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Consultants in Engineering and Environmental Sciences
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MEMORANDUM

Date: **March 7, 2000**
To: **Paul Agid/Port of Seattle**
From: **Mike Warfel**
Subject: **Results of Soils Testing for Pesticides and Herbicides, Vacca Farm Site**
cc: **Paul Fendt, Kurt Easthouse, Linda Logan, Doug Henderson**

Project Number: **556-2912-001(66)**
Project Name: **Port of Seattle, 3rd Runway Project**

Background and Purpose

Information regarding the presence of pesticides and herbicides in soil at the Vacca Farm site has been identified as a data gap for the project. The site has been farmed for a number of years and has likely been treated with pesticides and herbicides, although information about the types and quantities of chemicals applied is not available. Of specific interest is the potential for soils containing pesticides and herbicides to cause leaching of these chemicals into surface water in the Miller Creek relocation area. The purpose of this sampling program was to test for the presence of pesticides and herbicides in areas of the site where these chemicals could potentially impact surface water quality.

Sampling Locations, Methods, and Procedures

Thirteen soil samples were collected from six locations at the site by Parametrix staff on November 9, 1999, as shown on Figure 1. Sampling procedures were followed as specified in the November 3, 1999, Soil Sampling and Analysis Plan (Appendix A). The samples were submitted to Sound Analytical Services, Inc., in Tacoma, Washington, for analysis of the following parameters:

- Organochlorine pesticides by EPA Method 8181 (20 compounds)
- Organophosphorous pesticides by EPA Method 8140 (27 compounds)
- Herbicides by EPA Method 8150 (12 compounds)

Sampling Results

Detected chemicals indicated by the results from the laboratory are summarized in Table 1. These results are characterized as follows:

- The organochlorine pesticides showed detections of 11 of the 20 compounds in this analytical group. Only 1 of 27 organophosphorous pesticides was detected, and none of the 12 herbicides was detected.

- Of the 11 organochlorine pesticides detected, only one (Dieldrin) showed results that exceeded Model Toxics Control Act (MTCA) Method B cleanup levels, which are based on human-health risk and are applied to residential land-use scenarios. The 0-0.5 ft samples at stations FP-1 and FP-2 showed Dieldrin concentrations of 86 and 85 µg/kg, respectively, which slightly exceeded the Method B cleanup level of 62.5 µg/kg.

- Concentrations of the detected pesticides generally decrease with depth between the shallow (0-0.5 ft) and deeper (1-1.5 ft) samples.

- Results from the field duplicate sample (MC-4) agreed with the results from the original sample (MC-1), confirming the reproducibility of the laboratory data.

- No detections occurred in the rinsate blank for any of the 59 compounds tested, indicating that the equipment decontamination methods were acceptable and did not introduce contamination into the samples.

Copies of the sample laboratory reports and chain-of-custody form are included as Appendix B.

Conclusions

- Detection of only 12 of the 59 compounds tested indicates that a focused set of chemicals (mainly organochlorine pesticides) was applied on the property during its agricultural use.

- The two soil samples that slightly exceeded the MTCA Method B cleanup level for Dieldrin were the shallow (0-0.5 ft) soil samples at the FP-1 and FP-2 stations in the proposed floodplain area. Dieldrin at both of these stations decreased to concentrations below the Method B cleanup level in each deeper sample. Approximately 1 to 3 ft of this area will be excavated to create the future floodplain; therefore, soil remaining after final excavation and grading would not be expected to have Dieldrin concentrations that exceed MTCA Method B cleanup levels, and therefore would not be expected to present unacceptable risks to human health.

- Soil samples from the three locations within the corridor proposed for the relocation of Miller Creek (MC-1, MC-2, and MC-3) did not exceed any MTCA Method B cleanup levels for the pesticides and herbicides tested, and therefore would not be expected to present unacceptable risks to human health.

- MTCA human health standards are appropriate evaluation criteria. Standards to measure potential impacts to aquatic life in the relocated Miller Creek channel are not available. Washington State does not currently have regulatory standards for

chemicals in freshwater sediments. Concentration values in current Ecology guidance documents are not intended to be used for regulatory compliance (Gries 2000).

- In addition, existing soils in the proposed Miller Creek relocation area will not be in direct contact with the waters of the relocated creek (i.e., these soils will not become creek sediments). The area excavated to construct the stream channel will be lined with a geotextile, followed by a layer of spawning gravel (Parametrix 1999). These construction features will prevent adjacent natural soils from washing into the relocated creek.

Recommendations

- The upper 6 inches of soil to be excavated from the entire proposed floodplain area (approximately 4,400 cubic yards) should be characterized for offsite disposal and transported to an appropriate disposal facility, in accordance with the soil and fill management procedures established by the Port of Seattle. This action is a practical means of separating the potentially impacted shallow soil (Dieldrin concentrations slightly above the MTCA Method B cleanup level) from deeper, non-impacted soils. The non-impacted soils excavated below a depth of 6 inches will be suitable (from a chemical perspective) for use as fill in other areas of the project.

References

Gries, Tom. 1999. Personal Communication. Washington State Department of Ecology, Lacey, Washington. February 3, 2000.

Parametrix, Inc. 1999. Revised Draft, Natural Resource Mitigation Plan, Master Plan Update Improvements, Seattle-Tacoma Airport. Prepared for the Port of Seattle. August 1999.

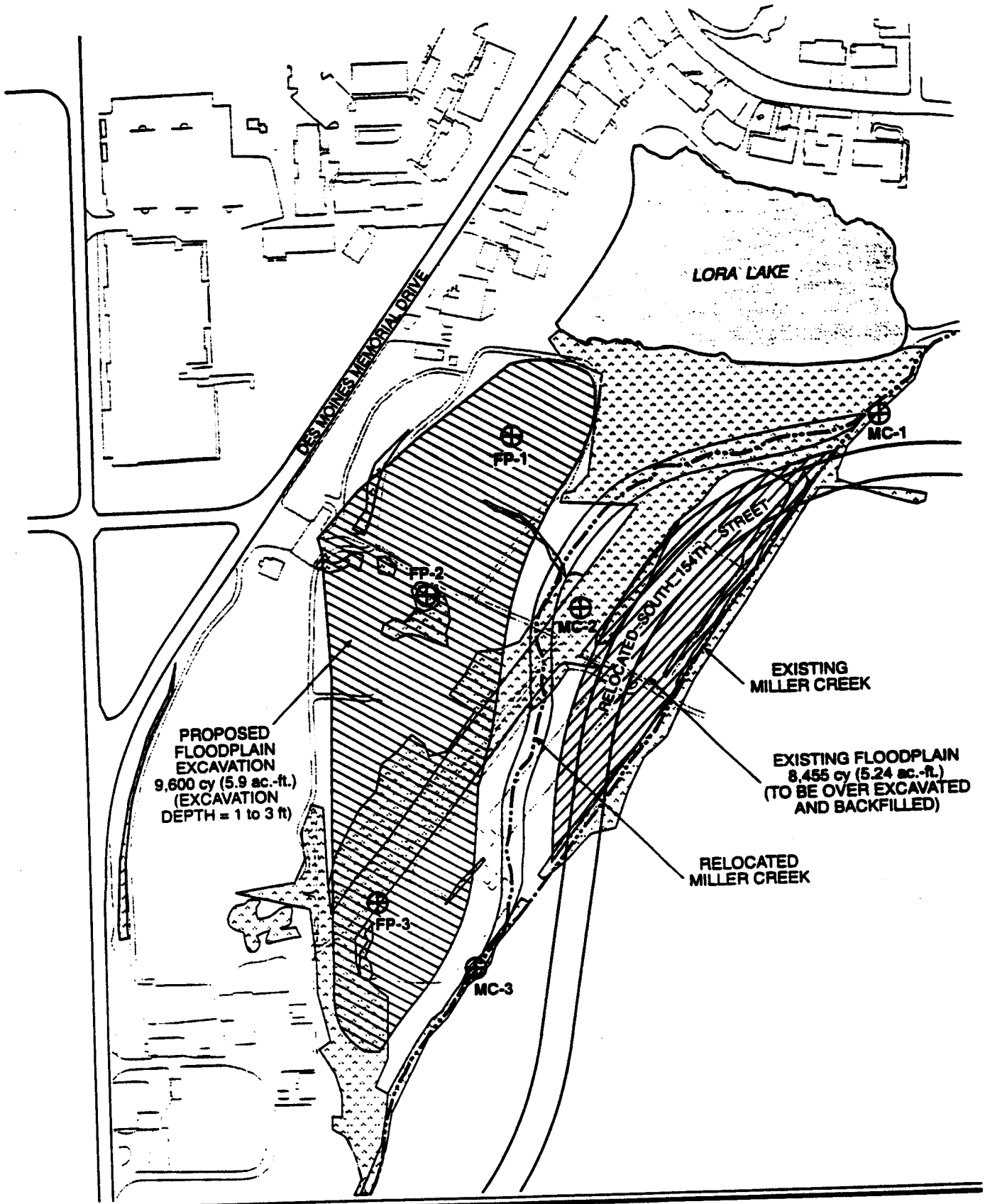
Attachments

Figure 1. Soil Sample Locations, November 1999, Vacca Farm Site

Table 1. Compounds Detected in Soil Samples Collected November 9, 1999, Vacca Farm Site

Appendix A. Soil Sampling and Analysis Plan

Appendix B. Laboratory Reports and Chain-of-Custody Form



Parametrix, Inc. Port of Seattle/556-2912-001(68) 11/99 (K)

SCALE IN FEET

0 100 200

N

⊕ Approximate Soil Sample Location

Existing Wetlands

Figure 1
Soil Sample Locations
November 1999
Vacca Farm Site

Table 1. Compounds Detected in Soil Samples Collected November 9, 1999
Vacca Farm Site, Port of Seattle

	MTCA Soil Method B Soil Cleanup Level[1] µg/kg	FP-1 0-0.5 ft µg/kg	FP-1 1-1.5 ft µg/kg	FP-2 0-0.5 ft µg/kg	FP-2 1-1.5 ft µg/kg	FP-3 0-0.5 ft µg/kg	FP-3 1-1.5 ft µg/kg	MC-1 0-0.5 ft µg/kg	MC-1 1-1.5 ft µg/kg	MC-2 0-0.5 ft µg/kg	MC-2 1-1.5 ft µg/kg	MC-3 0-0.5 ft µg/kg	MC-3 1-1.5 ft µg/kg	MC-4[2] 0-0.5 ft µg/kg	Rinsate Blank µg/L
Organochlorine Pesticides (USEPA Method 8081A)															
beta-BHC	---	< 1.8	< 2.4	4.7	< 5.8	< 1.7	< 1.9	< 1.3	< 1.4	< 1.5	< 1.7	< 0.99	< 1.1	< 1.3	< 0.0094
gamma-BHC (Lindane)	769	< 1.8	< 2.4	2.8	< 5.8	< 1.7	< 1.9	< 1.3	< 1.4	< 1.5	< 1.7	< 0.99	< 1.1	< 1.3	< 0.0094
4,4'-DDD	4,170	28	23	82	< 12	170	160	21	24	96	13	< 2	< 2.2	22	< 0.019
4,4'-DDE	2,940	97	80	83	< 12	110	130	39	38	94	13	< 2	< 2.2	43	< 0.019
4,4'-DDT	2,940	320	250	220	< 12	380	520	29	24	46	8.3	< 2	< 2.2	34	< 0.019
Dieldrin	62.5	86	52	85	< 12	29	36	9.2	11	16	5.1	< 2	< 2.2	9.4	< 0.019
Endosulfan II	480,000	< 3.6	< 2.4	12	< 12	< 3.4	< 3.8	< 2.6	< 2.9	< 3	< 3.5	< 2	< 2.2	< 2.7	< 0.019
Endrin aldehyde	---	6.3	< 4.8	35	< 12	4.1	5.5	< 2.6	< 2.9	< 3	< 3.5	< 2	< 2.2	< 2.7	< 0.019
Heptachlor	222	2.1	< 2.4	< 2.4	< 5.8	< 1.7	< 1.9	< 1.3	< 1.4	< 1.5	< 1.7	< 0.99	< 1.1	< 1.3	< 0.0094
Heptachlor epoxide	110	54	36	< 2.4	< 5.8	8.6	10	< 1.3	< 1.4	7.1	< 1.7	< 0.99	< 1.1	< 1.3	< 0.0094
Methoxychlor	400,000	< 18	< 24	74	< 58	< 17	< 19	< 13	< 14	< 15	< 17	< 9.9	< 11	< 13	< 0.0094
Organophosphorous Pesticides (USEPA Method 8141)															
Chlorpyrifos	240,000	< 12	< 17	< 18	< 43	< 12	< 14	14J	< 10	< 10	< 12	< 7.2	< 7.7	< 9.6	< 0.17
Chlorinated Herbicides (USEPA Method 8151)	No Compounds Detected														

NOTES

[1]Formula value from Washington State Department of Ecology Cleanup Levels and Risk Calculations, February 1996

[2]MC-4 is a field duplicate of MC-1, 0-0.5 ft

Exceeds MTCA Method B Cleanup Level

MTCA = Model Toxics Control Act (Chapter 173-340 Washington Administrative Code)

J = The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

Samples were analyzed by Sound Analytical Services, Inc., Tacoma, Washington

APPENDIX A

SOIL SAMPLING AND ANALYSIS PLAN

SOIL SAMPLING AND ANALYSIS PLAN
MILLER CREEK RELOCATION AREA
VACCA FARM MITIGATION SITE

1. BACKGROUND AND PURPOSE

Information regarding the presence of pesticides and herbicides in soil on the Vacca Farm site has been identified as a data gap for the project. The site has been farmed for a number of years and has likely been treated with pesticides and herbicides, although information about the types and quantities of chemicals applied is not available. Of specific interest is the potential for soils containing pesticides and herbicides to cause leaching of these chemicals into surface water in the Miller Creek relocation area. The purpose of this Sampling and Analysis Plan (SAP) is to test for the presence of pesticides and herbicides in areas of the mitigation site where these chemicals could potentially impact surface water quality.

2. SAMPLE LOCATIONS AND DEPTHS

2.1 *Sample Locations*

The Miller Creek relocation area at the Vacca Farm site consists of three areas, as shown on the attached figure:

- The area immediately west of the existing Miller Creek channel, which will be overexcavated and backfilled to allow construction of relocated South 154th Street and a sewer line.

- The Miller Creek relocation planting zone, located west of the street and sewer relocation area. This zone will be subject to minor excavation to create the new channel for Miller Creek. The channel will be lined with a geotextile covered with spawning gravel to create the stream bed; however, contact of the stream channel with original soils from the farmed land could occur along the margins of the Creek.

- The future floodplain planting zone west of the relocated Miller Creek. Approximately 1 to 4 feet of this area will be excavated to create the floodplain. Contact of Creek floodwaters with original soils from the farmed land could occur in this area.

Soil samples will be collected from the second and third areas described above, where potential leaching of pesticides and herbicides to surface water could occur, if these chemicals are present in original agricultural soils. Samples will be collected at six locations, three in each of the two areas of interest, as shown on the attached figure.

2.2 *Sample Depths*

Two composite samples will be collected from each location, at the following depth intervals: ground surface to 6 inches; and 1 to 1.5 feet.

3. Sampling Procedures

3.1 *Sample Collection*

- Use a clean stainless steel trowel or large spoon to excavate soil from 0 to 0.5 feet, place the soil into a stainless steel bowl, and gently homogenize the soil.
- Use the trowel or spoon to collect a sample of the soil from the bowl and place the soil into a clean 8-oz glass jar with a Teflon-lined lid.
- Decontaminate the trowel or spoon and the bowl, in accordance with the decontamination procedures specified below in Section 4.
- In the same hole created by the 0 to 0.5-foot sample, use a clean hand stainless steel hand auger to reach a depth of 1 foot. Use the auger to excavate soil between 1 to 1.5 feet, place the soil into a clean stainless steel bowl, and use a clean stainless steel spoon to gently homogenize the soil.
- Decontaminate the hand auger, spoon, and bowl in accordance with the decontamination procedures specified below in Section 4.
- Describe the lithology of the soil sample, using the USCS classification system
- Survey the locations of the soil samples, such that the locations can be plotted on a site map.

3.2 *Sample Handling and Preservation*

- Label each sample jar with the sample station number, depth interval, date, time, and project number.
- Complete the sample chain-of-custody form, including the sample station number, depth interval, date, time, project number, and chemicals to be analyzed (see Section 5).
- Place the closed sample jar in a sealed plastic bag, then in a cooler with ice for same-day delivery to the analytical laboratory.

- Transfer custody of the sample to the laboratory and document the transfer on the chain-of-custody form.

3.3 *Field Quality Control Samples*

Collect the following field QC samples:

- Field duplicate
- Rinsate blank

4. EQUIPMENT DECONTAMINATION

- Scrub with non-phosphate detergent
- Rinse with deionized water
- Rinse with 0.1N nitric acid
- Rinse with 10% solvent solution
- Rinse with deionized water

5. SAMPLE ANALYSIS

In the absence of site-specific information regarding pesticides that may have applied during agricultural use of the Vacca Farms site, the soil samples and rinsate blank will be tested for common pesticides and herbicides as follows:

- Organochlorine pesticides by EPA Method 8081
- Organophosphate pesticides by EPA Method 8140
- Herbicides by EPA Method 8150.

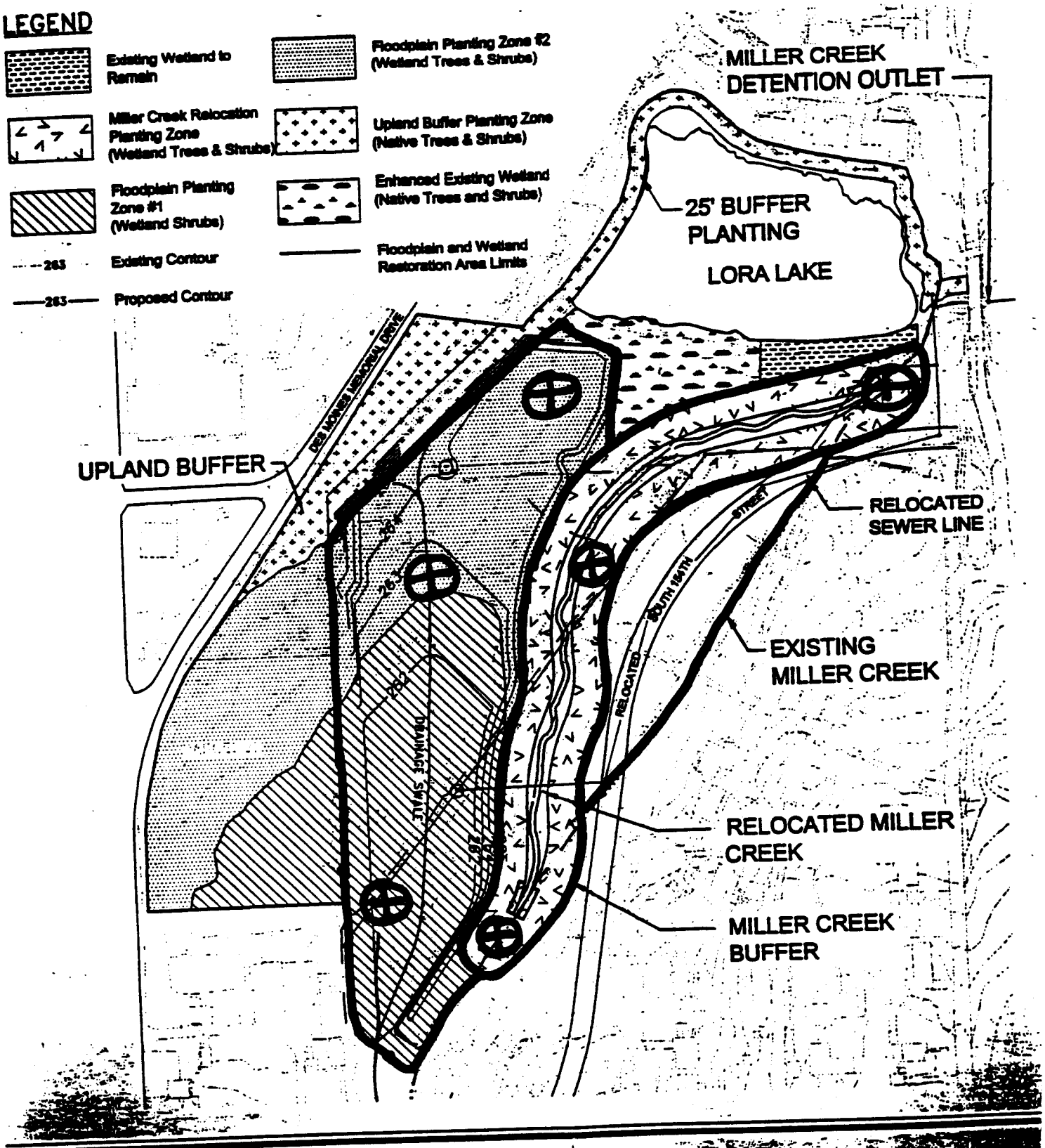
6. DATA EVALUATION

- Evaluate field duplicate results to assess laboratory performance.

- Tabulate the data, along with applicable Method B Cleanup Levels specified by the Model Toxics Control Act, CLARC II Database, February 1996.

- Assess the potential for impacts of pesticides and herbicides on surface water of the Miller Creek Relocation Area, based on the concentrations of pesticides and herbicides detected in the soil samples.

PLANTING PLAN



Proposed Soil Sample

Figure 5.1-4
Grading and Planting Plan

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APPENDIX B

LABORATORY REPORTS AND CHAIN-OF-CUSTODY FORMS

Sound Analytical Services, Inc.
ANALYTICAL & ENVIRONMENTAL CHEMISTS
4813 Pacific Hwy East • Tacoma, WA 98424
(253) 922-2310 • FAX (253) 922-5047
e-mail: sainc1@uswest.net

TRANSMITTAL MEMORANDUM

DATE: November 12, 1999

TO: Kurt Easthouse
Parametrix, Inc.
5808 Lake Washington Blvd. N.E. Suite 200
Kirkland, WA 98033

PROJECT: Port of Seattle Vaccafarm

REPORT NUMBER: 85427

Enclosed are the test results for fourteen samples received at Sound Analytical Services on November 9, 1999.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

Tom Watson
Project Manager

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-FP-1, 0-.5
Lab ID:	85427-01
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/11/99
% Solids	53.26
Dilution Factor	1

Organochlorine Pesticides by USEPA Method 8081A

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
TCMX	82.7		43	149
Decachlorobiphenyl	51.1		40	161

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	Flags
Aldrin	ND	1.8	
alpha-BHC	ND	1.8	
beta-BHC	ND	1.8	
delta-BHC	ND	1.8	
gamma-BHC (Lindane)	ND	1.8	
Chlordane (technical)	ND	18	
4,4'-DDD	28	3.6	C1
4,4'-DDE	97	3.6	C1
4,4'-DDT	320	3.6	D C1
Dieldrin	86	3.6	C1
Endosulfan I	ND	1.8	
Endosulfan II	ND	3.6	
Endosulfan sulfate	ND	3.6	
Endrin	ND	3.6	
Endrin aldehyde	6.3	3.6	C1
Heptachlor	2.1	1.8	C1
Heptachlor epoxide	54	1.8	C1
Methoxychlor	ND	18	
Endrin ketone	ND	3.6	
Toxaphene	ND	180	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-FP-1, 1-1.5
Lab ID:	85427-02
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/11/99
% Solids	38.63
Dilution Factor	1

Organochlorine Pesticides by USEPA Method 8081A

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
TCMX	71.4		43	149
Decachlorobiphenyl	49.8		40	161

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	Flags
Aldrin	ND	2.4	
alpha-BHC	ND	2.4	
beta-BHC	ND	2.4	
delta-BHC	ND	2.4	
gamma-BHC (Lindane)	ND	2.4	
Chlordane (technical)	ND	24	
4,4'-DDD	23	4.8	C1
4,4'-DDE	80	4.8	C1
4,4'-DDT	250	4.8	C1
Dieldrin	52	4.8	C1
Endosulfan I	ND	2.4	
Endosulfan II	ND	4.8	
Endosulfan sulfate	ND	4.8	
Endrin	ND	4.8	
Endrin aldehyde	ND	4.8	
Heptachlor	ND	2.4	
Heptachlor epoxide	36	2.4	C1
Methoxychlor	ND	24	
Endrin ketone	ND	4.8	
Toxaphene	ND	240	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-FP-2, 0-.5
Lab ID:	85427-03
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/11/99
% Solids	38.49
Dilution Factor	1

Organochlorine Pesticides by USEPA Method 8081A

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
TCMX	94.1		43	149
Decachlorobiphenyl	59.9		40	161

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	Flags
Aldrin	ND	2.4	
alpha-BHC	ND	2.4	
beta-BHC	4.7	2.4	C1
delta-BHC	ND	2.4	
gamma-BHC (Lindane)	2.8	2.4	C1
Chlordane (technical)	ND	24	
4,4'-DDD	82	4.8	C1
4,4'-DDE	83	4.8	C1
4,4'-DDT	220	4.8	C1
Dieldrin	85	4.8	C1
Endosulfan I	ND	2.4	
Endosulfan II	12	4.8	C2
Endosulfan sulfate	ND	4.8	
Endrin	ND	4.8	
Endrin aldehyde	35	4.8	C2
Heptachlor	ND	2.4	
Heptachlor epoxide	ND	2.4	
Methoxychlor	74	24	C1
Endrin ketone	ND	4.8	
Toxaphene	ND	240	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-FP-2, 1-1.5
Lab ID:	85427-04
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/11/99
% Solids	15.96
Dilution Factor	1

Organochlorine Pesticides by USEPA Method 8081A

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
TCMX	91		43	149
Decachlorobiphenyl	51		40	161

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	Flags
Aldrin	ND	5.8	
alpha-BHC	ND	5.8	
beta-BHC	ND	5.8	
delta-BHC	ND	5.8	
gamma-BHC (Lindane)	ND	5.8	
Chlordane (technical)	ND	58	
4,4'-DDD	ND	12	
4,4'-DDE	ND	12	
4,4'-DDT	ND	12	
Dieldrin	ND	12	
Endosulfan I	ND	5.8	
Endosulfan II	ND	12	
Endosulfan sulfate	ND	12	
Endrin	ND	12	
Endrin aldehyde	ND	12	
Heptachlor	ND	5.8	
Heptachlor epoxide	ND	5.8	
Methoxychlor	ND	58	
Endrin ketone	ND	12	
Toxaphene	ND	580	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-FP-3, 0-.5
Lab ID:	85427-05
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/11/99
% Solids	56.36
Dilution Factor	1

Organochlorine Pesticides by USEPA Method 8081A

Surrogate	% Recovery	Flags	Recovery Limits Low	High
TCMX	87.8		43	149
Decachlorobiphenyl	58.2		40	161

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	Flags
Aldrin	ND	1.7	
alpha-BHC	ND	1.7	
beta-BHC	ND	1.7	
delta-BHC	ND	1.7	
gamma-BHC (Lindane)	ND	1.7	
Chlordane (technical)	ND	17	
4,4'-DDD	170	3.4	C1
4,4'-DDE	110	3.4	C1
4,4'-DDT	380	3.4	D C1
Dieldrin	29	3.4	C1
Endosulfan I	ND	1.7	
Endosulfan II	ND	3.4	
Endosulfan sulfate	ND	3.4	
Endrin	ND	3.4	
Endrin aldehyde	4.1	3.4	C1
Heptachlor	ND	1.7	
Heptachlor epoxide	8.6	1.7	C2
Methoxychlor	ND	17	
Endrin ketone	ND	3.4	
Toxaphene	ND	170	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-FP-3, 1-1.5
Lab ID:	85427-06
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/10/99
% Solids	48.88
Dilution Factor	1

Organochlorine Pesticides by USEPA Method 8081A

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
TCMX	91.7		43	149
Decachlorobiphenyl	54.3		40	161

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	Flags
Aldrin	ND	1.9	
alpha-BHC	ND	1.9	
beta-BHC	ND	1.9	
delta-BHC	ND	1.9	
gamma-BHC (Lindane)	ND	1.9	
Chlordane (technical)	ND	19	
4,4'-DDD	160	3.8	C1
4,4'-DDE	130	3.8	C1
4,4'-DDT	520	3.8	D C1
Dieldrin	36	3.8	C1
Endosulfan I	ND	1.9	
Endosulfan II	ND	3.8	
Endosulfan sulfate	ND	3.8	
Endrin	ND	3.8	
Endrin aldehyde	5.5	3.8	C1
Heptachlor	ND	1.9	
Heptachlor epoxide	10	1.9	C2
Methoxychlor	ND	19	
Endrin ketone	ND	3.8	
Toxaphene	ND	190	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-MC-1, 0-.5
Lab ID:	85427-07
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/10/99
% Solids	70.08
Dilution Factor	1

Organochlorine Pesticides by USEPA Method 8081A

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
TCMX	113		43	149
Decachlorobiphenyl	83.4		40	161

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	Flags
Aldrin	ND	1.3	
alpha-BHC	ND	1.3	
beta-BHC	ND	1.3	
delta-BHC	ND	1.3	
gamma-BHC (Lindane)	ND	1.3	
Chlordane (technical)	ND	13	
4,4'-DDD	21	2.6	C1
4,4'-DDE	39	2.6	C1
4,4'-DDT	29	2.6	C1
Dieldrin	9.2	2.6	C1
Endosulfan I	ND	1.3	
Endosulfan II	ND	2.6	
Endosulfan sulfate	ND	2.6	
Endrin	ND	2.6	
Endrin aldehyde	ND	2.6	
Heptachlor	ND	1.3	
Heptachlor epoxide	ND	1.3	
Methoxychlor	ND	13	
Endrin ketone	ND	2.6	
Toxaphene	ND	130	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-MC-1, 1-1.5
Lab ID:	85427-08
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/10/99
% Solids	66.26
Dilution Factor	1

Organochlorine Pesticides by USEPA Method 8081A

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
TCMX	107		43	149
Decachlorobiphenyl	73.3		40	161

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)		PQL	Flags
Aldrin	ND		1.4	
alpha-BHC	ND		1.4	
beta-BHC	ND		1.4	
delta-BHC	ND		1.4	
gamma-BHC (Lindane)	ND		1.4	
Chlordane (technical)	ND		14	
4,4'-DDD		24	2.9	C1
4,4'-DDE		38	2.9	C1
4,4'-DDT		24	2.9	C1
Dieldrin		11	2.9	C1
Endosulfan I	ND		1.4	
Endosulfan II	ND		2.9	
Endosulfan sulfate	ND		2.9	
Endrin	ND		2.9	
Endrin aldehyde	ND		2.9	
Heptachlor	ND		1.4	
Heptachlor epoxide	ND		1.4	
Methoxychlor	ND		14	
Endrin ketone	ND		2.9	
Toxaphene	ND		140	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-MC-2, 0-.5
Lab ID:	85427-09
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/11/99
% Solids	66.59
Dilution Factor	1

Organochlorine Pesticides by USEPA Method 8081A

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
TCMX	112		43	149
Decachlorobiphenyl	84.9		40	161

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)		PQL	Flags
Aldrin	ND		1.5	
alpha-BHC	ND		1.5	
beta-BHC	ND		1.5	
delta-BHC	ND		1.5	
gamma-BHC (Lindane)	ND		1.5	
Chlordane (technical)	ND		15	
4,4'-DDD		96	3	C1
4,4'-DDE		94	3	C1
4,4'-DDT		46	3	C1
Dieldrin		16	3	C1
Endosulfan I	ND		1.5	
Endosulfan II	ND		3	
Endosulfan sulfate	ND		3	
Endrin	ND		3	
Endrin aldehyde	ND		3	
Heptachlor	ND		1.5	
Heptachlor epoxide		7.1	1.5	C2
Methoxychlor	ND		15	
Endrin ketone	ND		3	
Toxaphene	ND		150	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-MC-2, 1-1.5
Lab ID:	85427-10
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/11/99
% Solids	55.49
Dilution Factor	1

Organochlorine Pesticides by USEPA Method 8081A

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
TCMX	109		43	149
Decachlorobiphenyl	85.5		40	161

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	Flags
Aldrin	ND	1.7	
alpha-BHC	ND	1.7	
beta-BHC	ND	1.7	
delta-BHC	ND	1.7	
gamma-BHC (Lindane)	ND	1.7	
Chlordane (technical)	ND	17	
4,4'-DDD	13	3.5	C1
4,4'-DDE	13	3.5	C1
4,4'-DDT	8.3	3.5	C1
Dieldrin	5.1	3.5	C1
Endosulfan I	ND	1.7	
Endosulfan II	ND	3.5	
Endosulfan sulfate	ND	3.5	
Endrin	ND	3.5	
Endrin aldehyde	ND	3.5	
Heptachlor	ND	1.7	
Heptachlor epoxide	ND	1.7	
Methoxychlor	ND	17	
Endrin ketone	ND	3.5	
Toxaphene	ND	170	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-MC-3, 0-.5
Lab ID:	85427-11
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/10/99
% Solids	95.6
Dilution Factor	1

Organochlorine Pesticides by USEPA Method 8081A

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
TCMX	116		43	149
Decachlorobiphenyl	79.6		40	161

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	Flags
Aldrin	ND	0.99	
alpha-BHC	ND	0.99	
beta-BHC	ND	0.99	
delta-BHC	ND	0.99	
gamma-BHC (Lindane)	ND	0.99	
Chlordane (technical)	ND	9.9	
4,4'-DDD	ND	2	
4,4'-DDE	ND	2	
4,4'-DDT	ND	2	
Dieldrin	ND	2	
Endosulfan I	ND	0.99	
Endosulfan II	ND	2	
Endosulfan sulfate	ND	2	
Endrin	ND	2	
Endrin aldehyde	ND	2	
Heptachlor	ND	0.99	
Heptachlor epoxide	ND	0.99	
Methoxychlor	ND	9.9	
Endrin ketone	ND	2	
Toxaphene	ND	99	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-MC-3, 1-1.5
Lab ID:	85427-12
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/10/99
% Solids	85.05
Dilution Factor	1

Organochlorine Pesticides by USEPA Method 8081A

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
TCMX	113		43	149
Decachlorobiphenyl	84.2		40	161

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	Flags
Aldrin	ND	1.1	
alpha-BHC	ND	1.1	
beta-BHC	ND	1.1	
delta-BHC	ND	1.1	
gamma-BHC (Lindane)	ND	1.1	
Chlordane (technical)	ND	11	
4,4'-DDD	ND	2.2	
4,4'-DDE	ND	2.2	
4,4'-DDT	ND	2.2	
Dieldrin	ND	2.2	
Endosulfan I	ND	1.1	
Endosulfan II	ND	2.2	
Endosulfan sulfate	ND	2.2	
Endrin	ND	2.2	
Endrin aldehyde	ND	2.2	
Heptachlor	ND	1.1	
Heptachlor epoxide	ND	1.1	
Methoxychlor	ND	11	
Endrin ketone	ND	2.2	
Toxaphene	ND	110	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-MC-4, 0-.5
Lab ID:	85427-13
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/10/99
% Solids	69.42
Dilution Factor	1

Organochlorine Pesticides by USEPA Method 8081A

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
TCMX	116		43	149
Decachlorobiphenyl	92.8		40	161

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	Flags
Aldrin	ND	1.3	
alpha-BHC	ND	1.3	
beta-BHC	ND	1.3	
delta-BHC	ND	1.3	
gamma-BHC (Lindane)	ND	1.3	
Chlordane (technical)	ND	13	
4,4'-DDD	22	2.7	C1
4,4'-DDE	43	2.7	C1
4,4'-DDT	34	2.7	C1
Dieldrin	9.4	2.7	C1
Endosulfan I	ND	1.3	
Endosulfan II	ND	2.7	
Endosulfan sulfate	ND	2.7	
Endrin	ND	2.7	
Endrin aldehyde	ND	2.7	
Heptachlor	ND	1.3	
Heptachlor epoxide	ND	1.3	
Methoxychlor	ND	13	
Endrin ketone	ND	2.7	
Toxaphene	ND	130	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	RINSATE BLANK
Lab ID:	85427-14
Date Received:	11/9/99
Date Prepared:	11/10/99
Date Analyzed:	11/11/99
% Solids	-
Dilution Factor	1

Organochlorine Pesticides by USEPA Method 8081A

Surrogate	% Recovery	Flags	Recovery Limits Low	High
TCMX	93.9		59	160
Decachlorobiphenyl	51.3	X9	65	153

Analyte	Result (ug/L)	PQL	Flags
Aldrin	ND	0.0094	
alpha-BHC	ND	0.0094	
beta-BHC	ND	0.0094	
delta-BHC	ND	0.0094	
gamma-BHC (Lindane)	ND	0.0094	
Chlordane (technical)	ND	0.094	
4,4'-DDD	ND	0.019	
4,4'-DDE	ND	0.019	
4,4'-DDT	ND	0.019	
Dieldrin	ND	0.019	
Endosulfan I	ND	0.0094	
Endosulfan II	ND	0.019	
Endosulfan sulfate	ND	0.019	
Endrin	ND	0.019	
Endrin aldehyde	ND	0.019	
Heptachlor	ND	0.0094	
Heptachlor epoxide	ND	0.0094	
Methoxychlor	ND	0.094	
Endrin ketone	ND	0.019	
Toxaphene	ND	0.94	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-FP-1, 0-.5
Lab ID:	85427-01
Date Received:	11/9/99
Date Prepared:	11/10/99
Date Analyzed:	11/10/99
% Solids	53.26
Dilution Factor	10

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
Tributyl Phosphate	99.4		48	122
Triphenyl Phosphate	105		59	128

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dichlorvos	ND	74	17	
Mevinphos	ND	74	2.1	
Demeton,O-S	ND	74	6.9	
Ethoprop	ND	74	17	
Naled	ND	74	8.9	
Sulfotepp	ND	15	2.1	
Monocrotophos	ND	74	15	
Phorate	ND	15	9.7	
Dimethoate	ND	74	8	
Diazinon	ND	74	9.6	
Disulfoton	ND	74	8.5	
Parathion,methyl	ND	15	9.1	
Ronnel	ND	15	15	
Malathion	ND	15	12	
Chlorpyrifos	ND	74	12	
Fenthion	ND	15	14	
Parathion	ND	15	10	
Trichloronate	ND	15	9.1	
Tetrachlorvinphos	ND	74	5.9	
Fensulfothion	ND	74	32	
Tokuthion	ND	74	10	
Merphos	ND	74	8	
Bolstar	ND	15	12	
EPN	ND	74	3.8	
Azinphos,methyl	ND	15	11	
Coumaphos	ND	15	11	

SOUND ANALYTICAL SERVICES, INC.

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified data for 85427-01 continued...

Analyte	Result (ug/kg)	PQL	MDL
Famphur	ND	15	74

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-FP-1, 1-1.5
Lab ID:	85427-02
Date Received:	11/9/99
Date Prepared:	11/10/99
Date Analyzed:	11/10/99
% Solids	38.63
Dilution Factor	10

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
Tributyl Phosphate	107		48	122
Triphenyl Phosphate	104		59	128

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dichlorvos	ND	100	24	
Mevinphos	ND	100	2.9	
Demeton,O-S	ND	100	9.7	
Ethoprop	ND	100	24	
Naled	ND	21	12	
Sulfotepp	ND	100	2.9	
Monocrotophos	ND	21	21	
Phorate	ND	100	14	
Dimethoate	ND	100	11	
Diazinon	ND	100	13	
Disulfoton	ND	21	12	
Parathion,methyl	ND	21	13	
Ronnel	ND	21	21	
Malathion	ND	100	17	
Chlorpyrifos	ND	21	17	
Fenthion	ND	21	19	
Parathion	ND	21	14	
Trichloronate	ND	100	13	
Tetrachlorvinphos	ND	100	8.2	
Fensulfothion	ND	100	45	
Tokuthion	ND	100	14	
Merphos	ND	21	11	
Bolstar	ND	100	16	
EPN	ND	21	5.4	
Azinphos,methyl	ND	21	15	
Coumaphos	ND		15	

SOUND ANALYTICAL SERVICES, INC.

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified data for 85427-02 continued...

Analyte	Result (ug/kg)	PQL	MDL
Famphur	ND	21	100

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-FP-2, 0-.5
Lab ID:	85427-03
Date Received:	11/9/99
Date Prepared:	11/10/99
Date Analyzed:	11/10/99
% Solids	38.49
Dilution Factor	10

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
Tributyl Phosphate	97.6		48	122
Triphenyl Phosphate	106		59	128

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dichlorvos	ND	100	24	
Mevinphos	ND	100	2.9	
Demeton,O-S	ND	100	9.8	
Ethoprop	ND	100	24	
Naled	ND	100	13	
Sulfotepp	ND	21	2.9	
Monocrotophos	ND	100	21	
Phorate	ND	21	14	
Dimethoate	ND	100	11	
Diazinon	ND	100	14	
Disulfoton	ND	100	12	
Parathion,methyl	ND	21	13	
Ronnel	ND	21	21	
Malathion	ND	21	18	
Chlorpyrifos	ND	100	18	
Fenthion	ND	21	20	
Parathion	ND	21	14	
Trichloronate	ND	21	13	
Tetrachlorvinphos	ND	100	8.3	
Fensulfothion	ND	100	45	
Tokuthion	ND	100	15	
Merphos	ND	100	11	
Bolstar	ND	21	16	
EPN	ND	100	5.4	
Azinphos,methyl	ND	21	15	
Coumaphos	ND	21	15	

SOUND ANALYTICAL SERVICES, INC.

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified data for 85427-03 continued...

Analyte	Result (ug/kg)	PQL	MDL
Famphur	ND	21	100

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-FP-2, 1-1.5
Lab ID:	85427-04
Date Received:	11/9/99
Date Prepared:	11/10/99
Date Analyzed:	11/10/99
% Solids	15.96
Dilution Factor	10

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
Tributyl Phosphate	98.4		48	122
Triphenyl Phosphate	108		59	128

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dichlorvos	ND	260	59	
Mevinphos	ND	260	7.3	
Demeton,O-S	ND	260	24	
Ethoprop	ND	260	60	
Naled	ND	260	31	
Sulfotepp	ND	51	7.3	
Monocrotophos	ND	260	52	
Phorate	ND	51	34	
Dimethoate	ND	260	28	
Diazinon	ND	260	33	
Disulfoton	ND	260	30	
Parathion,methyl	ND	51	31	
Ronnel	ND	51	51	
Malathion	ND	51	43	
Chlorpyrifos	ND	260	43	
Fenthion	ND	51	48	
Parathion	ND	51	35	
Trichloronate	ND	51	31	
Tetrachlorvinphos	ND	260	21	
Fensulfothion	ND	260	110	
Tokuthion	ND	260	36	
Merphos	ND	260	28	
Bolstar	ND	51	40	
EPN	ND	260	13	
Azinphos,methyl	ND	51	38	
Coumaphos	ND	51	37	

SOUND ANALYTICAL SERVICES, INC.

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified data for 85427-04 continued...

Analyte	Result (ug/kg)	PQL	MDL
Famphur	ND	51	260

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-FP-3, 0-.5
Lab ID:	85427-05
Date Received:	11/9/99
Date Prepared:	11/10/99
Date Analyzed:	11/10/99
% Solids	56.36
Dilution Factor	10

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
Tributyl Phosphate	107		48	122
Triphenyl Phosphate	107		59	128

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dichlorvos	ND	70	16	
Mevinphos	ND	70	2	
Demeton,O-S	ND	70	6.6	
Ethoprop	ND	70	16	
Naled	ND	70	8.4	
Sulfotepp	ND	14	2	
Monocrotophos	ND	70	14	
Phorate	ND	14	9.3	
Dimethoate	ND	70	7.6	
Diazinon	ND	70	9.1	
Disulfoton	ND	70	8.1	
Parathion,methyl	ND	14	8.6	
Ronnel	ND	14	14	
Malathion	ND	14	12	
Chlorpyrifos	ND	70	12	
Fenthion	ND	14	13	
Parathion	ND	14	9.6	
Trichloronate	ND	14	8.6	
Tetrachlorvinphos	ND	70	5.6	
Fensulfothion	ND	70	31	
Tokuthion	ND	70	9.8	
Merphos	ND	70	7.8	
Bolstar	ND	14	11	
EPN	ND	70	3.7	
Azinphos,methyl	ND	14	10	
Coumaphos	ND	14	10	

SOUND ANALYTICAL SERVICES, INC.

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified data for 85427-05 continued...

Analyte	Result (ug/kg)	PQL	MDL
Famphur	ND	14	70

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-FP-3, 1-1.5
Lab ID:	85427-06
Date Received:	11/9/99
Date Prepared:	11/10/99
Date Analyzed:	11/10/99
% Solids	48.88
Dilution Factor	10

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified

			Recovery Limits	
Surrogate	% Recovery	Flags	Low	High
Tributyl Phosphate	106		48	122
Triphenyl Phosphate	107		59	128

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dichlorvos	ND	82	19	
Mevinphos	ND	82	2.3	
Demeton,O-S	ND	82	7.8	
Ethoprop	ND	82	19	
Naled	ND	82	9.9	
Sulfotepp	ND	16	2.3	
Monocrotophos	ND	82	17	
Phorate	ND	16	11	
Dimethoate	ND	82	9	
Diazinon	ND	82	11	
Disulfoton	ND	82	9.5	
Parathion,methyl	ND	16	10	
Ronnel	ND	16	16	
Malathion	ND	16	14	
Chlorpyrifos	ND	82	14	
Fenthion	ND	16	16	
Parathion	ND	16	11	
Trichloronate	ND	16	10	
Tetrachlorvinphos	ND	82	6.6	
Fensulfothion	ND	82	36	
Tokuthion	ND	82	12	
Merphos	ND	82	9	
Bolstar	ND	16	13	
EPN	ND	82	4.3	
Azinphos,methyl	ND	16	12	
Coumaphos	ND	16	12	

SOUND ANALYTICAL SERVICES, INC.

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified data for 85427-06 continued...

Analyte	Result (ug/kg)	PQL	MDL
Famphur	ND	16	82

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-MC-1, 0-.5
Lab ID:	85427-07
Date Received:	11/9/99
Date Prepared:	11/10/99
Date Analyzed:	11/10/99
% Solids	70.08
Dilution Factor	10

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
Tributyl Phosphate	114		48	122
Triphenyl Phosphate	125		59	128

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dichlorvos	ND	57	13	
Mevinphos	ND	57	1.6	
Demeton,O-S	ND	57	5.3	
Ethoprop	ND	57	13	
Naled	ND	57	6.8	
Sulfotepp	ND	11	1.6	
Monocrotophos	ND	57	12	
Phorate	ND	11	7.5	
Dimethoate	ND	57	6.2	
Diazinon	ND	57	7.4	
Disulfoton	ND	57	6.6	
Parathion,methyl	ND	11	7	
Ronnel	ND	11	11	
Malathion	14	11	9.6	
Chlorpyrifos	ND	57	9.6	J
Fenthion	ND	11	11	
Parathion	ND	11	7.8	
Trichloronate	ND	11	7	
Tetrachlorvinphos	ND	57	4.6	
Fensulfothion	ND	57	25	
Tokuthion	ND	57	8	
Merphos	ND	57	6.2	
Bolstar	ND	11	8.9	
EPN	ND	57	3	
Azinphos,methyl	ND	11	8.4	
Coumaphos	ND	11	8.2	

SOUND ANALYTICAL SERVICES, INC.

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified data for 85427-07 continued...

Analyte	Result (ug/kg)	PQL	MDL
Famphur	ND	11	57

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-MC-1, 1-1.5
Lab ID:	85427-08
Date Received:	11/9/99
Date Prepared:	11/10/99
Date Analyzed:	11/10/99
% Solids	66.26
Dilution Factor	10

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
Tributyl Phosphate	106		48	122
Triphenyl Phosphate	109		59	128

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dichlorvos	ND	59	14	
Mevinphos	ND	59	1.7	
Demeton,O-S	ND	59	5.6	
Ethoprop	ND	59	14	
Naled	ND	59	7.1	
Sulfotepp	ND	12	1.7	
Monocrotophos	ND	59	12	
Phorate	ND	12	7.8	
Dimethoate	ND	59	6.4	
Diazinon	ND	59	7.7	
Disulfoton	ND	59	6.9	
Parathion,methyl	ND	12	7.3	
Ronnel	ND	12	12	
Malathion	ND	12	10	
Chlorpyrifos	ND	59	10	
Fenthion	ND	12	11	
Parathion	ND	12	8.1	
Trichloronate	ND	12	7.3	
Tetrachlorvinphos	ND	59	4.8	
Fensulfothion	ND	59	26	
Tokuthion	ND	59	8.3	
Merphos	ND	59	6.4	
Bolstar	ND	12	9.3	
EPN	ND	59	3.1	
Azinphos,methyl	ND	12	8.8	
Coumaphos	ND	12	8.6	

SOUND ANALYTICAL SERVICES, INC.

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified data for 85427-08 continued...

Analyte	Result (ug/kg)	PQL	MDL
Famphur	ND	12	59

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-MC-2, 0-.5
Lab ID:	85427-09
Date Received:	11/9/99
Date Prepared:	11/10/99
Date Analyzed:	11/10/99
% Solids	66.59
Dilution Factor	10

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
Tributyl Phosphate	103		48	122
Triphenyl Phosphate	107		59	128

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dichlorvos	ND	61	14	
Mevinphos	ND	61	1.7	
Demeton,O-S	ND	61	5.7	
Ethoprop	ND	61	14	
Naled	ND	61	7.3	
Sulfotepp	ND	12	1.7	
Monocrotophos	ND	61	12	
Phorate	ND	12	8	
Dimethoate	ND	61	6.6	
Diazinon	ND	61	7.9	
Disulfoton	ND	61	7	
Parathion,methyl	ND	12	7.5	
Ronnel	ND	12	12	
Malathion	ND	12	10	
Chlorpyrifos	ND	61	10	
Fenthion	ND	12	11	
Parathion	ND	12	8.4	
Trichloronate	ND	12	7.5	
Tetrachlorvinphos	ND	61	4.9	
Fensulfothion	ND	61	27	
Tokuthion	ND	61	8.5	
Merphos	ND	61	6.6	
Bolstar	ND	12	9.6	
EPN	ND	61	3.2	
Azinphos,methyl	ND	12	9	
Coumaphos	ND	12	8.9	

SOUND ANALYTICAL SERVICES, INC.

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified data for 85427-09 continued...

Analyte	Result (ug/kg)	PQL	MDL
Famphur	ND	12	61

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-MC-2, 1-1.5
Lab ID:	85427-10
Date Received:	11/9/99
Date Prepared:	11/10/99
Date Analyzed:	11/11/99
% Solids	55.49
Dilution Factor	10

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
Tributyl Phosphate	110		48	122
Triphenyl Phosphate	115		59	128

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dichlorvos	ND	72	17	
Mevinphos	ND	72	2	
Demeton,O-S	ND	72	6.7	
Ethoprop	ND	72	17	
Naled	ND	72	8.6	
Sulfotepp	ND	14	2	
Monocrotophos	ND	72	15	
Phorate	ND	14	9.4	
Dimethoate	ND	72	7.8	
Diazinon	ND	72	9.3	
Disulfoton	ND	72	8.3	
Parathion,methyl	ND	14	8.8	
Ronnel	ND	14	14	
Malathion	ND	14	12	
Chlorpyrifos	ND	72	12	
Fenthion	ND	14	13	
Parathion	ND	14	9.8	
Trichloronate	ND	14	8.8	
Tetrachlorvinphos	ND	72	5.8	
Fensulfothion	ND	72	31	
Tokuthion	ND	72	10	
Merphos	ND	72	7.8	
Bolstar	ND	14	11	
EPN	ND	72	3.7	
Azinphos,methyl	ND	14	11	
Coumaphos	ND	14	10	

SOUND ANALYTICAL SERVICES, INC.

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified data for 85427-10 continued...

Analyte	Result (ug/kg)	PQL	MDL
Famphur	ND	14	72

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-MC-3, 0-.5
Lab ID:	85427-11
Date Received:	11/9/99
Date Prepared:	11/10/99
Date Analyzed:	11/11/99
% Solids	95.6
Dilution Factor	10

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified

			Recovery Limits	
	% Recovery	Flags	Low	High
Surrogate				
Tributyl Phosphate	104		48	122
Triphenyl Phosphate	110		59	128

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dichlorvos	ND	42	9.8	
Mevinphos	ND	42	1.2	
Demeton,O-S	ND	42	4	
Ethoprop	ND	42	10	
Naled	ND	42	5.1	
Sulfotepp	ND	8.5	1.2	
Monocrotophos	ND	42	8.6	
Phorate	ND	8.5	5.6	
Dimethoate	ND	42	4.6	
Diazinon	ND	42	5.5	
Disulfoton	ND	42	4.9	
Parathion,methyl	ND	8.5	5.2	
Ronnel	ND	8.5	8.5	
Malathion	ND	8.5	7.2	
Chlorpyrifos	ND	42	7.2	
Fenthion	ND	8.5	8	
Parathion	ND	8.5	5.8	
Trichloronate	ND	8.5	5.2	
Tetrachlorvinphos	ND	42	3.4	
Fensulfothion	ND	42	19	
Tokuthion	ND	42	5.9	
Merphos	ND	42	4.6	
Bolstar	ND	8.5	6.7	
EPN	ND	42	2.2	
Azinphos,methyl	ND	8.5	6.3	
Coumaphos	ND	8.5	6.2	

SOUND ANALYTICAL SERVICES, INC.

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified data for 85427-11 continued...

Analyte	Result (ug/kg)	PQL	MDL
Famphur	ND	8.5	42

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-MC-3, 1-1.5
Lab ID:	85427-12
Date Received:	11/9/99
Date Prepared:	11/10/99
Date Analyzed:	11/11/99
% Solids	85.05
Dilution Factor	10

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
Tributyl Phosphate	106		48	122
Triphenyl Phosphate	118		59	128

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dichlorvos	ND	46	11	
Mevinphos	ND	46	1.3	
Demeton,O-S	ND	46	4.3	
Ethoprop	ND	46	11	
Naled	ND	46	5.5	
Sulfotepp	ND	9.1	1.3	
Monocrotophos	ND	46	9.2	
Phorate	ND	9.1	6	
Dimethoate	ND	46	4.9	
Diazinon	ND	46	5.9	
Disulfoton	ND	46	5.3	
Parathion,methyl	ND	9.1	5.6	
Ronnel	ND	9.1	9.1	
Malathion	ND	9.1	7.7	
Chlorpyrifos	ND	46	7.7	
Fenthion	ND	9.1	8.6	
Parathion	ND	9.1	6.3	
Trichloronate	ND	9.1	5.6	
Tetrachlorvinphos	ND	46	3.7	
Fensulfothion	ND	46	20	
Tokuthion	ND	46	6.4	
Merphos	ND	46	4.9	
Bolstar	ND	9.1	7.2	
EPN	ND	46	2.4	
Azinphos,methyl	ND	9.1	6.7	
Coumaphos	ND	9.1	6.6	

SOUND ANALYTICAL SERVICES, INC.

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified data for 85427-12 continued...

Analyte	Result (ug/kg)	PQL	MDL
Famphur	ND	9.1	46

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-MC-4, 0-.5
Lab ID:	85427-13
Date Received:	11/9/99
Date Prepared:	11/10/99
Date Analyzed:	11/11/99
% Solids	69.42
Dilution Factor	10

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
Tributyl Phosphate	106		48	122
Triphenyl Phosphate	113		59	128

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dichlorvos	ND	57	13	
Mevinphos	ND	57	1.6	
Demeton,O-S	ND	57	5.4	
Ethoprop	ND	57	13	
Naled	ND	57	6.8	
Sulfotepp	ND	11	1.6	
Monocrotophos	ND	57	12	
Phorate	ND	11	7.5	
Dimethoate	ND	57	6.2	
Diazinon	ND	57	7.4	
Disulfoton	ND	57	6.6	
Parathion,methyl	ND	11	7	
Ronnel	ND	11	11	
Malathion	ND	11	9.6	
Chlorpyrifos	ND	57	9.6	
Fenthion	ND	11	11	
Parathion	ND	11	7.8	
Trichloronate	ND	11	7	
Tetrachlorvinphos	ND	57	4.6	
Fensulfothion	ND	57	25	
Tokuthion	ND	57	8	
Merphos	ND	57	6.2	
Bolstar	ND	11	9	
EPN	ND	57	3	
Azinphos,methyl	ND	11	8.4	
Coumaphos	ND	11	8.3	

SOUND ANALYTICAL SERVICES, INC.

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified data for 85427-13 continued...

Analyte	Result (ug/kg)	PQL	MDL
Famphur	ND	11	57

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	RINSATE BLANK
Lab ID:	85427-14
Date Received:	11/9/99
Date Prepared:	11/10/99
Date Analyzed:	11/11/99
% Solids	-
Dilution Factor	5

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
Tributyl Phosphate	90.9		49	128
Triphenyl Phosphate	113		65	119

Analyte	Result (ug/L)	PQL	MDL	Flags
Dichlorvos	ND	0.5	0.16	
Mevinphos	ND	0.5	0.14	
Ethoprop	ND	0.5	0.084	
Naled	ND	0.5	0.15	
Sulfotepp	ND	0.1	0.078	
Monocrotophos	ND	0.5	0.031	
Phorate	ND	0.1	0.087	
Dimethoate	ND	0.5	0.15	
Demeton,o-s	ND	0.5	0.16	
Diazinon	ND	0.5	0.069	
Disulfoton	ND	0.1	0.066	
Parathion,methyl	ND	0.1	0.099	
Ronnel	ND	0.5	0.12	
Chlorpyrifos	ND	0.5	0.17	
Malathion	ND	0.5	0.11	
Fenthion	ND	0.5	0.13	
Parathion	ND	0.1	0.068	
Trichloronate	ND	0.5	0.16	
Tetrachlorvinphos	ND	0.5	0.13	
Merphos	ND	0.5	0.2	
Tokuthion	ND	0.5	0.2	
Fensulfothion	ND	0.5	0.12	
Bolstar	ND	0.5	0.054	
EPN	ND	0.5	0.028	
Azinphos,methyl	ND	0.5	0.33	
Coumaphos	ND	0.5	0.2	

SOUND ANALYTICAL SERVICES, INC.

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified data for 85427-14 continued...

Analyte	Result (ug/L)	PQL	MDL
Famphur	ND	0.1	0.095

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-FP-1, 0-.5
Lab ID:	85427-01
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/9/99
% Solids	53.26
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2,4-Dichlorophenylacetic acid	76.9		60	142

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	76	45	
4-Nitrophenol	ND	30	24	
Dicamba	ND	30	14	
Dichloroprop	ND	15	13	
2,4-D	ND	15	14	
Pentachlorophenol	ND	15	8.5	
Silvex (2,4,5-TP)	ND	15	9.1	
2,4,5-T	ND	15	13	
Dinoseb	ND	15	6.7	
2,4-DB	ND	15	13	
MCPP	ND	15	6.1	
MCPA	ND		12	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-FP-1, 1-1.5
Lab ID:	85427-02
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/9/99
% Solids	38.63
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2,4-Dichlorophenylacetic acid	78.2		60	142

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	100	62	
4-Nitrophenol	ND	41	32	
Dicamba	ND	41	19	
Dichloroprop	ND	21	18	
2,4-D	ND	21	19	
Pentachlorophenol	ND	21	12	
Silvex (2,4,5-TP)	ND	21	12	
2,4,5-T	ND	21	18	
Dinoseb	ND	21	9.2	
2,4-DB	ND	21	18	
MCPP	ND	21	8.3	
MCPA			17	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-FP-2, 0-.5
Lab ID:	85427-03
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/9/99
% Solids	38.49
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2,4-Dichlorophenylacetic acid	74.2		60	142

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	100	62	
4-Nitrophenol	ND	41	32	
Dicamba	ND	41	19	
Dichloroprop	ND	21	18	
2,4-D	ND	21	19	
Pentachlorophenol	ND	21	11	
Silvex (2,4,5-TP)	ND	21	12	
2,4,5-T	ND	21	18	
Dinoseb	ND	21	9.2	
2,4-DB	ND	21	18	
MCPP	ND	21	8.3	
MCPA	ND	21	17	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-FP-2, 1-1.5
Lab ID:	85427-04
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/9/99
% Solids	15.96
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2,4-Dichlorophenylacetic acid	79		60	142

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	240	150	
4-Nitrophenol	ND	97	75	
Dicamba	ND	97	45	
Dichloroprop	ND	48	42	
2,4-D	ND	48	44	
Pentachlorophenol	ND	48	27	
Silvex (2,4,5-TP)	ND	48	29	
2,4,5-T	ND	48	43	
Dinoseb	ND	48	22	
2,4-DB	ND	48	42	
MCPP	ND	48	19	
MCPA	ND	48	40	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-FP-3, 0-.5
Lab ID:	85427-05
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/9/99
% Solids	56.36
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2,4-Dichlorophenylacetic acid	74.9		60	142

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	72	43	
4-Nitrophenol	ND	29	23	
Dicamba	ND	29	14	
Dichloroprop	ND	14	13	
2,4-D	ND	14	13	
Pentachlorophenol	ND	14	8.1	
Silvex (2,4,5-TP)	ND	14	8.7	
2,4,5-T	ND	14	13	
Dinoseb	ND	14	6.4	
2,4-DB	ND	14	13	
MCPP	ND	14	5.8	
MCPA	ND	14	12	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-FP-3, 1-1.5
Lab ID:	85427-06
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/10/99
% Solids	48.88
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	74.4		60	142

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	84	50	
4-Nitrophenol	ND	34	26	
Dicamba	ND	34	16	
Dichloroprop	ND	17	15	
2,4-D	ND	17	15	
Pentachlorophenol	ND	17	9.3	
Silvex (2,4,5-TP)	ND	17	10	
2,4,5-T	ND	17	15	
Dinoseb	ND	17	7.5	
2,4-DB	ND	17	15	
MCPP	ND	17	6.7	
MCPA			14	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-MC-1, 0-.5
Lab ID:	85427-07
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/10/99
% Solids	70.08
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2,4-Dichlorophenylacetic acid	89.9		60	142

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	55	33	
4-Nitrophenol	ND	22	17	
Dicamba	ND	22	10	
Dichloroprop	ND	11	9.6	
2,4-D	ND	11	10	
Pentachlorophenol	ND	11	6.1	
Silvex (2,4,5-TP)	ND	11	6.6	
2,4,5-T	ND	11	9.8	
Dinoseb	ND	11	4.9	
2,4-DB	ND	11	9.6	
MCPP	ND	11	4.4	
MCPA	ND		9	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-MC-1, 1-1.5
Lab ID:	85427-08
Date Received:	11/9/99
Date Prepared:	11/10/99
Date Analyzed:	66.26
% Solids	10
Dilution Factor	

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

			Recovery Limits	
	% Recovery	Flags	Low	High
Surrogate			60	142
2,4-Dichlorophenylacetic acid	86.6			

Sample results are on a dry weight basis.

	Result (ug/kg)	PQL	MDL	Flags
Analyte				
Dalapon	ND	62	37	
4-Nitrophenol	ND	25	19	
Dicamba	ND	25	12	
Dichloroprop	ND	12	11	
2,4-D	ND	12	11	
Pentachlorophenol	ND	12	6.9	
Silvex (2,4,5-TP)	ND	12	7.4	
2,4,5-T	ND	12	11	
Dinoseb	ND	12	5.5	
2,4-DB	ND	12	11	
MCPP	ND	12	5	
MCPA	ND	12	10	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-MC-2, 0-.5
Lab ID:	85427-09
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/10/99
% Solids	66.59
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
2,4-Dichlorophenylacetic acid	83.7		60	142

Sample results are on a dry weight basis.

Analyte	**Result (ug/kg)**	**PQL**	**MDL**	**Flags**
Dalapon	ND	61	36	
4-Nitrophenol	ND	24	19	
Dicamba	ND	24	11	
Dichloroprop	ND	12	11	
2,4-D	ND	12	11	
Pentachlorophenol	ND	12	6.8	
Silvex (2,4,5-TP)	ND	12	7.3	
2,4,5-T	ND	12	11	
Dinoseb	ND	12	5.4	
2,4-DB	ND	12	11	
MCPP	ND	12	4.9	
MCPA	ND	12	9.9	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-MC-2, 1-1.5
Lab ID:	85427-10
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/10/99
% Solids	55.49
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

			Recovery Limits	
Surrogate	**% Recovery**	**Flags**	**Low**	**High**
2,4-Dichlorophenylacetic acid	88.2		60	142

Sample results are on a dry weight basis.

Analyte	**Result (ug/kg)**	**PQL**	**MDL**	**Flags**
Dalapon	ND	74	45	
4-Nitrophenol	ND	30	23	
Dicamba	ND	30	14	
Dichloroprop	ND	15	13	
2,4-D	ND	15	14	
Pentachlorophenol	ND	15	8.3	
Silvex (2,4,5-TP)	ND	15	8.9	
2,4,5-T	ND	15	13	
Dinoseb	ND	15	6.6	
2,4-DB	ND	15	13	
MCPP	ND	15	6	
MCPA	ND	15	12	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-MC-3, 0-.5
Lab ID:	85427-11
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/10/99
% Solids	95.6
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2,4-Dichlorophenylacetic acid	103		60	142

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	42	25	
4-Nitrophenol	ND	17	13	
Dicamba	ND	17	7.8	
Dichloroprop	ND	8.4	7.3	
2,4-D	ND	8.4	7.7	
Pentachlorophenol	ND	8.4	4.7	
Silvex (2,4,5-TP)	ND	8.4	5	
2,4,5-T	ND	8.4	7.4	
Dinoseb	ND	8.4	3.7	
2,4-DB	ND	8.4	7.3	
MCPP	ND	8.4	3.4	
MCPA	ND	8.4	6.9	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-MC-3, 1-1.5
Lab ID:	85427-12
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/10/99
% Solids	85.05
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4-Dichlorophenylacetic acid	95.5		60	142

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	45	27	
4-Nitrophenol	ND	18	14	
Dicamba	ND	18	8.5	
Dichloroprop	ND	9.1	7.9	
2,4-D	ND	9.1	8.3	
Pentachlorophenol	ND	9.1	5.1	
Silvex (2,4,5-TP)	ND	9.1	5.4	
2,4,5-T	ND	9.1	8	
Dinoseb	ND	9.1	4	
2,4-DB	ND	9.1	7.9	
MCPP	ND	9.1	3.6	
MCPA			7.4	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	VF-MC-4, 0-.5
Lab ID:	85427-13
Date Received:	11/9/99
Date Prepared:	11/9/99
Date Analyzed:	11/10/99
% Solids	69.42
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2,4-Dichlorophenylacetic acid	83.5		60	142

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	59	35	
4-Nitrophenol	ND	24	18	
Dicamba	ND	24	11	
Dichloroprop	ND	12	10	
2,4-D	ND	12	11	
Pentachlorophenol	ND	12	6.6	
Silvex (2,4,5-TP)	ND	12	7.1	
2,4,5-T	ND	12	10	
Dinoseb	ND	12	5.3	
2,4-DB	ND	12	10	
MCPP	ND	12	4.7	
MCPA	ND	12	9.7	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Parametrix, Inc.
Client ID:	RINSATE BLANK
Lab ID:	85427-14
Date Received:	11/9/99
Date Prepared:	11/10/99
Date Analyzed:	11/11/99
% Solids	-
Dilution Factor	5

Chlorinated Herbicides by USEPA Method 8151GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2,4-Dichlorophenylacetic acid	88.9		48	124

Analyte	Result (ug/L)	PQL	MDL	Flags
Dalapon	ND	0.1	0.092	
4-Nitrophenol	ND	0.2	0.1	
Dicamba	ND	0.1	0.081	
Dichloroprop	ND	0.2	0.15	
2,4-D	ND	0.1	0.087	
Pentachlorophenol	ND	0.2	0.12	
Silvex (2,4,5-TP)	ND	0.1	0.081	
2,4,5-T	ND	0.1	0.076	
Dinoseb	ND	0.1	0.065	
2,4-DB	ND	0.1	0.09	
MCPP	ND	0.1	0.084	
MCPA		0.1	0.085	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - PE1197
Date Received:	-
Date Prepared:	11/9/99
Date Analyzed:	11/10/99
% Solids	
Dilution Factor	1

Organochlorine Pesticides by USEPA Method 8081A

Surrogate	% Recovery	Flags	Recovery Limits Low	High
TCMX	109		43	149
Decachlorobiphenyl	125		40	161

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	Flags
Aldrin	ND	1	
alpha-BHC	ND	1	
beta-BHC	ND	1	
delta-BHC	ND	1	
gamma-BHC (Lindane)	ND	1	
Chlordane (technical)	ND	10	
4,4'-DDD	ND	2	
4,4'-DDE	ND	2	
4,4'-DDT	ND	2	
Dieldrin	ND	2	
Endosulfan I	ND	1	
Endosulfan II	ND	2	
Endosulfan sulfate	ND	2	
Endrin	ND	2	
Endrin aldehyde	ND	2	
Heptachlor	ND	1	
Heptachlor epoxide	ND	1	
Methoxychlor	ND	1	
Endrin ketone	ND	10	
Toxaphene	ND	2	
		100	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID:	VF-FP-1, 0-.5
Lab ID:	85427-01
Date Prepared:	11/9/99
Date Analyzed:	11/10/99
QC Batch ID:	PE1197

Organochlorine Pesticides by USEPA Method 8081A

Compound Name	Sample Result (ug/kg)	Spike Amount (ug/kg)	MS Result (ug/kg)	MS % Rec.	MSD Result (ug/kg)	MSD % Rec.	RPD	Flag
Aldrin	0	44.3	32.5	73.5	32.8	74.6	1.5	
gamma-BHC (Lindane)	0	44.3	40.9	92.3	39.3	89.5	-3.1	
4,4'-DDT	320	88.6	538	243	579	292	18	X7a
Dieldrin	86	88.6	189	116	190	119	2.6	
Endrin	0	88.6	93.8	106	92.6	105	-0.95	
Heptachlor	2.1	44.3	36.6	78	37.2	79.9	2.4	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike/Blank Spike Duplicate Report

Lab ID: PE1197
Date Prepared: 11/9/99
Date Analyzed: 11/10/99
QC Batch ID: PE1197

Organochlorine Pesticides by USEPA Method 8081A

Compound Name	Blank Result (ug/kg)	Spike Amount (ug/kg)	BS Result (ug/kg)	BS % Rec.	BSD Result (ug/kg)	BSD % Rec.	RPD	Flag
Aldrin	0	25	23.4	93.6	25.1	100	6.6	
gamma-BHC (Lindane)	0	25	22.2	88.8	23.7	94.7	6.4	
4,4'-DDT	0	50	46.3	92.6	48.9	97.9	5.6	
Dieldrin	0	50	50.3	101	53.5	107	5.8	
Endrin	0	50	48.5	97.1	51.2	102	4.9	
Heptachlor	0	25	23.4	93.8	25.1	100	6.4	

CO

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - PE2082
Date Received:	-
Date Prepared:	11/10/99
Date Analyzed:	11/11/99
% Solids	-
Dilution Factor	1

Organochlorine Pesticides by USEPA Method 8081A

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
TCMX	91.7		59	160
Decachlorobiphenyl	115		65	153

Analyte	Result (ug/L)	PQL	Flags
Aldrin	ND	0.01	
alpha-BHC	ND	0.01	
beta-BHC	ND	0.01	
delta-BHC	ND	0.01	
gamma-BHC (Lindane)	ND	0.01	
Chlordane (technical)	ND	0.1	
4,4'-DDD	ND	0.02	
4,4'-DDE	ND	0.02	
4,4'-DDT	ND	0.02	
Dieldrin	ND	0.02	
Endosulfan I	ND	0.01	
Endosulfan II	ND	0.02	
Endosulfan sulfate	ND	0.02	
Endrin	ND	0.02	
Endrin aldehyde	ND	0.02	
Heptachlor	ND	0.01	
Heptachlor epoxide	ND	0.01	
Methoxychlor	ND	0.1	
Endrin ketone	ND	0.02	
Toxaphene	ND	1	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike/Blank Spike Duplicate Report

Lab ID:	PE2082
Date Prepared:	11/10/99
Date Analyzed:	11/11/99
QC Batch ID:	PE2082

Organochlorine Pesticides by USEPA Method 8081A

Compound Name	Blank Result (ug/L)	Spike Amount (ug/L)	BS Result (ug/L)	BS % Rec.	BSD Result (ug/L)	BSD % Rec.	RPD	Flag
Aldrin	0	0.25	0.221	88.5	0.23	91.9	3.8	
gamma-BHC (Lindane)	0	0.25	0.23	91.9	0.232	92.9	1.1	
4,4'-DDT	0	0.5	0.473	94.6	0.481	96.2	1.7	
Dieldrin	0	0.5	0.546	109	0.555	111	1.8	
Endrin	0	0.5	0.52	104	0.53	106	1.9	
Heptachlor	0	0.25	0.234	93.8	0.247	98.8	5.2	

02

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - OP316
Date Received:	-
Date Prepared:	11/10/99
Date Analyzed:	11/10/99
% Solids	
Dilution Factor	10

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
Tributyl Phosphate	97.3		48	122
Triphenyl Phosphate	113		59	128

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dichlorvos	ND	50	12	
Mevinphos	ND	50	1.4	
Demeton,O-S	ND	50	4.7	
Ethoprop	ND	50	12	
Naled	ND	50	6	
Sulfotepp	ND	10	1.4	
Monocrotophos	ND	50	10	
Phorate	ND	10	6.6	
Dimethoate	ND	50	5.4	
Diazinon	ND	50	6.5	
Disulfoton	ND	50	5.8	
Parathion,methyl	ND	10	6.2	
Ronnel	ND	10	10	
Malathion	ND	10	8.5	
Chlorpyrifos	ND	50	8.5	
Fenthion	ND	10	9.4	
Parathion	ND	10	6.9	
Trichloronate	ND	10	6.2	
Tetrachlorvinphos	ND	50	4	
Fensulfothion	ND	50	22	
Tokuthion	ND	50	7	
Merphos	ND	50	5.4	
Bolstar	ND	10	7.9	
EPN	ND	50	2.6	
Azinphos,methyl	ND	10	7.4	
Coumaphos	ND	10	7.3	

SOUND ANALYTICAL SERVICES, INC.

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified data for OP316 continued...

Analyte	Result (ug/kg)	PQL	MDL
Famphur	ND	10	50

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID:	VF-FP-1, 0-.5
Lab ID:	85427-01
Date Prepared:	11/10/99
Date Analyzed:	11/10/99
QC Batch ID:	OP316

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified

Compound Name	Sample Result (ug/kg)	Spike Amount (ug/kg)	MS Result (ug/kg)	MS % Rec.	MSD Result (ug/kg)	MSD % Rec.	RPD	Flag
Diazinon	0	1470	1460	99.6	1600	108	8.1	
Malathion	0	1470	1750	120	1600	108	-11	
Chlorpyrifos	0	1470	1600	109	1450	97.9	-11	
Azinphos,methyl	0	1470	1670	114	1500	101	-12	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike Report

Lab ID:	OP316
Date Prepared:	11/10/99
Date Analyzed:	11/10/99
QC Batch ID:	OP316

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified

Parameter Name	Blank Result (ug/kg)	Spike Amount (ug/kg)	BS Result (ug/kg)	BS % Rec.	Flag
Diazinon	0	1000	1030	103	
Malathion	0	1000	1060	106	
Chlorpyrifos	0	1000	868	87	
Azinphos,methyl	0	1000	1180	118	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - OP317
Date Received:	-
Date Prepared:	11/10/99
Date Analyzed:	11/11/99
% Solids	-
Dilution Factor	10

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
Tributyl Phosphate	99.9		49	128
Triphenyl Phosphate	111		65	119

Analyte	Result (ug/L)	PQL	MDL	Flags
Dichlorvos	ND	0.5	0.16	
Mevinphos	ND	0.5	0.14	
Ethoprop	ND	0.5	0.084	
Naled	ND	0.5	0.15	
Sulfotepp	ND	0.1	0.078	
Monocrotophos	ND	0.5	0.031	
Phorate	ND	0.1	0.087	
Dimethoate	ND	0.5	0.15	
Demeton,o-s	ND	0.5	0.16	
Diazinon	ND	0.5	0.069	
Disulfoton	ND	0.1	0.066	
Parathion,methyl	ND	0.1	0.099	
Ronnel	ND	0.5	0.12	
Chlorpyrifos	ND	0.5	0.17	
Malathion	ND	0.5	0.11	
Fenthion	ND	0.5	0.13	
Parathion	ND	0.1	0.068	
Trichloronate	ND	0.5	0.16	
Tetrachlorvinphos	ND	0.5	0.13	
Merphos	ND	0.5	0.2	
Tokuthion	ND	0.5	0.2	
Fensulfothion	ND	0.5	0.12	
Bolstar	ND	0.5	0.054	
EPN	ND	0.5	0.028	
Azinphos,methyl	ND	0.5	0.33	
Coumaphos	ND	0.5	0.2	

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SOUND ANALYTICAL SERVICES, INC.

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified data for OP317 continued...

Analyte	Result (ug/L)	PQL	MDL
Famphur	ND	0.1	0.095

SOUND ANALYTICAL SERVICES, INC.

Blank Spike/Blank Spike Duplicate Report

Lab ID:	OP317
Date Prepared:	11/10/99
Date Analyzed:	11/11/99
QC Batch ID:	OP317

Organophosphorus Pesticides by USEPA Method 8141 GC/MS Modified

Compound Name	Blank Result (ug/L)	Spike Amount (ug/L)	BS Result (ug/L)	BS % Rec.	BSD Result (ug/L)	BSD % Rec.	RPD	Flag
Diazinon	0	10	11	110	10.5	105	-4.7	
Chlorpyrifos	0	10	8.56	85.6	9.83	98.3	14	
Malathion	0	10	11.4	114	11.2	112	-1.8	
Azinphos,methyl	0	10	11.9	119	12	120	0.84	

09

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - HB916
Date Received:	-
Date Prepared:	11/9/99
Date Analyzed:	11/9/99
% Solids	
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2,4-Dichlorophenylacetic acid	103		60	142

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MDL	Flags
Dalapon	ND	50	30	
4-Nitrophenol	ND	20	16	
Dicamba	ND	20	9.3	
Dichloroprop	ND	10	8.7	
2,4-D	ND	10	9.2	
Pentachlorophenol	ND	10	5.6	
Silvex (2,4,5-TP)	ND	10	6	
2,4,5-T	ND	10	8.9	
Dinoseb	ND	10	4.4	
2,4-DB	ND	10	8.7	
MCPP	ND	10	4	
MCPA	ND	10	8.2	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID:	VF-FP-1, 0-.5
Lab ID:	85427-01
Date Prepared:	11/9/99
Date Analyzed:	11/9/99
QC Batch ID:	HB916

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Compound Name	Sample Result (ug/kg)	Spike Amount (ug/kg)	MS Result (ug/kg)	MS % Rec.	MSD Result (ug/kg)	MSD % Rec.	RPD	Flag
Dalapon	0	1510	496	32.8	546	36.2	9.9	
Dicamba	0	1510	1380	91	1300	86.5	-5.1	
2,4-D	0	1510	1240	81.8	1240	82	0.24	
Pentachlorophenol	0	1510	1120	74.2	1090	72.2	-2.7	
Silvex (2,4,5-TP)	0	1510	1350	89.1	1150	76.2	-16	
Dinoseb	0	1510	1290	85.5	1180	78.5	-8.5	
2,4-DB	0	1510	1200	79.4	1040	69.3	-14	
MCPP	0	1510	1180	78.1	1190	78.7	0.77	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike Report

Lab ID:	HB916
Date Prepared:	11/9/99
Date Analyzed:	11/9/99
QC Batch ID:	HB916

Chlorinated Herbicides by USEPA Method 8151 GC/MS Modified

Parameter Name	Blank Result (ug/kg)	Spike Amount (ug/kg)	BS Result (ug/kg)	BS % Rec.	Flag
Dalapon	0	1000	488	49	
Dicamba	0	1000	934	93	
2,4-D	0	1000	866	87	
Pentachlorophenol	0	1000	963	96	
Silvex (2,4,5-TP)	0	1000	1040	104	
Dinoseb	0	1000	875	88	
2,4-DB	0	1000	877	88	
MCPP	0	1000	855	86	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - HB917
Date Received:	-
Date Prepared:	11/10/99
Date Analyzed:	11/11/99
% Solids	-
Dilution Factor	10

Chlorinated Herbicides by USEPA Method 8151GC/MS Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2,4-Dichlorophenylacetic acid	64.7		48	124

Analyte	Result (ug/L)	PQL	MDL	Flags
Dalapon	ND	0.1	0.092	
4-Nitrophenol	ND	0.2	0.1	
Dicamba	ND	0.1	0.081	
Dichloroprop	ND	0.2	0.15	
2,4-D	ND	0.1	0.087	
Pentachlorophenol	ND	0.2	0.12	
Silvex (2,4,5-TP)	ND	0.1	0.081	
2,4,5-T	ND	0.1	0.076	
Dinoseb	ND	0.1	0.065	
2,4-DB	ND	0.1	0.09	
MCPP	ND	0.1	0.084	
MCPA	ND	0.1	0.085	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike/Blank Spike Duplicate Report

Lab ID:	HB917
Date Prepared:	11/10/99
Date Analyzed:	11/11/99
QC Batch ID:	HB917

Chlorinated Herbicides by USEPA Method 8151GC/MS Modified

Compound Name	Blank Result (ug/L)	Spike Amount (ug/L)	BS Result (ug/L)	BS % Rec.	BSD Result (ug/L)	BSD % Rec.	RPD	Flag
Dalapon	0	10	4.96	49.6	5.83	58.3	16	
Dicamba	0	10	6.13	61.3	6.46	64.6	5.2	
2,4-D	0	10	7.51	75.1	8.07	80.7	7.2	
Pentachlorophenol	0	10	11.7	117	11.2	112	-4.4	
Silvex (2,4,5-TP)	0	10	11.2	112	10	100	-11	
Dinoseb	0	10	11.5	115	10.9	109	-5.4	
MCPA	0	10	8.85	88.5	8.65	86.5	-2.3	

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SOUND ANALYTICAL SERVICES, INC.

ANALYTICAL & ENVIRONMENTAL CHEMISTS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE: (253) 922-2310 - FAX: (253) 922-5047

DATA QUALIFIERS AND ABBREVIATIONS

B1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).

B2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).

C1: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be $\leq$ 40%.

C2: Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 40%. The higher result was reported unless anomalies were noted.

M: GC/MS confirmation was performed. The result derived from the original analysis was reported.

D: The reported result for this analyte was calculated based on a secondary dilution factor.

E: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.

J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

MCL: Maximum Contaminant Level

MDL: Method Detection Limit

N: See analytical narrative.

ND: Not Detected

PQL: Practical Quantitation Limit

X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.

X2: Contaminant does not appear to be "typical" product.

X3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.

X4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.

X4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.

X5: Matrix spike recovery was not determined due to the required dilution.

X6: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.

X7: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.

X7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.

X8: Surrogate recovery was not determined due to the required dilution.

X9: Surrogate recovery outside advisory QC limits due to matrix interference.

8/4

Sound Analytical Services, Inc.
ANALYTICAL & ENVIRONMENTAL CHEMISTS
4813 Pacific Hwy East • Tacoma, WA 98424
(253) 922-2310 • FAX (253) 922-5047
e-mail: saimc1@uswest.net

SAS Lab No. 85427

TURNAROUND REQUEST (business days)
Standard (10 days) ___
RUSH: 24 hrs ___ 48 hrs ___ 5 day ✓

CHAIN OF CUSTODY/REQUEST FOR LABORATORY ANALYSIS

Client: Parametrix
Project Name: Port of Seattle Vaccafarm
Contact: Kurt Easthouse
Phone No.: 425-822-8880
Fax No.: 425-889-8808
Email:

Analyses Requested

Lab Use Only	Sample ID	Date	Time	Matrix	# of Containers	Chlorinated Pest 8081	Organophosphorus Pesticides 8141	Herbicides 8151
1	VF-FP-1, 0-5	11-9-98	840	Soil	1	✓	✓	✓
2	VF-FP-1, 1-1.5		841			✓	✓	✓
3	VF-FP-2, 0-5		902			✓	✓	✓
4	VF-FP-2, 1-1.5		910			✓	✓	✓
5	VF-FP-3, 0-5		923			✓	✓	✓
6	VF-FP-3, 1-1.5		926			✓	✓	✓
7	VF-MC-1, 0-5		1100			✓	✓	✓
8	VF-MC-1, 1-1.5		1110			✓	✓	✓
9	VF-MC-2, 0-5		1045			✓	✓	✓
10	VF-MC-2, 1-1.5		1048			✓	✓	✓
11	VF-MC-3, 0-5		1017			✓	✓	✓
12	VF-MC-3, 1-1.5		1020			✓	✓	✓
13	VF-MC-4, 0-5		1015	↓		✓	✓	✓
14	Rinsate Blank	↓	1130	Water	2	✓	✓	✓

	Signature	Printed Name	Firm	Time/Date
Relinquished By:	JMatthews	SMatthews	PMX	1218/11-9-98
Received By	H Strom	A Simon	SAS	1515/11-9-98
Relinquished By:				
Received By				
Relinquished By:				
Received By				

Special Instructions
RUSH
48 HOUR TAT
surface samples are 0-5 ft bgs
1-1.5 ft samples are all subsurface

COC No. ___

Page ___ of ___

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