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# Air Resources Board

Barbara Riordan, Chairman

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Pete Wilson  
Governor

## MEMORANDUM

*Ready*

TO: Douglas Y. Okumura, Chief  
Environmental Monitoring and Pest  
Management Branch  
Department of Pesticide Regulation

FROM: George Lew, Chief *George Lew*  
Engineering and Laboratory Branch

DATE: December 21, 1998

SUBJECT: FINAL REPORT FOR THE 1998 ETHOPROP AIR MONITORING

Attached is the "Report for the Application and Ambient Air Monitoring of Ethoprop in Siskiyou County." The separate volume of appendices for the report has been forwarded to Pam Wales of your staff and is available upon request. Your November 19, 1998 memorandum indicated that your staff have no comments on the draft report.

These results are intended for identifying the presence of ethoprop in ambient air. Additional air monitoring near the use of ethoprop may be necessary to determine if there is a need for mitigation. The locations of the ambient monitoring sites and the monitoring period should be evaluated when the 1998 ethoprop use data becomes available.

If you or your staff have questions or need further information, please contact me at (916) 263-1630 or Mr. Kevin Mongar at (916) 263-2063.

### Attachment

cc: Ray Menebroker, Chief (w/Attachment and Appendices)  
Larry Dellabitta, Siskiyou County Agricultural Commissioner (w/Attachment)  
Pam Wales, DPR (w/Attachment and Appendices)  
Sharon Seidel, OEHHA (w/Attachment)  
James R. Massey, Jr., Siskiyou County APCD (w/Attachment)

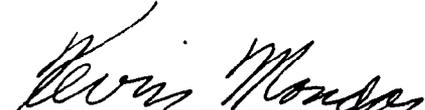
State of California  
California Environmental Protection Agency  
AIR RESOURCES BOARD

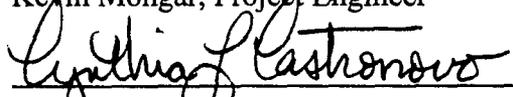
**Report for the Application and  
Ambient Air Monitoring  
of Ethoprop in Siskiyou County**

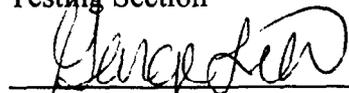
Engineering and Laboratory Branch  
Monitoring and Laboratory Division

Project No. C98-005 (Application)  
C98-006 (Ambient)

Date: December 16, 1998

  
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This report has been reviewed by the 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 or commercial products constitute endorsement or recommendation for use.

## Summary

### **Report for the Application and Ambient Air Monitoring of Ethoprop in Siskiyou County**

This report presents the results of application and ambient air monitoring for the nematocide ethoprop in Siskiyou County. Application monitoring was conducted around the use of ethoprop on 80 acres of potatoes from May 11 to May 15, 1998 and ambient monitoring was conducted to coincide with the use of ethoprop on potatoes from April 28 to June 4, 1998. Tables 4 and 7 present the results of application and ambient air monitoring for ethoprop respectively. Summaries of the application and ambient results are presented in Tables 5 and 8 respectively. Laboratory results, in units of ng/sample, equal to or above the estimated quantitation limit (EQL) are reported to 3 significant figures. Air concentration results (in units of ng/m<sup>3</sup> and pptv) are reported to 2 significant figures. Results equal to or above the method detection limit (MDL) but below the EQL are reported as detected (Det).

The analytical EQL for ethoprop was 4.74 ng/sample. The air concentration, expressed in units of ng/m<sup>3</sup> (or pptv), associated with the EQL is dependent on the volume of air sampled which varies from sample to sample. For a 24-hour sampling period at 3 Lpm the air concentration associated with the EQL would be 1.1 ng/m<sup>3</sup> (0.11 pptv).

Three of the application background samples had results less than the MDL for ethoprop and one (west site) was "detected." Of the twenty-four application samples collected (spikes, blanks, collocated and background samples excluded) twenty-three were found to be above the EQL of 4.74 ng/sample (the remaining sample was not analyzed). The highest ethoprop concentration, 210 ng/m<sup>3</sup> (21 pptv), was observed at the south sampling site during the 6th sampling period.

Of the 120 ambient samples collected (spikes, blanks and collocated samples excluded), five were found to be above the EQL and fifteen were found to be "detected". The highest ethoprop concentration, 3.0 ng/m<sup>3</sup> (0.30 pptv), was observed at the Doris Elementary School (DOR) sampling site on May 14, 1998.

## Acknowledgments

Staff of the ARB Testing Section collected the application and ambient samples. Assistance was provided by the Siskiyou County Agricultural Commissioner's Office. Chemical analyses were performed by the ARB Testing Section Laboratory.

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**Report for the Application  
and Ambient Air Monitoring  
of Ethoprop in Siskiyou County**

I. Introduction

At the request of the California Department of Pesticide Regulation (DPR) (July 24, 1997 Memorandum, Sanders to Lew), the Air Resources Board (ARB) staff determined airborne concentrations of the pesticide ethoprop over a six week ambient monitoring program in populated areas of Siskiyou County, conducted to coincide with the use of ethoprop on potatoes. Application monitoring was also conducted in Siskiyou County around the use of ethoprop on 80 acres of potatoes. This monitoring was done to fulfill the requirements of AB 1807/3219 (Food and Agricultural Code, Division 7, Chapter 3, Article 1.5) which requires the ARB "to document the level of airborne emissions ... of pesticides which may be determined to pose a present or potential hazard..." when requested by the DPR. Method development and sample analyses were conducted by the ARB Testing Section Laboratory. Field monitoring was conducted by staff of the ARB Testing Section.

The "Protocol for the Application and Ambient Air Monitoring of Ethoprop in Siskiyou County During Spring, 1998" is enclosed separately as Appendix I (page 1 of a separate volume of appendices to this report).

The laboratory report, "Ethoprop Method Development and Ethoprop Analytical Results for Ambient Monitoring Samples," is enclosed separately as Appendix II (page 17 of the separate volume of appendices to this report). The sampling/analysis Standard Operating Procedures (SOP) are also enclosed in Appendix II (page 46 of the separate volume of appendices to this report).

The pesticide use report for the application study is enclosed separately as Appendix III (page 54 of the separate volume of appendices to this report).

The DPR's July 24, 1997 memorandum, "Air Monitoring Recommendation for Ethoprop" is enclosed separately as Appendix IV (page 55 of the separate volume of appendices to this report).

The application and ambient field log sheets are enclosed separately as Appendix V (page 67 of the separate volume of appendices to this report).

The application meteorological monitoring results are enclosed separately as Appendix VI (page 77 of the separate volume of appendices to this report).

## II. Chemical Properties of Ethoprop

The following information regarding the chemical properties of ethoprop was obtained from the DPR's July 24, 1997 "Monitoring Recommendation for Ethoprop" (page 55 of appendices).

Ethoprop (CAS:13194-48-4) exists as a clear, pale yellow liquid. Ethoprop has a molecular formula of  $C_8H_{19}O_2PS_2$ , with a molecular weight of 242.33 g/mole. It has a water solubility of 700 mg/L at 20 °C, a Henry's Constant of  $1.59 \times 10^{-7}$  atm·m<sup>3</sup>/mol at 20-25°C, and a vapor pressure of  $3.49 \times 10^{-4}$  mmHg (46.5 mPa) at 20°C. Ethoprop is miscible with acetone, *n*-hexane and xylene.

Ethoprop's acute oral LD<sub>50</sub> for rats is 262 mg/kg. It's LC<sub>50</sub> (96 hour) is 13.8 mg/L for rainbow trout, 2.1 mg/L for bluegill sunfish and 13.6 mg/L for goldfish. Ethoprop has entered the risk assessment process at DPR under the SB 950 (Birth Defect Prevention Act of 1984) based on potential combined oncogenicity and chronic toxicity and mutagenic effects.

## III. Sampling

A sketch of the sampling apparatus is shown in Figure 1 of Appendix I (appendices pg. 8). Samples were collected by passing a measured volume of ambient air through XAD-2 resin. The XAD-2 resin tubes were obtained from SKC (#226-30-06). Calibrated rotometers were used to set and measure sample flow rates. The rotometers were calibrated using a certified digital bubble flowmeter. The flow rate, 3 Lpm, was accurately measured and the sampling system operated continuously with the exact operating interval noted. Samplers were leak checked prior to and after each sampling period with the sampling cartridges installed. Any change in the flow rates was recorded in the field log book (see appendices pg. 67). The resin tubes were protected from direct sunlight and supported about 1.5 meters above the ground (or roof) during the sampling period. At the end of each sampling period the tubes were capped and placed in culture tubes with an identification label affixed. The field log book was used to record start and stop times, sample identifications and any other significant comments. Subsequent to sampling, the samples were transported on dry ice, as soon as reasonably possible, to the Testing Section Laboratory. The samples were stored in the freezer or extracted/analyzed immediately.

### A. Application Monitoring

An 80 acre field of potatoes was chosen for the application monitoring site. Refer to Figure 2 for a diagram of the application site. Refer to Appendix III (page 54 of appendices) for a copy of the pesticide use report. The ethoprop was applied immediately after planting.

Information collected regarding the application included: 1) the elevation of each sampling station with respect to the field, 2) the orientation of the field with respect to North (identified as either true or magnetic), 3) an accurate record of the positions of the monitoring equipment with respect to the field, including the distance each monitor is positioned away from the edge of the field and an accurate drawing of the monitoring site showing the precise location of the monitoring equipment.

and any wind obstacles with respect to the field, 4) the field size, 5) the application rate, 6) formulation and 7) method and length of application. Details regarding the site and application are summarized below in Table 1.

Table 1.  
Application Information

Range/Township/Section: R19E/T13S/S5  
 Product Applied: Mocap 10% Granular  
 Type of Application: Ground, soil incorporated  
 Application Rate: 100 pounds Mocap per acre  
 (10 lbs. ethoprop A.I. per acre)  
 Applicator: Wheeler Farms

A three day monitoring period was recommended in the DPR's July 24, 1997 "Air Monitoring Recommendation for Ethoprop" with intended sampling times as follows: (where the first sample is started at the start of application) application + 1 hour, followed by one 2-hour sample, one 4-hour sample, two 8-hour samples and two 24-hour samples.

Background samples were taken at each position to establish if any ethoprop was detectable in the air before the application (i.e., from nearby applications). There was a flatbed truck with eight 1000 pound bags of Mocap parked at the southwest corner of the field during the background sampling period. The background samples were collected from 1700 on May 11 to 0830 on May 12, 1998 (15 1/2 hours). The May 12, 1998 application started at 0835 and ended at 1800 and approximately 40 acres were covered. The application was started again at 0650 on May 13 and stopped (due to wind) at 1000 and approximately 20 acres was covered. The application was started again at 2230 on the night of May 13 and was completed at 0200 on May 14, 1998. Referring to Figure 1, the application started at the southwest corner proceeding east and was conducted in rectangular fashion around the edge of the field and finished at the middle of the field. Table 2 lists the actual sampling periods.

Table 2.  
Application Sampling Periods

<u>Period</u>		<u>Date</u>	<u>Time</u>
1	Application plus 2 1/4 hours	5/12/98	0830 to 2015
2	3 1/2 hours	5/12/98	2015 to 2345
3	7 hours	5/12-13/98	2345 to 0645
4	8 3/4 hours	5/13/98	0645 to 1500
5	22 hours	5/13-14/98	1500 to 1300
6	22 hours	5/14-15/98	1300 to 1100

Four samplers were positioned, one on each side of the field. A fifth sampler was collocated at the east position. The west, north, east and south samplers were positioned approximately 57 feet, 61 feet, 68 feet and 70 feet from the field respectively. All samplers were at the same elevation as the field. The meteorological station was positioned just south of the east samplers (oriented toward geographic north).

The meteorological station was set up to determine wind speed and direction, barometric pressure, relative humidity and air temperature. This station continued to operate continuously throughout the sampling period collecting data at 1 minute intervals using a data logger. The raw meteorological station data will be provided on a 1.44 MB diskette (comma delimited format). Appendix VI (page 77 of the appendices) lists the meteorological station data for the wind direction and speed, barometric pressure, relative humidity and air temperature in 15 minute averages for the test period. The data listed for the wind direction is the arithmetic average and is not valid when the wind direction varies around 0 degrees. An appropriate direction averaging program is needed if 15 minute averages are required for wind direction. ARB staff noted the degree of cloud cover, on the sample log sheet, whenever sample cartridges were changed. The skies were overcast with occasional scattered light rain during the study period.

#### B. Ambient Monitoring

Ambient monitoring took place during a six week period from April 28 to June 4, 1998. Four sampling sites were selected by ARB personnel from the areas of Siskiyou County where potato farming is predominant and in populated areas or in areas frequented by people. Sites were selected with considerations for both accessibility and security of the sampling equipment. Background samples were collected in the Lava Beds National Park (headquarters). The five sites are listed in Table 3. Twenty-four hour (approximately) samples were taken Monday through Friday (4 samples/week) at a flow rate of 3 Lpm. Twenty-four discrete sampling-days were monitored at each site for a total of 120 samples (plus 28 collocated samples, 6 trip blanks and 15 quality assurance spikes).

Table 3.  
Ambient Sampling Sites

MAC	MacDoel Elementary School 13001 Old State Hwy. MacDoel, CA 96058 Range/Township/Section: R.1W/T.46N/S.17	(530) 397-2131 Tony Huff Int. Superintendent
DOR	Doris Elementary School P.O. Box 748 Doris, CA 96023 Range/Township/Section: R.1E/T.48N/S.31	(530) 397-4491 Tony Huff Int. Superintendent
TLB	Tule Lake School Bus Barn P.O. Box 640 Tule Lake, CA 96134 Range/Township/Section: R.4E/T.48N/S.35	(530) 667-2292 Bill Figgess, Superintendent
NEW	Newell Elementary School 10001 Dunsmuir St. Tule Lake, CA 96134 Range/Township/Section: R.5E/T.47N/S.26	(530) 664-2131 Bill Figgess, Superintendent
LAV	Lava Beds National Monument P.O. Box 867 Tule Lake, CA 96134 Range/Township/Section: R.4E/T.45N/S.28	(530) 667-2282 Bernie Stoffel

The MacDoel Elementary School is in the small town of MacDoel. There are agricultural fields directly to the south, west and east at a distance of approximately 100 yards and to the north at a distance of approximately 1 mile. The sampling unit was placed on the roof of a single story building at a height of approximately 10 feet. The sampling cartridges were positioned approximately 4 feet above the roof. Thus, air was sampled through the cartridges at a height of approximately 14 feet.

The Doris Elementary School is situated in the small town of Doris. There are agricultural fields to the west and south at distances of approximately 1/4 and 3/4 mile respectively and to the east at a distance of several miles. The sampling unit was placed on the roof of a single story building at a height of approximately 13 feet. The sampling cartridges were positioned approximately 4 feet above the roof. Thus, air was sampled through the cartridges at a height of approximately 17 feet.

The Tule Lake School Bus Barn is located in the small town of Tule Lake. There are agricultural fields to the north at a distance of approximately 1/2 miles and in the other directions at distances of several miles. The sampling unit was placed on the top of a building at a height of approximately

14 feet. The sampling cartridges were positioned approximately 4 feet above the roof. Thus, air was sampled through the cartridges at a height of approximately 18 feet.

The Newell Elementary School is situated in the small town of Newell. There is a potato storage facility directly to the west at a distance of about ½ mile and agriculture in the other directions at distances of approximately a mile to several miles. The sampling unit was placed on the roof of a single story building at a height of approximately 12 feet. The sampling cartridges were positioned approximately 4 feet above the roof. Thus, air was sampled through the cartridges at a height of approximately 16 feet.

The background monitoring was conducted at the headquarters of the Lava Beds National Monument. The sampler was placed on the ground near other monitoring equipment and the sample height was approximately 4 feet.

#### IV. Analytical Methodology

“The Standard Operating Procedures for Sampling and Analysis of Ethoprop in Ambient Air” are enclosed as Appendix III (page 46 of appendices). The procedures specify that the exposed XAD-2 resin tubes are stored in an ice chest on dry ice or in a freezer until desorbed with 2.5 mL of ethyl acetate. The sorbent is spiked with 30 ng of Diazinon D<sub>10</sub> prior to analysis. The splitless injection volume is 5 uL. A gas chromatograph with a DB-17 capillary column and a quadrapole mass spectrometer (MS) is used for analysis. The MS detector is operated in selected ion monitoring mode.

#### V. Application and Ambient Results

Tables 4 and 7 present the results of application and ambient air monitoring for ethoprop respectively. Summaries of the application and ambient results are presented in Tables 5 and 8 respectively. Laboratory results, in units of ng/sample, equal to or above the estimated quantitation limit (EQL) are reported to 3 significant figures. Air concentration results (in units of ng/m<sup>3</sup> and pptv) are reported to 2 significant figures. Results equal to or above the method detection limit (MDL) but below the EQL are reported as detected (Det). The equation used to convert ethoprop air concentration from units of ng/m<sup>3</sup> to volume/volume units at 1 atmosphere and 25 °C is:

$$\text{pptv} = (\text{ng/m}^3) \times \frac{(0.0820575 \text{ liter-atm/mole-}^\circ\text{K})(298^\circ\text{K})}{(1 \text{ atm})(242.33 \text{ gram/mole})} = (0.1009) \times (\text{ng/m}^3)$$

The Testing Section Laboratory determined the analytical MDL as (3.14)(s); where s is the standard deviation of the concentration (ng/mL) calculated for seven replicate resin spikes (near the estimated detection limit). Multiplying by the 2.5 mL extraction volume, the MDL was 0.947 ng/sample. The EQL, 4.74 ng/sample, was calculated as 5 times the MDL. The air concentration, expressed in units of ng/m<sup>3</sup> (or pptv), associated with the EQL is dependent on the volume of air

sampled which varies from sample to sample. For a 24-hour sampling period at 3 Lpm the air concentration would be 1.1 ng/m<sup>3</sup> (0.11 pptv) as associated with the EQL.

#### A. Application Monitoring Results

The application sample results have also been summarized as associated with sampling period wind roses in Figure 3. The spokes of the wind roses correspond to the compass direction of origin of the wind. For example, the wind was predominantly from the south during the background sampling period. The segments of each spoke correspond to incremental increases in wind speed of 2 mph each. The length of the spoke (and each segment) corresponds to the portion of the sampling time that the wind was from that direction (at that velocity).

The north, east and south background samples were found to be below the EQL and the west sample was "detected". The south sample should not be considered valid though due to pump failure during the sampling period. Of the twenty-four application samples collected (spikes, blanks, collocated and background samples excluded) twenty-three (the remaining sample was not analyzed) were found to be above the EQL. The highest ethoprop concentration, 210 ng/m<sup>3</sup> (21 pptv), was observed at the south sampling site during the 6th sampling period.

#### B. Ambient Monitoring Results

Of the 120 ambient samples collected (spikes, blanks and collocated samples excluded), five were found to be above the EQL and fifteen were found to be "detected". The highest ethoprop concentration, 3.0 ng/m<sup>3</sup> (0.30 pptv), was observed at the Doris Elementary School (DOR) sampling site on May 14, 1998.

### VI. Quality Assurance

Field quality control (QC) for the application monitoring included the following:

- 1) Three field spikes (same environmental and experimental conditions as those occurring at the time of ambient sampling) prepared by the Testing Section staff. The field spikes were obtained by sampling ambient air during the background sampling at 3 Lpm (collocated with a background sample);
- 2) three trip spikes;
- 3) replicate samples (collocated) collected at one of the four sampling sites;
- 4) a trip blank; and
- 5) background samples.

The DPR's July 24, 1997 memo, "Air Monitoring Recommendation for Ethoprop", stated that "Trip blank and field spike samples should be collected at the same environmental (temperature, humidity, exposure to sunlight) and experimental (similar air flow rates) conditions as those occurring at the time of sampling." The background samples were collected at the same

environmental and experimental conditions as those occurring at the time of sampling (except for total sample volume). However, no field blanks were collected. Collection of true field blanks "same flow rate" with clean air) would involve rather complicated procedures and is not practical under field conditions. The trip blank was collected at the time of the sampling but did not experience the same environmental and experimental conditions except for transport and storage.

Field QC for the ambient monitoring included the following:

- 1) Five field spikes (same environmental and experimental conditions as those occurring at the time of ambient sampling) prepared by the Testing Section staff; the field spikes were obtained by sampling ambient air at the background monitoring site for 24 hour periods at 3 Lpm (collocated with an ambient sample);
- 2) five trip spikes;
- 3) replicate (collocated) samples taken for six dates at each sampling location; and
- 4) trip blanks collected once per week (see comment above regarding field blanks).

The instrument dependent parameters (reproducibility, linearity and EQL) are discussed in the SOP (page 46 of the appendices.) A chain of custody sheet accompanied all samples. Rotameters were calibrated before the monitoring using a calibrated digital bubblemeter. The rotameter calibrations were also checked at the end of the study.

## VII. Quality Assurance Results

### A. Method Development

Refer to Appendix 1 (page 46 of the appendices), "Standard Operating Procedure for the Sampling and Analysis of Ethoprop", for discussion and results of method development studies. The freezer storage stability study results (pg. 52 of appendices) show that ethoprop is stable for at least 4 weeks. All of the ambient samples were analyzed within 4 weeks of sampling. All of the application samples were initially analyzed on May 20, 1998. Samples exceeding the highest standard level were reanalyzed on July 13, 1998 along with the laboratory control spikes and blank that were extracted with the batch of samples. The control samples were still within performance parameters and thus the samples that were extracted at the same time as the laboratory controls were considered valid as well.

### B. Trip Blanks

The application and ambient trip blank results were all less than the MDL of 0.947 ng/sample for ethoprop.

### C. Application Background Sample Results

Three of the application background samples had results less than the MDL for ethoprop and one

(west site) was “detected”.

#### D. Collocated Sample Results

The results of the application collocated samples are listed in Table 6. The relative differences for all six data pairs were less than 15%. The results of all ambient collocated samples were less than the EQL.

#### E. Laboratory Spikes

Laboratory spikes are prepared at the same time and at the same level as the trip spike and field spike sets. The laboratory spikes are kept in a freezer until extraction and analysis. The extraction and analysis of laboratory, trip and field spikes normally occurs at the same time. Laboratory spikes for the application and ambient studies were prepared by Testing Section staff.

The laboratory spike results for the application and ambient studies are listed in Tables 9 and 12 respectively. Each of the four application spike cartridges was spiked with 50 ng and each of the five ambient spike cartridges was spiked with 10 ng of ethoprop. The average recoveries for the application lab spikes was 90% and for the ambient lab spikes was 106%.

#### F. Trip Spikes

Trip spikes are prepared at the same time and at the same level as the laboratory spike and field spike sets. The trip spikes are kept in a freezer until transported to the field. The trip spike samples are kept on dry ice in an ice chest (the same one used for samples) during transport to and from the field and at all times while in the field except for trip spike sample log-in and labeling. Trip spikes for the application and ambient studies were prepared by Testing Section staff.

The trip spike results for the application and ambient studies are listed in Tables 10 and 13 respectively. Each of the three application spike cartridges was spiked with 50 ng and each of the five ambient spike cartridges was spiked with 10 ng of ethoprop. The average recoveries for the application lab spikes was 99% and for the ambient lab spikes was 118%. These results are consistent with the lab spike results and indicate that the sample transport, storage and analytical procedures used in this study produce acceptable results for ethoprop.

#### G. Field Spikes

Field spikes are prepared at the same time and at the same level as the laboratory spike and trip spike sets. The field spikes are kept in a freezer until transported to the field. The field spike samples are kept on dry ice in an ice chest (the same one used for samples) during transport to and from the field and at all times while in the field except for the sampling period. Field spikes were collected at the same environmental and experimental conditions as those occurring at the time of ambient sampling. The field spikes were obtained by sampling ambient air through a previously spiked cartridge. (i.e., collocated with an ambient or background sample). Field spike sets for the

application and ambient studies were prepared by Testing Section staff.

The field spike results for the application and ambient studies are listed in Tables 11 and 14 respectively. Each of the three application spike cartridges was spiked with 50 ng and each of the five ambient spike cartridges was spiked with 10 ng of ethoprop. The average recovery for the application and ambient field spikes was 94% and 123% respectively. These results are consistent with the lab and trip spike results and indicate that the sampling, sample transport, storage and analytical procedures used in this study produce acceptable results for ethoprop.

FIGURE 1. ETHOPROP AMBIENT MONITORING AREA

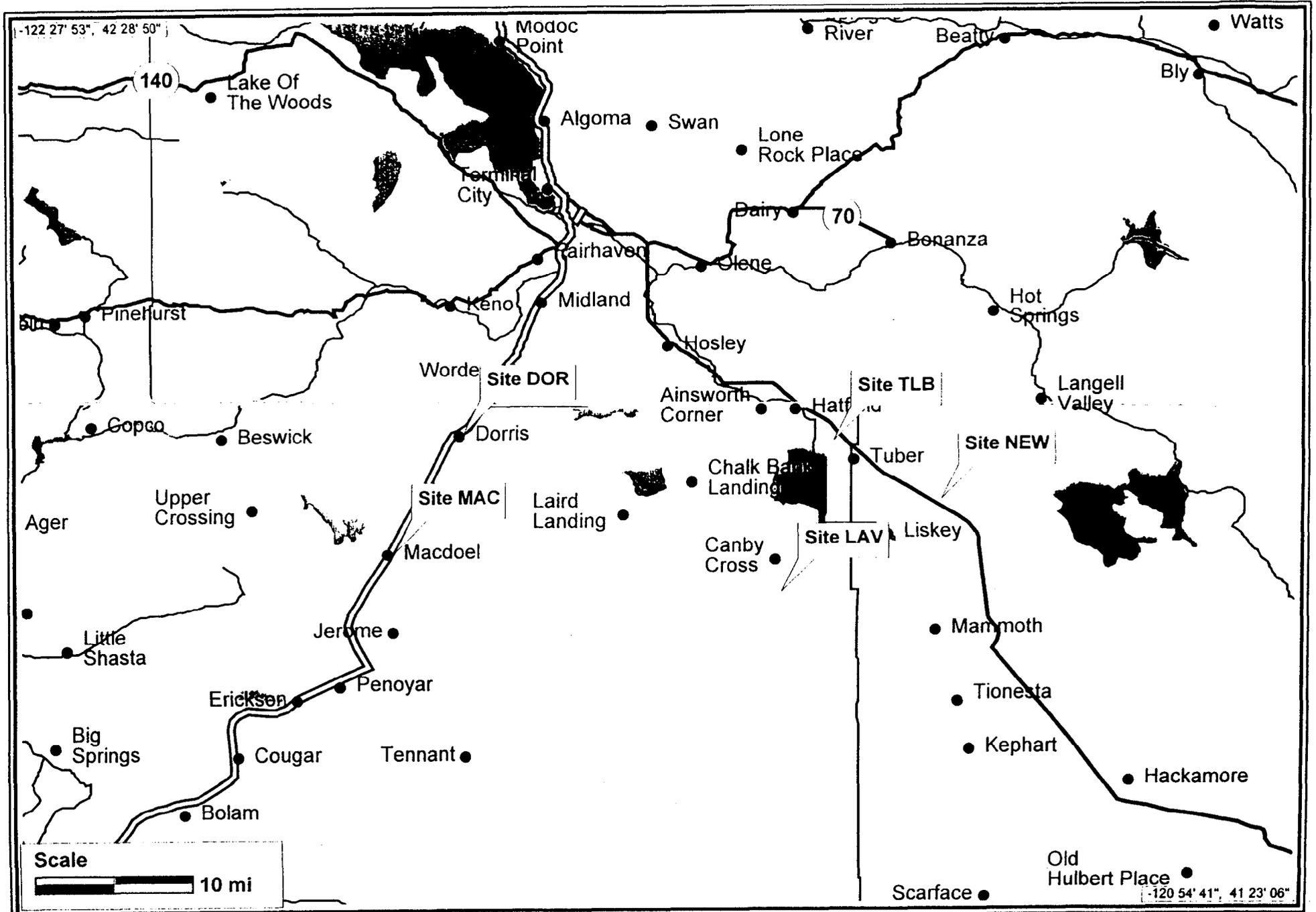
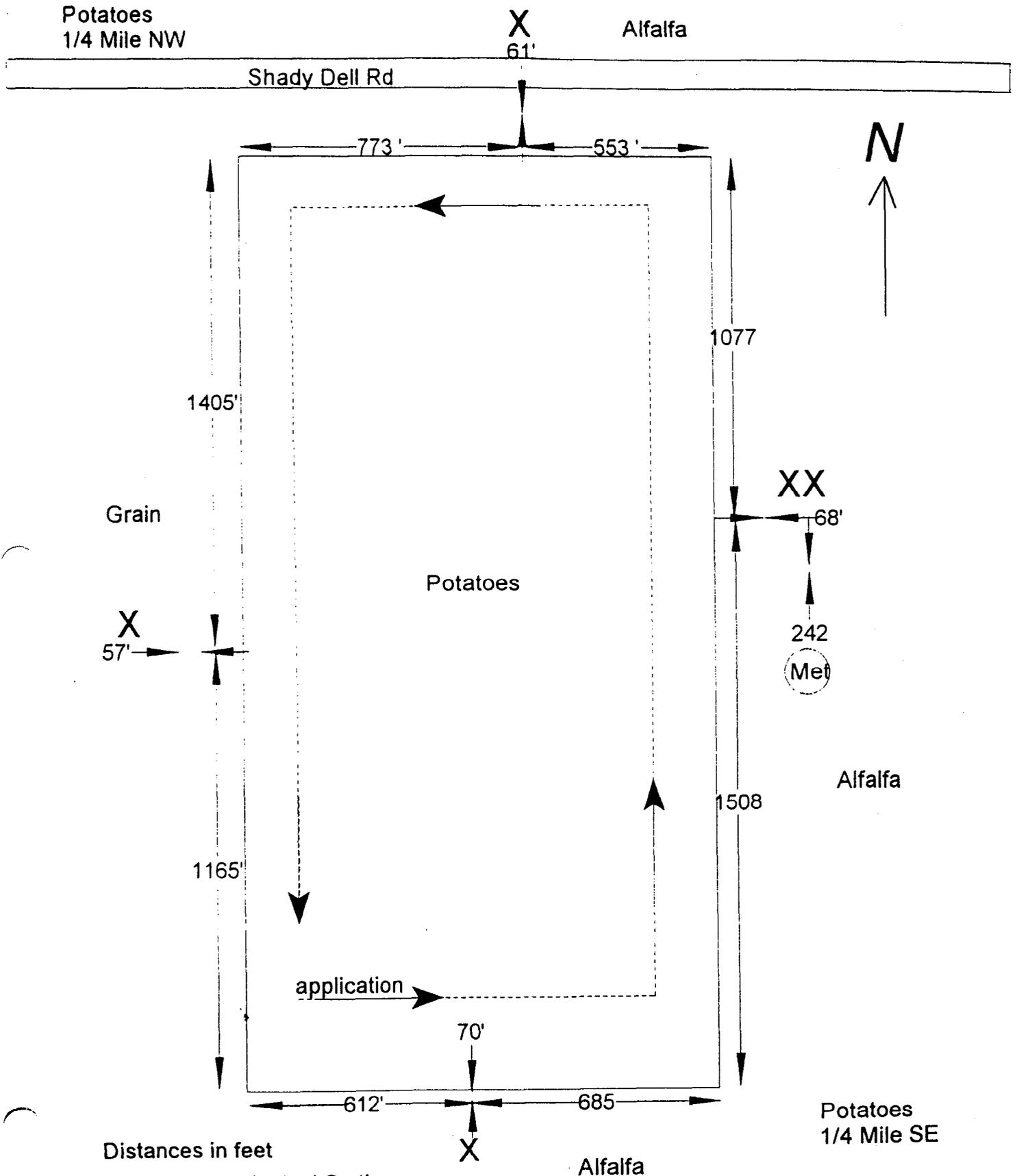


FIGURE 2. ETHOPROP APPLICATION SITE



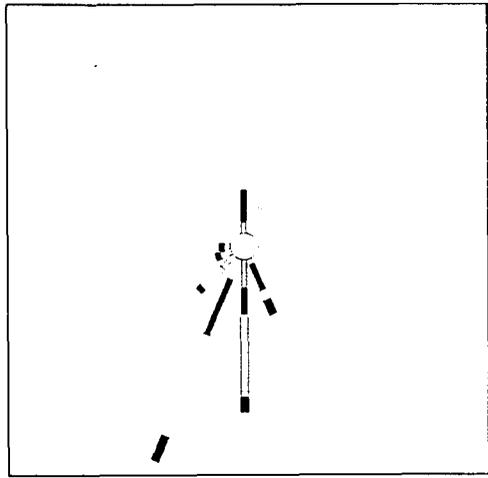
Distances in feet  
 Met = Meteorological Station  
 N = Geographic North

# FIGURE 3. ETHOPROP APPLICATION DATA (ng/m<sup>3</sup>)

BACKGROUND  
15.5 Hours

[N] <MDL

[W] Det



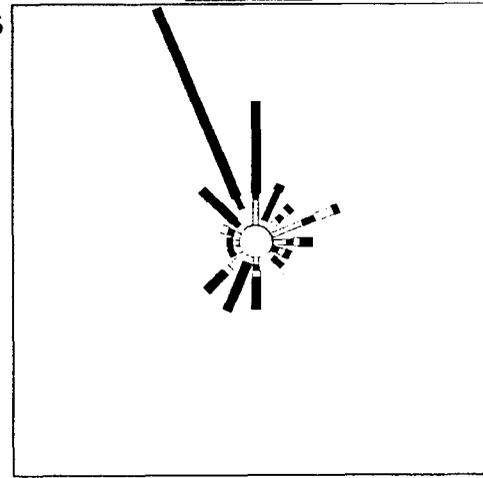
[E] <MDL  
[ED] <MDL

[S] <MDL

PERIOD 1  
11.75 Hours

[N] 39

[W] 19



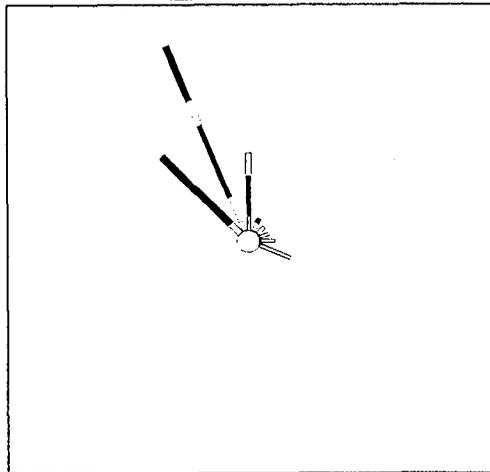
[E] 34  
[ED] 38

[S] 26

PERIOD 2  
3.5 Hours

[N] 18

[W] 40



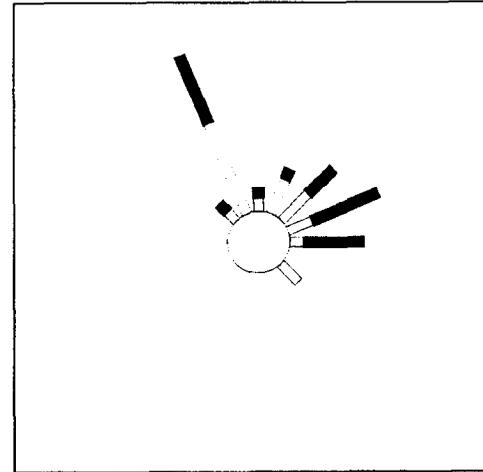
[E] 47  
[ED] 53

[S] 45

PERIOD 3  
7.0 Hours

[N] 54

[W] 68

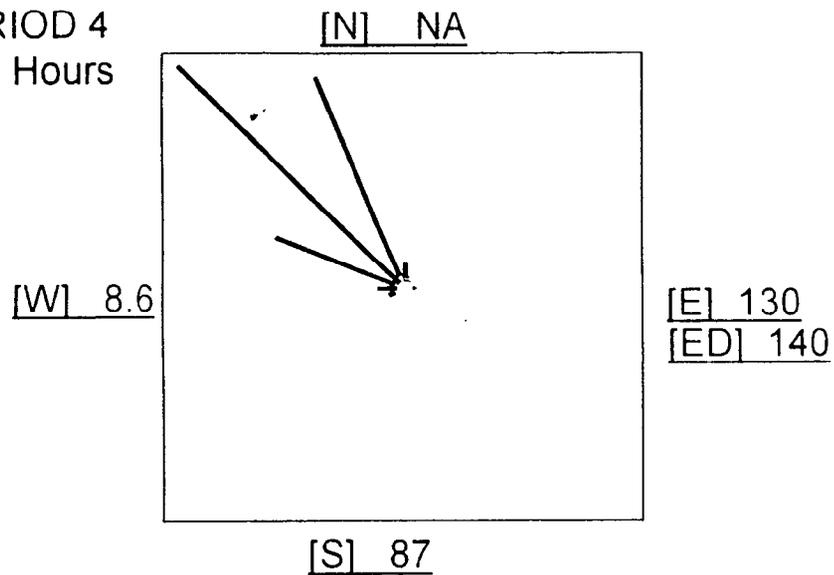


[E] 31  
[ED] 28

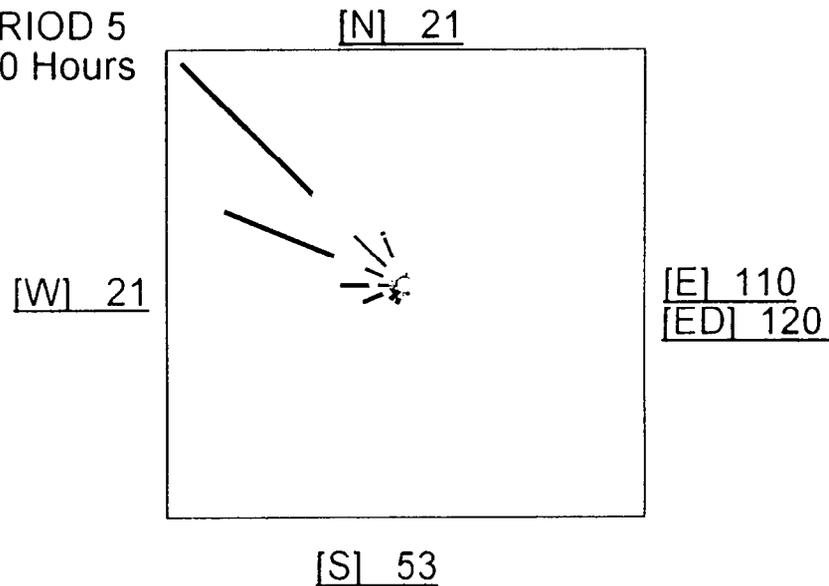
[S] 110

FIGURE 3. ETHOPROP APPLICATION DATA (ng/m<sup>3</sup>)

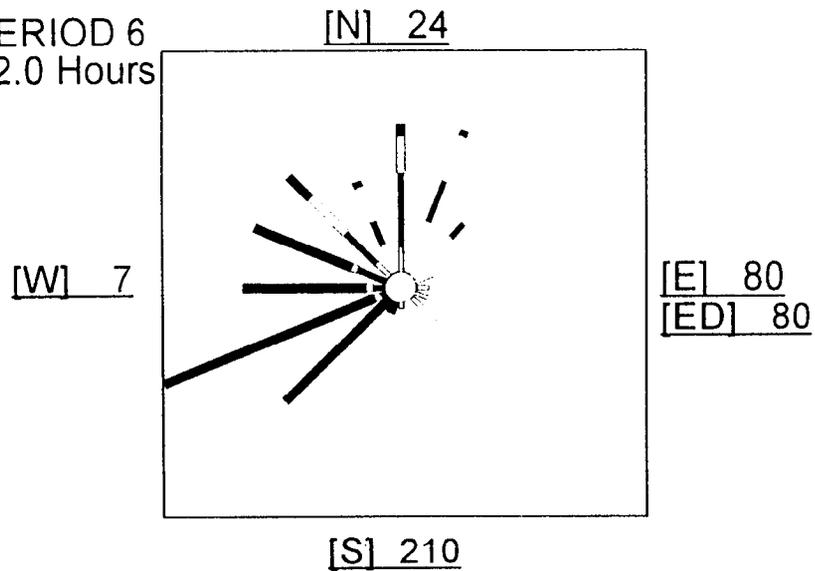
PERIOD 4  
8.75 Hours



PERIOD 5  
22.0 Hours



PERIOD 6  
22.0 Hours



**Table 4. Ethoprop Application Monitoring Results**

Log #	Sample ID	Start Date/Time	End Date/Time	Sample Time (min.)	Sample Time (hours)	Sample Volume (m3)	Ethoprop (ng/sample)	(ng/m3)	*(pptv)
1	WB	05/11/98 1645	05/12/98 0830	945	15.8	2.8	Det	Det	Det
3	SB	05/11/98 1655	05/12/98 0820	925	15.4	2.8	<MDL	<MDL	<MDL
5	EB	05/11/98 1700	05/12/98 0815	915	15.2	2.7	<MDL	<MDL	<MDL
7	NB	05/11/98 1710	05/12/98 0835	925	15.4	2.8	<MDL	<MDL	<MDL
8	E1	05/12/98 0815	05/12/98 2010	715	11.9	2.1	7.19E+1	3.4E+01	3.4E+00
9	E1D	05/12/98 0815	05/12/98 2010	715	11.9	2.1	8.14E+1	3.8E+01	3.8E+00
10	S1	05/12/98 0820	05/12/98 2015	715	11.9	2.1	5.56E+1	2.6E+01	2.6E+00
11	W1	05/12/98 0830	05/12/98 2020	710	11.8	2.1	3.99E+1	1.9E+01	1.9E+00
12	N1	05/12/98 0835	05/12/98 2030	715	11.9	2.1	8.39E+1	3.9E+01	3.9E+00
13	E2	05/12/98 2010	05/12/98 2340	210	3.5	0.6	2.93E+1	4.7E+01	4.7E+00
14	E2D	05/12/98 2010	05/12/98 2340	210	3.5	0.6	3.32E+1	5.3E+01	5.3E+00
15	S2	05/12/98 2015	05/12/98 2340	205	3.4	0.6	2.76E+1	4.5E+01	4.5E+00
16	W2	05/12/98 2020	05/12/98 2345	205	3.4	0.6	2.47E+1	4.0E+01	4.1E+00
17	N2	05/12/98 2030	05/12/98 2350	200	3.3	0.6	1.08E+1	1.8E+01	1.8E+00
18	E3	05/12/98 2340	05/13/98 0635	415	6.9	1.2	3.91E+1	3.1E+01	3.2E+00
19	E3D	05/12/98 2340	05/13/98 0635	415	6.9	1.2	3.44E+1	2.8E+01	2.8E+00
20	S3	05/12/98 2340	05/13/98 0645	425	7.1	1.3	1.41E+2	1.1E+02	1.1E+01
21	W3	05/12/98 2345	05/13/98 0650	425	7.1	1.3	8.67E+1	6.8E+01	6.9E+00
22	N3	05/12/98 2350	05/13/98 0655	425	7.1	1.3	6.93E+1	5.4E+01	5.5E+00
23	E4	05/13/98 0635	05/13/98 1455	500	8.3	1.5	1.95E+2	1.3E+02	1.3E+01
24	E4D	05/13/98 0635	05/13/98 1455	500	8.3	1.5	2.12E+2	1.4E+02	1.4E+01
25	S4	05/13/98 0645	05/13/98 1455	490	8.2	1.5	1.28E+2	8.7E+01	8.8E+00
26	W4	05/13/98 0650	05/13/98 1500	490	8.2	1.5	1.26E+1	8.6E+00	8.7E-01
27	N4	05/13/98 0655	05/13/98 1505	490	8.2	1.5	NA	NA	NA
28	E5	05/13/98 1455	05/14/98 1305	1330	22.2	4.0	4.27E+2	1.1E+02	1.1E+01
29	E5D	05/13/98 1455	05/14/98 1305	1330	22.2	4.0	4.85E+2	1.2E+02	1.2E+01
30	S5	05/13/98 1455	05/14/98 1305	1330	22.2	4.0	2.13E+2	5.3E+01	5.4E+00
31	W5	05/13/98 1500	05/14/98 1300	1320	22.0	4.0	8.26E+1	2.1E+01	2.1E+00
32	N5	05/13/98 1505	05/14/98 1310	1325	22.1	4.0	8.29E+1	2.1E+01	2.1E+00
33	E6	05/14/98 1305	05/15/98 1110	1325	22.1	4.0	3.17E+2	8.0E+01	8.0E+00
34	E6D	05/14/98 1305	05/15/98 1110	1325	22.1	4.0	3.17E+2	8.0E+01	8.0E+00
35	S6	05/14/98 1305	05/15/98 1110	1325	22.1	4.0	8.34E+2	2.1E+02	2.1E+01

MDL = 0.947 ng/sample

Det = below EQL of 4.74 ng/sample but equal to or above the MDL

**Table 4. Ethoprop Application Monitoring Results**

Log #	Sample ID	Start Date/Time	End Date/Time	Sample Time (min.)	Sample Time (hours)	Sample Volume (m3)	Ethoprop (ng/sample)	(ng/m3)	*(pptv)
36	W6	05/14/98 1300	05/15/98 1100	1320	22.0	4.0	2.76E+1	7.0E+00	7.0E-01
37	N6	05/14/98 1300	05/15/98 1115	1335	22.3	4.0	9.72E+1	2.4E+01	2.4E+00
38	TB	05/15/98 1110	05/15/98 1110	0	0.0	0.0	<MDL	<MDL	<MDL

MDL = 0.947 ng/sample

Det = below EQL of 4.74 ng/sample but equal to or above the MDL

**Table 5. Summary of Ethoprop Application Results (ng/m3)**

Sampling Period	East	East Collocated	North	South	West
Background	<MDL		<MDL	<MDL	Det
Period 1	34	38	39	26	19
Period 2	47	53	18	45	40
Period 3	31	28	54	110	68
Period 4	130	140	NA	87	8.6
Period 5	110	120	21	53	21
Period 6	80	80	24	210	7

**Table 6. Ethoprop Application Collocated Results (ng/m3)**

Sampling Period	East	East Collocated	Average	Relative Difference
Period 1	34	38	36	12%
Period 2	47	53	50	12%
Period 3	31	28	30	13%
Period 4	130	140	135	7%
Period 5	110	120	115	9%
Period 6	80	80	80	0%

MDL = 0.947 ng/sample

Det = less than the EQL of 4.74 ng/sample but equal to or above the MDL

NA = Not Analyzed due to loss of sample

Relative Difference = (Difference/Average)100

**Table 7. Ethoprop Ambient Monitoring Results**

Log #	Sample ID	Start Date/Time	End Date/Time	Sample Time (min.)	Sample Time (hours)	Sample Volume (m3)	Ethoprop (ng/sample)	(ng/m3)	*(pptv)
1	MAC01	4/28/98 10:00	4/29/98 08:55	1375	22.9	4.1	5.89E+0	1.4E+00	1.4E-01
2	DOR01	4/28/98 10:30	4/29/98 09:15	1365	22.7	4.1	<MDL	<MDL	<MDL
3	TLB01	4/28/98 11:25	4/29/98 09:50	1345	22.4	4.0	<MDL	<MDL	<MDL
4	NEW01	4/28/98 12:20	4/29/98 11:47	1407	23.4	4.2	<MDL	<MDL	<MDL
5	LAV01	4/28/98 13:15	4/29/98 12:25	1390	23.2	4.2	<MDL	<MDL	<MDL
6	LAV01D	4/28/98 13:15	4/29/98 12:25	1390	23.2	4.2	<MDL	<MDL	<MDL
7	MAC02	4/29/98 08:55	4/30/98 11:21	1586	26.4	4.8	<MDL	<MDL	<MDL
8	DOR02	4/29/98 09:15	4/30/98 11:00	1545	25.8	4.6	<MDL	<MDL	<MDL
9	TLB02	4/29/98 09:50	4/30/98 09:45	1435	23.9	4.3	<MDL	<MDL	<MDL
10	NEW02	4/29/98 11:47	4/30/98 09:25	1298	21.6	3.9	<MDL	<MDL	<MDL
11	LAV02	4/29/98 12:25	4/30/98 08:35	1210	20.2	3.6	<MDL	<MDL	<MDL
12	LAV02D	4/29/98 12:25	4/30/98 08:35	1210	20.2	3.6	<MDL	<MDL	<MDL
13	MAC03	4/30/98 11:21	5/01/98 10:10	1369	22.8	4.1	<MDL	<MDL	<MDL
14	DOR03	4/30/98 11:00	5/01/98 09:15	1335	22.2	4.0	<MDL	<MDL	<MDL
15	TLB03	4/30/98 09:45	5/01/98 08:30	1365	22.7	4.1	<MDL	<MDL	<MDL
16	NEW03	4/30/98 09:25	5/01/98 08:10	1365	22.8	4.1	<MDL	<MDL	<MDL
17	LAV03	4/30/98 08:35	5/01/98 07:35	1380	23.0	4.1	<MDL	<MDL	<MDL
18	LAV03D	4/30/98 08:35	5/01/98 07:35	1380	23.0	4.1	<MDL	<MDL	<MDL
19	TB03	5/01/98 10:15	5/01/98 10:15	0	0.0	0.0	<MDL	<MDL	<MDL
20	LAV04	5/04/98 11:20	5/05/98 09:35	1335	22.3	4.0	<MDL	<MDL	<MDL
23	NEW04	5/04/98 12:05	5/05/98 10:35	1350	22.5	4.1	<MDL	<MDL	<MDL
24	TLB04	5/04/98 12:25	5/05/98 10:50	1345	22.4	4.0	<MDL	<MDL	<MDL
25	DOR04	5/04/98 13:35	5/05/98 12:05	1350	22.5	4.1	<MDL	<MDL	<MDL
26	MAC04	5/04/98 14:15	5/05/98 12:35	1340	22.3	4.0	5.84E+0	1.5E+00	1.5E-01
27	LAV05	5/05/98 09:35	5/06/98 09:00	1405	23.4	4.2	<MDL	<MDL	<MDL
31	NEW05	5/05/98 10:35	5/06/98 09:45	1390	23.2	4.2	<MDL	<MDL	<MDL
32	TLB05	5/05/98 10:50	5/06/98 10:10	1400	23.3	4.2	Det	Det	Det
33	DOR05	5/05/98 12:05	5/06/98 11:10	1385	23.1	4.2	<MDL	<MDL	<MDL
34	MAC05	5/05/98 12:35	5/06/98 11:35	1380	23.0	4.1	<MDL	<MDL	<MDL
35	LAV06	5/06/98 09:00	5/07/98 08:50	1430	23.8	4.3	<MDL	<MDL	<MDL
36	LAV06D	5/06/98 09:00	5/07/98 08:50	1430	23.8	4.3	Det	Det	Det

MDL = 0.947 ng/sample

Det = Less than the EQL of 4.7 ng/sample but equal to or above the MDL

NA = Not Analyzed due to loss of sample

\* pptv at 1 atm and 25 C

**Table 7. Ethoprop Ambient Monitoring Results**

Log #	Sample ID	Start Date/Time	End Date/Time	Sample Time (min.)	Sample Time (hours)	Sample Volume (m3)	Ethoprop (ng/sample)	(ng/m3)	*(pptv)
37	NEW06	5/06/98 09:45	5/07/98 09:40	1435	23.9	4.3	<MDL	<MDL	<MDL
38	NEW06D	5/06/98 09:45	5/07/98 09:40	1435	23.9	4.3	<MDL	<MDL	<MDL
39	TLB06	5/06/98 10:10	5/07/98 10:05	1435	23.9	4.3	Det	Det	Det
40	TLB06D	5/06/98 10:10	5/07/98 10:05	1435	23.9	4.3	<MDL	<MDL	<MDL
41	DOR06	5/06/98 11:10	5/07/98 11:05	1435	23.9	4.3	<MDL	<MDL	<MDL
42	DOR06D	5/06/98 11:10	5/07/98 11:05	1435	23.9	4.3	<MDL	<MDL	<MDL
43	MAC06	5/06/98 11:40	5/07/98 11:35	1435	23.9	4.3	<MDL	<MDL	<MDL
44	MAC06D	5/06/98 11:40	5/07/98 11:35	1435	23.9	4.3	<MDL	<MDL	<MDL
45	LAV07	5/07/98 08:50	5/08/98 08:15	1405	23.4	4.2	Det	Det	Det
46	NEW07	5/07/98 09:40	5/08/98 09:10	1410	23.5	4.2	Det	Det	Det
47	TLB07	5/07/98 10:05	5/08/98 09:35	1410	23.5	4.2	Det	Det	Det
48	DOR07	5/07/98 11:05	5/08/98 10:15	1390	23.2	4.2	<MDL	<MDL	<MDL
49	MAC07	5/07/98 11:35	5/08/98 11:00	1405	23.4	4.2	<MDL	<MDL	<MDL
50	TB07	5/08/98 18:00	5/08/98 18:00	0	0.0	0.0	NA	NA	NA
56	LAV08	5/11/98 12:30	5/12/98 08:55	1225	20.4	3.7	Det	Det	Det
57	NEW08	5/11/98 13:15	5/12/98 09:40	1225	20.4	3.7	<MDL	<MDL	<MDL
58	TLB08	5/11/98 13:30	5/12/98 10:00	1230	20.5	3.7	Det	Det	Det
59	DOR08	5/11/98 14:10	5/12/98 11:15	1265	21.1	3.8	Det	Det	Det
60	MAC08	5/11/98 14:30	5/12/98 11:36	1266	21.1	3.8	<MDL	<MDL	<MDL
61	LAV09	5/12/98 08:55	5/13/98 09:20	1465	24.4	4.4	<MDL	<MDL	<MDL
62	NEW09	5/12/98 09:40	5/13/98 10:25	1485	24.8	4.5	<MDL	<MDL	<MDL
63	TLB09	5/12/98 10:00	5/13/98 10:45	1485	24.8	4.5	<MDL	<MDL	<MDL
64	DOR09	5/12/98 11:15	5/13/98 11:55	1480	24.7	4.4	<MDL	<MDL	<MDL
65	MAC09	5/12/98 11:36	5/13/98 12:12	1476	24.6	4.4	<MDL	<MDL	<MDL
66	LAV10	5/13/98 09:20	5/14/98 09:35	1455	24.2	4.4	<MDL	<MDL	<MDL
67	LAV10D	5/13/98 09:20	5/14/98 09:35	1455	24.2	4.4	<MDL	<MDL	<MDL
68	NEW10	5/13/98 10:25	5/14/98 10:25	1440	24.0	4.3	<MDL	<MDL	<MDL
69	NEW10D	5/13/98 10:25	5/14/98 10:25	1440	24.0	4.3	<MDL	<MDL	<MDL
70	TLB10	5/13/98 10:45	5/14/98 10:45	1440	24.0	4.3	Det	Det	Det
71	TLB10D	5/13/98 10:45	5/14/98 10:45	1440	24.0	4.3	Det	Det	Det
72	DOR10	5/13/98 11:55	5/14/98 11:57	1442	24.0	4.3	<MDL	<MDL	<MDL

MDL = 0.947 ng/sample

Det = Less than the EQL of 4.7 ng/sample but equal to or above the MDL

NA = Not Analyzed due to loss of sample

\* pptv at 1 atm and 25 C

**Table 7. Ethoprop Ambient Monitoring Results**

Log #	Sample ID	Start Date/Time	End Date/Time	Sample Time (min.)	Sample Time (hours)	Sample Volume (m3)	Ethoprop (ng/sample)	(ng/m3)	*(pptv)
73	DOR10D	5/13/98 11:55	5/14/98 11:57	1442	24.0	4.3	<MDL	<MDL	<MDL
74	MAC10	5/13/98 12:12	5/14/98 12:22	1450	24.2	4.4	<MDL	<MDL	<MDL
75	MAC10D	5/13/98 12:12	5/14/98 12:22	1450	24.2	4.4	<MDL	<MDL	<MDL
76	LAV11	5/14/98 09:35	5/15/98 08:15	1360	22.7	4.1	<MDL	<MDL	<MDL
77	NEW11	5/14/98 10:25	5/15/98 09:00	1355	22.6	4.1	<MDL	<MDL	<MDL
78	TLB11	5/14/98 10:45	5/15/98 09:15	1350	22.5	4.1	<MDL	<MDL	<MDL
79	DOR11	5/14/98 11:57	5/15/98 10:05	1328	22.1	4.0	1.19E+1	3.0E+00	3.0E-01
80	MAC11	5/14/98 12:22	5/15/98 10:25	1323	22.1	4.0	<MDL	<MDL	<MDL
81	TB11	5/14/98 12:22	5/14/98 12:22	0	0.0	0.0	<MDL	<MDL	<MDL
82	MAC12	5/18/98 12:30	5/19/98 12:05	1415	23.6	4.2	<MDL	<MDL	<MDL
83	DOR12	5/18/98 13:00	5/19/98 11:45	1365	22.8	4.1	<MDL	<MDL	<MDL
84	LAV12	5/18/98 14:15	5/19/98 09:45	1170	19.5	3.5	<MDL	<MDL	<MDL
85	NEW12	5/18/98 14:55	5/19/98 10:45	1190	19.8	3.6	<MDL	<MDL	<MDL
86	TLB12	5/18/98 15:15	5/19/98 11:00	1185	19.8	3.6	<MDL	<MDL	<MDL
87	LAV13	5/19/98 09:45	5/20/98 09:35	1430	23.8	4.3	<MDL	<MDL	<MDL
88	NEW13	5/19/98 10:45	5/20/98 10:15	1410	23.5	4.2	<MDL	<MDL	<MDL
89	TLB13	5/19/98 11:00	5/20/98 10:35	1415	23.6	4.2	<MDL	<MDL	<MDL
90	DOR13	5/19/98 11:45	5/20/98 11:35	1430	23.8	4.3	<MDL	<MDL	<MDL
91	MAC13	5/19/98 12:05	5/20/98 12:10	1445	24.1	4.3	Det	Det	Det
92	LAV14	5/20/98 09:35	5/21/98 09:35	1440	24.0	4.3	<MDL	<MDL	<MDL
93	LAV14D	5/20/98 09:35	5/21/98 09:35	1440	24.0	4.3	<MDL	<MDL	<MDL
94	NEW14	5/20/98 10:15	5/21/98 10:15	1440	24.0	4.3	Det	Det	Det
95	NEW14D	5/20/98 10:15	5/21/98 10:15	1440	24.0	4.3	Det	Det	Det
96	TLB14	5/20/98 10:35	5/21/98 10:35	1440	24.0	4.3	Det	Det	Det
97	TLB14D	5/20/98 10:35	5/21/98 10:35	1440	24.0	4.3	Det	Det	Det
98	DOR14	5/20/98 11:35	5/21/98 11:15	1420	23.7	4.3	<MDL	<MDL	<MDL
99	DOR14D	5/20/98 11:35	5/21/98 11:15	1420	23.7	4.3	<MDL	<MDL	<MDL
100	MAC14	5/20/98 12:10	5/21/98 11:35	1405	23.4	4.2	<MDL	<MDL	<MDL
101	MAC14D	5/20/98 12:10	5/21/98 11:35	1405	23.4	4.2	<MDL	<MDL	<MDL
102	LAV15	5/21/98 09:35	5/22/98 07:50	1335	22.3	4.0	<MDL	<MDL	<MDL
103	NEW15	5/21/98 10:15	5/22/98 08:25	1330	22.2	4.0	<MDL	<MDL	<MDL

MDL = 0.947 ng/sample

Det = Less than the EQL of 4.7 ng/sample but equal to or above the MDL

NA = Not Analyzed due to loss of sample

\* pptv at 1 atm and 25 C

**Table 7. Ethoprop Ambient Monitoring Results**

Log #	Sample ID	Start Date/Time	End Date/Time	Sample Time (min.)	Sample Time (hours)	Sample Volume (m3)	Ethoprop (ng/sample)	(ng/m3)	*(pptv)
104	TLB15	5/21/98 10:35	5/22/98 08:45	1330	22.2	4.0	Det	Det	Det
105	DOR15	5/21/98 11:15	5/22/98 09:20	1325	22.1	4.0	<MDL	<MDL	<MDL
106	MAC15	5/21/98 11:35	5/22/98 09:40	1325	22.1	4.0	<MDL	<MDL	<MDL
107	TB15	5/21/98 09:35	5/21/98 09:35	0	0.0	0.0	<MDL	<MDL	<MDL
108	LAV16	5/26/98 13:20	5/27/98 12:45	1405	23.4	4.2	<MDL	<MDL	<MDL
109	NEW16	5/26/98 14:25	5/27/98 13:40	1395	23.3	4.2	<MDL	<MDL	<MDL
110	TLB16	5/26/98 15:00	5/27/98 14:10	1390	23.2	4.2	<MDL	<MDL	<MDL
111	DOR16	5/26/98 15:45	5/27/98 15:10	1405	23.4	4.2	<MDL	<MDL	<MDL
112	MAC16	5/26/98 16:15	5/27/98 15:45	1410	23.5	4.2	<MDL	<MDL	<MDL
113	LAV17	5/27/98 12:45	5/28/98 11:00	1335	22.3	4.0	<MDL	<MDL	<MDL
114	NEW17	5/27/98 13:40	5/28/98 11:40	1320	22.0	4.0	<MDL	<MDL	<MDL
115	TLB17	5/27/98 14:10	5/28/98 12:05	1315	21.9	3.9	<MDL	<MDL	<MDL
116	DOR17	5/27/98 15:10	5/28/98 12:50	1300	21.7	3.9	<MDL	<MDL	<MDL
117	MAC17	5/27/98 15:45	5/28/98 13:25	1300	21.7	3.9	<MDL	<MDL	<MDL
118	LAV18	5/28/98 11:00	5/29/98 09:40	1360	22.7	4.1	<MDL	<MDL	<MDL
119	LAV18D	5/28/98 11:00	5/29/98 09:40	1360	22.7	4.1	<MDL	<MDL	<MDL
120	NEW18	5/28/98 11:45	5/29/98 10:40	1375	22.9	4.1	<MDL	<MDL	<MDL
121	NEW18D	5/28/98 11:45	5/29/98 10:40	1375	22.9	4.1	<MDL	<MDL	<MDL
122	TLB18	5/28/98 12:05	5/29/98 11:10	1385	23.1	4.2	<MDL	<MDL	<MDL
123	TLB18D	5/28/98 12:05	5/29/98 11:10	1385	23.1	4.2	<MDL	<MDL	<MDL
124	DOR18	5/28/98 12:50	5/29/98 11:55	1385	23.1	4.2	<MDL	<MDL	<MDL
125	DOR18D	5/28/98 12:50	5/29/98 11:56	1386	23.1	4.2	<MDL	<MDL	<MDL
126	MAC18	5/28/98 13:25	5/29/98 12:20	1375	22.9	4.1	<MDL	<MDL	<MDL
127	MAC18D	5/28/98 13:25	5/29/98 12:20	1375	22.9	4.1	<MDL	<MDL	<MDL
128	LAV19	5/29/98 09:40	5/30/98 08:45	1385	23.1	4.2	<MDL	<MDL	<MDL
129	NEW19	5/29/98 10:40	5/30/98 09:35	1375	22.9	4.1	<MDL	<MDL	<MDL
130	TLB19	5/29/98 11:10	5/30/98 10:05	1375	22.9	4.1	<MDL	<MDL	<MDL
131	DOR19	5/29/98 11:55	5/30/98 10:45	1370	22.8	4.1	<MDL	<MDL	<MDL
132	MAC19	5/29/98 12:20	5/30/98 11:15	1375	22.9	4.1	8.36E+0	2.0E+00	2.0E-01
133	LAV20	5/30/98 08:45	5/31/98 08:20	1415	23.6	4.2	<MDL	<MDL	<MDL
134	NEW20	5/30/98 09:35	5/31/98 09:10	1415	23.6	4.2	<MDL	<MDL	<MDL

MDL = 0.947 ng/sample

Det = Less than the EQL of 4.7 ng/sample but equal to or above the MDL

NA = Not Analyzed due to loss of sample

\* pptv at 1 atm and 25 C

**Table 7. Ethoprop Ambient Monitoring Results**

Log #	Sample ID	Start Date/Time	End Date/Time	Sample Time (min.)	Sample Time (hours)	Sample Volume (m3)	Ethoprop (ng/sample)	(ng/m3)	*(pptv)
135	TLB20	5/30/98 10:05	5/31/98 09:35	1410	23.5	4.2	<MDL	<MDL	<MDL
136	DOR20	5/30/98 10:45	5/31/98 10:10	1405	23.4	4.2	<MDL	<MDL	<MDL
137	MAC20	5/30/98 11:15	5/31/98 10:50	1415	23.6	4.2	7.88E+0	1.9E+00	1.9E-01
138	LAV21	5/31/98 08:20	6/01/98 08:15	1435	23.9	4.3	<MDL	<MDL	<MDL
139	NEW21	5/31/98 09:10	6/01/98 09:05	1435	23.9	4.3	<MDL	<MDL	<MDL
140	TLB21	5/31/98 09:35	6/01/98 09:40	1445	24.1	4.3	<MDL	<MDL	<MDL
141	DOR21	5/31/98 10:10	6/01/98 10:15	1445	24.1	4.3	<MDL	<MDL	<MDL
142	MAC21	5/31/98 10:50	6/01/98 10:50	1440	24.0	4.3	<MDL	<MDL	<MDL
143	LAV22	6/01/98 08:15	6/02/98 08:00	1425	23.8	4.3	<MDL	<MDL	<MDL
144	LAV22D	6/01/98 08:15	6/02/98 08:00	1425	23.8	4.3	<MDL	<MDL	<MDL
145	NEW22	6/01/98 09:05	6/02/98 08:45	1420	23.7	4.3	<MDL	<MDL	<MDL
146	NEW22D	6/01/98 09:05	6/02/98 08:45	1420	23.7	4.3	<MDL	<MDL	<MDL
147	TLB22	6/01/98 09:40	6/02/98 09:00	1400	23.3	4.2	<MDL	<MDL	<MDL
148	TLB22D	6/01/98 09:40	6/02/98 09:00	1400	23.3	4.2	<MDL	<MDL	<MDL
149	DOR22	6/01/98 10:15	6/02/98 09:45	1410	23.5	4.2	<MDL	<MDL	<MDL
150	DOR22D	6/01/98 10:15	6/02/98 09:45	1410	23.5	4.2	<MDL	<MDL	<MDL
151	MAC22	6/01/98 10:50	6/02/98 10:10	1400	23.3	4.2	<MDL	<MDL	<MDL
152	MAC22D	6/01/98 10:50	6/02/98 10:10	1400	23.3	4.2	<MDL	<MDL	<MDL
153	TB22	6/02/98 10:10	6/02/98 10:10	0	0.0	0.0	<MDL	<MDL	<MDL
154	LAV23	6/02/98 08:00	6/03/98 08:00	1440	24.0	4.3	<MDL	<MDL	<MDL
155	NEW23	6/02/98 08:45	6/03/98 08:50	1445	24.1	4.3	<MDL	<MDL	<MDL
156	TLB23	6/02/98 09:00	6/03/98 09:10	1450	24.2	4.4	Det	Det	Det
157	DOR23	6/02/98 09:45	6/03/98 09:55	1450	24.2	4.4	<MDL	<MDL	<MDL
158	MAC23	6/02/98 10:10	6/03/98 10:15	1445	24.1	4.3	Det	Det	Det
159	LAV24	6/03/98 08:00	6/04/98 07:45	1425	23.7	4.3	<MDL	<MDL	<MDL
160	NEW24	6/03/98 08:50	6/04/98 08:30	1420	23.7	4.3	<MDL	<MDL	<MDL
161	TLB24	6/03/98 09:10	6/04/98 08:55	1425	23.8	4.3	<MDL	<MDL	<MDL
162	DOR24	6/03/98 09:55	6/04/98 09:40	1425	23.8	4.3	<MDL	<MDL	<MDL
163	MAC24	6/03/98 10:15	6/04/98 10:10	1435	23.9	4.3	<MDL	<MDL	<MDL
164	TB24	6/04/98 10:10	6/04/98 10:10	0	0.0	0.0	<MDL	<MDL	<MDL

MDL = 0.947 ng/sample

Det = Less than the EQL of 4.7 ng/sample but equal to or above the MDL

NA = Not Analyzed due to loss of sample

\* pptv at 1 atm and 25 C

**Table 8. Summary of Ethoprop Ambient Results (ng/m3)**

Sample Start Date	Trip Blank	LAV	NEW	TLB	DOR	MAC
04/28/98		<MDL	<MDL	<MDL	<MDL	1.4
04/29/98		<MDL	<MDL	<MDL	<MDL	<MDL
04/30/98	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
05/04/98		<MDL	<MDL	<MDL	<MDL	1.5
05/05/98		<MDL	<MDL	Det	<MDL	<MDL
05/06/98		<MDL	<MDL	Det	<MDL	<MDL
05/06/98		<MDL	<MDL	<MDL	<MDL	<MDL
05/07/98	NA	Det	Det	Det	<MDL	<MDL
05/11/98		Det	<MDL	Det	Det	<MDL
05/12/98		<MDL	<MDL	<MDL	<MDL	<MDL
05/13/98	<MDL	<MDL	<MDL	Det	<MDL	<MDL
05/13/98		<MDL	<MDL	Det	<MDL	<MDL
05/14/98		<MDL	<MDL	<MDL	3.0	<MDL
05/18/98		<MDL	<MDL	<MDL	<MDL	<MDL
05/19/98		<MDL	<MDL	<MDL	<MDL	Det
05/20/98	<MDL	<MDL	Det	Det	<MDL	<MDL
05/20/98		<MDL	Det	Det	<MDL	<MDL
05/21/98		<MDL	<MDL	Det	<MDL	<MDL
05/26/98		<MDL	<MDL	<MDL	<MDL	<MDL
05/27/98		<MDL	<MDL	<MDL	<MDL	<MDL
05/28/98		<MDL	<MDL	<MDL	<MDL	<MDL
05/28/98		<MDL	<MDL	<MDL	<MDL	<MDL
05/29/98		<MDL	<MDL	<MDL	<MDL	2.0
05/30/98		<MDL	<MDL	<MDL	<MDL	1.9
05/31/98		<MDL	<MDL	<MDL	<MDL	<MDL
06/01/98	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL
06/01/98		<MDL	<MDL	<MDL	<MDL	<MDL
06/02/98		<MDL	<MDL	Det	<MDL	Det
06/03/98	<MDL	<MDL	<MDL	<MDL	<MDL	<MDL

Maximum	<MDL	Det	Det	Det	3.0	2.0
Average	<MDL	0.15	0.15	0.29	0.25	0.42
# Samples	5	24	24	24	24	24
# >EQL	0	0	0	0	1	4
# Det	0	2	2	8	1	2
# <MDL	5	22	22	16	22	18

Only the higher value of each collocated pair was used to calculate the above statistics.

Det results were factored into the average as  $(MDL+EQL)/2 = 0.65 \text{ ng/m}^3$ .

<MDL results were factored into the average as  $MDL/2 = 0.11 \text{ ng/m}^3$ ; assume 4.32 m3 sample volume.

MDL = 0.947 ng/sample

Det = Less than the EQL of 4.74 ng/sample but equal to or above the MDL

NA = Not Analyzed due to loss of sample

**Table 9. Ethoprop Application Lab Spike Results**

Sample ID	Ethoprop Mass (ng)	Expected Mass (ng)	Percent Recovery
LS1	45.3	50	91%
LS2	47.5	50	95%
LS3	45.2	50	90%
LS4	41.0	50	82%

**Table 10. Ethoprop Application Trip Spike Results**

Sample ID	Ethoprop Mass (ng)	Expected Mass (ng)	Percent Recovery
TS1	48.6	50	97%
TS2	48.1	50	96%
TS3	51.6	50	103%

**Table 11. Ethoprop Application Field Spike Results**

Sample ID	Ethoprop Mass (ng)	Background* Mass (ng)	Corrected Mass (ng)	Expected Amount (ng)	Percent Recovery
FS1	46.5	*Det	43.7	50	87%
FS2	45.5	<MDL	45.5	50	91%
FS3	51.9	<MDL	51.9	50	104%

MDL = 0.947 ng/sample

\*Value of (MDL+EQL)/2=2.8 ng used to correct the spike result.

**Table 12. Ethoprop Ambient Lab Spike Results**

Sample ID	Ethoprop Mass (ng)	Expected Mass (ng)	Percent Recovery
LS1	10.0	10	100%
LS2	11.0	10	110%
LS3	10.9	10	109%
LS4	10.1	10	101%
LS5	11.1	10	111%

**Table 13. Ethoprop Ambient Trip Spike Results**

Sample ID	Ethoprop Mass (ng)	Expected Mass (ng)	Percent Recovery
TS1	12.2	10	122%
TS2	11.2	10	112%
TS3	10.7	10	107%
TS4	13.2	10	132%
TS5	11.7	10	117%

**Table 14. Ethoprop Ambient Field Spike Results**

Sample ID	Ethoprop Mass (ng)	Background* Mass (ng)	Corrected Mass (ng)	Expected Amount (ng)	Percent Recovery
FS1	11.3	<MDL	11.3	10	113%
FS2	11.9	<MDL	11.9	10	119%
FS3	12.3	<MDL	12.3	10	123%
FS4	13.6	<MDL	13.6	10	136%
FS5	12.3	<MDL	12.3	10	123%

MDL = 0.947 ng/sample

\*Mass of ethoprop found in the collocated ambient sample.