropropane	BDL	0.0010	mg/l	8260B	08/25/10	1
1,2,4-Trimethylbenzene	BDL	0.0010	mg/l	8260B	08/25/10	1
1,2,3-Trimethylbenzene	BDL	0.0010	mg/l	8260B	08/25/10	1
1,3,5-Trimethylbenzene	BDL	0.0010	mg/l	8260B	08/25/10	1
Vinyl chloride	BDL	0.0010	mg/l	8260B	08/25/10	1
Xylenes, Total	BDL	0.0030	mg/l	8260B	08/25/10	1
Surrogate Recovery						
Toluene-d8	98.3		% Rec.	8260B	08/25/10	1
Dibromofluoromethane	95.2		% Rec.	8260B	08/25/10	1
4-Bromofluorobenzene	112.		% Rec.	8260B	08/25/10	1
Gasoline	BDL	0.10	mg/l	OA2	08/27/10	1
Diesel	BDL	0.10	mg/l	OA2	08/27/10	1
Motor Oil	BDL	0.25	mg/l	OA2	08/27/10	1
Total (C7-C40)	BDL	0.25	mg/l	OA2	08/27/10	1
Surrogate Recovery						
o-Terphenyl	74.6		% Rec.	OA2	08/27/10	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit (PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 08/30/10 07:52 Printed: 08/30/10 07:53

Summary of Remarks For Samples Printed  
08/30/10 at 07:53:03

TSR Signing Reports: 341  
R3 - Rush: Two Day

enter client type GREE - currently pending credit app ( 2 new acct)

Sample: L475448-01 Account: GREENVICIA Received: 08/25/10 09:00 Due Date: 08/27/10 00:00 RPT Date: 08/30/10 07:52  
New Client