MINNESOTA DEPARTMENT OF TRANSPORTATION USED OIL BURNER SAMPLING ON-SPEC OIL ANALYSIS

District 1 Carlton, Minnesota Virginia, Minnesota



Prepared by: Minnesota Department of Transportation Office of Environmental Services Environmental Modeling and Testing Unit

January 2010

INTRODUCTION

Enclosed in this report are the results of the sampling of used oil collected at the Minnesota Department of Transportation (MNDOT) District 1 Truck Station facilities. Used oil from vehicles is placed in Lube Cube storage tanks at each of the truck stations. The Lube Cubes are connected to building heaters that burn the used oil for heat recovery.

The sampling of used oil at the District 1 facilities was conducted by personnel from the MNDOT Office of Environmental Services. For additional information, contact Harold Bottolfson at (651) 366-5812. The laboratory analysis was performed by the Minnesota Department of Health.

The results of the laboratory analysis from the samples taken at the District 1 Truck Stations show the burner oil to be within the on spec limits.

Purpose

The purpose of the sampling and analysis is to insure that the used oil that is burned in heating units meets MPCA rules for such practices. The oil must meet the following limits to be classified as on-spec:

- Flashpoint 100 degrees Fahrenheit minimum
- Arsenic 5 parts per million (PPM) maximum
- Cadmium 2 PPM maximum
- Chromium 10 PPM maximum
- Lead 100 PPM maximum
- Total Halogens 1000 PPM maximum

Procedures

The oil was sampled from the storage tank with a Coliwasa sampler. The Coliwasa sampler is a 70" long polypropylene tube that is 1" diameter. The sampler has caps at each end that can be opened and closed by using a control rod that runs through the length of the tube. During the sampling, the end caps were opened and the coliwasa was slowly lowered into the tank so that a vertical column sample could be obtained. The sampler was lowered to the top of the sludge layer so that only the oil to be burned would be sampled. The oil from the sampler was placed in a sample bottles provided by the Minnesota Department of Health, which was contracted to analyze the sample. As the sample was released into the bottle, it was carefully observed for any discolorations or changes in the composition of the material. Notes were taken of the procedures during the sampling process.

Laboratory analysis methods for each of the listed parameters are as follows:

PARAMETER	METHOD
Flashpoint	ASTM D 3278-78
Metals	SW 6020
Total Halogens	SW846 9076

Results

The observation notes taken during the sampling are as follows:

Carlton Truck Station

- 1. The oil removed from the tank with the coliwasa did not show segments or layering.
- 2. The oil removed did not have any unusual odors and seemed consistent with the look and smell of used oil.
- 3. The area around the Lube Cube looked well maintained and orderly.
- 4. The depth of the oil in the tank was 36".
- 5. There was a layer of sludge at the bottom approximately 2" deep.

Virginia Truck Station

- 1. The oil removed from the tank with the coliwasa did not show segments or layering.
- 2. The oil removed did not have any unusual odors and seemed consistent with the look and smell of used oil.
- 3. The area around the Lube Cube looked well maintained and orderly.
- 4. The depth of the oil in the tank was approximately 24".
- 5. There was a layer of sludge at the bottom approximately 2" deep.

MN/DOT District 1 Used Oil Sampling Laboratory Results (Values in PPM)

Sample Location	Date	Flashpoint (F)	Arsenic	Cadmium	Chromium	Lead	Total Halogens
Carlton	11/3/2009	>200	<0.4	<0.4	4.3	6.1	262
Virginia	11/3/2009	>200	<0.4	<0.4	3	6.8	355
On Spec Limits		100 Minimum	5 Maximum	2 Maximum	10 Maximum	100 Maximum	1000 Maximum

*Values in Red are Off Spec

Carlton Used Oil Container



Minnesota Department of Health Chain of Custody

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Minnesota Department of Health Laboratory Results

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	F	inal Report	- Client Cop	y - Rep	ort Of A	nalytical Rea	sults		
Program	m: DD				Da	ate Received:	16-NOV	-2009	
Program Nam	e: OES				Da	te Generated:	11-DEC	-2009	
Request N	o: 361	555			1	Request Page:	1	of 20	
Sam	ples:	200934503 -	200934512		D	ate Reported:	11-DEC	-2009	
Sample No:	20093	34503							
Receiving	Comme	ents: -							
Coll Da	ate	Coll Time	Location		Lab Temp	Site Numbe	er		
03-NOV-2	2009	1030	-		16	-			
		Sampling P	oint and Sourc	ce Of Sar	nple				
			CARLTON						
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			Cod	es	Result	Rept Level	Units	Analysi	3 Date
		private lab -	MDH						
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Sa	ample a	nalyzed at Tes	stAmerica.						
995 Admin. Con		-							
Consultati	on Time	9						08-D	EC-09
Se	ee atta	ched report fr	om TestAmerio	ca.					

Minnesota Department	Of Health	- Envi	ironmental	Labor	ratory
- Final Report - Cl					-
Program: DD			Date Received		-2009
Program Name: OES		Da	ate Generated	: 11-DEC	-2009
Request No: 361555			Request Page	: 2	of 20
Samples: 200934503 - 200	934512	I	Date Reported	: 11-DEC	-2009
Sample No: 200934503					
Receiving Comments: -					
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03-NOV-2009 1030	-	16			
Sampling Point	and Source Of S	ample			
C.	ARLTON			-	
****			* * * * * * * * * * * * * * *	* * * * * * * *	* * * * * * *
	SAMPLE R				
Unit: METALS	Reviewed By J	JB on 10-D	EC-09		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
111 SW 6020 Report level was changed due	e to sample dil [.]	ution.			
Arsenic Sed, Total	<	0.4	0.4	ug/g	08-DEC-09 16:08
126 SW 6020					
Report level was changed due	e to sample dil	ution.			
Cadmium Sed, Total	<	0.40	0.40	ug/g	08-DEC-09 16:08
134 SW 6020					
Report level was changed due Chromium Sed, Total	e to sample dil	4.3	0.40	119/9	08-DEC-09 16:08
161 SW 6020		4.5	0.40	ug/g	08-DEC-09 10:08
Report level was changed due	e to sample dil [.]	ution.			
Lead Sed, Total		6.1	0.40	ug/g	08-DEC-09 16:08
Unit: ORGANIC CHEMISTRY	Reviewed By PI	os on 10-D	EC-09		
Note: Positive Organic Results	are indicate	d by BOLI).		
	Result				. . .
	Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar	>	200		deg F	17-NOV-09

Minnesota Department O	f Health	– Envi	ironmental	Labor	catory
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Program: DD Program Name: OES Request No: 361555			Date Received ate Generated Request Page	: 11-DEC	-2009
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Sampling Point and	d Source Of S	ample			
VIRG	INIA				
******	** SAMPLE F	ESULTS **	* * * * * * * * * * * * * *	* * * * * * * *	* * * * * * *
Unit: ADMINISTRATIVE Re	eviewed By M	LK on 11-D	EC-09		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
981 Analyses sent to private lab -MDH Total Halides		355	100	mg/kg	23-NOV-09
Sample analyzed at TestAmeric	ca.				
995 Admin. Consultation -MDH Consultation Time					08-DEC-09
See attached report from Test	America.				

Minnesota Department	Of Health	- Envi	ronmental	Labor	ratory
Final Report - Cl.	ient Copy - Re	eport Of	Analytical Re	esults	
Program: DD Program Name: OES Request No: 361555			Date Received ate Generated Request Page	: 11-DEC	
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Sampling Point a	and Source Of Sa	ample			
VI	RGINIA				
**************	**** SAMPLE R	ESULTS **	* * * * * * * * * * * * *	* * * * * * * *	* * * * * * *
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	Result Codes	Result	Rept Level	Units	Analysis Date
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Report level was changed due Arsenic Sed, Total	e to sample dilu <		0.4	uq/q	08-DEC-09 16:11
126 SW 6020		0.1	0.1	ug/g	00 DEC 09 10.11
Report level was changed due	e to sample dilu	ution.			
Cadmium Sed, Total	<	0.40	0.40	ug/g	08-DEC-09 16:11
134 SW 6020 Report level was changed due	to comple dil	ition			
Chromium Sed, Total	to sample ull	3.0	0.40	ug/g	08-DEC-09 16:11
161 SW 6020 Report level was changed due	to sample dilu			~ <u>5</u> , <u>5</u>	
Lead Sed, Total		6.8	0.40	ug/g	08-DEC-09 16:11
Unit: ORGANIC CHEMISTRY	Reviewed By PD				
Note: Positive Organic Results	are indicate Result	d by BOLI	•		
	Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar	>	200		deg F	17-NOV-09

MINNESOTA DEPARTMENT OF TRANSPORTATION USED OIL BURNER SAMPLING ON-SPEC OIL ANALYSIS

District 2 Ada Bemidji Crookston Erskine Hallock Park Rapids Roseau Thief River Falls



Prepared by: Minnesota Department of Transportation Office of Environmental Services Environmental Modeling and Testing Unit

January 2010

INTRODUCTION

Enclosed in this report are the results of the sampling of used oil collected at the Minnesota Department of Transportation (MNDOT) District 2 Truck Station facilities. Used oil from vehicles is placed in Lube Cube storage tanks at each of the truck stations. The Lube Cubes are connected to building heaters that burn the used oil for heat recovery.

The sampling of used oil at the District 2 facilities was conducted by personnel from the MNDOT Office of Environmental Services. For additional information, contact Harold Bottolfson at (651) 366-5812. The laboratory analysis was performed by the Minnesota Department of Health.

The results of the laboratory analysis from the samples taken at the District 2 Truck Stations show the burner oil to be within the on spec limits.

Purpose

The purpose of the sampling and analysis is to insure that the used oil that is burned in heating units meets MPCA rules for such practices. The oil must meet the following limits to be classified as on-spec:

Flashpoint 100 degrees Fahrenheit minimum
Arsenic 5 parts per million (PPM) maximum
Cadmium 2 PPM maximum
Chromium 10 PPM maximum
Lead 100 PPM maximum
Total Halogens 1000 PPM maximum

Procedures

The oil was sampled from the storage tank with a Coliwasa sampler. The Coliwasa sampler is a 70" long polypropylene tube that is 1" diameter. The sampler has caps at each end that can be opened and closed by using a control rod that runs through the length of the tube. During the sampling, the end caps were opened and the coliwasa was slowly lowered into the tank so that a vertical column sample could be obtained. The sampler was lowered to the top of the sludge layer so that only the oil to be burned would be sampled. The oil from the sampler was placed in a sample bottles provided by the Minnesota Department of Health, which was contracted to analyze the sample. As the sample was released into the bottle, it was carefully observed for any discolorations or changes in the composition of the material. Notes were taken of the procedures during the sampling process.

Laboratory analysis methods for each of the listed parameters are as follows:

PARAMETER	METHOD
Flashpoint	ASTM D 3278-78
Metals Total Halogens	SW 6020 SW846 9076

Results

The observation notes taken during the sampling are as follows:

The oil removed from the tank with the coliwasa did not show segments or layering. The oil removed did not have any unusual odors and seemed consistent with the look and smell of used oil.

Oil Level in the tanks

Ada	About ½ full
Bemidji	About 2" of sludge
Crookston	About 2" of sludge
Erskine	18" of oil with 3" of sludge
Hallock	About 3" of sludge
Park Rapids	About ¼ full
Roseau	About 1" of sludge
Thief River Falls	About 2" of sludge

MN/DOT District 2 Used Oil Sampling Laboratory Results (Values in PPM)

Sample Location	Date	Flashpoint (F)	Arsenic	Cadmium	Chromium	Lead	Total Halogens
Ada	12/3/2009	>200	<1.0	<1.0	2	3.2	<100
Bemidji	11/3/2009	177	<0.4	<0.4	2.1	12	342
Crookston	11/13/2009	159	<0.4	<0.4	3.6	3.9	109
Erskine	12/4/2009	182	<1.0	<1.0	1.7	6	441
Hallock	11/12/2009	>200	<0.4	<0.4	5.1	50	230
Park Rapids	11/4/2009	>200	<0.4	<0.4	2.7	18	220
Roseau	11/12/2009	>200	<0.4	<0.4	6.4	13	168
Thief River Falls	11/13/2009	>200	<0.4	<0.4	10	5.8	156
On Spec Limits		100 Minimum	5 Maximum	2 Maximum	10 Maximum	100 Maximum	1000 Maximum

*Values in Red are Off Spec

Ada Used Oil Container



Erskine Used Oil Container



Park Rapids Used Oil Container



Minnesota Department of Health Chain of Custody

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Minnesota Department of Health Minnesota Department of Health If Yes please add information to Comments below. Client/Agency MN/DC/T Math Cada StandardCivil/Criminal Chain of Custody Program Code (2 Letters) D D Math Cada Report to StandardCivil/Criminal Chain of Custody Program Code (2 Letters) D D Math Code Standard State State StandardCivil/Criminal Chain of Custody Program Code (2 Letters) D D Contact Name Hacade BorTol 1 Fiscon State State MDH ID StandardCivil/Criminal Chain of Custody Name Contact Name Hacade BorTol 1 Fiscon State State State State MDH ID StandardCivil/Criminal Chain of Custody Name Contact Name Hacade BorTol 1 Fiscon State State State State MDH ID StandardCivil/Criminal Chain of Custody Name Hacade BorTol 1 Fiscon State State State State MDH ID State State Contact Phone #65(1 - 36(2 - 58)) State State State State MDH ID Address if Needed State State State State State State Address if Needed	a subscription of		nequested Analysis;	ield Filte Y/N	Containe	rid Hydroxia Thiosulfi	rved loric Ac	-581	Frione 651	R	Horse (
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Chain of Custody Minnesota Department of Health Environmental Laboratory 601 Robert St. North St. Paul, MN 55155-2531 St. Paul, MN 55155-2531 Into Comments below. Project Name O'L B: Mer Sc. Mples Site ID DW = Drinking Water MDH ID MDH ID		dance if Nasslad		SD = Soil/Solid WP = Wipe AR = Air TS = Tissue OT = Other	10 15	DD Borterfiso Sec-Sisi	ode (2 Letters) ime Herreid [one #651		/Criminal Chain of Custody	(Circle One)	Sampled Ry (Print)
Chain of Custody Minnesota Department of Health Environmental Laboratory 601 Robert St. North St. Paul, MN 55155-2531 Page			Report to MDH ID	Matrix Codes DW = Drinking Water SW = Surface Water GW = Ground Water	Pless	MerSim	me Oil Bu		rd: Yestor Unknown (Circle Or dd information to Comments be	Potential Haza If Yes please a	Lab Use Only,
-	of	Page	ment of Health Laboratory St. North \$5155-2531	Minnesota Depart Environmental 601 Robert 1 St. Paul, MN		ody	f Cust	Chain o			

Minnesota Department of Health Laboratory Results

	Final Report	t - Client Cop	9y - Re	eport Of	Analytical R	esults	
Program	DD			I	Date Received	: 23-DEC	2-2009
rogram Name	OES			Da	ate Generated	: 04-FEB	3-2010
Request No	362952				Request Page	: 5	of 20
Samp	Les: 200936773	- 200936782		I	Date Reported	: 09-FEB	3-2010
Sample No:	200936775						
Receiving Co	omments: -						
Coll Dat	e <u>Coll Time</u>	Location		Lab Tem	<u>p</u> <u>Site Numb</u>	ber	
04-DEC-20	0905	-		20	-		
	Sampling	Doint and Cour					
	Sampling	Point and Sour	ce Of Sa	ample			
	Sampling	ERSKINE	ce Of Sa	ample		-	
****	*****	ERSKINE			* * * * * * * * * * * *	- ******	****
		ERSKINE ******* SA	MPLE RI			- * * * * * * * *	****
	****	ERSKINE ***** SA Reviewe	MPLE RI	ESULTS *		- * * * * * * * *	****
	****	ERSKINE ***** SA Reviewe	MPLE R d By LR sult	ESULTS *	EB-10		Analysis D
Unit: ADM	**************************************	ERSKINE ***** SA Reviewe Res Cod	MPLE R d By LR sult	ESULTS ** M on 09-F	EB-10		
Unit: ADM 1 Analyses se Total Halid	**************************************	ERSKINE ***** SA Reviewe Res Cod	MPLE R d By LR sult	ESULTS ** M on 09-F Result	EB-10 Rept Level	Units	Analysis D
Unit: ADM 1 Analyses se Total Halid	<pre>************************************</pre>	ERSKINE ***** SA Reviewe Res Cod	MPLE R d By LR sult	ESULTS ** M on 09-F Result	EB-10 Rept Level	Units	Analysis D

Minnesota Department	Of Health - Envi	ironmental	Labor	atory	
Final Report - Cl:	ent Copy - Report Of	Analytical Rea	sults		
Program: DD Program Name: OES Request No: 362952		Date Received: ate Generated: Request Page:	04-FEB		
Samples: 200936773 - 200	936782	Date Reported:	09-FEB	-2010	
Sample No: 200936775					
Receiving Comments: -					
Coll DateColl TimeLo04-DEC-20090905	- Lab Temp	<u>o</u> <u>Site Numbe</u> -	<u>er</u>		
Sampling Point a	and Source Of Sample				
EF	SKINE				
* * * * * * * * * * * * * * * * * * * *	**** SAMPLE RESULTS **	* * * * * * * * * * * * * *	* * * * * * *	* * * * * * *	
Unit: METALS	Reviewed By JJB on 09-F	EB-10			
	Result				
	Codes Result	Rept Level	Units	Analysis Date	
111 SW 6020 Arsenic Sed, Total	RC < 1.0	1	ug/g	21-JAN-10 12:16	
126 SW 6020 Cadmium Sed, Total	RC < 1.0	1.0	ug/g	21-JAN-10 12:16	
134 SW 6020 Chromium Sed, Total	RC 1.7	1.0	ug/g	21-JAN-10 12:16	
161 SW 6020 Lead Sed, Total	RC 6.0	1.0	ug/g	21-JAN-10 12:16	
Unit: ORGANIC CHEMISTRY	Reviewed By PDS on 05-F	EB-10			
Note: Positive Organic Results	are indicated by BOLI	.			
	Result				
	Codes Result	Rept Level	Units	Analysis Date	

_			ronmental		
Final Report - Cli	lent Copy - F	Report Of 1	Analytical Re	sults	
Program: DD		Ľ	ate Received	23-DEC	-2009
Program Name: OES		Da	te Generated	04-FEB	-2010
Request No: 362952			Request Page	1	of 20
Samples: 200936773 - 200	936782	I	ate Reported	09-FEB	-2010
Sample No: 200936773					
Receiving Comments: -					
Coll Date Coll Time Lo	ocation	Lab Temp	Site Numbe	er	
03-DEC-2009 1410	-	20			
Sampling Point a	ind Source Of S	Sample			
	ADA				
	nDn				
*****		RESULTS **	* * * * * * * * * * * * *	* * * * * * *	* * * * * * *
**************************************				*****	* * * * * * *
	**** SAMPLE :			****	* * * * * * *
	**** SAMPLE : Reviewed By I		EB-10		******* Analysis Date
	**** SAMPLE : Reviewed By I Result Codes	.RM on 09-FF	EB-10		
Unit: ADMINISTRATIVE 81 Analyses sent to private lab -MDH	**** SAMPLE : Reviewed By I Result Codes ND	RM on 09-FF	B-10 Rept Level	Units	Analysis Date
Unit: ADMINISTRATIVE 81 Analyses sent to private lab -MDH Total Halides	**** SAMPLE : Reviewed By I Result Codes ND	RM on 09-FF	B-10 Rept Level	Units	Analysis Date

	Health - Env	rironmental	Labor	atory
Final Report - Client	Copy - Report Of	Analytical Re	sults	
Program: DD Program Name: OES Request No: 362952	I	Date Received: Date Generated: Request Page:	04-FEB-	
Samples: 200936773 - 200936	782	Date Reported:	09-FEB-	-2010
Sample No: 200936773				
Receiving Comments: -				
Coll DateColl TimeLocat03-DEC-20091410-	ion <u>Lab Ten</u> 20	np <u>Site Numbe</u> -	<u>e</u> r	
Sampling Point and	Source Of Sample			
ADA				
*****	* SAMPLE RESULTS *	* * * * * * * * * * * * * * *	* * * * * * * *	* * * * * * *
Unit: METALS Rev	iewed By JJB on 09-	FEB-10		
	Result			
	Codes Result	Rept Level	Units	Analysis Date
111 SW 6020 Arsenic Sed, Total	RC < 1.0	1	ug/g	
			ug/g	21-JAN-10 12:03
126 SW 6020 Cadmium Sed, Total	RC < 1.0	1.0	ug/g	21-JAN-10 12:03 21-JAN-10 12:03
	RC < 1.0 RC 2.0	1.0		
Cadmium Sed, Total 134 SW 6020			ug/g	21-JAN-10 12:03
Cadmium Sed, Total 134 SW 6020 Chromium Sed, Total 161 SW 6020 Lead Sed, Total	RC 2.0	1.0	ug/g ug/g	21-JAN-10 12:03 21-JAN-10 12:03
Cadmium Sed, Total 134 SW 6020 Chromium Sed, Total 161 SW 6020 Lead Sed, Total	RC 2.0 RC 3.2 iewed By PDS on 05-	1.0 1.0 FEB-10	ug/g ug/g	21-JAN-10 12:03 21-JAN-10 12:03
Cadmium Sed, Total 134 SW 6020 Chromium Sed, Total 161 SW 6020 Lead Sed, Total Unit: ORGANIC CHEMISTRY Rev	RC 2.0 RC 3.2 iewed By PDS on 05- indicated by BOI Result	1.0 1.0 FEB-10	ug/g ug/g ug/g	21-JAN-10 12:03 21-JAN-10 12:03 21-JAN-10 12:03
Cadmium Sed, Total 134 SW 6020 Chromium Sed, Total 161 SW 6020 Lead Sed, Total Unit: ORGANIC CHEMISTRY Rev	RC 2.0 RC 3.2 iewed By PDS on 05- indicated by BOI Result	1.0 1.0 FEB-10	ug/g ug/g ug/g	21-JAN-10 12:03 21-JAN-10 12:03

264-00					T		T - 1		
Minr	lesota	a Departme	ent OI Hea	alth -	Envir	ronmental	Laboi	ratory	
	F	inal Report	- Client Copy	y – Repo	rt Of Ar	alytical Re	sults		
Progra	am: DD				Da	te Received:	16-NOV	-2009	
Program Nam	ne: OES				Dat	e Generated:	11-DEC	-2009	
Request 1	No: 361	555			R	equest Page:	13	of 20	
San	mples:	200934503 -	200934512		Da	te Reported:	11-DEC	2009	
Sample No	: 20093	34509							
Receiving	Comme	ents: -							
Coll D	ate	Coll Time	Location	La	ab Temp	Site Numbe	er		
12-NOV-	-2009	1330	-		16	-			
		Sampling P	oint and Sourc	e Of Sam	ple				
			HALLOCK						
* * *	* * * * * * *	* * * * * * * * * * * * *	******* SAM	PLE RESU	JLTS ***	* * * * * * * * * * * *	* * * * * * *	* * * * * * * *	
Unit: A	DMINIS	TRATIVE	Reviewed	By MLK o	on 11-DEC	-09			
			Resu	ılt					
			Code	es Ro	esult 1	Rept Level	Units	Analysis	; Date
981 Analyses	sent to	private lab -	MDH						
Total Hal	ides			2	30	100	mg/kg	23-N0	OV-09
	Sample a	nalyzed at Tes	stAmerica.						
995 Admin. Co	nsultat	ion -MDH							
Consultat	ion Time	e						08-D1	EC-09
5	See atta	ched report fr	rom TestAmeric	a.					

Minnesota Department	Of Health	- Env:	ironmental	Labor	ratory
- Final Report - Cl:					-
Program: DD			Date Received		-2009
Program Name: OES		_	ate Generated		
Request No: 361555			Request Page	: 14	of 20
Samples: 200934503 - 200	934512	I	Date Reported	: 11-DEC	-2009
Sample No: 200934509					
Receiving Comments: -					
Coll Date Coll Time Lo	ocation	Lab Tem	<u>o</u> <u>Site Numb</u>	er	
12-NOV-2009 1330	-	16	-		
Sampling Point a	and Source Of S	ample			
HZ	LLOCK	•		-	
				***	* * * * * * * * *
*********************	**** SAMPLE R	ESULTS *	*****	* * * * * * * * *	* * * * * * * *
Unit: METALS	Reviewed By J J	B on 10-D	EC-09		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
111 SW 6020 Report level was changed due	to sample dil	ution.			
Arsenic Sed, Total	<	0.4	0.4	ug/g	08-DEC-09 16:37
126 SW 6020					
Report level was changed due	to sample dil	ution.			
Cadmium Sed, Total	<	0.40	0.40	ug/g	08-DEC-09 16:37
134 SW 6020 Report level was changed due	to comple dil	ition			
Chromium Sed, Total	to sample dif	5.1	0.40	ug/g	08-DEC-09 16:37
161 SW 6020		5.1	0.40	ug/ g	00 100 1000
Report level was changed due	to sample dil	ution.			
Lead Sed, Total		50	0.40	ug/g	08-DEC-09 16:37
Unit: ORGANIC CHEMISTRY	Reviewed By PI	s on 10-D	EC-09		
Note: Positive Organic Results	are indicate	d by BOLI).		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar	>	200		deg F	17-NOV-09

Minnesota Department Of	Health	- Env	ironmenta	l Labor	ratory	
Final Report - Client	t Copy - Re	port Of	Analytical R	esults		
Program: DD Program Name: OES Request No: 361555			Date Received ate Generated Request Page	l: 11-DEC	-2009	
Samples: 200934503 - 200934	512		Date Reported	l: 11-DEC	-2009	
Sample No: 200934510						
Receiving Comments: -						
Coll Date Coll Time Location 12-NOV-2009 1500 -	tion	<u>Lab Tem</u> 16	p <u>Site Numt</u> -	<u>pe</u> r		
Sampling Point and	Source Of Sa	ample				
ROSE	AU			-		
* * * * * * * * * * * * * * * * * * * *	* SAMPLE R	ESULTS *	* * * * * * * * * * * * * *	* * * * * * * * *	* * * * * * * *	
Unit: ADMINISTRATIVE Rev	viewed By ML	K on 11-1	DEC-09			
	Result					
	Codes	Result	Rept Level	Units	Analysis	Date
981 Analyses sent to private lab -MDH Total Halides		168	100	mg/kg	23-NOV	-09
Sample analyzed at TestAmerica	à.					
995 Admin. Consultation -MDH Consultation Time					08-DEC	-09
See attached report from TestA	America.					

Minnesota Department	Of Health	- Envi	ironmental	Labor	ratory
- Final Report - Cl					-
Program: DD			Date Received		-2009
Program Name: OES		Da	ate Generated	: 11-DEC	-2009
Request No: 361555			Request Page	: 16	of 20
Samples: 200934503 - 200	934512	I	Date Reported	: 11-DEC	-2009
Sample No: 200934510					
Receiving Comments: -					
Coll Date Coll Time L	ocation	Lab Tem	o <u>Site Numb</u>	er	
12-NOV-2009 1500	-	16	-		
Sampling Point	and Source Of S	ample			
I	ROSEAU				
*****	**** °7MDT © 0	דפוודייפ *א	* * * * * * * * * * * * * * *	* * * * * * * *	* * * * * * * *
	SAMPLE N	611061			
Unit: METALS	Reviewed By J J	B on 10-D	EC-09		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
111 SW 6020 Report level was changed due	e to sample dil	ution.			
Arsenic Sed, Total	<	0.4	0.4	ug/g	08-DEC-09 16:40
126 SW 6020					
Report level was changed due	e to sample dil	ution.			
Cadmium Sed, Total	<	0.40	0.40	ug/g	08-DEC-09 16:40
134 SW 6020 Report level was changed du	a to comple dil	ition			
Chromium Sed, Total	e co sampie dii	6.4	0.40	ug/g	08-DEC-09 16:40
161 SW 6020		0.1	0.10	ug/g	00 DEC 09 10.40
Report level was changed due	e to sample dil	ution.			
Lead Sed, Total		13	0.40	ug/g	08-DEC-09 16:40
Unit: ORGANIC CHEMISTRY	Reviewed By PI	os on 10-d	EC-09		
Note: Positive Organic Results		d by BOLI).		
	Result		.		
	Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar	>	200		deg F	17-NOV-09

Minnesota Department	Of Health	1 - Envi	ronmental	Labor	atory	
Final Report - Cli	lent Copy - F	Report Of A	Analytical Rea	sults		
Program: DD Program Name: OES Request No: 361555		Da	ate Received: te Generated: Request Page:	11-DEC-		
Samples: 200934503 - 2009	934512	D	ate Reported:	11-DEC-	2009	
Sample No: 200934511 Receiving Comments: -						
Coll Date Coll Time Lc 13-NOV-2009 0900	-	<u>Lab Temp</u> 16	<u>Site Numbe</u>	<u>9</u> r		
Sampling Point a	and Source Of S	Sample				
THIE	F RIVER					
*****	**** SAMPLE 1	RESULTS **	* * * * * * * * * * * * *	* * * * * * * *	* * * * * * *	
Unit: ADMINISTRATIVE	Reviewed By M	ILK on 11-DE	C-09			
	Result					
	Codes	Result	Rept Level	Units	Analysis	Date
981 Analyses sent to private lab -MDH Total Halides		156	100	mg/kg	23-NO	V-09
Sample analyzed at TestAmer	rica.					
995 Admin. Consultation -MDH Consultation Time					08-DE0	2-09
See attached report from Te	estAmerica.					

Minnesota Department	Of Health	- Envi	ironmental	. Labor	ratory
Final Report - Cl	ient Copy - Re	port Of	Analytical Re	esults	
Program: DD Program Name: OES Request No: 361555			Date Received Ate Generated Request Page	: 11-DEC	
Samples: 200934503 - 200	934512	I	Date Reported	: 11-DEC	-2009
Sample No: 200934511					
Receiving Comments: -					
Coll Date Coll Time Le 13-NOV-2009 0900	ocation	Lab Temp 16	o <u>Site Numb</u> -	<u>er</u>	
Sampling Point	and Source Of Sa	ample		-	
THI	EF RIVER				
* * * * * * * * * * * * * * * * * * * *	**** SAMPLE R	ESULTS **	* * * * * * * * * * * * *	* * * * * * * *	* * * * * * *
Unit: METALS	Reviewed By JJ	B on 10-D	EC-09		
	Result Codes	Result	Rept Level	Units	Analysis Date
111 SW 6020					
Report level was changed due Arsenic Sed, Total	e to sample dilu <		0.4	ug/g	08-DEC-09 16:44
126 SW 6020		0.1	0.1	a9, 9	
Report level was changed due	e to sample dilu	tion.			
Cadmium Sed, Total	<	0.40	0.40	ug/g	08-DEC-09 16:44
134 SW 6020 Report level was changed due	to comple dily	tion			
Chromium Sed, Total	e to sample dilt	10	0.40	ug/g	08-DEC-09 16:44
161 SW 6020 Report level was changed due	e to sample dilu		0.10	~ <u>5</u> ,5	
Lead Sed, Total	-	5.8	0.40	ug/g	08-DEC-09 16:44
Unit: ORGANIC CHEMISTRY	Reviewed By PD	s on 10-D	EC-09		
Note: Positive Organic Results	are indicated	l by BOLI).		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar	>	200		deg F	17-NOV-09

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Program: DD Program Name: OES Request No: 361555			Date Received: te Generated: Request Page:	11-DEC		
Samples: 200934503 - 2009	934512	Γ	ate Reported:	11-DEC	-2009	
Sample No: 200934512 Receiving Comments: -						
Coll Date Coll Time Lo 13-NOV-2009 1100	cation -	<u>Lab Tem</u> p 16	<u>Site Numbe</u>	<u>e</u> r		
Sampling Point a	nd Source Of S	Sample				
CRO	OKSTON					
* * * * * * * * * * * * * * * * * * * *	**** SAMPLE 1	RESULTS **	* * * * * * * * * * * * *	* * * * * * *	* * * * * * * *	
Unit: ADMINISTRATIVE	Reviewed By M	ILK on 11-DI	SC-09			
	Result					
	Codes	Result	Rept Level	Units	Analysis	Date
981 Analyses sent to private lab -MDH Total Halides		109	100	mg/kg	23-NO	V-09
Sample analyzed at TestAmer	ica.					
995 Admin. Consultation -MDH Consultation Time					08-DE	C-09
See attached report from Te	stAmerica.					

Minnesota Department	Of Health	- Envi	ironmental	. Labor	atory
Final Report - C	lient Copy - R	eport Of	Analytical Re	esults	
Program: DD		I	Date Received	: 16-NOV	-2009
Program Name: OES		Da	ate Generated	-	
Request No: 361555			Request Page	: 20	of 20
Samples: 200934503 - 20	0934512	I	Date Reported	: 11-DEC	-2009
Sample No: 200934512					
Receiving Comments: -					
Coll Date Coll Time I 13-NOV-2009 1100	<u>-ocation</u>	<u>Lab Tem</u> 16	o <u>Site Numb</u> -	er	
Sampling Point	and Source Of S	Sample			
CI	ROOKSTON			-	
* * * * * * * * * * * * * * * * * * * *	**** SAMPLE H	RESULTS **	* * * * * * * * * * * * *	* * * * * * * *	* * * * * * *
Unit: METALS	Reviewed By J	JB on 10-D	EC-09		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
111 SW 6020 Report level was changed du	e to sample dil	ution.			
Arsenic Sed, Total		< 0.4	0.4	ug/g	08-DEC-09 16:47
126 SW 6020					
Report level was changed du	e to sample dil	ution.			
Cadmium Sed, Total		< 0.40	0.40	ug/g	08-DEC-09 16:47
134 SW 6020					
Report level was changed du	le to sample dil				
Chromium Sed, Total		3.6	0.40	ug/g	08-DEC-09 16:47
161 SW 6020	a ta gampla dil	ution			
Report level was changed du Lead Sed, Total	le to sample di	3.9	0.40	ug/g	08-DEC-09 16:47
				ug/g	08-DEC-09 10:47
Unit: ORGANIC CHEMISTRY	Reviewed By P	DS on 10-D	EC-09		
Note: Positive Organic Result	s are indicate	ed by BOLI			
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar		159		deg F	17-NOV-09
Result Code Description					
RC Report level was changed	d due to sample	dilution.			

Minnogota	Doportmo	of Hoolt	h - Entri	ronmontal	Tabar	
	_	nt Of Healt				acory
Fir	al Report -	Client Copy - 1	Report Of	Analytical Re	sults	
Program: DD			I	Date Received:	16-NOV	-2009
Program Name: OES		Date Generated:			-2009	
Request No: 361555				Request Page:	5	of 20
Samples: 2	200934503 -	200934512	I	Date Reported:	11-DEC	-2009
Sample No: 200934	505					
Receiving Commen	ts: -					
Coll Date	Coll Time	Location	Lab Tem	<u>site Numbe</u>	er	
03-NOV-2009	1545	-	16	-		
	Sampling Po	int and Source Of	Sample			
BEMIDJI						
*******	* * * * * * * * * * * *	****** SAMPLE	RESULTS **	***********	* * * * * * * *	* * * * * * *
Unit: ADMINISTR	ATIVE	Reviewed By 1	MLK on 11-D	EC-09		
		Result				
		Codes	Result	Rept Level	Units	Analysis Date
981 Analyses sent to p	rivate lab -MI	DH				
Total Halides			342	100	mg/kg	02-DEC-09
Sample ana	lyzed at Test	America.				
995 Admin. Consultation	n -MDH					
Consultation Time						08-DEC-09
See attach	ed report fro	m TestAmerica.				

Minnesota Department O	f Health	– Env:	ironmental	. Labor	ratory					
Final Report - Client Copy - Report Of Analytical Results										
Program: DD			Date Received		-2009					
Program Name: OES			ate Generated							
Request No: 361555		Request Page			of 20					
Samples: 200934503 - 20093	4512	I	Date Reported	: 11-DEC	-2009					
Sample No: 200934505 Receiving Comments: -										
Receiving comments.										
	ation	Lab Temp Site Number								
03-NOV-2009 1545	-	16	-							
Sampling Point and	d Source Of S	ample		_						
BEM	IDJI									
******	** SAMPLE R	ESULTS **	* * * * * * * * * * * * *	* * * * * * * *	* * * * * * *					
Unit: METALS Reviewed By JJB on 10-DEC-09										
Result										
	Codes	Result	Rept Level	Units	Analysis Date					
111 SW 6020 Report level was changed due to sample dilution.										
Arsenic Sed, Total	<	• 0.4	0.4	ug/g	08-DEC-09 16:24					
126 SW 6020										
Report level was changed due to sample dilution.										
Cadmium Sed, Total	<	0.40	0.40	ug/g	08-DEC-09 16:24					
134 SW 6020										
Report level was changed due t	o sample dil		0 40		00 550 00 16.24					
Chromium Sed, Total		2.1	0.40	ug/g	08-DEC-09 16:24					
161 SW 6020 Report level was changed due t	o sample dil [.]	ution.								
Lead Sed, Total	-	12	0.40	ug/g	08-DEC-09 16:24					
Unit: ORGANIC CHEMISTRY R	eviewed By PI	os on 10-D	EC-09							
Note: Positive Organic Results are indicated by BOLD.										
Result										
	Codes	Result	Rept Level	Units	Analysis Date					
270 ASTM D 3278-78										
Flash Point, Pen-Mar		177								

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Program: DD Program Name: OES Request No: 361555		Da	ate Received: te Generated: Request Page:	11-DEC	-2009	
Samples: 200934503 - 20	00934512	D	ate Reported:	11-DEC	-2009	
Sample No: 200934506 Receiving Comments: -						
Coll Date Coll Time 04-NOV-2009 0908	Location -	<u>Lab Temp</u> 16	<u>Site Numbe</u>	<u>ə</u> r		
Sampling Poin	t and Source Of S	Sample				
PA	RK RAPIDS					
* * * * * * * * * * * * * * * * * * * *	***** SAMPLE	RESULTS **	* * * * * * * * * * * * *	* * * * * * * *	* * * * * * * *	
Unit: ADMINISTRATIVE	Reviewed By M	ILK on 11-DE	C-09			
	Result					
	Codes	Result	Rept Level	Units	Analysis 3	Date
981 Analyses sent to private lab -MDH Total Halides		220	100	mg/kg	23-NOV	-09
Sample analyzed at TestAm	merica.					
995 Admin. Consultation -MDH Consultation Time					08-DEC	-09
See attached report from	TestAmerica.					

Minnesota Department	Of Health	- Envi	ronmental	. Labor	atory
Final Report - Cl:	ient Copy - Re	eport Of	Analytical Re	esults	
Program: DD Program Name: OES Request No: 361555			Date Received ate Generated Request Page	: 11-DEC	
Samples: 200934503 - 200	934512	I	Date Reported	: 11-DEC	-2009
Sample No: 200934506					
Receiving Comments: -					
Coll Date Coll Time Lo 04-NOV-2009 0908	-	Lab Tem 16	<u>site Numb</u>	<u>er</u>	
Sampling Point a	and Source Of Sa	ample		-	
PARE	RAPIDS				
**************	**** SAMPLE R	ESULTS **	* * * * * * * * * * * * *	* * * * * * * *	* * * * * * *
Unit: METALS	Reviewed By JJ	B on 10-D	EC-09		
	Result Codes	Result	Rept Level	Units	Analysis Date
111 SW 6020					
Report level was changed due Arsenic Sed, Total	to sample dilu		0.4	uq/q	08-DEC-09 16:27
126 SW 6020		0.1	0.1	ug/g	00 DEC 09 10.27
Report level was changed due	to sample dilu	ution.			
Cadmium Sed, Total	<	0.40	0.40	ug/g	08-DEC-09 16:27
134 SW 6020					
Report level was changed due Chromium Sed, Total	to sample diff	2.7	0.40	ug/g	08-DEC-09 16:27
161 SW 6020 Report level was changed due	to sample dilu		0.10	4979	
Lead Sed, Total	oo bampic aiit	18	0.40	ug/g	08-DEC-09 16:27
Unit: ORGANIC CHEMISTRY	Reviewed By PD	s on 10-D	EC-09		
Note: Positive Organic Results					
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar	>	200		deg F	17-NOV-09

MINNESOTA DEPARTMENT OF TRANSPORTATION USED OIL BURNER SAMPLING ON-SPEC OIL ANALYSIS District 3 Little Falls Sauk Center Wadena



Prepared by: Minnesota Department of Transportation Office of Environmental Services Environmental Modeling and Testing Unit

March 2010

INTRODUCTION

Enclosed in this report are the results of the sampling of used oil collected at the Minnesota Department of Transportation (MNDOT) District 3 Truck Station facilities. Used oil from vehicles is placed in Lube Cube storage tanks at each of the truck stations. The Lube Cubes are connected to building heaters that burn the used oil for heat recovery.

The sampling of used oil at the District 3 facilities was conducted by personnel from the MNDOT Office of Environmental Services, Modeling and Testing Unit. The laboratory analysis was performed by the Minnesota Department of Health.

The results of the laboratory analysis from the samples taken at the District 3 Truck Stations show the burner oil to be within the on spec limits.

Purpose

The purpose of the sampling and analysis is to insure that the used motor oil that is burned in heating units meets MPCA rules for such practices. The oil must meet the following limits to be classified as on-spec:

- Flashpoint 100 degrees Fahrenheit minimum
- Arsenic 5 parts per million (PPM) maximum
- Cadmium 2 PPM maximum
- Chromium 10 PPM maximum
- Lead 100 PPM maximum
- Total Halogens 1000 PPM maximum

Procedures

The oil was sampled from the storage tank with a Coliwasa sampler. The Coliwasa sampler is a 70" long polypropylene tube that is 1" diameter. The sampler has caps at each end that can be opened and closed by using a control rod that runs through the length of the tube. During the sampling, the end caps were opened and the coliwasa was slowly lowered into the tank so that a vertical column sample could be obtained. The sampler was lowered to the top of the sludge layer so that only the oil to be burned would be sampled. The oil from the sampler was placed in a sample bottles provided by the Minnesota Department of Health, which was contracted to analyze the sample. As the sample was released into the bottle, it was carefully observed for any discolorations or changes in the composition of the material. Notes were taken of the procedures during the sampling process.

Laboratory analysis methods for each of the listed parameters are as follows:

PARAMETER	METHOD
Flashpoint	ASTM D 3278-78
Metals	SW 6020
Total Halogens	SW846 9076

Results

The observation notes taken during the sampling are as follows:

- 1. The oil removed from the tank with the coliwasa did not show segments or layering.
- 2. The oil removed did not have any unusual odors and seemed consistent with the look and smell of used oil.
- 3. The Little Falls tank had 18" of oil.
- 4. The Wadena tank was ¹/₄ full.
- 5. There was no sludge detected at either tank.

MN/DOT District 3 Used Oil Sampling Laboratory Results (Values in PPM)

Sample Location	Date	Flashpoint (F)	Arsenic	Cadmium	Chromium	Lead	Total Halogens
Little Falls	12/16/2009	>200	<1.0	<1.0	1.2	8.9	<100
Wadena	11/4/2009	>200	<0.4	<0.4	2.5	4.2	<100
Sauk Centre	3/10/2010	>200	<2.0	<2.0	<2.0	6.1	<100
On Spec Limits		100 Minimum	5 Maximum	2 Maximum	10 Maximum	100 Maximum	1000 Maximum

*Values in Red are Off Spec

Wadena Used Oil Container



Sauk Centre Used Oil Container



Minnesota Department of Health Chain of Custody

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12-610	12-23-06	any well				13:40		2-23-09		-			(Sampler) Horold (2005)
Time	Date	scopted By / Affiliation	Accepted			Tine		Date			siled by / Altilitation		
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		:							0:55	12-16-09 10:55	Henning	He	
						[9:00	12-16-09 9:00		R	
			— —						15:02		Bancsville	2	
									13:26	12-15-59	Fergus Fulls	ر الع	6 52 53 5
									13:20	12-4-04		-5)	
									0:55	12-4-09/10:55	Hawley		4
				·				-	9:05	12-4-09			1 1
			[_		_			15:50	12-309	Mahnemen		
	Flech B. 17	and Ph TAX 1	<u>₹</u>	W V				OTB	N ¹	12-3-061	Ada		
				Total # of • Samples P	Other	Sodium I Sodium I Ascorbic	Hydroch Sulfuric Nitric Ac	Cole Ode Unpreser	Time (24 Hour)	Collection Date	Sample Source/Point	Field ID	#
		Requested Analysis:	<u>Y/N</u>	Container		Hydroxid Thiosulfa	Acid		366-5812		Physe 65	Sector -	Junger signature
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!			w w = Waste Water SD = Sort/Solid WP = Wipe AR = Ain TS - Tissue	72588 7258	ୢୖ	Borbitson		Program Code (2 Letters) <u>DD</u> Contact Name <u>Horoed</u> <u>Berricht (So</u> r) Contact Phone # <u>6 51 - 216 - 59</u> 77	rogram Co ontact Nat		Standard Civil/Criminal Chain of Custody (Circle One)	Standard Civil:Cri (Circle Onc)	
		Water Report to	Matrix <u>Codes</u> DW - Drinking Water SW - Surface Water GW = Ground Water	9%5 K	Mess	1	1 Nor	Client/Agency MN/DOT Project Name O.1 Burner Schmeles Sile ID	Client/Age Project Nar Sile ID	-	Potential Hazard: Yestig Unknown (Circle One). If Yes please add information to Comments below	Potential Hazard; If Yes please add i	Lab (Isu Only,
	of0	Minnesota Department of Health Environmental Laboratory 601 Robert St. North St. Paul, MN 55155-2531	Minneso Envir 60 St. Pr	·		J.	sto	Chain of Custody	in o	Cha			
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	FEISHBAT	d. Ph. Tox,	AS, Cr, Ci	W			S S	10	SK II	34-10	Morris			-
Sentina Latina			Samples (Total # of	Ascorbie Other	Nitrie Ac Sodium I Sodium I	Unpreser Hydroch Sulfuric /	Matrix Code	Time (24 Hour)	Collection Pate	Sample Source/Paint	Field ID		4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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đ	Address if Needed	×	OT = Other		ervatives	Containers & Preservatives	Corcai				A Miliation		Sampled By (Print)	Samp
			WW - Wuste Water SD - SouDSohd WP = Wipe AR - Air TS = Tissue		3182	- Win	2 Letters) D D		Program Code (2 Letters) D Contact Name Hours Id. [Contact Phone # (AC) - 24	n n v	Standard Civil/Criminal Chain of Custody (Circle One)	Standard CiviliC (Circle One)		
		Report to MDH ID	Matrix Codes DW = Drinking Water SW = Surface Water GW - Ground Water		2.44	20T BUME/SLAME	130	ne <u>Cul</u>	Client/Agency MAUOT Project Name CALEON Site ID		Potential Hazard: Yest Tarity, nown (Circle Orie). If Yes please add information to Cumments below	ential Hazard res please add	Lab Use Only,	Lab Us
	рядс 	ment of Health Laboratory 31. North \$155-2531	Minnesota Department of Health Environmental Laboratory 601 Robert St. North St. Paul, MN 55155-2531			ody	iste	C.	Chain of Custody	Cha		MINNES OT A MDH MDH		

White Client Copy	Sampler) Re		Receiving Comments:	Sampler Comments:	20093451	4	8	7 22 2 10	6	5 200	4	3	2 60- 23	200934503	# Number (Lab Use Only)	Herver	Harold	Sampled By (Print)	12400	BE0
Yellow Lab Copy	ander Book	Relinqui			2 Cr	1	0 Re	H 6	8 4	m 4	6 22	S Ba	4 1		Field ID	R	Borrolfson	Standardi Çivil/Cr (Circle One)	Potential Hazard; If Yes please add	MDH
ab Copy	N	Relinquished By / Affiliation	「「「「「「「」」」		NooKS TON	hief River	Roseau	Hallock	Graylord	ukidena	Burk Repids	Bamidj.	Virginia	Carlton	Sample Source/Point	2		Standard/Qivil/Criminal Chain of Custody (Circle One)	Potential Hazard: Yes/No/Unknown (Circle One). If Yes please add information to Comments below.	
Bink Submittee Conv					11-13-09	11-13-097	11-12-09	11-12-04	10-30-09	11-4-09	11-4-09	11-3-09	1)-3-09	11-3-09	Collection Date	651-366		lation		Cha
Conv	-11		であったの		11:00	9:00	15:00	13:30	10:00	02:01	9:08	15:45	12.45	10:30 0	Time Ma (24 Hour) Cc	6-5812		Program Code (2 Letters) DD Contact Name Harold Bottol Contact Phone # 651-366-5812	Client/Agency MN DOT Project NameOil Bimer Scimples Site ID	Chain of Custody
	11-16-09 1	Date												7 3	Code Unpreser Hydroch Sulfuric	loric Ac Acid	id container	(2 Letters) P Harold B # 651-366-	MNDO Sil Bumer	Custo
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Minnesota Department of Health Laboratory Results

Minnesota Department Of He	alth - En	vironmenta	l Labor	ratory
Final Report - Client Co	py - Report O	f Analytical R	esults	
Program: DD Program Name: OES Request No: 361555		Date Received Date Generated Request Page	d: 11-DEC	-2009
Samples: 200934503 - 200934512		Date Reported	d: 11-DEC	-2009
Sample No: 200934507				
Receiving Comments: -				
Coll Date Coll Time Location 04-NOV-2009 1030 -	<u>Lab Te</u> 16	mp <u>Site Num</u> -	ber	
Sampling Point and Sour	ce Of Sample			
WADENA				
**************************************	MPLE RESULTS	* * * * * * * * * * * * * * *	* * * * * * * * *	* * * * * * *
Unit: ADMINISTRATIVE Reviewe	d By MLK on 11	-DEC-09		
Res Coc	ult les Result	Rept Level	Units	Analysis Date
981 Analyses sent to private lab -MDH Total Halides	< 100	100	mg/kg	23-NOV-09
Sample analyzed at TestAmerica.				
995 Admin. Consultation -MDH Consultation Time				08-DEC-09
See attached report from TestAmeri	ca.			

Minnesota Department	Of Health	- Envi	ironmental	Labor	atory
- Final Report - Cl:					-
Program: DD			Date Received		-2009
Program Name: OES		Da	ate Generated	: 11-DEC	-2009
Request No: 361555			Request Page	: 10	of 20
Samples: 200934503 - 200	934512	I	Date Reported	: 11-DEC	-2009
Sample No: 200934507					
Receiving Comments: -					
Coll Date Coll Time Lo	ocation	Lab Tem	<u>o</u> <u>Site Numb</u>	er	
04-NOV-2009 1030	-	16	-		
Sampling Point a	and Source Of S	ample			
W	ADENA				
*****	**** SAMDLE R	ESIILTS **	* * * * * * * * * * * * * *	* * * * * * * *	* * * * * * *
Unit: METALS	Reviewed By J J	B on 10-D	EC-09		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
111 SW 6020 Report level was changed due	to sample dil	ution.			
Arsenic Sed, Total	<	0.4	0.4	ug/g	08-DEC-09 16:31
126 SW 6020					
Report level was changed due	to sample dil	ution.			
Cadmium Sed, Total	<	0.40	0.40	ug/g	08-DEC-09 16:31
134 SW 6020 Report level was changed due	to comple dil	ition			
Chromium Sed, Total	to sample dif	2.5	0.40	ug/g	08-DEC-09 16:31
161 SW 6020		2.5	0.10	ug/9	
Report level was changed due	to sample dil	ution.			
Lead Sed, Total		4.2	0.40	ug/g	08-DEC-09 16:31
Unit: ORGANIC CHEMISTRY	Reviewed By PI	os on 10-D	EC-09		
Note: Positive Organic Results	are indicate	d by BOLI).		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar	>	200		deg F	17-NOV-09

Minnesota Department (JI Health	1 - Env	ironmental	Labor	ratory
Final Report - Clie	ent Copy - F	leport Of	Analytical Re	sults	
Program: DD		1	Date Received	: 23-DEC	-2009
Program Name: OES		Da	ate Generated	: 04-FEB	-2010
Request No: 362952			Request Page	: 19	of 20
Samples: 200936773 - 2009	36782	I	Date Reported	: 09-FEB	-2010
Sample No: 200936782					
Receiving Comments: -					
Coll Date Coll Time Loc	cation	Lab Tem	p Site Numb	er	
16-DEC-2009 1320	-	20	-		
Sampling Point ar	nd Source Of S	Sample			
LITTL	E FALLS				
* * * * * * * * * * * * * * * * * * * *	*** SAMPLE 1	RESULTS *	* * * * * * * * * * * * * *	* * * * * * * *	* * * * * * * *
Unit: ADMINISTRATIVE	Reviewed By L	RM on 09-F	EB-10		
	Result				
	Codes	Result	Rept Level	Units	Analysis Dat
81 Analyses sent to private lab -MDH					
Total Halides		< 100	100	mg/kg	06-JAN-10
Analysis performed by TestAm	nerica.				
95 Admin. Consultation -MDH Consultation Time					04-FEB-10
See attached report from Tes	t Amorri do				04-159-10

Minnesota Department	Of Health	- Envi	ronmental	Labor	atory
Final Report - C	lient Copy - Rep	ort Of A	Analytical Re	sults	
Program: DD Program Name: OES Request No: 362952		Da	ate Received te Generated Request Page	: 04-FEB	
Samples: 200936773 - 20	0936782	D	ate Reported	: 09-FEB	-2010
Sample No: 200936782					
Receiving Comments: -					
Coll Date Coll Time I 16-DEC-2009 1320	_ocation	<u>Lab Temp</u> 20	<u>Site Numb</u>	<u>e</u> r	
Sampling Point	and Source Of Sar	mple			
LIT	TLE FALLS				
*****	**** SAMPLE RE	SULTS **	* * * * * * * * * * * * *	* * * * * * * * *	* * * * * * *
Unit: METALS	Reviewed By JJB	on 09-FE	:B-10		
	Result Codes	Result	Rept Level	Units	Analysis Date
111 SW 6020 Arsenic Sed, Total	RC <	1.0	1	ug/g	21-JAN-10 12:45
126 SW 6020 Cadmium Sed, Total	RC <	1.0	1.0	ug/g	21-JAN-10 12:45
134 SW 6020 Chromium Sed, Total	RC	1.2	1.0	ug/g	21-JAN-10 12:45
161 SW 6020 Lead Sed, Total	RC	8.9	1.0	ug/g	21-JAN-10 12:45
Unit: ORGANIC CHEMISTRY	Reviewed By PDS	on 05-FE	B-10		
Note: Positive Organic Result	s are indicated	by BOLD	•		
	Result	_			
	Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar	>	200		deg F	30-DEC-09
Result Code Description ND Not Detected RC Report level was changed	d due to sample d	ilution.			

Minneso	ta Departmen	nt Of Healt	h – Envi	.ronmental	. Labor	atory
Ame	nded Final Repo	rt - Client Cop	y - Report	Of Analytica	al Result	S
Program: DI Program Name: OB Request No: 36	IS		Da	ate Received te Generated Request Page	: 01-APR	-2010
Samples:	201004988 -	201004992		ate Reported ate Reported		
Sample No: 201 Receiving Comr						
Coll Date 10-MAR-2010		Location	Lab Temp 17	<u>Site Numb</u>	<u>er</u>	
	Sampling Po	int and Source Of	Sample		_	
* * * * * * *	************	SAUK CENTER	RESULTS **	* * * * * * * * * * * *	* * * * * * * *	* * * * * * *
Unit: ADMINI	STRATIVE	Reviewed By 1	LRM on 29-M2	AR-10		
		Result Codes	Result	Rept Level	Units	Analysis Date
981 Analyses sent t Total Halides Analys	to private lab -MI is performed by T		< 100	100	mg/kg	23-MAR-10
995 Admin. Consulta Consultation Ti	ation -MDH					29-MAR-10

See attached report from TestAmerica Laboratory.

Minnesota Departme	nt Of Health	- Envi	ronmental	Labor	atory
Amended Final Repo	rt - Client Copy	- Report (Of Analytica	al Result	S
Program: DD Program Name: OES			te Received		
Request No: 366331			e Generated Request Page		of 13
Samples: 201004988 -	201004992	Da	te Reported	: 01-APR	-2010
	0:		te Reported		
Sample No: 201004992					
Receiving Comments: -					
Coll Date Coll Time	Location	Lab Temp	Site Numb	er	
10-MAR-2010 1045	-	17	-		
Sampling Pc	oint and Source Of Sa	ample			
	SAUK CENTER				
**************	******* SAMPLE R	ESULTS ***	* * * * * * * * * * * *	* * * * * * * *	* * * * * * *
Unit: METALS	Reviewed By JJ	B on 30-MAR	8-10		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
111 SW 6020 Arsenic Sed, Total	RC <	2.0	2	ug/g	19-MAR-10 15:18
126 SW 6020					
Cadmium Sed, Total	RC <	2.0	2.0	ug/g	19-MAR-10 15:18
134 SW 6020 Chromium Sed, Total	RC <	2.0	2.0	ug/g	19-MAR-10 15:18
161 SW 6020					
Lead Sed, Total 3051 EPA 3051A	RC	6.1	2.0	ug/g	19-MAR-10 15:18
Acid Digestion of Solids	DC				16-MAR-10
Unit: ORGANIC CHEMISTRY	Reviewed By PD	s on 30-MAR	R-10		
Note: Positive Organic Resu	lts are indicated	d by BOLD.			
	Result			•.	
270 207W D 2070 70	Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar	>	200		deg F	18-MAR-10
Result Code Descriptio	n				
RC Report level was chan	ged due to sample o	dilution.			

MINNESOTA DEPARTMENT OF TRANSPORTATION USED OIL BURNER SAMPLING ON-SPEC OIL ANALYSIS

District 4 Alexandria Appleton Barnesville Benson Breckenridge **Detroit Lakes Evansville Fergus Falls** Glenwood Hawley Henning Mahnomen Moorhead Morris Ortonville Perham Wheaton



Prepared by: Minnesota Department of Transportation Office of Environmental Services Environmental Modeling and Testing Unit

March 2010

INTRODUCTION

Enclosed in this report are the results of the sampling of used oil collected at the Minnesota Department of Transportation (MNDOT) District 4 Truck Station facilities. Used oil from vehicles is placed in Lube Cube storage tanks at each of the truck stations. The Lube Cubes are connected to building heaters that burn the used oil for heat recovery.

The sampling of used oil at the District 4 facilities was conducted by personnel from the MNDOT Office of Environmental Services. For additional information, contact Harold Bottolfson at (651) 366-5812. The laboratory analysis was performed by the Minnesota Department of Health.

The results of the laboratory analysis from the samples taken at the District 4 Truck Stations show the burner oil to be within the on spec limits.

Purpose

The purpose of the sampling and analysis is to insure that the used motor oil that is burned in heating units meets MPCA rules for such practices. The oil must meet the following limits to be classified as on-spec:

- Flashpoint 100 degrees Fahrenheit minimum
- Arsenic 5 parts per million (PPM) maximum
- Cadmium 2 PPM maximum
- Chromium 10 PPM maximum
- Lead 100 PPM maximum
- Total Halogens 1000 PPM maximum

Procedures

The oil was sampled from the storage tank with a Coliwasa sampler. The Coliwasa sampler is a 70" long polypropylene tube that is 1" diameter. The sampler has caps at each end that can be opened and closed by using a control rod that runs through the length of the tube. During the sampling, the end caps were opened and the coliwasa was slowly lowered into the tank so that a vertical column sample could be obtained. The sampler was lowered to the top of the sludge layer so that only the oil to be burned would be sampled. The oil from the sampler was placed in a sample bottles provided by the Minnesota Department of Health, which was contracted to analyze the sample. As the sample was released into the bottle, it was carefully observed for any discolorations or changes in the composition of the material. Notes were taken of the procedures during the sampling process.

Laboratory analysis methods for each of the listed parameters are as follows:

PARAMETER	METHOD
Flashpoint	ASTM D 3278-78
Metals	SW 6020
Total Halogens	SW846 9076

Results

The observation notes taken during the sampling are as follows:

The oil removed from the tanks with the coliwasa did not show segments or layering. The oil removed did not have any unusual odors and seemed consistent with the look and smell of used oil.

Oil Level in the tanks

Alexandria	About ¾ full
Appleton	10" of oil with 3" of sludge
Barnesville	18" of oil with 1" of sludge
Benson	About ½ full
Breckenridge	6" of oil
Detroit Lakes	38" of oil with about 2" of sludge
Evansville	24" of oil
Fergus Falls	20" of oil with about 2" of sludge
Glenwood	About ½ full
Hawley	About ¼ full
Henning	24" of oil
Mahnomen	8" of oil
Moorhead	20" of oil

Morris	28" of oil
Ortonville	About ½ full
Perham	6" of oil
Wheaton	7" of oil

MN/DOT District 4 Used Oil Sampling Laboratory Results (Values in PPM)

Sample Location	Date	Flashpoint (F)	Arsenic	Cadmium	Chromium	Lead	Total Halogens
Alexandria	12/22/2009	>200	<1.0	<1.0	1.4	7.2	139
Appleton	2/26/2010	>200	<2.0	<2.0	<2.0	9.5	<100
Barnesville	12/15/2009	170	<1.0	<1.0	1.2	3.1	<100
Benson	12/21/2009	>200	<1.0	<1.0	1.3	5	<100
Breckenridge	3/9/2010	158	<2.0	<2.0	<2.0	2.7	<100
Detroit Lakes	12/16/2009	>200	<1.0	<1.0	<1.0	3.8	<100
Evansville	12/22/2009	>200	<1.0	<1.0	1.7	18	282
Fergus Falls	12/15/2009	190	<1.0	<1.0	2.1	13	219
Glenwood	12/22/2009	>200	<1.0	<1.0	2.2	5.2	<100
Hawley	12/4/2009	>200	<1.0	<1.0	1.5	5.6	180
Henning	12/16/2009	>200	<1.0	<1.0	1.4	3.7	<100
Mahnomen	12/3/2009	>200	<1.0	<1.0	2.4	4.3	208
Moorhead	3/10/2010	>200	<2.0	<2.0	<2.0	6.7	<100
Morris	3/9/2010	>200	<2.0	<2.0	<2.0	7.2	<100
Ortonville	12/21/2009	>200	<1.0	<1.0	2.4	5.2	141
Perham	12/4/2009	>200	<1.0	<1.0	3	4.8	193
Wheaton	3/9/2010	>200	<2.0	<2.0	<2.0	3.8	120
On Spec Limits		100 Minimum	5 Maximum	2 Maximum	10 Maximum	100 Maximum	1000 Maximum

*Values in Red are Off Spec

Alexandria Used Oil Container



Barnesville Used Oil Container



Breckenridge Used Oil Container



Evansville Used Oil Container



Fergus Falls Used Oil Container



Glenwood Used Oil Container



Hawley Used Oil Container



Henning Used Oil Container



Mahnomen Used Oil Container



Moorhead Used Oil Container



Morris Used Oil Container



Perham Used Oil Container



Wheaton Used Oil Container



Minnesota Department of Health Chain of Custody

While Client Copy		Sampler) 74 Age		ampler Comments:										Sampier Signature Frankl	Harold		Siandard	l If Ye	1.zh Lse Only. Poten		I K
Yellow Lab Copy		hoter	Relinquished By / Affiliation			FOREST LAKE	Wilman	Glenword	Evansuille	Alexandria	Ortignutie	Benson	Field ID Sample Source/Point	College -	Borrolfson 1		Standard/Civil/Criminal Chain of Custody (Crease One)	IF Yes please add information to Comments bulow	Potennal Hazard: Yes No Unknown (Circle One).		A TO S 3 N N I
Pink Submitter Copy						12-23-09 12.30	11-17-09 12:30	12-22-09 10:35	12-2-09 9:00	12-22-09 9:45	12-21-09 (3:00	12-21-09-11-05	Collection Time Date (24 Hour)	mone 651 36-5812	A ffillarion	Contact Phone #				Chain (
	┥┥	<u>م</u>				× K						OT 3	Unpreser Hydrochi Sulfuric J	ved Imic Acie Acid	Containers	hone # 651-366-5812	Program Code (2 Letters) DD	Site (D	Client/Agency MN DOT	Chain of Custody	
			06 74 S		· · · · ·	4						E I I S	Sodium Sodium Ascorbic Other Total # of 0	lydroxide Diosulfat Acid	• • • •		æ			ły	
	- Langua		- X21 WARKEY WARE FARME			$\left< \right $						AS.C.M	Samples F	ield Fritagre <u>67N</u>	d: Clr = Other	AR - Air TS = Tissue	WW = Waste Water SD = Soul/Solid WP Wipe	DW - Drinking Water SW - Surface Water GW = Ground Water	<u>Matrix Codeş</u>	Minnesola Department of Health Environmental Laboratory 601 Robert St. North St. Paul, MN 55155-2531	
												2 7		Requested Analysis:	Addr			MDH 10	Report to	rnent of Health Laboratory St. North S155-2531	
	14-25-07 1340	- <u></u>									11-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1				Address if Needed					Page of	

MDH 1000 33070

							-		ίψ. Γ	Pink Submitter Copy	Yellow Lab Copy	Yellow I	White Client Copy
Ì							╀						
12-610	12-23-04	any well	- 1		h	9:51		2-23-09		-			(Sampler) Horold (2005)
Time	Date	scopted By / Affiliation	Accepted I			in e		Date			Listicu by / Altilitation		
											e newskie waarden de alle een waarden ee		Sempler Contrients: Weise Status (Status)
			4		_			ŧ	3,20	12-16-09 13.20	Little Fulls	<u> </u>	10
		1						 	0.55	12-16-09 10:55	Henning	H	6 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)
								 	2:00	12-16-09 9:00		R	
									5.02		Brnesulle	5	
		-							12:26	12-15 37	Fergus Fulls		
		-							13:20	12-4-04 1	Perham		
									0:55	12-4-09/10:55	Hawley		4
									<u>4;05</u>	12-4-09			
						_			15:50	12-3091	Mahnemen		
	Flech B. 19 T	ricd Ph Tny 1	3	ω				OTB	Ni Jo	12-3-56	Ada		
				Total # of Samples P	Other	Sodium I Sodium I Ascorbic	Sulfurie Nitrie Ac	Code Unpreser Hydroch	Time (24 Hour)	Collection Date	Sample Source/Point	Field ID	
		Requested Analysis:	<u>1/N</u>	Container		Thiosulfa	Acid rid	ved	366-5812		Physe 65	Bouletter	Sampler Signature
				_								Borroltson	Hareld
	Address if Needed		Other	OT:	ľ	7					AfDiation		Sampled By (Print)
!			w w = Waste Water SD = Sort/Solid WP = Wipe AR = Ain TS - Tissue	TANG SIN		Borbitson	¢ [8] D	Program Code (2 Letters) <u>DD</u> Contact Name <u>Horoed</u> <u>Berricht (So</u> r) Contact Phone # <u>6 51 - 216 - 59</u> 77	ogram Co Dulact Nan	2 2 3	Standard Civil/Criminal Chain of Custody (Circle One)	Standard Civil/Cr [Circle One]	
		Report to ater MDH ID	Matrix <u>Codes</u> DW - Drinking Water SW - Surface Water GW = Ground Water	CIN Ma	Ales		- Mer	Client/Agency MN/DOT Project Name O.1 Burner Schmeles Sile ID	Client/Agen Project Nam Sile ID	-	Potential Hazard: Yestig Unknown (Circle One). If Yes please add information to Comments below	Potential Hazard: If Yes please add	Lab Usu Only,
	of0	Minnesota Department of Health Environmental Laboratory 601 Robert St. North St. Paul, MN 55155-2531	Minnesot Envire 601 St. Pa		4	V	tod	Chain of Custody	in of	Chai			
ĺ				ĺ							5 0 7 A	N N N E S	

MDH 1000 33069

winne chiedh c <i>hig</i> y	(Sampler)		Sampler Connents:			6		4					Atrold Bat	Marche 150	đ	Stand	Lab Use Only. Poten	
r снож Laв сору		Kenndanan taki vitatianoo		APPIETON	Marshall	Windom	New UM	ST. Peter	Oghdale:#2	Oardule #1	Maryland	etd In Sample Source/Point	- Alter	tontal (son		Standard/Civil:Criminal Chain of Custody (Circle One)	Potential Hazard: Yee NGUnknown (Circle One). If Yes please add information to Comments below.	MINNESOTA MDJH
Pink Submitter Copy				3-26-16 11.30	2-26-10 8:00	2-25-10 14:30	2-25-10 11-30	2-25-10 9:30	2-19-10 11-15	2-19-10 11:00	2-19-10 10:30	Collection Time Date (24 Hour)	651-366-5812		Affliation		-	Chain o
	2mar 10 10=33			<u>ج</u>							073	Unpreser Hydrochl Sulfaric A Nitrie Ac	ved loric Ad Acid		Containors & Preservatives	Program Code (2 Letters) DD Contact Name How 314, 30172 (Kg Contact Phone # 167 - 369 - 587 2	Clioni/Agency MV DOT Project Name <u>ON</u> Burner Sconples Site ID	Chain of Custody
	Jan &			E							E	Sodium 7 Ascorbic Other Total # of 1 Samples F	Contuin	laie crs	tives	212 1/39/0		
	Harden M	Accepted By / Affiliat		<							AS, Cr, cd		<u>YN</u>			WW = Waste Water SD ~ Soi/Soild WP = Wije AR = Air TS - Tissue	Matrix Cudes DW - Drinking Water SW - Surface Water GW - Crownd Water	Minnesota Department of Health Environmental Laboratory 601 Robert St. North St. Paul, MN 55155-2531
MDH 1000	MOH	90n			-	-					YOT dr		-	Requested Analysis:	BILK.		Report to MDH [I)	rtment of Health 11 Laboratory 151, North 55155-2531
33188	3-2-10 11	Date				<u> 26</u> 0720		(1937) (1937)		9 	Flaush72:NT	10 Barris Ma			Alloress II Needed			Page (0f
	1035	Time										i ven me	11647-0473				 	*····- [

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3	35073	MDH 1000							(dor	nini ambinina Coby	тепам скол пр	Tellus	i cupo	and a second
										Di Lecharia		V-11	- C	White Ciliano
<u> </u> .					1.							0		
0 11:00	3-12-10	HOW	Sman		Ĺ	3-17-10	ļ '	1.00					Henold	(Sampler)
Time	Date	tion	Accepted By / Affiliation	2			k	Date			inquisnee By Artillation	Keling		
								la di						
				ĺ									omments:	Sampler Comments:
												 		10
														9
			-					ļ						8
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														6
				ج	 			((10.45	3-10-10 1	Swrantre			5 4
									51:2	3-10-10	Moorhead			4
						 			14:30	3-9-10	Brecherviolare			E
						-			01-10	3-9-10	Wheaton			2
	FEISHBAT	d. Ph. Tok,	AS Cr.C	Ψ				073	INS .	34-10	Monts			-
Sentina Latina			Samples (Total # of	Ascorbie Other	Nitrie Ac Sodium I Sodium I	Hydroch Sulfuric a	Code Unpreser		Collection Date	Sample Source/Paint	Field ID		4 1 1 1 1
		veducated tenaitysis.	iield Falle <u>Y/</u> N		Acad	lydroxic	loric Aci Acid	sard	Ň	-366-5812	M 651-	Soldar	Sampler Signature ZFayoll	X Similar
			red.			le . Itc	d					RONTOHSON	1	
ġ	Address if Needed	A	07 = Other	_	matives	Cortainers & Preservatives	Corcain				A filiation		Sampled By (Print)	Sample
			WW - Wuste Water SD - SouDSolid WP = Wipe AR - Air TS = Tissue		17216	- Win	1- <u>214</u> <u>30</u>	$\frac{1}{10} (2 \text{ Letters}) \sum_{n=1}^{\infty} \frac{1}{n} \sum_{i=1}^{n} \frac{1}{n}$	Program Code (2 Letters) D Contact Name Hours Id. [Contact Phone # (AC) - 24	2 2 3	Standard Civil/Criminal Chain of Custody (Circle One)	Slandard CiviliC (Circle One)		
		Report to MDH ID	Matrix Codes DW = Drinking Water SW = Surface Water GW - Ground Water	· 19/5 ·		DOT BUTHETSLATES	BUY		Client/Agency MADOT Project Name CAL BOY Site ID	•	Potential Hazard: Yest Tarity, known (Circle One). If Yes please add information to Comments below	rential Hazard Yes please add		Lab Lise Only
	Page	ment of Health Laboratory 31. North \$155-2531	Minnesota Department of Health Enviroumental Laboratory 601 Robert St. North St. Paul, MN 55155-2531			dy	sto	Cu	Chain of Custody	Chai		MINNES OT A MDH MDH		

Minnesota Department of Health Laboratory Results

Final Report - C	lient Copy	- Report Of	Analytical Re	sults	
Program: DD		I	Date Received	: 02-MAR	-2010
Program Name: OES		Da	ate Generated	: 23-MAR	-2010
Request No: 365936			Request Page	: 15	of 16
Samples: 201004306 - 20	1004313	I	Date Reported	: 23-MAR	-2010
Sample No: 201004313				-	
Receiving Comments: -					
Coll Date Coll Time	Location	Lab Tem	o Site Numb	er	
26-FEB-2010 1130		13	-		
Sampling Point	and Source (Of Sample			
2	PPLETON		,		
******	***** SAMPL	E RESULTS **	* * * * * * * * * * * * * *	******	****
Unit: ADMINISTRATIVE	Reviewed B	y LRM on 22-M	AR-10		•
	Result	:			
	Codes	Result	Rept Level	Units	Analysis Da
981 Analyses sent to private lab -MDH				()	
Total Halides	+ >	< 100	100	mg/kg	08-MAR-1
Analysis performed by Tes	CAMERICA LAD	pratory.			
995 Admin. Consultation -MDH Consultation Time					22 - MAR-
See attached report from	TestAmerica	Laboratory			

Minnesota Department	Of Health	- Env:	ironmental	Labor	atory
Final Report - Cl	ient Copy - Re	port Of	Analytical Re	sults	
Program: DD Program Name: OES Request No: 365936			Date Received ate Generated Request Page	: 23-MAR	
Samples: 201004306 - 201	004313	I	Date Reported	: 23-MAR	-2010
Sample No: 201004313					
Receiving Comments: -					
<u>Coll Date</u> <u>Coll Time</u> <u>L</u> 26-FEB-2010 1130	ocation	Lab Tem 13	p <u>Site Numb</u>	<u>e</u> r	
Sampling Point	and Source Of Sa	mple			
AI	PLETON				
******	**** SAMPLE RE	SULTS **	************	******	* * * * * * *
Unit: METALS	Reviewed By JJ	3 on 23-M	AR-10		
	Result Codes	Result	Rept Level	Units	Analysis Date
111 SW 6020 Arsenic Sed, Total	RC <	2.0	2	ug/g	19-MAR-10 14:49
126 SW 6020 Cadmium Sed, Total	RC <	2.0	2.0	ug/g	19-MAR-10 14:49
134 SW 6020 Chromium Sed, Total	RC <	2.0	2.0	ug/g	19-MAR-10 14:49
161 SW 6020 Lead Sed, Total	RC	9.5	2.0	ug/g	19-MAR-10 14:49
Unit: ORGANIC CHEMISTRY	Reviewed By PD:	s on 23-M	AR-10		
Note: Positive Organic Results	are indicated Result	l by BOLI).		
	Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar	>	200		deg F	08-MAR-10
Result Code Description RC Report level was changed	due to sample d	ilution.			

Minnesota Department (or Health	n – Envi	ronmental	. Labor	ratory
Final Report - Clie	ent Copy - H	Report Of	Analytical Re	esults	
Program: DD		I	Date Received	: 23-DEC	-2009
Program Name: OES		Da	ate Generated	: 04-FEB	-2010
Request No: 362948			Request Page	: 1	of 14
Samples: 200936783 - 2009	36789	I	Date Reported	: 09-FEB	-2010
Sample No: 200936783					
Receiving Comments: -					
Coll Date Coll Time Loc	cation	Lab Tem	o Site Numb	er	
21-DEC-2009 1105	-	20	-		
Sampling Point ar	nd Source Of S	Sample			
BE	NSON				
******	*** SAMPLE	RESULTS **	* * * * * * * * * * * * *	* * * * * * * *	* * * * * * * *
Unit: ADMINISTRATIVE	Reviewed By I	RM on 09-F	EB-10		
	Result				
	Codes	Result	Rept Level	Units	Analysis Dat
81 Analyses sent to private lab -MDH Total Halides	ND	< 100	100	mg/kg	06-JAN-10
- a a		< 100	100	mg/kg	06-JAN-10
		< 100	100	mg/kg	06-JAN-10 04-FEB-10

Minnesota Department Of	Health - Envi	ironmental	Labor	atory					
Final Report - Client Copy - Report Of Analytical Results									
Program: DD Program Name: OES Request No: 362948		Date Received: ate Generated: Request Page:	04-FEB						
Samples: 200936783 - 200936789 Date Reported: 09-FEB-2010									
Sample No: 200936783									
Receiving Comments: -									
Coll Date Coll Time Locat 21-DEC-2009 1105 -	ion <u>Lab Tem</u> j 20	o <u>Site Numbe</u> -	<u>e</u> r						
Sampling Point and S	Source Of Sample								
BENSO	N								
* * * * * * * * * * * * * * * * * * * *	* SAMPLE RESULTS **	* * * * * * * * * * * * * *	* * * * * * *	* * * * * * *					
Unit: METALS Rev	iewed By JJB on 09-F 1	EB-10							
	Result								
	Codes Result	Rept Level	Units	Analysis Date					
111 SW 6020 Arsenic Sed, Total	RC < 1.0	1	ug/g	21-JAN-10 12:48					
126 SW 6020 Cadmium Sed, Total	RC < 1.0	1.0	ug/g	21-JAN-10 12:48					
134 SW 6020 Chromium Sed, Total	RC 1.3	1.0	ug/g	21-JAN-10 12:48					
161 SW 6020 Lead Sed, Total	RC 5.0	1.0	ug/g	21-JAN-10 12:48					
Unit: ORGANIC CHEMISTRY Rev	iewed By PDS on 05-F 1	EB-10							
Note: Positive Organic Results are	e indicated by BOLD).							
	Result Codes Result	Rept Level	Units	Analysis Date					
270 ASTM D 3278-78 Flash Point, Pen-Mar									

Minnesota Department Of He	ealth -	Envir	onmental	Labor	atory
Final Report - Client Co	py - Repor	rt Of Ana	alytical Res	sults	
Program: DD Program Name: OES Request No: 362948		Date	e Received: Generated: quest Page:	04-FEB-	
Samples: 200936783 - 200936789		Dat	e Reported:	09-FEB-	-2010
Sample No: 200936784 Receiving Comments: -					
Coll Date Coll Time Location 21-DEC-2009 1300 -	<u>La</u>	<u>b Temp</u> 20	Site Numbe	<u>e</u> r	
Sampling Point and Source	ce Of Samp	ole			
ORTONVILLE	:				
**************************************	MPLE RESU	LTS ****	* * * * * * * * * * *	* * * * * * * *	* * * * * * *
Unit: ADMINISTRATIVE Reviewe	ed By LRM or	n 09-FEB-	10		
	sult les Re	sult R	ept Level	Units	Analysis Date
981 Analyses sent to private lab -MDH Total Halides	14	11	100	mg/kg	06-JAN-10
Analysis performed by TestAmerica. 995 Admin. Consultation -MDH Consultation Time See attached report from TestAmeri					04-FEB-10

Minnesota Department Of	Health - Envi	ironmental	Labora	atory					
Final Report - Client Copy - Report Of Analytical Results									
Program: DD Program Name: OES Request No: 362948		Date Received: ate Generated: Request Page:	04-FEB-						
Samples: 200936783 - 200936789 Date Reported: 09-FEB-2010									
Sample No: 200936784									
Receiving Comments: -									
Coll Date Coll Time Locat 21-DEC-2009 1300 -	ion <u>Lab Tem</u> j 20	<u>o</u> <u>Site Numbe</u> -	Ĩ						
Sampling Point and S	Source Of Sample								
ORTONV	LLE								
*****	* SAMPLE RESULTS **	* * * * * * * * * * * * * *	* * * * * * * *	* * * * * *					
Unit: METALS Rev	iewed By JJB on 09-F 1	EB-10							
	Result								
	Codes Result	Rept Level	Units	Analysis Date					
111 SW 6020 Arsenic Sed, Total	RC < 1.0	1	ug/g	21-JAN-10 12:58					
126 SW 6020 Cadmium Sed, Total	RC < 1.0	1.0	ug/g	21-JAN-10 12:58					
134 SW 6020 Chromium Sed, Total	RC 2.4	1.0	ug/g	21-JAN-10 12:58					
161 SW 6020 Lead Sed, Total	RC 5.2	1.0	ug/g	21-JAN-10 12:58					
Unit: ORGANIC CHEMISTRY Rev	iewed By PDS on 05-F 1	EB-10							
Note: Positive Organic Results are	e indicated by BOLL).							
	Result Codes Result	Rept Level	Units	Analysis Date					
270 ASTM D 3278-78 Flash Point, Pen-Mar	> 200		deg F	31-DEC-09					

Minne	sota	a Departme	nt Of Healt	h – Envi	ironmenta	l Laboi	ratory
	F	inal Report -	Client Copy -	Report Of	Analytical R	esults	
Program	DD			I	Date Received	l: 23-DEC	-2009
Program Name	OES			Da	ate Generated	l: 04-FEB	8-2010
Request No	362	948			Request Page	e: 5	of 14
Samp	es:	200936783 -	200936789	I	Date Reported	l: 09-FEB	3-2010
Sample No:	20093	36785					
Receiving C	omme	ents: -					
Coll Dat	е	Coll Time	Location	Lab Tem	p Site Numl	ber	
22-DEC-20	09	0945	-	20	-		
		Sampling Pc	int and Source Of	Sample			
			ALEXANDRIA				
* * * * *	* * * * *	* * * * * * * * * * * * * * *	****** SAMPLE	RESULTS **	* * * * * * * * * * * * *	******	* * * * * * *
Unit: ADM	INIS	TRATIVE	Reviewed By	LRM on 09-F	EB-10		
			Result				
			Codes	Result	Rept Level	Units	Analysis Dat
981 Analyses se Total Halid		private lab -M	DH	139	100	mg/kg	06-JAN-10
Ana	lysis	performed by 7	estAmerica.				
95 Admin. Cons Consultatio		-					04-FEB-10
Geo	2++2	ched report fro	om TestAmerica.				

Minnesota Department Of	Health - Envi	ironmental	Labora	tory				
Final Report - Client Copy - Report Of Analytical Results								
Program: DD Program Name: OES Request No: 362948		Date Received: ate Generated: Request Page:	04-FEB-2					
Samples: 200936783 - 200936789 Date Reported: 09-FEB-2010								
Sample No: 200936785								
Receiving Comments: -								
Coll Date Coll Time Loca 22-DEC-2009 0945 -	tion <u>Lab Tem</u> j 20	<u>o</u> <u>Site Numbe</u> -	<u>9</u> Г					
Sampling Point and	Source Of Sample							
ALEXAN	DRIA							
* * * * * * * * * * * * * * * * * * * *	* SAMPLE RESULTS **	* * * * * * * * * * * * * *	* * * * * * * * *	* * * * * *				
Unit: METALS Rev	riewed By JJB on 09-F	EB-10						
	Result Codes Result	Rept Level	Units	Analysis Date				
111 SW 6020 Arsenic Sed, Total	RC < 1.0	1	ug/g	21-JAN-10 13:01				
126 SW 6020 Cadmium Sed, Total	RC < 1.0	1.0	ug/g	21-JAN-10 13:01				
134 SW 6020 Chromium Sed, Total	RC 1.4	1.0	ug/g	21-JAN-10 13:01				
161 SW 6020 Lead Sed, Total	RC 7.2	1.0	ug/g	21-JAN-10 13:01				
Unit: ORGANIC CHEMISTRY Rev	viewed By PDS on 05-F	EB-10						
Note: Positive Organic Results ar	e indicated by BOLI Result).						
	Codes Result	Rept Level	Units	Analysis Date				
270 ASTM D 3278-78 Flash Point, Pen-Mar	> 200		deg F	31-DEC-09				

Minnesota Department	Of Health	– Envi	ironmental	Labor	ratory	
Final Report - Cli	.ent Copy - R	eport Of	Analytical Re	sults		
Program: DD Program Name: OES Request No: 362948			Date Received ate Generated Request Page	: 04-FEB	-2010	
Samples: 200936783 - 2009	936789	I	Date Reported	: 09-FEB	-2010	
Sample No: 200936786 Receiving Comments: -						
Coll Date Coll Time Lo 22-DEC-2009 0900	cation	<u>Lab Tem</u> 20	o <u>Site Numb</u> -	<u>e</u> r		
Sampling Point a	nd Source Of S	ample				
EVA	NSVILLE			-		
*****	**** SAMPLE F	RESULTS **	* * * * * * * * * * * * *	* * * * * * * *	* * * * * * * *	
Unit: ADMINISTRATIVE	Reviewed By L	RM on 09-F	EB-10			
	Result					
	Codes	Result	Rept Level	Units	Analysis Date	Э
981 Analyses sent to private lab -MDH Total Halides		282	100	mg/kg	06-JAN-10	
Analysis performed by TestA	merica.					
995 Admin. Consultation -MDH Consultation Time					04-FEB-10	
See attached report from Te	stAmerica.					

Minnesota Department Of	Health - Envi	ronmental	Labor	atory				
Final Report - Client Copy - Report Of Analytical Results								
Program: DD Program Name: OES Request No: 362948	Da	ate Received: te Generated: Request Page:	04-FEB					
Samples: 200936783 - 200936789 Date Reported: 09-FEB-2010								
Sample No: 200936786								
Receiving Comments: -								
Coll Date Coll Time Locat 22-DEC-2009 0900 -	ion <u>Lab Temp</u> 20	<u>site Numbe</u> -	<u>s</u> r					
Sampling Point and	Source Of Sample							
EVANSV	ILLE							
* * * * * * * * * * * * * * * * * * * *	* SAMPLE RESULTS **	* * * * * * * * * * * * *	* * * * * * * *	* * * * * * *				
Unit: METALS Rev	iewed By JJB on 09-FE	B-10						
	Result							
	Codes Result	Rept Level	Units	Analysis Date				
111 SW 6020 Arsenic Sed, Total	RC < 1.0	1	ug/g	21-JAN-10 13:05				
126 SW 6020 Cadmium Sed, Total	RC < 1.0	1.0	ug/g	21-JAN-10 13:05				
134 SW 6020 Chromium Sed, Total	RC 1.7	1.0	ug/g	21-JAN-10 13:05				
161 SW 6020 Lead Sed, Total	RC 18	1.0	ug/g	21-JAN-10 13:05				
Unit: ORGANIC CHEMISTRY Rev	iewed By PDS on 05-FE	B-10						
Note: Positive Organic Results are		•						
	Result Codes Result	Rept Level	Units	Analysis Date				
270 ASTM D 3278-78 Flash Point, Pen-Mar	> 200		deg F	31-DEC-09				

	Final Report	- Client Copy	- Report Of	Analytical Re	sults		
Program:	DD]	Date Received	: 23-DEC	-2009	
Program Name:	OES		Da	ate Generated	: 04-FEB	-2010	
Request No:	362948			Request Page	: 9	of 14	
Sample	es: 200936783 -	- 200936789	1	Date Reported	: 09-FEB	-2010	
Sample No: 2	00936787						
Receiving Co	mments: -						
Coll Date	Coll Time	Location	Lab Tem	p Site Numb	er		
22-DEC-200	1035	-	20	-			
	Sampling I	Point and Source	Of Sample				
		GLENWOOD					
* * * * * *	* * * * * * * * * * * * * * * *	******** SAMP	LE RESULTS *	* * * * * * * * * * * * *	* * * * * * * *	* * * * * * * *	
	**************************************	-	LE RESULTS ** By LRM on 09-F		* * * * * * * * *	*****	
		-	By LRM on 09-F		* * * * * * * *	* * * * * * *	
		Reviewed E	By LRM on 09-F	EB-10		******** Analysis	Date
Unit: ADMI	NISTRATIVE to private lab -	Reviewed E Resul Codes	y LRM on 09-F t Result	EB-10 Rept Level	Units	Analysis	
Unit: ADMI 31 Analyses sent Total Halides	NISTRATIVE to private lab -	Reviewed E Resul Codes	By LRM on 09-F	EB-10			
Unit: ADMI 81 Analyses sent Total Halides Anal	NISTRATIVE to private lab - s ysis performed by	Reviewed E Resul Codes	y LRM on 09-F t Result	EB-10 Rept Level	Units	Analysis	
Unit: ADMI 81 Analyses sent Total Halides	NISTRATIVE to private lab - s ysis performed by ltation -MDH	Reviewed E Resul Codes	y LRM on 09-F t Result	EB-10 Rept Level	Units	Analysis	1-10

Minnesota Department Of	Health - Envi	ronmental	Labor	atory				
Final Report - Client Copy - Report Of Analytical Results								
Program: DD Program Name: OES Request No: 362948	Da	ate Received: te Generated: Request Page:	04-FEB					
Samples: 200936783 - 200936789 Date Reported: 09-FEB-2010								
Sample No: 200936787								
Receiving Comments: -								
Coll Date Coll Time Locat 22-DEC-2009 1035 -	ion <u>Lab Temp</u> 20	<u>site Numbe</u> -	<u>s</u> r					
Sampling Point and S	Source Of Sample							
GLENWO	DOD							
* * * * * * * * * * * * * * * * * * * *	* SAMPLE RESULTS **	* * * * * * * * * * * * *	* * * * * * *	* * * * * * *				
Unit: METALS Rev	iewed By JJB on 09-FE	EB-10						
Result								
	Codes Result	Rept Level	Units	Analysis Date				
111 SW 6020 Arsenic Sed, Total	RC < 1.0	1	ug/g	21-JAN-10 13:08				
126 SW 6020 Cadmium Sed, Total	RC < 1.0	1.0	ug/g	21-JAN-10 13:08				
134 SW 6020 Chromium Sed, Total	RC 2.2	1.0	ug/g	21-JAN-10 13:08				
161 SW 6020 Lead Sed, Total	RC 5.2	1.0	ug/g	21-JAN-10 13:08				
Unit: ORGANIC CHEMISTRY Rev	iewed By PDS on 05-FB	EB-10						
Note: Positive Organic Results are	e indicated by BOLD	•						
	Result Codes Result	Rept Level	Units	Analysis Date				
270 ASTM D 3278-78 Flash Point, Pen-Mar	> 200		deg F	31-DEC-09				

Minnesota Department					acory
Final Report - Cl	ient Copy - R				
Program: DD			Date Received		
Program Name: OES		Da	ate Generated		
Request No: 362952			Request Page	: 3	of 20
Samples: 200936773 - 200	936782	I	Date Reported	: 09-FEB	-2010
Sample No: 200936774					
Receiving Comments: -					
Coll Date Coll Time Lo	ocation	Lab Tem	o Site Numb	er	
03-DEC-2009 1550	-	20			
Sampling Point a	and Source Of S	Sample			
MA	HNOMEN			-	
* * * * * * * * * * * * * * * * * * * *	**** SAMPLE 1	RESULTS **	* * * * * * * * * * * * *	* * * * * * * *	* * * * * * * *
Unit: ADMINISTRATIVE	Reviewed By L	RM on 09-F	EB-10		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
81 Analyses sent to private lab -MDH		208	100	mg/kg	06-JAN-10
Total Halides		200	±00	5, 5	
	America.	200	200	5, 5	
Total Halides	America.	200	200		
Total Halides Analysis performed by Test	America.	200		5, 5	04-FEB-10

Minnesota Department Of	Health - Envi	ironmental	Labor	atory
Final Report - Client	Copy - Report Of	Analytical Rea	sults	
Program: DD Program Name: OES Request No: 362952		Date Received: ate Generated: Request Page:	04-FEB	
Samples: 200936773 - 2009367	7 82	Date Reported:	09-FEB	-2010
Sample No: 200936774				
Receiving Comments: -				
Coll Date Coll Time Locat 03-DEC-2009 1550 -	ion <u>Lab Tem</u> j 20	<u>o</u> <u>Site Numbe</u> -	<u>s</u> r	
Sampling Point and S	Source Of Sample			
MAHNO	IEN			
* * * * * * * * * * * * * * * * * * * *	* SAMPLE RESULTS **	* * * * * * * * * * * * * *	* * * * * * *	* * * * * * *
Unit: METALS Rev	iewed By JJB on 09-F 1	EB-10		
	Result Codes Result	Rept Level	Units	Analysis Date
111 SW 6020 Arsenic Sed, Total	RC < 1.0	1	ug/g	21-JAN-10 12:13
126 SW 6020 Cadmium Sed, Total	RC < 1.0	1.0	ug/g	21-JAN-10 12:13
134 SW 6020 Chromium Sed, Total	RC 2.4	1.0	ug/g	21-JAN-10 12:13
161 SW 6020 Lead Sed, Total	RC 4.3	1.0	ug/g	21-JAN-10 12:13
Unit: ORGANIC CHEMISTRY Rev	iewed By PDS on 05-F	EB-10		
Note: Positive Organic Results are	e indicated by BOLI).		
	Result Codes Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78				

Final Report -	Client Copy - F	Report Of .	Analytical Re	sults	
Program: DD		Γ	ate Received	23-DEC	-2009
rogram Name: OES		Da	te Generated	04-FEB	-2010
Request No: 362952			Request Page	7	of 20
Samples: 200936773 -	200936782	I	ate Reported	09-FEB	-2010
Sample No: 200936776					
Receiving Comments: -					
<u>Coll Date</u> <u>Coll Time</u>	Location	Lab Temp	<u>Site Numbe</u>	<u>ə</u> r	
04-DEC-2009 1055	-	20	-		
Sampling Po	int and Source Of S	Sample			
	HAWLEY				
******	****** SAMPLE	RESULTS **	* * * * * * * * * * * * * *	* * * * * * * *	* * * * * * * *
**************************************	****** SAMPLE : Reviewed By I			* * * * * * * *	* * * * * * *
				* * * * * * *	* * * * * *
	Reviewed By L		EB-10		******* Analysis Dat
Unit: ADMINISTRATIVE	Reviewed By I Result Codes	RM on 09-FI	EB-10		
Unit: ADMINISTRATIVE	Reviewed By I Result Codes	RM on 09-FI Result	B-10 Rept Level	Units	Analysis Dat
Unit: ADMINISTRATIVE 31 Analyses sent to private lab -MD Total Halides	Reviewed By I Result Codes	RM on 09-FI Result	B-10 Rept Level	Units	Analysis Dat

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Program: DD Program Name: OES Request No: 362952	I	Date Received Date Generated Request Page	04-FEB	
Samples: 200936773 - 200936	782	Date Reported	09-FEB	-2010
Sample No: 200936776				
Receiving Comments: -				
Coll Date Coll Time Loca 04-DEC-2009 1055 -	tion <u>Lab Ten</u> 20	np <u>Site Numb</u>	<u>ə</u> r	
Sampling Point and	Source Of Sample			
HAWI	EY			
*****	* SAMPLE RESULTS *	* * * * * * * * * * * * * * *	* * * * * * *	* * * * * * *
Unit: METALS Rev	riewed By JJB on 09- :	FEB-10		
	Result			
	Coden Derult	Rept Level		
	Codes Result	керс телет	Units	Analysis Date
111 SW 6020 Arsenic Sed, Total	RC < 1.0	1	ug/g	Analysis Date 21-JAN-10 12:19
		-		-
Arsenic Sed, Total 126 SW 6020	RC < 1.0	1	ug/g	21-JAN-10 12:19
Arsenic Sed, Total 126 SW 6020 Cadmium Sed, Total 134 SW 6020	RC < 1.0 RC < 1.0	1	ug/g ug/g	21-JAN-10 12:19 21-JAN-10 12:19
ArsenicSed, Total126SW 6020 CadmiumSed, Total134SW 6020 ChromiumSed, Total161SW 6020 LeadSed, Total	RC < 1.0 RC < 1.0 RC 1.5	1 1.0 1.0 1.0	ug/g ug/g ug/g	21-JAN-10 12:19 21-JAN-10 12:19 21-JAN-10 12:19
ArsenicSed, Total126SW 6020 CadmiumSed, Total134SW 6020 ChromiumSed, Total161SW 6020 LeadSed, Total	RC < 1.0 RC < 1.0 RC 1.5 RC 5.6 viewed By PDS on 05 -3	1 1.0 1.0 1.0 FEB-10	ug/g ug/g ug/g	21-JAN-10 12:19 21-JAN-10 12:19 21-JAN-10 12:19
Arsenic Sed, Total 126 SW 6020 Cadmium Sed, Total 134 SW 6020 Chromium Sed, Total 161 SW 6020 Lead Sed, Total Unit: ORGANIC CHEMISTRY Rev	RC < 1.0 RC < 1.0 RC < 1.5 RC 5.6 Viewed By PDS on 05-1 e indicated by BOI Result	1 1.0 1.0 1.0 FEB-10	ug/g ug/g ug/g	21-JAN-10 12:19 21-JAN-10 12:19 21-JAN-10 12:19
Arsenic Sed, Total 126 SW 6020 Cadmium Sed, Total 134 SW 6020 Chromium Sed, Total 161 SW 6020 Lead Sed, Total Unit: ORGANIC CHEMISTRY Rev	RC < 1.0 RC < 1.0 RC < 1.5 RC 5.6 Viewed By PDS on 05-1 e indicated by BOI Result	1 1.0 1.0 1.0 FEB-10	ug/g ug/g ug/g	21-JAN-10 12:19 21-JAN-10 12:19 21-JAN-10 12:19 21-JAN-10 12:19

	F	inal Report -	Client Copy -	Report Of	Analytical R	esults	
Prog	gram: DD			I	Date Received	l: 23-DEC	-2009
Program 1	Name: OES			Da	ate Generated	l: 04-FEB	-2010
Request	No: 362	952			Request Page	e: 9	of 20
5	Samples:	200936773 -	200936782	I	Date Reported	d: 09-FEB	-2010
Sample	No: 20093	36777					
Receivi	ng Comme	ents: -					
Col	I Date	Coll Time	Location	Lab Tem	<u>o</u> <u>Site Num</u> t	ber	
04-DE	C-2009	1320	-	20	-		
		Sampling Po	pint and Source O	of Sample			
			PERHAM			_	
*	*******	* * * * * * * * * * * * *	******* SAMPLE	E RESULTS **	* * * * * * * * * * * * *	* * * * * * * * *	* * * * * * *
Unit:	ADMINIST	RATIVE	Reviewed By	LRM on 09-F	EB-10		
			Result				
			Codes	Result	Rept Level	Units	Analysis Da
81 Analyse Total H		private lab -M	DH	193	100		06 TAN 1
IOLAI E		с <u>э</u> э		193	100	mg/kg	06-JAN-1
	Analysis	performed by '	l'estAmerica.				
	Consultat						

Minnesota Department Of	Health - Env	ironmental	Labor	atory
Final Report - Client	Copy - Report Of	Analytical Re	sults	
Program: DD Program Name: OES Request No: 362952		Date Received: ate Generated: Request Page:	04-FEB	
Samples: 200936773 - 200936	782	Date Reported	09-FEB	-2010
Sample No: 200936777 Receiving Comments: -				
Receiving comments.				
Coll Date Coll Time Locat 04-DEC-2009 1320 -	ion <u>Lab Tem</u> 20	p <u>Site Numbe</u> -	<u>e</u> r	
Sampling Point and	Source Of Sample			
PERH	AM			
*****	* SAMPLE RESULTS *	* * * * * * * * * * * * * *	* * * * * * * * *	* * * * * * *
Unit: METALS Rev	iewed By JJB on 09-F	'EB-10		
	Result			
	Codes Result	Rept Level	Units	Analysis Date
111 SW 6020 Arsenic Sed, Total	RC < 1.0	1	ug/g	21-JAN-10 12:22
126 SW 6020 Cadmium Sed, Total	RC < 1.0	1.0	ug/g	21-JAN-10 12:22
134 SW 6020 Chromium Sed, Total	RC 3.0	1.0	ug/g	21-JAN-10 12:22
161 SW 6020 Lead Sed, Total	RC 4.8	1.0	ug/g	21-JAN-10 12:22
Unit: ORGANIC CHEMISTRY Rev	riewed By PDS on 05-F	'EB-10		
Note: Positive Organic Results are	e indicated by BOL	D.		
	Result Codes Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78			• —	
Flash Point, Pen-Mar	> 200		deg F	30-DEC-09

	Final Report	- Client Copy -	Report Of	Analytical R	esults	
Program: I	D		1	Date Received	: 23-DEC	-2009
program Name: C)ES		Da	ate Generated	: 04-FEB	-2010
Request No: 3	862952			Request Page	: 11	of 20
Samples	: 200936773 -	- 200936782]	Date Reported	l: 09-FEB	-2010
Sample No: 20	0936778					
Receiving Com	iments: -					
Coll Date	Coll Time	Location	Lab Tem	<u>p</u> <u>Site Numb</u>	ber	
15-DEC-2009	1326	-	20	-		
	Sampling F	Point and Source C)f Sample			
	1 0		loampie			
		FERGUS FALLS			_	
*****				* * * * * * * * * * * *	- ******	* * * * * * *
		FERGUS FALLS			- ******	****
	****	FERGUS FALLS	E RESULTS *		- *****	* * * * * * *
	****	FERGUS FALLS ******** SAMPLE Reviewed By	E RESULTS *	EB-10		******* Analysis Da
Unit: ADMIN	****	FERGUS FALLS ******* SAMPLH Reviewed By Result Codes	E RESULTS * LRM on 09-F	EB-10		
Unit: ADMIN 1 Analyses sent Total Halides	*************	FERGUS FALLS ******* SAMPLH Reviewed By Result Codes	E RESULTS ** LRM on 09-F Result	EB-10 Rept Level	Units	Analysis Da
Unit: ADMIN 1 Analyses sent Total Halides	************** ISTRATIVE to private lab - sis performed by ation -MDH	FERGUS FALLS ******* SAMPLH Reviewed By Result Codes	E RESULTS ** LRM on 09-F Result	EB-10 Rept Level	Units	Analysis Da

Minnesota Department (Of Health - Env	ironmental	Laborat	ory
Final Report - Clic	ent Copy - Report Of	Analytical Res	ults	
Program: DD Program Name: OES Request No: 362952		Date Received: ate Generated: Request Page:		
Samples: 200936773 - 2009	36782	Date Reported:	09-FEB-20	10
Sample No: 200936778				
Receiving Comments: -				
Coll Date Coll Time Loc 15-DEC-2009 1326	Lab Tem	p <u>Site Numbe</u> -	ŗ	
Sampling Point a	nd Source Of Sample			
FERGU	S FALLS			
******	*** SAMPLE RESULTS *	* * * * * * * * * * * * * * *	* * * * * * * * * * *	* * * * *
Unit: METALS	Reviewed By JJB on 09-F	EB-10		
	Result			
	Codes Result	Rept Level 1	Units Ar	alysis Date
111 SW 6020 Arsenic Sed, Total	RC < 1.0	1	ug/g	21-JAN-10 12:26
126 SW 6020 Cadmium Sed, Total	RC < 1.0	1.0	ug/g	21-JAN-10 12:26
134 SW 6020 Chromium Sed, Total	RC 2.1	1.0	ug/g	21-JAN-10 12:26
161 SW 6020 Lead Sed, Total	RC 13	1.0	ug/g	21-JAN-10 12:26
Unit: ORGANIC CHEMISTRY	Reviewed By PDS on 05-F	EB-10		
Note: Positive Organic Results	are indicated by BOLI	D.		
	Result			
	Codes Result	Rept Level 1	Units Ar	alysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar	190		deg F	30-DEC-09

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Final Report - Clie	ent Copy - R	eport Of	Analytical Re	esults	
Program: DD		1	Date Received	: 23-DEC	-2009
Program Name: OES		Da	ate Generated	: 04-FEB	-2010
Request No: 362952			Request Page	: 13	of 20
Samples: 200936773 - 2009	36782]	Date Reported	: 09-FEB	-2010
Sample No: 200936779					
Receiving Comments: -					
	cation	Lab Tem	<u>p</u> <u>Site Numb</u>	er	
15-DEC-2009 1502	-	20	-		
Sampling Point ar	nd Source Of S	Sample		_	
BARNI	ESVILLE				
****	*** SAMPLE H	RESULTS **	* * * * * * * * * * * * *	* * * * * * * * *	* * * * * * *
Unit: ADMINISTRATIVE	Reviewed By L	RM on 09-F	EB-10		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
81 Analyses sent to private lab -MDH					
Total Halides		< 100	100	mg/kg	06-JAN-10
Analysis performed by TestAn	merica.				
95 Admin. Consultation -MDH Consultation Time					04-FEB-10
See attached report from Tes	stAmerica.				

Minnesota Department	Of Health - Envi	ronmental	Labor	atory
Final Report - Cli	.ent Copy - Report Of A	Analytical Res	sults	
Program: DD Program Name: OES Request No: 362952	Da	ate Received: te Generated: Request Page:	04-FEB	
Samples: 200936773 - 200	936782 D	ate Reported:	09-FEB	-2010
Sample No: 200936779				
Receiving Comments: -				
Coll DateColl TimeLo15-DEC-20091502	<u>- Lab Temp</u> 20	<u>site Numbe</u> -	<u>e</u> r	
Sampling Point a	nd Source Of Sample			
BARN	ESVILLE			
* * * * * * * * * * * * * * * * * * * *	**** SAMPLE RESULTS **	* * * * * * * * * * * * *	* * * * * * * *	* * * * * * *
Unit: METALS	Reviewed By JJB on 09-FE	B-10		
	Result			
	Codes Result	Rept Level	Units	Analysis Date
111 SW 6020 Arsenic Sed, Total	RC < 1.0	1	ug/g	21-JAN-10 12:29
126 SW 6020 Cadmium Sed, Total	RC < 1.0	1.0	ug/g	21-JAN-10 12:29
134 SW 6020 Chromium Sed, Total	RC 1.2	1.0	ug/g	21-JAN-10 12:29
161 SW 6020 Lead Sed, Total	RC 3.1	1.0	ug/g	21-JAN-10 12:29
Unit: ORGANIC CHEMISTRY	Reviewed By PDS on 05-FE	B-10		
Note: Positive Organic Results	are indicated by BOLD	•		
	Result			
270 ASTM D 3278-78	Codes Result	Rept Level	Units	Analysis Date

1	Final Report - Cli	ent Copy - H	Report Of	Analytical Re	esults		
Program: DD			I	Date Received	: 23-DEC	-2009	
rogram Name: OES	5		Da	ate Generated	: 04-FEB	-2010	
Request No: 362	2952			Request Page	: 15	of 20	
Samples:	200936773 - 2009	936782	I	Date Reported	: 09-FEB	-2010	
Sample No: 2009	36780						
Receiving Comm	ents: -						
Coll Date	Coll Time Lo	cation	Lab Tem	p Site Numb	er		
16-DEC-2009	0900	-	20	-			
	Sampling Point a	nd Source Of	Sample				
	DETRO	IT LAKES			-		
******	DETRO		RESULTS **	* * * * * * * * * * * * *	* * * * * * * * *	* * * * * * * *	
	****	**** SAMPLE			* * * * * * * *	* * * * * *	
	****	**** SAMPLE Reviewed By I			****	* * * * * * *	
	****	**** SAMPLE Reviewed By I Result	LRM on 09-F	EB-10			Date
Unit: ADMINIS	**************************************	**** SAMPLE Reviewed By I		EB-10		******* Analysis	Date
Unit: ADMINIS	**************************************	**** SAMPLE Reviewed By I Result Codes	LRM on 09-F	EB-10			
Unit: ADMINIS 1 Analyses sent to Total Halides	**************************************	**** SAMPLE Reviewed By I Result Codes ND	Result	EB-10 Rept Level	Units	Analysis	
Unit: ADMINIS 31 Analyses sent to Total Halides	STRATIVE o private lab -MDH s performed by TestA	**** SAMPLE Reviewed By I Result Codes ND	Result	EB-10 Rept Level	Units	Analysis	

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Final Report - Client	Copy - Report Of A	Analytical Rea	sults	
Program: DD Program Name: OES Request No: 362952	Da	ate Received: te Generated: Request Page:	04-FEB-	
Samples: 200936773 - 2009367	7 82 D	ate Reported:	09-FEB	-2010
Sample No: 200936780				
Receiving Comments: -				
Coll Date Coll Time Locat 16-DEC-2009 0900 -	ion <u>Lab Temp</u> 20	<u>site Numbe</u> -	<u>e</u> r	
Sampling Point and S	Source Of Sample			
DETROIT	LAKES			
* * * * * * * * * * * * * * * * * * * *	* SAMPLE RESULTS **	* * * * * * * * * * * * *	* * * * * * * *	* * * * * * *
Unit: METALS Rev	iewed By JJB on 09-FE	EB-10		
	Result			
	Codes Result	Rept Level	Units	Analysis Date
111 SW 6020 Arsenic Sed, Total	RC < 1.0	1	ug/g	21-JAN-10 12:32
126 SW 6020 Cadmium Sed, Total	RC < 1.0	1.0	ug/g	21-JAN-10 12:32
134 SW 6020 Chromium Sed, Total	RC < 1.0	1.0	ug/g	21-JAN-10 12:32
161 SW 6020 Lead Sed, Total	RC 3.8	1.0	ug/g	21-JAN-10 12:32
Unit: ORGANIC CHEMISTRY Rev	iewed By PDS on 05-FB	EB-10		
Note: Positive Organic Results are	e indicated by BOLD	•		
	Result Codes Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar	> 200		deg F	30-DEC-09

	F	inal Report -	- Client C	opy - R	eport Of	Analytical R	esults			
Program	: DD				I	Date Received	d: 23-DEC	-2009		
rogram Name	: OES				Da	ate Generated	d: 04-FEB	-2010		
Request No	: 362	952				Request Page	e: 17	17 of 20		
Samp:	les:	200936773 -	200936782	2	I	Date Reported	d: 09-FEB	-2010		
Sample No:	20093	36781								
Receiving C	omme	ents: -								
Coll Dat	e	Coll Time	Location	ı	Lab Tem	p Site Num	oer			
16-DEC-20	009	1055	-		20	-				
		Sampling Po	pint and Sou	IICE Of S	ample					
		eapg.			ampio					
			HENNING				_			
****	* * * * * *	****	HENNING		<u> </u>	* * * * * * * * * * * * *		* * * * * * * *		
			HENNING	SAMPLE R	<u> </u>			* * * * * * *		
		****	HENNING ******* S Review	SAMPLE R	ESULTS **			****		
		****	HENNING ******* S Review Re	SAMPLE R ved By LI	ESULTS **			******** Analysis	s Date	
Unit: ADM 1 Analyses se	AINIST ent to	****	HENNING ******* S Reviev Re Co	SAMPLE R ved By Li esult odes	ESULTS ** M on 09-F Result	EB-10 Rept Level	Units	Analysis		
Unit: ADM 1 Analyses se Total Halid	AINISI ent to les	TRATIVE	HENNING ******* S Review Re IDH	SAMPLE R wed By LI esult odes ND <	RESULTS **	EB-10		Analysis	3 Date AN-10	
Unit: ADM 31 Analyses se Total Halid	AINISI ent to les	**************************************	HENNING ******* S Review Re IDH	SAMPLE R wed By LI esult odes ND <	ESULTS ** M on 09-F Result	EB-10 Rept Level	Units	Analysis		
Unit: ADM 81 Analyses se Total Halid	MINIST ant to les alysis alysis	<pre>************************************</pre>	HENNING ******* S Review Re IDH	SAMPLE R wed By LI esult odes ND <	ESULTS ** M on 09-F Result	EB-10 Rept Level	Units	Analysis 06-J2		

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Program: DDDate Received: 23-DEC-2009Program Name: OESDate Generated: 04-FEB-2010Request No: 362952Request Page: 18 of 20								
Samples: 200936773 - 200936782 Date Reported: 09-FEB-2010								
Sample No: 200936781								
Receiving Comments: -								
Coll Date Coll Time Locat 16-DEC-2009 1055 -	ion <u>Lab Temp</u> 20	<u>Site Numbe</u> -	<u>e</u> r					
Sampling Point and	Source Of Sample							
HENNI	NG							
* * * * * * * * * * * * * * * * * * * *	* SAMPLE RESULTS **	* * * * * * * * * * * * *	* * * * * * *	* * * * * * *				
Unit: METALS Rev	iewed By JJB on 09-FE	CB-10						
	Result							
	Codes Result	Rept Level	Units	Analysis Date				
111 SW 6020 Arsenic Sed, Total	RC < 1.0	1	ug/g	21-JAN-10 12:42				
126 SW 6020 Cadmium Sed, Total	RC < 1.0	1.0	ug/g	21-JAN-10 12:42				
134 SW 6020 Chromium Sed, Total	RC 1.4	1.0	ug/g	21-JAN-10 12:42				
161 SW 6020 Lead Sed, Total	RC 3.7	1.0	ug/g	21-JAN-10 12:42				
Unit: ORGANIC CHEMISTRY Rev	iewed By PDS on 05-FB	CB-10						
Note: Positive Organic Results are	e indicated by BOLD	•						
	Result	Rept Level	Units	Analysis Date				
Codes Result Rept Level Units Analysis Date								
270 ASTM D 3278-78 Flash Point, Pen-Mar	Codes Result		deg F	30-DEC-09				

Minnes	ota Departmen	nt Of Health	ı – Envi	ronmental	. Labor	atory
Am	ended Final Repor	rt - Client Copy	🕶 - Report	Of Analytica	al Result	s
Program: : Program Name: 0 Request No:	DES		Da	ate Received te Generated Request Page	: 01-APR	-2010
Sample	s: 201004988 -			ate Reported ate Reported		
Sample No: 20 Receiving Con						
Coll Date	Coll Time 0 1115	Location	Lab Temp 17	Site Numb	<u>er</u>	
	Sampling Po	int and Source Of S	Sample			
		MORRIS				
* * * * * * *	* * * * * * * * * * * * * * * * * * *	****** SAMPLE 1	RESULTS **	* * * * * * * * * * * *	* * * * * * * * *	* * * * * * *
Unit: ADMIN	IISTRATIVE	Reviewed By L	RM on 29-MA	R-10		
		Result				
		Codes	Result	Rept Level	Units	Analysis Date
Total Halides	to private lab -ME rsis performed by T		< 100 tory.	100	mg/kg	23-MAR-10
995 Admin. Consul Consultation						29-MAR-10

See attached report from TestAmerica Laboratory.

Minnes	ota Departm	ent Of Hea	alth	- Envi	ronmental	Labo	ratory
An	mended Final Rej	port - Client	Сору	- Report	Of Analytica	al Resul	ts
Program:				Γ	ate Received	: 12-MAR	2-2010
Program Name:					te Generated		
Request No:	366331				Request Page	: 2	of 13
Sample	s: 201004988	- 201004992		Γ	ate Reported	: 01-APF	2-2010
			Oı	riginal D	ate Reported	: 30-MAR	2-2010
Sample No: 20							
Receiving Cor	nments: -						
Coll Date	Coll Time	Location	_	Lab Temp	<u>Site Numb</u>	er	
09-MAR-201	0 1115	-		17	-		
	Sampling	Point and Source	e Of Sa	ample			
		MORRIS				-	
* * * * * *	* * * * * * * * * * * * * * *	******** 92M	סז.ד פו	רפווו.דפ **	* * * * * * * * * * * * *	* * * * * * * *	* * * * * * * *
		DAM		100110			
Unit: META	LS	Reviewed	Ву ЈЈ	B on 30-M2	AR-10		
		Resu	ılt				
		Code	s	Result	Rept Level	Units	Analysis Date
111 SW 6020 Arsenic	Sed, Total		RC <	2.0	2	ug/g	19-MAR-10 15:05
126 SW 6020							
Cadmium	Sed, Total		RC <	2.0	2.0	ug/g	19-MAR-10 15:05
134 SW 6020 Chromium	Sed, Total		RC <	2.0	2.0	ug/g	19-MAR-10 15:05
161 SW 6020	bea, iotai			2.0	2.0	ug/ g	19 Find 10 13:03
	Sed, Total		RC	7.2	2.0	ug/g	19-MAR-10 15:05
3051 EPA 3051A Acid Digestic	on of Solids		DC				16-MAR-10
Unit: ORGA	NIC CHEMISTRY	Reviewed	By PD	s on 30-M2	AR-10		
Note: Posit	tive Organic Re	sults are ind	icated	d by BOLD	•		
		Resu					
		Code	S	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278				200		de	10 MAR 10
Flash Point,	Pen-Mar		>	200		deg F	18-MAR-10

Minnesota Department Of He	ealth - Env	ironmental	Labor	atory
Amended Final Report - Clien	it Copy - Report	Of Analytica	al Result	S
Program: DD	:	Date Received	: 12-MAR	-2010
Program Name: OES	D	ate Generated	: 01-APR	-2010
Request No: 366331	Request Page	: 3	of 13	
	7			
Samples: 201004988 - 201004992		Date Reported		
	Original 1	Date Reported	: 30-MAR	-2010
Sample No: 201004989				
•				
Receiving Comments: -				
Coll Date Coll Time Location	Lab Tem	p Site Numb	⊖r	
09-MAR-2010 1310 -	<u>17</u>	<u>p</u> <u>site itumb</u>		
Sampling Point and Sour	rce Of Sample			
WHEATON				
**************************************	AMPLE RESULTS *	* * * * * * * * * * * * * * *	* * * * * * * * *	* * * * * * * *
Unit: ADMINISTRATIVE Reviewe	ed By LRM on 29-M	AR-10		
Re	sult			
Co	des Result	Rept Level	Units	Analysis Date
981 Analyses sent to private lab -MDH				
Total Halides	120	100	mg/kg	23-MAR-10
Analysis performed by TestAmerica	Laboratory.			
995 Admin. Consultation -MDH	*			
Consultation Time				29-MAR-10
See attached report from TestAmer	ica Laboratory.			

Minnes	sota De	partmer	nt Of He	alth	- Envi	ronmental	Labor	atory
A	mended Fi	inal Repor	t - Client	с Сору	- Report	Of Analytica	l Result	S
Program:					Γ	Date Received	: 12-MAR	-2010
Program Name:						te Generated	-	
Request No:	366331					Request Page	: 4	of 13
Sampl	es: 2010	04988 - 2	201004992		Γ	Date Reported	: 01-APR	-2010
				Oı	riginal D	ate Reported	: 30-MAR	-2010
	001004080							
Sample No: 2 Receiving Co		_						
0								
<u>Coll Date</u>		<u>I Time</u>	Location		Lab Temp	<u>Site Numb</u>	<u>e</u> r	
09-MAR-20	10 1.	310	-		17	-		
	Sa	ampling Poi	nt and Sourc	ce Of Sa	Imple			
			WHEATON					
* * * * * *	* * * * * * * * *	* * * * * * * * *	***** SA	MPLE RI	SULTS **	* * * * * * * * * * * * * *	* * * * * * * *	* * * * * * * *
Unit: META	ALS		Reviewe	d By JJ	B on 30-M2	AR-10		
			Res	ult				
			Cod	es	Result	Rept Level	Units	Analysis Date
111 SW 6020								
Arsenic	Sed, Tota	al		RC <	2.0	2	ug/g	19-MAR-10 15:08
126 SW 6020 Cadmium	Sed, Tota	•]		RC <	2.0	2.0	uq/q	19-MAR-10 15:08
134 SW 6020	bcu, 1000	* -		ne v	2.0	2.0	ug/9	19 1411 10 19:00
Chromium	Sed, Tota	al		RC <	2.0	2.0	ug/g	19-MAR-10 15:08
161 SW 6020								
Lead	Sed, Tota	al		RC	3.8	2.0	ug/g	19-MAR-10 15:08
3051 EPA 3051A Acid Digesti	on of Soli	ids		DC				16-MAR-10
Unit: ORGA	ANIC CHEM	ISTRY	Reviewe	d By PD	5 on 30-M2	AR-10		
Note: Posi	itive Orga	anic Resul	lts are ind	dicated	l by BOLD	•		
				ult				
			Cod	es	Result	Rept Level	Units	Analysis Date
270 ASTM D 327								10
Flash Point,	Pen-Mar			>	200		deg F	18-MAR-10

Minnes	ota Departme	nt Of Healt	h – Envi	ronmental	. Labor	atory
A	mended Final Repo	rt - Client Cop	y - Report	Of Analytica	al Result	s
Program: Program Name: Request No:	OES		Da	: 12-MAR : 01-APR : 5	-2010	
Sample	es: 201004988 -	201004992		ate Reported ate Reported		
Sample No: 2 Receiving Co						
Coll Date 09-mar-201		Location	Lab Temp 17	Site Numb	<u>e</u> r	
	Sampling Pc	oint and Source Of	Sample			
	I	BRECKENRIDGE				
* * * * *	* * * * * * * * * * * * * * * * * *	******* SAMPLE	RESULTS **	* * * * * * * * * * * * *	* * * * * * * *	* * * * * * *
Unit: ADMI	NISTRATIVE	Reviewed By 3	LRM on 29-MA	R-10		
		Result				
		Codes	Result	Rept Level	Units	Analysis Date
Total Halides	t to private lab -M s ysis performed by 7		< 100 atory.	100	mg/kg	23-MAR-10
995 Admin. Consul Consultation						29-MAR-10

See attached report from TestAmerica Laboratory.

M	innesota	a Departi	nent Of He	alth	- Env	ironmental	. Labor	ratory
	Amend	led Final Re	port - Client	с Сору	- Report	Of Analytica	al Result	.s
	ogram: DD]	Date Received	: 12-MAR	-2010
	Name: OES				Da	ate Generated		
Reques	st No: 366	331				Request Page	: 6	of 13
	Samples:	201004988	- 201004992		1	Date Reported	: 01-APR	-2010
				O	riginal I	Date Reported	: 30-MAR	-2010
· ·	e No: 20100							
Recen								
	oll Date	Coll Time	Location		Lab Tem	<u>p</u> <u>Site Numb</u>	er	
09-1	MAR-2010	1430	-		17	-		
		Sampling	Point and Source	ce Of Sa	ample		-	
			BRECKENRIDG	Е				
	* * * * * * * * * *	* * * * * * * * * * * *	********* SA	MPLE RI	ESULTS *	* * * * * * * * * * * * *	* * * * * * * *	* * * * * * *
Unit:	METALS		Reviewe	d By JJ	B on 30-M	AR-10		
			Res Cod	ult les	Result	Rept Level	Units	Analysis Date
	6020			20	0.0	2	,	10 10 10 15.11
Arsen		, Total		RC <	2.0	2	ug/g	19-MAR-10 15:11
126 SW (Cadmiı	am Sed	, Total		RC <	2.0	2.0	ug/g	19-MAR-10 15:11
134 SW 6 Chroma	5020 ium Sed	, Total		RC <	2.0	2.0	ug/g	19-MAR-10 15:11
161 SW 6 Lead	5020 Sed	, Total		RC	2.7	2.0	ug/g	19-MAR-10 15:11
	3051A Digestion of	f Solids		DC				16-MAR-10
Unit:	ORGANIC	CHEMISTRY	Reviewe	d By PD	s on 30-M	AR-10		
Note	e: Positive	e Organic Re	sults are ind	dicated	d by BOLI	.		
			Res	ult				
			Cod	les	Result	Rept Level	Units	Analysis Date
	M D 3278-78						• -	
Flash	Point, Pen-	-Mar			158		deg F	18-MAR-10

Minnesota Departm	ent Of Healt	h – Envi	.ronmental	. Labor	atory
Amended Final Rep	oort - Client Cop	y - Report	Of Analytica	al Result	s
Program: DD Program Name: OES Request No: 366331		Da	ate Received te Generated Request Page	: 01-APR	-2010
Samples: 201004988 -	· 201004992		ate Reported ate Reported		
Sample No: 201004991 Receiving Comments:-					
Coll Date Coll Time 10-MAR-2010 0815	Location -	<u>Lab Temp</u> 17	<u>Site Numb</u> -	<u>oe</u> r	
Sampling F	Point and Source Of	Sample		_	
* * * * * * * * * * * * * * * * * * * *	MOORHEAD	PFSIILTS **	* * * * * * * * * * * *	* * * * * * * *	* * * * * * *
Unit: ADMINISTRATIVE	Reviewed By				
	Result Codes	Result	Rept Level	Units	Analysis Date
981 Analyses sent to private lab - Total Halides Analysis performed by		< 100 atory.	100	mg/kg	23-MAR-10
995 Admin. Consultation -MDH Consultation Time					29-MAR-10

See attached report from TestAmerica Laboratory.

Minnesota	Departmen	t Of Healt	h - Env	ironmental	Labor	atory
Amende	ed Final Report	: - Client Cop	y - Report	: Of Analytica	l Result	S
Program: DD			1	Date Received	: 12-MAR	-2010
Program Name: OES			D	ate Generated	: 01-APR	-2010
Request No: 3663	31			Request Page	: 8	of 13
Samples:	201004988 - 2	01004992		Date Reported	: 01-APR	-2010
			Original 1	Date Reported	: 30-MAR	-2010
Sample No: 20100	4991					
Receiving Comme	nts: –					
Coll Date	Coll Time	Location	Lab Tem	<u>p</u> <u>Site Numb</u>	er	
10-MAR-2010	0815	-	17	-		
	Sampling Poin	t and Source Of	Sample			
	:	MOORHEAD				
* * * * * * * * * *	* * * * * * * * * * * * * *	***** SAMPLE	RESULTS *	* * * * * * * * * * * * * * *	* * * * * * * *	* * * * * * * *
			REBOLIE			
Unit: METALS		Reviewed By	JJB on 30-M	AR-10		
		Result				
		Codes	Result	Rept Level	Units	Analysis Date
111 SW 6020						
Arsenic Sed,	Total	RC	< 2.0	2	ug/g	19-MAR-10 15:15
126 SW 6020 Cadmium Sed,	Total	RC	< 2.0	2.0	uq/q	19-MAR-10 15:15
134 SW 6020	10041		. 2.0	2.0	~ <u>3</u> / <u>3</u>	19 1111 10 10 10
	Total	RC	< 2.0	2.0	ug/g	19-MAR-10 15:15
161 SW 6020						
Lead Sed,	Total	RC	6.7	2.0	ug/g	19-MAR-10 15:15
3051 EPA 3051A Acid Digestion of	Solids	DC				16-MAR-10
Unit: ORGANIC	CHEMISTRY	Reviewed By	PDS on 30-M	AR-10		
Note: Positive	Organic Resul	ts are indicat	ed by BOLI	.		
		Result				
		Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-	Mar		> 200		deg F	18-MAR-10
riabil rome, ren-			. 200		acy r	TO LUM-TO

MINNESOTA DEPARTMENT OF TRANSPORTATION USED OIL BURNER SAMPLING ON-SPEC OIL ANALYSIS District 6 Rushford, Minnesota



Prepared by: Minnesota Department of Transportation Office of Environmental Services Environmental Modeling and Testing Unit

January 2010

INTRODUCTION

Enclosed in this report are the results of the sampling of used oil from the burner located at the Minnesota Department of Transportation (MNDOT) District 6 Rushford Truck Station facility. Used oil from vehicles is placed in a Lube Cube storage tank at the truck station. The Lube Cube is connected to a building heater that burns the used oil for heat recovery.

The sampling of used oil at the Rushford facility was conducted by personnel from the MNDOT Office of Environmental Services. For additional information, contact Harold Bottolfson at (651) 366-5812. The laboratory analysis was performed by the Minnesota Department of Health.

The results of the laboratory analysis from the sample taken at the Rushford Truck Station show the burner oil to be within the on spec limits.

Purpose

The purpose of the sampling and analysis is to insure that the used motor oil that is burned in heating units meets MPCA rules for such practices. The oil must meet the following limits to be classified as on-spec:

- Flashpoint 100 degrees Fahrenheit minimum
- Arsenic 5 parts per million (PPM) maximum
- Cadmium 2 PPM maximum
- Chromium 10 PPM maximum
- Lead 100 PPM maximum
- Total Halogens 1000 PPM maximum

Procedures

The oil was sampled from the storage tank with a Coliwasa sampler. The Coliwasa sampler is a 70" long polypropylene tube that is 1" diameter. The sampler has caps at each end that can be opened and closed by using a control rod that runs through the length of the tube. During the sampling, the end caps were opened and the coliwasa was slowly lowered into the tank so that a vertical column sample could be obtained. The sampler was lowered to the top of the sludge layer so that only the oil to be burned would be sampled. The oil from the sampler was placed in a sample bottles provided by the Minnesota Department of Health, which was contracted to analyze the sample. As the sample was released into the bottle, it was carefully observed for any discolorations or changes in the composition of the material. Notes were taken of the procedures during the sampling process.

Laboratory analysis methods for each of the listed parameters are as follows:

PARAMETER	METHOD
Flashpoint Metals	ASTM D 3278-78 SW 6020
Total Halogens	SW846 9076

Results

The observation notes taken during the sampling are as follows:

- 1. The oil removed from the tank with the coliwasa did not show segments or layering.
- 2. The oil removed did not have any unusual odors and seemed consistent with the look and smell of used oil.
- 3. The area around the Lube Cube looked well maintained and orderly.
- 4. The depth of the oil in the tank was 10".
- 5. There was a layer of sludge at the bottom approximately 2" deep.

MN/DOT District 6 Used Oil Sampling Laboratory Results (Values in PPM)

Sample Location	Date	Flashpoint (F)	Arsenic	Cadmium	Chromium	Lead	Total Halogens
Rushford	10/27/2009	>200	<0.4	<0.4	6	37	149
On Spec Limits		100 Minimum	5 Maximum	2 Maximum	10 Maximum	100 Maximum	1000 Maximum

*Values in Red are Off Spec

Rushford Used Oil Container



Minnesota Department of Health Chain of Custody

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				-									··	- <u></u> -		······	
	M I N N E MI DEPARTMEN	DH	Cha	in o	f Cı	15	to	dy	7				Minnesota Departn Environmental 601 Robert S St. Paul, MN 5	Laboratory St. North	Page of	1	
Lab Use Only.	If Yes please a Standard/Civil (Circle One)	ud: Yes/No/Unknown (Circle add information to Comments /Criminal Chain of Custody	One). F below. S F	Client/Agency MNDOT Project Name TUCK Station D. I Sumpling Site ID Mapleton + Rushford Program Code (2 Letters) D D Contact Name Harold Botto Asim Contact Phone #051-366-5812								5 DW = SW = GW = SD = WP = AR =	= waste water Soil/Solid Wipe		Report to MDH ID		
Sampled By (Pring	0	Affilia		Contact Ph	one # Ψ					vatives	5		Other	A .	ddress if Needed		
Sampled By (Print HOV) (c) Sampler Signature American Signature MDH Sample Nomesc (Eab Dec Only) 1 2 3 4 5 5 6 6 7 8 9	Field ID A B	SON Phone USI- Sample Source/Point OIL DUMEN OIL DUMEN OIL DUMEN	366 ~ Collection Date 10/21 09 10 27 09 10 27 09	Time (24 Hour) 9-00	OT	C C C C C C C C C C C C C C C C C C C	Hydrochloric Acid	Nitric Acid Sodium Hydroxide	Sodium Thiosulfate	Ascorbic Acid Other		Samples Field Filtered:	As,Cr,C Sama Sama	Requested Analysis:	-Flashpuint	Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state Image: Second state	
Sampler Comments:										<u>i I</u>				_	<u> </u>	1728111	
Keceiving Comments (Sampler)		linquisted By / Affiliation			D 10-0 10-2	29.	े ठेव २ ७	18 78	ime CO		- P-	e pe	Accepted By / Affil	iation /HDH /MDH	Date 10:29-09 10-29-09	Time 1009	
White Client Copy	Yell	low Lab Copy	Pink Submitte	r Copy						17			/				

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Minnesota Department of Health Laboratory Results

Minnesota Department (Of Health	- Envi	ironmental	Labor	atory
Final Report - Clie	ent Copy - R	eport Of	Analytical Re	sults	
Program: DD		Ι	Date Received	29-OCT-	-2009
Program Name: OES		Da	ate Generated	11-DEC-	·2009
Request No: 360698			Request Page	5	of 6
Samples: 200933184 - 2009	33186	Ι	Date Reported	: 11-DEC-	-2009
Sample No: 200933186					
Receiving Comments: -					
Coll DateColl TimeLoc	cation	Lab Tem	<u>o</u> <u>Site Numb</u>	<u>ə</u> r	
27-OCT-2009 1500 RUSHFC	RD TRK S	17	C		
Sampling Point ar	nd Source Of S	ample			
USED	DIL TANK				
*******	*** SAMPLE F	RESULTS **	* * * * * * * * * * * * * * *	* * * * * * * * *	*****
Unit: ADMINISTRATIVE	Reviewed By M	LK on 11-D	EC-09		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
981 Analyses sent to private lab -MDH Total Halides		149	100	mg/kg	03-NOV-09
See attached report from Tes	stAmerica, Ind	с.			
995 Admin. Consultation -MDH Consultation Time					19-NOV-09
Analysis completed by TestAr	merica, Inc.				

Minnesota Department Of He	alth - Env	ironmental	Labora	atory
Final Report - Client Cor	y - Report Of	Analytical Res	sults	
Program: DD		Date Received:		
Program Name: OES Request No: 360698	Ι	ate Generated: Request Page:	-	2009 of 6
Samples: 200933184 - 200933186		Date Reported:		
		Date Reported.	II-DEC-	2009
Sample No: 200933186				
Receiving Comments: -				
Coll Date Coll Time Location 27-0CT-2009 1500 CUSHFORD TRK	<u>Lab Tem</u>	n <u>p</u> <u>Site Numbe</u> C	<u>></u> r	
Sampling Point and Source	ce Of Sample			
USED OIL TAN	IK			
**************************************	MPLE RESULTS *	* * * * * * * * * * * * * *	* * * * * * * *	* * * * * * *
	d By JJB on 10- 1			
Res	ult			
Cod	les Result	Rept Level	Units	Analysis Date
111 SW 6020 Report level was changed due to samp	le dilution.			
Arsenic Sed, Total	< 0.4	0.4	ug/g	08-DEC-09 15:52
126 SW 6020				
Report level was changed due to samp				
Cadmium Sed, Total	< 0.40	0.40	ug/g	08-DEC-09 15:52
134 SW 6020 Report level was changed due to samp	le dilution.			
Chromium Sed, Total	6.0	0.40	ug/g	08-DEC-09 15:52
161 SW 6020				
Report level was changed due to samp				
Lead Sed, Total	37	0.40	ug/g	08-DEC-09 15:52
Unit: ORGANIC CHEMISTRY Reviewed	d By PDS on 10-1	DEC-09		
Note: Positive Organic Results are ind	dicated by BOL	D.		
	ult			
Cod	es Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar	> 200		deg F	10-NOV-09
Result Code Description				
RC Report level was changed due to s	sample dilution.			

MINNESOTA DEPARTMENT OF TRANSPORTATION USED OIL BURNER SAMPLING ON-SPEC OIL ANALYSIS

District 7 Gaylord Mankato Mapleton New Ulm St. Peter Windom



Prepared by: Minnesota Department of Transportation Office of Environmental Services Environmental Modeling and Testing Unit

March 2010

INTRODUCTION

Enclosed in this report are the results of the sampling of used oil collected at the Minnesota Department of Transportation (MNDOT) District 7 Truck Station facilities. Used oil from vehicles is placed in Lube Cube storage tanks at each of the truck stations. The Lube Cubes are connected to building heaters that burn the used oil for heat recovery.

The sampling of used oil at the District 7 facilities was conducted by personnel from the MNDOT Office of Environmental Services. For additional information, contact Harold Bottolfson at (651) 366-5812. The laboratory analysis was performed by the Minnesota Department of Health.

The results of the laboratory analysis from the samples taken at the District 7 Truck Stations show the burner oil to be within the on spec limits.

Purpose

The purpose of the sampling and analysis is to insure that the used motor oil that is burned in heating units meets MPCA rules for such practices. The oil must meet the following limits to be classified as on-spec:

- Flashpoint >100 degrees Fahrenheit
- Arsenic <5 parts per million (PPM)
- Cadmium <2 PPM
- Chromium <10 PPM
- Lead <100 PPM
- Total Halogens <1000 PPM

Procedures

The oil was sampled from the storage tank with a Coliwasa sampler. The Coliwasa sampler is a 70" long polypropylene tube that is 1" diameter. The sampler has caps at each end that can be opened and closed by using a control rod that runs through the length of the tube. During the sampling, the end caps were opened and the coliwasa was slowly lowered into the tank so that a vertical column sample could be obtained. The sampler was lowered to the top of the sludge layer so that only the oil to be burned would be sampled. The oil from the sampler was placed in a sample bottles provided by the Minnesota Department of Health, which was contracted to analyze the sample. As the sample was released into the bottle, it was carefully observed for any discolorations or changes in the composition of the material. Notes were taken of the procedures during the sampling process.

Laboratory analysis methods for each of the listed parameters are as follows:

PARAMETER METHOD

Flashpoint	ASTM D 3278-78
Metals	SW 6020
Total Halogens	SW846 9076

Results

The observation notes taken during the sampling are as follows:

Mankato Truck Station

- 1. The oil removed from the tank with the coliwasa did not show segments or layering.
- 2. The oil removed did not have any unusual odors and seemed consistent with the look and smell of used oil.
- 3. The area around the Lube Cube looked well maintained and orderly.
- 4. The depth of the oil in the tank was 35".
- 5. There was a layer of sludge at the bottom approximately 2" deep.

Mapleton Truck Station

- 1. The oil removed from the tank with the coliwasa did not show segments or layering.
- 2. The oil removed did not have any unusual odors and seemed consistent with the look and smell of used oil.
- 3. The area around the Lube Cube looked well maintained and orderly.
- 4. The depth of the oil in the tank was approximately 18".
- 5. There was a layer of sludge at the bottom approximately 2" deep.

Gaylord Truck Station

- 1. The oil removed from the tank with the coliwasa did not show segments or layering.
- 2. The oil removed did not have any unusual odors and seemed consistent with the look
- 3. and smell of used oil.
- 4. The area around the Lube Cube looked well maintained and orderly.
- 5. The depth of the oil in the tank was approximately 26".
- 6. There was a layer of sludge at the bottom approximately 2" deep.

New Ulm Truck Station

- 1. The oil removed from the tank with the coliwasa did not show segments or layering.
- 2. The oil removed did not have any unusual odors and seemed consistent with the look and smell of used oil.
- 3. The area around the Lube Cube looked well maintained and orderly.
- 4. The depth of the oil in the tank was 22".
- 5. There was no sludge detected in the tank.

St. Peter Truck Station

- 1. The oil removed from the tank with the coliwasa did not show segments or layering.
- 2. The oil removed did not have any unusual odors and seemed consistent with the look and smell of used oil.
- 3. The area around the Lube Cube looked well maintained and orderly.
- 4. The depth of the oil in the tank was 5".
- 5. There was no sludge detected in the tank.

Windom Truck Station

- 1. The oil removed from the tank with the coliwasa did not show segments or layering.
- 2. The oil removed did not have any unusual odors and seemed consistent with the look and smell of used oil.
- 3. The area around the Lube Cube looked well maintained and orderly.
- 4. The depth of the oil in the tank was 12".
- 5. There was a layer of sludge at the bottom approximately 1" deep.

MN/DOT District 7 Used Oil Sampling Laboratory Results (Values in PPM)

Sample Location	Date	Flashpoint (F)	Arsenic	Cadmium	Chromium	Lead	Total Halogens
Gaylord	10/30/2009	>200	<0.4	<0.40	2.5	4.5	174
Mankato	10/27/2009	>200	<0.4	0.54	3.2	24	579
Mapleton	10/27/2009	>200	<0.4	<0.40	3.9	7.4	232
New Ulm	2/25/2010	>200	<0.2	<0.2	2.2	30	271
St. Peter	2/25/2010	>200	<0.2	<0.2	<0.2	17	137
Windom	2/25/2010	>200	<0.2	<0.2	<0.2	11	234
On Spec Limits		100 Minimum	5 Maximum	2 Maximum	10 Maximum	100 Maximum	1000 Maximum

*Values in Red are Off Spec

Mankato Used Oil Container



Mapleton Used Oil Container



Gaylord Used Oil Container



New Ulm Used Oil Container



St. Peter Used Oil Container



Windom Used Oil Container



Minnesota Department of Health Chain of Custody

All (magnet)	ŗ	Repetiving Comments	Sampler Comments:		V		7		5			2	-	# Charlo Control of the Control of t	[°] م		Sampled By (Print)				
2 miles	California and a second	Relinquished By / ATRIation		Crockston	Thiet River	Roseau	Hallock	Gaylord	uladence	Root Repids	Bamidi	Virginia	Carlino	Field ID Sample Source/Point	C- AND	Bonolfson		Standard Will/Criminal Chain of Custody (Crefe One)	Potential Hazard: Yes NorUnknown (Circle One). If Yes please add information to Comments below	MINNES OTA MUDH DEPARIMENTOFHEAITH	200
				11-13-09 11:00	11-13-09 4.00	11-12-09 15:00	11-12-04 13:30	00.01 BU VE 01	05:01 10-4-09 10:30	11-7-09 9:08	11-3-04 15-45	11.3-09 12.45	05:09 10:30	rt Collection Time Date (24 Hour)	651-366.581		Affiliation		·	Chain o	934503
		Date Tune	-			· · ·							OT 3	C Maining Unprese Hydroct Soffune Natrie A Sodium	rved Ilone Ac Acid cid Hydroxi	ini de	ľ	Program Code (2 Letters) <u>D</u> Contact Name <u>Har'o'd BotTij(Ger</u> Contact Phone <u># 651-366 - 58'i 2</u>	SI BAR	Chain of Custody	20093-
													8	Ascorbia Other Totel # of Somples	(Contain	***	en afives OT ← Other	3	Samples Dw- Switches Dw- Switches Switches		4512
		Accepted By / Affiliation						-					As, cr.cd				Other	WW = Waste Water SD - Soii:Solid WP = Wipe AR = Ai: TS = Tissue	Matrix Codes DW - Drinking Water SW - Surface Water GW Ground Water	Minuesota Department of Health Environmental Laboratory 601 Robert St. North St. Paul, MN 55155-2531	
		e K											. th. Tox	1		Requested Analysis:	Ą		Report to MDH ID	nt of Health aboratony North 55-2531	
11-10-07	11-11-20	Date											FlashainT				Address if Needed]เจ งสีหมู	
147	٦	Tume	÷ A	61.8 1										Seaffa Lab Te	act:YA	The local division of					

White Client Copy Yellow Lab Copy Pink Submitter Copy	Relinquished By / Affiliation (Sampler)	Arnar 19/21/24	DEPARTMENTOF HEALTH Chain
	10-27-07 10-27-04 10-27-04 10-27-04 10-27-04	Ascorbic Acid Other	hain of Custody
MDH 1000	Accepted By / Affiliation Accepted By / Affiliation $\frac{1}{2}$	Matrix Cediss Report to DW = Drinking Water Report to Swmples Field Filtered: MDH ID Samples Field Filtered: MDH ID VN As = Cound Water Samples Field Filtered: MDH ID VN As = Cound Water Samples Field Filtered: Nequested Analysis:	Minnesota Department of Health Environmental Laboratory 601 Robert St. North St. Paul, MN 55155-2531
33262	Date Time 10-29-09 1009 10-29-09 104	Address if Needed	Page

ì

White Client Copy	(Sampler)		Sampler Comments:				5 100 - 100 IS	4	3	2 (19.10)			Howeld	Sampler Slenature	Sampled By (Print)		Lab Use Only.	-
Yellow Lab Copy	hind	Relinquisted By / Athliation		APPIETON	Marshal	Window M	New UM	ST. Peter	OciVide H 2	Ocirdule #1	Maryland	Field (D Sample Source/Point	Bouter	Sonal tson		Slandard Civil/Criminal Criain of Custedy (Circle One)	Potential Hazard: VerNoJunknown (Circle One). If Yes please add information to Comments below.	MINNES OTA MUDHAITH
Pink Submitter Copy		PA		1 2-26-10 11,30		C-25-10 14:30	2-25-10	r 2-240 9:30	2 2-19-10 11-15	11 2-19-10 11:00	08:01 01-19-5 P	boint Collection Time Date (24 Hour)	651-366-5812	Phone	Affiliation		·	Chain of Custody
	2mar (0	Date	-	 \ \							ि न उ	Onde Unprese Hydroch Sulfuric	rved Ilorie A	lçid -	Contair	Program Code (2 Letters) <u>D</u> Contact Name <u>Hords Id.</u> <u>IZ)TT2166</u> Contact Phone # <u>667 - Z66 - 587 Z</u>	Client/Agency MAVD&T Project NameON BUMENSis mples	f Custo
	10:33	Time										Nitric A Sodium Sodium Ascorbic Other	cid Hydra Thiosa	tide Ifate	Containers & Preservatives	DD <u>DD</u> <u>130770660 1</u> <u>130770660 1</u>	-Scinples	dy
	m Driver	Accepted By / Attit	-	 <.	· - · · ·						3 AS, Cr, cd	Total # pt				WW = Waste Water SD = Soll'Solid WP - Wine AR - Wine TS Tissue Of - Other	Matrix Codes DW - Drinkung Water SW - Surface Water GW Ground Water	Minnesota Department of Health Environmental Laboratory 601 Robert St. North St. Paul, MN 55155-2531
D00i H0M	M04 3	Affiliation									Rel de			Requested Analysis:		Address	Report to MDH ID	· · · · · · · · · · · · · · · · · · ·
33188	3-2-10 10	Date . Ti									FlashPoint	Seator	er: ¥(Address if Needed		Page of
	1035	Time														• • ·		

Minnesota Department of Health Laboratory Results

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Minne	esota	a Departme	ent Or He	earth	- Envi	ronmental	Laboi	ratory		
	F	inal Report	- Client Co	py - Re	port Of .	Analytical Re	sults			
Program	n: DD				L	ate Received	16-NOV	-2009		
Program Name	: OES				Da	te Generated	11-DEC	-2009		
Request No	: 361	555				Request Page:	11	of 2	C	
Samp	les:	200934503 -	200934512]	Ι	ate Reported	11-DEC	-2009		
Sample No:	20093	34508								
Receiving C	Comme	ents: -								
Coll Da	te	Coll Time	Location		Lab Temp	<u>Site Numb</u>	∋r			
30-OCT-2	009	1000	-		16	-				
		Sampling P	oint and Sour	ce Of Sa	ample					
			GAYLORD							
* * * *	* * * * * *	* * * * * * * * * * * * *	******** SI	AMPLE RE	ESULTS **	* * * * * * * * * * * * *	* * * * * * * *	* * * * * * * *	*	
Unit: AD	MINIST	TRATIVE	Reviewe	ed By ML I	K on 11-D	SC-09				
			Rea	sult						
			Cod	des	Result	Rept Level	Units	Analys	is Da	te
981 Analyses se	ent to	private lab -	MDH							
Total Halio	les				174	100	mg/kg	23	-NOV-09	9
Sa	mple a	nalyzed at Tes	stAmerica.							
995 Admin. Cons		-								
Consultatio	on Time	2						08	-DEC-09	Э
Se	e atta	ched report fi	rom TestAmeri	.ca.						

Minnesota Department	Of Health	- Env:	ironmental	Labor	ratory
- Final Report - Cli					-
- Program: DD			Date Received		-2009
Program Name: OES		_	ate Generated		
Request No: 361555			Request Page	: 12	of 20
Samples: 200934503 - 2009	34512	I	Date Reported	: 11-DEC	-2009
Sample No: 200934508					
Receiving Comments: -					
Coll Date Coll Time Lo	cation	Lab Tem	p <u>Site Numb</u>	er	
30-OCT-2009 1000	-	16	-		
Sampling Point a	nd Source Of S	ample			
GA	YLORD	•			
	-			***	* * * * * * * * * *
******************************	*** SAMPLE R	ESULTS *	* * * * * * * * * * * * * * * *	* * * * * * * *	* * * * * * * *
Unit: METALS	Reviewed By J	JB on 10-D	EC-09		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
111 SW 6020 Report level was changed due	to sample dil	ution.			
Arsenic Sed, Total	<	0.4	0.4	ug/g	08-DEC-09 16:34
126 SW 6020					
Report level was changed due	to sample dil	ution.			
Cadmium Sed, Total	<	0.40	0.40	ug/g	08-DEC-09 16:34
134 SW 6020					
Report level was changed due Chromium Sed, Total	to sample dif	2.5	0.40		08-DEC-09 16:34
		2.9	0.40	ug/g	08-DEC-09 10.34
161 SW 6020 Report level was changed due	to sample dil	ution.			
Lead Sed, Total		4.5	0.40	ug/g	08-DEC-09 16:34
Unit: ORGANIC CHEMISTRY	Reviewed By PI	os on 10-D	EC-09		
Note: Positive Organic Results	are indicate	d by BOLI	.		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar	>	200		deg F	17-NOV-09

Minnesota Department C	of Health	ı – Envi	ironmental	Labor	atory
Final Report - Clie	nt Copy - R	eport Of	Analytical Re	sults	
Program: DD		I	Date Received:	29-0CT	-2009
Program Name: OES		Da	ate Generated:	11-DEC	-2009
Request No: 360698			Request Page:	1	of 6
Samples: 200933184 - 20093	3186	I	Date Reported:	11-DEC	-2009
Sample No: 200933184					
Receiving Comments: -					
Coll Date Coll Time Loc	ation	Lab Tem	o Site Numbe	er	
	D TK STA	17	A		
Sampling Point an	d Source Of S	Sample			
USED O	IL TANK				
*************************	*** SAMPLE H	RESULTS **	* * * * * * * * * * * * * *	******	* * * * * * *
Unit: ADMINISTRATIVE R	eviewed By M	LK on 11-D	EC-09		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
981 Analyses sent to private lab -MDH Total Halides		579	100	mg/kg	03-NOV-09
See attached report from Tes	tAmerica, In	c.			
995 Admin. Consultation -MDH Consultation Time					19-NOV-09
Analysis completed by TestAm	erica, Inc.				

Minnesota Department	Of Health	– Envi	ironmental	Labor	atory
Final Report - Cli	.ent Copy - R	eport Of	Analytical Re	sults	
Program: DD Program Name: OES Request No: 360698			Date Received Ate Generated Request Page	: 11-DEC	
Samples: 200933184 - 2009	933186	I	Date Reported	: 11-DEC	-2009
Sample No: 200933184					
Receiving Comments: -					
	ocation TO TK ST2	<u>Lab Tem</u> 17	<u>site Numb</u> A	<u>e</u> r	
Sampling Point a	nd Source Of S	ample			
USED	OIL TANK				
****	**** SAMPLE R	ESULTS *'	* * * * * * * * * * * * * *	* * * * * * * *	* * * * * * *
Unit: METALS	Reviewed By J	JB on 10-D	EC-09		
	Result Codes	Result	Rept Level	Units	Analysis Date
111 SW 6020					
Report level was changed due Arsenic Sed, Total		ution.	0.4	ug/g	08-DEC-09 15:42
126 SW 6020			0.1	ug/g	
Report level was changed due	to sample dil	ution.			
Cadmium Sed, Total		0.54	0.40	ug/g	08-DEC-09 15:42
134 SW 6020 Report level was changed due	to sample dil	ution			
Chromium Sed, Total	co pampio all	3.2	0.40	ug/g	08-DEC-09 15:42
161 SW 6020					
Report level was changed due	to sample dil	ution.			
Lead Sed, Total		24	0.40	ug/g	08-DEC-09 15:42
Unit: ORGANIC CHEMISTRY	Reviewed By PI	DS on 10-D	EC-09		
Note: Positive Organic Results	are indicate	d by BOLI).		
	Result				
2000 D 2000 D 2000	Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar	>	200		deg F	10-NOV-09

Minnesota Department Of	Health	1 – Envi	ronmental	Labora	atory
Final Report - Client	Copy - R	leport Of	Analytical Re	sults	
Program: DD		I	Date Received:	29-0CT-	2009
Program Name: OES		Da	ate Generated:	11-DEC-	2009
Request No: 360698			Request Page:	3	of 6
Samples: 200933184 - 200933	186	Ι	Date Reported:	11-DEC-	2009
Sample No: 200933185					
Receiving Comments: -					
Coll DateColl TimeLocat	tion	Lab Tem	<u>o</u> <u>Site Numbe</u>	er	
27-OCT-2009 1000 (APLETON	TRK S	17	В		
Sampling Point and	Source Of S	Sample			
USED OII	TANK				
******	* SAMPLE 1	RESULTS **	* * * * * * * * * * * * * *	* * * * * * * *	* * * * * *
Unit: ADMINISTRATIVE Rev	viewed By M	LK on 11-D	EC-09		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
981 Analyses sent to private lab -MDH Total Halides		232	100	mg/kg	03-NOV-09
See attached report from TestA	merica, In	c.			
995 Admin. Consultation -MDH Consultation Time					19-NOV-09
Analysis completed by TestAmer	ica, Inc.				

Minnesota Department O	f Health	- Envi	ironmental	Labor	atory
Final Report - Clien	nt Copy - Re	eport Of	Analytical Re	sults	
Program: DD Program Name: OES Request No: 360698			Date Received Ate Generated Request Page	: 11-DEC	
Samples: 200933184 - 20093	3186	I	Date Reported	: 11-DEC	-2009
Sample No: 200933185					
Receiving Comments: -					
	ation NN TRK &	Lab Temp 17	<u>site Numb</u> B	er	
Sampling Point and	d Source Of Sa	ample			
USED O	IL TANK				
*******	** SAMPLE R	ESULTS **	* * * * * * * * * * * * * *	* * * * * * * *	* * * * * * *
Unit: METALS Re	eviewed By JJ	B on 10-D	EC-09		
	Result Codes	Result	Rept Level	Units	Analysis Date
111 SW 6020					
Report level was changed due t Arsenic Sed, Total	o sample dili		0.4	uq/q	08-DEC-09 15:48
126 SW 6020		0.11	0.11	~9, 9	00 220 07 20 10
Report level was changed due t	o sample dilu	ution.			
Cadmium Sed, Total	<	0.40	0.40	ug/g	08-DEC-09 15:48
134 SW 6020 Report level was changed due t	o sample dilu	ition			
Chromium Sed, Total	o bampio aiit	3.9	0.40	ug/g	08-DEC-09 15:48
161 SW 6020					
Report level was changed due t	o sample dilu	ution.			
Lead Sed, Total		7.4	0.40	ug/g	08-DEC-09 15:48
Unit: ORGANIC CHEMISTRY Re	eviewed By PD	os on 10-D	EC-09		
Note: Positive Organic Results a	re indicate	d by BOLI).		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar	>	200		deg F	10-NOV-09

Final Report	- Client Copy -	Report Of	ironmenta.	egulte	-
Program: DD	cricine copy	-	Date Received		-2010
Program Name: OES			ate Generated		
Request No: 365936			Request Page	e: 9	of 16
Samples: 201004306 -	201004313	1	Date Reported	d: 23-MAR	-2010
Sample No: 201004310					-
Receiving Comments: -					
Coll Date Coll Time	Location	Lab Tem	<u>p Site Numl</u>	<u>be</u> r	
25-FEB-2010 1130	-	13	-		
Sampling P	oint and Source O	f Sample		_	
	NEW ULM				
			*****	******	*****
*************	******* SAMPLE	RESULTS *			
**************************************		LRM on 22-M			
	Reviewed By				Analysis I
Unit: ADMINISTRATIVE 981 Analyses sent to private lab -N	Reviewed By Result Codes	LRM on 22-M Result	AR-10 Rept Level	Units	Analysis I
Unit: ADMINISTRATIVE 981 Analyses sent to private lab -N Total Halides	Reviewed By Result Codes 1DH	LRM on 22-M Result 271	AR-10		
Unit: ADMINISTRATIVE 981 Analyses sent to private lab -N Total Halides Analysis performed by	Reviewed By Result Codes 1DH	LRM on 22-M Result 271	AR-10 Rept Level	Units	Analysis I
Unit: ADMINISTRATIVE 981 Analyses sent to private lab -N Total Halides	Reviewed By Result Codes 1DH	LRM on 22-M Result 271	AR-10 Rept Level	Units	Analysis I

		vironnenta.	Labo	ratory
Final Report - Clien	t Copy - Report C	f Analytical R	esults	_
Program: DD		Date Received		8-2010
Program Name: OES		Date Generated		
Request No: 365936		Request Page	: 10	of 16
Samples: 201004306 - 201004	313	Date Reported	: 23-MAF	8-2010
Sample No: 201004310				
Receiving Comments: -				
<u>Coll Date</u> <u>Coll Time</u> <u>Loca</u> 25-FEB-2010 1130 -	tion Lab Te 13	mp <u>Site Numb</u> -	er	
Sampling Point and	Source Of Sample			
NEW	ULM		-	
*****	* SAMPLE RESULTS	* * * * * * * * * * * * * * *	*****	****
Unit: METALS Re-	viewed By JJB on 23	-MAR-10		
	Result			
	Codes Result	t Rept Level	Units	Analysis Date
111 SW 6020 Arsenic Sed, Total	Codes Result RC < 2.0	t Rept Level	Units ug/g	Analysis Date 19-MAR-10 14:39
		-		-
Arsenic Sed, Total		-		-
Arsenic Sed, Total 126 SW 6020 Cadmium Sed, Total 134 SW 6020	RC < 2.0 RC < 2.0	2	ug/g ug/g	19-MAR-10 14:39 19-MAR-10 14:39
ArsenicSed, Total126SW 6020 CadmiumSed, Total134SW 6020 ChromiumSed, Total	RC < 2.0	2	ug/g	- 19-MAR-10 14:39
Arsenic Sed, Total 126 SW 6020 Cadmium Sed, Total 134 SW 6020	RC < 2.0 RC < 2.0	2	ug/g ug/g	19-MAR-10 14:39 19-MAR-10 14:39
ArsenicSed, Total126SW 6020 CadmiumSed, Total134SW 6020 ChromiumSed, Total161SW 6020 LeadSed, Total	RC < 2.0 RC < 2.0 RC 2.2	2 2.0 2.0 2.0 2.0	ug/g ug/g ug/g	19-MAR-10 14:39 19-MAR-10 14:39 19-MAR-10 14:39
ArsenicSed, Total126SW 6020 CadmiumSed, Total134SW 6020 ChromiumSed, Total161SW 6020 LeadSed, Total	RC < 2.0 RC < 2.0 RC 2.2 RC 30 viewed By PDS on 23	2 2.0 2.0 2.0 2.0 -MAR-10	ug/g ug/g ug/g	19-MAR-10 14:39 19-MAR-10 14:39 19-MAR-10 14:39
ArsenicSed, Total126SW 6020 CadmiumSed, Total134SW 6020 ChromiumSed, Total161SW 6020 LeadSed, TotalUnit: ORGANIC CHEMISTRY	RC < 2.0 RC < 2.0 RC 2.2 RC 30 viewed By PDS on 23	2 2.0 2.0 2.0 2.0 -MAR-10	ug/g ug/g ug/g	19-MAR-10 14:39 19-MAR-10 14:39 19-MAR-10 14:39
ArsenicSed, Total126SW 6020 CadmiumSed, Total134SW 6020 ChromiumSed, Total161SW 6020 LeadSed, TotalUnit: ORGANIC CHEMISTRY	RC < 2.0 RC < 2.0 RC 2.2 RC 30 Viewed By PDS on 23 e indicated by BO Result	2 2.0 2.0 2.0 2.0 -MAR-10	ug/g ug/g ug/g	19-MAR-10 14:39 19-MAR-10 14:39 19-MAR-10 14:39 19-MAR-10 14:39
ArsenicSed, Total126SW 6020 CadmiumSed, Total134SW 6020 ChromiumSed, Total161SW 6020 LeadSed, TotalUnit: ORGANIC CHEMISTRY	RC < 2.0 RC < 2.0 RC 2.2 RC 30 Viewed By PDS on 23 e indicated by BO Result	2 2.0 2.0 2.0 2.0 -MAR-10 LD. : Rept Level	ug/g ug/g ug/g	19-MAR-10 14:39 19-MAR-10 14:39 19-MAR-10 14:39 19-MAR-10 14:39

Minnesota Department Of Heal Final Report - Client Copy				ratory
Program: DD Program Name: OES Request No: 365936	-	Analytical R Date Received ate Generated Request Page	l: 02-MAR l: 23-MAR	
Samples: 201004306 - 201004313	1	Date Reported	1: 23-MAR	-2010
Sample No: 201004309 Receiving Comments: - Coll Date Coll Time Location 25-FEB-2010 0930 -	Lab Tem 13	<u>p Site Numt</u> -	<u>be</u> r	
Sampling Point and Source C	Of Sample		_	
ST. PETER	E RESULTS **	*****	****	* * * * * * *
Unit: ADMINISTRATIVE Reviewed By	y LRM on 22-M	AR-10		
Result Codes	Result	Rept Level	Units	Analysis Date
1 Analyses sent to private lab -MDH Total Halides Analysis performed by TestAmerica Labo	137 Dratory.	100	mg/kg	08-MAR-10
5 Admin. Consultation -MDH Consultation Time See attached report from TestAmerica I	aboratory.			22-MAR-10
· · ·				

Request No: 365936 Request Page: 8 of 16 Samples: 201004309 Date Reported: 23-MAR-2010 ample No: 201004309 Coll Time Location Lab Temp Site Number 25-FEB-2010 0930 - 13 - Sampling Point and Source Of Sample Sampling Point and Source Of Sample - - Sampling Point and Source Of Sample ST. PETER - - Metalts Reviewed By JJB on 23-MAR-10 - - Result Codes Result Rept Level Units Analysis Date SW 6020 Sed, Total RC < 2.0 2.0 ug/g 19-MAR-10 14 SW 6020 Cadmium Sed, Total RC < 2.0 2.0 ug/g 19-MAR-10 14 SW 6020 Exed Total RC < 2.0 2.0 ug/g 19-MAR-10 14 SW 6020 Exed Total RC < 17 2.0 ug/g 19-MAR-10 14 SW 6020 Exed Sed, Total RC 17 2.0 ug/g 19-MAR-10 14 SW 6020 Exed Sed, Total R	Program Name: OES Request No: 365936 Sample No: 201004306 - 201004313 Date Reported: 23-MAR-2010 Sample No: 201004309 Receiving Comments: - <u>Coll Date</u> <u>Coll Time</u> <u>Location</u> <u>Lab Temp</u> <u>Site Number</u> <u>25-FEB-2010</u> 0930 - 13 - <u>Sampling Point and Source Of Sample</u> <u>5T. PETER</u> ************************************	Program Name: OES Date Generated: 23-MAR-2010 Request No: 365936 Request Page: 8 of 16 Samples: 201004309 Date Reported: 23-MAR-2010 Sample No: 201004309 Receiving Comments: - Coll Date Coll Time Location Lab Temp 25-FEB-2010 0930 - 13 - Sampling Point and Source Of Sample ST. PETER - - Thit: METALS Reviewed By JJB on 23-MAR-10 Result Codes Result Regule Generated: Sed, Total RC < 2.0 2 ug/g 19-MAR-10 134 SW 6020 Sw 6020 Chomium Sed, Total RC < 2.0 2.0 ug/g 19-MAR-10 134 SW 6020 Chomium Sed, Total RC < 2.0 2.0 ug/g 19-MAR-10 134 SW 6020 Chomium Sed, Total RC < 2.0 2.0 ug/g 19-MAR-10 134 SW 6020 Chomium Sed, Total RC < 2.0 2.0 ug/g 19-MAR-10 134 SW 6020 Chomium Sed, Total RC < 2.0 2.0 ug/g
Request No: 365936 Request Page: 8 of 16 Samples: 201004309 Date Reported: 23-MAR-2010 ample No: 201004309 Coll Time Location Lab Temp Site Number 25-FEB-2010 0930 - 13 - Sampling Point and Source Of Sample Sampling Point and Source Of Sample - - Sampling Point and Source Of Sample ST. PETER - - Metalts Reviewed By JJB on 23-MAR-10 - - Result Codes Result Rept Level Units Analysis Date SW 6020 Sed, Total RC < 2.0 2.0 ug/g 19-MAR-10 14 SW 6020 Cadmium Sed, Total RC < 2.0 2.0 ug/g 19-MAR-10 14 SW 6020 Exed Total RC < 2.0 2.0 ug/g 19-MAR-10 14 SW 6020 Exed Total RC < 17 2.0 ug/g 19-MAR-10 14 SW 6020 Exed Sed, Total RC 17 2.0 ug/g 19-MAR-10 14 SW 6020 Exed Sed, Total R	Request No: 365936 Request Page: 8 of 16 Sample No: 201004305 Date Reported: 23-MAR-2010 Sample No: 201004305 Receiving Comments: - Coll Date Coll Time Location Lab Temp Site Number 25-FEB-2010 0930 - 13 - Sampling Point and Source Of Sample	Request No: 365936 Request Page: 8 of 16 Samples: 201004306 - 201004313 Date Reported: 23-MAR-2010 Sample No: 201004309 Receiving Comments: - Coll Date Coll Time Location Lab Temp Site Number 25-FEB-2010 0930 - 13 - Sampling Point and Source Of Sample
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		te Reported:	23-MAR-20	
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25-FEB-2010 1430 -	13	-	-	
Sampling Point and Source	Of Sample			
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Unit: ADMINISTRATIVE Reviewed B	By LRM on 22-MAR	-10		
Resul	-			
Codes	Result	Rept Level	Units Ar	nalysis Date
Analyses sent to private lab -MDH Total Halides	234	100	mg/kg	08-MAR-10
Analysis performed by TestAmerica Lab				
Admin. Consultation -MDH Consultation Time				22-MAR-10

Minnesot	a Departmen	t Of Health	n - Env	ironmental	Labo	ratory
. 1	Final Report -	Client Copy - H	Report Of	Analytical Re	sults	
Program: DD Program Name: OES Request No: 365				Date Received ate Generated Request Page	23-MAR	
Samples:	201004306 - 2	01004313		Date Reported	23-MAR	2-2010
Sample No: 2010 Receiving Comm						
Coll Date 25-FEB-2010	Coll Time 1430	Location	<u>Lab Tem</u> 13	<u>p</u> <u>Site Numb</u> -	<u>ə</u> r	
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		WINDOM				
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		Result		·	• ·	
111 SW 6020 Arsenic Sed	, Total	Codes ' RC	Result	Rept Level	Units ug/g	Analysis Date 19-MAR-10 14:42
*	, Total	RC	< 2.0	2.0	ug/g	19-MAR-10 14:42
	, Total	RC	< 2.0	2.0	ug/g	19-MAR-10 14:42
161 SW 6020 Lead Sed	, Total	RC	11	2.0	ug/g	19-MAR-10 14:42
Unit: ORGANIC	CHEMISTRY	Reviewed By \mathbf{P}	, DS on 23-M	AR-10		
Note: Positive	e Organic Resul	ts are indicate Result	ed by BOLI).		
		Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen	-Mar		> 200		deg F	08-MAR-10
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MINNESOTA DEPARTMENT OF TRANSPORTATION USED OIL BURNER SAMPLING ON-SPEC OIL ANALYSIS

District 8 Marshall Willmar



Prepared by: Minnesota Department of Transportation Office of Environmental Services Environmental Modeling and Testing Unit

March 2010

INTRODUCTION

Enclosed in this report are the results of the sampling of used oil collected at the Minnesota Department of Transportation (MNDOT) District 8 Truck Station facilities. Used oil from vehicles is placed in Lube Cube storage tanks at each of the truck stations. The Lube Cubes are connected to building heaters that burn the used oil for heat recovery.

The sampling of used oil at the District 8 facilities was conducted by personnel from the MNDOT Office of Environmental Services. For additional information, contact Harold Bottolfson at (651) 366-5812. The laboratory analysis was performed by the Minnesota Department of Health.

The results of the laboratory analysis from the samples taken at the District 8 Truck Stations show the burner oil to be within the on spec limits.

Purpose

The purpose of the sampling and analysis is to insure that the used motor oil that is burned in heating units meets MPCA rules for such practices. The oil must meet the following limits to be classified as on-spec:

- Flashpoint 100 degrees Fahrenheit minimum
- Arsenic 5 parts per million (PPM) maximum
- Cadmium 2 PPM maximum
- Chromium 10 PPM maximum
- Lead 100 PPM maximum
- Total Halogens 1000 PPM maximum

Procedures

The oil was sampled from the storage tank with a Coliwasa sampler. The Coliwasa sampler is a 70" long polypropylene tube that is 1" diameter. The sampler has caps at each end that can be opened and closed by using a control rod that runs through the length of the tube. During the sampling, the end caps were opened and the coliwasa was slowly lowered into the tank so that a vertical column sample could be obtained. The sampler was lowered to the top of the sludge layer so that only the oil to be burned would be sampled. The oil from the sampler was placed in a sample bottles provided by the Minnesota Department of Health, which was contracted to analyze the sample. As the sample was released into the bottle, it was carefully observed for any discolorations or changes in the composition of the material. Notes were taken of the procedures during the sampling process.

Laboratory analysis methods for each of the listed parameters are as follows:

PARAMETER	METHOD
Flashpoint	ASTM D 3278-78
Metals	SW 6020
Total Halogens	SW846 9076

Results

The observation notes taken during the sampling are as follows:

Marshall Truck Station

- 1. The oil removed from the tank with the coliwasa did not show segments or layering.
- 2. The oil removed did not have any unusual odors and seemed consistent with the look and smell of used oil.
- 3. The area around the Lube Cube looked well maintained and orderly.
- 4. The depth of the oil in the tank was 10".
- 5. There was a layer of sludge at the bottom approximately 3" deep.

Willmar Truck Station

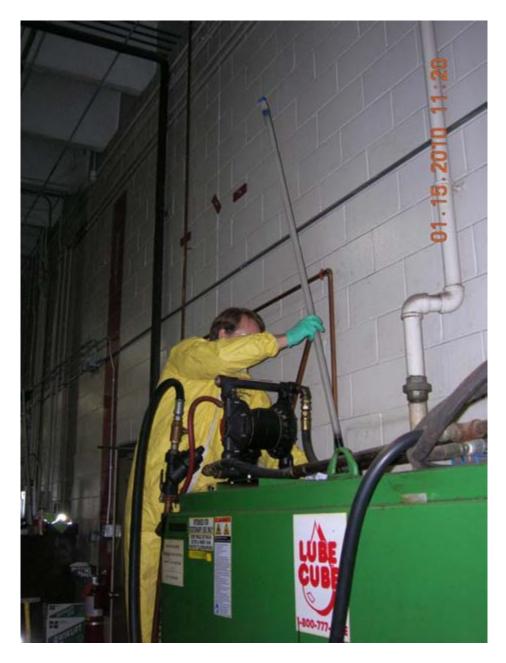
- 1. The oil removed from the tank with the coliwasa did not show segments or layering.
- 2. The oil removed did not have any unusual odors and seemed consistent with the look and smell of used oil.
- 3. The area around the Lube Cube looked well maintained and orderly.
- 4. The depth of the oil in the tank was approximately 12".
- 5. There was a layer of sludge at the bottom approximately 1" deep.

MN/DOT District 8 Used Oil Sampling Laboratory Results (Values in PPM)

Sample Location	Date	Flashpoint (F)	Arsenic	Cadmium	Chromium	Lead	Total Halogens
Marshall	2/26/2010	>200	<2.0	<2.0	<2.0	4.5	<100
Willmar	11/17/2009	>200	<1.0	<1.0	1.3	5.2	149
On Spec Limits		100 Minimum	5 Maximum	2 Maximum	10 Maximum	100 Maximum	1000 Maximum

*Values in Red are Off Spec

Willmar Used Oil Container



Marshall Used Oil Container



Minnesota Department of Health Chain of Custody

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		WW Waste Water STD = Soul/Sould WP - Wipe			Program Code (2 Letters)	Progra	Civil/Criminal Chain of Custody he)	Slandard Civi	
		Matrix Codes Matrix Codes DW = Drinking Water SW - Surface Water GW - Ground Water		mersa	Client/Agency <u>MN VO1</u> Project Name <u>ON BUMERSendes</u> Site ID	·	Potential Hazard: Yea NoUnknown (Circle One). If Yes please add information to Comments below		Lah Use Only.
	Page0	601 Robert St. North St. Paul, MN 55155-2531	 	Juny		Спан	DEPARTMENT OF HEALTH	DEPARTMEN	
		Minnesota Department of Health Environmental Laboratory		אלק	hain of Custody	Chain			
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Minnesota Department of Health Laboratory Results

	Final Report	- Client Co	ppy - Report Of	Analytical R	eșults	
Program: D Program Name: O	ES		I	Date Received Date Generated	l: 23-MAR	
Request No: 3		- 201004313]	Request Page Date Reported		
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******	****	MARSHALL	AMPLE RESULTS *		-	****
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******	**************	MARSHALL ******** S/ Review Re Co	AMPLE RESULTS + ed By LRM on 22- sult	MAR-10		
****** Unit: ADMIN 981 Analyses sent Total Halides	**************	MARSHALL ******** S/ Review Re Co -MDH	AMPLE RESULTS - ed By LRM on 22- sult des Result < 100	MAR-10 Rept Level	Units	Analysis D
****** Unit: ADMIN 981 Analyses sent Total Halides	to private lab sis performed by	MARSHALL ******** S/ Review Re Co -MDH	AMPLE RESULTS - ed By LRM on 22- sult des Result < 100	MAR-10 Rept Level	Units	Analysis D
******* Unit: ADMIN 981 Analyses sent Total Halides Analys 995 Admin. Consult Consultation T	to private lab sis performed by	MARSHALL ******** Si Review Re Co -MDH Y TestAmerica	AMPLE RESULTS + ed By LRM on 22- sult des Result < 100 Laboratory.	MAR-10 Rept Level	Units	Analysis D 08-MAR-
******* Unit: ADMIN 981 Analyses sent Total Halides Analys 995 Admin. Consult Consultation T	to private lab is performed by ation -MDH ime	MARSHALL ******** Si Review Re Co -MDH Y TestAmerica	AMPLE RESULTS + ed By LRM on 22- sult des Result < 100 Laboratory.	MAR-10 Rept Level	Units	Analysis D 08-MAR-

Minnesota Department	: Of Health - Envi	ronmental	Laborato	ry
Final Report - C	lient Copy - Report Of A	nalytical Res	ults	
Program: DD Program Name: OES Request No: 365936	Da	ate Received: te Generated: Request Page:		
Samples: 201004306 - 20	D 1004313 D	ate Reported:	23-MAR-2010	
Sample No: 201004312 Receiving Comments: -				
26-FEB-2010 0800	Location Lab Temp - 13	Site Numbe -	r	
	t and Source Of Sample			
ľ	ARSHALL			
****************	***** SAMPLE RESULTS **	* * * * * * * * * * * * * * * *	*****	***
Unit: METALS	Reviewed By JJB on 23-MA	R-10		
	Result Codes Result	Rept Level	Unita Boo	lysis Date
111 SW 6020	Codes Result	Kehr Hever		IYBIB Duce
111 SW 6020 Arsenic Sed, Total	RC < 2.0	2	ug/g	19-MAR-10 14:45
126 SW 6020 Cadmium Sed, Total	RC. < 2.0	2.0	ug/g	19-MAR-10 14:45
134 SW 6020 Chromium Sed, Total	RC < 2.0	2.0	ug/g	19-MAR-10 14:45
161 SW 6020 Lead Sed, Total	RC 4.5	2.0	ug/g	19-MAR-10 14:45
Unit: ORGANIC CHEMISTRY	Reviewed By PDS on 23-MA	R-10		
Note: Positive Organic Result	s are indicated by BOLD			
	Result		_	
	Codes Result	Rept Level	Units Ana	lysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar	> 200		deg F	08-MAR-10

	F	inal Report -	Client Copy -	Report Of	Analytical R	esults	
P	rogram: DD			Ι	Date Received	: 23-DEC	-2009
Program	m Name: OES			Da	ate Generated	l: 04-FEB	-2010
Requ	est No: 362	948			Request Page	2: 11	of 14
	Samples:	200936783 -	200936789	I	Date Reported	l: 09-FEB	-2010
Samp	ole No: 20093	36788					
Rece	eiving Comme	ents: –					
(Coll Date	Coll Time	Location	Lab Tem	<u>o</u> <u>Site Numb</u>	ber	
17	-NOV-2009	1230	-	20	-		
		Sampling Po	pint and Source O	f Sample			
			WILMAR			_	
	* * * * * * * * * *	* * * * * * * * * * * * * * *	******* SAMPLE	RESULTS **	* * * * * * * * * * * * *	******	* * * * * * *
Unit	ADMINIS	TRATIVE	Reviewed By	LRM on 09-F	EB-10		
			Result				
			Codes	Result	Rept Level	Units	Analysis Da
		private lab -M	DH	140	100		06 TAN 1
-	-			149	100	mg/kg	06-JAN-1
-	l Halides	с II.					
Tota	l Halides	performed by 5	TestAmerica.				

Minnesota Department Of	Health - Env	ironmental	Labor	atory
Final Report - Client	Copy - Report Of	Analytical Re	sults	
Program: DD Program Name: OES Request No: 362948		Date Received: Date Generated: Request Page:	04-FEB-	
Samples: 200936783 - 2009367	789	Date Reported:	09-FEB-	-2010
Sample No: 200936788				
Receiving Comments: -				
Coll Date Coll Time Locat 17-NOV-2009 1230 -	ion <u>Lab Tem</u> 20	np <u>Site Numbe</u> -	<u>e</u> r	
Sampling Point and S	Source Of Sample			
WILM	AR			
* * * * * * * * * * * * * * * * * * * *	* SAMPLE RESULTS *	* * * * * * * * * * * * * *	* * * * * * * *	* * * * * * *
Unit: METALS Rev	iewed By JJB on 09-1	FEB-10		
	Result Codes Result	Rept Level	Units	Analysis Date
111 SW 6020 Arsenic Sed, Total	RC < 1.0	1	ug/g	21-JAN-10 13:11
126 SW 6020 Cadmium Sed, Total	RC < 1.0	1.0	ug/g	21-JAN-10 13:11
134 SW 6020 Chromium Sed, Total	RC 1.3	1.0	ug/g	21-JAN-10 13:11
161 SW 6020 Lead Sed, Total	RC 5.2	1.0	ug/g	21-JAN-10 13:11
Unit: ORGANIC CHEMISTRY Rev	iewed By PDS on 05-1	FEB-10		
Note: Positive Organic Results are	e indicated by BOL	D.		
	Result Codes Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar	> 200		deg F	31-DEC-09

MINNESOTA DEPARTMENT OF TRANSPORTATION USED OIL BURNER SAMPLING ON-SPEC OIL ANALYSIS

Metro District Cedar Eden Prairie Forest Lake Mendota Plymouth Maryland Oakdale



Prepared by: Minnesota Department of Transportation Office of Environmental Services Environmental Modeling and Testing Unit

March 2010

INTRODUCTION

Enclosed in this report are the results of the sampling of used oil collected at the Minnesota Department of Transportation (MNDOT) Metro Truck Station facilities. Used oil from vehicles is placed in Lube Cube storage tanks at each of the truck stations. The Lube Cubes are connected to building heaters that burn the used oil for heat recovery.

The sampling of used oil at the Metro District facilities was conducted by personnel from the MNDOT Office of Environmental Services. For additional information, contact Harold Bottolfson at (651) 366-5812. The laboratory analysis was performed by the Minnesota Department of Health.

The results of the laboratory analysis from the samples taken at the Metro District Truck Stations show the burner oil to be within the on spec limits.

Purpose

The purpose of the sampling and analysis is to insure that the used motor oil that is burned in heating units meets MPCA rules for such practices. The oil must meet the following limits to be classified as on-spec:

- Flashpoint >100 degrees Fahrenheit
- Arsenic <5 parts per million (PPM)
- Cadmium <2 PPM
- Chromium <10 PPM
- Lead <100 PPM
- Total Halogens <1000 PPM

Procedures

The oil was sampled from the storage tank with a Coliwasa sampler. The Coliwasa sampler is a 70" long polypropylene tube that is 1" diameter. The sampler has caps at each end that can be opened and closed by using a control rod that runs through the length of the tube. During the sampling, the end caps were opened and the coliwasa was slowly lowered into the tank so that a vertical column sample could be obtained. The sampler was lowered to the top of the sludge layer so that only the oil to be burned would be sampled. The oil from the sampler was placed in a sample bottles provided by the Minnesota Department of Health, which was contracted to analyze the sample. As the sample was released into the bottle, it was carefully observed for any discolorations or changes in the composition of the material. Notes were taken of the procedures during the sampling process.

Laboratory analysis methods for each of the listed parameters are as follows:

PARAMETER	METHOD
Flashpoint	ASTM D 3278-78
Metals	SW 6020
Total Halogens	SW846 9076

Results

Oil Level in the tanks

Cedar	full
Eden Prairie	63" of oil with 2" of sludge
Forest Lake	About 24" of oil
Mendota	30" of oil with no sludge
Plymouth	13" of oil
Maryland	18" of oil
Oakdale #1	18" of oil
Oakdale #2	30" of oil

Eden Prairie Used Oil Container



Forest Lake Used Oil Container



Plymouth Used Oil Container

Maryland Used Oil Container



Oakdale #1 Used Oil Container



Oakdale #2 Used Oil Container



Minnesota Department of Health Chain of Custody

White Client Copy Yellow Lab Copy Pink Set	(Sampler)	Lab Use Only. Potenniai Hazard: Yes/NorUnknown (Circle One). If Yes please add information to Comments below. Standardy: Only Communai Chain of Custody Circle One) Other Standardy: Only Communai Chain of Custody Circle One) Other Standardy: Only Communai Chain of Custody Circle One) Potential Standardy: Only Communai Chain of Custody Circle One Potential Standardy: Only Communai Chain of Custody Circle One Potential Chain of Custody Circle One Potential Communai Chain of Custody Circle One Potential Chain of Custody Circle One	
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33263	Date Time 10-29-09 (D1) 10-19-09 /047	Hashperint Hashperint	Pageof

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s form	Sampler Field P VIN Tefer to an My S	Hydrochloric A Sulfune Acid Nitric Acid Sodium Hydro Sodium Thiosu Ascorbic Acid Other	Sample Source/Polat Collection Time Sample Source/Polat Collection Time Date (24 Hour)	Sampler Skepslure V Z Li v dl Byter Held D
	Requested Analysis	xide Hoservanyca		Harold By (Print) Bottolfson
Address if Needed		Prugram Code (2 Letters) DD Contact Name Harol & Bottel (Son Contact Phone # USI - 366 - 5812		Standard Civil (Curele One)
	Matrix Codes DW - Drinking Water SW = Surface Water GW - Ground Water Water Water	Client/Agency Mr DOT Project Name Truck Station Oil Sundiff Site ID Mendoter of Cedar	nknown (Circle One). 19 to Comments below.	Lab Use Only. Potential Hazard: Yes/No/U If Yes please add informatic
Pageof	Minnesota Department of Health Environmental Laboratory 601 Robert St. North St. Paul, MN 55155-2531	Chain of Custody		MI

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		Page of	nent of Health Laboratory st. North 5155-2531	innesota Departr Environmental 601 Robert S St. Paul, MN 5		Y	ustod	1 of C	Chair			

Minnesota Department of Health Laboratory Results

Minnesota Department Of H	Iealth - En	vironmental	Laborato	ry
Final Report - Client C	opy - Report O:	f Analytical Res	sults	
Program: DD		Date Received:	29-OCT-2009	9
Program Name: OES		Date Generated:	11-DEC-2009	9
Request No: 360835		Request Page:	1 of	4
Samples: 200933187 - 200933188	3	Date Reported:	11-DEC-2009	9
Sample No: 200933187				
Receiving Comments: -				
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Sampling Point and Sou	urce Of Sample			
USED OIL TA	ANK			
**************************************	SAMPLE RESULTS	* * * * * * * * * * * * * * * *	* * * * * * * * * * * *	* * * *
Unit: ADMINISTRATIVE Review	wed By MLK on 11.	-DEC-09		
Re	esult			
Co	odes Result	Rept Level	Units Ana	lysis Date
981 Analyses sent to private lab -MDH Total Halides	179	100	mg/kg	03-NOV-09
See attached report from TestAmer	rica, Inc.			
995 Admin. Consultation -MDH Consultation Time				19-NOV-09
Analysis completed by TestAmerica	a, Inc.			

Minnesota Department C	of Health	- Envi	ironmental	Labor	ratory
Final Report - Clie	nt Copy - Re	eport Of	Analytical Re	sults	
Program: DD Program Name: OES Request No: 360835			Date Received Ate Generated Request Page	: 11-DEC	
Samples: 200933187 - 20093	33188	I	Date Reported	: 11-DEC	-2009
Sample No: 200933187					
Receiving Comments: -					
	ation A TRUCK	Lab Tem 17	o <u>Site Numb</u> -	er	
Sampling Point an	d Source Of Sa	ample			
USED O	IL TANK				
******	*** SAMPLE R	ESULTS *'	* * * * * * * * * * * * * *	* * * * * * * *	* * * * * * *
Unit: METALS R	eviewed By JJ	B on 10-D	EC-09		
	Result Codes	Result	Rept Level	Units	Analysis Date
111 SW 6020					
Report level was changed due t Arsenic Sed, Total	o sample dilu <		0.4		00 DEC 00 15.55
126 SW 6020		0.4	0.4	ug/g	08-DEC-09 15:55
Report level was changed due t	to sample dilu	ution.			
Cadmium Sed, Total	<	0.40	0.40	ug/g	08-DEC-09 15:55
134 SW 6020					
Report level was changed due t Chromium Sed, Total	.o sampie diit	3.6	0.40	ug/g	08-DEC-09 15:55
161 SW 6020 Report level was changed due t	o comple dilu		0.10	49/9	
Lead Sed, Total	o sampie diit	8.3	0.40	ug/g	08-DEC-09 15:55
	eviewed By PD				
Note: Positive Organic Results a	Result	d by BOLI			
	Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78					
Flash Point, Pen-Mar		174		deg F	10-NOV-09

Minnesota Department (Of Health	- Envi	ironmental	Labora	tory
Final Report - Clie	ent Copy - R	eport Of	Analytical Rea	sults	
Program: DD		I	Date Received:	29-0CT-2	2009
Program Name: OES		Da	ate Generated:	11-DEC-2	2009
Request No: 360835			Request Page:	3 с	of 4
Samples: 200933187 - 2009	33188	I	Date Reported:	11-DEC-2	2009
Sample No: 200933188					
Receiving Comments: -					
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	cation TRUCK SI	Lab Tem 17	<u>p</u> <u>Site Numbe</u> _	<u>1</u>	
Sampling Point ar					
	DIL TANK				
*************************	*** SAMPLE H	RESULTS **	* * * * * * * * * * * * * * *	* * * * * * * * *	* * * * * *
Unit: ADMINISTRATIVE	Reviewed By M	LK on 11-D	EC-09		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
981 Analyses sent to private lab -MDH Total Halides		164	100	mg/kg	03-NOV-09
See attached report from Tes	stAmerica, In	c.			
995 Admin. Consultation -MDH					
Consultation Time					19-NOV-09
Analysis completed by TestAr	merica, Inc.				

Minnesota Department Of	Health	- Envi	ronmental	Labor	ratory
Final Report - Client	Copy - Re	port Of	Analytical Re	sults	
Program: DD			Date Received		
Program Name: OES Request No: 360835		Da	te Generated Request Page		-2009 of 4
_	22	-			
Samples: 200933187 - 2009331	.88	1	Date Reported	: II-DEC	-2009
Sample No: 200933188					
Receiving Comments: -					
Coll Date Coll Time Locat	ion	Lab Tem	<u>site Numb</u>	er	
26-OCT-2009 0900 CEDAR TR	JCK SI	17	-		
Sampling Point and S	Source Of Sa	ample			
USED OIL	TANK				
******	* SAMPLE RI	SULTS **	* * * * * * * * * * * * * *	* * * * * * * * *	* * * * * * *
Unit: METALS Rev	iewed By JJ	B on 10-D	EC-09		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
111 SW 6020 Report level was changed due to	sample dilu	tion.			
Arsenic Sed, Total	<	0.4	0.4	ug/g	08-DEC-09 15:58
126 SW 6020					
Report level was changed due to Cadmium Sed, Total	sample dilu		0.40	uq/q	08-DEC-09 15:58
134 SW 6020		0.40	0.40	ug/g	00-DEC-09 13:30
Report level was changed due to	sample dilu	tion.			
Chromium Sed, Total		4.9	0.40	ug/g	08-DEC-09 15:58
161 SW 6020		+ -:			
Report level was changed due to Lead Sed, Total	sampie diiu	3.2	0.40	ug/g	08-DEC-09 15:58
				ug/ g	
	iewed By PD				
Note: Positive Organic Results are		l by BOLL).		
	Result Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78					_
Flash Point, Pen-Mar	>	200		deg F	10-NOV-09
Result Code Description					
RC Report level was changed due	to sample of	lilution			
Line Report rever was changed due	co sampre (

Minnesota Department Of He	ealth - Envi	ronmental	Labor	atory
Final Report - Client Co	py - Report Of A	Analytical Res	sults	
Program: DD	D	ate Received:	29-0CT	-2009
Program Name: OES	Da	te Generated:	11-DEC	-2009
Request No: 360742		Request Page:	1	of 4
Samples: 200933189 - 200933190	D	ate Reported:	11-DEC	-2009
Sample No: 200933189				
Receiving Comments: -				
Coll Date Coll Time Location	Lab Temp	<u>Site Numbe</u>	<u>e</u> r	
28-OCT-2009 1100 EDEN PRAIRI	17	A		
Sampling Point and Sour	ce Of Sample			
USED OIL TA	NK			
**************************************	MPLE RESULTS **	* * * * * * * * * * * * *	* * * * * * * *	* * * * * * *
Unit: ADMINISTRATIVE Reviewe	d By MLK on 11-DE	C-09		
Re	sult			
Co	les Result	Rept Level	Units	Analysis Date
981 Analyses sent to private lab -MDH Total Halides	183	100	mg/kg	03-NOV-09
See attached report from TestAmeri	ca, Inc.			
995 Admin. Consultation -MDH				
Consultation Time				19-NOV-09
Analysis completed by TestAmerica,	Inc.			

Minnesota Department	Of Health	- Env:	ironmental	Labor	ratory
- Final Report - Cli					-
- Program: DD			Date Received		-2009
Program Name: OES			ate Generated		
Request No: 360742			Request Page	: 2	of 4
Samples: 200933189 - 2009	33190	I	Date Reported	: 11-DEC	-2009
Sample No: 200933189					
Receiving Comments: -					
	cation PRAIRIE 1	<u>Lab Tem</u> 17	<u>p</u> <u>Site Numb</u> A	<u>e</u> r	
Sampling Point a	nd Source Of S	ample			
USED	OIL TANK			-	
********	*** SAMPLE R	ESULTS **	* * * * * * * * * * * * *	* * * * * * * *	* * * * * * *
Unit: METALS	Reviewed By J	JB on 10-D	EC-09		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
111 SW 6020 Report level was changed due	to sample dil	ution.			
Arsenic Sed, Total	<	0.4	0.4	ug/g	08-DEC-09 16:01
126 SW 6020	to comple dil	ution			
Report level was changed due Cadmium Sed, Total		. 0.40	0.40	uq/q	08-DEC-09 16:01
134 SW 6020		0.40	0.40	ug/g	00-02-09 10:01
Report level was changed due	to sample dil	ution.			
Chromium Sed, Total		4.7	0.40	ug/g	08-DEC-09 16:01
161 SW 6020					
Report level was changed due	to sample dil	ution.			
Lead Sed, Total		14	0.40	ug/g	08-DEC-09 16:01
Unit: ORGANIC CHEMISTRY	Reviewed By PI	os on 10-D	EC-09		
Note: Positive Organic Results	are indicate	d by BOLI	.		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar	>	200		deg F	10-NOV-09

Minnesota Department Of	Health	1 – Envi	ronmental	Labora	atory
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Program: DD		Ι	Date Received:	29-0CT-	2009
Program Name: OES		Da	te Generated:	11-DEC-	2009
Request No: 360742			Request Page:	3	of 4
Samples: 200933189 - 2009331	90	Ι	Date Reported:	11-DEC-	2009
Sample No: 200933190					
Receiving Comments: -					
Coll Date Coll Time Location	on	Lab Tem	o Site Numbe	⊃r	
28-OCT-2009 1200 ?LYMOUTH		<u>17</u>	B B	21	
Sampling Point and S	ource Of S	Sample			
USED OIL	TANK				
******	SAMPLE I	RESULTS **	* * * * * * * * * * * * * * *	* * * * * * * *	* * * * * *
Unit: ADMINISTRATIVE Revi	ewed By M	LK on 11-D	EC-09		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
981 Analyses sent to private lab -MDH Total Halides		144	100	mg/kg	03-NOV-09
See attached report from TestAm	erica, In	c.			
995 Admin. Consultation -MDH Consultation Time					19-NOV-09
Analysis completed by TestAmeri	ca, Inc.				

Minnesota Department Of	Health	- Envi	ronmental	Labor	atory
Final Report - Client	t Copy - Rep	port Of	Analytical Re	sults	
Program: DD Program Name: OES			Date Received		
Request No: 360742			Request Page	: 4	of 4
Samples: 200933189 - 200933	190	I	ate Reported	: 11-DEC	-2009
Sample No: 200933190					
Receiving Comments: -					
Coll DateColl TimeLocation28-OCT-20091200>LYMOUTH		<u>Lab Tem</u> ı 17	<u>Site Numb</u> B	<u>e</u> r	
Sampling Point and	Source Of Sa	mple			
USED OII	L TANK				
******	* SAMPLE RE	SULTS **	******	* * * * * * * * *	* * * * * * *
Unit: METALS Rev	viewed By JJE	on 10-D	EC-09		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
111 SW 6020 Report level was changed due to	sample dilut	tion.			
Arsenic Sed, Total	<	0.4	0.4	ug/g	08-DEC-09 16:05
126 SW 6020					
Report level was changed due to			0.40	,	
Cadmium Sed, Total	<	0.40	0.40	ug/g	08-DEC-09 16:05
134 SW 6020 Report level was changed due to	sample dilut	tion.			
Chromium Sed, Total	-	2.6	0.40	ug/g	08-DEC-09 16:05
161 SW 6020					
Report level was changed due to	sample dilut	tion.			
Lead Sed, Total		7.3	0.40	ug/g	08-DEC-09 16:05
Unit: ORGANIC CHEMISTRY Rev	viewed By PDS	on 10-D	EC-09		
Note: Positive Organic Results ar	e indicated	by BOLD	•		
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar	>	200		deg F	10-NOV-09
Result Code Description					
RC Report level was changed due	to sample d	ilution.			

Minnesota Department	Of Health	- Env	ironmental	Labor	ratory	
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Program: DD		I	Date Received	: 23-DEC	-2009	
Program Name: OES		Da	ate Generated	: 04-FEB	-2010	
Request No: 362948			Request Page	: 13	of 14	
Samples: 200936783 - 200	936789	I	Date Reported	: 09-FEB	-2010	
Sample No: 200936789						
Receiving Comments: -						
Coll DateColl TimeL	ocation	Lab Tem	<u>o</u> <u>Site Numb</u>	<u>e</u> r		
23-DEC-2009 1230	-	20	-			
Sampling Point a	and Source Of S	Sample				
FOR	EST LAKE					
************************	**** SAMPLE 1	RESULTS **	* * * * * * * * * * * * * * *	* * * * * * * *	* * * * * * * *	
Unit: ADMINISTRATIVE	Reviewed By L	RM on 09-F	EB-10			
	Result					
	Codes	Result	Rept Level	Units	Analysis	Date
81 Analyses sent to private lab -MDH Total Halides		166	100	mg/kg	06-JA1	J-10
Analysis performed by Test	America.					
995 Admin. Consultation -MDH Consultation Time					04-FEB	3-10
See attached report from T	estAmerica.					

Minnesota Department	: Of Health	- Envi	.ronmental	Labor	atory
Final Report - C	lient Copy - Re	port Of 2	Analytical Re	sults	
Program: DD Program Name: OES Request No: 362948		Da	ate Received te Generated Request Page	: 04-FEB	-2010
Samples: 200936783 - 20	0936789	Γ	ate Reported	: 09-FEB	-2010
Sample No: 200936789					
Receiving Comments: -					
Coll Date Coll Time 23-DEC-2009 1230	Location	Lab Temp 20	<u>Site Numb</u>	<u>e</u> r	
Sampling Point	and Source Of Sa	mple			
FO	REST LAKE				
* * * * * * * * * * * * * * * * * * * *	***** SAMPLE RE	SULTS **	* * * * * * * * * * * * *	* * * * * * * * *	* * * * * * *
Unit: METALS	Reviewed By JJB	3 on 09-F	EB-10		
	Result Codes	Result	Rept Level	Units	Analysis Date
111 SW 6020 Arsenic Sed, Total	RC <	1.0	1	ug/g	21-JAN-10 13:27
126 SW 6020 Cadmium Sed, Total	RC <	1.0	1.0	ug/g	21-JAN-10 13:27
134 SW 6020 Chromium Sed, Total	RC	2.5	1.0	ug/g	21-JAN-10 13:27
161 SW 6020 Lead Sed, Total	RC	10	1.0	ug/g	21-JAN-10 13:27
Unit: ORGANIC CHEMISTRY	Reviewed By PDS	5 on 05-F F	EB-10		
Note: Positive Organic Result	s are indicated	l by BOLD	•		
	Result				
272 JUNE 2070 70	Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar	>	200		deg F	31-DEC-09
Result Code Description ND Not Detected RC Report level was changed	d due to sample d	ilution.			

		nearth -	Envir	onmental	Labor	atory
Final Re	eport - Client	Copy - Repo	ort Of Ana	lytical Res	ults	
Program: DD			Date	e Received:	02-MAR-	2010
Program Name: OES			Date	Generated:	23-MAR-	2010
Request No: 365936			Ree	quest Page:	1	of 16
Samples: 201004	1306 - 2010043	13	Date	e Reported:	23-MAR-	2010
Sample No: 201004306						
Receiving Comments:	-					
Coll Date Coll Ti	me Locatio	on L	ab Temp	<u>Site Numbe</u>	г	
19-FEB-2010 1030	16.741		13	-	-	
Sam	pling Point and Se	ource Of Sam	ple	:		
	MARYLA	ND				
* * * * * * * * * * * * * * * * * *	* * * * * * * * * * * * * * *	SAMPLE RES	JLTS ****	*******	* * * * * * * *	* * * * * *
Unit: ADMINISTRATIVE	Revi	ewed By LRM	on 22-MAR- 1	LO		
		Result				
		Codes R	esult Re	pt Level	Units	Analysis Date
981 Analyses sent to private Total Halides	lab -MDH	1	27	100	mg/kg	08-MAR-10
Analysis perform	ned by TestAmeria	-		100	ilig7 kg	00 "PLAN" I O
995 Admin. Consultation - MDH		<u> </u>				
Consultation Time	· .					22-MAR-10
See attached rep	ort from TestAm	erica Laborat	.ory,			
			-			

М	innesot	a Departm	ent Of Health	ı - Env	ironmental	Labo:	ratory
	F	inal Report	- Client Copy - H	Report Of	Analytical Re	esults	
Pr	ogram: DD				Date Received	: 02-MAF	2010
Program	Name: OES	1		D	ate Generated	: 23-MAF	R-2010
Reque	st No: 365	936			Request Page	: 2	of 16
	Samples:	201004306 -	201004313		Date Reported	: 23-MAF	8-2010
Sample	e No: 2010	04306	· · · · ·		· · · · · · · · · · · · · · · · · · ·		
Recei	ving Comme	ents: -					
	oll Date FEB-2010	Coll Time 1030	Location -	Lab Tem 13	<u>p Site Numb</u> -	<u>e</u> r	
		Sampling F	oint and Source Of S	Sample			
			MARYLAND			-	
Unit:	METALS		Reviewed By J	JB on 23-M	1AR-10		
			Result Codes	Result	Rept Level		Appludia Data
			coues	Result	керс пелет	Units	Analysis Date
111 SW (Arsen:	6020 ic Sed	, Total	RC	< 2.0	2	ug/g	19-MAR-10 14:
	6020	,			_		
Cadmin		, Total	RC	< 2.0	2.0	ug/g	19-MAR-10 14:
	6020						
134 SW 0			RC			ug/g	19-MAR-10 14:
134 SW (Chrom:	ium Sed	, Total	i ce	< 2.0	2.0	49/9	I) Parat IO II.
Chrom: 161 SW (6020						
Chrom: 161 SW (Lead	5020 Sed	, Total	RC	< 2.0 11	2.0	ug/g	
Chrom: 161 SW (5020 Sed			11	2.0		
Chrom: 161 SW (Lead Unit:	5020 Sed ORGANIC	, Total CHEMISTRY	RC Reviewed By P sults are indicate	11 DS on 23-M	2.0 AR-10		
Chrom: 161 SW (Lead Unit:	5020 Sed ORGANIC	, Total CHEMISTRY	RC Reviewed By P Sults are indicate Result	11 DS on 23-M ed by BOLI	2.0 AR-10 D.	ug/g	19-MAR-10 14:
Chrom: 161 SW (Lead Unit: Note	6020 Sed ORGANIC : Positive	, Total CHEMISTRY	RC Reviewed By P sults are indicate	11 DS on 23-M	2.0 AR-10	ug/g	19-MAR-10 14:
Chrom: 161 SW (Lead Unit: Note 270 ASTM	6020 Sed ORGANIC A: Positive	, Total CHEMISTRY e Organic Res	RC Reviewed By P Sults are indicate Result	11 DS on 23-M ed by BOLI	2.0 AR-10 D.	ug/g	19-MAR-10 14:

Minnesota Department	t Of Healt	h - Env	ironmenta	l Laboı	ratory	
Final Report - C	lient Copy - 1	Report Of	Analytical R	esults		
Program: DD			Date Received ate Generated Request Page	1: 23-MAR		
Samples: 201004306 - 20	01004313		Date Reported	i: 23-MAR	-2010	
Sample No: 201004307				· · · · · · · ·		
Receiving Comments: -						
Coll Date Coll Time 19-FEB-2010 1100	Location -	<u>Lab Tem</u> 13	p <u>Site Numt</u> -	<u>be</u> r		
Sampling Point	t and Source Of	Sample				
02	AKDALE #1			_		
******************	***** SAMPLE	RESULTS **	* * * * * * * * * * * * *	******	* * * * * * * *	
Unit: ADMINISTRATIVE	Reviewed By I	RM on 22-M	AR-10			
	Result					
	Codes	Result	Rept Level	Units	Analysis	
981 Analyses sent to private lab -MDH Total Halides		375	100	mg/kg	08-MAF	
Analysis performed by Tes	tAmerica Labora	tory.	ι			

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Minnesota Department	Of Health	- Env:	ironmenta:	Laboi	ratory
Final Report - Cl:	ient Copy - Re	eport Of	Analytical R	esults	
Program: DD Program Name: OES Request No: 365936			Date Received ate Generated Request Page	: 23-MAR	
Samples: 201004306 - 201	004313	I	Date Reported	: 23-MAR	2-2010
Sample No: 201004307 Receiving Comments: -	· · · ·	-			
<u>Coll Date</u> <u>Coll Time</u> Lo 19-FEB-2010 1100	-	<u>Lab Tem</u> j 13	o <u>Site Numt</u> -	<u>per</u>	
Sampling Point a	nd Source Of Sa	ample		_	
OAK	DALE #1				
**************************************	**** SAMPLE R Reviewed By JJ			******	******
	Result				
	Codes	Result	Rept Level	Units	Analysis Date
111 SW 6020 Arsenic Sed, Total	RC <	2.0	2	ug/g	19-MAR-10 14:29
126 SW 6020 Cadmium Sed, Total	RC <	2.0	2.0	ug/g	19-MAR-10 14:29
134 SW 6020 Chromium Sed, Total	RC <	2.0	2.0	ug/g	19-MAR-10 14:29
161 SW 6020 Lead Sed, Total	RC	8.0	2.0	ug/g	19-MAR-10 14:29
Unit: ORGANIC CHEMISTRY	Reviewed By PD	5 on 23-M2	AR-10		
Note: Positive Organic Results	are indicated	l by BOLD			
	Result	,	-		
	Codes	Result	Rept Level	Units	Analysis Date
270 ASTM D 3278-78 Flash Point, Pen-Mar		177	·	deg F	08-MAR-10

Minnesoca Deparcment	OI HEAIU		Lionmenica.		alory		
Final Report - Cl	ient Copy – R	eport Of	Analytical R	esults			
Program: DD Date Received				: 02-MAR	-2010		
Program Name: OES Date Generated				: 23-MAR	-2010		
Request No: 365936 Request Page				: 5	of 16		
-	j		1 5				
Samples: 201004306 - 201	004313	Ι	ate Reported	: 23-MAR	-2010		
Sample No: 201004308							
Receiving Comments: -							
<u>Coll Date</u> Coll Time Lo	ocation	Lab Tem	o Site Numb	er			
19-FEB-2010 1115	-	13	-				
Sampling Point and Source Of Sample							
OAK	DALE #2			_			

Unit: ADMINISTRATIVE Reviewed By LRM on 22-MAR-10							
	Result						
	Codes	Result	Rept Level	Units	Analysis Date		
981 Analyses sent to private lab -MDH							
Total Halides		359	100	mg/kg	08-MAR-10		
Analysis performed by Test	America Labora	tory.	ŕ				
995 Admin. Consultation -MDH							
Consultation Time					22-MAR-10		
See attached report from Te	estAmerica Lab	oratory.					

Minnesota Department	Of Health -	Environme	ental Labo	ratory		
Final Report - Cli	ent Copy - Repo	ort Of Analyti	cal Results			
Program: DD Program Name: OES Request No: 365936		Date Gen	ceived: 02-MAF erated: 23-MAF : Page: 6	•		
Samples: 201004306 - 2010	04313	Date Re	ported: 23-MAN	R-2010		
Sample No: 201004308	· ·					
Receiving Comments: -						
	<u>- Li</u>	ab Temp Site 13	<u>- Numbe</u> r			
Sampling Point a	nd Source Of Sam	ple				
OAKE	ALE #2					
******	*** SAMPLE RES	JLTS *******	*****	****		
Unit: METALS	Reviewed By JJB	on 23-MAR-10				
	Result					
	Codes R	esult Rept I	Level Units	Analysis Date		
111 SW 6020 Arsenic Sed, Total	RC <	2.0 2	ug/g	19-MAR-10 14:32		
126 SW 6020 Cadmium Sed, Total	RC <	2.0 2.	0 ug/g	19-MAR-10 14:32		
134 SW 6020 Chromium Sed, Total	RC <	2.0 2.	0 ug/g	19-MAR-10 14:32		
161 SW 6020 Lead Sed, Total	RC	6.6 2.	0 ug/g	19-MAR-10 14:32		
Unit: ORGANIC CHEMISTRY Reviewed By PDS on 23-MAR-10						
Note: Positive Organic Results are indicated by BOLD.						
	Result			Duralauria Data		
	Codes R	esult Rept I	level Units	Analysis Date		
270 ASTM D 3278-78 Flash Point, Pen-Mar	> 2	00 :	deg F	08-MAR-10		