APPENDIX C

Laboratory Results Report

Air Resources Board

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DATE: October 20, 2008

SUBJECT: 2008 APPLICATION AIR MONITORING OF PROPANIL IN COLUSA COUNTY

The Special Analysis Section (SAS) provided laboratory support for the 3,4-dichloropropionanilide (Propanil) application air monitoring program conducted in Colusa County in June 2008. The SAS laboratory received 91 samples collected over a four-day period. The samples were collected on quartz filters.

The data are presented in the attached report, titled "3,4-Dichloropropionanilide (Propanil) Method Development and Analytical Results for Application Air Monitoring Samples in Colusa County." If you have any questions or comments, please contact T.E. Houston, Ph.D. of my staff at 322-2365 or me at 322-2496.

Attachment
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Air Resources Board

3,4-Dichloropropionanilide (Propanil) Method Development and Analytical Results for Application Air Monitoring Samples in Colusa County

DATE: October 20, 2008

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This report has been reviewed by staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does mention of trade names of commercial products constitute endorsement or recommendation for use.

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1.0 INTRODUCTION

The Department of Pesticide Regulation (DPR) requested the Air Resources Board (ARB) to conduct application air monitoring for 3,4-dichloropropionanilide (Propanil). This report covers the method development, analytical and quality assurance results for propanil during an application study in Colusa County in 2008. DPR requested a method estimated quantitation limit (EQL) of 1.0 microgram per cubic meter (µg/m^3). The EQL achieved during this project was 0.02 µg/m^3 based on 24 hour collection at three liters per minute (LPM).

2.0 METHOD DEVELOPMENT

2.1 Overview

Quartz filters are used to collect the air samples. After sampling, filters are stored at or below four degrees centigrade (°C) before extraction. The filters are extracted with ten milliliters (ml) of dichloromethane (DCM) and allowed to sit at room temperature for 60 minutes. Sample extracts are analyzed using a gas chromatograph / mass spectrometer (GC/MS) which is operated in the selected ion-monitoring mode (SIM). Sample analysis and quantitation use an external calibration method. Estimated quantitation levels for this method, based on 4.3 cubic meters (m^3) of air collected, and a final extract volume of ten ml, is 1.0 µg/m^3. Appendix A contains the standard operating procedure (SOP) for propanil.

2.2 Instrument Reproducibility

Five individual injections of 1.0 microliters (µl) each were made of propanil at three concentrations (low, medium, and high) in order to establish the reproducibility of the instrument. Table 1 shows the results for the three levels with the average and standard deviation.

Table 1: Instrument reproducibility

Calibration Range	Low	Medium	High
0.01-0.20 µg/ml	0.012	0.093	0.184
	0.012	0.094	0.190
	0.011	0.087	0.186
	0.012	0.087	0.201
	0.012	0.093	0.200
Average	**0.012**	**0.091**	**0.192**
Standard Deviation	**0.0004**	**0.003**	**0.008**

2.3 Calibration Curve

Laboratory staff used standard concentrations of 0.01, 0.02, 0.05, 0.10 and 0.20 µg/ml for a five-point calibration curve. All calibration curves performed have an r^2 (variance) greater than or equal to 0.995. External calibration was run for each sample set and was linear in this range. Samples expected to have high concentrations of propanil were analyzed at a higher range. External calibration was quadratic for standard concentrations of 0.4, 0.8, 1.2, 2.0 and 4.0 µg/ml.

2.4. Minimum Detection Limit (MDL)

The MDL calculation follows the United States Environmental Protection Agency (USEPA) procedures for calculating MDL's. Using the analysis of seven low-level matrix spikes (0.01 µg/ml), the MDL and EQL for a ten-ml extract is calculated as follows:

s = the standard deviation of the concentration calculated for the seven replicate spikes.
For propanil: s = 0.00061 µg/ml

MDL = (3.14) x (s) = (3.14) x (0.00061) = 0.0019 µg/ml.
*MDL for total µg/sample = 0.019 µg/sample**
EQL = (5) x (MDL) = (5) x (0.0019) = 0.0096 µg/ml
*EQL for total µg/sample = 0.096 µg/sample**

** assuming a ten-ml final extract volume*

Based on a total collection volume of 4.3 m^3 the EQL would be 0.02 µg/m^3. Staff report results above the EQL to two significant figures. Results below the EQL but greater than or equal to the MDL are reported to one significant figure. Results less than MDL are reported as the calculated MDL to one significant figure.

2.5. Collection and Extraction Efficiency (Recovery)

Spiked filters were used to determine method field recovery. The filters were spiked with 0.1 µg and 2 µg of propanil standard. A spiked filter was placed on a field sampler and sampled at approximately three liters per minute (lpm) for 24 hours at ambient temperature. The filter was removed from the holder, placed in a vial and ten ml of DCM added. After extraction the sample was analyzed by GC/MS. The recoveries for propanil were 100% at 0.01 and 0.20 µg/ml.

2.6. Storage Stability

Laboratory staff completed a storage stability study which ran for 28 days with filters being tested at 0, 7, 14, 21, and 28 days. Table 2 shows the results of the storage stability test. Laboratory staff analyzed all field samples within 14 days of collection.

Table 2: Storage stability

Day	Blank	Low	%	High	%
0	<MDL	0.011	110	0.18	90
7	<MDL	0.010	100	0.18	90
14	<MDL	0.013	130	0.21	105
21	<MDL	0.013	130	0.17	85
28	<MDL	0.010	100	0.17	85
	Average	0.011	114.0	0.182	91.0
	StDev	0.002	15.2	0.016	8.2

2.7. Breakthrough

With recovery of filter samples at 100%, no breakthrough analysis was done for this project.

3.0 PROPANIL APPLICATION AIR MONITORING SAMPLE RESULTS

The laboratory received a total of 91 application samples including four field spikes, one field blank, one trip blank, and one trip spike on June 24, 2008. Table 3 presents the results of the analysis of the propanil application air samples by site.

4.0 ANALYTICAL QUALITY CONTROL SAMPLES

4.1 System Blanks

Laboratory staff analyzes a system blank with each analytical batch, before the calibration, after the control and check samples, and after every tenth sample, and after samples containing high levels of propanil or co-extracted contaminants. Staff defines the analytical batch as all the samples extracted together, but not to exceed 20 samples. The system blank is run to insure the solvent and instrument do not contribute interferences to the analysis, and to minimize carryover from high level samples. All system blanks were less than the MDL.

4.2 Method Blanks

Laboratory staff analyzed a method blank with each analytical batch. This is a filter prepared and analyzed as described for the application samples. All method blanks were less than the MDL.

4.3 Laboratory Control Samples (LCS)

Laboratory staff analyzed a LCS with each analytical batch. A LCS is a filter spiked with 0.50 µg of propanil. The LCS is extracted and analyzed as described for the samples. The LCS recoveries averaged 91% with a standard deviation of 4.8%. The acceptable LCS range was 0.38 to 0.62 µg/sample.

4.4 Continuing Calibration Verification Standards (CCV)

Following standard lab procedures, laboratory staff analyzed a CCV after every calibration curve, after every tenth sample and at the end of an analytical batch. The CCV must be within ± 25% of the expected value. If any of the CCVs are outside this limit, the affected samples are re-analyzed. The CCV standard for each analytical batch is 0.05 µg/ml.

4.5 Laboratory Duplicates

No laboratory duplicates were run with this project.

5.0 FIELD, TRIP, AND LABORATORY SPIKES AND TRIP BLANKS

During the Colusa County 2008 project, four field spikes, one trip spike, one laboratory spike, along with one field blank and one trip blank were analyzed. Laboratory staff prepared the spikes at 0.5 µg of propanil per sample. Table 4 presents the results for the quality control data.

5.1 Field Spikes

The average propanil recovery was 96.3% with a standard deviation of 6.9%. Values ranged 0.453-0.528 µg/sample.

5.2 Trip Spike and Laboratory Spike

The recovery for propanil was 0.485 µg/sample (97%) for the trip spike and 0.466 µg/sample (93%) for the laboratory spike.

5.3 Field and Trip Blanks

One each of a field and trip blank were received during this project and both results were at 0.08 µg/sample.

6.0 DISCUSSION

The Laboratory received 91 field samples, including four field spikes, a trip spike, along with one field blank and one trip blank. A laboratory spike was prepared and held at the laboratory at the same time. Results for propanil ranged from 0.06 µg/sample to 40.2 µg/sample, with a median of 0.528 µg/sample. No samples were less than the MDL of 0.02 µg/sample. The four background samples prior to application were slightly less than the EQL of 0.1 µg/sample. Eight samples had values greater than the DPR requested EQL of 4.32 µg/sample. The remaining samples were between 0.1 to 2.8 µg/sample.

No dilutions were necessary for this analysis. The samples taken at the time of application were run at the higher calibration level, with the highest sample at 4.02 µg/ml. The concentration dropped off significantly with the second sampling period and the lower calibration range was applicable.

Propanil has a very low vapor pressure, a solid at room temperature. When applied it is prepared as emulsion/solution in water. The propanil behaves as a particulate on vaporization of the liquid. Recovery of propanil applied as a liquid on the filters was nearly 100%. No breakthrough analysis was done based on the assumption that any propanil would retain on the filter as “particulate”.

The quartz filters did contain a contaminant that could have potentially interfered, even in SIM mode on the GC/MS, a phthalate compound, 1,2-benzenedicarboxylic acid bis-(2-methylpropyl) ester. While the ion at 149 is known for phthalates, the spectrum does contain 161 which is one of the target ions for propanil . A 30 minute soaking of the filters in DCM followed by air drying eliminated the phthalate interferences. The phthalate was not present in filters initially used for method development, it became known only after opening a “new” box.

During this study one field and one trip blank were analyzed. Propanil was detected near the analytical EQL (0.08 µg/sample) but well below the DPR equivalent MDL of 0.9 µg/sample. There was no detectable propanil on filter blanks run with each analytical sample batch.

Four field spikes were analyzed during this study. The samplers were set up along the north, east, south, and west side for background with the field spikes collocated. The background samples all had detectable amounts of propanil, averaging 0.07 µg/sample. Table 4 shows the field spike recoveries reported without background subtraction.

The highest concentrations of propanil was measured in the east, southeast, south, and southwest areas during the time of the application. These samples were SS-P-1(PA023) 40.2 µg/sample, SWC-P-1(PA024) 29.2 µg/sample, ES-P-1(PA016) 21.0 µg/sample, SEC-P-1(PA017) 18.9 µg/sample, and the collocated site SEC-P-1C(PA022) 19.5 µg/sample. Other sites for the application was sample NS-P-1(PA014)

with 9.1 µg/sample and WS-P-1(PA025) at 8.6 µg/sample. The filter placed in front of the XAD tube SEC-P-1F(PA018) had a concentration of 15.8 µg/sample. When the filter was reversed and placed behind the XAD cartridge the result was 0.37 µg/sample (SEC-P-1F(R), PA021). With the post application data set (#2) the concentration had dropped to averaging 2.25 µg/sample.

At the time of the application a series of fires had occurred in the area. A larger amount of particulate was present on the filters by the time of the 5th sampling cycle.

Table 3: Propanil Application Air Monitoring Results For Colusa County 2008

Site Location	Lab ID	Log #	Sample Name	Date & Time Start	Date & Time End	Date Analyzed	ug/sample
North Side	PA001	001	NS-P-B	6/20/08 9:30	6/21/08 3:09	25-Jun	6.7E-02
	PA014	014	NS-P-1	6/21/08 5:21	6/21/08 9:23	26-Jun	9.10E+00
	PA040	040	NS-P-2	6/21/08 9:23	6/21/08 18:18	27-Jun	1.87E+00
	PA047	047	NS-P-3	6/21/08 18:20	6/22/08 6:07	1-Jul	4.05E-01
	PA060	060	NS-P-4	6/22/08 6:08	6/22/08 18:11	1-Jul	8.03E-01
	PA073	073	NS-P-5	6/22/08 18:13	6/23/08 5:46	2-Jul	5.47E-01
	PA086	086	NS-P-6	6/23/08 5:47	6/23/08 18:13	7-Jul	8.17E-01
	PA099	099	NS-P-7	6/23/08 18:13	6/24/08 5:37	8-Jul	3.60E-01

Site Location	Lab ID	Log #	Sample Name	Date & Time Start	Date & Time End	Date Analyzed	ug/sample
North East Corner	PA015	015	NEC-P-1	6/21/08 5:22	6/21/08 9:08	--	*1
	PA038	038	NEC-P-2	6/21/08 9:08	6/21/08 18:25	27-Jun	1.20E+00
	PA048	048	NEC-P-3	6/21/08 18:27	6/22/08 6:12	1-Jul	3.45E-01
	PA061	061	NEC-P-4	6/22/08 6:14	6/22/08 18:17	1-Jul	3.90E-01
	PA074	074	NEC-P-5	6/22/08 18:18	6/23/08 5:52	2-Jul	1.69E-01
	PA087	087	NEC-P-6	6/23/08 5:53	6/23/08 18:17	7-Jul	2.74E-01
	PA100	100	NEC-P-7	6/23/08 18:18	6/24/08 5:40	8-Jul	1.50E-01

Site Location	Lab ID	Log #	Sample Name	Date & Time Start	Date & Time End	Date Analyzed	ug/sample
East Side	PA003	003	ES-P-B	6/20/08 9:50	6/21/08 3:38	25-Jun	7.0E-02
	PA011	011	ES-P-BF	6/20/08 10:34	6/21/08 3:56	25-Jun	1.25E-01
	PA016	016	ES-P-1	6/21/08 5:23	6/21/08 9:18	26-Jun	2.19E+01
	PA039	039	ES-P-2	6/21/08 9:18	6/21/08 18:31	27-Jun	2.36E+00
	PA049	049	ES-P-3	6/21/08 18:33	6/22/08 6:17	1-Jul	9.10E-01
	PA062	062	ES-P-4	6/22/08 6:18	6/22/08 18:21	1-Jul	1.22E+00
	PA075	075	ES-P-5	6/22/08 18:23	6/23/08 5:56	2-Jul	3.97E-01
	PA088	088	ES-P-6	6/23/08 5:58	6/23/08 18:20	7-Jul	9.43E-01
	PA101	101	ES-P-7	6/23/08 18:21	6/24/08 5:42	8-Jul	2.69E-01

Site Location	Lab ID	Log #	Sample Name	Date & Time Start	Date & Time End	Date Analyzed	ug/sample
South East Corner and Collocated	PA017	017	SEC-P-1	6/21/08 5:24	6/21/08 9:18	26-Jun	1.89E+01
	PA018	018	SEC-P-1F	6/21/08 5:26	6/21/08 9:26	26-Jun	1.58E+01
	PA021	021	SEC-P-1F (R)	6/21/08 5:25	6/21/08 9:07	26-Jun	3.70E-01
	PA022	022	SEC-P-1C	6/21/08 5:27	6/21/08 9:21	26-Jun	1.95E+01
	PA029	029	SEC-P-2F (R)	6/21/08 9:13	6/21/08 18:37	27-Jun	2.35E+00
	PA031	031	SEC-P-2	6/21/08 9:20	6/21/08 18:40	27-Jun	1.41E+00
	PA032	032	SEC-P-2C	6/21/08 9:22	6/21/08 18:52	27-Jun	2.04E+00
	PA033	033	SEC-P-2F	6/21/08 9:30	6/21/08 18:46	27-Jun	1.40E+00
	PA050	050	SEC-P-3	6/21/08 18:43	6/22/08 6:22	1-Jul	6.71E-01
	PA051	051	SEC-P-3C	6/21/08 18:55	6/22/08 6:31	1-Jul	6.65E-01
	PA052	052	SEC-P-3F	6/21/08 18:50	6/22/08 6:26	1-Jul	6.22E-01
	PA063	063	SEC-P-4	6/22/08 6:23	6/22/08 18:26	1-Jul	9.96E-01
	PA064	064	SEC-P-4C	6/22/08 6:32	6/22/08 18:36	1-Jul	1.12E+00
	PA065	065	SEC-P-4F	6/22/08 6:28	6/22/08 18:30	1-Jul	7.54E-01
	PA076	076	SEC-P-5	6/22/08 18:28	6/23/08 6:03	2-Jul	4.08E-01
	PA077	077	SEC-P-5C	6/22/08 18:35	6/23/08 6:14	2-Jul	2.98E-01
	PA078	078	SEC-P-5F	6/22/08 18:33	6/23/08 6:06	2-Jul	2.53E-01
	PA089	089	SEC-P-6	6/23/08 6:50	6/23/08 18:25	7-Jul	5.24E-01
	PA090	090	SEC-P-6C	6/23/08 6:15	6/23/08 18:34	7-Jul	6.44E-01
	PA091	091	SEC-P-6F	6/23/08 6:12	6/23/08 18:30	7-Jul	2.30E-01
	PA102	102	SEC-P-7	6/23/08 18:27	6/24/08 5:45	8-Jul	1.73E-01
	PA103	103	SEC-P-7C	6/23/08 18:35	6/24/08 5:50	8-Jul	2.21E-01
	PA104	104	SEC-P-7F	6/23/08 18:32	6/24/08 5:48	8-Jul	1.64E-01

Site Location	Lab ID	Log #	Sample Name	Date & Time Start	Date & Time End	Date Analyzed	ug/sample
South Side	PA005	005	SS-P-B	6/20/08 9:57	6/21/08 4:33	25-Jun	7.6E-02
	PA023	023	SS-P-1	6/21/08 5:29	6/21/08 9:35	26-Jun	4.02E+01
	PA035	035	SS-P-2	6/21/08 9:36	6/21/08 19:00	27-Jun	2.72E+00
	PA054	054	SS-P-3	6/21/08 19:01	6/22/08 6:36	1-Jul	8.77E-01
	PA067	067	SS-P-4	6/22/08 6:37	6/22/08 18:40	1-Jul	2.16E+00
	PA080	080	SS-P-5	6/22/08 18:41	6/23/08 6:19	2-Jul	7.91E-01
	PA093	093	SS-P-6	6/23/08 6:20	6/23/08 18:38	7-Jul	1.90E+00
	PA106	106	SS-P-7	6/23/08 18:39	6/24/08 5:53	8-Jul	5.70E-01

Site Location	Lab ID	Log #	Sample Name	Date & Time Start	Date & Time End	Date Analyzed	ug/sample
South West Corner	PA024	024	SWC-P-1	6/21/08 5:30	6/21/08 9:39	26-Jun	2.92E+01
	PA036	036	SWC-P-2	6/21/08 9:40	6/21/08 19:06	27-Jun	1.81E+00
	PA055	055	SWC-P-3	6/21/08 19:08	6/22/08 6:43	1-Jul	7.50E-01
	PA068	068	SWC-P-4	6/22/08 6:44	6/22/08 18:44	1-Jul	1.38E+00
	PA081	081	SWC-P-5	6/22/08 18:46	6/23/08 6:23	2-Jul	5.03E-01
	PA094	094	SWC-P-6	6/23/08 6:24	6/23/08 18:41	7-Jul	8.13E-01
	PA107	107	SWC-P-7	6/23/08 18:43	6/24/08 5:57	8-Jul	4.40E-01

Site Location	Lab ID	Log #	Sample Name	Date & Time Start	Date & Time End	Date Analyzed	ug/sample
West Side	PA007	007	WS-P-B	6/20/08 10:07	6/21/08 4:55	25-Jun	6.5E-02
	PA009	009	WS-P-BF	6/20/08 10:19	6/21/08 5:08	25-Jun	1.28E-01
	PA025	025	WS-P-1	6/21/08 5:31	6/21/08 9:43	26-Jun	8.60E+00
	PA037	037	WS-P-2	6/21/08 9:44	6/21/08 19:11	27-Jun	9.80E-01
	PA056	056	WS-P-3	6/21/08 19:13	6/22/08 6:47	1-Jul	2.72E-01
	PA069	069	WS-P-4	6/22/08 6:49	6/22/08 18:49	1-Jul	5.40E-01
	PA082	082	WS-P-5	6/22/08 18:50	6/23/08 6:28	2-Jul	3.00E-01
	PA095	095	WS-P-6	6/23/08 6:29	6/23/08 18:45	7-Jul	5.32E-01
	PA108	108	WS-P-7	6/23/08 18:46	6/24/08 5:59	8-Jul	1.98E-01

Site Location	Lab ID	Log #	Sample Name	Date & Time Start	Date & Time End	Date Analyzed	ug/sample
North West Corner	PA026	026	NWC-P-1	6/21/08 5:34	6/21/08 9:32	26-Jun	2.80E+00
	PA027	027	NWC-P-1F	6/21/08 5:35	6/21/08 9:44	26-Jun	2.50E+00
	PA041	041	NWC-P-2	6/21/08 9:32	6/21/08 18:02	27-Jun	6.65E-01
	PA042	042	NWC-P-2F	6/21/08 9:44	6/21/08 18:10	27-Jun	5.93E-01
	PA044	044	NWC-P-3	6/21/08 18:06	6/22/08 5:56	1-Jul	1.77E-01
	PA045	045	NWC-P-3F	6/21/08 18:13	6/22/08 5:59	1-Jul	1.82E-01
	PA057	057	NWC-P-4	6/22/08 5:57	6/22/08 18:01	1-Jul	3.01E-01
	PA058	058	NWC-P-4F	6/22/08 6:03	6/22/08 18:05	1-Jul	3.44E-01
	PA070	070	NWC-P-5	6/22/08 18:02	6/23/08 5:32	2-Jul	1.15E-01
	PA071	071	NWC-P-5F	6/22/08 18:08	6/23/08 5:38	2-Jul	2.51E-01
	PA083	083	NWC-P-6	6/23/08 5:37	6/23/08 18:05	7-Jul	3.02E-01
	PA084	084	NWC-P-6F	6/23/08 5:42	6/23/08 18:07	7-Jul	3.37E-01
	PA096	096	NWC-P-7	6/23/08 18:06	6/24/08 5:28	8-Jul	1.92E-01
	PA097	097	NWC-P-7F	6/23/08 18:09	6/24/08 5:30	8-Jul	1.90E-01

Table 3 Notes: Application Monitoring Results, Colusa County 2008

If the analytical result is <MDL it is reported as less than the established method detection limit. Results are reported to one significant figure. If the analytical result is ≥ MDL and < EQL it is reported in the table as the measured value to one significant figure. Levels at or above the EQL are reported as the actual measured value and are reported to two significant figures.

ug = microgram

Site location identification:

N:	North Side
NEC:	Northeast Corner
E:	East Side
SEC:	Southeast Corner
S:	South Side
SWC:	Southwest Corner
W:	West Side
NWC:	Northwest Corner

Sample ID (Sample identification) numbers followed by the letters C are collocated samples for the samples with the corresponding number. The collocated site was restricted to the Southeast corner.

In addition XAD-2 samples were run concurrently in the Southeast Corner and the Northwest Corner. Filters were placed in front of the XAD or after the XAD. The XAD-2 samples were analyzed separately.

Sample ID numbers followed by the letter F are where the filters were placed in front of the XAD samples.

Sample ID numbers followed by the letter R are where the filters were placed in back of the XAD samples. This was for only 2 samples: SEC-P-1F(R) and SEC-P-2F(R).

*1: Sample listed as invalid in field.

Table 4: Quality Control Data Filter Spikes for Field, Trip, and Laboratory.

Quality Control	Lab ID	Log #	Sample Name	Date & Time Start	Date & Time End	Date Analyzed	ug/sample[1]
Field Spikes	PA002	002	NS-P-FS#1	6/20/08 9:35	6/21/08 3:21	25-Jun	0.453
	PA004	004	ES-P-FS#2	6/20/08 9:52	6/21/08 3:47	25-Jun	0.457
	PA006	006	SS-P-FS#3	6/20/08 10:03	6/21/08 4:33	25-Jun	0.488
	PA008	008	WS-P-FS#4	6/20/08 10:13	6/21/08 4:58	25-Jun	0.528
Trip Spike	PA013	013	P-TS	6/20/08 10:35	----	25-Jun	0.485
Laboratory Spike	----	----	Lab Spike	----	----	25-Jun	0.466
Blanks	PA109	109	TB-1	6/24/08 6:01	----	8-Jul	0.079
	PA110	110	FB-1	6/24/08 6:02	----	8-Jul	0.079

Notes:
All spikes were made to 0.5 µg/sample.
1-Field Spike levels not background subtracted.

Appendix A:

Standard Operating Procedure for Propanil

California Environmental Protection Agency

Air Resources Board

Standard Operating Procedure for Sampling and Analysis of 3,4-Dichloropropionanilide (Propanil) in Ambient and Application Air using Gas Chromatography/Mass Selective Detector

Special Analysis Section
Northern Laboratory Branch
Monitoring and Laboratory Division

Revision 1
8/01/08

Approved by:

Russell Grace, Manager
Special Analysis Section

DISCLAIMER: Mention of any trade name or commercial product in this Standard Operating Procedure does not constitute endorsement or recommendation of this product by the Air Resources Board. Specific brand names and instrument descriptions listed in the Standard Operating Procedures are equipment used by the ARB laboratory. Any functionally equivalent instrumentation can be used.

1. SCOPE

The current method is for the analysis of 3,4-dichloropropionanilide (Propanil) using a gas chromatograph/mass selective detector. The procedure is for the analysis of ambient and application air monitoring of propanil using quartz fiber filters. The Department of Pesticide Regulation (DPR) asked the Air Resources Board (ARB) to analyze for propanil during agricultural application and ambient monitoring with an estimated quantitation limit of 1.0 $\mu g/m^3$.

2. SUMMARY OF METHOD

Quartz fiber filters are placed on the ambient sampler for 24 hours at a flow rate of 3.0 liters per minute (LPM). Application sampling will vary from 2 hours to 24 hours. The samples are stored in an ice chest or refrigerator until extracted with 10.0 ml of dichloromethane (DCM). A gas chromatograph with a mass selective detector in the selected ion monitoring (SIM) mode is used for analysis.

3. INTERFERENCES/LIMITATIONS

Interferences may be caused by contaminants in solvents, reagents, glassware and other processing apparatus that can lead to discrete artifacts or elevated baselines. A method blank, including both solvent and filter, must be analyzed with each batch of samples to detect any possible interference. Presence of a phthalate peak near the retention time of the propanil necessitates rinsing the filters for a minimum of 10 minutes in dichloromethane and air dry before use.

4. EQUIPMENT AND CONDITIONS

A. INSTRUMENTATION:

Hewlett-Packard 6890 Series gas chromatograph
Hewlett-Packard 5973 Network mass selective detector
Hewlett-Packard 6890 Enhanced Parameters ALS

MS Transfer line: 280°C
Injector: 250°C
Pulsed splitless: pulse pressure, 50.0 psi, pulse time 1.0 min. Purge flow 50.0 mL/min, purge time 0.95 min.
Liner 4 mm deactivated single taper gooseneck.

Column: J&W Scientific DB-5MS, 30 meter, 250 μm i.d., 0.25 μm film thickness, or equivalent

GC Temperature Program: Oven initial 110°C, hold 0 min. Ramp to 240°C @ 12°C/min., ramp to 300°C @ 20°C/min., hold 1.0 min.
Retention time: Propanil 8.76 min.

Column Flow: He, 2.0 mL/min, 21.8 psi. (velocity: 53cm/sec)
Mass Spectrometer: Electron Ionization
Selective Ion Monitoring: propanil: 161 (quant. ion 100%), 163 (qual. ion 62%);
Tuning: PFTBA on masses 69, 219, 502

B. Auxiliary Apparatus

1. Precleaned amber vials, 12 mL capacity with teflon caps
2. Pipettors, 10 mL capacity; Pasteur pipettes.
3. Sonicator.
4. GC vials with septum caps.
5. Filter holders, 47 mm and transport containers, BGI Waltham, Mass.

C. Reagents

1. Dichloromethane, Pesticide grade or better
2. 3,4-Dichloropropionanilide (Propanil), Chem Service PS-356, 99.0%
3. Whatman Quartz fiber filters QM-A, 47 mm, rinsed and dried.

5. ANALYSIS OF SAMPLES

1. A daily manual tune shall be performed using PFTBA. The instrument is tuned using masses: 69, 219, 502. The criterion for the tune are the peak widths at ½ the peak height, 0.60 ± 0.05, and the criteria for relative abundance: 69:100%, 219:90-120%, and 502: 5-12%.

2. It is necessary to analyze a solvent blank with each batch of samples. The blank must be free of interferences. A solvent blank must be analyzed after any sample that may result in possible carry-over contamination.

3. A five-point calibration curve shall be analyzed with each batch of samples. The calibration will be 0.01-0.20 µg/mL for ambient studies and 0.40-4.0 µg/mL for application.

4. A calibration check sample (0.05 µg/mL or 0.5 µg/mL) is run after the calibration, after every ten samples and at the end of the sample batch. The value of the calibration check must be within $\pm 3\sigma$ (the standard deviation) or ±10% of the expected value whichever is greater. If the calibration check is

outside this limit, then those samples in the batch after this calibration check need to be reanalyzed.

5. With each batch of samples analyzed, a laboratory (filter) blank and a laboratory (filter) control spike will be run concurrently. A laboratory blank is a filter extracted and analyzed the same way as the samples. A laboratory control spike is a filter spiked with a known amount of standard. The laboratory control sample is extracted and analyzed the same way as the samples. Laboratory control samples should have recoveries that are greater than or equal to 70% of the theoretical spiked value.

6. Remove the filter from the holder, transfer into a 12-mL vial. Add 10.0 mL of DCM into the extraction vial. Cap and let the vial sit for one hour.

7. Transfer the sample directly into a GC vial and cap securely. The remainder is placed in the refrigerator.

8. The atmospheric concentration is calculated according to:

   Conc ($\mu g/m^3$) = Extract Conc ($\mu g/mL$) X 10 mL / Air Volume Sampled (m^3)

6. QUALITY ASSURANCE

A. Instrument Reproducibility

The reproducibility of the instrument and analytical method was established by analyzing five (5) 1.0 μL injections of propanil standard at three concentrations (low, mid, and high). The low, mid and high concentrations were 0.01, 0.1 and 0.2 µg/ml, respectively for ambient and 0.4, 2.0, and 4.0 µg/mL for application.

B. Calibration

A daily five-point calibration curve is made ranging from 0.01-0.20 µg/mL (ambient) and 0.40-4.0 µg/mL (application).

C. Calibration Check

A calibration check sample is run after the calibration, after every ten samples and at the end of the sample batch to verify the calibration. The value of the check must be within $\pm 3\sigma$ (the standard deviation) or $\pm$10% of the expected value whichever is greater. If the calibration check is outside the limit, then those samples in the batch after this calibration check need to be reanalyzed.

D. Minimum Detection Limit

The detection limit is based on US EPA MDL calculation. Using the analysis of seven (7) replicates of a low-level matrix spike, the method detection limit (MDL) and the estimated quantitation limit (EQL) for propanil is calculated by: MDL = 3.14*(std dev values), where std dev = the standard deviation of the concentration calculated for the seven replicate spikes. For propanil the MDL is 0.019 µg/sample (0.0019 µg/mL). EQL, defined as 5*MDL, is 0.095 µg/sample (0.0095 µg/mL) based on a 10.0 mL extraction volume. Results are reported to three significant figures. Results below EQL but above the MDL are reported to one significant figure. Results less than the MDL are reported as less than the value of the MDL to one significant figure.

E. Collection and Extraction Efficiency (Recovery)

Propanil at a low and high level are spiked on the filters (three at each concentration). The spiked filters are placed on field samplers with airflows of 3 LPM for 24 hours. The samples are extracted with DCM and prepared as described in section 5, #6-7. The average percent recovery of propanil should be ± 20% of the expected value. The recoveries both for the low and high levels are at or near 100%.

F. Storage Stability

Storage stability is set up for a four-week study and will run concurrent with the field analysis. Three (3) filters each are spiked at the low and high-end concentrations. The filters are stored in the refrigerator until analyzed.

G. Breakthrough

No breakthrough analysis study was conducted. Recovery of spiked filters is at 100%.

H. Safety

This procedure does not address all of the safety concerns associated with chemical analysis. It is the responsibility of the analyst to establish appropriate safety and health practices. For hazard information and guidance refer to the material safety data sheets (MSDS) of any chemicals used in this procedure.

Propanil XAD samples ***Corrected 9/10/08*** Reporting limit = 0.05ug

study	Date Start	Date End	log #	Location	Sampler	Flow rate on	Flow rate off	Time on	Time off	Counter on	Counter off	Propanil ug
QC6	6/20/2008	6/21/2008	***10***	WS-***P***-B***X***	4649	***3.89***	***4.7***	1019	508	708.1	726.9	ND
			12	ES-***P***-B***X***	4663	***3.8***	***3.51***	1034	356	776.3	793.1	ND
	6/21/2008	6/21/2008	19	SEC-P-***1X***	4663	2.74	***2.69***	526	926	793.7	797.7	TRACE
			20	SEC-P-***1X*** (R)	***4656***	2.74	2.73	525	907	528.5	532.2	13.7
	6/21/2008	6/21/2008	28	NWC-P-***1X***	4649	2.75	2.76	535	944	726.9	731	ND
			30	SEC-P-***2X*** (R)	***4656***	2.74	2.76	913	1837	532.2	541.6	1.96
			34	SEC-P-2X	4663	2.75	2.56	930	1846	797.7	***807***	TRACE
			43	NWC-P-***2X***	4649	2.87	2.79	944	1810	731	739.4	TRACE
	6/21/2008	6/22/2008	46	NWC-P-3X	4649	2.74	2.73	1813	559	739.4	751.2	ND
			53	SEC-P-3X	4663	2.73	2.78	1850	626	***807***	818.6	TRACE
	6/22/2008	6/22/2008	59	NWC-P-***4X***	4649	2.74	2.66	603	1805	751.2	763.2	ND
			66	SEC-P-4X	4663	2.65	2.46	628	1830	818.6	830.6	ND
	6/22/2008	6/23/2008	72	NWC-P-***5X***	4649	2.74	2.38	1808	538	763.2	774.5	ND
			79	SEC-P-5X	4645	2.74	2.52	1833	606	830.6	830.5	ND
	6/23/2008	6/23/2008	***85***	NWC-P-***6X***	4649	2.74	2.67	542	1807	774.5	786.9	ND
			92	SEC-P-6***X***	4664	2.74	0	612	1830	339.8	344.4	ND
	6/23/2008	6/24/2008	***98***	NWC-P-***7X***	4649	2.74	2.71	1809	***530***	786.9	798.3	ND
			105	SEC-P-7***X***	4664	2.74	2.71	1832	548	344.4	355.6	ND

Propanil Data by Log Number

Site Name	Log #	Sample Name	Sampler ID #	Elapsed Time	Average Flow	Comment Number	Date Analyzed	ug per sample	ug/m^3 sample
North Side	001	NS-P-B	2265	17.50	4.31	1 & P102	6/25/08	0.067	0.015
QC Sample	002	NS-P-FS#1	2253	17.80	4.39	1 & P184	6/25/08	0.453	0.097
East Side	003	ES-P-B	2251	17.80	4.31	1 & P136	6/25/08	0.070	0.015
QC Sample	004	ES-P-FS#2	2244	17.70	4.33	1 & P192	6/25/08	0.457	0.099
South Side	005	SS-P-B	917	17.57	4.25	1 & P125	6/25/08	0.076	0.017
QC Sample	006	SS-P-FS#3	2246	17.60	4.38	1 & P179	6/25/08	0.488	0.105
West Side	007	WS-P-B	956	17.74	4.27	1 & P072	6/25/08	0.065	0.014
QC Sample	008	WS-P-FS#4	915	17.73	4.33	1 & P183	6/25/08	0.528	0.115
West Side	009	WS-P-BF	4649	17.80	4.69	1 & P127	6/25/08	0.128	0.026
West Side	010	WS-P-BX	4649	17.80	4.69	1		ND	ND
East Side	011	ES-P-BF	4663	17.40	4.00	1 & P081	6/25/08	0.125	0.030
East Side	012	ES-P-BX	4663	17.40	4.00	1		ND	ND
QC Sample	013	P-TS	N.A.	N.A.	N.A.	P181	6/25/08	0.485	N.A.
North Side	014	NS-P-1	2265	4.10	2.96	P071	6/26/08	9.100	12.513
Northeast Corner	015	NEC-P-1	2253	3.70	2.94	2 INVALID	N.A.	N.A.	N.A.
East Side	016	ES-P-1	2251	3.90	3.08	P110	6/26/08	21.900	30.376
Southeast Corner	017	SEC-P-1	2244	3.90	2.92	P100	6/26/08	18.900	27.626
Southeast Corner	018	SEC-P-1F	4663	4.00	2.97	P077	6/26/08	15.800	22.148
Southeast Corner	019	SEC-P-1X	4663	4.00	2.97	3		0.017	0.024
Southeast Corner	020	SEC-P-1X (R)	4656	3.69	2.99	None		13.700	20.666
Southeast Corner	021	SEC-P-1F (R)	4656	3.69	2.99	P134	6/26/08	0.370	0.558
Southeast Corner	022	SEC-P-1C	998	3.89	3.05	P122	6/26/08	19.500	27.406
South Side	023	SS-P-1	917	4.09	2.93	P128	6/26/08	40.200	55.927
Southwest Corner	024	SWC-P-1	2246	4.10	2.79	P086	6/26/08	29.200	42.494
West Side	025	WS-P-1	915	4.19	3.01	P113	6/26/08	8.600	11.384
Northwest Corner	026	NWC-P-1	956	3.95	3.07	P108	6/26/08	2.800	3.848
Northwest Corner	027	NWC-P-1F	4649	4.10	3.02	P132	6/26/08	2.500	3.370
Northwest Corner	028	NWC-P-1X	4649	4.10	3.02	None		ND	ND
Southeast Corner	029	SEC-P-2F (R)	4656	9.40	3.01	P075	6/27/08	2.352	1.385
Southeast Corner	030	SEC-P-2X (R)	4656	9.40	3.01	None		1.960	1.154
Southeast Corner	031	SEC-P-2	2244	9.30	2.93	P076	6/27/08	1.407	0.860
Southeast Corner	032	SEC-P-2C	998	9.48	2.99	P123	6/27/08	2.043	1.200
Southeast Corner	033	SEC-P-2F	4663	9.30	2.91	P121	6/27/08	1.401	0.864
Southeast Corner	034	SEC-P-2X	4663	9.30	2.91	None		0.015	0.009
South Side	035	SS-P-2	917	9.38	2.98	P109	6/27/08	2.719	1.619
Southwest Corner	036	SWC-P-2	2246	9.40	3.01	P111	6/27/08	1.811	1.068
West Side	037	WS-P-2	915	9.43	2.88	P131	6/27/08	0.980	0.602
Northeast Corner	038	NEC-P-2	2253	9.30	3.16	P083	6/27/08	1.201	0.682
East Side	039	ES-P-2	2251	9.20	3.16	P105	6/27/08	2.358	1.351
North Side	040	NS-P-2	2265	8.90	3.17	P104	6/27/08	1.867	1.104
Northwest Corner	041	NWC-P-2	956	8.50	3.15	4 & P130	6/27/08	0.665	0.414
Northwest Corner	042	NWC-P-2F	4549	8.40	3.10	P133	6/27/08	0.593	0.380
Northwest Corner	043	NWC-P-2X	4649	8.40	3.10	None		0.017	0.011

Propanil Data by Log Number

Site Name	Log #	Sample Name	Sampler ID #	Elapsed Time	Average Flow	Comment Number	Date Analyzed	ug per sample	ug/m^3 sample
Northwest Corner	044	NWC-P-3	2252	11.80	3.14	P091	7/1/08	0.177	0.080
Northwest Corner	045	NWC-P-3F	4649	11.80	2.99	P084	7/1/08	0.182	0.086
Northwest Corner	046	NWC-P-3X	4649	11.80	2.99	None		ND	ND
North Side	047	NS-P-3	2265	11.70	3.00	P088	7/1/08	0.405	0.192
Northeast Corner	048	NEC-P-3	2253	11.80	2.98	P095	7/1/08	0.345	0.164
East Side	049	ES-P-3	2251	11.70	2.99	P124	7/1/08	0.910	0.434
Southeast Corner	050	SEC-P-3	2244	11.70	3.02	P080	7/1/08	0.671	0.316
Southeast Corner	051	SEC-P-3C	998	11.59	2.95	P119	7/1/08	0.665	0.324
Southeast Corner	052	SEC-P-3F	4663	11.60	3.02	P118	7/1/08	0.622	0.297
Southeast Corner	053	SEC-P-3X	4663	11.60	3.02	None		0.024	0.011
South Side	054	SS-P-3	917	11.58	2.95	P105	7/1/08	0.877	0.428
Southwest Corner	055	SWC-P-3	2246	11.60	3.06	P099	7/1/08	0.750	0.352
West Side	056	WS-P-3	915	11.57	3.03	P094	7/1/08	0.272	0.129
Northwest Corner	057	NWC-P-4	2252	12.10	2.98	P135	7/1/08	0.301	0.139
Northwest Corner	058	NWC-P-4F	4649	12.00	2.96	P106	7/1/08	0.344	0.162
Northwest Corner	059	NWC-P-4X	4649	12.00	2.96	None		ND	ND
North Side	060	NS-P-4	2265	12.10	2.97	P082	7/1/08	0.803	0.372
Northeast Corner	061	NEC-P-4	2253	12.00	2.95	P089	7/1/08	0.390	0.184
East Side	062	ES-P-4	2251	12.10	2.95	P093	7/1/08	1.224	0.573
Southeast Corner	063	SEC-P-4	2244	12.00	2.97	P126	7/1/08	0.996	0.465
Southeast Corner	064	SEC-P-4C	998	12.05	3.02	P074	7/1/08	1.122	0.513
Southeast Corner	065	SEC-P-4F	4663	12.00	2.80	P186	7/1/08	0.754	0.374
Southeast Corner	066	SEC-P-4X	4663	12.00	2.80	None		ND	ND
South Side	067	SS-P-4	917	12.04	2.97	P101	7/1/08	2.162	1.009
Southwest Corner	068	SWC-P-4	2246	12.00	2.96	P097	7/1/08	1.375	0.646
West Side	069	WS-P-4	915	12.00	2.93	P197	7/1/08	0.540	0.256
Northwest Corner	070	NWC-P-5	2252	1.60	1.51	5 & P195	7/2/08	0.115	0.795
Northwest Corner	071	NWC-P-5F	4649	11.30	2.80	P120	7/2/08	0.251	0.132
Northwest Corner	072	NWC-P-5X	4649	11.30	2.80	None		ND	ND
North Side	073	NS-P-5	2265	11.50	3.00	P085	7/2/08	0.547	0.264
Northeast Corner	074	NEC-P-5	2253	11.60	3.00	P117	7/2/08	0.169	0.081
East Side	075	ES-P-5	2251	11.60	2.99	P103	7/2/08	0.397	0.191
Southeast Corner	076	SEC-P-5	2244	11.60	4.41	6 & P079	7/2/08	0.408	0.133
Southeast Corner	077	SEC-P-5C	998	11.63	2.99	P196	7/2/08	0.298	0.143
Southeast Corner	078	SEC-P-5F	4645	11.55	2.88	7 & P114	7/2/08	0.253	0.127
Southeast Corner	079	SEC-5-5X	4645	11.55	2.88	7		ND	ND
South Side	080	SS-P-5	917	11.55	3.03	P205	7/2/08	0.791	0.377
Southwest Corner	081	SWC-P-5	2246	11.70	3.06	P202	7/2/08	0.503	0.234
West Side	082	WS-P-5	915	11.62	3.01	P188	7/2/08	0.300	0.143
Northwest Corner	083	NWC-P-6	958	12.45	3.06	P187	7/7/08	0.302	0.132
Northwest Corner	084	NWC-P-6F	4649	12.40	2.96	P177	7/7/08	0.337	0.153
Northwest Corner	085	NWC-P-6X	4649	12.40	2.96	None		ND	ND
North Side	086	NS-P-6	2265	12.50	2.97	P143	7/7/08	0.817	0.367

Propanil Data by Log Number

Site Name	Log #	Sample Name	Sampler ID #	Elapsed Time	Average Flow	Comment Number	Date Analyzed	ug per sample	ug/m^3 sample
Northeast Corner	087	NEC-P-6	2253	12.40	2.92	P219	7/7/08	0.274	0.126
East Side	088	ES-P-6	2251	12.30	2.95	8 & P194	7/7/08	0.943	0.433
Southeast Corner	089	SEC-P-6	2-0402	11.62	3.31	9 & P215	7/7/08	0.524	0.227
Southeast Corner	090	SEC-P-6C	998	12.30	3.05	P189	7/7/08	0.644	0.286
Southeast Corner	091	SEC-P-6F	4664	4.60	1.51	10 & P112	7/7/08	0.230	0.552
Southeast Corner	092	SEC-P-6X	4664	4.60	1.51	10 INVALID		ND	ND
South Side	093	SS-P-6	917	12.29	3.00	P218	7/7/08	1.897	0.858
Southwest Corner	094	SWC-P-6	2246	12.30	2.97	P198	7/7/08	0.813	0.371
West Side	095	WS-P-6	915	12.27	2.99	P096	7/7/08	0.532	0.242
Northwest Corner	096	NWC-P-7	958	11.37	2.97	P221	7/8/08	0.192	0.095
Northwest Corner	097	NWC-P-7F	4649	11.40	2.98	P223	7/8/08	0.190	0.093
Northwest Corner	098	NWC-P-7X	4649	11.40	2.98	None		ND	ND
North Side	099	NS-P-7	2265	11.40	2.99	P213	7/8/08	0.360	0.176
Northeast Corner	100	NEC-P-7	2253	11.30	3.00	P208	7/8/08	0.150	0.074
East Side	101	ES-P-7	2251	11.40	2.94	P182	7/8/08	0.269	0.134
Southeast Corner	102	SEC-P-7	957	11.30	3.03	P210	7/8/08	0.173	0.084
Southeast Corner	103	SEC-P-7C	998	11.24	3.02	P092	7/8/08	0.221	0.109
Southeast Corner	104	SEC-P-7F	4664	11.20	2.98	P190	7/8/08	0.164	0.082
Southeast Corner	105	SEC-P-7X	4664	11.20	2.98	None		ND	ND
South Side	106	SS-P-7	917	11.24	3.07	P212	7/8/08	0.570	0.275
Southwest Corner	107	SWC-P-7	2246	11.20	3.08	P214	7/8/08	0.440	0.212
West Side	108	WS-P-7	915	11.20	3.00	P203	7/8/08	0.198	0.098
QC Sample	109	TB-1	N.A.	N.A.	N.A.	P200	7/8/08	0.079	N.A.
QC Sample	110	FB-1	N.A.	N.A.	N.A.	P201	7/8/08	0.079	N.A.
QC Sample	NA	Lab Spike	N.A.	N.A.	N.A.	N.	6/25/08	0.466	N.A.

Propanil Application Monitoring Results

Site Name	Log #	Sample Name	Sampler ID #	Elapsed Time	Average Flow	Comment Number	Date Analyzed	ug per sample	ug/m^3 sample
East Side	003	ES-P-B	2251	17.80	4.31	1 & P136	6/25/08	0.070	0.015
East Side	011	ES-P-BF	4663	17.40	4.00	1 & P081	6/25/08	0.125	0.030
East Side	012	ES-P-BX	4663	17.40	4.00	1		ND	ND
East Side	016	ES-P-1	2251	3.90	3.08	P110	6/26/08	21.9	30.4
East Side	039	ES-P-2	2251	9.20	3.16	P105	6/27/08	2.36	1.35
East Side	049	ES-P-3	2251	11.70	2.99	P124	7/1/08	0.910	0.434
East Side	062	ES-P-4	2251	12.10	2.95	P093	7/1/08	1.22	0.57
East Side	075	ES-P-5	2251	11.60	2.99	P103	7/2/08	0.397	0.191
East Side	088	ES-P-6	2251	12.30	2.95	8 & P194	7/7/08	0.943	0.433
East Side	101	ES-P-7	2251	11.40	2.94	P182	7/8/08	0.269	0.134
North Side	001	NS-P-B	2265	17.50	4.31	1 & P102	6/25/08	0.067	0.015
North Side	014	NS-P-1	2265	4.10	2.96	P071	6/26/08	9.10	12.51
North Side	040	NS-P-2	2265	8.90	3.17	P104	6/27/08	1.87	1.10
North Side	047	NS-P-3	2265	11.70	3.00	P088	7/1/08	0.405	0.192
North Side	060	NS-P-4	2265	12.10	2.97	P082	7/1/08	0.803	0.372
North Side	073	NS-P-5	2265	11.50	3.00	P085	7/2/08	0.547	0.264
North Side	086	NS-P-6	2265	12.50	2.97	P143	7/7/08	0.817	0.367
North Side	099	NS-P-7	2265	11.40	2.99	P213	7/8/08	0.360	0.176
Northeast Corner	015	NEC-P-1	2253	3.70	2.94	2 INVALID	N.A.	N.A.	N.A.
Northeast Corner	038	NEC-P-2	2253	9.30	3.16	P083	6/27/08	1.20	0.68
Northeast Corner	048	NEC-P-3	2253	11.80	2.98	P095	7/1/08	0.345	0.164
Northeast Corner	061	NEC-P-4	2253	12.00	2.95	P089	7/1/08	0.390	0.184
Northeast Corner	074	NEC-P-5	2253	11.60	3.00	P117	7/2/08	0.169	0.081
Northeast Corner	087	NEC-P-6	2253	12.40	2.92	P219	7/7/08	0.274	0.126
Northeast Corner	100	NEC-P-7	2253	11.30	3.00	P208	7/8/08	0.150	0.074
Northwest Corner	026	NWC-P-1	956	3.95	3.07	P108	6/26/08	2.80	3.85
Northwest Corner	027	NWC-P-1F	4649	4.10	3.02	P132	6/26/08	2.50	3.37
Northwest Corner	028	NWC-P-1X	4649	4.10	3.02	None		ND	ND
Northwest Corner	041	NWC-P-2	956	8.50	3.15	4 & P130	6/27/08	0.665	0.414
Northwest Corner	042	NWC-P-2F	4549	8.40	3.10	P133	6/27/08	0.593	0.380
Northwest Corner	043	NWC-P-2X	4649	8.40	3.10	None		0.017	0.011
Northwest Corner	044	NWC-P-3	2252	11.80	3.14	P091	7/1/08	0.177	0.080
Northwest Corner	045	NWC-P-3F	4649	11.80	2.99	P084	7/1/08	0.182	0.086
Northwest Corner	046	NWC-P-3X	4649	11.80	2.99	None		ND	ND
Northwest Corner	057	NWC-P-4	2252	12.10	2.98	P135	7/1/08	0.301	0.139
Northwest Corner	058	NWC-P-4F	4649	12.00	2.96	P106	7/1/08	0.344	0.162
Northwest Corner	059	NWC-P-4X	4649	12.00	2.96	None		ND	ND
Northwest Corner	070	NWC-P-5	2252	1.60	1.51	5 & P195	7/2/08	0.115	0.795
Northwest Corner	071	NWC-P-5F	4649	11.30	2.80	P120	7/2/08	0.251	0.132
Northwest Corner	072	NWC-P-5X	4649	11.30	2.80	None		ND	ND
Northwest Corner	083	NWC-P-6	958	12.45	3.06	P187	7/7/08	0.302	0.132
Northwest Corner	084	NWC-P-6F	4649	12.40	2.96	P177	7/7/08	0.337	0.153

Propanil Application Monitoring Results

Site Name	Log #	Sample Name	Sampler ID #	Elapsed Time	Average Flow	Comment Number	Date Analyzed	ug per sample	ug/m^3 sample
Northwest Corner	085	NWC-P-6X	4649	12.40	2.96	None		ND	ND
Northwest Corner	096	NWC-P-7	958	11.37	2.97	P221	7/8/08	0.192	0.095
Northwest Corner	097	NWC-P-7F	4649	11.40	2.98	P223	7/8/08	0.190	0.093
Northwest Corner	098	NWC-P-7X	4649	11.40	2.98	None		ND	ND
QC Sample	002	NS-P-FS#1	2253	17.80	4.39	1 & P184	6/25/08	0.453	0.097
QC Sample	004	ES-P-FS#2	2244	17.70	4.33	1 & P192	6/25/08	0.457	0.099
QC Sample	006	SS-P-FS#3	2246	17.60	4.38	1 & P179	6/25/08	0.488	0.105
QC Sample	008	WS-P-FS#4	915	17.60	4.33	1 & P183	6/25/08	0.528	0.115
QC Sample	013	P-TS	N.A.	N.A.	N.A.	P181	6/25/08	0.485	N.A.
QC Sample	109	TB-1	N.A.	N.A.	N.A.	P200	7/8/08	0.079	N.A.
QC Sample	110	FB-1	N.A.	N.A.	N.A.	P201	7/8/08	0.079	N.A.
QC Sample	NA	Lab Spike	N.A.	N.A.	N.A.	N.	6/25/08	0.466	N.A.
South Side	005	SS-P-B	917	17.57	4.25	1 & P125	6/25/08	0.076	0.017
South Side	023	SS-P-1	917	4.09	2.93	P128	6/26/08	40.2	55.9
South Side	035	SS-P-2	917	9.38	2.98	P109	6/27/08	2.72	1.62
South Side	054	SS-P-3	917	11.58	2.95	P105	7/1/08	0.877	0.428
South Side	067	SS-P-4	917	12.04	2.97	P101	7/1/08	2.16	1.01
South Side	080	SS-P-5	917	11.55	3.03	P205	7/2/08	0.791	0.377
South Side	093	SS-P-6	917	12.29	3.00	P218	7/7/08	1.90	0.86
South Side	106	SS-P-7	917	11.24	3.07	P212	7/8/08	0.570	0.275
Southeast Corner	017	SEC-P-1	2244	3.90	2.92	P100	6/26/08	18.9	27.6
Southeast Corner	018	SEC-P-1F	4663	4.00	2.97	P077	6/26/08	15.8	22.1
Southeast Corner	019	SEC-P-1X	4663	4.00	2.97	3		0.017	0.024
Southeast Corner	020	SEC-P-1X (R)	4656	3.69	2.99	None		13.700	20.666
Southeast Corner	021	SEC-P-1F (R)	4656	3.69	2.99	P134	6/26/08	0.370	0.558
Southeast Corner	022	SEC-P-1C	998	3.89	3.05	P122	6/26/08	19.5	27.4
Southeast Corner	029	SEC-P-2F (R)	4656	9.40	3.01	P075	6/27/08	2.35	1.39
Southeast Corner	030	SEC-P-2X (R)	4656	9.40	3.01	None		1.960	1.154
Southeast Corner	031	SEC-P-2	2244	9.30	2.93	P076	6/27/08	1.41	0.86
Southeast Corner	032	SEC-P-2C	998	9.48	2.99	P123	6/27/08	2.04	1.20
Southeast Corner	033	SEC-P-2F	4663	9.30	2.91	P121	6/27/08	1.40	0.86
Southeast Corner	034	SEC-P-2X	4663	9.30	2.91	None		0.015	0.009
Southeast Corner	050	SEC-P-3	2244	11.70	3.02	P080	7/1/08	0.671	0.316
Southeast Corner	051	SEC-P-3C	998	11.59	2.95	P119	7/1/08	0.665	0.324
Southeast Corner	052	SEC-P-3F	4663	11.60	3.02	P118	7/1/08	0.622	0.297
Southeast Corner	053	SEC-P-3X	4663	11.60	3.02	None		0.024	0.011
Southeast Corner	063	SEC-P-4	2244	12.00	2.97	P126	7/1/08	0.996	0.465
Southeast Corner	064	SEC-P-4C	998	12.05	3.02	P074	7/1/08	1.12	0.51
Southeast Corner	065	SEC-P-4F	4663	12.00	2.80	P186	7/1/08	0.754	0.374
Southeast Corner	066	SEC-P-4X	4663	12.00	2.80	None		ND	ND
Southeast Corner	076	SEC-P-5	2244	11.60	4.41	6 & P079	7/2/08	0.408	0.133
Southeast Corner	077	SEC-P-5C	998	11.63	2.99	P196	7/2/08	0.298	0.143
Southeast Corner	078	SEC-P-5F	4645	11.55	2.88	7 & P114	7/2/08	0.253	0.127

Propanil Application Monitoring Results

Site Name	Log #	Sample Name	Sampler ID #	Elapsed Time	Average Flow	Comment Number	Date Analyzed	ug per sample	ug/m^3 sample
Southeast Corner	079	SEC-5-5X	4645	11.55	2.88	7		ND	ND
Southeast Corner	089	SEC-P-6	2-0402	11.62	3.31	9 & P215	7/7/08	0.524	0.227
Southeast Corner	090	SEC-P-6C	998	12.30	3.05	P189	7/7/08	0.644	0.286
Southeast Corner	091	SEC-P-6F	4664	4.60	1.51	10 & P112	7/7/08	0.230	0.552
Southeast Corner	092	SEC-P-6X	4664	4.60	1.51	10 INVALID		ND	ND
Southeast Corner	102	SEC-P-7	957	11.30	3.03	11 & P210	7/8/08	0.173	0.084
Southeast Corner	103	SEC-P-7C	998	11.24	3.02	P092	7/8/08	0.221	0.109
Southeast Corner	104	SEC-P-7F	4664	11.20	2.98	P190	7/8/08	0.164	0.082
Southeast Corner	105	SEC-P-7X	4664	11.20	2.98	None		ND	ND
Southwest Corner	024	SWC-P-1	2246	4.10	2.79	P086	6/26/08	29.2	42.5
Southwest Corner	036	SWC-P-2	2246	9.40	3.01	P111	6/27/08	1.81	1.07
Southwest Corner	055	SWC-P-3	2246	11.60	3.06	P099	7/1/08	0.750	0.352
Southwest Corner	068	SWC-P-4	2246	12.00	2.96	P097	7/1/08	1.38	0.65
Southwest Corner	081	SWC-P-5	2246	11.70	3.06	P202	7/2/08	0.503	0.234
Southwest Corner	094	SWC-P-6	2246	12.30	2.97	P198	7/7/08	0.813	0.371
Southwest Corner	107	SWC-P-7	2246	11.20	3.08	P214	7/8/08	0.440	0.212
West Side	007	WS-P-B	956	17.74	4.27	1 & P072	6/25/08	0.065	0.014
West Side	009	WS-P-BF	4649	17.80	4.69	1 & P127	6/25/08	0.128	0.026
West Side	010	WS-P-BX	4649	17.80	4.69	1		ND	ND
West Side	025	WS-P-1	915	4.19	3.01	P113	6/26/08	8.60	11.38
West Side	037	WS-P-2	915	9.43	2.88	P131	6/27/08	0.980	0.602
West Side	056	WS-P-3	915	11.57	3.03	P094	7/1/08	0.272	0.129
West Side	069	WS-P-4	915	12.00	2.93	P197	7/1/08	0.540	0.256
West Side	082	WS-P-5	915	11.62	3.01	P188	7/2/08	0.300	0.143
West Side	095	WS-P-6	915	12.27	2.99	P096	7/7/08	0.532	0.242
West Side	108	WS-P-7	915	11.20	3.00	P203	7/8/08	0.198	0.098

Propanil Application Filter Monitoring Results

Site Name	Log #	Sample Name	Sampler ID #	Elapsed Time	Average Flow	Comment Number	Date Analyzed	ug per sample	ug/m^3 sample
East Side	003	ES-P-B	2251	17.80	4.31	1 & P136	6/25/08	0.070	0.015
East Side	**016**	**ES-P-1**	**2251**	**3.90**	**3.08**	**P110**	**6/26/08**	**21.9**	**30.4**
East Side	**039**	**ES-P-2**	**2251**	**9.20**	**3.16**	**P105**	**6/27/08**	**2.36**	**1.35**
East Side	049	ES-P-3	2251	11.70	2.99	P124	7/1/08	0.910	0.434
East Side	062	ES-P-4	2251	12.10	2.95	P093	7/1/08	1.22	0.57
East Side	075	ES-P-5	2251	11.60	2.99	P103	7/2/08	0.397	0.191
East Side	088	ES-P-6	2251	12.30	2.95	8 & P194	7/7/08	0.943	0.433
East Side	101	ES-P-7	2251	11.40	2.94	P182	7/8/08	0.269	0.134
North Side	001	NS-P-B	2265	17.50	4.31	1 & P102	6/25/08	0.067	0.015
North Side	**014**	**NS-P-1**	**2265**	**4.10**	**2.96**	**P071**	**6/26/08**	**9.10**	**12.51**
North Side	**040**	**NS-P-2**	**2265**	**8.90**	**3.17**	**P104**	**6/27/08**	**1.87**	**1.10**
North Side	047	NS-P-3	2265	11.70	3.00	P088	7/1/08	0.405	0.192
North Side	060	NS-P-4	2265	12.10	2.97	P082	7/1/08	0.803	0.372
North Side	073	NS-P-5	2265	11.50	3.00	P085	7/2/08	0.547	0.264
North Side	086	NS-P-6	2265	12.50	2.97	P143	7/7/08	0.817	0.367
North Side	099	NS-P-7	2265	11.40	2.99	P213	7/8/08	0.360	0.176
Northeast Corner	015	NEC-P-1	2253	3.70	2.94	2 INVALID	N.A.	N.A.	N.A.
Northeast Corner	038	NEC-P-2	2253	9.30	3.16	P083	6/27/08	1.20	0.68
Northeast Corner	048	NEC-P-3	2253	11.80	2.98	P095	7/1/08	0.345	0.164
Northeast Corner	061	NEC-P-4	2253	12.00	2.95	P089	7/1/08	0.390	0.184
Northeast Corner	074	NEC-P-5	2253	11.60	3.00	P117	7/2/08	0.169	0.081
Northeast Corner	087	NEC-P-6	2253	12.40	2.92	P219	7/7/08	0.274	0.126
Northeast Corner	100	NEC-P-7	2253	11.30	3.00	P208	7/8/08	0.150	0.074
Northwest Corner	**026**	**NWC-P-1**	**956**	**3.95**	**3.07**	**P108**	**6/26/08**	**2.80**	**3.85**
Northwest Corner	041	NWC-P-2	956	8.50	3.15	4 & P130	6/27/08	0.665	0.414
Northwest Corner	044	NWC-P-3	2252	11.80	3.14	P091	7/1/08	0.177	0.080
Northwest Corner	057	NWC-P-4	2252	12.10	2.98	P135	7/1/08	0.301	0.139
Northwest Corner	070	NWC-P-5	2252	1.60	1.51	5 INVALID	7/2/08	0.115	0.795
Northwest Corner	083	NWC-P-6	958	12.45	3.06	P187	7/7/08	0.302	0.132
Northwest Corner	096	NWC-P-7	958	11.37	2.97	P221	7/8/08	0.192	0.095
South Side	005	SS-P-B	917	17.57	4.25	1 & P125	6/25/08	0.076	0.017
South Side	**023**	**SS-P-1**	**917**	**4.09**	**2.93**	**P128**	**6/26/08**	**40.2**	**55.9**
South Side	**035**	**SS-P-2**	**917**	**9.38**	**2.98**	**P109**	**6/27/08**	**2.72**	**1.62**
South Side	054	SS-P-3	917	11.58	2.95	P105	7/1/08	0.877	0.428
South Side	**067**	**SS-P-4**	**917**	**12.04**	**2.97**	**P101**	**7/1/08**	**2.16**	**1.01**
South Side	080	SS-P-5	917	11.55	3.03	P205	7/2/08	0.791	0.377
South Side	093	SS-P-6	917	12.29	3.00	P218	7/7/08	1.897	0.858
South Side	106	SS-P-7	917	11.24	3.07	P212	7/8/08	0.570	0.275
Southeast Corner	**017**	**SEC-P-1**	**2244**	**3.90**	**2.92**	**P100**	**6/26/08**	**18.9**	**27.6**
Southeast Corner	**022**	**SEC-P-1C**	**998**	**3.89**	**3.05**	**P122**	**6/26/08**	**19.5**	**27.4**
Southeast Corner	031	SEC-P-2	2244	9.30	2.93	P076	6/27/08	1.41	0.86
Southeast Corner	**032**	**SEC-P-2C**	**998**	**9.48**	**2.99**	**P123**	**6/27/08**	**2.04**	**1.20**

Propanil Application Filter Monitoring Results

Site Name	Log #	Sample Name	Sampler ID #	Elapsed Time	Average Flow	Comment Number	Date Analyzed	ug per sample	ug/m^3 sample
Southeast Corner	050	SEC-P-3	2244	11.70	3.02	P080	7/1/08	0.671	0.316
Southeast Corner	051	SEC-P-3C	998	11.59	2.95	P119	7/1/08	0.665	0.324
Southeast Corner	063	SEC-P-4	2244	12.00	2.97	P126	7/1/08	0.996	0.465
Southeast Corner	064	SEC-P-4C	998	12.05	3.02	P074	7/1/08	1.12	0.51
Southeast Corner	076	SEC-P-5	2244	11.60	4.41	6 INVALID	7/2/08	0.408	0.133
Southeast Corner	077	SEC-P-5C	998	11.63	2.99	P196	7/2/08	0.298	0.143
Southeast Corner	089	SEC-P-6	2-0402	11.62	3.31	9 & P215	7/7/08	0.524	0.227
Southeast Corner	090	SEC-P-6C	998	12.30	3.05	P189	7/7/08	0.644	0.286
Southeast Corner	102	SEC-P-7	957	11.30	3.03	11 & P210	7/8/08	0.173	0.084
Southeast Corner	103	SEC-P-7C	998	11.24	3.02	P092	7/8/08	0.221	0.109
Southwest Corner	**024**	**SWC-P-1**	**2246**	**4.10**	**2.79**	**P086**	**6/26/08**	**29.2**	**42.5**
Southwest Corner	**036**	**SWC-P-2**	**2246**	**9.40**	**3.01**	**P111**	**6/27/08**	**1.81**	**1.07**
Southwest Corner	055	SWC-P-3	2246	11.60	3.06	P099	7/1/08	0.750	0.352
Southwest Corner	068	SWC-P-4	2246	12.00	2.96	P097	7/1/08	1.38	0.65
Southwest Corner	081	SWC-P-5	2246	11.70	3.06	P202	7/2/08	0.503	0.234
Southwest Corner	094	SWC-P-6	2246	12.30	2.97	P198	7/7/08	0.813	0.371
Southwest Corner	107	SWC-P-7	2246	11.20	3.08	P214	7/8/08	0.440	0.212
West Side	007	WS-P-B	956	17.74	4.27	1 & P072	6/25/08	0.065	0.014
West Side	**025**	**WS-P-1**	**915**	**4.19**	**3.01**	**P113**	**6/26/08**	**8.60**	**11.38**
West Side	037	WS-P-2	915	9.43	2.88	P131	6/27/08	0.980	0.602
West Side	056	WS-P-3	915	11.57	3.03	P094	7/1/08	0.272	0.129
West Side	069	WS-P-4	915	12.00	2.93	P197	7/1/08	0.540	0.256
West Side	082	WS-P-5	915	11.62	3.01	P188	7/2/08	0.300	0.143
West Side	095	WS-P-6	915	12.27	2.99	P096	7/7/08	0.532	0.242
West Side	108	WS-P-7	915	11.20	3.00	P203	7/8/08	0.198	0.098

Propanil Application Filter/XAD Monitoring Results

Site Name	Log #	Sample Name	Sampler ID #	Elapsed Time	Average Flow	Comment Number	Date Analyzed	ug per sample	ug/m^3 sample
East Side	**011**	**ES-P-BF**	**4663**	**17.40**	**4.00**	**1 & P081**	**6/25/08**	**0.125**	**0.030**
East Side	012	ES-P-BX	4663	17.40	4.00	1		ND	ND
West Side	**009**	**WS-P-BF**	**4649**	**17.80**	**4.69**	**1 & P127**	**6/25/08**	**0.128**	**0.026**
West Side	010	WS-P-BX	4649	17.80	4.69	1		ND	ND
Northwest Corner	027	NWC-P-1F	4649	4.10	3.02	P132	6/26/08	2.50	3.37
Northwest Corner	028	NWC-P-1X	4649	4.10	3.02	None		ND	ND
Northwest Corner	**042**	**NWC-P-2F**	**4549**	**8.40**	**3.10**	**P133**	**6/27/08**	**0.593**	**0.380**
Northwest Corner	**043**	**NWC-P-2X**	**4649**	**8.40**	**3.10**	**None**		**0.017**	**0.011**
Northwest Corner	**045**	**NWC-P-3F**	**4649**	**11.80**	**2.99**	**P084**	**7/1/08**	**0.182**	**0.086**
Northwest Corner	046	NWC-P-3X	4649	11.80	2.99	None		ND	ND
Northwest Corner	**058**	**NWC-P-4F**	**4649**	**12.00**	**2.96**	**P106**	**7/1/08**	**0.344**	**0.162**
Northwest Corner	059	NWC-P-4X	4649	12.00	2.96	None		ND	ND
Northwest Corner	**071**	**NWC-P-5F**	**4649**	**11.30**	**2.80**	**P120**	**7/2/08**	**0.251**	**0.132**
Northwest Corner	072	NWC-P-5X	4649	11.30	2.80	None		ND	ND
Northwest Corner	**084**	**NWC-P-6F**	**4649**	**12.40**	**2.96**	**P177**	**7/7/08**	**0.337**	**0.153**
Northwest Corner	085	NWC-P-6X	4649	12.40	2.96	None		ND	ND
Northwest Corner	**097**	**NWC-P-7F**	**4649**	**11.40**	**2.98**	**P223**	**7/8/08**	**0.190**	**0.093**
Northwest Corner	098	NWC-P-7X	4649	11.40	2.98	None		ND	ND
Southeast Corner	018	SEC-P-1F	4663	4.00	2.97	P077	6/26/08	15.8	22.1
Southeast Corner	**019**	**SEC-P-1X**	**4663**	**4.00**	**2.97**	**3**		**0.017**	**0.024**
Southeast Corner	**033**	**SEC-P-2F**	**4663**	**9.30**	**2.91**	**P121**	**6/27/08**	**1.40**	**0.86**
Southeast Corner	**034**	**SEC-P-2X**	**4663**	**9.30**	**2.91**	**None**		**0.015**	**0.009**
Southeast Corner	**052**	**SEC-P-3F**	**4663**	**11.60**	**3.02**	**P118**	**7/1/08**	**0.622**	**0.297**
Southeast Corner	**053**	**SEC-P-3X**	**4663**	**11.60**	**3.02**	**None**		**0.024**	**0.011**
Southeast Corner	**065**	**SEC-P-4F**	**4663**	**12.00**	**2.80**	**P186**	**7/1/08**	**0.754**	**0.374**
Southeast Corner	066	SEC-P-4X	4663	12.00	2.80	None		ND	ND
Southeast Corner	**078**	**SEC-P-5F**	**4645**	**11.55**	**2.88**	**7 & P114**	**7/2/08**	**0.253**	**0.127**
Southeast Corner	079	SEC-5-5X	4645	11.55	2.88	7		ND	ND
Southeast Corner	091	SEC-P-6F	4664	4.60	1.51	10 INVALID	7/7/08	0.230	0.552
Southeast Corner	092	SEC-P-6X	4664	4.60	1.51	10 INVALID		ND	ND
Southeast Corner	**104**	**SEC-P-7F**	**4664**	**11.20**	**2.98**	**P190**	**7/8/08**	**0.164**	**0.082**
Southeast Corner	105	SEC-P-7X	4664	11.20	2.98	None		ND	ND

Propanil Application XAD/Filter Monitoring Results

Site Name	Log #	Sample Name	Sampler ID #	Elapsed Time	Average Flow	Comment Number	Date Analyzed	ug per sample	ug/m^3 sample
Southeast Corner	020	SEC-P-1X (R)	4656	3.69	2.99	None		13.7	20.7
Southeast Corner	**021**	**SEC-P-1F (R)**	**4656**	**3.69**	**2.99**	**P134**	**6/26/08**	**0.370**	**0.558**
Southeast Corner	030	SEC-P-2X (R)	4656	9.40	3.01	None		1.96	1.15
Southeast Corner	029	SEC-P-2F (R)	4656	9.40	3.01	P075	6/27/08	2.35	1.39

Propanil Application QC Monitoring Results

Field Spike Results

Log Number	Sample Identification	Sampler ID #	Date Received	Date Analyzed	Expected (ug/sample)	Actual (ug/sample)	Recovery (%)	Sample (ug/m^3)
002	NS-P-FS#1	2253	6/24/2008	6/25/2008	0.500	0.453	90.6%	0.097
004	ES-P-FS#2	2244	6/24/2008	6/25/2008	0.500	0.457	91.4%	0.099
006	SS-P-FS#3	2246	6/24/2008	6/25/2008	0.500	0.488	97.6%	0.105
008	WS-P-FS#4	915	6/24/2008	6/25/2008	0.500	0.528	105.6%	0.115

Trip & Laboratory Spike Results

Log Number	Sample Identification	Sampler ID #	Date Received	Date Analyzed	Expected (ug/sample)	Actual (ug/sample)	Recovery (%)	Sample (ug/m^3)
013	P-TS	N.A.	6/24/2008	6/25/2008	0.500	0.485	97.0%	N.A.
N.A.	LS	N.A.	N.A.	6/25/2008	0.500	0.466	93.2%	N.A.

Trip & Field Blank Results

Log Number	Sample Identification	Sampler ID #	Date Received	Date Analyzed	MDL (ug/sample)	Actual (ug/sample)	Recovery (%)	Sample (ug/m^3)
109	TB-1	N.A.	6/24/2008	7/8/2008	0.00	0.079	N.A.	N.A.
110	FB-1	N.A.	6/24/2008	7/8/2008	0.00	0.079	N.A.	N.A.

Collocated Sample Results

Log Number	Sample Identification	Sampler ID #	Date Received	Date Analyzed	Collocated (ug/sample)	Collocated (ug/m^3)	Sample (ug/m^3)	Relative % Difference
022	SEC-P-1C	998	6/24/2008	6/26/2008	19.5	27.4	27.6	-0.8%
032	SEC-P-2C	998	6/24/2008	6/27/2008	2.04	1.20	0.86	33.0%
051	**SEC-P-3C**	**998**	**6/24/2008**	**7/1/2008**	**0.665**	**0.324**	**0.316**	**2.5%**
064	**SEC-P-4C**	**998**	**6/24/2008**	**7/1/2008**	**1.12**	**0.51**	**0.47**	**9.8%**
077	**SEC-P-5C**	**998**	**6/24/2008**	**7/2/2008**	**0.298**	**0.143**	**0.133**	**7.2%**
090	**SEC-P-6C**	**998**	**6/24/2008**	**7/7/2008**	**0.644**	**0.286**	**0.227**	**22.9%**
103	**SEC-P-7C**	**998**	**6/24/2008**	**7/8/2008**	**0.221**	**0.109**	**0.084**	**25.5%**

14.3%