TWO RIVER ENGINEERING

Historic Pesticides Analysis Report

for

Esposito Property

Block 33, Lot 21

Township of Colts Neck
Monmouth County, New Jersey

December 5, 2014

Prepared by:

Two River Engineering
P.O. Box 155
Colts Neck, New Jersey 07722

A.J. Garito Jr., P.E.
New Jersey Professional Engineer
License No. 24GE03799700

Project No. 12005

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I. Summary of Findings

On October 13, 2014, a total of six (6) soil samples were gathered from the property in question. The locations of the sampling are depicted on the map in Appendix 1.

All samples were transported to a certified laboratory located in Toms River, New Jersey and tested for elevated concentrations of arsenic, lead, and historic pesticides.

All samples returned results below the N.J.D.E.P. cleanup criteria. In *most* cases, the occurrences of lead and pesticides were undetected.

A general background explaining the purpose of soil testing is presented in the following section of this report. Thereafter, the methodology and test results are provided.

II. Background

A wide variety of pesticides have been used in New Jersey over the last 100 years. Arsenic-based pesticides were used extensively to control agricultural pests in fruit orchards, vegetable fields, golf courses and turf farms, from the turn of the century until the late 1960s. DDT and Aldrin were used extensively for a wide range of insect pests on vegetables and fruits throughout the 1950s and 1960s. These pesticides tend to bind tightly to the soil, most often in the surface layer and are persistent in the environment and thus may be present in the soil long after they have been applied. Breakdown of the products is slow.

As a result, residues of a number of pesticides can be found in soils at levels that may pose a human health risk when the land changes from farms to other uses. **Arsenic, Lead, DDT and Aldrin** (along with several metabolites or breakdown products) are considered to be the primary "pesticides of concern". These pesticides were selected based on several factors, including their extensive agricultural use for many years, their persistence in the environment, and the fact that they have been detected at elevated concentrations at various locations in New Jersey.

In addition to levels that may result from past application of pesticides, arsenic is naturally occurring in soil at levels that can vary widely throughout the state. Sandy soils tend to have lower concentrations, while soils with high organic or clay content tend to have higher concentrations of arsenic. Although some metals such as arsenic can be expected to occur naturally at elevated levels, man-made compounds such as DDT and Aldrin/Dieldrin indicate human impacts to the soil.

N.J.D.E.P. estimates that up to five percent of the state's acreage may be impacted. **The primary concern has to do with human health impacts resulting from long-term ingestion of contaminated soil, particularly by children.** [1]

[1] Adapted from the N.J.D.E.P. Historic Pesticide Contamination Fact Sheet

III. Historic Pesticide Contamination Task Force

In April 1997, N.J.D.E.P. Commissioner Robert Shinn created the Historic Pesticide Contamination Task Force by Administrative Order. The mission of the task force was to develop strategies and recommendations for addressing the possible presence of pesticide residues in soils. The members comprised of representatives from nine different stakeholder groups, including:

- New Jersey Bankers Association
- New Jersey Association of Realtors
- New Jersey Farm Bureau
- New Jersey Agricultural Experiment Station at Rutgers University
- New Jersey Agriculture Community
- New Jersey Environmental Federation
- University of Medicine & Dentistry of New Jersey
- New Jersey Builders Association
- New Jersey State League of Municipalities

The task force was organized and met under the direction of Richard J. Gimello, the Assistant Commissioner of the N.J.D.E.P. Site Remediation Program. Additional input and commentary was obtained from the following agencies:

- N.J.D.E.P.
- New Jersey Division of Law
- New Jersey Department of Agriculture
- New Jersey Department of Health and Senior Services
- United States Geological Survey
- New Jersey State Soil Conservation Committee

The final report was released in March 1999 and is entitled, "Findings and Recommendations for the Remediation of Historic Pesticide Contamination". *This report served as the basis for the study performed on the applicant's property.*

IV. Project Location

The project is known as Lot 20, Block 33 according to the Township of Colts Neck Tax Maps. The site is located on the northerly side of Monmouth County Route 537, and constist of 13.1+/- acres. A review of aerial photography indicates that the property was used for agricultural purposes as early as the 1930's. Photos prior to 1930 were not available for review.

The Historic Pesticide Contamination Task Force made the following recommendations to assist those involved with agricultural properties that have been developed or that will be developed in the future:

- Soil sampling should be conducted when an agricultural property changes land use (i.e. farmland developed into a housing development or municipal park); and

- Sampling of former agricultural areas, and any necessary remediation, should be conducted prior to site development.

Since a residential subdivision is proposed, this constitutes a change in use from agricultural to residential. Accordingly, a plan for sampling and testing was performed.

V. Sampling and Testing Methodology

The field sampling methods used in this study were developed by the New Jersey Department of Environmental Protection and are used state-wide so that consistent and reliable data are generated across different sites.

> Note: The site investigation sampling methods herein are only used to investigate current or former farm fields and orchards, and are not applicable in evaluating other potential areas of concern which may be present, such as chemical storage and mixing areas, underground storage tanks, above ground oil tanks, and waste disposal areas. Therefore, this report does not cover investigations into the presence of environmental areas of concern typically covered under a Preliminary Site Assessment Report as regulated by N.J.A.C. 7:26E.

The ultimate goal of a historic pesticide investigation is to determine if contamination is present at levels exceeding the Department's soil cleanup criteria.

If contamination is detected, additional remedial investigation and/or sampling may be necessary to determine the vertical and horizontal distribution of the contamination which is needed to develop a specific remediation plan.

Sampling was conducted pursuant to the Department's Field Sampling Procedures Manual and analysis conducted by certified laboratories pursuant to the Technical Requirements for Site Remediation, N.J.A.C. 7:26E-2.

Site Investigation Sampling

SAMPLE LOCATION AND DEPTH

Requirement: Discrete samples should be taken at a depth of 0-6" within farm fields. If the extents of former fields cannot be determined, the entire property should be sampled.

This Project: *Sample locations were obtained at depths up to 6" on the applicant's property.*

SAMPLE FREQUENCY

Requirement: Sampling frequency is dependent on the size of the site:
Sites < 1-10 acres, 1 sample for every 2 acres with a minimum of 2 samples; then sites > 10 acres add 1 sample for every 5 acres. A reduced sampling frequency may be appropriate for very large sites.

This Project: *As the applicant's property is 13.1 acres, 6 samples were gathered as follows:*

First 10 acres, 1 sample per 2 acres = 5 samples
Greater than 10 acres, 1 additional sample per 5 acres = 1 sample
Areas of dense woods, which were identified as historically wooded were not tested.
Areas identified as wetlands were also not tested, as it is assumed that development was prevented on such areas.

Analytical Parameters

Requirement: All samples should be analyzed for arsenic, lead and a pesticide scan (SW 846-8081A). The pesticide scan includes a total of 20 compounds including DDT, DDD, DDE, dieldrin and chlordane (see pesticide analyte list in Appendix 2). All analytical results obtained from the pesticide analysis should be provided to the reviewing agency.

This Project: *Precision Testing Labs, a certified laboratory based in Toms River, New Jersey performed the sample analysis and the detailed results are enclosed.*

VI. Laboratory Results

The results of the Arsenic and Lead laboratory analyses are presented in the tables below:

ARSENIC

Sample No.	N.J.D.E.P. Residential Soil Cleanup Criteria	Test Result	Further Action Required
S-1	20 ppm	8.22 ppm	no
S-2	20 ppm	7.97 ppm	no
S-3	20 ppm	6.90 ppm	no
S-4	20 ppm	5.19 ppm	no
S-5	20 ppm	9.52 ppm	no
S-6	20 ppm	13.1 ppm	no

LEAD

Sample No.	N.J.D.E.P. Residential Soil Cleanup Criteria	Test Result	Further Action Required
S-1	400 ppm	23.0	no
S-2	400 ppm	36.9	no
S-3	400 ppm	ND	no
S-4	400 ppm	ND	no
S-5	400 ppm	24.4	no
S-6	400 ppm	ND	no

ND = Not Detected

The Pesticide laboratory analyses resulted in concentrations below the N.J.D.E.P. Residential Soil Cleanup Criteria. In cases where no cleanup criteria has been adopted no detection of concentrations were measured.

In conclusion, the soil samples obtained from the subject property do not contain elevated concentrations of arsenic, lead, or pesticides and therefore no further action is necessary.

Appendix 1
Map Depicting Sample Locations

Appendix 2
Analyte List and Soil Cleanup Criteria Table

Organochlorine Pesticide Analyte List

Pesticide	CAS # (Chemical Abstract Number)	NJDEP Residential Soil Cleanup Criteria	NJDEP Non-Residential Soil Cleanup Criteria
Aldrin	309-00-2	0.04	0.17
alpha-BHC	319-84-6	*	*
beta-BHC	319-85-7	*	*
delta-BHC	319-86-8	*	*
gamma-BHC (Lindane)	58-89-9	0.52	2.2
alpha-Chlordane	5103-71-9	0.25	2.1
gamma-Chlordane	5103-74-2	0.25	2.1
4,4-DDD (TDE)	72-54-8	3	12
4,4-DDE	72-55-9	2	9
4,4-DDT (DDT)	50-29-3	2	9
Dieldrin	60-57-1	0.042	0.18
Endrin	72-20-8	17	310
Endrin aldehyde	7421-93-4	*	*
Endrin ketone	73494-70-5	*	*
Endosulfan I	959-98-8	340	6200
Endosulfan II	33213-65-9	340	6200
Endosulfan sulfate	1031-07-8	*	*
Heptachlor	76-44-8	0.15	0.65
Heptachlor epoxide	111024-57-3	*	*
Methoxychlor	72-43-5	280	5200
Toxaphene	8001-35-2	0.1	0.2

Notes

- All Soil Cleanup Criteria provided in units of mg/kg (ppm) on a dry weight basis.
- Table includes pesticides identified by SW-846 8081A analytical method.
- alpha and gamma chlordane isomers are summed when compared to soil criteria.
- * Indicates NJDEP has not developed cleanup criteria for compound.

Appendix 3
Laboratory Analysis Results

PRECISION TESTING LABS

Precision Testing Labs, Inc.
Certified Analytical Testing Services
NJDEP Cert# 15005

2161 Whitesville Rd., Toms River, NJ 08755
Tel. 732-905-5000 Fax 732-279-4422

email: ptl@ptlabs.net web: www.ptlabs.net

ANALYTICAL REPORT

For

Two River Engineering

265 Route 34, Ste. E
Colts Neck, NJ 07722

Project: Esposito Property

Report Date:
October 28, 2014

Customer Sample ID	*PTL Lab ID*	*Analysis Required*
S-1	P6290	Pesticides, Arsenic, Lead
S-2	P6291	Pesticides, Arsenic, Lead
S-3	P6292	Pesticides, Arsenic, Lead
S-4	P6293	Pesticides, Arsenic, Lead
S-5	P6294	Pesticides, Arsenic, Lead
S-6	P6295	Pesticides, Arsenic, Lead

Vini Bandeira
Laboratory Director

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Analytical Results

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CERTIFICATE OF ANALYSIS

Client :	Two River Engineering	Matrix:	Soil
Lab Sample ID :	P6290	Method:	SW 846 8081 A
Client Sample ID:	S-1	Units :	**mg/Kg**
Project ID:	Esposito Property	Percent Solids:	88.2

	Cas No	Compound	Result	PQL	MDL
PESTICIDES	309-00-2	Aldrin	ND	0.000189	0.0000377
	319-84-6	BHC - Alpha	ND	0.000189	0.0000377
	319-85-7	BHC - Beta	ND	0.000189	0.0000377
	319-86-8	BHC - Delta	ND	0.000189	0.0000377
	58-89-9	BHC - Gamma (Lindane)	ND	0.000189	0.0000377
	5103-71-9	Chlordane - Alpha	ND	0.000189	0.0000377
	5103-74-2	Chlordane - Gamma	ND	0.000189	0.0000377
	72-54-8	DDD (4,4')	ND	0.000377	0.0000377
	72-55-9	DDE (4,4')	ND	0.000377	0.0000377
	50-29-3	DDT (4,4')	ND	0.000377	0.000226
	60-57-1	Dieldrin	ND	0.000377	0.0000377
	959-98-8	Endosulfan I	ND	0.000189	0.0000377
	33213-65-9	Endosulfan II	ND	0.000377	0.0000377
	1031-07-8	Endosulfan Sulfate	ND	0.000377	0.0000754
	72-20-8	Endrin	ND	0.000377	0.0000377
	7421-93-4	Endrin Aldehyde	ND	0.000377	0.0000377
	53494-70-5	Endrin Ketone	ND	0.000377	0.0000377
	76-44-8	Heptachlor	ND	0.000189	0.0000377
	1024-57-3	Heptachlor Epoxide	ND	0.000189	0.0000377
	72-43-5	Methoxychlor	ND	0.00189	0.000264

File ID	Date Analzyed	Date Extracted	DF	Analyst	Int. Weight (g)	F. Vol. (mL)	Batch
P2557.D	10/20/2014	10/17/2014	1	jt	30.06	10	p101714

ND = Not detected
N = Indicates presumptive evidence of a compound
Report Date: 10/22/14
PQL = Practical Quantitation Level
B = Compound found in blank and sample
J = Estimated value
MDL = Minimum Detection Limit
E = Concentration exceeds calibration range
DF = Dilution Factor

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Email: ptl@ptlabs.net Web: www.ptlabs.net

CERTIFICATE OF ANALYSIS

Client :	Two River Engineering	Matrix:	Soil
Lab Sample ID :	P6291	Method:	SW 846 8081 A
Client Sample ID:	S-2	Units :	**mg/Kg**
Project ID:	Esposito Property	Percent Solids:	90.7

	Cas No	Compound	Result	PQL	MDL
PESTICIDES	309-00-2	Aldrin	ND	0.000183	0.0000366
	319-84-6	BHC - Alpha	ND	0.000183	0.0000366
	319-85-7	BHC - Beta	ND	0.000183	0.0000366
	319-86-8	BHC - Delta	ND	0.000183	0.0000366
	58-89-9	BHC - Gamma (Lindane)	ND	0.000183	0.0000366
	5103-71-9	Chlordane - Alpha	ND	0.000183	0.0000366
	5103-74-2	Chlordane - Gamma	ND	0.000183	0.0000366
	72-54-8	DDD (4,4')	ND	0.000366	0.0000366
	72-55-9	DDE (4,4')	ND	0.000366	0.0000366
	50-29-3	DDT (4,4')	ND	0.000366	0.000220
	60-57-1	Dieldrin	ND	0.000366	0.0000366
	959-98-8	Endosulfan I	ND	0.000183	0.0000366
	33213-65-9	Endosulfan II	ND	0.000366	0.0000366
	1031-07-8	Endosulfan Sulfate	ND	0.000366	0.0000733
	72-20-8	Endrin	ND	0.000366	0.0000366
	7421-93-4	Endrin Aldehyde	ND	0.000366	0.0000366
	53494-70-5	Endrin Ketone	ND	0.000366	0.0000366
	76-44-8	Heptachlor	ND	0.000183	0.0000366
	1024-57-3	Heptachlor Epoxide	ND	0.000183	0.0000366
	72-43-5	Methoxychlor	ND	0.00183	0.000256

File ID	Date Analzyed	Date Extracted	DF	Analyst	Int. Weight (g)	F. Vol. (mL)	Batch
P2558.D	10/20/2014	10/17/2014	1	jt	30.09	10	p101714

ND = Not detected
PQL = Practical Quantitation Level
MDL = Minimum Detection Limit
N = Indicates presumptive evidence of a compound
B = Compound found in blank and sample
E = Concentration exceeds calibration range
J = Estimated value
DF = Dilution Factor
Report Date: 10/22/14

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NJDEP Cert. # 15005

2161 Whitesville Rd., Toms River, NJ08755
Tel. 732-905-5000 Fax. 732-279-4422

Email: ptl@ptlabs.net Web: www.ptlabs.net

CERTIFICATE OF ANALYSIS

Client :	Two River Engineering	Matrix:	Soil
Lab Sample ID :	P6292	Method:	SW 846 8081 A
Client Sample ID:	S-3	Units :	**mg/Kg**
Project ID:	Esposito Property	Percent Solids:	92.4

	Cas No	Compound	Result	PQL	MDL
PESTICIDES	309-00-2	Aldrin	ND	0.000180	0.0000360
	319-84-6	BHC - Alpha	ND	0.000180	0.0000360
	319-85-7	BHC - Beta	ND	0.000180	0.0000360
	319-86-8	BHC - Delta	ND	0.000180	0.0000360
	58-89-9	BHC - Gamma (Lindane)	ND	0.000180	0.0000360
	5103-71-9	Chlordane - Alpha	ND	0.000180	0.0000360
	5103-74-2	Chlordane - Gamma	ND	0.000180	0.0000360
	72-54-8	DDD (4,4')	ND	0.000360	0.0000360
	72-55-9	DDE (4,4')	ND	0.000360	0.0000360
	50-29-3	DDT (4,4')	ND	0.000360	0.000216
	60-57-1	Dieldrin	ND	0.000360	0.0000360
	959-98-8	Endosulfan I	ND	0.000180	0.0000360
	33213-65-9	Endosulfan II	ND	0.000360	0.0000360
	1031-07-8	Endosulfan Sulfate	ND	0.000360	0.0000721
	72-20-8	Endrin	ND	0.000360	0.0000360
	7421-93-4	Endrin Aldehyde	ND	0.000360	0.0000360
	53494-70-5	Endrin Ketone	ND	0.000360	0.0000360
	76-44-8	Heptachlor	ND	0.000180	0.0000360
	1024-57-3	Heptachlor Epoxide	ND	0.000180	0.0000360
	72-43-5	Methoxychlor	ND	0.00180	0.000252

File ID	Date Analzyed	Date Extracted	DF	Analyst	Int. Weight (g)	F. Vol. (mL)	Batch
P2559.D	10/20/2014	10/17/2014	1	jt	30.03	10	p101714

ND = Not detected
N = Indicates presumptive evidence of a compound
Report Date: 10/22/14
PQL = Practical Quantitation Level
B = Compound found in blank and sample
J = Estimated value
MDL = Minimum Detection Limit
E = Concentration exceeds calibration range
DF = Dilution Factor

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Certified Analytical Testing Services
NJDEP Cert. # 15005

2161 Whitesville Rd., Toms River, NJ08755
Tel. 732-905-5000 Fax. 732-279-4422

Email: ptl@ptlabs.net Web: www.ptlabs.net

CERTIFICATE OF ANALYSIS

Client :	Two River Engineering	Matrix:	Soil
Lab Sample ID :	P6293	Method:	SW 846 8081 A
Client Sample ID:	S-4	Units :	**mg/Kg**
Project ID:	Esposito Property	Percent Solids:	93.7

	Cas No	Compound	Result	PQL	MDL
PESTICIDES	309-00-2	Aldrin	ND	0.000178	0.0000355
	319-84-6	BHC - Alpha	ND	0.000178	0.0000355
	319-85-7	BHC - Beta	ND	0.000178	0.0000355
	319-86-8	BHC - Delta	ND	0.000178	0.0000355
	58-89-9	BHC - Gamma (Lindane)	ND	0.000178	0.0000355
	5103-71-9	Chlordane - Alpha	0.000533	0.000178	0.0000355
	5103-74-2	Chlordane - Gamma	0.000462	0.000178	0.0000355
	72-54-8	DDD (4,4')	ND	0.000355	0.0000355
	72-55-9	DDE (4,4')	ND	0.000355	0.0000355
	50-29-3	DDT (4,4')	ND	0.000355	0.000213
	60-57-1	Dieldrin	ND	0.000355	0.0000355
	959-98-8	Endosulfan I	ND	0.000178	0.0000355
	33213-65-9	Endosulfan II	ND	0.000355	0.0000355
	1031-07-8	Endosulfan Sulfate	ND	0.000355	0.0000710
	72-20-8	Endrin	ND	0.000355	0.0000355
	7421-93-4	Endrin Aldehyde	ND	0.000355	0.0000355
	53494-70-5	Endrin Ketone	ND	0.000355	0.0000355
	76-44-8	Heptachlor	ND	0.000178	0.0000355
	1024-57-3	Heptachlor Epoxide	ND	0.000178	0.0000355
	72-43-5	Methoxychlor	ND	0.00178	0.000249

File ID	Date Analzyed	Date Extracted	DF	Analyst	Int. Weight (g)	F. Vol. (mL)	Batch	
P2560.D	10/20/2014	10/17/2014	1	jt	30.06	10	p101714	

ND = Not detected
N = Indicates presumptive evidence of a compound
Report Date: 10/22/14
PQL = Practical Quantitation Level
B = Compound found in blank and sample
J = Estimated value
MDL = Minimum Detection Limit
E = Concentration exceeds calibration range
DF = Dilution Factor

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CERTIFICATE OF ANALYSIS

Client :	Two River Engineering	Matrix:	Soil
Lab Sample ID :	P6294	Method:	SW 846 8081 A
Client Sample ID:	S-5	Units :	**mg/Kg**
Project ID:	Esposito Property	Percent Solids:	84.9

	Cas No	Compound	Result	PQL	MDL
PESTICIDES	309-00-2	Aldrin	ND	0.000195	0.0000391
	319-84-6	BHC - Alpha	ND	0.000195	0.0000391
	319-85-7	BHC - Beta	ND	0.000195	0.0000391
	319-86-8	BHC - Delta	ND	0.000195	0.0000391
	58-89-9	BHC - Gamma (Lindane)	ND	0.000195	0.0000391
	5103-71-9	Chlordane - Alpha	ND	0.000195	0.0000391
	5103-74-2	Chlordane - Gamma	ND	0.000195	0.0000391
	72-54-8	DDD (4,4')	ND	0.000391	0.0000391
	72-55-9	DDE (4,4')	ND	0.000391	0.0000391
	50-29-3	DDT (4,4')	ND	0.000391	0.000234
	60-57-1	Dieldrin	ND	0.000391	0.0000391
	959-98-8	Endosulfan I	ND	0.000195	0.0000391
	33213-65-9	Endosulfan II	ND	0.000391	0.0000391
	1031-07-8	Endosulfan Sulfate	ND	0.000391	0.0000781
	72-20-8	Endrin	ND	0.000391	0.0000391
	7421-93-4	Endrin Aldehyde	ND	0.000391	0.0000391
	53494-70-5	Endrin Ketone	ND	0.000391	0.0000391
	76-44-8	Heptachlor	ND	0.000195	0.0000391
	1024-57-3	Heptachlor Epoxide	ND	0.000195	0.0000391
	72-43-5	Methoxychlor	ND	0.00195	0.000273

File ID	Date Analzyed	Date Extracted	DF	Analyst	Int. Weight (g)	F. Vol. (mL)	Batch
P2561.D	10/20/2014	10/17/2014	1	jt	30.15	10	p101714

ND = Not detected
N = Indicates presumptive evidence of a compound
Report Date: 10/22/14

PQL = Practical Quantitation Level
B = Compound found in blank and sample
J = Estimated value

MDL = Minimum Detection Limit
E = Concentration exceeds calibration range
DF = Dilution Factor

PRECISION TESTING LABS

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CERTIFICATE OF ANALYSIS

Client :	Two River Engineering	Matrix:	Soil
Lab Sample ID :	P6295	Method:	SW 846 8081 A
Client Sample ID:	S-6	Units :	**mg/Kg**
Project ID:	Esposito Property	Percent Solids:	86.3

	Cas No	Compound	Result	PQL	MDL
PESTICIDES	309-00-2	Aldrin	ND	0.000192	0.0000385
	319-84-6	BHC - Alpha	ND	0.000192	0.0000385
	319-85-7	BHC - Beta	ND	0.000192	0.0000385
	319-86-8	BHC - Delta	ND	0.000192	0.0000385
	58-89-9	BHC - Gamma (Lindane)	ND	0.000192	0.0000385
	5103-71-9	Chlordane - Alpha	ND	0.000192	0.0000385
	5103-74-2	Chlordane - Gamma	ND	0.000192	0.0000385
	72-54-8	DDD (4,4')	ND	0.000385	0.0000385
	72-55-9	DDE (4,4')	ND	0.000385	0.0000385
	50-29-3	DDT (4,4')	ND	0.000385	0.000231
	60-57-1	Dieldrin	ND	0.000385	0.0000385
	959-98-8	Endosulfan I	ND	0.000192	0.0000385
	33213-65-9	Endosulfan II	ND	0.000385	0.0000385
	1031-07-8	Endosulfan Sulfate	ND	0.000385	0.0000769
	72-20-8	Endrin	ND	0.000385	0.0000385
	7421-93-4	Endrin Aldehyde	ND	0.000385	0.0000385
	53494-70-5	Endrin Ketone	ND	0.000385	0.0000385
	76-44-8	Heptachlor	ND	0.000192	0.0000385
	1024-57-3	Heptachlor Epoxide	ND	0.000192	0.0000385
	72-43-5	Methoxychlor	ND	0.00192	0.000269

File ID	Date Analzyed	Date Extracted	DF	Analyst	Int. Weight (g)	F. Vol. (mL)	Batch
P2562.D	10/20/2014	10/17/2014	1	jt	30.12	10	p101714

ND = Not detected
N = Indicates presumptive evidence of a compound
Report Date: 10/22/14

PQL = Practical Quantitation Level
B = Compound found in blank and sample
J = Estimated value

MDL = Minimum Detection Limit
E = Concentration exceeds calibration range
DF = Dilution Factor

PRECISION ANALYTICAL SERVICES, INC.
2161 WHITESVILLE ROAD TOMS RIVER, NJ 08755 PHONE 732-914-1515 FAX 732-914-1616

CERTIFICATE OF ANALYSIS

Customer : Precision Testing Labs
Project Ref. : Two Rivers Engineering - Esposito Property
PAS Project ID : P14-3942

Matrix : S
Report Date : 10/24/14

PAS Sample ID	Client ID	Analysis	Results	Units	DF	PQL	Method	Date Analyzed
P14-3942-01	P6290 , S-1	Arsenic	8.22	mg/Kg	20	2.55	SW 846 7010	10/21/14
P14-3942-01	P6290 , S-1	Lead	23.0	mg/Kg	1	17.9	SW 846 7000 B	10/20/14
P14-3942-02	P6291 , S-2	Arsenic	7.97	mg/Kg	20	2.66	SW 846 7010	10/21/14
P14-3942-02	P6291 , S-2	Lead	36.9	mg/Kg	1	14.7	SW 846 7000 B	10/20/14
P14-3942-03	P6292 , S-3	Arsenic	6.90	mg/Kg	20	2.49	SW 846 7010	10/21/14
P14-3942-03	P6292 , S-3	Lead	ND	mg/Kg	1	18	SW 846 7000 B	10/20/14
P14-3942-04	P6293 , S-4	Arsenic	5.19	mg/Kg	20	2.35	SW 846 7010	10/21/14
P14-3942-04	P6293 , S-4	Lead	ND	mg/Kg	1	17.3	SW 846 7000 B	10/20/14
P14-3942-05	P6294 , S-5	Arsenic	9.52	mg/Kg	20	3.06	SW 846 7010	10/21/14
P14-3942-05	P6294 , S-5	Lead	24.4	mg/Kg	1	16.2	SW 846 7000 B	10/20/14
P14-3942-06	P6295 , S-6	Arsenic	13.1	mg/Kg	20	3.46	SW 846 7010	10/21/14
P14-3942-06	P6295 , S-6	Lead	ND	mg/Kg	1	21.9	SW 846 7000 B	10/20/14

All soil samples reported on a dry basis
DF = Dilution Factor
PQL = Practical Quantitation Limit
ND = Analyzed for but not detected
S = Soil - WW = WasteWater - DW = Drinking Water
GW = Groundwater

All samples are analyzed in accordance with New Jersey Department of Environmental Protection protocols.

Mark D. Feitelson, Lab Director

General Information

Precision Testing Labs

- Chain of Custody
- Index of Samples
- Lab Chronicle
- Methodology
- Non-Conformance

PRECISION TESTING LABS (PTL)

2161 Whitesville Rd, Toms River, NJ 08755

Tel. 732-905-5000 Fax 732-279-4422

email: ptl@ptlabs.net web: www.ptlabs.net

Client Information:

Company Name: TWO RIVER ENGINEERING

Address: 265 ROUTE 34, Ste. E

COLTS NECK, NJ 07722

Office Phone # 732-866-0111

Office Fax # 732 866-4348

Person to Receive Results: JOHN AGAMIE

Send initial results how? eMail X Post Online ___ Fax ___

eMail Address for Results: john@tworivereng.com

Project Information:

Project Name: ESPOSITO PROPERTY

Address: 69 Route 537 East

COLTS NECK, NJ 07722

Turnaround: Standard (2 weeks) X Rush (extra charge) ___

24 HRS ___ 48 HRS ___ 72 HRS ___ Other ___

Company to Invoice: (if different) ___

Page 1 of 1

(Lab Only) Temperature: 5 °C

*Matrix CODES: S =Soil GW =Ground Water WW =Waste Water SW =Surface Water PW =Potable Water O =Oil K =Solid (specify): ______ B =Other

PRESERVATIVE CODE: 0 : ice 1 : HCl 2 : H_2SO_4 3 : NaOH 4 : HNO_3 5 : other

Collection Information

Sample # / ID	Sample Location or Depth	Date Sampled MM-DD-YY	Time Sampled	Sampled by	Grab (G) or Comp (C)	Matrix CODE *	# of Containers	G : Glass E : En Core P : Plastic T : Terra Core	DRO	EPH Cat. 1	PCB's	Pesticides	VOA+15 (624 or 8260)	VOA+15 (524.2) drinking water	BN+15 with SIM	BN+15 no SIM	BNA+15	PAH	pH (corrosivity)	Flash Pt. (ignitability)	Age-Date / Interpretation	TCLP Metals	TAL/TCL+30	ARSENIC	LEAD		Lab Sample #
Preservative Code →												0												0	0		← Code
S-1	6"	10-14-14	1 PM	JA	G	S	2	G				✓												✓	✓		PW290
S-2	6"	10-14-14	↓	JA	G	↓	2	↓				✓												✓	✓		PW291
S-3	6"	10-14-14	↓	JA	G	↓	2	↓				✓												✓	✓		PW292
S-4	6"	10-14-14	↓	JA	G	↓	2	↓				✓												✓	✓		PW293
S-5	6"	10-14-14	↓	JA	G	↓	2	↓				✓												✓	✓		PW294
S-6	6"	10-14-14	2PM	JA	G	↓	2	G				✓												✓	✓		PW295

Contingencies: ___

Special Instructions: Metals analy by NJ #15001

Final Report Type: Results Only ___ Full ___ NJ Reduced ✓ EDD ___

Send Final Report How? eMail PDF ✓ Mail Paper ✓ Post Online ___ (requires assigned log in)

SIGN BELOW WHEN DELIVERING SAMPLES. Each time samples change possession, including courier delivery, custody must be documented.

Relinquished by:	Received by:	Relinquished by:	Received by:	Relinquished by:	Received by:
Print Name: John Agamie	Print Name: Aaron Fieki	Print Name: Aaron Fieki	Print Name: J Fontaccione	Print Name:	Print Name:
Signature: [signature]	Signature: [signature]	Signature: [signature]	Signature: [signature]	Signature:	Signature:
Agent of: Two River Engineering	Agent of: PTL	Agent of: PTL	Agent of: PTL	Agent of:	Agent of:
Date: 10/15/14	Time: 14:15	Date: 10/15/14	Time: 1450	Date: / /	Time:

White : QA Office Yellow : Billing Pink : Client/Field Representative

PRECISION TESTING LABS

Precision Testing Labs, Inc.
Certified Analytical Testing Services
NJDEP Cert# 15005

2161 Whitesville Rd., Toms River, NJ 08755
Tel. 732-905-5000 Fax 732-279-4422

email: ptl@ptlabs.net web: www.ptlabs.net

Index of Samples

Two River Engineering

Project: Esposito Property

Field Sample ID	PTL Lab ID	Matrix	Date Collected	Time Collected	Date Received
S-1	P6290	Soil	10/14/14	13:00	10/14/14
S-2	P6291	Soil	10/14/14	13:00	10/14/14
S-3	P6292	Soil	10/14/14	13:00	10/14/14
S-4	P6293	Soil	10/14/14	13:00	10/14/14
S-5	P6294	Soil	10/14/14	13:00	10/14/14
S-6	P6295	Soil	10/14/14	14:00	10/14/14

Customer: Two River Engineering

Project ID: Esposito Property

Sample Rcvd: 10/14/14

Precision Testing Labs

Laboratory Chronicle

PTL ID No.	Sample ID	<6°C					
P6290 Soil	S-1	Y	Analysis	Pesticides (8081)			
			Date Sampled	10/14/14			
			Extraction Date	10/17/14			
			Analysis Date	10/20/14			
			Preservative	N			
P6291 Soil	S-2	Y	Analysis	Pesticides (8081)			
			Date Sampled	10/14/14			
			Extraction Date	10/17/14			
			Analysis Date	10/20/14			
			Preservative	N			
P6292 Soil	S-3	Y	Analysis	Pesticides (8081)			
			Date Sampled	10/14/14			
			Extraction Date	10/17/14			
			Analysis Date	10/20/14			
			Preservative	N			
P6293 Soil	S-4	Y	Analysis	Pesticides (8081)			
			Date Sampled	10/14/14			
			Extraction Date	10/17/14			
			Analysis Date	10/20/14			
			Preservative	N			
P6294 Soil	S-5	Y	Analysis	Pesticides (8081)			
			Date Sampled	10/14/14			
			Extraction Date	10/17/14			
			Analysis Date	10/20/14			
			Preservative	N			
P6295 Soil	S-6	Y	Analysis	Pesticides (8081)			
			Date Sampled	10/14/14			
			Extraction Date	10/17/14			
			Analysis Date	10/20/14			
			Preservative	N			

PRECISION TESTING LABS

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NJDEP Cert# 15005

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Tel. 732-905-5000 Fax 732-279-4422

email: ptl@ptlabs.net web: www.ptlabs.net

Methodology Summary

GC Pesticides Methodology Wastewater/Soils
Aqueous and soil samples are analyzed in accordance with USEPA SW-846 Test method for Evaluation Solid Waste, EPA Methods 8081A, 3510 and 3545.

ABBREVIATIONS AND DEFINITIONS

MDL: Method Detection Limit. Minimum reportable concentration of a substance that can be measured and reported with 99% confidence that the value is above zero. MDL values are corrected for percent solids (soil samples), sample size, dilution, and final volume.

PQL: Practical Quantitation Limit. The lowest concentration calibration standard that is analyzed during an initial calibration. PQL values are corrected for sample size, dilution, moisture, and final volume.

QUALIFIERS

E - Indicates that the concentration of the analyte exceeds the calibration range of the instrument. Sample is diluted and reanalyzed, and results should be used for those compounds exceeding the calibration range in the undiluted analysis. Indicates that the concentration is based on a dilution.

N - Used on TIC reports only when identification is based on library search.

Project ID: Esposito Property PRECISION TESTING LABS, INC.

GC and GC/MS Analysis Conformance/Non-Conformance Summary Format

1 Chromatograms Labeled/Compounds Identified (Samples and Blanks) Yes

2 GC/MS Tune Specifications and Frequency passed criteria N/A

3 DDT/Endrin Breakdown passed criteria Yes

4 Initial Calibration passed criteria Yes
Any compound passed criteria using higher order regression and less than 6 points No
If yes list compounds: _____

5 Continuing Calibration passed criteria Yes

- Calibration Check Compounds (CCC) passed criteria: Yes
- System Performance Check Compounds (SPCC) passed criteria: Yes

6 Blank Free of Contamination Yes

7 Surrogate Recoveries Meet Criteria Yes

8 Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria Yes
- If not met, samples did not contain compounds that failed QC. N/A

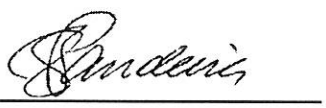
9 Internal Standard Area/Retention Time Shift Meet Criteria N/A
- If not met, sample was diluted and reanalyzed N/A

10 Extraction Holding Time Met Yes
If not met, list number of days exceeded for each sample: _____

11 Analysis Holding Time Met Yes
If not met, list number of days exceeded for each sample: _____

12 Sample Dilution Performed No
Reason for dilution : High Target cpnds N/A
High Non-target cmpds N/A
Matrix Interference N/A
Other N/A

Additional Comments:

Laboratory Manager:  Date: 10/28/14

QC Data

Precision Testing Labs

- Chromatograms and Quant Reports
- QC Summary Forms

Quantitation Report (QT Reviewed)

Signal #1 : P:\P102014\P2557.D\ECD1A.CH Vial: 14
Signal #2 : P:\P102014\P2557.D\ECD2B.CH
Acq On : 20 Oct 2014 5:56 pm Operator: jt
Sample : P6290 Inst : GC Instru
Misc : Two River;Esposito Prop;S-1;30.06;10;1 Multiplr: 1.00
IntFile Signal #1: LSCINT.E IntFile Signal #2: EVENTS3.E
Quant Time: Oct 21 16:11 2014 Quant Results File: PESTTOXC.RES

Quant Method : P:\P102014\PESTTOXC.M (Chemstation Integrator)
Title : 608/8081 Pesticides
Last Update : Fri Aug 01 17:00:32 2014
Response via : Initial Calibration
DataAcq Meth : PEST5.M

Volume Inj. : 2 ul
Signal #1 Phase : ZB-MR1 (Primary) Signal #2 Phase: ZB-MR2 (Secondary)
Signal #1 Info : 30m;.32 ID;.50um Signal #2 Info : 30m;.32 ID;.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) AS Tetrachloro-m-xy	4.06	3.34	940972	861884	41.249	34.785m
Spiked Amount	50.000	Range 80 - 120	Recovery =		82.50%	69.57%#
22) AS Decachlorobiphen	10.03	9.13	1179680	1234895	45.705	44.924
Spiked Amount	50.000	Range 80 - 120	Recovery =		91.41%	89.85%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.
P2557.D PESTTOXC.M Tue Oct 21 16:41:47 2014 Page 1

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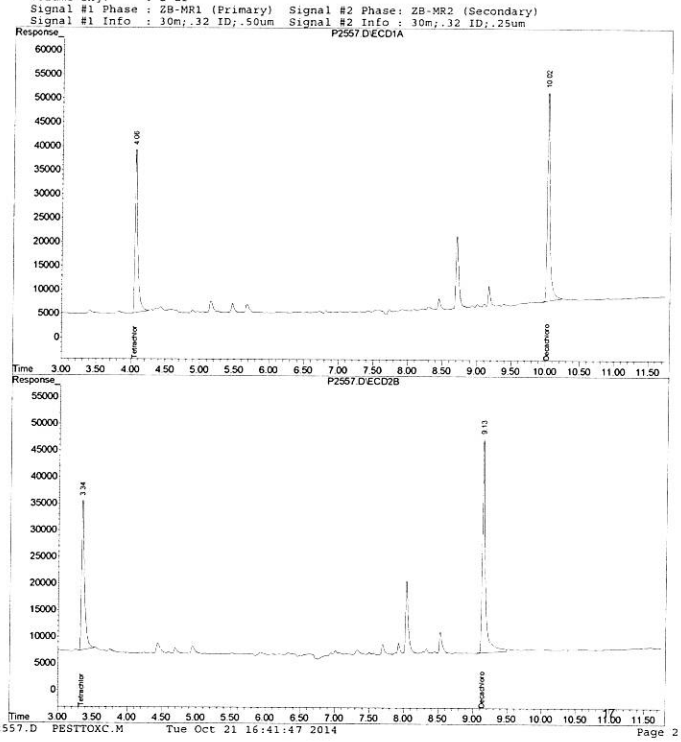
Quantitation Report (QT Reviewed)

Signal #1 : P:\P102014\P2557.D\ECD1A.CH Vial: 14
Signal #2 : P:\P102014\P2557.D\ECD2B.CH
Acq On : 20 Oct 2014 5:56 pm Operator: jt
Sample : P6290 Inst : GC Instru
Misc : Two River;Esposito Prop;S-1;30.06;10;1 Multiplr: 1.00
IntFile Signal #1: LSCINT.E IntFile Signal #2: EVENTS3.E
Quant Time: Oct 21 16:11 2014 Quant Results File: PESTTOXC.RES

Quant Method : P:\P102014\PESTTOXC.M (Chemstation Integrator)
Title : 608/8081 Pesticides
Last Update : Fri Aug 01 17:00:32 2014
Response via : Multiple Level Calibration
DataAcq Meth : PEST5.M

Volume Inj. : 2 ul
Signal #1 Phase : ZB-MR1 (Primary) Signal #2 Phase: ZB-MR2 (Secondary)
Signal #1 Info : 30m;.32 ID;.50um Signal #2 Info : 30m;.32 ID;.25um



P2557.D PESTTOXC.M Tue Oct 21 16:41:47 2014 Page 2

Quantitation Report (QT Reviewed)

Signal #1 : P:\P102014\P2558.D\ECD1A.CH Vial: 15
Signal #2 : P:\P102014\P2558.D\ECD2B.CH
Acq On : 20 Oct 2014 6:12 pm Operator: jt
Sample : P6291 Inst : GC Instru
Misc : Two River;Esposito Prop;S-2;30.09;10;1 Multiplr: 1.00
IntFile Signal #1: LSCINT.E IntFile Signal #2: EVENTS3.E
Quant Time: Oct 21 16:11 2014 Quant Results File: PESTTOXC.RES

Quant Method : P:\P102014\PESTTOXC.M (Chemstation Integrator)
Title : 608/8081 Pesticides
Last Update : Fri Aug 01 17:00:32 2014
Response via : Initial Calibration
DataAcq Meth : PEST5.M

Volume Inj. : 2 ul
Signal #1 Phase : ZB-MR1 (Primary) Signal #2 Phase: ZB-MR2 (Secondary)
Signal #1 Info : 30m;.32 ID;.50um Signal #2 Info : 30m;.32 ID;.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) AS Tetrachloro-m-xy	4.06	3.34	988577	914439	43.336	36.906m
Spiked Amount	50.000	Range 80 - 120	Recovery =		86.67%	73.81%#
22) AS Decachlorobiphen	10.03	9.13	1246253	1280511	48.284	46.584
Spiked Amount	50.000	Range 80 - 120	Recovery =		96.57%	93.17%
Target Compounds						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.
P2558.D PESTTOXC.M Tue Oct 21 16:41:48 2014 Page 1

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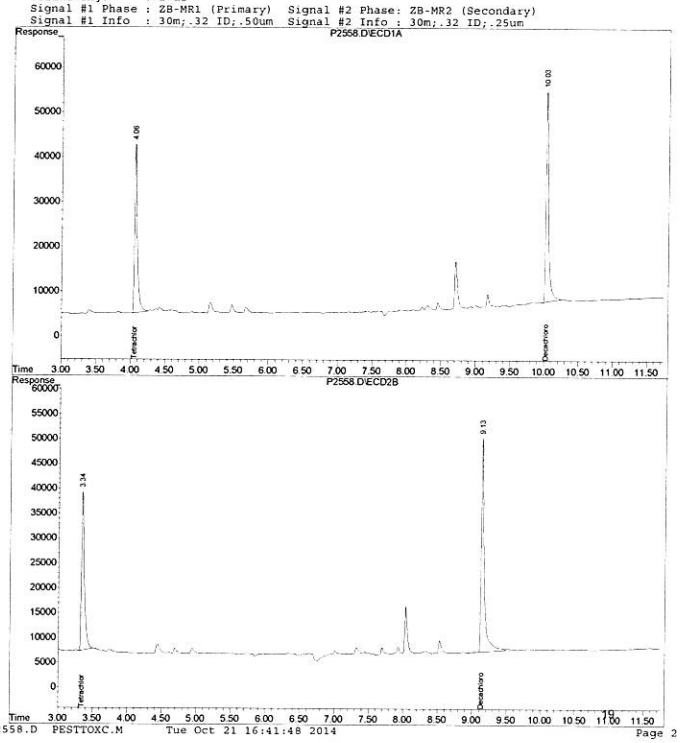
Quantitation Report (QT Reviewed)

Signal #1 : P:\P102014\P2558.D\ECD1A.CH Vial: 15
Signal #2 : P:\P102014\P2558.D\ECD2B.CH
Acq On : 20 Oct 2014 6:12 pm Operator: jt
Sample : P6291 Inst : GC Instru
Misc : Two River;Esposito Prop;S-2;30.09;10;1 Multiplr: 1.00
IntFile Signal #1: LSCINT.E IntFile Signal #2: EVENTS3.E
Quant Time: Oct 21 16:11 2014 Quant Results File: PESTTOXC.RES

Quant Method : P:\P102014\PESTTOXC.M (Chemstation Integrator)
Title : 608/8081 Pesticides
Last Update : Fri Aug 01 17:00:32 2014
Response via : Multiple Level Calibration
DataAcq Meth : PEST5.M

Volume Inj. : 2 ul
Signal #1 Phase : ZB-MR1 (Primary) Signal #2 Phase: ZB-MR2 (Secondary)
Signal #1 Info : 30m;.32 ID;.50um Signal #2 Info : 30m;.32 ID;.25um



P2558.D PESTTOXC.M Tue Oct 21 16:41:48 2014 Page 2

Quantitation Report (QT Reviewed)

Signal #1 : P:\P102014\P2559.D\ECD1A.CH Vial: 16
Signal #2 : P:\P102014\P2559.D\ECD2B.CH
Acq On : 20 Oct 2014 6:27 pm Operator: jt
Sample : P6292 Inst : GC Instru
Misc : Two River;Esposito Prop;S-3;30.03;10;1 Multiplr: 1.00
IntFile Signal #1: LSCINT.E IntFile Signal #2: EVENTS3.E
Quant Time: Oct 21 16:12 2014 Quant Results File: PESTTOXC.RES

Quant Method : P:\P102014\PESTTOXC.M (Chemstation Integrator)
Title : 608/8081 Pesticides
Last Update : Fri Aug 01 17:00:32 2014
Response via : Initial Calibration
DataAcq Meth : PEST5.M

Volume Inj. : 2 ul
Signal #1 Phase : ZB-MR1 (Primary) Signal #2 Phase: ZB-MR2 (Secondary)
Signal #1 Info : 30m;.32 ID;.50um Signal #2 Info : 30m;.32 ID;.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) AS Tetrachloro-m-xy	4.06	3.34	969028	879741	42.479	35.506m
Spiked Amount	50.000	Range 80 - 120	Recovery =		84.96%	71.01%#
22) AS Decachlorobiphen	10.03	9.13	1201938	1266801	46.567	46.085
Spiked Amount	50.000	Range 80 - 120	Recovery =		93.13%	92.17%
Target Compounds						

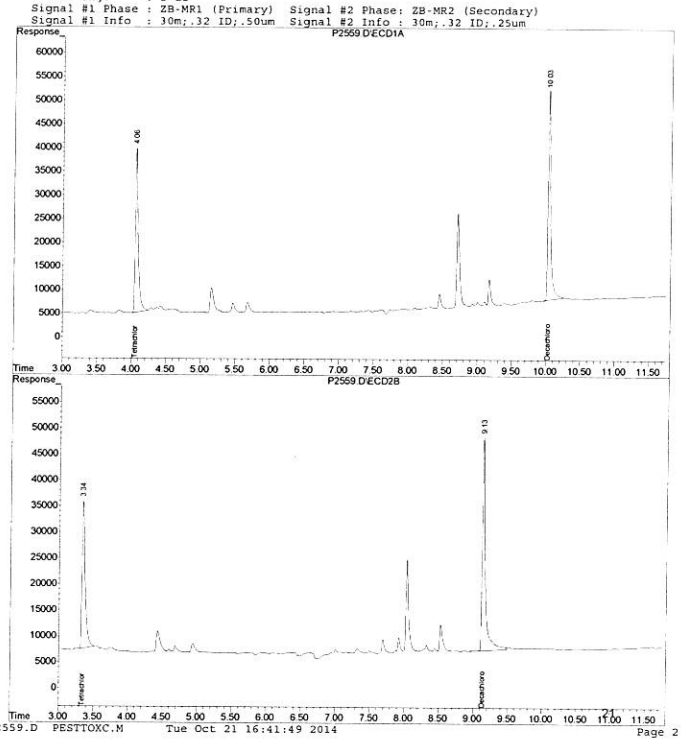
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.
P2559.D PESTTOXC.M Tue Oct 21 16:41:49 2014

Quantitation Report (QT Reviewed)

Signal #1 : P:\P102014\P2559.D\ECD1A.CH Vial: 16
Signal #2 : P:\P102014\P2559.D\ECD2B.CH
Acq On : 20 Oct 2014 6:27 pm Operator: jt
Sample : P6292 Inst : GC Instru
Misc : Two River;Esposito Prop;S-3;30.03;10;1 Multiplr: 1.00
IntFile Signal #1: LSCINT.E IntFile Signal #2: EVENTS3.E
Quant Time: Oct 21 16:12 2014 Quant Results File: PESTTOXC.RES

Quant Method : P:\P102014\PESTTOXC.M (Chemstation Integrator)
Title : 608/8081 Pesticides
Last Update : Fri Aug 01 17:00:32 2014
Response via : Multiple Level Calibration
DataAcq Meth : PEST5.M

Volume Inj. : 2 ul
Signal #1 Phase : ZB-MR1 (Primary) Signal #2 Phase: ZB-MR2 (Secondary)
Signal #1 Info : 30m;.32 ID;.50um Signal #2 Info : 30m;.32 ID;.25um



Quantitation Report (QT Reviewed)

Signal #1 : P:\P102014\P2560.D\ECD1A.CH Vial: 17
Signal #2 : P:\P102014\P2560.D\ECD2B.CH
Acq On : 20 Oct 2014 6:43 pm Operator: jt
Sample : P6293 Inst : GC Instru
Misc : Two River;Esposito Prop;S-4;30.06;10;1 Multiplr: 1.00
IntFile Signal #1: LSCINT.E IntFile Signal #2: EVENTS3.E
Quant Time: Oct 21 16:12 2014 Quant Results File: PESTTOXC.RES

Quant Method : P:\P102014\PESTTOXC.M (Chemstation Integrator)
Title : 608/8081 Pesticides
Last Update : Fri Aug 01 17:00:32 2014
Response via : Initial Calibration
DataAcq Meth : PEST5.M

Volume Inj. : 2 ul
Signal #1 Phase : ZB-MR1 (Primary) Signal #2 Phase: ZB-MR2 (Secondary)
Signal #1 Info : 30m;.32 ID;.50um Signal #2 Info : 30m;.32 ID;.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) AS Tetrachloro-m-xy	4.06	3.34	1012048	945325	44.364	38.153m
Spiked Amount	50.000	Range 80 - 120	Recovery =		88.73%	76.31%#
22) AS Decachlorobiphen	10.03	9.13	1289680	1087199	49.967	39.551m
Spiked Amount	50.000	Range 80 - 120	Recovery =		99.93%	79.10%#
Target Compounds						
10) B gamma-Chlordane	6.73	5.93	34607	26035	1.255m	0.880m#
11) B alpha-Chlordane	6.82	5.97	38808	31628	1.458	1.128m

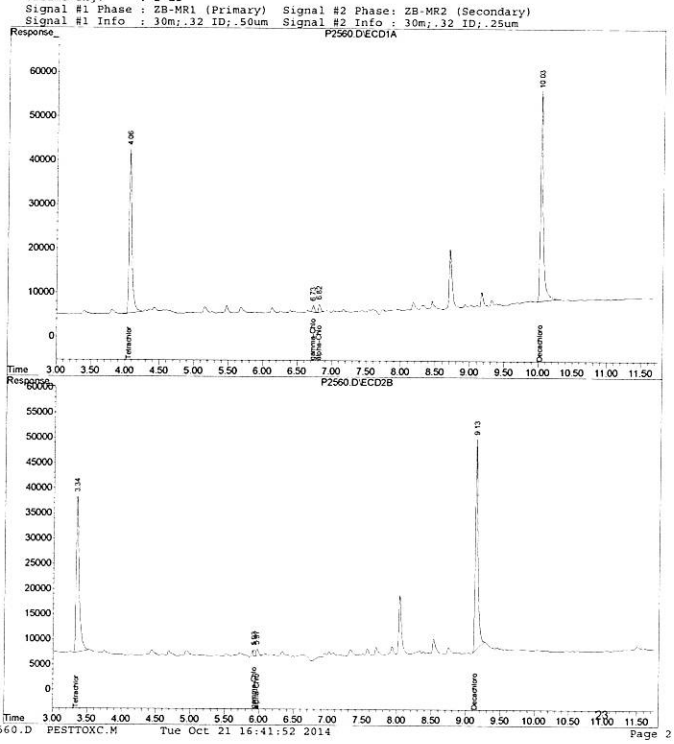
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.
P2560.D PESTTOXC.M Tue Oct 21 16:41:50 2014

Quantitation Report (QT Reviewed)

Signal #1 : P:\P102014\P2560.D\ECD1A.CH Vial: 17
Signal #2 : P:\P102014\P2560.D\ECD2B.CH
Acq On : 20 Oct 2014 6:43 pm Operator: jt
Sample : P6293 Inst : GC Instru
Misc : Two River;Esposito Prop;S-4;30.06;10;1 Multiplr: 1.00
IntFile Signal #1: LSCINT.E IntFile Signal #2: EVENTS3.E
Quant Time: Oct 21 16:12 2014 Quant Results File: PESTTOXC.RES

Quant Method : P:\P102014\PESTTOXC.M (Chemstation Integrator)
Title : 608/8081 Pesticides
Last Update : Fri Aug 01 17:00:32 2014
Response via : Multiple Level Calibration
DataAcq Meth : PEST5.M

Volume Inj. : 2 ul
Signal #1 Phase : ZB-MR1 (Primary) Signal #2 Phase: ZB-MR2 (Secondary)
Signal #1 Info : 30m;.32 ID;.50um Signal #2 Info : 30m;.32 ID;.25um



Quantitation Report (QT Reviewed)

Signal #1 : P:\P102014\P2561.D\ECD1A.CH Vial: 18
Signal #2 : P:\P102014\P2561.D\ECD2B.CH
Acq On : 20 Oct 2014 6:59 pm Operator: jt
Sample : P6294 Inst : GC Instru
Misc : Two River;Esposito Prop;S-5;30.15;10;1 Multiplr: 1.00
IntFile Signal #1: LSCINT.E IntFile Signal #2: EVENTS3.E
Quant Time: Oct 21 16:21 2014 Quant Results File: PESTTOXC.RES

Quant Method : P:\P102014\PESTTOXC.M (Chemstation Integrator)
Title : 608/8081 Pesticides
Last Update : Fri Aug 01 17:00:32 2014
Response via : Initial Calibration
DataAcq Meth : PEST5.M

Volume Inj. : 2 ul
Signal #1 Phase : ZB-MR1 (Primary) Signal #2 Phase: ZB-MR2 (Secondary)
Signal #1 Info : 30m;.32 ID;.50um Signal #2 Info : 30m;.32 ID;.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) AS Tetrachloro-m-xy	4.06	3.34	958681	889826	42.025	35.913m
Spiked Amount	50.000	Range 80 - 120	Recovery =		84.05%	71.83%#
22) AS Decachlorobiphen	10.03	9.13	1233552	1294345	47.792	47.087
Spiked Amount	50.000	Range 80 - 120	Recovery =		95.58%	94.17%
Target Compounds						

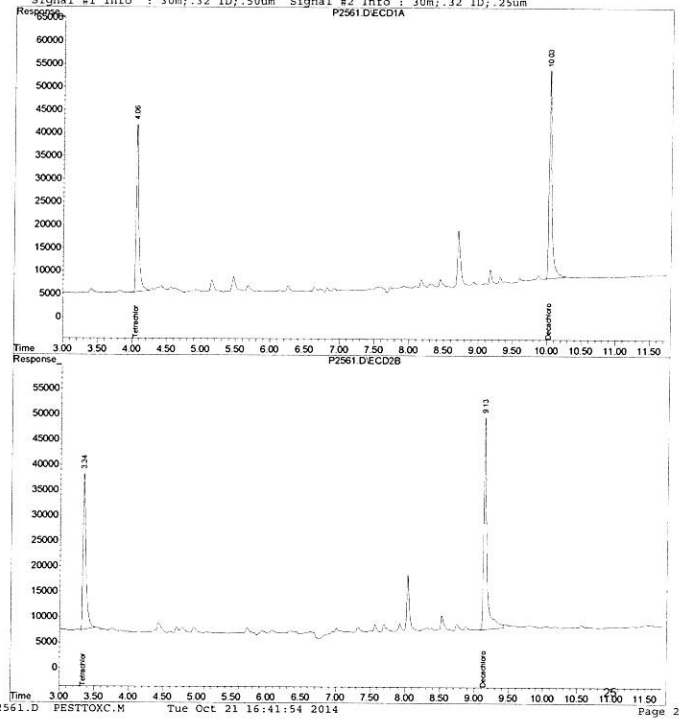
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.
P2561.D PESTTOXC.M Tue Oct 21 16:41:53 2014

Quantitation Report (QT Reviewed)

Signal #1 : P:\P102014\P2561.D\ECD1A.CH Vial: 18
Signal #2 : P:\P102014\P2561.D\ECD2B.CH
Acq On : 20 Oct 2014 6:59 pm Operator: jt
Sample : P6294 Inst : GC Instru
Misc : Two River;Esposito Prop;S-5;30.15;10;1 Multiplr: 1.00
IntFile Signal #1: LSCINT.E IntFile Signal #2: EVENTS3.E
Quant Time: Oct 21 16:21 2014 Quant Results File: PESTTOXC.RES

Quant Method : P:\P102014\PESTTOXC.M (Chemstation Integrator)
Title : 608/8081 Pesticides
Last Update : Fri Aug 01 17:00:32 2014
Response via : Multiple Level Calibration
DataAcq Meth : PEST5.M

Volume Inj. : 2 ul
Signal #1 Phase : ZB-MR1 (Primary) Signal #2 Phase: ZB-MR2 (Secondary)
Signal #1 Info : 30m;.32 ID;.50um Signal #2 Info : 30m;.32 ID;.25um



P2561.D PESTTOXC.M Tue Oct 21 16:41:54 2014

Quantitation Report (QT Reviewed)

Signal #1 : P:\P102014\P2562.D\ECD1A.CH Vial: 19
Signal #2 : P:\P102014\P2562.D\ECD2B.CH
Acq On : 20 Oct 2014 7:14 pm Operator: jt
Sample : P6295 Inst : GC Instru
Misc : Two River;Esposito Prop;S-6;30.12;10;1 Multiplr: 1.00
IntFile Signal #1: LSCINT.E IntFile Signal #2: EVENTS3.E
Quant Time: Oct 21 16:12 2014 Quant Results File: PESTTOXC.RES

Quant Method : P:\P102014\PESTTOXC.M (Chemstation Integrator)
Title : 608/8081 Pesticides
Last Update : Fri Aug 01 17:00:32 2014
Response via : Initial Calibration
DataAcq Meth : PEST5.M

Volume Inj. : 2 ul
Signal #1 Phase : ZB-MR1 (Primary) Signal #2 Phase: ZB-MR2 (Secondary)
Signal #1 Info : 30m;.32 ID;.50um Signal #2 Info : 30m;.32 ID;.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) AS Tetrachloro-m-xy	4.06	3.34	885249	825693	38.806	33.324m
Spiked Amount	50.000	Range 80 - 120	Recovery =		77.61%#	66.65%#
22) AS Decachlorobiphen	10.03	9.13	1230976	1099474	47.692	39.998m
Spiked Amount	50.000	Range 80 - 120	Recovery =		95.38%	80.00%#
Target Compounds						

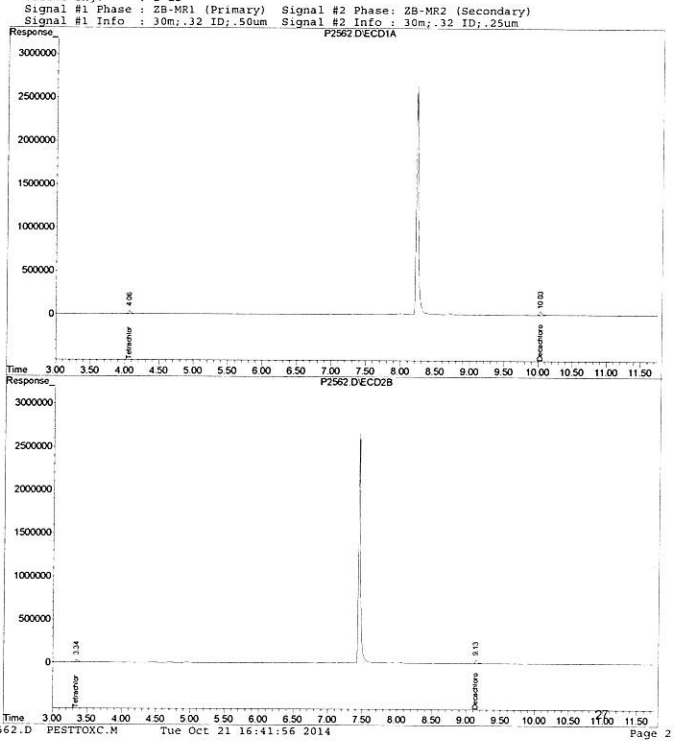
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.
P2562.D PESTTOXC.M Tue Oct 21 16:41:55 2014

Quantitation Report (QT Reviewed)

Signal #1 : P:\P102014\P2562.D\ECD1A.CH Vial: 19
Signal #2 : P:\P102014\P2562.D\ECD2B.CH
Acq On : 20 Oct 2014 7:14 pm Operator: jt
Sample : P6295 Inst : GC Instru
Misc : Two River;Esposito Prop;S-6;30.12;10;1 Multiplr: 1.00
IntFile Signal #1: LSCINT.E IntFile Signal #2: EVENTS3.E
Quant Time: Oct 21 16:12 2014 Quant Results File: PESTTOXC.RES

Quant Method : P:\P102014\PESTTOXC.M (Chemstation Integrator)
Title : 608/8081 Pesticides
Last Update : Fri Aug 01 17:00:32 2014
Response via : Multiple Level Calibration
DataAcq Meth : PEST5.M

Volume Inj. : 2 ul
Signal #1 Phase : ZB-MR1 (Primary) Signal #2 Phase: ZB-MR2 (Secondary)
Signal #1 Info : 30m;.32 ID;.50um Signal #2 Info : 30m;.32 ID;.25um



P2562.D PESTTOXC.M Tue Oct 21 16:41:56 2014

Form 2
PESTICIDE SURROGATE RECOVERY

Lab Name: PRECISION TESTING LABS, INC. GC Column (2) 0.32/ZBMR-1
Lab Code: 15005 GC Column (1) 0.32/ZBMR-2

	SAMPLE ID	TCX 1 % REC	#	TCX 2 % REC	#	DCB 1 % REC	#	DCB 2 % REC	#	TOT OUT
1	PBLK91	86		78		97		92		
2	P6176	84		76		92		90		
3	P6177	92		84		101		98		
4	P6178	83		82		92		83		
5	P6179	86		78		94		83		
6	P6180	90		82		96		89		
7	P6181	84		76		94		89		
8	P6182	88		81		95		85		
9	P6183	79		65		90		77		
10	P6290	83		70		91		90		
11	P6291	87		74		97		93		
12	P6292	85		71		93		92		
13	P6293	89		76		100		79		
14	P6294	84		72		96		94		
15	P6294MS	82		70		97		92		
16	P6294MSD	85		71		98		94		
17	P6295	78		67		95		80		
18	LCS	81		73		90		89		
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
28										

QC LIMITS

TCX = Tetrachloro-m-xylene (60 - 150)
DCB = Decachlorobiphenyl (60 - 150)

* Values outside of contract require QC limits
D = Surrogate diluted

FORM II PEST-1

Form 3
PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: PRECISION TESTING LABS, INC.
Lab Code: 15005 Matrix: Soil
Matrix Spike - Sample No: P6294

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC. (ug/kg)	MS CONC. (ug/kg)	MS % REC	QC LIMITS REC
gamma-BHC (Lindane)	16.7	0	14.48	87	56 - 123
Heptachlor	16.7	0	15.23	91	40 - 131
Aldrin	16.7	0	15.32	92	40 - 120
Dieldrin	33.3	0	30.34	91	52 - 126
Endrin	33.3	0	29.92	90	56 - 121
4,4'-DDT	33.3	0	29.85	90	38 - 127

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONC. (ug/kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC
gamma-BHC (Lindane)	16.7	14.57	87	0.4	15	56 - 123
Heptachlor	16.7	15.31	92	0.4	20	40 - 131
Aldrin	16.7	15.24	91	0.3	22	40 - 120
Dieldrin	33.3	30.51	92	0.4	18	52 - 126
Endrin	33.3	29.83	89	0.2	21	56 - 121
4,4'-DDT	33.3	30.20	91	0.8	27	38 - 127

* Value outside of QC limits
RPD: 0 outside limits
Spike Recovery: 0 out of 12 outside limits

FORM III PEST-1

Form 4
PESTICIDE METHOD BLANK SUMMARY

Lab Name: PRECISION TESTING LABS, INC.
Lab Code: 15005 Lab Sample ID: PBLK91
Lab File ID: P2548.D Date Extracted: 10/17/2014
Instrument ID: HP-5890/ECD Date Analyzed: 10/20/2014
Matrix: (soil/water) Soil Time Analyzed: 15:35

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS & MSD:

	Customer Sample ID	Lab Sample ID	Lab File ID	Date Analyzed
1	Bri_CF-1	P6176	P2549.D	10/20/2014
2	Bri_CF-2	P6177	P2550.D	10/20/2014
3	Bri_CF-3	P6178	P2551.D	10/20/2014
4	Bri_CF-4	P6179	P2552.D	10/20/2014
5	Bri_CF-5	P6180	P2553.D	10/20/2014
6	Bri_CF-6	P6181	P2554.D	10/20/2014
7	Bri_CF-7	P6182	P2555.D	10/20/2014
8	Bri_CF-8	P6183	P2556.D	10/20/2014
9	Esp_S-1	P6290	P2557.D	10/20/2014
10	Esp_S-2	P6291	P2558.D	10/20/2014
11	Esp_S-3	P6292	P2559.D	10/20/2014
12	Esp_S-4	P6293	P2560.D	10/20/2014
13	Esp_S-5	P6294	P2561.D	10/20/2014
14	Esp_S-5	P6294MS	P2566.D	10/20/2014
15	Esp_S-5	P6294MSD	P2567.D	10/20/2014
16	Esp_S-6	P6295	P2562.D	10/20/2014
17	LCS_LCS	LCS	P2565.D	10/20/2014
18				
19				
20				
21				
22				
23				
24				
25				

Comments:

Form IV PEST

PRECISION TESTING LABS, INC.
PESTICIDES ANALYSIS REPORT - METHOD 8081

Customer : Method Blank Lab Sample ID: PBLK91
Project ID: NA Lab File ID : P2548.D
Sample ID: PBLK91 Dilution Factor: 1 Date Analyzed: 10/20/2014
Matrix : Soil Sample Amt : 30.00 g Moisture: 0.0 Units : mg/kg (ppm)

Cas No	Compound	Concentration	PQL	MDL
319-84-6	alpha-BHC	ND	0.0002	0.00005
58-89-9	gamma-BHC (Lindane)	ND	0.0002	0.00005
76-44-8	Heptachlor	ND	0.0002	0.00006
309-00-2	Aldrin	ND	0.0002	0.00011
319-85-7	beta-BHC	ND	0.0002	0.00009
319-86-8	delta-BHC	ND	0.0002	0.00011
1024-57-3	Heptachlor Epoxide	ND	0.0002	0.00005
959-98-8	Endosulfan I	ND	0.0002	0.00006
5103-74-2	gamma-Chlordane	ND	0.0002	0.00006
5103-71-9	alpha-Chlordane	ND	0.0002	0.00006
72-55-9	4,4'-DDE	ND	0.0003	0.00012
60-57-1	Dieldrin	ND	0.0003	0.00006
72-20-8	Endrin	ND	0.0003	0.00014
33213-65-9	Endosulfan II	ND	0.0003	0.00010
72-54-8	4,4'-DDD	ND	0.0003	0.00023
50-29-3	4,4'-DDT	ND	0.0003	0.00015
7421-93-4	Endrin Aldehyde	ND	0.0003	0.00016
1031-07-8	Endosulfan Sulfate	ND	0.0003	0.00016
72-43-5	Methoxychlor	ND	0.0017	0.00033
53494-70-5	Endrin Ketone	ND	0.0003	0.00012
8001-35-2	Toxaphene	ND	0.03	0.098

MDL = Minimum Detection Limit
ND = Analyzed for but not detected
PQL = Practical Quantitation Limit

Analyst jt
J = Estimated value when detected below PQL
E = Concentration exceeds calibration range
D = Concentration based on dilution

Quantitation Report (QT Reviewed)

Signal #1 : P:\P102014\P2548.D\ECD1A.CH Vial: 5
Signal #2 : P:\P102014\P2548.D\ECD2B.CH
Acq On : 20 Oct 2014 3:35 pm Operator: jt
Sample : PBLK91 Inst : GC Instru
Misc : Method Blank;NA;PBLK91;30.00;10;1 Multiplr: 1.00
IntFile Signal #1: LSCINT.E IntFile Signal #2: EVENTS3.E
Quant Time: Oct 20 16:21 2014 Quant Results File: PESTTOXC.RES

Quant Method : P:\P102014\PESTTOXC.M (Chemstation Integrator)
Title : 608/8081 Pesticides
Last Update : Fri Aug 01 17:00:32 2014
Response via : Initial Calibration
DataAcq Meth : PEST5.M

Volume Inj. : 2 ul
Signal #1 Phase : ZB-MR1 (Primary) Signal #2 Phase: ZB-MR2 (Secondary)
Signal #1 Info : 30m;.32 ID;.50um Signal #2 Info : 30m;.32 ID;.25um

Compound	RT#1	RT#2	Resp#1	Resp#2	PPB	PPB
System Monitoring Compounds						
1) AS Tetrachloro-m-xy	4.06	3.34	985267	967347	43.190	39.041
Spiked Amount	50.000	Range 80 - 120	Recovery =		86.38%	78.08%#
22) AS Decachlorobiphen	10.03	9.13	1247217	1267187	48.322	46.099
Spiked Amount	50.000	Range 80 - 120	Recovery =		96.64%	92.20%
Target Compounds						

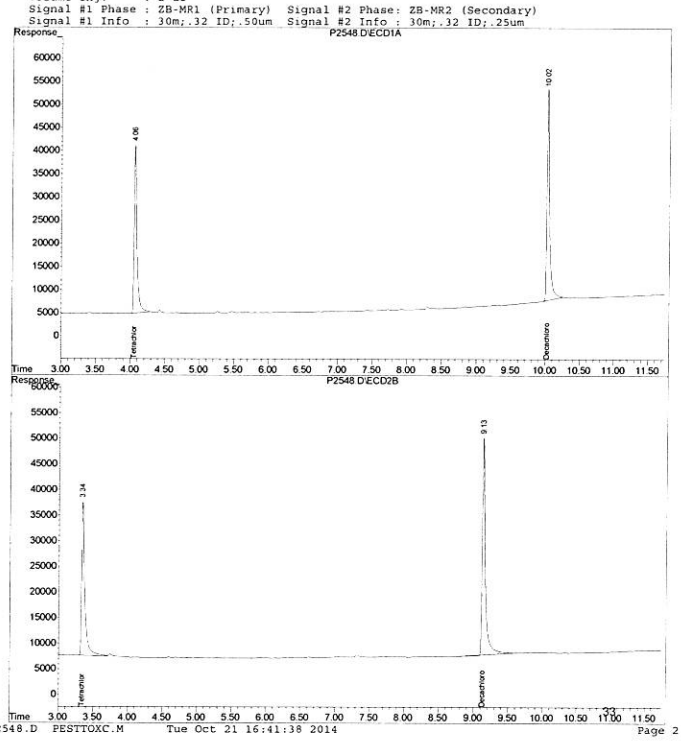
(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 25% (m)=manual int.

Quantitation Report (QT Reviewed)

Signal #1 : P:\P102014\P2548.D\ECD1A.CH Vial: 5
Signal #2 : P:\P102014\P2548.D\ECD2B.CH
Acq On : 20 Oct 2014 3:35 pm Operator: jt
Sample : PBLK91 Inst : GC Instru
Misc : Method Blank;NA;PBLK91;30.00;10;1 Multiplr: 1.00
IntFile Signal #1: LSCINT.E IntFile Signal #2: EVENTS3.E
Quant Time: Oct 20 16:21 2014 Quant Results File: PESTTOXC.RES

Quant Method : P:\P102014\PESTTOXC.M (Chemstation Integrator)
Title : 608/8081 Pesticides
Last Update : Fri Aug 01 17:00:32 2014
Response via : Multiple Level Calibration
DataAcq Meth : PEST5.M

Volume Inj. : 2 ul
Signal #1 Phase : ZB-MR1 (Primary) Signal #2 Phase: ZB-MR2 (Secondary)
Signal #1 Info : 30m;.32 ID;.50um Signal #2 Info : 30m;.32 ID;.25um



DDT/Endrin Breakdown Form

Lab Name: PTL
Lab Code: 15005

Init. Cal. Date: 8/1/2014
Date analyzed: 10/20/2014

GC Column: ZB - MR-1
ID: 0.32(mm)
Instrument ID: GC ECD # 1
GC Column: ZB - MR-2
ID: 0.32(mm)
Instrument ID: GC ECD # 2

Primary Column

Endrin Breakdown calculation		DDT Breakdown calculation	
Endrin Area=	2133774	DDT Area=	1966558
EA Area=	30809	DDD Area=	53684
EK Area=	74191	DDE Area=	39521
Endrin Breakdown=	4.7 <20	DDT Breakdown=	4.5 <20
COMBINED ENDRIN and DDT BREAKDOWN=	9.2 <30		

Confirmation Column

Endrin Breakdown calculation		DDT Breakdown calculation	
Endrin Area=	2158501	DDT Area=	1691860
EA Area=	43854	DDD Area=	57027
EK Area=	85815	DDE Area=	32930
Endrin Breakdown=	5.7 <20	DDT Breakdown=	5.0 <20
COMBINED ENDRIN and DDT BREAKDOWN=	10.7 <30		

Form 6
PESTICIDES INITIAL CALIBRATION DATA

Lab Name: PRECISION TESTING LABS, INC.
Lab Code: 15005 Calibration Date(s): 8/1/2014 8/1/2014
Istrument ID: HP5890 Calibration Times: 12:07 15:46
GC Column: ZBMR1 & ZBMR2 ID: 0.32

	Lab File ID:	P2249.D P2254.D	P2250.D P2255.D	P2251.D P2256.D	P2252.D P2257.D	P2253.D P2258.D		
	Compound	RRF50	RRF20	RRF5	RRF1	RRF0.5	AveRRF	% RSD
SIGNAL 1	alpha-BHC	26886	30800	25273	25259	26746	26993	8.4
	gamma-BHC (Lindane)	26914	29933	25736	25112	31104	27760	9.5
	Heptachlor	26001	29941	26529	27919	34270	28932	11.6
	Aldrin	26603	26553	25663	24697	23122	25328	5.8
	beta-BHC	13710	14541	15385	16037	17826	15500	10.1
	delta-BHC	27910	27852	27821	32756	28218	28912	7.5
	Heptachlor Epoxide	24590	25296	26462	26518	27496	26072	4.4
	Endosulfan I	22079	24660	23374	21607	25672	23478	7.3
	gamma-Chlordane	24645	25573	27578	27583	32446	27565	10.9
	alpha-Chlordane	23589	24635	27680	27579	29594	26615	9.2
	4,4'-DDE	46463	48585	50917	56158	63068	53038	12.6
	Dieldrin	45276	49652	45345	44990	49650	46983	5.2
	Endrin	38200	43387	39821	41449	47798	42131	8.8
	Endosulfan II	41838	43296	46473	40887	38874	42274	6.7
	4,4'-DDD	34821	37884	33581	33142	40928	36071	9.1
	4,4'-DDT	45101	44346	42567	48188	60254	48091	14.8
	Endrin Aldehyde	34119	36109	38694	33930	32322	35035	7.0
	Endosulfan Sulfate	37883	38822	39425	38161	36120	38082	3.3
	Methoxychlor	84686	97263	102551	116042	108938	101896	11.7
	Endrin Ketone	44862	47672	50153	47165	49454	47861	4.3
	Toxaphene	896755	876610	911570	809233	714468	841727	9.6
SIGNAL 2	alpha-BHC	32520	33164	27363	29110	39300	32291	14.2
	gamma-BHC (Lindane)	28641	31984	27328	27621	33666	29848	9.5
	Heptachlor	22722	26713	25860	26334	32736	26873	13.5
	Aldrin	27496	27224	26150	25165	23376	25882	6.5
	beta-BHC	14763	15125	17380	15784	19374	16485	11.5
	delta-BHC	28293	29849	29173	22902	29422	27928	10.3
	Heptachlor Epoxide	26679	26777	26285	24216	23170	25426	6.4
	Endosulfan I	24901	27597	24686	26451	31164	26960	9.8
	gamma-Chlordane	27226	27096	27804	30793	35078	29599	11.5
	alpha-Chlordane	24889	28167	28757	28366	29978	28031	6.8
	4,4'-DDE	54467	53318	49131	44948	41366	48646	11.4
	Dieldrin	53969	58452	51134	49487	56840	53976	7.0
	Endrin	45669	51093	45148	44820	49150	47176	5.9
	Endosulfan II	48224	48659	53044	48490	56054	50894	6.9
	4,4'-DDD	38155	42702	39144	30888	43570	38892	12.9
	4,4'-DDT	33162	37243	37971	37777	43986	38028	10.2
	Endrin Aldehyde	41641	42240	42911	41764	43938	42499	2.2
	Endosulfan Sulfate	44934	44863	44669	42130	43544	44028	2.7
	Methoxychlor	68032	84264	90353	102002	89526	86835	14.2
	Endrin Ketone	54191	56267	57634	52734	54630	55091	3.4
	Toxaphene	980870	1076996	985753	1026986	961328	1006386	4.6

All compounds must meet a maximum %RSD of 15%.

Form 7

PESTICIDE CONTINUING CALIBRATION DATA

Lab Name: PRECISION TESTING LABS, INC. Calibration Date: 10/20/2014 10/20/2014

Lab Code: 15005 Init.Calib. Date(s): 8/1/2014 8/1/2014

Istrument ID: HP5890/ECD Lab File ID: P2545.D Init.Calib. Times: 12:07 15:46

	Compound	Ave RRF	RRF5		%D	MAX RRF
SIGNAL 1	alpha-BHC	26993	26958		0.1	20.0
	gamma-BHC (Lindane)	27760	27840		-0.3	20.0
	Heptachlor	28932	29464		-1.8	20.0
	Aldrin	25328	25675		-1.4	20.0
	beta-BHC	15500	16579		-7.0	20.0
	delta-BHC	28912	25135		13.1	20.0
	Heptachlor Epoxide	26072	26747		-2.6	20.0
	Endosulfan I	23478	24183		-3.0	20.0
	gamma-Chlordane	27565	27125		1.6	20.0
	alpha-Chlordane	26615	27219		-2.3	20.0
	4,4'-DDE	53038	50868		4.1	20.0
	Dieldrin	46983	47236		-0.5	20.0
	Endrin	42131	42213		-0.2	20.0
	Endosulfan II	42274	45303		-7.2	20.0
	4,4'-DDD	36071	35412		1.8	20.0
	4,4'-DDT	48091	42563		11.5	20.0
	Endrin Aldehyde	35035	37766		-7.8	20.0
	Endosulfan Sulfate	38082	39451		-3.6	20.0
	Methoxychlor	101896	104771		-2.8	20.0
	Endrin Ketone	47861	48528		-1.4	20.0
	Toxaphene	841727	869854		-3.3	20.0
SIGNAL 2	alpha-BHC	32291	29150		9.7	20.0
	gamma-BHC (Lindane)	29848	28070		6.0	20.0
	Heptachlor	26873	26247		2.3	20.0
	Aldrin	25882	24143		6.7	20.0
	beta-BHC	16485	14860		9.9	20.0
	delta-BHC	27928	23087		17.3	20.0
	Heptachlor Epoxide	25426	23019		9.5	20.0
	Endosulfan I	26960	25651		4.9	20.0
	gamma-Chlordane	29599	24619		16.8	20.0
	alpha-Chlordane	28031	26966		3.8	20.0
	4,4'-DDE	48646	45032		7.4	20.0
	Dieldrin	53976	49819		7.7	20.0
	Endrin	47176	43088		8.7	20.0
	Endosulfan II	50894	45450		10.7	20.0
	4,4'-DDD	38892	35849		7.8	20.0
	4,4'-DDT	38028	36504		4.0	20.0
	Endrin Aldehyde	42499	38418		9.6	20.0
	Endosulfan Sulfate	44028	38738		12.0	20.0
	Methoxychlor	86835	86955		-0.1	20.0
	Endrin Ketone	55091	51739		6.1	20.0
	Toxaphene	1006386	1036091		-3.0	20.0

PESTICIDE/PCB ANALYTICAL SEQUENCE

Lab Name: PTL GC Column: ZB - MR-1 GC Column: ZB - MR-2

Lab Code: 15005 ID: 0.32(mm) ID: 0.32(mm)

Instrument ID: GC ECD # 1 Instrument ID: GC ECD # 2

Init. Cal. Date: 8/1/2014

The Analytical Sequence of Blanks, Samples, and Standards is Given Below:

					Column 1		Column 2	
	MEAN SURROGATE RT FROM INITIAL CALIBRATION				4.05	10.02	3.34	9.13
	SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #	TCX RT #	DCB RT #
01	pest A 50ppb Meth	B03p100A1	8/1/2014	12:07	4.06	10.03	3.34	9.13
02	pest A 20ppb	B03p100A2	8/1/2014	12:23	4.06	10.02	3.34	9.13
03	pest A 5ppb	B03p100A3	8/1/2014	12:38	4.06	10.02	3.34	9.13
04	pest A 1ppb	B03p100A4	8/1/2014	12:54	4.05	10.02	3.34	9.13
05	pest A 0.5ppb	B03p100A5	8/1/2014	13:10	4.05	10.02	3.34	9.13
06	pest B 50ppb	B03p100B1	8/1/2014	13:25	4.05	10.02	3.33	9.13
07	pest B 20ppb	B03p100B2	8/1/2014	13:41	4.05	10.02	3.34	9.13
08	pest B 5ppb	B03p100B3	8/1/2014	13:57	4.05	10.02	3.34	9.13
09	pest B 1ppb	B03p100B4	8/1/2014	14:12	4.05	10.02	3.33	9.13
10	pest B 0.5ppb	B03p100B5	8/1/2014	14:28	4.05	10.02	3.33	9.13
11	tox 10ppm	B03p100C1	8/1/2014	14:43	4.05	10.02	3.33	9.13
12	tox 5ppm	B03p100C2	8/1/2014	14:59	4.05	10.02	3.33	9.13
13	tox 1ppm	B03p100C3	8/1/2014	15:15	4.05	10.02	3.33	9.13
14	tox 0.5ppm	B03p100C4	8/1/2014	15:30	4.05	10.02	3.33	9.13
15	tox 0.1ppm	B03p100C5	8/1/2014	15:46	4.05	10.02	3.34	9.13
16	DDT/END Method	B03p106B	10/20/2014	14:32	4.06	10.03	3.34	9.13
17	MixA	B03p100A3	10/20/2014	14:48	4.06	10.03	3.34	9.13
18	MixB	B03p100B3	10/20/2014	15:04	4.07	10.03	3.35	9.13
19	TOX	B03p100C3	10/20/2014	15:19	4.06	10.03	3.34	9.13
20	PBLK91	PBLK91	10/20/2014	15:35	4.06	10.03	3.34	9.13
21	P6176	CF-1	10/20/2014	15:51	4.06	10.03	3.34	9.13
22	P6177	CF-2	10/20/2014	16:06	4.07	10.03	3.35	9.13
23	P6178	CF-3	10/20/2014	16:22	4.06	10.03	3.34	9.13
24	P6179	CF-4	10/20/2014	16:38	4.06	10.04	3.35	9.14
25	P6180	CF-5	10/20/2014	16:53	4.06	10.03	3.34	9.14
26	P6181	CF-6	10/20/2014	17:09	4.06	10.03	3.34	9.14
27	P6182	CF-7	10/20/2014	17:25	4.07	10.03	3.34	9.14
28	P6183	CF-8	10/20/2014	17:40	4.06	10.03	3.34	9.13
29	P6290	S-1	10/20/2014	17:56	4.06	10.03	3.34	9.13
30	P6291	S-2	10/20/2014	18:12	4.06	10.03	3.34	9.13
31	P6292	S-3	10/20/2014	18:27	4.06	10.03	3.34	9.13
32	P6293	S-4	10/20/2014	18:43	4.06	10.03	3.34	9.13
33	P6294	S-5	10/20/2014	18:59	4.06	10.03	3.34	9.13
34	P6294MS	S-5	10/20/2014	20:17	4.06	10.03	3.34	9.13
35	P6294MSD	S-5	10/20/2014	20:32	4.07	10.03	3.35	9.13
36	P6295	S-6	10/20/2014	19:14	4.06	10.03	3.34	9.13
37	LCS	LCS	10/20/2014	20:01	4.07	10.03	3.34	9.14
38								
39								

Column used to flag retention time values with an asterisk.

* Values outside of QC limits.

QC LIMITS

TCX (+/-0.05 MINUTES)

DCB (+/-0.10 MINUTES)

Specialists in Drinking Water Testing Technologies ■ Residential ■ Industrial ■ Municipal

PRECISION ANALYTICAL SERVICES, INC.

2161 WHITESVILLE ROAD TOMS RIVER, NJ 08755 PHONE 732-914-1515 FAX 732-914-1616

ANALYTICAL REPORT

For :

Precision Testing Labs

Whitesville Road

Project : Two Rivers Engineering - Esposito Property

Report Date :

11/5/2014

PAS Sample ID	Client ID	PTL ID	Analysis Required	Matrix
P14-3942-01	S-1	P6290	Lead & Arsenic	S
P14-3942-02	S-2	P6291	Lead & Arsenic	S
P14-3942-03	S-3	P6292	Lead & Arsenic	S
P14-3942-04	S-4	P6293	Lead & Arsenic	S
P14-3942-05	S-5	P6294	Lead & Arsenic	S
P14-3942-06	S-6	P6295	Lead & Arsenic	S

Reviewed by:

Mark D. Feitelson
Lab Director

PRECISION ANALYTICAL SERVICES, INC.
2161 WHITESVILLE ROAD TOMS RIVER, NJ 08755 PHONE 732-914-1515 FAX 732-914-1616

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PRECISION ANALYTICAL SERVICES, INC.
2161 WHITESVILLE ROAD TOMS RIVER, NJ 08755 PHONE 732-914-1515 FAX 732-914-1616

CERTIFICATE OF ANALYSIS

Customer : Precision Testing Labs
Project Ref. : Two Rivers Engineering - Esposito Property
PAS Project ID : P14-3942

Matrix : S
Report Date : 10/24/14

PAS Sample ID	Client ID	Analysis	Results	Units	DF	PQL	Method	Date Analyzed
P14-3942-01	P6290 , S-1	Arsenic	8.22	mg/Kg	20	2.55	SW 846 7010	10/21/14
P14-3942-01	P6290 , S-1	Lead	23.0	mg/Kg	1	17.9	SW 846 7000 B	10/20/14
P14-3942-02	P6291 , S-2	Arsenic	7.97	mg/Kg	20	2.66	SW 846 7010	10/21/14
P14-3942-02	P6291 , S-2	Lead	36.9	mg/Kg	1	14.7	SW 846 7000 B	10/20/14
P14-3942-03	P6292 , S-3	Arsenic	6.90	mg/Kg	20	2.49	SW 846 7010	10/21/14
P14-3942-03	P6292 , S-3	Lead	ND	mg/Kg	1	18	SW 846 7000 B	10/20/14
P14-3942-04	P6293 , S-4	Arsenic	5.19	mg/Kg	20	2.35	SW 846 7010	10/21/14
P14-3942-04	P6293 , S-4	Lead	ND	mg/Kg	1	17.3	SW 846 7000 B	10/20/14
P14-3942-05	P6294 , S-5	Arsenic	9.52	mg/Kg	20	3.06	SW 846 7010	10/21/14
P14-3942-05	P6294 , S-5	Lead	24.4	mg/Kg	1	16.2	SW 846 7000 B	10/20/14
P14-3942-06	P6295 , S-6	Arsenic	13.1	mg/Kg	20	3.46	SW 846 7010	10/21/14
P14-3942-06	P6295 , S-6	Lead	ND	mg/Kg	1	21.9	SW 846 7000 B	10/20/14

All soil samples reported on a dry basis
DF = Dilution Factor
PQL = Practical Quantitation Limit
ND = Analyzed for but not detected
S = Soil - WW = WasteWater - DW = Drinking Water
GW = Groundwater

All samples are analyzed in accordance with New Jersey Department of Environmental Protection protocols.

Mark D. Feitelson, Lab Director

TO PAS **Client Information:**

Company Name: Precision Testing Labs

Address:

Office Phone #

Office Fax #

Person to Receive Results:

Send initial results how? eMail ____ Post Online ____ Fax ____

eMail for Results:

PRECISION TESTING LABS

2161 Whitesville Rd, Toms River, NJ 08755

Tel. 732-905-5000 Fax 732-279-4422

email: ptl@ptlabs.net web: www.ptlabs.net

Project Information:

Project Name: Two River Engineering - Esposito Property

Address:

Turnaround: Standard (2 weeks) x Rush (extra charge) ____

Due Date: Monday, October 27, 2014

Company to Invoice: (if different)

Page 1 of 1

(Lab Only) Temperature: 4 °C

* Matrix CODES: S : Soil GW : Ground Water WW : Waste Water SW : Surface Water PW : Potable Water O : Oil K : Solid (specify) :

PRESERVATIVE CODE: 0 : ice 1 : HCl 2 : H_2SO_4 3 : NaOH 4 : HNO_3 5 : other

Sample # / ID	Sample Location or Depth	Date Sampled (mm/dd/yy)	Time Sampled	Sampled by	Grab (G) or Comp (C)	Matrix CODE *	# of Containers	G : Glass E : En Core P : Plastic T : Terra Core	DRO	EPH Cat. 1	PCB's	Pesticides	VOA+15 (624 or 8260)	VOA+15 (524.2) drinking water	BN+15 with SIM	BN+15 no SIM	BNA+15	PAH	pH (corrosivity)	Flash PL (ignitability)	Age-Date / Interpretation	TCLP Metals	TAL/TCL+30	Arsenic	Lead	Lab Sample #
Preservative Code →																								0	0	← Code
P6290	S-1	10/14/2014	13:00	JA	G	S	1	G																x	x	P14-3942-01
P6291	S-2	10/14/2014	13:00	JA	G	S	1	G																x	x	P14-3942-02
P6292	S-3	10/14/2014	13:00	JA	G	S	1	G																x	x	P14-3942-03
P6293	S-4	10/14/2014	13:00	JA	G	S	1	G																x	x	P14-3942-04
P6294	S-5	10/14/2014	13:00	JA	G	S	1	G																x	x	P14-3942-05
P6295	S-6	10/14/2014	14:00	JA	G	S	1	G																x	x	P14-3942-06

Special Instructions: Contingent BN Naphths ____ Contingent SPLP ____ Other: ____

Final Report Type: Results Only ____ Full ____ Reduced x EDD ____

Send Final Report How? eMail PDF ____ Mail Paper ____ Post Online ____ (requires assigned log in)

SIGN BELOW WHEN DELIVERING SAMPLES. Each time samples change possession, including courier delivery, custody must be documented.

Relinquished by:	Received by:	Relinquished by:	Received by:	Relinquished by:	Received by:
Print Name: Jean Fantaccione	Print Name: Lynn Souza	Print Name:	Print Name:	Print Name:	Print Name:
Signature: [signature]	Signature: [signature]	Signature:	Signature:	Signature:	Signature:
Agent of: PTL	Agent of: PAS	Agent of:	Agent of:	Agent of:	Agent of:
Date: 10/15/14	Time: 15:30	Date: / /	Time:	Date: / /	Time:

White : QA Office Yellow : Billing Pink : Client/Field Representative

PRECISION ANALYTICAL SERVICES, INC.

2161 WHITESVILLE ROAD TOMS RIVER, NJ 08755 PHONE 732-914-1515 FAX 732-914-1616

LABORATORY CHRONICLE

Precision Testing Labs
PAS Sample ID: P14-3942
Project: Two Rivers Engineering - Esposito Property

PAS Sample ID	Method	Date Sampled	Date Performed	Matrix	Analyst
P14-3942-01	SW 846 7010	10/14/14	10/21/14	S	kl
P14-3942-01	SW 846 7000 B	10/14/14	10/20/14	S	kl
P14-3942-01	SW 846 3050 B Digestion	10/14/14	10/17/14	S	kl
P14-3942-02	SW 846 7010	10/14/14	10/21/14	S	kl
P14-3942-02	SW 846 7000 B	10/14/14	10/20/14	S	kl
P14-3942-02	SW 846 3050 B Digestion	10/14/14	10/17/14	S	kl
P14-3942-03	SW 846 7010	10/14/14	10/21/14	S	kl
P14-3942-03	SW 846 7000 B	10/14/14	10/20/14	S	kl
P14-3942-03	SW 846 3050 B Digestion	10/14/14	10/17/14	S	kl
P14-3942-04	SW 846 7010	10/14/14	10/21/14	S	kl
P14-3942-04	SW 846 7000 B	10/14/14	10/20/14	S	kl
P14-3942-04	SW 846 3050 B Digestion	10/14/14	10/17/14	S	kl
P14-3942-05	SW 846 7010	10/14/14	10/21/14	S	kl
P14-3942-05	SW 846 7000 B	10/14/14	10/20/14	S	kl
P14-3942-05	SW 846 3050 B Digestion	10/14/14	10/17/14	S	kl
P14-3942-06	SW 846 7010	10/14/14	10/21/14	S	kl
P14-3942-06	SW 846 7000 B	10/14/14	10/20/14	S	kl
P14-3942-06	SW 846 3050 B Digestion	10/14/14	10/17/14	S	kl

Reviewed by: _____
Mark D. Feitelson, Lab Director

PRECISION ANALYTICAL SERVICES, INC
2161 WHITESVILLE ROAD TOMS RIVER, NJ 08755 PHONE 732-914-1515 FAX 732-914-161

METHODOLOGY

Precision Testing Labs

PAS Sample ID: P14-3942

Project: Two Rivers Engineering - Esposito Property

Analysis	Method	Description	Matrix
Metals by GFAA	SW 846 7010	GFAA Metals Analysis	S
Metals by FLAA	SW 846 7000 B	FLAA Metals Analysis	S
Acid Digestion for Metals	SW 846 3050 B Digestion	Metals Digestion	S

Reviewed by:

Mark D. Feitelson
Lab Director

PRECISION ANALYTICAL SERVICES, INC.

2161 WHITESVILLE ROAD TOMS RIVER, NJ 08755 PHONE 732-914-1515 FAX 732-914-1616

Soil Metals AA Analysis Conformance/Non-Conformance Summary

	NO	YES
1. Samples Run Within Hold Time		X
2. Calibration Curves Met CC Requirement of 0.995 or Greater		X
3. Reporting Limit Check Std within 70% to 130% Recovery		X
4. ICV within 10 % Recovery		X
5. CCV's within 10 % Recovery		X
6. Analytes present in ICB/CCB	X	
7. 10 or Less Samples Analyzed between CCV'S/CCB'S		X
8. One Duplicate Sample Run Per Batch of 20 Samples.		X
9. Sample Duplicate RSD's Within 20%		X
10. For Digested Samples, a Digested Blank Spike was Analyzed		X
Blank Spike Recovery within 15%		X
11. For Digested Samples, a Digestion Blank Was Analyzed		X
Digestion Blanks Free of Analyte Contamination		X
12. Matrix Spike, Matrix Spike Dup was Run per Batch of 20 samples		X
Matrix Spike & MSD Recoveries Within 75% -125%		X
Matrix Spike, Matrix Spike Dup RSD's Within 20 %		X
13. A dilution of 5x was analyzed and was found to be within a 90%-110%		
recovery of the undiluted sample for every Batch of 20 samples.		X
14. All results (except TCLP) were reported on a dry weight basis.		X

Additional Comments: _____

Kelly Hogan

Laboratory Manager: _____ Date: 11/05/14

NA = Not Applicable

QUALITY CONTROL DATA

Batch : As_S Analyte: Metals by GFAA **Method:** SW 846 7010
ICal Date : 10/21/14
Batch Date : 10/21/14 **Report Date :** Oct 23, 2014

Initial calibration verification

Sample ID	Parameter	True Value	Result	% Rec.	% Limit	Acceptable	Units
ICV	Arsenic	0.00800	0.0083	103	90 - 110	YES	mg/L

Initial calibration blank

Sample ID	Parameter	PQL	Result			Acceptable	Units
ICB	Arsenic	0.00200	-0.00031			YES	mg/L

Reporting Limit

Sample ID	Parameter	True Value	Result	% Rec.	% Limit	Acceptable	Units
RL	Arsenic	0.00200	0.00239	120	70 - 130	YES	mg/L

Cont Calibration verification

Sample ID	Parameter	True Value	Result	% Rec.	% Limit	Acceptable	Units
CCV	Arsenic	0.00800	0.00803	100	90 - 110	YES	mg/L
CCV 2	Arsenic	0.00800	0.00803	100	90 - 110	YES	mg/L

Cont Calibration Blank

Sample ID	Parameter	PQL	Result			Acceptable	Units
CCB	Arsenic	0.002	-0.00144			YES	mg/L
CCB 2	Arsenic	0.002	-0.00031			YES	mg/L

Digestion Blank

Sample ID	Parameter	PQL	Result			Acceptable	Units
DB	Arsenic	0.00200	-0.0000845			YES	mg/L

Digestion Spike

Sample ID	Parameter	True Value	Result	% Rec.	% Limit	Acceptable	Units
DS	Arsenic	0.00800	0.0087	109	85 - 115	YES	mg/L

Lab Fortified Blank

Sample ID	Parameter	True Value	Result	% Rec.	% Limit	Acceptable	Units
LFB	Arsenic	0.00800	0.00803	100	80 - 120	YES	mg/L

Duplicate

Sample ID	Parameter		Original Sample Result	Dup Result	RPD %	% Limit	Acceptable
P14-3942-01 DUP 20x	Arsenic		8.22	7.93	3.6	20%	YES

Matrix Spike/Spike Dup

Sample ID	Parameter	True Value	Original Sample Result	Spike Result	Sample + Spike Result	% Rec.	% Limit	RPD %	Acceptable
P14-3942-02 MSD 20x	Arsenic	0.00800	7.97	11.6	19.6	110	75 - 125	0	YES
P14-3942-02 MSD 20x	Arsenic	0.00800	7.97	11.3	19.3	107	75 - 125	1.54	YES

Sample diluted 5 x

Sample ID	Parameter		Original Sample Result	5x Dil	% Rec	% Limit	Acceptable
P14-3942-03 5x 100x	Arsenic		6.9	ND	NC	90 - 110	YES

QUALITY CONTROL DATA

Batch : Pb_S Analyte: Metals by FLAA **Method:** SW 846 7000 B
ICal Date : 10/20/14
Batch Date : 10/20/14 **Report Date :** Oct 23, 2014

Initial calibration verification

Sample ID	Parameter	True Value	Result	% Rec.	% Limit	Acceptable	Units
ICV	Lead	2	2.04	102	90 - 110	YES	mg/L

Initial calibration blank

Sample ID	Parameter	PQL	Result			Acceptable	Units
ICB	Lead	0.25	-0.0459			YES	mg/L

Reporting Limit

Sample ID	Parameter	True Value	Result	% Rec.	% Limit	Acceptable	Units
RL	Lead	0.25	0.236	94.3	70 - 130	YES	mg/L

Cont Calibration verification

Sample ID	Parameter	True Value	Result	% Rec.	% Limit	Acceptable	Units
CCV	Lead	2	2.04	102	90 - 110	YES	mg/L
CCV 2	Lead	2	2.09	105	90 - 110	YES	mg/L

Cont Calibration Blank

Sample ID	Parameter	PQL	Result			Acceptable	Units
CCB	Lead	0.25	-0.0177			YES	mg/L
CCB 2	Lead	0.25	-0.0177			YES	mg/L

Digestion Blank

Sample ID	Parameter	PQL	Result			Acceptable	Units
DB	Lead	0.25	-0.0459			YES	mg/L

Digestion Spike

Sample ID	Parameter	True Value	Result	% Rec.	% Limit	Acceptable	Units
DS	Lead	2	1.87	93.4	80 - 120	YES	mg/L

Duplicate

Sample ID	Parameter		Original Sample Result	Dup Result	RPD %	% Limit	Acceptable
P14-3942-01 DUP	Lead		23	21	9.1	20%	YES

Matrix Spike/Spike Dup

Sample ID	Parameter	True Value	Original Sample Result	Spike Result	Sample + Spike Result	% Rec.	% Limit	RPD %	Acceptable
P14-3942-02 MSD	Lead	2	36.9	112	149	95.7	75 - 125	0	YES
P14-3942-02 MSD 2	Lead	2	36.9	114	151	97.2	75 - 125	1.33	YES

Sample diluted 5 x

Sample ID	Parameter		Original Sample Result	5x Dil	% Rec	% Limit	Acceptable
P14-3942-05 5x 5x	Lead		24.4	ND	NC	90 - 110	YES

Varian SpectrAA 300/400 Zeeman
QC Protocol Report

Precision Analytical Services NJDEP Cert 15001
Toms River, NJ 08755

360,8

OPERATOR	Katalin Le
DATE	10/21/14
BATCH	1

Low M-14-2178
M/W M-14-2189
Low M-14-2260
Spike M-14-2261
Ni(NO3)2 M-14-2266
LFB M-14-2268

QC PROTOCOL PARAMETERS

QC STANDARD POSITION	45
IF THERE IS AN ERROR	RESLOPE AND REPEAT
QC SPIKE POSITION	44
RECOVERY LIMITS (%)	80 TO 120
RECOVERY MINIMUM LIMIT (%)	40
CORRELATION COEFFICIENT (r)	0.995
OVERRANGE VOLUME REDUCTION	2
REPLICATE RSD LIMIT (%)	15.0

PROGRAM 7 As 2ppb Low

INSTRUMENT MODE	ABSORBANCE
CALIBRATION MODE	CONCENTRATION
MEASUREMENT MODE	PEAK AREA
LAMP POSITION	1
LAMP CURRENT (mA)	10
SLIT WIDTH (nm)	0.5
SLIT HEIGHT	NORMAL
WAVELENGTH (nm)	193.7
SAMPLE INTRODUCTION	SAMPLER AUTOMIXING
TIME CONSTANT	0.05
MEASUREMENT TIME (sec)	1.0
REPLICATES	2
BACKGROUND CORRECTION	ON
MAXIMUM ABSORBANCE	0.95

FURNACE PARAMETERS

STEP NO.	TEMPERATURE (C)	TIME (sec)	GAS FLOW (L/min)	GAS TYPE	READ COMMAND
1	85	5.0	3.0	NORMAL	NO
2	95	40.0	3.0	NORMAL	NO
3	120	15.0	3.0	NORMAL	NO
4	1500	10.0	3.0	NORMAL	NO
5	1500	2.0	3.0	NORMAL	NO
6	1500	2.0	0.0	NORMAL	NO
7	2700	0.6	0.0	NORMAL	YES
8	2700	2.0	0.0	NORMAL	YES
9	2700	1.0	3.0	NORMAL	NO

SAMPLER PARAMETERS

VOLUMES (fL)

	SOLUTION	BLANK	MODIFIER
BLANK	---	24	5
STANDARD 1	3	21	5
STANDARD 2	6	18	5
STANDARD 3	12	12	5
STANDARD 4	24	0	5
SAMPLE	24	0	5

RECALIBRATION RATE	0		
RESLOPE RATE	0		
MULTIPLE INJECT NO	HOT INJECT	YES	PRE INJECT NO
	TEMPERATURE	95	
	INJECT RATE	3	

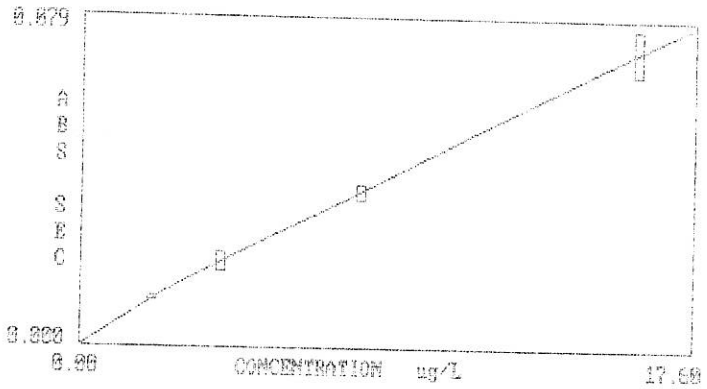
QC PROTOCOL PARAMETERS

QC STANDARD RATE	10
QC STANDARD VOLUME (fL)	24
QC STANDARD CONCENTRATION	8.00 ug/l
QC STANDARD LIMITS (%)	85 TO 115
QC SPIKE RATE	0
QC SPIKE VOLUME (fL)	5
QC SPIKE CONCENTRATION	1.00 ug/l
MATRIX SPIKE CONCENTRATION	8.00 ug/L
REQUIRED DETECTION LIMIT	1.00 ug/L

CONDITIONS FOR As :
Alternative Wavelengths (nm) : 197.2
Spectral Bandwidths (nm) : 1.0
Maximum Ash Temperature : 1500xC
Recommended Atomize Temperature : 2600xC
Recommended Chemical Modifiers :
Palladium Chloride (10fL of 500fg/mL), or Palladium solution (500-2000fg/mL) plus reducing agent such as ascorbic acid, or Nickel Nitrate solution (50fg/mL).
Response with Argon : 10fL of 50ng/mL gives about 0.2 Abs. (using Pd modifier)
Modifiers allow higher ash temperatures and enhance signals. Without modifier, maximum ash temperature for AS is 300xC and atomize temperature is 2300xC.
Use of a multi-element lamp may require a different slit width, lamp current and wavelength to isolate the analytical line.

SAMPLE	CONC ug/L	%RSD	MEAN ABS	READINGS	
~~BLANK~~ QC	0.00		~~0.002~~	0.004	0.004
				21Oct14	13:14
BLANK QC	0.00		-0.000	-0.002	0.001
				21Oct14	13:21
STANDARD 1 QC	2.00	0.0	0.011	0.011	0.011
				21Oct14	13:26

SAMPLE	CONC ug/L	%RSD	MEAN ABS	READINGS	
STANDARD 2 QC	4.00	7.8	0.020	0.022 210ct14	0.019 13:30
STANDARD 3 QC	8.00	3.8	0.037	0.036 210ct14	0.038 13:35
~~STANDARD 4~~ QC	16.00	21.2	~~0.064~~	0.054 210ct14	0.073 13:39
				%RSD GREATER THAN LIMIT	
STANDARD 4 QC	16.00	7.1	0.072	0.075 210ct14	0.068 13:44



QCSTANDARD QC	8.14	11.9	0.038	0.041 210ct14 %R =	0.035 13:48 101.8
QCBLANK QC	0.06	99.9	0.000	-0.001 210ct14 ABS =	0.002 13:52 0.002
LOW @ 2 QC	2.21	2.1	0.012	0.012 210ct14	0.012 13:57
DB 10/17soil QC	0.21	0.0	0.001	0.001 210ct14	0.001 14:01

RPD = 165.5

SAMPLE	CONC ug/L	%RSD	MEAN ABS	READINGS	
DS 10/17SOIL QC	8.59	3.2	0.040	0.041 210ct14 %R =	0.039 14:05 104.6
LFR @ 8 QC	7.83	1.3	0.037	0.037 210ct14	0.036 14:09
20X-3942-01 QC	6.29	0.7	0.030	0.030 210ct14	0.030 14:13
20X-3942-01D QC	6.00	6.9	0.029	0.030 210ct14	0.028 14:18
20X-3942-02 QC	5.68	0.3	0.028	0.028 210ct14	0.028 14:22
20X394202 MS QC	14.99	3.6	0.067	0.066 210ct14	0.069 14:26
20X394202 MS QC	14.61	1.4	0.066	0.065 210ct14	0.066 14:30
20X-3942-03 QC	5.22	1.6	0.026	0.026 210ct14	0.025 14:34
~~BLANK~~ QC	0.00		~~0.002~~	0.002 210ct14	0.002 14:43
QCSTANDARD QC	7.91	2.2	0.037	0.036 210ct14 %R =	0.038 14:47 98.9
QCBLANK QC	-0.96	28.9	-0.005	-0.006 210ct14 ABS =	-0.004 14:51 -0.003
100X-3942-03 QC	0.23	85.8	0.001	0.001 210ct14	0.002 14:55
20X-3942-04 QC	4.17	6.0	0.021	0.022 210ct14	0.020 14:59
20X-3942-05 QC	6.06	2.0	0.029	0.029 210ct14	0.030 15:04
20X-3942-06 QC	7.41	1.1	0.035	0.035 210ct14	0.035 15:08
P14-3983-01 QC	-0.59	13.4	-0.003	-0.004 210ct14	-0.003 15:12
P14-3983-01D QC	-0.63	20.8	-0.004	-0.003 210ct14	-0.004 15:16
P14-3992-01 QC	-0.61	42.0	-0.003	-0.004 210ct14	-0.002 15:20

SAMPLE	CONC ug/L	%RSD	MEAN ABS	READINGS	
~~P14399201~~ MS QC	2.98	99.9	~~0.016~~	-0.003 210ct14	0.035 15:25
				%RSD GREATER THAN LIMIT	
P14399201 MS QC	7.70	5.6	0.036	0.038 210ct14	0.035 15:29
P14399201 MS QC	7.25	1.9	0.034	0.034 210ct14	0.035 15:33
DB 10/21 DW QC	-0.95	10.5	-0.005	-0.005 210ct14	-0.006 15:37
~~QCSTANDARD~~ QC	~~6.51~~	~~1.2~~	~~0.031~~	0.031 210ct14 %R =	0.031 15:41 81.3
BLANK QC	0.00		0.000	-0.002 210ct14	0.001 15:48
~~RESAMPLE 3~~ QC	~~8.00~~	~~1.5~~	~~0.039~~	0.040 210ct14	0.039 15:53
QCSTANDARD QC	7.44	6.4	0.037	0.039 210ct14 %R =	0.035 15:57 93.0
QCBLANK QC	-0.09	11.1	-0.001	-0.001 210ct14 ABS =	-0.001 16:02 0.002
P14-3987-01 QC	0.38	27.6	0.002	0.003 210ct14	0.002 16:06
P14-3879-01 QC	3.43	0.7	0.019	0.019 210ct14	0.019 16:10
P14-3879-01D QC	4.09	2.0	0.022	0.022 210ct14	0.022 16:14
~~BLANK~~ QC	0.00		~~-0.009~~	-0.009 210ct14	-0.009 16:26
~~QCSTANDARD~~ QC	~~4.45~~	~~99.9~~	~~0.026~~	0.043 210ct14 %RSD GREATER THAN LIMIT	0.004 16:30
QCSTANDARD QC	7.42	3.3	0.037	0.038 210ct14 %R =	0.036 16:34 92.7
QCBLANK QC	0.40	0.0	0.002	0.002 210ct14 ABS =	0.002 16:38 0.001
D.S. 10/21DW QC	7.70	8.8	0.038	0.036 210ct14	0.040 16:42

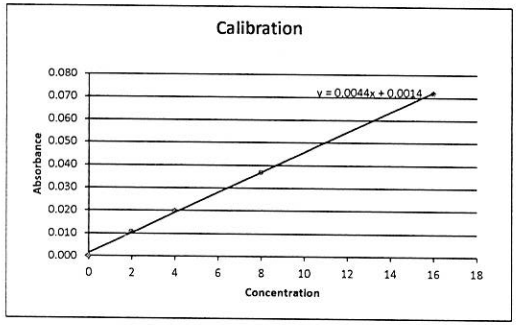
0.00197

0.00465

SAMPLE	CONC ug/L	%RSD	MEAN ABS	READINGS	
P14-3998-01 QC	0.69	25.5	0.004	0.003 210ct14 RPD =	0.005 16:47 167.2
P14-3998-02 QC	0.65	6.7	0.004	0.004 210ct14 %R =	0.004 16:51 -0.4
QCSTANDARD QC	7.45	6.3	0.037	0.035 210ct14 %R =	0.039 16:56 93.1
QCBLANK QC	0.35	33.7	0.002	0.003 210ct14 ABS =	0.002 17:00 0.001

Results by Linear Regression

Calibration Date: 10/21/14 **Parameter:** Arsenic **Analyst:** KL
Batch ID: 10/21/14 As_S **Method #:** SW 846 7010



CALIBRATION

Level	Conc. (ug/L)	Abs.
1	0	0.000
2	2	0.011
3	4	0.020
4	8	0.037
5	16	0.072

R2	0.99892993
Corr.	0.999464822
Slope	0.0044375
Y Inter.	0.001375

RESULTS

Sample ID	Mean Absorb.	Conc.(ug/L)	TV	% Rec.	% RPD	Dilution	Moist.	Weight	Conc.(mg/kg)	PQL (mg/kg)	Time
ICV	0.038	8.25	8.00	103		1					0:00
ICB	0.000	-0.31				1					0:00
RL	0.012	2.39	2.00	120		1					0:00
DB	0.001	-0.0845				1					0:00
DS	0.040	8.7	8.00	109		1					0:00
LFB	0.037	8.03	8.00	100		1					0:00
P14-3942-01 20x	0.030	129				20	11.8	0.89	8.22	2.55	14:13
P14-3942-01 DUP 20x	0.029	125			3.59	20	11.8	0.89	7.93	2.55	0:00
P14-3942-02 20x	0.028	120				20	9.3	0.83	7.97	2.66	14:22
P14-3942-02 MSD 20x	0.067	296	8.00	110		20	9.3	0.83	19.6	2.66	0:00
P14-3942-02 MSD 20x 2	0.066	291	8.00	107	1.54	20	9.3	0.83	19.3	2.66	0:00
P14-3942-03 20x	0.026	111				20	7.6	0.87	6.9	2.49	14:34
CCV	0.037	8.03	8.00	100		1					0:00
CCB	-0.005	-1.44				1					0:00
P14-3942-03 5x 100x	0.001	-8.45		NC		100	7.6	0.87	-0.526	12.4	0:00
P14-3942-04 20x	0.021	88.5				20	6.3	0.91	5.19	2.35	14:59
P14-3942-05 20x	0.029	125				20	15.1	0.77	9.52	3.06	15:04
P14-3942-06 20x	0.035	152				20	13.7	0.67	13.1	3.46	15:08
CCV 2	0.037	8.03	8.00	100		1					0:00
CCB 2	0.000	-0.31				1					0:00

Varian SpectrAA 10/20 System Report

393.6 15

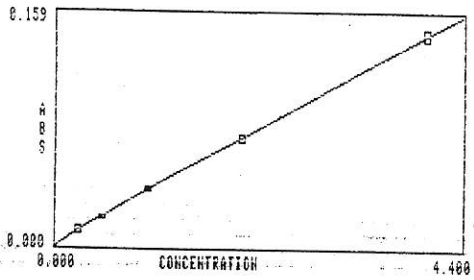
1600

OPERATOR 3
DATE 10.20.14
BATCH NO. 1

PROGRAM 27 Pb

INSTRUMENT MODE	ABSORBANCE
CALIBRATION MODE	CONCENTRATION
MEASUREMENT MODE	INTEGRATION
LAMP POSITION	4
LAMP CURRENT (mA)	5
SLIT WIDTH (nm)	1.0
WAVELENGTH (nm)	217.0
FLAME	AIR-ACETYLENE
SAMPLE INTRODUCTION	MANUAL
DELAY TIME	0
TIME CONSTANT	0.05
MEASUREMENT TIME (sec)	1.0
REPLICATES	3
BACKGROUND CORRECTION	ON

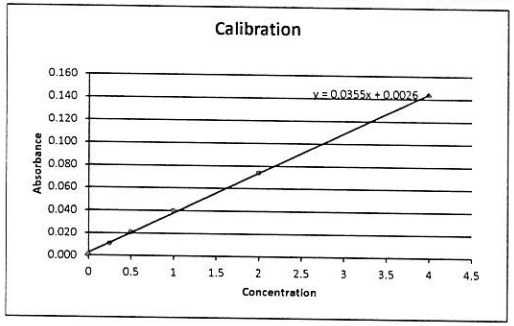
SAMPLE	CONC	%RSD	MEAN ABS	READINGS		
BLANK	0.000		0.001	0.001	0.001	0.001
STANDARD 1	0.250	6.5	0.011	0.012	0.011	0.012
STANDARD 2	0.500	1.2	0.021	0.021	0.021	0.020
STANDARD 3	1.000	1.3	0.040	0.039	0.039	0.040
STANDARD 4	2.000	1.8	0.074	0.074	0.073	0.075
STANDARD 5	4.000	1.9	0.144	0.146	0.141	0.146



SAMPLE	CONC	%RSD	MEAN ABS	READINGS		
0	0.018	84.8	0.001	0.001	0.000	0.001
2.00	2.020	0.9	0.075	0.076	0.075	0.074
0.250	0.240	8.7	0.011	0.012	0.010	0.011
000 10.17	0.018	99.9	0.001	0.001	0.002	-0.000
2.00 10.17	1.850	1.0	0.069	0.070	0.069	0.069
3942.01	0.302	10.0	0.014	0.015	0.014	0.012
3942.01.	0.299	6.9	0.013	0.014	0.014	0.012
3942.02	0.604	1.7	0.025	0.025	0.025	0.024
3942.02.2	2.530	1.5	0.093	0.093	0.092	0.094
3942.02.2.	2.562	1.0	0.094	0.095	0.094	0.094
3942.03	0.141	21.7	0.006	0.005	0.007	0.008
0	0.046	14.8	0.002	0.002	0.002	0.002
2.00	2.022	1.5	0.075	0.076	0.075	0.074
3942.04	0.206	7.2	0.009	0.009	0.009	0.010
3942.05	0.361	2.2	0.016	0.015	0.016	0.016
3942.05 1:1	0.090	35.6	0.004	0.006	0.004	0.003
3942.06	0.067	27.6	0.003	0.002	0.004	0.004
~~0~~	0.043	77.2	~~0.002~~	0.004	0.001	0.001
0	0.035	83.0	0.002	0.000	0.003	0.001
2.00	2.081	3.0	0.077	0.080	0.075	0.076

Results by Linear Regression

Calibration Date: 10/20/14 **Parameter:** Lead **Analyst:** KL
Batch ID: 10/20/14 Pb_S **Method #:** SW 846 7000 B



CALIBRATION

Level	Conc. (ug/L)	Abs.
1	0	0.001
2	0.25	0.011
3	0.5	0.021
4	1	0.040
5	2	0.074
6	4	0.144

R2	0.999486484
Corr.	0.999743209
Slope	0.035513364
Y Inter.	0.00262857

RESULTS

Sample ID	Mean Absorb.	Conc.(mg/L)	TV	% Rec.	% RPD	Dilution	Moist.	Weight	Conc.(mg/kg)	PQL (mg/kg)	Time
ICB	0.001	-0.0459				1					16:00
ICV	0.075	2.04	2.00	102		1					16:01
RL	0.011	0.236	0.25	94.3		1					16:02
DB	0.001	-0.0459				1					16:03
DS	0.069	1.87	2.00	93.4		1					16:04
P14-3942-01	0.014	0.32				1	11.8	0.79	23	17.9	16:05
P14-3942-01 DUP	0.013	0.292			9.09	1	11.8	0.79	21	17.9	16:06
P14-3942-02	0.025	0.63				1	9.3	0.94	36.9	14.7	16:07
P14-3942-02 MSD	0.093	2.54	2.00	95.7		1	9.3	0.94	149	14.7	16:08
P14-3942-02 MSD 2	0.094	2.57	2.00	97.2	1.33	1	9.3	0.94	151	14.7	16:09
P14-3942-03	0.006	0.0949				1	7.6	0.75	6.85	18	16:10
CCB	0.002	-0.0177				1					16:11
CCV	0.075	2.04	2.00	102		1					16:12
P14-3942-04	0.009	0.179				1	6.3	0.77	12.4	17.3	16:13
P14-3942-05	0.016	0.377				1	15.1	0.91	24.4	16.2	16:14
P14-3942-05 5x 5x	0.004	0.193		NC		5	15.1	0.91	12.5	80.9	16:15
P14-3942-06	0.003	0.0105				1	13.7	0.66	0.922	21.9	16:16
CCB 2	0.002	-0.0177				1					16:17
CCV 2	0.077	2.09	2.00	105		1					16:18

Work continued from Page

10/17/14 Soil Digestion Kathleen ~ Flame Pb
Samples on @ 1100 @ 95°C Furnace AS
Samples off @ 1400 @ 95°C

SW846-3050B Soil Digestion

Soil samples were initially acidified with 5mLs of 1:1 HNO3 (M-14-1949) and refluxed for 10-15min. Then 2.5 mL of concentrated HNO3 (F4164) was added, and samples were refluxed for 30 minutes. If sample still had undigested sediment or dark color, additional HNO3 was added, and samples were refluxed for an additional 30 minutes. If sample had color, silica or precipitate, it was cooled, then 1.5 mL of hydrogen peroxide (L1-02) was added. Samples were then returned to heat. Several more 0.50 mL additions of hydrogen peroxide followed, until effervescence subsided. (Up to a maximum of 5 mL). **IF THE SAMPLE WAS TESTED BY FLAME OR ICP:** 5mLs of HCl (F4099), and 5mL of DI water was added, and samples were refluxed for 15 min. Turbid samples, blanks, blank spikes were filtered, and brought to 50ml Vf in a Digi Tube.

AS — Spiked w/ M-14-2051

Sample	Weight	Vi	Vf
DB	0	50mL	50mL
DS	0	50mL	↓
P14-3942-01	0.89	0	↓
P14-3942-01 Dup	0.81	↓	↓
P14-3942-02	0.83	↓	↓
P14-3942-02 MS	0.78	↓	↓
P14-3942-02 MSD	0.78	↓	↓
P14-3942-03	0.87	↓	↓
P14-3942-04	0.91	↓	↓
P14-3942-05	0.77	↓	↓
P14-3942-06	0.62	↓	↓

Pb — Spiked w/ M-14-0747

Sample	Weight	Vi	Vf
DB	0	50mL	50mL
DS	0	50mL	↓
P14-3942-01	0.79	0	↓
P14-3942-01 Dup	0.79	↓	↓
P14-3942-02	0.94	↓	↓
P14-3942-02 MS	0.94	↓	↓
P14-3942-02 MSD	0.94	↓	↓
P14-3942-03	0.75	↓	↓
P14-3942-04	0.77	↓	↓
P14-3942-05	0.91	↓	↓
P14-3942-06	0.66	↓	↓

Flame (Ca, Cu, Fe, Mn, Ni)

Sample	Weight	Vi	Vf
DS	0	50mL	50mL
DS	0	50mL	↓
P14-3961-01	0.50	0	↓
P14-3961-01 Dup	0.50	↓	↓
P14-3961-01 MS	0.50	↓	↓
P14-3961-01 MSD	0.50	↓	↓

Spiked w/ M-14-1468

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SIGNATURE

Work continued to Page

DATE