The Newfoundland Offshore Burn Experiment: Further Results of Emissions Measurement

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ABSTRACT

The NOBE experiment was conducted in 1993, however, analysis of samples and data continue due to the extensive nature of experimental data.

Combustion gases including carbon dioxide, sulphur dioxide and carbon monoxide did not reach levels of concern. These gases are emitted over a broad area around the fire and are not directly associated with the plume trajectory. Volatile organic compounds (VOCs) were abundant, however were less than emitted from the non-burning spill. Over 140 compounds were quantified, several at levels near human health exposure maximums up to 100 metres downwind.

Water under the burns was analysed for volatile compounds; no compounds could be found at the detection level of the methods employed.

Airborne particulate material and the starting oil and subsequent burn residues were analysed for metals. Metals were not detected on the airborne particulate material - other than small amounts derived from the fire resistant boom. Slightly elevated metal concentrations, above that noted in the starting oil were found in the residue, indicating that metals are deposited to the residue as a result of the fire, rather than to the smoke or soot particles.

INTRODUCTION

Eleven years of intensive laboratory and tank testing on the in situ combustion of oil have indicated that the nature and concentrations of atmospheric emissions from in situ burning of oil offshore will normally be an acceptable tradeoff when weighed against the environmental risks and cleanup costs of near shore and shoreline contamination.

Analyses conducted to date have shown that the high temperatures reached during efficient combustion results in relatively complete destruction of the oil (Fingas, Li, et al., 1993; Fingas, Ackerman et al., 1994; Fingas, Ackerman et al., 1995). Fire resistant containment booms developed over the past few years offer the potential, under suitable wind and sea conditions, to both maintain oil at a suitable thickness for burning at sea and contain undesired spreading of the oil and the fire.

Environment Canada. Arctic and Marine Oilspill Program (AMOP) Technical Seminar, 18th. Proceedings. Volume 2. June 14-16, 1995, Edmonton, Alberta, Canada, Environment Canada, Ottawa, Ontario, 915-995 pp, 1995.

Extensive results of analysis on the Newfoundland burn have already been published (Fingas, Ackerman et al., 1994; Fingas, Ackerman et al., 1995). These show that the emissions from this in-situ oil fire were less than expected. All compounds and parameters measured are below health concern levels beyond about 100 metres from the fire. Pollutants were found to be at lower values in the Newfoundland offshore burn than they were in previous pan tests. The reasons for this are not fully understood, but the offshore test appears to have resulted in more efficient combustion.

This paper reports on further analysis of samples and data from the NOBE burn, particularly on the Carbon Dioxide levels, metal analysis, volatiles in water samples and VOC (Volatile Organic Compounds).

SAMPLING

Sampling methodologies and target emissions are summarized in Table 1. Detailed methods are described in the literature (Fingas, Ackerman et. al., 1994; Bissonnette, Fingas et al., 1994). Particular emphasis will be on the metal analysis which has not been described elsewhere.

Table 1 **Summary of Analytical Methods**

Sample Taken	Sampler	Measurement Parameter	Secondary Parameters	Additional Parameters
Soot at Sea Level	High Volume Sampler	Dioxins and Dibenzofurans	Particulates	PAHs
	Sampling Pump medium volume	PAHs	Particulates	
	RAM	Particulates		
Soot in Smoke	Cascade sampler	Particle size	PAHs	
	Sampling Pump low volume	PAHs	Particulates	Metals
	blimp, remote-controlled helicopter, research aircraft			
Gases	Summa Canister	Volatile Organic Compounds	CO_2	
	Sampling Pump low volume	Volatile Organic Compounds		
	CO_2 Meter	Carbon Dioxide		
	SO_2 Meter	Sulphur Dioxide		
	NO_2 Meter	Nitrogen Dioxide		
	CO Meter	Carbon Monoxide		
Oil		PAHs	Metals	Full Analysis
Burn Residue		PAHs	Metals	Full Analysis
Water Under Burn		PAHs	Organics	Toxicity

VOC

Multiple 6 L SUMMA canisters pre-evacuated to 0.05 mm of Hg were used to collect air for analysis for VOCs, CO and CO_2. The flow controller (restricted orifice) was adjusted to 500 cc/min for the evaporation period and to 100 cc/min for the burn.

Metals

The crude oil samples were manually collected at various locations as follows: while weathering the oil in Alberta; prior to loading the oil on the vessel, in St. John's, NFLD, and finally, crude oil and residue samples were collected from the surface of the water before and after each burn experiment, on August 12, 1993. The samples were stored in metal containers to minimize possible interferences to subsequent organic analyses. Upon returning to the Emergencies Science Division (ESD), Environmental Technology Centre (ETC) the samples were stored in a temperature controlled room at 15 °C. On September 9, 1993 the free water was removed from the oil and residue samples. Two representative 40 mL aliquots were taken from the samples in the metal containers, stored in precleaned, amber glass vials with Teflon lined caps and used for the subsequent chemical analysis. The aliquots were stored at 15 °C until analysed while the remainder of the oil was stored at another site.

Air particulate samples were taken during the burn itself. Sampling apparatus were positioned at three downwind locations. These included two remote controlled sampling boats (RCSB) and Canadian Coast Guard Vessel CG206. The RCSB stations were approximately 50 m and 100 m downwind from the apex of the fire boom while CCG206 was located approximately 300 m downwind. Each sampling vessel had two separate sampling apparatus. Due to mechanical problems one of the RCSB had to be replaced during the first burn, thus three RCSB were employed during the first burn, two during the second burn and CCG206 during both burns. Background samples were collected at sea on August 7/93 during a rehearsal. Two samples were collected with the RCSB and one with CG206. Including two trip blank samples, a total of 19 air filter samples were collected.

Air samples were collected via a Gilian Aircon 2 pump and 37 mm diameter cassette containing a 0.8 µm mixed cellulose ester filter (Nuclepore, Pleasanton USA) as recommended in OSHA/NIOSH method 7300 (Occupational safety and Health Administration, National institute of Health and Human Services). The filter cassette was attached to one end of a length of Tygon tubing and fastened to the mast of the sample boat. The height of the intake was 1.2 to 1.5 m (4 to 5 feet) above the deck of the boat. The other end of the tubing was attached to the pump. A typical flow rate of 2 L/minute was used. Depending upon the length of time the pump was operating, 62 to 144 L of air was drawn through the filter. Once collected, the filter was capped and stored in a sample cooler at ambient temperatures (approximately 15 °C). Upon return to ETC the samples were stored in a temperature controlled room at 15 °C. To measure the loading on the filters each filter was weighed before and after use in a temperature and humidity controlled room. The room was maintained at a temperature of 23 ± 3 °C and a relative humidity of 45 ± 5 %. Steps taken to ensure accurate filter weights included placing the filters in the controlled chamber for a minimum of 24 hours prior to weighing to ensure they had reached an appropriate equilibrium and constant weight.

CO_2

The CD-1 Armstrong carbon dioxide sampler was used at a sampling rate of 1 L/min. Tygon tubing was connected from the instrument to the mast of the remote-controlled sampling boat to allow sampling at 1 m above deck level. The data was logged every minute.

CO, SO_2, NO_2

The Exotox 75 was used to analyze all three gases. Its flow rate was 300 mL/minute. The Cannonball was used for carbon monoxide and sulphur dioxide only at a flow rate of 1 L/min. Tubing was connected from the instrument to the mast of the sampling boat to allow sampling at 1 m above deck level. The data was logged every 30 seconds.

SO_2- Wet Precipitation

The concentration of sulphur dioxide in the air was also measured using the impinger method. A known volume of air was drawn through a Tygon tube attached to a filter (37 mm methyl cellulose ester, 0.8 mm) contained in a cassette and through a midget bubbler (25 mL) containing 15 mL of 0.3N hydrogen peroxide. Again the end of the tubing was connected to the mast of the sampling boat to allow sampling 1 m above deck level. The flow rate of the Gilian 513A pump was set between 90-200 cc/min and air volumes between 3 and 14 L passed through the impinger. Samples were transferred in amber vials and refrigerated. Subsequent analysis was performed using method NIOSH S308 and using the following materials.

-250 mL beaker, dropper, 100 mL graduated cylinder, burette
-pH meter
-0.3 N hydrogen peroxide
-isopropanol
-1.8 percent perchloric acid
-Thorin indicator
-0.005 M barium perchlorate
-magnetic stirrer and bar

Water Samples

Sigma 800SL samplers were used to collect water samples for both toxicity and organic compound analyses. One sampler contained 4 x 1 gallon sterile glass bottles with Teflon lined caps (for toxicity testing) and the other contained 24 x 350 mL (for organic measurements). The samplers were located on the deck of the boat and Teflon tubing was attached to a pole which was lowered into the water at approximately 1 m.
All samples were collected and placed in refrigerated coolers and shipped to the laboratory within 24 hours of collection. The smaller bottles were sent to the ETC for chemistry analysis and the larger bottles (although not full) were sent to EVS consultants in British Columbia. for toxicity analysis.

Sample Preparation

Metal Samples

For inductively coupled plasma atomic emission spectrometric (ICP-AE) analysis of metals, typically 0.2 g of crude oil and residue samples was digested with 10

mL of nitric acid (ARISTAR 69% - BDH, Montreal, Canada). The samples were digested in 100 mL, closed cup, Teflon vessels using a CEM model MDS 2000 (630-watts- CEM Corp., Mathews, USA) microwave oven. Each run consisted of eight simultaneously digested samples, two of which were blanks. The digestion parameters were as follows: 10 minutes at 50% power, 190 minutes at 60 % power. The vessels remained in the microwave following the digestion period until the pressure dropped below 40 psi, at which time they are manually vented, transferred to a 50 mL volumetric flask and diluted with deionized/distilled water to volume. Finally, the samples were filtered through Whatman #41 ashless paper into clean amber glass vials with Teflon lined caps. The air samples were collected on 37 mm cellulose ester membrane filters. The entire filter was digested and prepared in the same manner as the liquid samples.

Water samples

Water samples were stored at 4°C until analyzed. For the determination of PAHs, aliquots of 500-1000 mL were spiked with a mixture of PAH surrogate standards and extracted three times with dichloromethane. The combined raw extract was then concentrated to a small volume. In preparation for analysis, an internal standard of d14-terphenyl was added and the volume made up to 1 mL.
For headspace analysis, a 10-mL aliquot was placed in a 20-mL capped headspace vial and equilibrated for 45 min at 85°C. A 1-mL aliquot of the headspace was injected via a gas sampling loop into a GC/MSD.

VOC Samples

Up to 1.2 litre of the Summa VOC sample was cryogenically trapped using liquid oxygen on a glass bead trap. Perma Pure Dryers were used to dry the sample stream to prevent ice formation in the traps. After trapping for 30 min at a gas flow at 40 mL/min, the trap was heated to 100°C and the non-methane organic compounds were desorbed into a GC/MSD operated in selected ion monitoring (SIM) mode. Two other determinations of each Summa canister were also performed using two GCs with optimized columns and conditions to determine C2 and C3-C12 hydrocarbons.

Analytical protocols

Headspace VOCs

The headspace analyser system consisted of a HP 19395A headspace sampler coupled directly to the heated injection port of a HP 5890 GC with MSD, via a heated interface. The headspace in each sample vial, kept at 85°C, was swept through a 1-cc internal sample loop by first pressurizing the vial. The gas sampling valve, under the control of the concentrator, was rotated so that the contents of sampling loop was swept into the GC inlet operated in a split mode (split ratio 1:5). The GC was programmed from an initial 30°C (held for 5 min) to a final temperature of 200 C at the rate of 7.5°C/min. Injection and MSD source temperature were 200°C and 160°C respectively. A 30-m HP-1 capillary column (0.32 mm ID, 1-mm film) was used for compound separation.

A mixture of alkanes, alkenes and aromatics, including benzene, toluene, ethyl benzene o-,p- and m-xylene were used to establish response factors of each class of volatile compounds.

Instrument detection limit: 0.01 ppm.

Metals

The metal content was determined using an ARL 3410 ICP-AE (Fison Instruments, Valencia, USA) spectrometer controlled by a computer and Plasma Vision 10 software package. The 11 metals were molybdenum (Mo), zinc (Zn), lead (Pb), nickel (Ni), iron (Fe), chromium (Cr), magnesium (Mg), vanadium (V), copper (Cu), titanium (Ti), and barium (Ba).

To ensure accuracy and reproducibility of results the following steps were taken:

a Daily calibration over the range of 0 to 10 ppm was performed. Calibration standards were made from serial dilutions of commercial ICP standards (SCP Scientific, Montreal, Canada).

b These same serial dilution standards were measured as quality control solutions throughout the analysis.

c Standards of trace metals in residual fuel oils (National Institute of Standards and Technology, Gaitherburg, USA) were analysed in conjunction with and in the same manner as the samples.

d Two blanks, 10 mL of nitric acid, were included with each run of 8 vessels (6 samples, 2 blanks). The average of the blank values was used to correct the concentration of the sample.

e Each crude oil and residue sample was analysed in duplicate. The results listed are the average of the duplicate analysis and were calculated using the following formulas:

$$\text{Avg. Blank Conc. (ppm)} = \frac{\text{Instrument Value}_1\text{ (ppm)} + \text{Instrument Value}_2\text{ (ppm)}}{2}$$

$$\text{Sample}_1\text{ Conc. (ppm)} = (\text{Instrument Value}_1\text{ (ppm)} - \text{Avg. Blank Conc. (ppm)}) \times \frac{\text{Dilution Volume (50 mL)}}{\text{Sample Weight}_1\text{ (g)}}$$

$$\text{Sample}_2\text{ Conc. (ppm)} = (\text{Instrument Value}_2\text{ (ppm)} - \text{Avg. Blank Conc. (ppm)}) \times \frac{\text{Dilution Volume (50 mL)}}{\text{Sample Weight}_2\text{ (g)}}$$

where 1 mL ≈ 1 g

$$\text{Avg. Sample Conc. (ppm)} = \frac{\text{Sample}_1\text{ (ppm)} + \text{Sample}_2\text{ (ppm)}}{2}$$

Instrument parameters were as follows: (typical) incident watts 650; reflected watts 001; plate volts 3330; plate current 519 mA; grid current 083 mA; drive volts 2150; spectrometer profile; zero 76171; Argon 355.4617 nm; sample uptake rate 3.1 mL/minute.

The Instrument Detection Limits (IDL) and Background Equivalent Concentration (BEC) provide an indication of the performance of the instrument. They are defined respectively as, IDL is the smallest concentration which can be detected greater than background and BEC is an analyte's concentration which yields a net

intensity equal to the intensity of the background. Prepared standard solutions are used in conjunction with the software package to determine their respective values. The instrument detection limits (IDL) and Background equivalent concentrations (BEC) are given in Table 2.

Table 2 Instrument Detection Limits and Background Equivalent Concentrations

Analyte	Channel	Lambda	Order	Blank Kpulse	Blank S.D.	Blank Int.	Std. Kpulse	Std. Conc.	Std. Int.	Integr. Time	BEC	IDL
Mo	94	201.976	1	0.109	0.003	11	6.027	10.00	3	1.0	0.1840	0.0096
Zn	179	213.820	1	0.146	0.004	11	41.131	10.00	3	1.0	0.0357	0.0022
Pb	110	220.344	1	0.146	0.004	11	3.711	10.00	3	1.0	0.4103	0.0202
Ni	103	231.586	1	0.163	0.005	11	10.993	10.00	3	1.0	0.1508	0.0091
Fe	58	259.953	1	0.413	0.007	11	43.792	10.00	3	1.0	0.0952	0.0034
Cr	44	267.705	1	0.291	0.005	11	27.325	10.00	3	1.0	0.1075	0.0034
Mg	88	279.551	1	2.834	0.027	11	266.835	10.00	3	1.0	0.1074	0.0021
V	170	309.336	1	0.366	0.006	11	63.312	10.00	3	1.0	0.0582	0.0019
Cu	47	324.778	1	0.281	0.005	11	81.457	10.00	3	1.0	0.0346	0.0012
Ti	158	337.287	1	0.483	0.010	11	95.369	10.00	3	1.0	0.0510	0.0021
Ba	18	455.468	1	0.500	0.007	11	69.820	1.00	3	1.0	0.0072	0.0002

Results and Discussion

Combustion Gases

Tests were made for a number of gases, but CO and NO_x were below the lower detection levels. Sulphur Dioxide, SO_2, is only detected using an impinger method. Direct-reading instruments did not detect the compound above background levels. This is indicative that the SO_2 is in an acid aerosol form since the impinger method also detects this form. Carbon dioxide was measured around the burn and was found in concentrations that are highest at ground level. The distribution of CO_2 over the test site during burn 1 is shown in Figure 1 and for burn 2, Figure 2. Tables A1 to A6 list the data for CO_2 levels. Tables A7 to A13 list data from a variety of gas measurements.

The carbon dioxide data are presented in 'excess CO_2', that is with background values subtracted. Figures 1 and 2 show that the CO_2 plume moves close to the surface and that the gas has a distinct plume of its own, separate from the smoke plume. The CO_2 values are high in front of the fire and are higher than in the plume. In fact, the peak values behind the fire are almost an order-of-magnitude higher on the surface than in the plume at a distance of about 200 metres downwind and directly downwind of the fire. Values of CO_2 beside the fire are about double that of the levels in the plume. This clearly indicates that the CO_2 does not go with the smoke plume and that it moves by its own dynamics along the surface. It should be noted that the data are somewhat noisy because of the emission of CO_2 by the ships and boats themselves. Several peaks, attributed in the experimental records to passing boats or ships, were eliminated. Without doubt the CO_2 levels in the area were higher because of the many vessels, but this would be partially corrected by the background subtraction.

Gaseous carbon monoxide, sulphur dioxide and nitrogen dioxide were measured only at background levels and were frequently below detection levels. As noted above, the sulphur dioxide is present only in an acid aerosol form since the impinger method

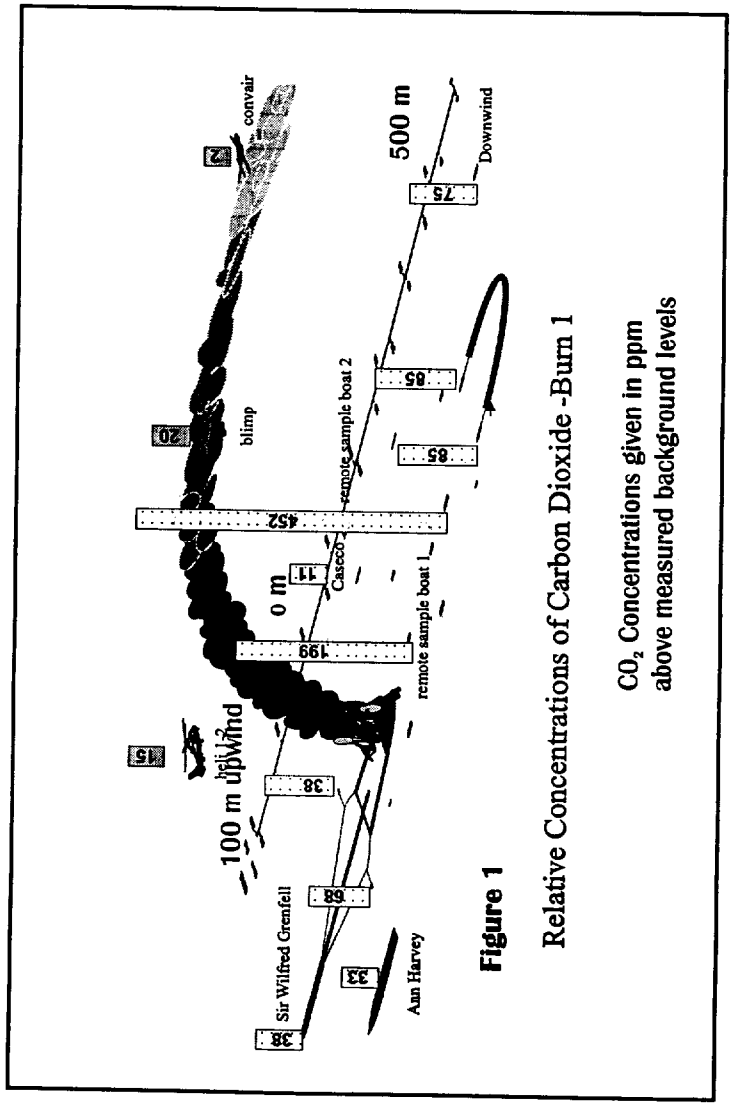

Figure 1

Relative Concentrations of Carbon Dioxide -Burn 1

CO_2 Concentrations given in ppm
above measured background levels

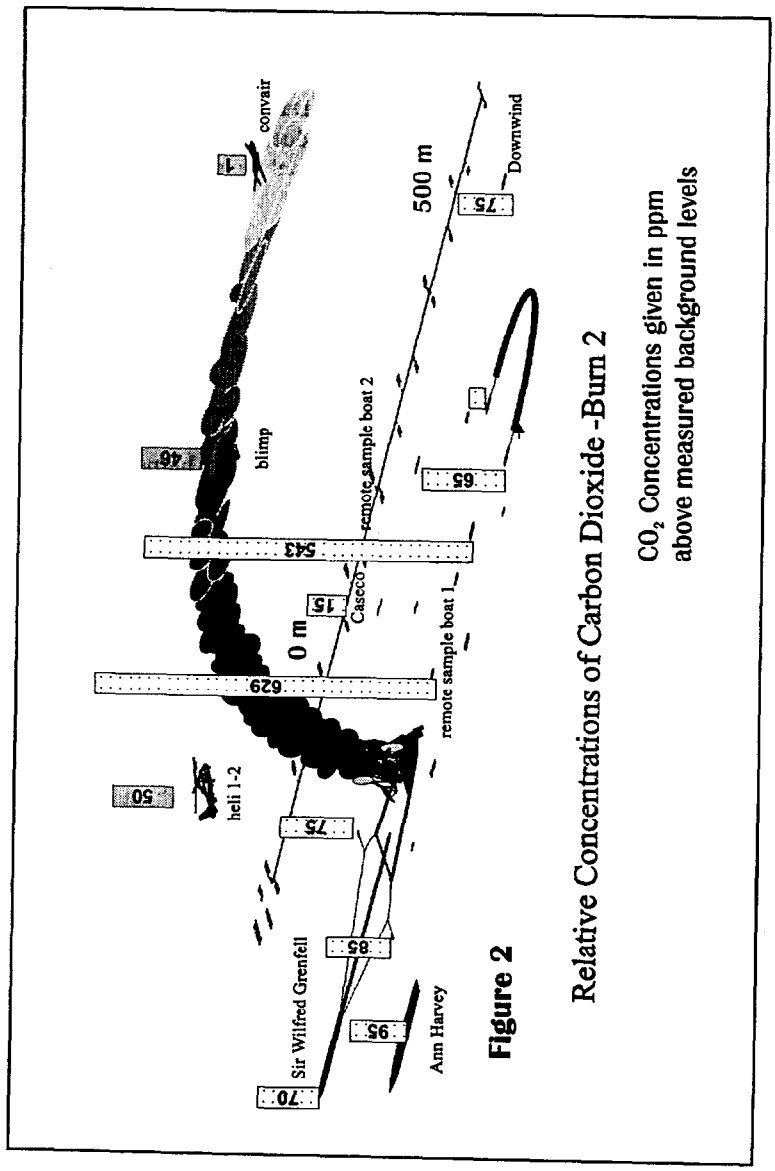
convair
1
blimp
46
543
15
Casco
0 m
629
heli 1-2
50
75
85
95
70
Sir Wilfred Grenfell
Ann Harvey
remote sample boat 2
remote sample boat 1
500 m
Downwind
75
65
Relative Concentrations of Carbon Dioxide -Burn 2
CO_2 Concentrations given in ppm
above measured background levels

Figure 2

also detects this form and the electronic instrumentation does not detect this form and only detects the free gaseous form.

Metals

The results of the analyses of metals on airborne particulates is given in Table A14 and that for the analyses of oil and residue is given in Table A15. Data in Table A14 show that the particulate material in air does not contain measurable quantities of metals, except for small quantities of Titanium, Barium and Iron. The presence of this has been attributed to materials in the fire resistant boom. These same metals were found in burn residue near the fire resistant boom. Data in Table A15 show that the fate of the metals in a burn is to reside in the residue. The residue contains slightly concentrated levels of Vanadium, a characteristic metal found in oil and the above-noted three metals, deriving from the fire resistant boom.

Volatile Compounds in the Water

The results of volatile component analyses of water samples gathered right behind the burn are presented in Table A16. All values are below detection limits showing that no or very low levels of these compounds actually enter the water column.

VOCs

Over 140 compounds were measured in air samples contained in SUMMA canisters. Overall cumulative VOC concentrations for both burns are summarized in Table 3 (sea surface) and Table 4 (airborne). Detailed analytical results are presented in Table A17. The levels of volatile organic compounds are well above concern levels within 100 metres of the fire. The levels of these compounds are even greater from an evaporating slick that is not burning - as can be seen from Table 3. In fact, the levels can be as much as an order-of-magnitude greater when oil is not burning than when it is burning - at the closest monitoring stations. Furthermore, the levels of VOCs appear to follow the same distribution patterns as carbon dioxide. The highest levels are found near the surface and may be an order-of-magnitude lower at heights of 50 metres. Levels of these substances are also affected by the presence of the many engines at this experiment and this presents 'noise' to the data which cannot be removed because the Summa canisters integrate the entire sampling period during which they are opened.

OVERALL FINDINGS

The Newfoundland burn and the previous tank test burns have revealed several facts about the fate, behaviour and quantity of the basic emissions from burning:

Gases - Combustion gases are diffusely distributed by the dynamics of burning and do not have spatial relationship to the plume. A good model is to view gas dispersal as following a doughnut-like pattern around the burn. This pattern is deformed by increasing wind velocities. Generally gas concentrations downwind are very low. Gas concentrations, especially in low winds can be as high around the fire as downwind.

Water Emissions - The levels of volatile compounds in the water of the test tanks or under the water at sea have been found to be below detection limits.

Metals - Metals deriving from the burn are not detectable in particulates downwind of the fire. The fate of the metals appears to be deposition to the residue, where slightly higher levels of metals were detected compared to those of the starting oil.

Table 3 **VOC Analysis of Sea Level Air Samples Using the Summa System**

Values are total VOCs in µg/m³

	RS-1	RS-2	Downwind Station	Sir Wilfred Grenfell	Ann Harvey	CCG 203	CCG 204	CCG 212	CCG 214	Cassco
Burn 1										
Background...Aug 07, 93	1000		155							
Pre-ignition	2310	1260	12123	240	110	3350	140	580	135	230
Burn	368	1270	721	69	97	488	67	106	407	75
Burn 2										
Pre-ignition	2160		61	208	79	3340	91	216	1410	133
Burn	625	935	400	73	26	750	20	80	1200	62

Table 4

Burn 1 VOC Analysis of Airborne Samples Using the Summa System

Values are total VOCs in µg/m³

	R/C Heli 1			R/C Heli 2			Convair						
Burn 1	Before Burn	front plume	under plume	Before Burn	under plume 20m high	under plume 40m high	ship exhaust 2 mi DW	background 8:27	background 8:40	burn above cloud layer 10:56	burn plume 1 mi DW 1000 ft 10:39	burn above cloud layer 11:08	burn plume 3 mi DW 11:27	burn plume 20 mi DW 11:43
Background...Aug 07, 93							920							
Background	325			272				81	609					
Pre-ignition	254													
Burn		283	2083		405	264				742	760	545	577	232
Burn 2		front plume			under plume 18m high			pre-ignition no ship exhaust 14:00	burn plume 2 mi DW 1000 ft 14:13	burn plume 2 mi DW 1000 ft 14:24	burn plume 2 mi DW 1000 ft 14:32	burn plume 9 mi DW 14:56	burn plume 15 mi DW 200 ft 15:18	
Pre-ignition								150						
Burn		43			1000			post-burn cross section 6 mi DW 1100 ft 15:26	515 post-burn cross section 6 mi DW 1400 ft 15:32	393 post-burn cross section 6 mi DW 1700 ft 15:38	171 post-burn old smoke 12 mi DW 1500 ft 16:10	62 post-burn background 16:23	47 post residue collection background 16:34	
Post-burn								58	220	167	109	621		
Post residue period													414	

VOCs - VOCs are found at significantly high levels at an oil spill and a burn. The levels of VOCs are higher when the oil is not on fire than when it is. VOCs behave like carbon dioxide and are highest near the ground and do not necessarily travel with the smoke plume.

References

Bissonnette, M.C., M.F. Fingas, R.D. Nelson, P. Beaudry, and J.R.P. Paré, "Crude Oil Combustion at Sea: The Sampling of Released Products Using Remote-Controlled Boats", in Proceedings of The *Seventeenth Arctic and Marine Oil Spill Program Technical Seminar*, Environment Canada, Ottawa, Ontario, pp. 1065-1081, 1994.

Fingas, M.F., K. Li, F. Ackerman, P.R. Campagna, R.D. Turpin, S.J. Getty, M.F. Soleki, M.J. Trespalacios, J.R.P. Paré, M.C. Bissonnette and E.J. Tennyson, "Emissions From Mesoscale In-Situ Oil Fires: The Mobile 1991 and 1992 Tests", in Proceedings of The *Sixteenth Arctic and Marine Oil Spill Program Technical Seminar*, Environment Canada, Ottawa, Ontario, pp. 749-821, 1993.

Fingas, M.F., F. Ackerman, K. Li, P. Lambert, Z. Wang, M.C. Bissonnette, P.R. Campagna, P. Boileau, N. Laroche, P. Jokuty, R. Nelson, R.D. Turpin, M.J. Trespalacios, G. Halley, J. Bélanger, J.R.J. Paré, N. Vanderkooy, E.J. Tennyson, D. Aurand and R. Hiltabrand, "The Newfoundland Offshore Burn Experiment - NOBE Experimental Design and Overview", in Proceedings of The *Seventeenth Arctic and Marine Oil Spill Program Technical Seminar*, Environment Canada, Ottawa, Ontario, pp. 1099-1164, 1994.

Fingas, M.F., G. Halley, F. Ackerman, N. Vanderkooy, R. Nelson, M.C. Bissonnette, N. Laroche, P. Lambert, P. Jokuty, K. Li, W. Halley. G. Warbanski, P.R. Campagna, R.D. Turpin, M.J. Trespalacios, D. Dickins, E.J. Tennyson, D. Aurand and R. Hiltabrand, "The Newfoundland Offshore Burn Experiment - NOBE Experimental Design and Overview", in Proceedings of The *Seventeenth Arctic and Marine Oil Spill Program Technical Seminar*, Environment Canada, Ottawa, Ontario, pp. 1053-1061, 1994.

Fingas, M.F., G. Halley, F. Ackerman, R. Nelson, M.C. Bissonnette, N. Laroche, Z. Wang, P. Lambert, K. Li, P. Jokuty, G. Sergy, W. Halley, J. Latour, R. Galarneau, B. Ryan, P.R. Campagna, R.D. Turpin, E.J. Tennyson, J. Mullin, L. Hannon, D. Aurand and R. Hiltabrand, "The Newfoundland Offshore Burn Experiment", in *Proceedings of the 1995 International Oil Spill Conference*, American Petroleum Institute, Washington, D.C., pp. 123-132, 1995.

Table A1

Burn 1 Summary of Carbon Dioxide Analysis of Air Samples (excess ppm)

corrected for ambient concentrations

	RS-1	RS-2	Downwind Station	R/C Heli 1	R/C Heli 2	BLIMP	Convair	Sir Wilfred Grenfell	Ann Harvey	Casaco	CCG 203	CCG 204	CCG 212	CCG 214
...Summa...														
Background Aug 07, actual reading	317	317	317											
Background, actual reading														
Pre-ignition				396	346		387 (1)							
Burn		63	71	51			365							
RC-HELI	199	452	57					53	70	28	208	60	48	58
Burn, front of plume								38	33	11	68	38	82	85
Burn, under plume				0										
Burn, under plume, 20 m high				30										
Burn, under plume, 20 m high					380									
Burn, under plume, 40 m high					63									
Burn, under plume, 40 m high					308									
Burn, above cloud, 11:08					0									
Burn, smoke 1mi DW at 1000ft, 10:39							41							
Brn smoke 1mi DW 1000ft 10:39							376							
Burn, smoke 3mi DW, 11:27							11							
Burn, smoke 3mi DW, 11:27							360							
Burn, smoke 20mi DW, 11:43							15							
Burn, smoke 20mi DW, 11:43							374							
...Tedlar Bag...							9							
Background, actual reading														
Burn						390								
Burn						416								
Post burn						26								
Post burn						389								
...Metrosonics aq-501...						0								
Background, actual reading														
Pre-ignition		419<427<471												
Pre-ignition		399<415<455												
Burn		0<0<0												
Burn		401<417<464												
Burn		0<0<0												

1 - ship exhaust

For Burn 1 only ...

R/C boat 2 ... at position RS-2 for the first 17 minutes of the burn; at RS-1 for the remainder of the burn; results applied to RS-1 position

R/C boat 1 ... at position RS-2 from 11:23 to end of burn; results applied to RS-2 position

Table A2

Burn 2 Summary of Carbon Dioxide Analysis of Air Samples (excess ppm)

	RS-1	RS-2	Downwind Station	R/C Heli 1	R/C Heli 2	BLIMP	Convair	Sir Wilfred Grenfell	Ann Harvey	Casaco	CCG 203	CCG 204	CCG 212	CCG 214
...Summa...														
Background, actual reading	317	317	317				378 (1)							
Pre-ignition	37		61					8	46	27	93	90	38	138
Burn	629	543	75					70	95	15	85	75	0	85
RC-HELI														
Burn, front of plume				56										
Burn, under plume, 18 m high					42									
Burn, 2mi DW at 1000ft, plume, 14:13							1							
Burn, 2mi DW at 1000ft, plume, 14:24							0							
Burn, 2mi DW at 1000ft, plume, 14:32							6							
Burn, smoke 9mi DW, 14:58							0							
Burn, cross section 6mi DW at 1400ft, 15:32							6							
Burn, cross section 6mi DW at 1700ft, 15:38							0							
Post-burn, 16:23							0							
Post-burn, 16:34							0							
...Tedlar Bag...														
Pre-ignition						0								
Burn						46								
Post burn						0								
...Metrosonic aq-501...														
Background, actual reading			419<428<449											
Pre-ignition			0<0<0											
Burn			0<0<0											
Post-burn			0<0<0											

1 - no ship exhaust

Table A3

Burn 1 Carbon Dioxide Analysis of Sea Level Air Samples Using the Summa System

(excess ppm)

	RS-1	RS-2	Downwind Station	Sir Wilfred Grenfell	Ann Harvey	CCG 203	CCG 204	CCG 212	CCG 214	Casaco
Background...Aug 07, 93 (actual reading)			317							
Pre-ignition		63	71	53	70	206	50	48	58	28
Burn	199	452	57	38	33	68	38	82	85	11

For Burn 1 only ...
R/C boat 2 at position RS-2 for first 17 minutes; mover to RS-1 at this point until end of burn; results applied to RS-1
R/C boat 1 at RS-2 position starting at 11:23 till end of burn; results applied to RS-2 position

Burn 2 Carbon Dioxide Analysis of Sea Level Air Samples Using the Summa System

(excess ppm)

	RS-1	RS-2	Downwind Station	Sir Wilfred Grenfell	Ann Harvey	CCG 203	CCG 204	CCG 212	CCG 214	Casaco
Pre-ignition	37		61	8	46	93	90	38	138	27
Burn	629	543	75	70	95	85	75	0	65	15

Table A4 **Burn 1 Carbon Dioxide Analysis of Airborne Samples Using the Summa System (excess ppm)**

values in ppm above background except where noted

		R/C Heli 1			R/C Heli 2					Convair				
	Before Burn	front plume	under plume	Before Burn	under plume 20m high	under plume 40m high	ship exhaust 2 mi Dw	background 8:27	background 8:48	above cloud layer 10:56	above cloud layer 11:08	plume 1 mi DW 1000 ft 10:39	plume 3 mi DW 11:27	plume 20 mi DW 11:43
Background...Aug 07, 93 (actual reading)							387							
Background	396			346				364	366					
Pre-Ignition	81													
Burn		0	30		63	0					41	11	15	9

Burn 2 Carbon Dioxide Analysis of Airborne Samples Using the Summa System (excess ppm)

	R/C Heli 1	R/C Heli 2	Convair					
	front plume	under plume 18m high	pre-ignition no ship exhaust	burn plume 2 mi DW 1000 ft	burn plume 2 mi DW 1000 ft	burn plume 2 mi DW 1000 ft	burn plume 9 mi DW	burn plume 15 mi DW 200 ft
			14:00	14:13	14:24	14:32	14:56	15:18
Pre-Ignition			378					
Burn	56	42		1	0	8	0	
			post-burn cross section 6 mi DW 1100 ft	post-burn cross section 6 mi DW 1400 ft	post-burn cross section 6 mi DW 1700 ft	post-burn old smoke 12 mi DW 1500 ft	post-burn background	post residue collection background
			15:26	15:32	15:38	16:10	16:23	16:34
post burn 2				6	0		0	0

Table A5 **Carbon dioxide analysis of blimp samples from Tedlar bags (ppm)**

	rep 1	rep 2	AVE	excess ppm above background
Background 1	390		390	
Burn 1	409	422	416	26
Post burn 1	369		369	0
Pre-ignition 2	385		385	0
Burn 2	439	433	436	46
Post burn 2	380		380	0

Table A6 **CARBON DIOXIDE AT DOWNWIND STATION (ppm)**

(Metrosonic aq-501)

		rep 1	rep 2	AVE	excess ppm
Background 1	Minimum	417	413	419	
	Average	428	426	427	
	Maximum	522	444	471	
Pre-ignition 1	Minimum	385	411	399	0
	Average	405	425	415	0
	Maximum	493	437	455	0
Burn 1	Minimum	378	408	401	0
	Average	400	433	417	0
	Maximum	442	498	464	0
Background 2	Minimum	414	420	419	
	Average	419	434	428	
	Maximum	438	449	449	
Pre-ignition 2	Minimum	416	407	413	0
	Average	422	419	421	0
	Maximum	490	430	456	0
Burn 2	Minimum	419	408	415	0
	Average	439	432	435	0
	Maximum	465	457	453	0
Post-burn 2	Minimum	424	418	424	0
	Average	441	424	431	0
	Maximum	449	440	443	0

Table A7 **Air Quality Data as Collected by the Blimp**

	Background (8:54)	BURN 1	post-burn (12:20)	pre-ignition (1:55)	BURN 2	post-burn (3:40)
Carbon Dioxide (Tedlar bags, excess ppm)	390	26	0	0	46	0
PAH (Smoke samples) µg/m³		0.54			1.86	
PAH-extended (PUF/XAD) µg/m³		< 0.5			< 0.4	

Table A8 Burn 1 Emissions at Sea Level

	Sulfur Dioxide (ppm)			Carbon Monoxide (ppm)			Nitrogen Dioxide (ppm)		
	RS-1	RS-2	Downwind Station	RS-1	RS-2	Downwind Station	RS-1	RS-2	Downwind Station
Exotox									
Minimum	0.0	0.0		0.0	0.0		0.0	0.0	
Average	0.5	0.0		0.0	0.0		0.3	0.1	
Maximum	2.5	0.4		0.0	0.0		0.5	0.5	
Cannonball									
Minimum	0.0	0.0	0.0	0.0	0.0				0.0
Average	0.0	0.0	0.4	0.5	0.1				0.0
Maximum	0.1	0.0	1.0	2.7	1.9				0.0
Metrosonics									
Minimum						0.0			
Average						0.5			
Maximum						2.5			
Impinger									
Minimum									
Average	10.3	10.6	6.3						
Maximum									

Table A9 **Burn 2 Emissions at Sea Level**

	Sulfur Dioxide (ppm)			Carbon Monoxide (ppm)			Nitrogen Dioxide (ppm)		
	RS-1	RS-2	Downwind Station	RS-1	RS-2	Downwind Station	RS-1	RS-2	Downwind Station
Exotox									
Minimum		0.0		0.0	0.0			0.4	
Average		0.1		0.0	0.0			0.4	
Maximum		0.6		0.0	0.0			0.5	
Cannonball									
Minimum	0.0	0.0	0.0	0.0	0.1				0.0
Average	0.1	0.0	0.0	0.1	0.7				0.0
Maximum	0.7	0.2	0.0	3.1	2.6				0.0
Metrosonics									
Minimum						0.5			
Average						1.9			
Maximum						4.0			
Impinger									
Minimum									
Average	13.4	12.9	5.4						
Maximum									

Table A10 **Burn 1 AERIAL MEASUREMENTS**

Average data

	BLIMP	Heli 1	Heli 2	Convair clean air	Convair plume
Carbon Dioxide (Summa, excess ppm)		12	27	41	11
Carbon Dioxide (Tedlar bag, excess ppm)	0				
PAH (Smoke samples, µg/m³)	1				
PAH (PUF, µg/m³)				1	
PAH (plume, filter + XAD, µg/m³)		104	37		
PAH (helicopter blade wipes, µg/g)		85	81		
VOC (Summa, front of plume, µg/m³)		283	334	643	523
VOC (Summa, under plume, µg/m³)		2083			

Table A11

Burn 2 AERIAL MEASUREMENTS
Average data

	BLIMP	Heli 1	Heli 2	clean air	plume	>9mi, plume
Carbon Dioxide (Summa, excess ppm)		56	42		1	
Carbon Dioxide (Tedlar bag, excess ppm)	46					
PAH (Smoke samples, µg/m³)	2					
PAH (PUF, µg/m³)				1	2	
PAH (plume, filter + XAD, µg/m³)		128	59			
PAH (helicopter blade wipes, µg/g)		221	66			
VOC (Summa, front of plume, µg/m³)		43			360	55
VOC (Summa, under plume, µg/m³)			1005			

Table A12

Burn 1 SURFACE MEASUREMENTS
Average data

	RS-1	RS-2	Downwind Station	CCG SWG	CCG Ann Harvey	Casaco	CCG 203	CCG 204	CCG 212	CCG 214
Carbon Monoxide (Exotox, ppm)	0	0								
Carbon Monoxide (Cannonball, ppm)	1	0								
Carbon Monoxide (Metrosonics, ppm)			1							
Carbon Dioxide (Summa, excess ppm)	199	452	57	38	33	11	68	38	82	85
Carbon Dioxide (Metrosonics, excess ppm)			0							
Dioxins / Dibenzofurans (pg/m³) PCDD	2									
Dioxins / Dibenzofurans (pg/m³) PCDF	32									
Nitrogen Dioxide (Exotox, ppm)	0	0								
Nitrogen Dioxide (Cannonball, ppm)			0							
PAH (Cyclone, µg/m³)	3	4								
PAH (Cascade Impactor, µg/m³)	1	0	0							
PAH (PUF + XAD, µg/m³)	11	11	3							
Total particulates (RAM, mg/m³)			0							
Sulfur Dioxide (Exotox, ppm)	1	0								
Sulfur Dioxide (Cannonball, ppm)	0	0	0							
Sulfur Dioxide (Impinger, ppm)	10	11	6							
VOC (Summa, µg/m³)	368	1272	721	68	97	75	488	67	108	407

Table A13 **Burn 2 SURFACE MEASUREMENTS**

Average data

	RS-1	RS-2	Downwind Station	CCG SWG	CCG Ann Harvey	Casaco	CCG 203	CCG 204	CCG 212	CCG 214
Carbon Monoxide (Exotox, ppm)	0	0								
Carbon Monoxide (Cannonball, ppm)	0	1								
Carbon Monoxide (Metrosonics, ppm)			2							
Carbon Dioxide (Summa, excess ppm)	629	543	75	70	95	15	85	75	0	65
Carbon Dioxide (Metrosonics, excess ppm)			0							
Nitrogen Dioxide (Exotox, ppm)		0								
Nitrogen Dioxide (Cannonball, ppm)			0							
PAH (Cyclone, µg/m³)	2	10	4							
PAH (Cascade Impactor, µg/m³)		0	0							
PAH (PUF + XAD, µg/m³)	12	11	4							
Total particulates (RAM, mg/m³)			0							
Sulfur Dioxide (Exotox, ppm)		0								
Sulfur Dioxide (Cannonball, ppm)	0	0	0							
Sulfur Dioxide (Impinger, ppm)	13	13	5							
VOC (Summa, µg/m³)	16126	6936	400	73	27	62	750	19	80	1189

Table A14 **Metal Analysis of Air Samples (µg/m³)**

Sample Source		Sample #	Mo	Zn	Pb	Ni	Fe	Cr	Mg	V	Cu	Ti	Ba
Burn 2, Boat 1	RS-1	A1	<5.5	8.7	<11.6	<5.2	25	<2.0	<1.2	<1.1	<0.7	15.1	17.3
Burn 2, Boat 1	RS-1	A2	<5.5	30.1	<11.6	<5.2	35.7	<2.0	<1.2	<1.1	<0.7	35.5	46.9
Burn 1, Boat 4	N/A	A3	<5.5	<1.3	<11.6	<5.2	20.6	<2.0	<1.2	<1.1	<0.7	<1.2	<0.1
Burn 1, Boat 4	N/A	A4	<5.5	<1.3	<11.6	<5.2	11.1	<2.0	<1.2	<1.1	<0.7	12.5	17.8
Burn 2, boat 2	RS-2	A5	<5.5	<1.3	<11.6	<5.2	18.4	4.1	<1.2	<1.1	<0.7	9.4	10.2
Burn 2, boat 2	RS-2	A6	<5.5	7.7	<11.6	<5.2	60.2	13.7	<1.2	<1.1	<0.7	33.4	37.2
Burn 1, Boat 2	RS-1	A7	<5.5	16.7	<11.6	<5.2	<2.0	<2.0	<1.2	<1.1	<0.7	5	4.7
Burn 1, Boat 2	RS-1	A8	<5.5	3.9	<11.6	<5.2	28.3	<2.0	<1.2	<1.1	<0.7	35.6	60.3
Burn 1A, CCG 206	Downwind	A9	<5.5	12.9	<11.6	<5.2	10.3	<2.0	<1.2	<1.1	<0.7	<1.2	<0.1
Burn 1B, CCG 206	Downwind	A10	<5.5	9.9	<11.6	<5.2	24.6	<2.0	<1.2	<1.1	<0.7	49.1	61
Burn 2A, CCG 206	Downwind	A11	<5.5	22.9	<11.6	<5.2	13.9	<2.0	<1.2	<1.1	<0.7	19.8	23.4
Burn 2B, CCG 206	Downwind	A12	<5.5	8.7	<11.6	<5.2	9.7	<2.0	<1.2	<1.1	<0.7	21.2	20.7
Trip Blank		A13	<5.5	<1.3	<11.6	<5.2	<2.0	<2.0	<1.2	<1.1	<0.7	<1.2	0.3
Trip Blank		A14	<5.5	<1.3	<11.6	<5.2	2.2	<2.0	<1.2	<1.1	<0.7	1.2	2.1
Burn 1, Boat 1	RS-2	A15	<5.5	<1.3	<11.6	<5.2	3.9	<2.0	<1.2	<1.1	<0.7	<1.2	<0.1
Burn 1, Boat 1	RS-2	A16	<5.5	4.2	<11.6	<5.2	<2.0	<2.0	5	<1.1	<0.7	<1.2	<0.1
Background, Boat 1		A17	<5.5	<1.3	<11.6	<5.2	<2.0	<2.0	<1.2	<1.1	<0.7	<1.2	<0.1
Background, Boat 1		A18	<5.5	<1.3	<11.6	<5.2	7.3	<2.0	<1.2	<1.1	0.8	4	<0.1
Background, CCG 206		A19	<5.5	<1.3	<11.6	<5.2	<2.0	2.3	279	1.1	<0.7	<1.2	4.8

Table A15

Metal Analysis of Oil and Residue Samples (ppm)

Source	Sample #	Mo	Zn	Pb	Ni	Fe	Cr	V	Cu	Ti	Ba
Fresh Crude, Hughenden, Truck # 3	#1	<2.4	<0.6	<5.1	<2.3	<0.9	<0.9	<0.5	<0.3	<0.5	<0.05
Fresh Crude, Hughenden, Truck # 2	#2a	<2.4	<0.6	<5.1	<2.3	<0.9	<0.9	<0.5	<0.3	<0.5	<0.05
Fresh Crude, Hughenden, Truck # 2	#2b	<2.4	<0.6	<5.1	<2.3	<0.9	<0.9	<0.5	<0.3	<0.5	<0.05
Fresh Crude, Hughenden, Truck # 1	#3	<2.4	6.3	<5.1	5	14.2	<0.9	<0.5	<0.3	<0.5	1.3
Weathered Oil, Hughenden, Truck # 1	#4	<2.4	3	<5.1	<2.3	9.4	<0.9	<0.5	<0.3	3.1	11.3
Weathered Oil, St-John's, Truck # 3 + 1	#5a	<2.4	8.7	<5.1	<2.3	16.2	<0.9	<0.5	1	<0.5	<0.05
Weathered Oil, St-John's, Truck # 3 + 2	#5b	<2.4	1.1	<5.1	<2.3	<0.9	<0.9	<0.5	<0.3	<0.5	5.7
Oil, from apex of fireboom before Burn # 1	#7	<2.4	7.1	<5.1	<2.3	<0.9	<0.9	<0.5	<0.3	<0.5	<0.05
Residue, between fireboom and roboom during Burn # 1	#11	<2.4	<0.6	<5.1	<2.3	<0.9	<0.9	0.6	<0.3	<0.5	0.4
Residue, from apex of fireboom after Burn # 1	#12	<2.4	<0.6	<5.1	<2.3	4.4	<0.9	3.9	1.2	<0.5	<0.05
Residue, between fireboom and roboom during Burn # 2	#14	<2.4	<0.6	<5.1	<2.3	20.5	<0.9	4.7	0.6	3.5	1.6
Residue, from apex of rowboom after Burn # 2	#15	<2.4	<0.6	<5.1	<2.3	3.1	<0.9	2.8	<0.3	<0.5	<0.05
Residue, from side of R/C boats collected Aug 14, 93	#16	<2.4	<0.6	<5.1	<2.3	162.5	<0.9	6.9	<0.3	<0.5	<0.05

Table A16 Headspace Analysis of NOBE Water Samples for Volatile Organics (ppm)

Peak #	Compounds	pre-ignition 1 (10:15) RS-1	BURN 1 (11:03) RS-1	BURN 1 (11:43) RS-1	BURN 1 (11:43) RS-1 duplicate	Pre-ignition 1 (10:15) RS-2	BURN 1 (10:41) RS-2	Pre-ignition 2 (13:59) RS-1	BURN 2 (14:46) RS-1	BURN 2 (15:00) RS-1	post-burn 2 (15:20) RS-1	post-burn 2 (15:20) RS-1 duplicate	BURN 2 (15:00) RS-2	Blank 1	Blank 2
2	1,1,1-Trichloroethane	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
3	Carbon tetrachloride	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4	Benzene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
5	Cyclohexane	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
6	n-Heptane, C-7	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
7	Trichloroethene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
8	Methylcyclohexane	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
9	1,2-Dichloropropane	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
10	Methylisobutylketone	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
12	Toluene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
13	n-Octane, C-8	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
14	Tetrachloroethene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
15	Chlorobenzene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
16	Ethylbenzene/Nonene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
17	p-Xylene/n-Nonane, C-9	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
18	o-Xylene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
19	Bromoform	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
20	Cumene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
21	Decane	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
22	n-Decane, C-10/Mesitylene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
23	Alpha-methylstyrene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
24	Alpha-terpinene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
25	Limonene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
26	1,3-Dichlorobenzene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
27	1,4-Dichlorobenzene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
28	Undecene/Butylchloride	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
29	n-Undecane, C-11/1,3-Dichlorobenzene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
30	4-tert-Butyltoluene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
31	n-Nonanal	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
32	n-Dodecane, C-12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
33	Naphthalene	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
34	n-Tridecane, C-13	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
35	n-Tetradecane, C-14	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
36	n-Pentadecane, C-15	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
37	n-Hexadecane, C-16	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Internal Standard Response, *10exp6 cts														
	d12-Cyclohexane	5	4.7	4.9	4.4	4.9	3.5	4.1	3.5	4.7	4.5	5.6	4.3	6.6	6.4
	d8-Toluene	10.4	8.7	5.5	4.5	10.2	6.5	8.8	6.7	10.4	4.2	10.2	7.2	9.5	7.5
	d4-1,4-Dichlorobenzene	7.8	6.5	5.6	4.3	10.3	5.5	8.8	4.8	6.7	4.4	5.7	5	6.7	7.5
	Chloro-Octane	4	5.7	4.7	4.1	5.9	4.1	4.7	3.4	3.9	5.9	3.7	4.8	4.6	4.4

Table 17 **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	R/C boats August 07, 1993 Background				
Canister ID:	ESD-5	REAC221	REAC220	REAC222	AVERAGE
Sample Volume (mL) :	492	511	511	511	
TOTAL VOC	**1196**	**961**	**898**	**1145**	**1001**
Propene	26.92	11.66	18.45	12.17	**14.09**
Propane	15.93	12.38	0.30	19.31	**10.66**
Freon22 (Chlorodifluoromethane)	1.22	1.65	1.01	1.13	**1.27**
Propyne	0.00	0.36	0.00	0.20	**0.19**
Chloromethane	0.50	1.48	2.00	3.15	**2.21**
Isobutane (2-Methylpropane)	111.58	68.13	84.39	107.43	**86.65**
Freon114 (1,2-Dichlorotetrafluroethane)	0.82	0.36	0.94	0.84	**0.71**
Vinylchloride (Chloroethene)	0.00	0.00	0.00	0.00	**0.00**
1-Butene/2-Methylpropene	41.69	34.68	43.43	52.19	**43.44**
1,3-Butadiene	1.97	3.18	2.44	2.33	**2.65**
Butane	113.06	72.72	87.18	110.94	**90.28**
t-2-Butene	23.53	14.33	17.20	23.60	**18.38**
2,2-Dimethylpropane	0.32	0.27	0.29	0.36	**0.30**
Bromomethane	0.00	0.11	0.00	0.17	**0.10**
1-Butyne	0.00	0.00	0.00	0.00	**0.00**
c-2-Butene	22.09	15.09	18.50	24.68	**19.43**
Chloroethane	0.00	0.81	1.72	1.63	**1.38**
2-Methylbutane	143.10	102.58	106.63	143.77	**117.66**
Freon11 (Trichlorofluoromethane)	7.30				
1-Pentene	6.32	5.99	6.91	8.25	**7.05**
Pentane	65.55	46.57	48.62	64.45	**53.21**
Isoprene (2-Methyl-1,3-Butadiene)	1.13	1.49	1.45	1.57	**1.50**
Ethylbromide	0.00	0.00	0.00	0.00	**0.00**
t-2-Pentene	9.31	5.99	6.52	9.43	**7.32**
1,1-Dichloroethene	0.16	0.00	0.00	0.00	**0.00**
c-2-Pentene	11.01	8.20	9.48	12.79	**10.16**
Dichloromethane	0.00		0.00	0.00	**0.00**
Freon113 (1,1,2-Trichlorotrifluoroethane	4.83	3.23	7.19	8.70	**6.37**
2,2-Dimethylbutane	4.01	4.26	2.52	2.93	**3.23**
Cyclopentene	0.00	0.00	0.00	0.00	**0.00**
t-1,2-Dichloroethene	0.22	0.11	0.00	0.31	**0.14**
1,1-Dichloroethane	0.00	0.05	0.00	0.09	**0.05**
Cyclopentane	6.08	4.89	4.58	6.23	**5.23**
2,3-Dimethylbutane	7.48	6.52	5.01	6.55	**6.03**
t-4-Methyl-2-Pentene	0.57	0.49	0.48	0.62	**0.53**
2-Methylpentane	35.62	46.21	51.85	55.47	**51.18**
c-4-Methyl-2-Pentene	2.19	2.01	2.12	2.68	**2.27**
3-Methylpentane	21.21	20.84	15.27	19.91	**18.67**
1-Hexene/2-Methyl-1-Pentene	2.07	4.48	5.33	5.45	**5.09**
c-1,2-Dichloroethene	0.00	0.00	0.00	0.00	**0.00**
Hexane	26.72	76.42	23.26	25.23	**41.63**
Chloroform	0.52	0.36	0.24	0.20	**0.27**
t-2-Hexene	1.70	1.53	1.38	1.91	**1.61**
t-3-Methyl-2-Pentene	1.86	1.57	1.56	2.02	**1.72**
c-2-Hexene	1.25	1.04	1.02	1.26	**1.11**
c-3-Methyl-2-Pentene	2.31	2.17	2.07	2.72	**2.32**
2,2-Dimethylpentane	0.74	0.78	0.48	0.59	**0.62**
1,2-Dichloroethane	0.16	0.25	0.00	0.15	**0.14**
Methylcyclopentane	14.21	22.95	11.04	13.49	**15.82**
2,4-Dimethylpentane	2.29	2.26	1.54	1.79	**1.87**
1,1,1-Trichloroethane	1.13	1.19	1.28	1.04	**1.17**
2,2,3-Trimethylbutane	0.20	0.79	0.90	1.12	**0.94**
1-Methylcyclopentene	0.00	0.00	0.00	0.00	**0.00**
Benzene	10.42	11.44	8.56	10.43	**10.14**
Carbontetrachloride	0.74	0.78	0.82	0.77	**0.79**
Cyclohexane	4.54	4.63	3.77	4.59	**4.33**
2-Methylhexane	3.72	4.63	3.19	3.65	**3.82**
2,3-Dimethylpentane	3.33	3.45	2.18	2.60	**2.74**
Cyclohexene	0.00	0.00	0.00	0.00	**0.00**
3-Methylhexane	8.73	8.48	5.38	6.70	**6.85**
Dibromomethane	0.00	0.00	0.00	0.00	**0.00**
1,2-Dichloropropane	0.00	0.00	0.00	0.00	**0.00**
Bromodichloromethane	0.00	0.00	0.00	0.00	**0.00**
Trichloroethene	0.00	0.00	0.00	0.00	**0.00**
1-Heptene	0.00	0.00	0.00	0.00	**0.00**
2,2,4-Trimethylpentane	1.57	2.37	1.60	1.57	**1.85**
t-3-Heptene	0.12	0.32	0.19	0.27	**0.26**

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	R/C boats August 07, 1993 Background				
Canister ID:	ESD-5	REAC221	REAC220	REAC222	AVERAGE
Sample Volume (mL) :	492	511	511	511	
Heptane	7.05	7.72	6.12	6.20	**6.68**
t-2-Heptene	0.59	1.36	0.95	1.06	**1.13**
c-2-Heptene	0.89	2.41	2.03	2.48	**2.31**
c-1,3-Dichloropropene	0.00	0.00	0.00	0.00	**0.00**
2,2-Dimethylhexane	0.00	0.34	0.26	0.22	**0.27**
Methylcyclohexane	4.24	4.04	3.36	3.64	**3.69**
2,5-Dimethylhexane	0.91	1.24	0.93	0.73	**0.97**
2,4-Dimethylhexane	1.34	1.43	0.96	1.00	**1.13**
t-1,3-Dichloropropene	0.00	0.00	0.00	0.00	**0.00**
1,1,2-Trichloroethane	0.00	0.31	0.00	0.00	**0.10**
Bromotrichloromethane	0.00	0.00	0.00	0.00	**0.00**
2,3,4-Trimethylpentane	0.69	0.84	0.39	0.42	**0.55**
Toluene	26.45	26.77	23.27	24.57	**24.87**
2-Methylheptane	3.48	4.34	3.72	3.34	**3.80**
4-Methylheptane	1.51	1.53	1.21	1.22	**1.32**
1-Methylcyclohexene	40.62	0.00	0.00	0.00	**0.00**
Dibromochloromethane	0.00	0.00	0.00	0.00	**0.00**
3-Methylheptane	4.30	5.28	3.56	3.82	**4.22**
c-1,3-Dimethylcyclohexane	1.36	1.37	1.32	1.45	**1.38**
t-1,4-Dimethylcyclohexane	0.69	0.68	0.66	0.71	**0.68**
EDB (1,2-Dibromoethane)	0.00	0.00	0.00	0.00	**0.00**
2,2,5-Trimethylhexane	0.25	0.28	0.14	0.15	**0.19**
1-Octene	0.47	3.30	7.60	4.06	**4.99**
Octane	4.01	4.23	4.41	3.77	**4.13**
Tetrachloroethene	0.00	0.06	0.00	0.00	**0.02**
c-1,4/t-1,3-Dimethylcyclohexane	0.94	0.81	0.77	0.81	**0.79**
c-2-Octene	0.59	1.20	1.44	1.41	**1.35**
Chlorobenzene	0.00	0.00	0.00	0.00	**0.00**
Ethylbenzene	15.37	15.22	14.33	16.43	**15.32**
m/p-Xylene	53.78	52.08	52.30	58.72	**54.37**
Bromoform	0.00	0.00	0.00	0.00	**0.00**
1,4-Dichlorobutane	0.00	0.00	0.00	0.00	**0.00**
Styrene	0.79	3.48	0.48	0.47	**1.47**
1,1,2,2-Tetrachloroethane	0.00	0.03	0.00	0.00	**0.01**
o-Xylene	17.19	17.19	16.20	17.97	**17.12**
1-Nonene	0.00	0.00	0.00	0.00	**0.00**
Nonane	4.42	5.88	5.65	4.34	**5.29**
iso-Propylbenzene	0.60	0.92	0.62	0.57	**0.71**
3,6-Dimethyloctane	0.45	0.52	0.29	0.28	**0.36**
n-Propylbenzene	1.81	2.96	2.29	2.38	**2.54**
3-Ethyltoluene	6.18	8.60	6.16	6.07	**6.94**
4-Ethyltoluene	2.86	4.65	3.05	3.00	**3.57**
1,3,5-Trimethylbenzene	3.23	5.52	3.71	3.68	**4.31**
2-Ethyltoluene	2.31	3.79	2.24	2.27	**2.77**
1-Decene	0.00	0.00	0.00	0.00	**0.00**
1,2,4-Trimethylbenzene	11.09	19.00	15.63	12.03	**15.55**
Decane	6.87	15.15	9.22	7.41	**10.59**
1,3-Dichlorobenzene	0.00	0.07	0.00	0.00	**0.02**
1,4-Dichlorobenzene	0.40	1.33	0.65	0.66	**0.88**
iso-Butylbenzene	0.19	0.35	0.21	0.20	**0.25**
sec-Butylbenzene	0.26	0.56	0.28	0.25	**0.36**
1,2,3-Trimethylbenzene	2.79	6.23	3.01	3.06	**4.10**
p-Cymene	0.54	2.05	0.65	0.65	**1.12**
1,2-Dichlorobenzene	0.10	0.18	0.14	0.11	**0.14**
Indane	0.92	1.61	0.90	0.94	**1.15**
1,3-Diethylbenzene	0.56	1.57	0.87	0.82	**1.09**
1,4-Diethylbenzene	1.57	5.66	3.17	3.21	**4.01**
n-Butylbenzene	0.46	1.75	0.91	0.91	**1.19**
1,2-Diethylbenzene	0.19	0.47	0.25	0.26	**0.33**
Undecane	8.24	29.89	15.68	15.09	**20.22**
Naphthalene	0.00	6.53	4.81	8.32	**6.55**
Dodecane	8.18	24.60	18.01	21.41	**21.34**
Hexylbenzene	0.00	5.01	7.03	12.43	**8.16**

Table 17 ctd

COMPOUNDS	RS-1					
	pre-ignition 1			burn 1		
Canister ID:	REAC198	REAC196	AVERAGE	ESD-17	ESD-16	AVERAGE
Sample Volume (mL) :	492	492		490	490	
TOTAL VOC	**960**	**3675**	**2318**	**457**	**278**	**368**
Propene	94.96	116.00	105.48	0.35	1.55	0.95
Propane	0.00	20.76	10.38	2.00	2.75	2.38
Freon22 (Chlorodifluoromethane)	2.52	2.53	2.53	1.14	1.20	1.17
Propyne	0.00	0.00	0.00	0.00	0.00	0.00
Chloromethane	3.14	8.92	6.03	0.85	0.65	0.75
Isobutane (2-Methylpropane)	20.17	29.16	24.66	8.73	7.25	7.99
Freon114 (1,2-Dichlorotetrafluroethane)	2.99	4.27	3.63	0.36	0.35	0.36
Vinylchloride (Chloroethene)	0.00	0.00	0.00	0.00	0.00	0.00
1-Butene/2-Methylpropene	40.75	52.68	46.71	3.18	1.11	2.15
1,3-Butadiene	1.95	2.85	2.40	0.60	0.40	0.50
Butane	9.28	11.56	10.42	10.13	6.02	8.08
t-2-Butene	2.30	2.58	2.44	0.93	1.00	0.96
2,2-Dimethylpropane	0.00	0.00	0.00	0.00	0.00	0.00
Bromomethane	0.00	0.00	0.00	0.00	0.00	0.00
1-Butyne	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Butene	2.31	2.83	2.57	0.82	0.82	0.82
Chloroethane	3.21	10.69	6.95	0.00	0.00	0.00
2-Methylbutane	13.71	14.55	14.13	17.20	9.87	13.53
Freon11 (Trichlorofluoromethane)				3.84	3.72	3.78
1-Pentene	12.11	11.48	11.79	0.53	0.36	0.44
Pentane	13.66	14.76	14.21	13.90	5.77	9.83
Isoprene (2-Methyl-1,3-Butadiene)	1.31	1.66	1.49	0.28	0.00	0.14
Ethylbromide	0.00	0.00	0.00	0.00	0.00	0.00
t-2-Pentene	0.97	0.95	0.96	0.91	0.74	0.83
1,1-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Pentene	1.22	1.17	1.19	0.50	0.44	0.47
Dichloromethane	12.90	0.00	0.00	0.00	0.00	0.00
Freon113 (1,1,2-Trichlorotrifluoroethane	19.27	26.91	23.09	2.32	2.34	2.33
2,2-Dimethylbutane	0.83	0.82	0.83	0.77	0.38	0.57
Cyclopentene	0.00	0.00	0.00	0.00	0.00	0.00
t-1,2-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
1,1-Dichloroethane	0.00	0.00	0.00	0.00	0.00	0.00
Cyclopentane	1.93	1.96	1.94	1.82	0.70	1.26
2,3-Dimethylbutane	1.86	1.97	1.91	1.65	0.68	1.16
t-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
2-Methylpentane	16.06	11.40	13.73	12.05	4.71	8.38
c-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylpentane	7.70	12.70	10.20	7.15	2.70	4.93
1-Hexene/2-Methyl-1-Pentene	10.26	11.52	10.89	0.50	0.30	0.40
c-1,2-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
Hexane	26.07	110.97	68.52	19.04	7.96	13.50
Chloroform	0.42	0.60	0.51	0.29	0.00	0.14
t-2-Hexene	0.87	0.80	0.83	0.23	0.15	0.19
t-3-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Hexene	0.78	0.74	0.76	0.00	0.00	0.00
c-3-Methyl-2-Pentene	0.52	0.45	0.49	0.24	0.19	0.22
2,2-Dimethylpentane	0.49	0.55	0.52	0.36	0.14	0.25
1,2-Dichloroethane	0.00	0.00	0.00	0.00	0.00	0.00
Methylcyclopentane	12.82	23.15	17.99	10.27	3.43	6.85
2,4-Dimethylpentane	1.30	1.23	1.27	0.93	0.34	0.64
1,1,1-Trichloroethane	4.09	4.00	8.00	0.83	0.82	0.83
2,2,3-Trimethylbutane	2.40	1.97	2.19	0.14	0.00	0.07
1-Methylcyclopentene	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	2.96	3.44	3.20	1.95	1.08	1.51
Carbontetrachloride	0.38	0.80	0.59	0.71	0.70	0.70
Cyclohexane	20.14	16.88	18.51	7.80	2.34	5.07
2-Methylhexane	4.22	3.70	3.96	2.94	0.88	1.91
2,3-Dimethylpentane	2.78	2.79	2.78	1.82	0.62	1.22
Cyclohexene	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylhexane	9.04	10.65	9.84	5.66	1.85	3.76
Dibromomethane	0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.00	0.00	0.00	0.00	0.00	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Trichloroethene	0.00	1.39	0.69	0.00	0.00	0.00
1-Heptene	0.00	0.00	0.00	0.00	0.00	0.00
2,2,4-Trimethylpentane	2.92	4.59	3.75	0.51	0.30	0.41
t-3-Heptene	1.85	1.10	1.47	0.00	0.00	0.00

Table 17 ctd

COMPOUNDS	RS-1					
	pre-ignition 1			burn 1		
Canister ID:	REAC198	REAC196	AVERAGE	ESD-17	ESD-16	AVERAGE
Sample Volume (mL) :	492	492		490	490	
Heptane	29.31	29.08	**29.19**	14.21	4.41	**9.31**
t-2-Heptene	8.38	6.53	**7.45**	0.00	0.00	**0.00**
c-2-Heptene	10.49	11.26	**10.88**	0.00	0.00	**0.00**
c-1,3-Dichloropropene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,2-Dimethylhexane	0.00	0.00	**0.00**	0.00	0.17	**0.08**
Methylcyclohexane	39.80	38.05	**38.93**	21.17	6.40	**13.78**
2,5-Dimethylhexane	1.30	1.31	**1.31**	0.74	0.26	**0.50**
2,4-Dimethylhexane	1.99	1.92	**1.95**	0.94	0.34	**0.64**
t-1,3-Dichloropropene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,1,2-Trichloroethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Bromotrichloromethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,3,4-Trimethylpentane	0.49	0.54	**0.52**	0.26	0.11	**0.19**
Toluene	14.17	26.74	**20.46**	5.69	3.34	**4.51**
2-Methylheptane	12.15	11.45	**11.80**	5.41	1.85	**3.63**
4-Methylheptane	3.87	3.81	**3.84**	1.73	0.57	**1.15**
1-Methylcyclohexene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Dibromochloromethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
3-Methylheptane	9.03	8.70	**8.86**	4.69	1.70	**3.20**
c-1,3-Dimethylcyclohexane	10.80	10.32	**10.56**	4.74	1.54	**3.14**
t-1,4-Dimethylcyclohexane	5.60	5.11	**5.36**	2.53	0.81	**1.67**
EDB (1,2-Dibromoethane)	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,2,5-Trimethylhexane	0.19	0.21	**0.20**	0.09	0.00	**0.04**
1-Octene	20.54	33.82	**27.18**	0.00	0.00	**0.00**
Octane	31.40	30.39	**30.89**	11.66	4.09	**7.87**
Tetrachloroethene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-1,4/t-1,3-Dimethylcyclohexane	3.18	3.11	**3.14**	1.32	0.47	**0.90**
c-2-Octene	6.66	8.20	**7.43**	0.00	0.00	**0.00**
Chlorobenzene	2.65	0.00	**1.32**	0.00	0.00	**0.00**
Ethylbenzene	5.61	7.42	**6.51**	2.28	1.34	**1.81**
m/p-Xylene	24.06	31.74	**27.90**	7.87	4.67	**6.27**
Bromoform	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,4-Dichlorobutane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Styrene	0.68	1.98	**1.33**	0.51	0.43	**0.47**
1,1,2,2-Tetrachloroethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
o-Xylene	8.10	10.89	**9.50**	2.89	1.76	**2.33**
1-Nonene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Nonane	41.50	45.12	**43.31**	13.82	6.04	**9.93**
iso-Propylbenzene	1.64	2.25	**1.95**	0.51	0.28	**0.39**
3,6-Dimethyloctane	4.35	2.42	**3.39**	1.63	0.78	**1.21**
n-Propylbenzene	6.02	10.19	**8.11**	1.47	0.88	**1.17**
3-Ethyltoluene	16.10	25.30	**20.70**	4.36	2.69	**3.53**
4-Ethyltoluene	8.37	13.77	**11.07**	2.18	1.28	**1.73**
1,3,5-Trimethylbenzene	11.56	18.10	**14.83**	3.21	1.89	**2.55**
2-Ethyltoluene	6.51	10.37	**8.44**	2.18	1.35	**1.77**
1-Decene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2,4-Trimethylbenzene	36.22	63.57	**49.90**	11.54	7.66	**9.60**
Decane	55.56	73.21	**64.38**	20.94	11.24	**16.09**
1,3-Dichlorobenzene	0.00	0.00	**0.00**	0.23	0.00	**0.11**
1,4-Dichlorobenzene	1.41	3.71	**2.56**	0.56	0.32	**0.44**
iso-Butylbenzene	0.83	1.30	**1.07**	0.41	0.18	**0.29**
sec-Butylbenzene	1.34	1.97	**1.66**	0.62	0.31	**0.46**
1,2,3-Trimethylbenzene	9.49	16.52	**13.00**	4.47	2.86	**3.66**
p-Cymene	2.45	4.62	**3.53**	1.26	0.69	**0.97**
1,2-Dichlorobenzene	0.00	0.63	**0.31**	0.34	0.12	**0.23**
Indane	1.51	2.69	**2.10**	0.96	0.58	**0.77**
1,3-Diethylbenzene	1.56	2.95	**2.25**	1.30	0.58	**0.94**
1,4-Diethylbenzene	5.83	11.10	**8.47**	5.22	3.00	**4.11**
n-Butylbenzene	1.86	3.37	**2.62**	1.63	0.81	**1.22**
1,2-Diethylbenzene	0.56	0.88	**0.72**	0.80	0.23	**0.51**
Undecane	55.46	86.77	**71.12**	30.18	17.71	**23.94**
Naphthalene	4.98	8.93	**6.95**	3.59	4.37	**3.98**
Dodecane	43.44	86.09	**64.76**	24.07	18.61	**21.34**
Hexylbenzene	0.00	12.77	**6.38**	1.68	1.42	**1.55**

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	RS-2 pre-ignition 1			RS-2 burn 1		
Canister ID:	REAC160	REAC177	AVERAGE	ESD-9	ESD-7	AVERAGE
Sample Volume (mL) :	492	520		520	504	
TOTAL VOC	**971**	**1543**	**1257**	**1095**	**1450**	**1272**
Propene	54.32	15.94	**35.13**	1.59	2.95	**2.27**
Propane	26.80	10.76	**18.78**	7.28	38.37	**22.83**
Freon22 (Chlorodifluoromethane)	2.76	1.96	**2.36**	0.61	0.00	**0.30**
Propyne	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Chloromethane	0.71	2.40	**1.56**	0.66	0.92	**0.79**
Isobutane (2-Methylpropane)	21.11	13.72	**17.41**	32.80	51.05	**41.92**
Freon114 (1,2-Dichlorotetrafluroethane)	2.35	2.53	**2.44**	0.56	0.64	**0.60**
Vinylchloride (Chloroethene)	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1-Butene/2-Methylpropene	8.72	22.54	**15.63**	4.57	2.40	**3.49**
1,3-Butadiene	0.84	1.36	**1.10**	0.82	0.93	**0.88**
Butane	9.99	7.63	**8.81**	76.80	135.86	**106.33**
t-2-Butene	0.69	1.49	**1.09**	1.99	0.42	**1.21**
2,2-Dimethylpropane	0.00	0.00	**0.00**	0.31	0.54	**0.43**
Bromomethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1-Butyne	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-2-Butene	0.62	1.37	**1.00**	1.75	0.31	**1.03**
Chloroethane	0.00	2.97	**1.49**	0.00	0.00	**0.00**
2-Methylbutane	15.07	11.04	**13.06**	100.00	149.90	**124.95**
Freon11 (Trichlorofluoromethane)				2.55		**2.55**
1-Pentene	0.58	5.62	**3.10**	0.61	0.31	**0.46**
Pentane	14.17	11.43	**12.80**	96.00	164.08	**130.04**
Isoprene (2-Methyl-1,3-Butadiene)	0.38	0.00	**0.19**	0.33	0.28	**0.31**
Ethylbromide	0.00	0.00	**0.00**	0.00	0.00	**0.00**
t-2-Pentene	0.32	0.58	**0.45**	1.01	0.40	**0.71**
1,1-Dichloroethene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-2-Pentene	0.39	0.00	**0.19**	0.83	0.22	**0.53**
Dichloromethane	0.00	0.00	**0.00**	0.00	1.33	**0.00**
Freon113 (1,1,2-Trichlorotrifluoroethane	14.50	12.89	**13.70**	3.12	3.27	**3.20**
2,2-Dimethylbutane	0.68	0.00	**0.34**	2.42	3.30	**2.86**
Cyclopentene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
t-1,2-Dichloroethene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,1-Dichloroethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Cyclopentane	2.02	1.78	**1.90**	11.89	18.25	**15.07**
2,3-Dimethylbutane	1.73	1.31	**1.52**	7.50	11.97	**9.73**
t-4-Methyl-2-Pentene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2-Methylpentane	12.57	16.45	**14.51**	55.82	86.14	**70.98**
c-4-Methyl-2-Pentene	0.00	0.00	**0.00**	0.20	0.00	**0.10**
3-Methylpentane	14.02	7.16	**10.59**	39.58	54.45	**47.01**
1-Hexene/2-Methyl-1-Pentene	0.00	5.02	**2.51**	0.54	0.38	**0.46**
c-1,2-Dichloroethene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Hexane	175.94	27.34	**101.64**	161.00	121.24	**141.12**
Chloroform	0.00	0.00	**0.00**	0.17	0.00	**0.08**
t-2-Hexene	0.00	0.36	**0.18**	0.26	0.14	**0.20**
t-3-Methyl-2-Pentene	0.00	0.00	**0.00**	0.19	0.00	**0.09**
c-2-Hexene	0.00	0.00	**0.00**	0.18	0.00	**0.09**
c-3-Methyl-2-Pentene	0.25	0.00	**0.13**	0.25	0.13	**0.19**
2,2-Dimethylpentane	0.50	0.45	**0.48**	1.74	2.55	**2.14**
1,2-Dichloroethane	0.00	0.00	**0.00**	0.32	0.00	**0.16**
Methylcyclopentane	31.40	12.23	**21.82**	55.11	73.38	**64.24**
2,4-Dimethylpentane	1.25	1.13	**1.19**	3.99	8.12	**5.06**
1,1,1-Trichloroethane	2.62	860.12	**431.37**	0.73	0.75	**0.74**
2,2,3-Trimethylbutane	0.00	0.00	**0.00**	0.42	0.62	**0.52**
1-Methylcyclopentene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Benzene	2.31	2.06	**2.19**	3.86	4.02	**3.94**
Carbontetrachloride	0.78	0.60	**0.69**	0.72	0.69	**0.71**
Cyclohexane	18.89	11.86	**15.37**	34.73	53.85	**44.29**
2-Methylhexane	3.42	3.55	**3.49**	9.88	16.22	**13.05**
2,3-Dimethylpentane	2.71	0.00	**1.36**	8.08	11.07	**9.57**
Cyclohexene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
3-Methylhexane	9.63	8.60	**9.11**	20.06	33.49	**26.78**
Dibromomethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2-Dichloropropane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Bromodichloromethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Trichloroethene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1-Heptene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,2,4-Trimethylpentane	1.00	1.62	**1.31**	0.00	0.00	**0.00**
t-3-Heptene	0.00	1.27	**0.64**	0.03	0.00	**0.01**

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	RS-2 pre-ignition 1			RS-2 burn 1		
Canister ID:	REAC160	REAC177	AVERAGE	ESD-9	ESD-7	AVERAGE
Sample Volume (mL) :	492	520		520	504	
Heptane	26.22	26.75	**26.48**	48.94	75.69	**62.31**
t-2-Heptene	0.00	4.71	**2.35**	0.00	0.00	**0.00**
c-2-Heptene	0.00	5.50	**2.75**	0.00	0.00	**0.00**
c-1,3-Dichloropropene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,2-Dimethylhexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Methylcyclohexane	38.01	35.12	**36.57**	63.65	105.37	**84.51**
2,5-Dimethylhexane	1.13	1.35	**1.24**	2.08	2.92	**2.50**
2,4-Dimethylhexane	1.66	1.57	**1.61**	2.35	3.81	**3.08**
t-1,3-Dichloropropene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,1,2-Trichloroethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Bromotrichloromethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,3,4-Trimethylpentane	0.47	0.39	**0.43**	0.69	0.92	**0.80**
Toluene	9.97	8.85	**9.41**	8.68	8.73	**8.70**
2-Methylheptane	10.29	11.62	**10.96**	14.07	19.06	**16.57**
4-Methylheptane	3.32	0.00	**1.66**	0.00	5.64	**2.82**
1-Methylcyclohexene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Dibromochloromethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
3-Methylheptane	7.78	8.60	**8.19**	10.74	15.25	**13.00**
c-1,3-Dimethylcyclohexane	11.73	0.00	**5.87**	9.35	16.36	**12.85**
t-1,4-Dimethylcyclohexane	4.83	0.00	**2.41**	3.52	9.05	**6.28**
EDB (1,2-Dibromoethane)	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,2,5-Trimethylhexane	0.15	0.00	**0.07**	0.22	0.25	**0.23**
1-Octene	0.00	7.98	**3.99**	0.00	0.00	**0.00**
Octane	25.19	27.64	**26.42**	22.63	32.89	**27.76**
Tetrachloroethene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-1,4/t-1,3-Dimethylcyclohexane	2.86	2.37	**2.62**	2.32	4.03	**3.17**
c-2-Octene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Chlorobenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Ethylbenzene	4.20	3.74	**3.97**	2.74	2.82	**2.78**
m/p-Xylene	17.44	15.80	**16.62**	9.17	9.51	**9.34**
Bromoform	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,4-Dichlorobutane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Styrene	0.88	0.00	**0.44**	0.22	0.14	**0.18**
1,1,2,2-Tetrachloroethane	0.00	0.72	**0.36**	0.00	0.00	**0.00**
o-Xylene	6.24	4.94	**5.59**	2.90	2.98	**2.94**
1-Nonene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Nonane	31.54	33.42	**32.48**	14.64	19.77	**17.21**
iso-Propylbenzene	1.37	0.96	**1.17**	0.45	0.60	**0.52**
3,6-Dimethyloctane	3.56	2.72	**3.14**	1.20	1.63	**1.41**
n-Propylbenzene	4.31	2.81	**3.56**	1.02	1.05	**1.03**
3-Ethyltoluene	14.48	6.12	**10.30**	2.88	2.87	**2.88**
4-Ethyltoluene	7.43	2.95	**5.19**	1.27	1.27	**1.27**
1,3,5-Trimethylbenzene	11.06	4.96	**8.01**	1.77	1.75	**1.76**
2-Ethyltoluene	6.23	2.63	**4.43**	1.20	1.20	**1.20**
1-Decene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2,4-Trimethylbenzene	38.00	14.13	**26.07**	5.57	5.19	**5.38**
Decane	44.99	38.24	**41.62**	11.93	14.24	**13.09**
1,3-Dichlorobenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,4-Dichlorobenzene	1.44	0.84	**1.14**	0.00	0.16	**0.08**
iso-Butylbenzene	0.85	0.52	**0.68**	0.17	0.18	**0.17**
sec-Butylbenzene	1.29	0.79	**1.04**	0.28	0.32	**0.30**
1,2,3-Trimethylbenzene	10.55	4.94	**7.74**	1.90	1.71	**1.81**
p-Cymene	2.28	0.00	**1.14**	0.33	0.46	**0.40**
1,2-Dichlorobenzene	0.31	0.00	**0.15**	0.00	0.00	**0.00**
Indane	1.69	0.81	**1.25**	0.40	0.37	**0.38**
1,3-Diethylbenzene	1.88	1.06	**1.47**	0.31	0.27	**0.29**
1,4-Diethylbenzene	5.98	0.00	**2.99**	0.00	0.00	**0.00**
n-Butylbenzene	1.82	1.57	**1.70**	0.50	0.40	**0.45**
1,2-Diethylbenzene	0.61	0.46	**0.54**	0.14	0.13	**0.13**
Undecane	55.42	56.81	**56.11**	14.54	13.87	**14.20**
Naphthalene	5.77	5.46	**5.61**	1.75	1.00	**1.37**
Dodecane	56.33	56.94	**56.64**	15.05	13.02	**14.04**
Hexylbenzene	0.00	34.21	**17.11**	0.50	0.00	**0.25**

Table 17 ctd

COMPOUNDS	Downwind Station August 07, 1993 background		
Canister ID:	REAC181	REAC180	AVERAGE
Sample Volume (mL) :	494	485	
TOTAL VOC	**51**	**258**	**155**
Propene	2.23	2.26	2.25
Propane	1.50	0.69	1.09
Freon22 (Chlorodifluoromethane)	0.57	1.26	0.92
Propyne	0.00	0.00	0.00
Chloromethane	1.69	1.56	1.63
Isobutane (2-Methylpropane)	0.22	0.25	0.23
Freon114 (1,2-Dichlorotetrafluroethane)	0.75	0.38	0.56
Vinylchloride (Chloroethene)	0.00	0.00	0.00
1-Butene/2-Methylpropene	4.19	4.05	4.12
1,3-Butadiene	0.21	0.22	0.21
Butane	0.52	0.42	0.47
t-2-Butene	0.26	0.36	0.31
2,2-Dimethylpropane	0.00	0.00	0.00
Bromomethane	0.00	0.00	0.00
1-Butyne	0.00	0.00	0.00
c-2-Butene	0.31	0.40	0.36
Chloroethane	0.96	0.86	0.91
2-Methylbutane	0.16	0.38	0.27
Freon11 (Trichlorofluoromethane)	1.94	6.26	4.10
1-Pentene	0.68	0.80	0.74
Pentane	0.19	0.27	0.23
Isoprene (2-Methyl-1,3-Butadiene)	0.00	0.34	0.17
Ethylbromide	0.00	0.00	0.00
t-2-Pentene	0.00	0.12	0.06
1,1-Dichloroethene	0.00	0.00	0.00
c-2-Pentene	0.00	0.00	0.00
Dichloromethane	8.16	2.18	5.17
Freon113 (1,1,2-Trichlorotrifluoroethane	4.47	2.13	3.30
2,2-Dimethylbutane	0.00	0.00	0.00
Cyclopentene	0.00	0.00	0.00
t-1,2-Dichloroethene	0.00	0.00	0.00
1,1-Dichloroethane	0.00	0.00	0.00
Cyclopentane	0.00	0.00	0.00
2,3-Dimethylbutane	0.00	0.00	0.00
t-4-Methyl-2-Pentene	0.00	0.00	0.00
2-Methylpentane	6.88	7.62	7.25
c-4-Methyl-2-Pentene	0.00	0.00	0.00
3-Methylpentane	0.00	9.67	4.84
1-Hexene/2-Methyl-1-Pentene	0.49	0.71	0.60
c-1,2-Dichloroethene	0.00	0.00	0.00
Hexane	1.71	183.84	92.77
Chloroform	0.13	0.00	0.06
t-2-Hexene	0.00	0.00	0.00
t-3-Methyl-2-Pentene	0.00	0.00	0.00
c-2-Hexene	0.00	0.00	0.00
c-3-Methyl-2-Pentene	0.00	0.00	0.00
2,2-Dimethylpentane	0.00	0.00	0.00
1,2-Dichloroethane	0.00	0.17	0.08
Methylcyclopentane	0.17	20.54	10.36
2,4-Dimethylpentane	0.00	0.00	0.00
1,1,1-Trichloroethane	0.70	0.78	0.74
2,2,3-Trimethylbutane	0.21	0.00	0.10
1-Methylcyclopentene	0.00	0.00	0.00
Benzene	0.18	0.24	0.21
Carbontetrachloride	0.70	0.77	0.73
Cyclohexane	0.00	0.17	0.09
2-Methylhexane	0.00	0.00	0.00
2,3-Dimethylpentane	0.00	0.00	0.00
Cyclohexene	0.00	0.00	0.00
3-Methylhexane	0.00	0.00	0.00
Dibromomethane	0.00	0.00	0.00
1,2-Dichloropropane	0.00	0.00	0.00
Bromodichloromethane	0.00	0.00	0.00
Trichloroethene	0.00	0.00	0.00
1-Heptene	0.00	0.67	0.34
2,2,4-Trimethylpentane	0.00	0.34	0.17
t-3-Heptene	0.28	0.34	0.31

Table 17 ctd

COMPOUNDS	Downwind Station August 07, 1993 background		
Canister ID:	REAC181	REAC180	AVERAGE
Sample Volume (mL) :	494	485	
Heptane	0.18	0.18	0.18
t-2-Heptene	0.65	0.76	0.70
c-2-Heptene	0.50	0.66	0.58
c-1,3-Dichloropropene	0.00	0.00	0.00
2,2-Dimethylhexane	0.00	0.00	0.00
Methylcyclohexane	0.00	0.00	0.00
2,5-Dimethylhexane	0.00	0.00	0.00
2,4-Dimethylhexane	0.00	0.00	0.00
t-1,3-Dichloropropene	0.00	0.00	0.00
1,1,2-Trichloroethane	0.00	0.00	0.00
Bromotrichloromethane	0.00	0.00	0.00
2,3,4-Trimethylpentane	0.00	0.00	0.00
Toluene	0.30	0.44	0.37
2-Methylheptane	0.00	0.00	0.00
4-Methylheptane	0.00	0.00	0.00
1-Methylcyclohexene	0.00	0.00	0.00
Dibromochloromethane	0.00	0.00	0.00
3-Methylheptane	0.00	0.00	0.00
c-1,3-Dimethylcyclohexane	0.00	0.00	0.00
t-1,4-Dimethylcyclohexane	0.00	0.00	0.00
EDB (1,2-Dibromoethane)	0.00	0.00	0.00
2,2,5-Trimethylhexane	0.00	0.00	0.00
1-Octene	0.30	0.66	0.48
Octane	0.06	0.10	0.08
Tetrachloroethene	0.00	0.00	0.00
c-1,4/t-1,3-Dimethylcyclohexane	0.00	0.00	0.00
c-2-Octene	0.00	0.15	0.08
Chlorobenzene	0.00	0.00	0.00
Ethylbenzene	0.06	0.09	0.07
m/p-Xylene	0.19	0.32	0.26
Bromoform	0.00	0.00	0.00
1,4-Dichlorobutane	3.37	0.00	1.69
Styrene	0.08	0.00	0.04
1,1,2,2-Tetrachloroethane	0.00	0.00	0.00
o-Xylene	0.06	0.11	0.08
1-Nonene	0.00	0.00	0.00
Nonane	0.12	0.12	0.12
iso-Propylbenzene	0.00	0.00	0.00
3,6-Dimethyloctane	2.53	0.00	1.27
n-Propylbenzene	0.11	0.17	0.14
3-Ethyltoluene	0.05	0.07	0.06
4-Ethyltoluene	0.04	0.06	0.05
1,3,5-Trimethylbenzene	0.03	0.08	0.06
2-Ethyltoluene	0.03	0.04	0.03
1-Decene	0.00	0.00	0.00
1,2,4-Trimethylbenzene	0.64	0.16	0.40
Decane	0.14	0.19	0.16
1,3-Dichlorobenzene	0.00	0.00	0.00
1,4-Dichlorobenzene	0.00	0.00	0.00
iso-Butylbenzene	0.00	0.00	0.00
sec-Butylbenzene	0.00	0.00	0.00
1,2,3-Trimethylbenzene	0.00	0.06	0.03
p-Cymene	0.26	0.00	0.13
1,2-Dichlorobenzene	0.00	0.00	0.00
Indane	0.00	0.00	0.00
1,3-Diethylbenzene	0.00	0.00	0.00
1,4-Diethylbenzene	0.00	0.00	0.00
n-Butylbenzene	0.00	0.00	0.00
1,2-Diethylbenzene	0.00	0.00	0.00
Undecane	0.15	0.23	0.19
Naphthalene	0.22	0.50	0.36
Dodecane	0.21	0.41	0.31
Hexylbenzene	0.32	1.55	0.94

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	Downwind Station						
	lot blank	pre-ignition 1			burn 1		
Canister ID:	GVRD431	REAC123	REAC182	AVE	REAC77	REAC73	AVE
Sample Volume (mL) :	504	485	485		494	494	
TOTAL VOC	**3**	**48**	**198**	**123**	**714**	**728**	**721**
Propene	0.00	1.11	14.49	7.80	2.04	2.59	2.32
Propane	0.00	1.29	1.47	1.38	31.66	30.52	31.09
Freon22 (Chlorodifluoromethane)	0.00	0.00	13.98	6.99	0.72	0.00	0.36
Propyne	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chloromethane	0.06	1.22	2.60	1.91	1.03	1.06	1.04
Isobutane (2-Methylpropane)	0.33	1.06	2.25	1.66	30.44	31.00	30.72
Freon114 (1,2-Dichlorotetrafluroethane)	0.27	1.18	2.08	1.63	0.68	0.79	0.74
Vinylchloride (Chloroethene)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-Butene/2-Methylpropene	0.09	2.39	17.22	9.80	1.82	2.42	2.12
1,3-Butadiene	0.00	0.00	0.00	0.00	0.36	0.36	0.36
Butane	0.07	2.31	4.95	3.63	90.62	92.17	91.39
t-2-Butene	0.00	0.00	1.32	0.66	0.45	0.43	0.44
2,2-Dimethylpropane	0.00	0.00	0.00	0.00	0.35	0.34	0.34
Bromomethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-Butyne	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Butene	0.00	0.00	1.10	0.55	0.35	0.36	0.36
Chloroethane	0.00	0.00	2.26	1.13	0.00	0.00	0.00
2-Methylbutane	0.04	2.74	6.32	4.53	94.81	97.95	96.38
Freon11 (Trichlorofluoromethane)	0.00						
1-Pentene	0.00	0.28	3.93	2.11	0.27	0.32	0.30
Pentane	0.03	2.14	3.51	2.83	91.93	95.00	93.47
Isoprene (2-Methyl-1,3-Butadiene)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ethylbromide	0.00	0.00	0.00	0.00	0.00	0.00	0.00
t-2-Pentene	0.00	0.00	0.98	0.49	0.59	0.59	0.59
1,1-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Pentene	0.00	0.00	0.00	0.00	0.33	0.34	0.34
Dichloromethane	0.20	5.41	16.63	11.02	17.89	8.66	13.28
Freon113 (1,1,2-Trichlorotrifluoroethane	1.05	5.85	10.66	8.26	3.44	4.02	3.73
2,2-Dimethylbutane	0.00	0.00	0.00	0.00	2.34	2.41	2.38
Cyclopentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
t-1,2-Dichloroethene	0.00	0.00	0.99	0.50	0.00	0.00	0.00
1,1-Dichloroethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cyclopentane	0.00	0.00	0.00	0.00	9.42	9.52	9.47
2,3-Dimethylbutane	0.00	0.25	0.45	0.35	6.09	6.22	6.15
t-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-Methylpentane	0.01	1.09	26.75	13.92	44.46	45.71	45.08
c-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylpentane	0.00	0.85	1.33	1.09	26.58	26.89	26.73
1-Hexene/2-Methyl-1-Pentene	0.00	0.00	3.91	1.95	0.00	0.00	0.00
c-1,2-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hexane	0.10	2.77	5.37	4.07	55.48	55.04	55.26
Chloroform	0.00	0.00	0.00	0.00	0.00	0.00	0.00
t-2-Hexene	0.00	0.00	0.44	0.22	0.22	0.20	0.21
t-3-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Hexene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-3-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.15	0.18	0.16
2,2-Dimethylpentane	0.00	0.00	0.00	0.00	1.10	1.13	1.11
1,2-Dichloroethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Methylcyclopentane	0.00	0.82	1.23	1.02	31.38	32.04	31.71
2,4-Dimethylpentane	0.00	0.00	0.00	0.00	2.50	2.58	2.54
1,1,1-Trichloroethane	0.00	0.81	0.83	0.82	0.68	0.69	0.69
2,2,3-Trimethylbutane	0.00	0.00	2.19	1.09	0.26	0.28	0.27
1-Methylcyclopentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	0.03	0.72	0.76	0.74	3.12	3.26	3.19
Carbontetrachloride	0.00	0.65	0.69	0.67	0.72	0.69	0.70
Cyclohexane	0.00	0.57	0.80	0.68	20.03	20.31	20.17
2-Methylhexane	0.00	0.00	0.00	0.00	6.13	6.33	6.23
2,3-Dimethylpentane	0.00	0.00	0.00	0.00	3.65	3.85	3.75
Cyclohexene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylhexane	0.12	0.00	0.00	0.00	11.40	11.60	11.50
Dibromomethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trichloroethene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-Heptene	0.00	0.00	3.62	1.81	0.00	0.00	0.00
2,2,4-Trimethylpentane	0.00	0.20	0.87	0.53	0.83	0.87	0.85
t-3-Heptene	0.00	0.00	1.08	0.54	0.00	0.00	0.00

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	Downwind Station						
	lot blank	pre-ignition 1			burn 1		
Canister ID:	GVRD431	REAC123	REAC182	AVE	REAC77	REAC73	AVE
Sample Volume (mL) :	504	485	485		494	494	
Heptane	0.00	0.99	1.42	1.20	23.92	24.71	24.31
t-2-Heptene	0.00	0.00	2.75	1.38	0.00	0.00	0.00
c-2-Heptene	0.00	0.00	2.51	1.26	0.00	0.00	0.00
c-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,2-Dimethylhexane	0.00	0.00	0.00	0.00	0.76	0.79	0.77
Methylcyclohexane	0.00	0.98	0.99	0.98	30.57	31.76	31.16
2,5-Dimethylhexane	0.00	0.00	0.00	0.00	0.94	0.93	0.93
2,4-Dimethylhexane	0.00	0.00	0.00	0.00	1.21	1.23	1.22
t-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,1,2-Trichloroethane	0.12	0.00	0.00	0.00	0.00	0.00	0.00
Bromotrichloromethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,3,4-Trimethylpentane	0.00	0.00	0.00	0.00	0.35	0.36	0.35
Toluene	0.05	2.09	1.65	1.87	9.57	9.98	9.78
2-Methylheptane	0.00	0.29	0.40	0.34	4.93	5.11	5.02
4-Methylheptane	0.00	0.00	0.00	0.00	1.52	1.53	1.52
1-Methylcyclohexene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylheptane	0.00	0.29	7.01	3.65	4.39	4.49	4.44
c-1,3-Dimethylcyclohexane	0.00	0.25	0.00	0.12	3.75	3.78	3.76
t-1,4-Dimethylcyclohexane	0.00	0.00	0.00	0.00	1.73	2.03	1.88
EDB (1,2-Dibromoethane)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,2,5-Trimethylhexane	0.00	0.00	0.00	0.00	0.10	0.11	0.10
1-Octene	0.00	0.00	3.30	1.65	0.00	0.00	0.00
Octane	0.00	0.68	0.90	0.79	7.57	7.70	7.64
Tetrachloroethene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-1,4/t-1,3-Dimethylcyclohexane	0.00	0.00	0.00	0.00	0.92	0.97	0.94
c-2-Octene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ethylbenzene	0.00	0.42	0.35	0.38	2.40	2.55	2.48
m/p-Xylene	0.04	1.35	1.23	1.29	7.51	7.93	7.72
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,4-Dichlorobutane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Styrene	0.00	0.00	0.00	0.00	0.00	0.35	0.18
1,1,2,2-Tetrachloroethane	0.00	0.00	0.00	0.00	0.10	0.00	0.05
o-Xylene	0.00	0.48	0.41	0.45	2.46	2.59	2.53
1-Nonene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nonane	0.00	0.49	1.02	0.75	3.19	3.25	3.22
iso-Propylbenzene	0.00	0.14	0.00	0.07	0.23	0.24	0.24
3,6-Dimethyloctane	0.00	0.00	0.00	0.00	0.28	0.34	0.31
n-Propylbenzene	0.00	0.10	0.64	0.37	0.52	0.54	0.53
3-Ethyltoluene	0.00	0.25	0.33	0.29	1.42	1.61	1.51
4-Ethyltoluene	0.00	0.14	0.26	0.20	0.57	0.72	0.64
1,3,5-Trimethylbenzene	0.00	0.22	0.41	0.32	0.49	0.69	0.59
2-Ethyltoluene	0.00	0.16	0.25	0.20	0.58	0.66	0.62
1-Decene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,2,4-Trimethylbenzene	0.00	0.64	0.76	0.70	1.75	2.27	2.01
Decane	0.00	0.56	0.84	0.70	1.19	1.50	1.34
1,3-Dichlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,4-Dichlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
iso-Butylbenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sec-Butylbenzene	0.00	0.00	0.00	0.00	0.07	0.09	0.08
1,2,3-Trimethylbenzene	0.00	0.22	0.33	0.28	0.44	0.56	0.50
p-Cymene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Indane	0.00	0.00	0.00	0.00	0.18	0.22	0.20
1,3-Diethylbenzene	0.00	0.00	0.00	0.00	0.00	0.22	0.11
1,4-Diethylbenzene	0.00	0.00	0.66	0.33	0.00	0.27	0.13
n-Butylbenzene	0.00	0.00	0.00	0.00	0.00	0.11	0.05
1,2-Diethylbenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Undecane	0.00	0.77	1.25	1.01	1.02	1.31	1.16
Naphthalene	0.00	0.00	4.86	2.43	0.00	0.70	0.35
Dodecane	0.00	1.14	4.42	2.78	0.83	1.80	1.32
Hexylbenzene	0.00	0.00	2.15	1.08	0.51	3.75	2.13

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

	Sir Wilfred Grenfell		Ann Harvey	
COMPOUNDS	**pre-ignition 1**	**burn 1**	**pre-ignition 1**	**burn 1**
Canister ID:	REAC173	REAC172	REAC141	REAC166
Sample Volume (mL) :	507	507	490	490
TOTAL VOC	**239**	**68**	**111**	**97**
Propene	58.50	21.23	7.55	1.64
Propane	0.00	0.00	0.00	0.00
Freon22 (Chlorodifluoromethane)	1.34	0.58	2.74	1.25
Propyne	0.00	0.00	0.00	0.00
Chloromethane	3.08	0.91	2.75	1.00
Isobutane (2-Methylpropane)	0.80	0.00	1.18	0.53
Freon114 (1,2-Dichlorotetrafluroethane)	2.44	0.72	2.56	0.68
Vinylchloride (Chloroethene)	0.00	0.00	0.00	0.00
1-Butene/2-Methylpropene	25.67	8.01	7.32	5.29
1,3-Butadiene	0.00	0.58	0.00	0.00
Butane	2.24	0.46	2.26	1.04
t-2-Butene	0.00	0.00	0.00	0.36
2,2-Dimethylpropane	0.00	0.00	0.00	0.00
Bromomethane	0.00	0.00	0.00	0.00
1-Butyne	0.00	0.00	0.00	0.00
c-2-Butene	1.29	0.34	0.00	0.35
Chloroethane	3.21	1.45	0.00	0.98
2-Methylbutane	1.14	0.18	2.90	1.12
Freon11 (Trichlorofluoromethane)	2.46	1.97		
1-Pentene	6.39	1.61	2.54	1.24
Pentane	1.67	0.35	2.04	0.92
Isoprene (2-Methyl-1,3-Butadiene)	0.00	0.00	0.00	0.00
Ethylbromide	0.00	0.00	0.00	0.00
t-2-Pentene	0.00	0.00	0.00	0.00
1,1-Dichloroethene	0.00	0.00	1.25	0.00
c-2-Pentene	0.00	0.00	0.00	0.00
Dichloromethane	2.31	0.85	10.96	25.13
Freon113 (1,1,2-Trichlorotrifluoroethane	13.33	4.80	14.92	4.42
2,2-Dimethylbutane	0.00	0.00	0.00	0.00
Cyclopentene	0.00	0.00	0.00	0.00
t-1,2-Dichloroethene	0.00	0.00	0.00	0.00
1,1-Dichloroethane	0.00	0.00	0.00	0.00
Cyclopentane	0.00	0.00	0.00	0.00
2,3-Dimethylbutane	0.00	0.00	0.00	0.00
t-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00
2-Methylpentane	5.88	3.19	0.99	1.26
c-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00
3-Methylpentane	0.37	0.00	1.15	0.50
1-Hexene/2-Methyl-1-Pentene	5.13	1.71	2.46	0.91
c-1,2-Dichloroethene	0.00	0.00	0.00	0.00
Hexane	1.64	0.39	5.54	5.88
Chloroform	0.00	0.00	0.00	0.00
t-2-Hexene	0.00	0.00	0.00	0.00
t-3-Methyl-2-Pentene	0.00	0.00	0.00	0.00
c-2-Hexene	0.00	0.00	0.00	0.00
c-3-Methyl-2-Pentene	0.00	0.00	0.00	0.00
2,2-Dimethylpentane	0.00	0.00	0.00	0.00
1,2-Dichloroethane	0.00	0.00	0.00	0.00
Methylcyclopentane	0.00	0.00	1.03	0.85
2,4-Dimethylpentane	0.00	0.00	0.00	0.00
1,1,1-Trichloroethane	3.49	0.94	3.26	3.15
2,2,3-Trimethylbutane	1.33	0.94	0.00	0.00
1-Methylcyclopentene	0.00	0.00	0.00	0.00
Benzene	0.75	0.23	1.08	0.43
Carbontetrachloride	0.62	0.70	0.91	0.73
Cyclohexane	0.00	0.00	0.00	1.68
2-Methylhexane	0.00	0.00	0.00	0.00
2,3-Dimethylpentane	0.00	0.00	0.00	0.00
Cyclohexene	0.00	0.00	0.00	0.00
3-Methylhexane	0.00	0.00	0.00	0.00
Dibromomethane	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.00	0.00	0.00	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00
Trichloroethene	0.00	0.00	0.00	0.00
1-Heptene	5.65	1.34	1.81	1.06
2,2,4-Trimethylpentane	1.82	0.65	0.00	0.00
t-3-Heptene	2.22	0.55	0.00	0.52

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	Sir Wilfred Grenfell		Ann Harvey	
	pre-ignition 1	burn 1	pre-ignition 1	burn 1
Canister ID:	REAC173	REAC172	REAC141	REAC166
Sample Volume (mL) :	507	507	490	490
Heptane	1.86	0.38	1.21	0.55
t-2-Heptene	5.95	0.97	0.00	1.18
c-2-Heptene	7.11	0.98	0.00	1.32
c-1,3-Dichloropropene	0.00	0.00	0.00	0.00
2,2-Dimethylhexane	0.00	0.00	0.00	0.00
Methylcyclohexane	0.00	0.00	0.00	0.32
2,5-Dimethylhexane	0.00	0.00	0.00	0.00
2,4-Dimethylhexane	0.00	0.00	0.00	0.00
t-1,3-Dichloropropene	0.00	0.00	0.00	0.00
1,1,2-Trichloroethane	0.00	0.00	0.00	0.00
Bromotrichloromethane	0.00	0.00	0.00	0.00
2,3,4-Trimethylpentane	0.00	0.00	0.00	0.00
Toluene	1.85	0.50	2.86	1.41
2-Methylheptane	0.00	0.00	0.00	0.21
4-Methylheptane	0.00	0.00	0.00	0.00
1-Methylcyclohexene	0.00	0.00	0.00	0.00
Dibromochloromethane	0.00	0.00	0.00	0.00
3-Methylheptane	0.00	0.00	0.00	0.00
c-1,3-Dimethylcyclohexane	0.00	0.00	0.00	0.00
t-1,4-Dimethylcyclohexane	0.00	0.00	0.00	0.00
EDB (1,2-Dibromoethane)	0.00	0.00	0.00	0.00
2,2,5-Trimethylhexane	0.00	0.00	0.00	0.00
1-Octene	7.43	1.59	1.01	1.31
Octane	1.01	0.19	0.89	0.41
Tetrachloroethene	0.00	0.00	0.00	0.00
c-1,4/t-1,3-Dimethylcyclohexane	0.00	0.00	0.00	0.00
c-2-Octene	0.00	0.00	0.00	0.00
Chlorobenzene	0.00	0.00	0.00	0.00
Ethylbenzene	0.72	0.17	0.71	0.34
m/p-Xylene	2.83	0.59	2.44	1.15
Bromoform	0.00	0.00	0.00	0.00
1,4-Dichlorobutane	0.00	0.00	0.00	0.00
Styrene	0.00	0.00	0.00	0.00
1,1,2,2-Tetrachloroethane	0.00	0.00	0.00	0.00
o-Xylene	0.91	0.21	0.90	0.44
1-Nonene	4.72	1.72	0.78	1.19
Nonane	3.44	0.36	0.86	0.50
iso-Propylbenzene	0.00	0.00	0.00	0.00
3,6-Dimethyloctane	0.00	0.00	0.00	0.00
n-Propylbenzene	0.80	0.44	0.67	0.40
3-Ethyltoluene	0.87	0.19	1.47	0.74
4-Ethyltoluene	0.46	0.28	0.98	0.37
1,3,5-Trimethylbenzene	0.70	0.17	1.13	0.51
2-Ethyltoluene	0.36	0.16	0.91	0.37
1-Decene	0.00	0.00	0.00	0.00
1,2,4-Trimethylbenzene	19.70	0.58	3.76	6.52
Decane	3.32	0.42	1.27	0.97
1,3-Dichlorobenzene	0.00	0.30	0.00	0.00
1,4-Dichlorobenzene	0.00	0.31	0.00	0.00
iso-Butylbenzene	0.00	0.00	0.40	0.00
sec-Butylbenzene	0.00	0.11	0.37	0.00
1,2,3-Trimethylbenzene	0.78	0.25	1.29	0.56
p-Cymene	0.00	0.00	0.00	0.00
1,2-Dichlorobenzene	0.00	0.37	0.83	0.00
Indane	0.00	0.18	0.51	0.13
1,3-Diethylbenzene	0.00	0.22	0.63	0.00
1,4-Diethylbenzene	0.00	0.55	1.57	0.57
n-Butylbenzene	0.00	0.31	0.00	0.00
1,2-Diethylbenzene	0.00	0.00	0.76	0.00
Undecane	4.94	0.44	1.58	1.75
Naphthalene	2.80	0.00	0.00	1.86
Dodecane	11.81	0.74	1.63	3.97
Hexylbenzene	0.00	0.00	0.00	4.63

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	Casaco					
	pre-ignition 1			burn 1		
Canister ID:	REAC185	REAC211	AVERAGE	ESD-18	REAC214	AVERAGE
Sample Volume (mL) :	507	502		495	490	
TOTAL VOC	**192**	**273**	**232**	**62**	**88**	**75**
Propene	9.51	17.58	**13.55**	0.76	3.75	**2.26**
Propane	0.00	1.20	**0.60**	0.00	0.00	**0.00**
Freon22 (Chlorodifluoromethane)	3.15	1.29	**2.22**	0.49	0.41	**0.45**
Propyne	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Chloromethane	3.05	2.07	**2.56**	1.43	1.08	**1.26**
Isobutane (2-Methylpropane)	0.49	1.75	**1.12**	2.72	0.53	**1.62**
Freon114 (1,2-Dichlorotetrafluroethane)	1.88	2.46	**2.17**	0.98	0.54	**0.76**
Vinylchloride (Chloroethene)	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1-Butene/2-Methylpropene	22.16	28.08	**25.12**	3.71	5.96	**4.84**
1,3-Butadiene	0.98	0.00	**0.49**	0.00	0.00	**0.00**
Butane	3.09	2.21	**2.65**	2.27	1.31	**1.79**
t-2-Butene	1.19	1.29	**1.24**	0.28	0.46	**0.37**
2,2-Dimethylpropane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Bromomethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1-Butyne	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-2-Butene	1.35	1.34	**1.35**	0.27	0.38	**0.32**
Chloroethane	3.56	0.00	**1.78**	0.00	0.00	**0.00**
2-Methylbutane	1.63	0.98	**1.30**	2.98	2.17	**2.57**
Freon11 (Trichlorofluoromethane)	2.60	4.90	**3.75**	2.30	2.59	**2.44**
1-Pentene	4.35	5.91	**5.13**	0.34	1.56	**0.95**
Pentane	1.20	1.21	**1.21**	1.63	1.37	**1.50**
Isoprene (2-Methyl-1,3-Butadiene)	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Ethylbromide	0.00	0.00	**0.00**	0.00	0.00	**0.00**
t-2-Pentene	0.32	0.00	**0.16**	0.15	0.36	**0.25**
1,1-Dichloroethene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-2-Pentene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Dichloromethane	6.00	14.23	**10.12**	4.97	11.64	**8.30**
Freon113 (1,1,2-Trichlorotrifluoroethane	9.87	11.36	**10.61**	4.45	4.47	**4.46**
2,2-Dimethylbutane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Cyclopentene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
t-1,2-Dichloroethene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,1-Dichloroethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Cyclopentane	0.00	0.00	**0.00**	0.21	0.00	**0.11**
2,3-Dimethylbutane	0.00	0.00	**0.00**	0.28	0.29	**0.28**
t-4-Methyl-2-Pentene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2-Methylpentane	33.84	81.09	**57.46**	2.55	3.38	**2.96**
c-4-Methyl-2-Pentene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
3-Methylpentane	0.00	0.00	**0.00**	1.33	0.74	**1.03**
1-Hexene/2-Methyl-1-Pentene	3.61	5.84	**4.73**	0.00	1.51	**0.76**
c-1,2-Dichloroethene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Hexane	3.36	1.49	**2.43**	1.32	3.14	**2.23**
Chloroform	0.00	0.00	**0.00**	0.52	0.00	**0.26**
t-2-Hexene	0.00	0.00	**0.00**	0.00	0.21	**0.10**
t-3-Methyl-2-Pentene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-2-Hexene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-3-Methyl-2-Pentene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,2-Dimethylpentane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2-Dichloroethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Methylcyclopentane	0.61	0.54	**0.58**	0.84	0.95	**0.90**
2,4-Dimethylpentane	0.00	0.00	**0.00**	0.16	0.00	**0.08**
1,1,1-Trichloroethane	1.10	2.40	**1.75**	1.40	1.19	**1.30**
2,2,3-Trimethylbutane	0.92	2.04	**1.48**	0.00	0.00	**0.00**
1-Methylcyclopentene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Benzene	0.79	0.90	**0.84**	0.96	0.86	**0.91**
Carbontetrachloride	0.75	0.72	**0.74**	0.74	0.69	**0.71**
Cyclohexane	1.03	0.70	**0.86**	0.76	1.24	**1.00**
2-Methylhexane	0.00	0.00	**0.00**	0.32	0.30	**0.31**
2,3-Dimethylpentane	0.65	0.00	**0.32**	0.42	0.29	**0.35**
Cyclohexene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
3-Methylhexane	1.42	0.00	**0.71**	1.05	1.19	**1.12**
Dibromomethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2-Dichloropropane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Bromodichloromethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Trichloroethene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1-Heptene	4.48	0.00	**2.24**	0.00	2.03	**1.01**
2,2,4-Trimethylpentane	1.82	2.15	**1.99**	0.28	0.00	**0.14**
t-3-Heptene	0.95	0.54	**0.74**	0.00	0.60	**0.30**

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	Casaco					
	pre-ignition 1			burn 1		
Canister ID:	REAC185	REAC211	AVERAGE	ESD-18	REAC214	AVERAGE
Sample Volume (mL) :	507	502		495	490	
Heptane	1.79	3.29	**2.54**	1.17	1.67	**1.42**
t-2-Heptene	4.07	1.83	**2.95**	0.00	1.21	**0.61**
c-2-Heptene	5.47	3.24	**4.35**	0.00	1.01	**0.50**
c-1,3-Dichloropropene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,2-Dimethylhexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Methylcyclohexane	1.51	1.19	**1.35**	1.64	1.49	**1.57**
2,5-Dimethylhexane	0.00	12.50	**6.25**	0.00	0.00	**0.00**
2,4-Dimethylhexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
t-1,3-Dichloropropene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,1,2-Trichloroethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Bromotrichloromethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,3,4-Trimethylpentane	0.30	0.00	**0.15**	0.00	0.00	**0.00**
Toluene	3.58	1.89	**2.74**	2.72	2.81	**2.77**
2-Methylheptane	0.94	0.00	**0.47**	0.53	0.92	**0.72**
4-Methylheptane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1-Methylcyclohexene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Dibromochloromethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
3-Methylheptane	0.00	0.00	**0.00**	0.47	0.48	**0.48**
c-1,3-Dimethylcyclohexane	0.51	0.00	**0.26**	0.39	0.39	**0.39**
t-1,4-Dimethylcyclohexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
EDB (1,2-Dibromoethane)	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,2,5-Trimethylhexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1-Octene	6.29	7.46	**6.87**	0.00	1.98	**0.99**
Octane	1.06	1.15	**1.11**	0.78	0.96	**0.87**
Tetrachloroethene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-1,4/t-1,3-Dimethylcyclohexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-2-Octene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Chlorobenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Ethylbenzene	0.64	0.82	**0.73**	0.75	0.73	**0.74**
m/p-Xylene	1.98	2.80	**2.39**	2.16	2.12	**2.14**
Bromoform	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,4-Dichlorobutane	6.02	5.66	**5.84**	0.26	0.00	**0.13**
Styrene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,1,2,2-Tetrachloroethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
o-Xylene	0.75	0.97	**0.86**	0.81	0.78	**0.79**
1-Nonene	0.00	12.91	**6.45**	0.00	0.00	**0.00**
Nonane	1.72	3.20	**2.46**	0.97	1.23	**1.10**
iso-Propylbenzene	0.26	0.00	**0.13**	0.14	0.14	**0.14**
3,6-Dimethyloctane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
n-Propylbenzene	0.87	0.71	**0.79**	0.32	0.49	**0.40**
3-Ethyltoluene	0.80	0.86	**0.83**	0.58	0.71	**0.65**
4-Ethyltoluene	0.41	0.47	**0.44**	0.30	0.34	**0.32**
1,3,5-Trimethylbenzene	0.58	0.63	**0.61**	0.24	0.42	**0.33**
2-Ethyltoluene	0.38	0.47	**0.43**	0.31	0.33	**0.32**
1-Decene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2,4-Trimethylbenzene	9.25	4.63	**6.94**	0.97	1.91	**1.44**
Decane	2.36	3.34	**2.85**	0.88	1.22	**1.05**
1,3-Dichlorobenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,4-Dichlorobenzene	1.32	1.86	**1.59**	0.39	0.47	**0.43**
iso-Butylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
sec-Butylbenzene	0.00	0.00	**0.00**	0.11	0.09	**0.10**
1,2,3-Trimethylbenzene	0.65	0.78	**0.72**	0.33	0.43	**0.38**
p-Cymene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2-Dichlorobenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Indane	0.00	0.00	**0.00**	0.11	0.12	**0.11**
1,3-Diethylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,4-Diethylbenzene	0.72	0.00	**0.36**	0.21	0.00	**0.11**
n-Butylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2-Diethylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Undecane	3.01	2.42	**2.72**	0.59	0.94	**0.77**
Naphthalene	1.12	0.00	**0.56**	0.00	0.00	**0.00**
Dodecane	1.80	1.17	**1.48**	0.85	1.40	**1.12**
Hexylbenzene	0.00	0.00	**0.00**	0.00	3.82	**1.91**

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	CCG 203 pre-ignition 1			CCG 203 burn 1	CCG 204 pre-ignition 1	CCG 204 burn 1
Canister ID:	REAC163	REAC163	AVE	REAC75	REAC186	REAC183
Sample Volume (mL) :	490	490		490	495	502
TOTAL VOC	**3292**	**3402**	**3347**	**488**	**140**	**67**
Propene	53.59	77.55	65.57	7.53	0.00	2.68
Propane	7.97	0.32	4.15	0.00	0.00	0.98
Freon22 (Chlorodifluoromethane)	0.57	0.36	0.46	0.33	0.72	0.62
Propyne	2.02	1.64	1.83	0.00	0.00	0.00
Chloromethane	1.36	0.99	1.17	0.96	1.65	1.37
Isobutane (2-Methylpropane)	59.03	60.28	59.65	10.58	1.24	0.38
Freon114 (1,2-Dichlorotetrafluroethane)	1.36	1.42	1.39	0.78	1.83	0.46
Vinylchloride (Chloroethene)	0.00	0.00	0.00	0.00	0.00	0.00
1-Butene/2-Methylpropene	53.38	56.02	54.69	7.41	16.03	5.64
1,3-Butadiene	17.59	16.26	16.92	2.17	0.91	0.45
Butane	115.37	121.16	118.27	19.43	2.52	1.07
t-2-Butene	15.54	15.45	15.49	2.75	0.85	0.93
2,2-Dimethylpropane	0.00	0.72	0.36	0.00	0.00	0.00
Bromomethane	0.00	0.00	0.00	0.00	0.00	0.00
1-Butyne	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Butene	13.74	14.22	13.98	2.56	0.84	1.15
Chloroethane	0.00	0.00	0.00	0.00	2.22	0.53
2-Methylbutane	354.54	375.18	364.86	51.98	4.09	1.01
Freon11 (Trichlorofluoromethane)	5.79	5.86	5.83	11.26		5.25
1-Pentene	10.82	10.95	10.88	1.55	3.38	0.73
Pentane	175.35	182.22	178.78	27.68	2.22	0.77
Isoprene (2-Methyl-1,3-Butadiene)	11.45	11.76	11.60	1.67	0.00	0.00
Ethylbromide	0.00	0.00	0.00	0.00	0.00	0.00
t-2-Pentene	21.21	22.09	21.65	3.33	0.39	0.12
1,1-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Pentene	18.96	18.96	18.96	2.85	0.00	0.00
Dichloromethane	18.13	18.99	18.56	3.31	3.33	1.34
Freon113 (1,1,2-Trichlorotrifluoroethane	7.08	7.69	7.38	4.69	9.13	3.44
2,2-Dimethylbutane	34.18	35.79	34.99	3.61	0.00	0.00
Cyclopentene	0.00	0.00	0.00	0.00	0.00	0.00
t-1,2-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
1,1-Dichloroethane	0.00	0.00	0.00	0.00	0.00	0.00
Cyclopentane	25.08	26.41	25.75	4.01	0.00	0.00
2,3-Dimethylbutane	45.52	46.81	46.17	5.44	0.38	0.12
t-4-Methyl-2-Pentene	1.65	1.59	1.62	0.24	0.00	0.00
2-Methylpentane	177.19	182.64	179.91	24.60	26.36	14.49
c-4-Methyl-2-Pentene	8.13	8.56	8.34	1.34	0.00	0.00
3-Methylpentane	130.30	132.44	131.37	15.57	0.00	0.34
1-Hexene/2-Methyl-1-Pentene	13.96	14.18	14.07	2.13	2.80	0.54
c-1,2-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
Hexane	416.99	435.72	426.36	23.76	2.47	4.76
Chloroform	0.00	0.00	0.00	0.00	0.00	0.00
t-2-Hexene	9.65	10.38	10.02	1.48	0.00	0.08
t-3-Methyl-2-Pentene	10.29	10.07	10.18	1.43	0.00	0.00
c-2-Hexene	6.53	6.54	6.54	1.06	0.00	0.00
c-3-Methyl-2-Pentene	13.21	13.50	13.35	1.95	0.00	0.00
2,2-Dimethylpentane	5.68	6.03	5.86	0.63	0.00	0.00
1,2-Dichloroethane	0.66	0.64	0.65	0.00	0.00	0.00
Methylcyclopentane	120.28	124.48	122.38	12.11	0.82	0.23
2,4-Dimethylpentane	20.23	20.94	20.59	2.38	0.00	0.00
1,1,1-Trichloroethane	0.97	1.00	0.99	1.01	1.25	0.78
2,2,3-Trimethylbutane	1.47	1.47	1.47	0.22	0.86	0.29
1-Methylcyclopentene	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	62.08	64.78	63.43	15.00	1.16	0.34
Carbontetrachloride	0.70	0.69	0.69	0.71	0.70	0.71
Cyclohexane	33.79	35.06	34.42	4.38	0.58	0.13
2-Methylhexane	37.15	39.86	38.51	4.61	0.00	0.00
2,3-Dimethylpentane	31.85	32.47	32.16	3.77	0.00	0.00
Cyclohexene	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylhexane	72.64	74.47	73.56	8.67	1.26	0.46
Dibromomethane	0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.00	0.00	0.00	0.00	0.00	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Trichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
1-Heptene	0.00	0.00	0.00	0.00	3.53	1.94
2,2,4-Trimethylpentane	22.67	23.18	22.92	2.42	0.98	0.00
t-3-Heptene	1.17	1.29	1.23	0.18	0.85	0.18

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	CCG 203 pre-ignition 1			CCG 203 burn 1	CCG 204 pre-ignition 1	CCG 204 burn 1
Canister ID:	REAC163	REAC163	AVE	REAC75	REAC186	REAC183
Sample Volume (mL) :	490	490		490	495	502
Heptane	57.86	59.82	58.84	6.79	1.47	0.39
t-2-Heptene	4.05	4.44	4.24	0.64	3.18	0.69
c-2-Heptene	0.00	0.00	0.00	0.89	3.48	0.75
c-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00	0.00
2,2-Dimethylhexane	2.50	2.56	2.53	0.30	0.00	0.00
Methylcyclohexane	34.13	34.85	34.49	4.55	0.82	0.14
2,5-Dimethylhexane	9.65	10.17	9.91	1.09	0.36	0.00
2,4-Dimethylhexane	12.22	12.29	12.26	1.37	0.00	0.00
t-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00	0.00
1,1,2-Trichloroethane	0.00	0.00	0.00	0.00	0.00	0.00
Bromotrichloromethane	0.00	0.00	0.00	0.00	0.00	0.00
2,3,4-Trimethylpentane	10.76	11.33	11.04	1.07	0.00	0.00
Toluene	191.91	196.32	194.11	43.42	2.72	0.74
2-Methylheptane	28.00	28.40	28.20	3.15	0.93	0.00
4-Methylheptane	12.16	12.58	12.37	1.42	0.00	0.00
1-Methylcyclohexene	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylheptane	43.43	44.08	43.76	4.63	0.37	0.11
c-1,3-Dimethylcyclohexane	6.41	7.20	6.81	0.80	0.37	0.00
t-1,4-Dimethylcyclohexane	2.63	2.42	2.53	0.42	0.00	0.00
EDB (1,2-Dibromoethane)	0.00	0.00	0.00	0.00	0.00	0.00
2,2,5-Trimethylhexane	3.67	3.63	3.65	0.32	0.00	0.00
1-Octene	0.00	0.00	0.00	0.00	3.95	0.40
Octane	21.00	21.59	21.30	2.33	0.80	0.21
Tetrachloroethene	0.00	0.00	0.00	0.00	0.00	0.00
c-1,4/t-1,3-Dimethylcyclohexane	4.18	4.23	4.21	0.60	0.00	0.00
c-2-Octene	4.28	3.82	4.05	0.00	0.00	0.00
Chlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00
Ethylbenzene	52.77	52.90	52.83	10.90	0.67	0.23
m/p-Xylene	163.18	164.72	163.95	34.17	2.16	0.74
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00
1,4-Dichlorobutane	0.64	0.00	0.32	0.20	0.00	0.00
Styrene	3.69	3.60	3.65	0.50	0.00	0.10
1,1,2,2-Tetrachloroethane	0.00	0.00	0.00	0.00	0.00	0.00
o-Xylene	55.17	54.80	54.99	11.86	0.73	0.24
1-Nonene	0.00	0.00	0.00	0.00	4.37	0.00
Nonane	9.42	9.49	9.45	1.30	0.99	0.23
iso-Propylbenzene	3.40	3.43	3.42	0.67	0.18	0.05
3,6-Dimethyloctane	2.00	2.03	2.01	0.28	0.00	0.00
n-Propylbenzene	13.73	13.80	13.76	2.48	0.60	0.17
3-Ethyltoluene	46.66	47.11	46.88	8.85	0.72	0.24
4-Ethyltoluene	22.90	22.99	22.94	3.88	0.37	0.13
1,3,5-Trimethylbenzene	24.39	24.38	24.39	3.97	0.46	0.15
2-Ethyltoluene	16.72	16.69	16.71	3.21	0.33	0.11
1-Decene	0.00	0.00	0.00	0.00	0.00	0.00
1,2,4-Trimethylbenzene	75.38	73.76	74.57	13.63	6.53	2.32
Decane	6.24	6.66	6.45	0.97	1.29	0.32
1,3-Dichlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00
1,4-Dichlorobenzene	0.00	0.00	0.00	0.00	0.00	0.11
iso-Butylbenzene	1.12	1.12	1.12	0.17	0.00	0.00
sec-Butylbenzene	1.07	1.06	1.07	0.19	0.00	0.00
1,2,3-Trimethylbenzene	15.62	14.95	15.29	2.84	0.46	0.17
p-Cymene	0.00	0.00	0.00	0.00	0.00	0.38
1,2-Dichlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00
Indane	7.70	7.81	7.75	1.36	0.00	0.00
1,3-Diethylbenzene	4.36	4.07	4.22	0.66	0.00	0.00
1,4-Diethylbenzene	22.76	21.54	22.15	0.00	0.00	0.00
n-Butylbenzene	3.02	2.92	2.97	0.38	0.00	0.00
1,2-Diethylbenzene	0.96	0.87	0.92	0.19	0.00	0.00
Undecane	4.40	4.76	4.58	1.13	1.98	0.58
Naphthalene	12.11	11.76	11.93	3.81	0.00	1.16
Dodecane	4.77	3.61	4.19	1.23	4.28	1.47
Hexylbenzene	0.00	0.00	0.00	0.00	0.00	0.00

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	CCG 212					
	pre-ignition 1			burn 1		
Canister ID:	REAC174	REAC174	AVE	REAC171	REAC171	AVE
Sample Volume (mL) :	502	495		502	495	
TOTAL VOC	**478**	**686**	**582**	**100**	**116**	**108**
Propene	51.77	167.72	**109.74**	23.06	30.81	**26.94**
Propane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Freon22 (Chlorodifluoromethane)	6.62	7.26	**6.94**	0.62	1.45	**1.03**
Propyne	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Chloromethane	4.12	3.95	**4.03**	1.15	1.10	**1.13**
Isobutane (2-Methylpropane)	6.19	6.61	**6.40**	0.38	0.57	**0.47**
Freon114 (1,2-Dichlorotetrafluroethane)	0.88	2.06	**1.47**	0.61	0.67	**0.64**
Vinylchloride (Chloroethene)	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1-Butene/2-Methylpropene	17.28	5.25	**11.27**	7.13	7.37	**7.25**
1,3-Butadiene	1.18	0.00	**0.59**	0.60	0.60	**0.60**
Butane	10.90	11.33	**11.11**	0.89	1.01	**0.95**
t-2-Butene	2.96	3.28	**3.12**	0.40	0.51	**0.46**
2,2-Dimethylpropane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Bromomethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1-Butyne	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-2-Butene	2.82	2.92	**2.87**	0.52	0.50	**0.51**
Chloroethane	2.28	2.28	**2.28**	1.40	1.44	**1.42**
2-Methylbutane	11.22	13.11	**12.16**	1.13	1.21	**1.17**
Freon11 (Trichlorofluoromethane)				1.93	2.01	**1.97**
1-Pentene	3.95	4.01	**3.98**	1.33	1.34	**1.34**
Pentane	8.53	9.72	**9.13**	1.01	1.25	**1.13**
Isoprene (2-Methyl-1,3-Butadiene)	0.84	0.00	**0.42**	0.00	0.00	**0.00**
Ethylbromide	0.00	0.00	**0.00**	0.00	0.00	**0.00**
t-2-Pentene	1.41	3.11	**2.26**	0.12	0.00	**0.06**
1,1-Dichloroethene	0.59	0.00	**0.29**	0.00	0.00	**0.00**
c-2-Pentene	1.65	1.60	**1.63**	0.00	0.00	**0.00**
Dichloromethane	0.00	0.00	**0.00**	3.14	2.44	**2.79**
Freon113 (1,1,2-Trichlorotrifluoroethane	6.47	10.42	**8.44**	3.77	5.13	**4.45**
2,2-Dimethylbutane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Cyclopentene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
t-1,2-Dichloroethene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,1-Dichloroethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Cyclopentane	0.89	1.06	**0.97**	0.00	0.00	**0.00**
2,3-Dimethylbutane	0.68	0.84	**0.76**	0.13	0.00	**0.06**
t-4-Methyl-2-Pentene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2-Methylpentane	5.03	5.92	**5.47**	2.06	3.68	**2.87**
c-4-Methyl-2-Pentene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
3-Methylpentane	3.21	3.77	**3.49**	0.51	0.60	**0.56**
1-Hexene/2-Methyl-1-Pentene	3.03	2.92	**2.98**	1.25	1.21	**1.23**
c-1,2-Dichloroethene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Hexane	25.36	30.46	**27.91**	1.76	2.02	**1.89**
Chloroform	0.81	0.97	**0.89**	0.00	0.00	**0.00**
t-2-Hexene	0.60	0.96	**0.78**	0.00	0.00	**0.00**
t-3-Methyl-2-Pentene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-2-Hexene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-3-Methyl-2-Pentene	0.49	1.03	**0.76**	0.00	0.00	**0.00**
2,2-Dimethylpentane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2-Dichloroethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Methylcyclopentane	4.31	5.28	**4.80**	0.79	0.86	**0.82**
2,4-Dimethylpentane	0.38	0.00	**0.19**	0.00	0.00	**0.00**
1,1,1-Trichloroethane	1.88	1.96	**1.92**	0.77	0.78	**0.78**
2,2,3-Trimethylbutane	0.62	0.67	**0.64**	0.28	0.35	**0.31**
1-Methylcyclopentene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Benzene	3.90	4.54	**4.22**	0.39	0.47	**0.43**
Carbontetrachloride	0.85	0.87	**0.86**	0.75	0.77	**0.76**
Cyclohexane	1.27	1.95	**1.61**	0.87	1.03	**0.95**
2-Methylhexane	0.56	0.00	**0.28**	0.27	0.33	**0.30**
2,3-Dimethylpentane	0.53	0.00	**0.27**	0.19	0.00	**0.09**
Cyclohexene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
3-Methylhexane	1.13	1.38	**1.25**	0.58	0.62	**0.60**
Dibromomethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2-Dichloropropane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Bromodichloromethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Trichloroethene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1-Heptene	3.35	0.00	**1.67**	2.70	0.00	**1.35**
2,2,4-Trimethylpentane	6.38	7.25	**6.81**	0.40	0.00	**0.20**
t-3-Heptene	0.68	1.98	**1.33**	0.28	0.81	**0.55**

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	CCG 212 pre-ignition 1			CCG 212 burn 1		
Canister ID:	REAC174	REAC174	AVE	REAC171	REAC171	AVE
Sample Volume (mL) :	502	495		502	495	
Heptane	1.99	2.09	**2.04**	1.82	1.99	**1.90**
t-2-Heptene	3.14	4.21	**3.68**	1.29	1.59	**1.44**
c-2-Heptene	3.99	2.55	**3.27**	1.87	0.88	**1.38**
c-1,3-Dichloropropene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,2-Dimethylhexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Methylcyclohexane	0.72	0.81	**0.77**	2.18	2.45	**2.31**
2,5-Dimethylhexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,4-Dimethylhexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
t-1,3-Dichloropropene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,1,2-Trichloroethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Bromotrichloromethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,3,4-Trimethylpentane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Toluene	15.81	19.08	**17.45**	1.12	1.70	**1.41**
2-Methylheptane	0.50	0.64	**0.57**	0.88	1.40	**1.14**
4-Methylheptane	0.17	0.00	**0.09**	0.24	0.00	**0.12**
1-Methylcyclohexene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Dibromochloromethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
3-Methylheptane	0.60	0.61	**0.60**	0.58	0.67	**0.62**
c-1,3-Dimethylcyclohexane	0.00	0.00	**0.00**	0.62	0.70	**0.66**
t-1,4-Dimethylcyclohexane	0.00	0.00	**0.00**	0.31	0.34	**0.33**
EDB (1,2-Dibromoethane)	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,2,5-Trimethylhexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1-Octene	3.48	1.49	**2.49**	1.94	0.88	**1.41**
Octane	0.95	1.01	**0.98**	1.61	1.76	**1.69**
Tetrachloroethene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-1,4/t-1,3-Dimethylcyclohexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-2-Octene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Chlorobenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Ethylbenzene	2.26	2.70	**2.48**	0.48	0.60	**0.54**
m/p-Xylene	7.45	8.96	**8.21**	1.87	2.28	**2.08**
Bromoform	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,4-Dichlorobutane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Styrene	0.00	0.96	**0.48**	0.00	0.31	**0.16**
1,1,2,2-Tetrachloroethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
o-Xylene	2.36	2.70	**2.53**	0.70	0.83	**0.76**
1-Nonene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Nonane	1.16	1.32	**1.24**	1.95	2.11	**2.03**
iso-Propylbenzene	0.00	0.00	**0.00**	0.12	0.13	**0.13**
3,6-Dimethyloctane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
n-Propylbenzene	0.59	0.75	**0.67**	0.54	0.59	**0.56**
3-Ethyltoluene	1.10	1.62	**1.36**	1.02	1.23	**1.13**
4-Ethyltoluene	0.52	0.80	**0.66**	0.47	0.61	**0.54**
1,3,5-Trimethylbenzene	0.67	0.90	**0.78**	0.69	0.82	**0.76**
2-Ethyltoluene	0.46	0.64	**0.55**	0.42	0.50	**0.46**
1-Decene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2,4-Trimethylbenzene	2.19	15.55	**8.87**	3.47	7.88	**5.67**
Decane	1.43	1.86	**1.64**	2.30	2.79	**2.55**
1,3-Dichlorobenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,4-Dichlorobenzene	1.03	1.48	**1.26**	0.00	0.32	**0.16**
iso-Butylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
sec-Butylbenzene	0.00	0.00	**0.00**	0.09	0.11	**0.10**
1,2,3-Trimethylbenzene	0.60	0.87	**0.73**	0.62	0.76	**0.69**
p-Cymene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2-Dichlorobenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Indane	0.00	0.00	**0.00**	0.22	0.27	**0.24**
1,3-Diethylbenzene	0.00	0.00	**0.00**	0.18	0.21	**0.20**
1,4-Diethylbenzene	0.00	0.78	**0.39**	0.60	0.00	**0.30**
n-Butylbenzene	0.00	0.00	**0.00**	0.21	0.28	**0.25**
1,2-Diethylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Undecane	1.56	1.90	**1.73**	2.99	3.22	**3.10**
Naphthalene	0.00	1.19	**0.59**	0.00	0.61	**0.30**
Dodecane	1.44	1.81	**1.62**	3.43	2.24	**2.84**
Hexylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

	CCG 214		R/C H1-CA			
COMPOUNDS	pre-ignition 1	burn 1	BKGRND	pre-ignition 1		burn 1
Canister ID:	REAC188	REAC187	T1,BLK	T1BKPRE	F4T1B1R2	T1B1R1F3
Sample Volume (mL) :	511	511	249	246	248	256
TOTAL VOC	**135**	**407**	**325**	**254**	**2083**	**283**
Propene	0.00	175.41	125.49	16.57	0.87	
Propane	0.00	0.00	2.56	2.44	60.86	0.00
Freon22 (Chlorodifluoromethane)	0.78	2.05	0.74	0.56	0.26	0.00
Propyne	0.00	0.00	4.73	0.22	0.00	0.00
Chloromethane	1.52	2.58	0.79	1.35	0.73	1.73
Isobutane (2-Methylpropane)	0.41	1.36	3.87	7.62	83.63	4.00
Freon114 (1,2-Dichlorotetrafluroethane)	0.38	2.80	1.03	0.53	0.37	0.46
Vinylchloride (Chloroethene)	0.00	0.00	0.00	0.00	0.00	0.00
1-Butene/2-Methylpropene	5.42	30.38	10.28	8.34	3.45	10.63
1,3-Butadiene	0.35	1.85	8.87	1.29	1.48	1.09
Butane	0.94	2.18	6.90	15.33	251.59	9.67
t-2-Butene	0.46	1.11	1.19	0.00	0.23	1.85
2,2-Dimethylpropane	0.00	0.00	0.00	0.00	1.02	0.00
Bromomethane	0.11	0.00	0.00	0.00	0.00	0.00
1-Butyne	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Butene	0.71	1.41	1.31	1.96	0.29	2.79
Chloroethane	0.99	3.13	0.00	0.83	0.00	0.00
2-Methylbutane	1.26	1.89	16.63	27.62	254.17	9.31
Freon11 (Trichlorofluoromethane)	2.05	3.61	1.11	1.44	3.75	1.13
1-Pentene	0.95	5.41	1.47	1.03	0.68	0.51
Pentane	1.22	2.06	8.56	15.91	260.28	11.77
Isoprene (2-Methyl-1,3-Butadiene)	0.17	0.76	0.76	0.76	0.46	0.40
Ethylbromide	0.00	0.00	0.00	0.00	0.00	0.00
t-2-Pentene	0.07	0.37	0.83	1.44	0.16	0.17
1,1-Dichloroethene	0.07	0.00	0.00	0.00	0.00	0.00
c-2-Pentene	0.11	0.52	1.29	1.27	0.21	0.00
Dichloromethane	1.35	7.56	0.67	0.52	0.93	1.79
Freon113 (1,1,2-Trichlorotrifluoroethane	3.60	21.66	6.61	2.74	2.74	3.41
2,2-Dimethylbutane	0.09	0.00	1.59	2.41	5.14	0.24
Cyclopentene	0.00	0.00	0.00	0.00	0.00	0.00
t-1,2-Dichloroethene	0.21	1.32	0.00	0.00	0.00	0.00
1,1-Dichloroethane	0.00	0.00	0.00	0.00	0.24	0.00
Cyclopentane	0.16	0.00	1.20	1.75	27.90	1.13
2,3-Dimethylbutane	0.16	0.18	2.00	3.13	18.18	0.57
t-4-Methyl-2-Pentene	0.00	0.00	0.00	0.16	0.00	0.00
2-Methylpentane	2.39	12.40	9.64	16.54	125.93	7.80
c-4-Methyl-2-Pentene	0.00	0.00	0.37	0.43	0.00	0.00
3-Methylpentane	0.78	0.76	5.71	9.35	81.46	5.03
1-Hexene/2-Methyl-1-Pentene	0.98	6.00	3.53	1.30	0.99	0.00
c-1,2-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
Hexane	1.97	2.46	6.05	11.66	182.19	91.60
Chloroform	0.08	0.00	0.00	0.00	0.00	0.00
t-2-Hexene	0.06	0.26	0.39	0.58	0.00	0.12
t-3-Methyl-2-Pentene	0.00	0.00	0.50	0.65	0.00	0.36
c-2-Hexene	0.07	0.23	0.32	0.52	0.00	0.00
c-3-Methyl-2-Pentene	0.04	0.17	0.66	0.80	0.00	0.43
2,2-Dimethylpentane	0.06	0.00	0.26	0.45	3.90	0.00
1,2-Dichloroethane	0.00	0.00	0.00	0.00	0.64	0.00
Methylcyclopentane	1.18	0.80	3.81	6.69	109.29	11.21
2,4-Dimethylpentane	0.15	0.00	0.86	1.53	8.67	0.33
1,1,1-Trichloroethane	0.80	0.95	0.49	0.64	0.56	1.74
2,2,3-Trimethylbutane	0.31	1.86	0.18	0.43	0.95	0.28
1-Methylcyclopentene	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	0.38	0.70	9.25	2.17	6.32	1.03
Carbontetrachloride	0.78	0.74	0.44	0.54	0.36	0.22
Cyclohexane	1.00	0.72	1.59	3.14	76.15	2.39
2-Methylhexane	0.47	0.24	1.94	2.47	0.00	0.88
2,3-Dimethylpentane	0.30	0.00	1.43	2.48	14.24	0.49
Cyclohexene	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylhexane	1.09	0.62	3.47	5.95	44.61	1.86
Dibromomethane	0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.00	0.00	0.00	0.00	0.00	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Trichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
1-Heptene	0.00	0.00	0.00	0.00	0.00	0.00
2,2,4-Trimethylpentane	0.41	0.00	1.13	1.73	2.27	0.34
t-3-Heptene	0.11	0.72	0.05	0.08	0.07	0.09

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

	CCG 214		R/C H1-CA			
COMPOUNDS	pre-ignition 1	burn 1	BKGRND	pre-ignition 1		burn 1
Canister ID:	REAC188	REAC187	T1,BLK	T1BKPRE	F4T1B1R2	T1B1R1F3
Sample Volume (mL) :	511	511	249	246	248	256
Heptane	2.73	2.59	2.77	6.39	97.08	5.04
t-2-Heptene	0.45	3.00	0.21	0.32	0.18	0.25
c-2-Heptene	1.15	4.91	0.00		0.00	0.00
c-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00	0.00
2,2-Dimethylhexane	0.10	0.00	0.14	0.23	3.42	0.00
Methylcyclohexane	3.64	1.78	1.57	5.11	139.36	3.87
2,5-Dimethylhexane	0.19	0.00	0.46	0.72	3.56	0.15
2,4-Dimethylhexane	0.25	0.00	0.61	1.08	5.19	0.00
t-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00	0.00
1,1,2-Trichloroethane	0.00	0.00	0.00	0.00	0.00	0.00
Bromotrichloromethane	0.00	0.00	0.00	0.00	0.00	0.00
2,3,4-Trimethylpentane	0.12	0.14	0.49	0.76	0.95	0.00
Toluene	2.69	2.03	11.55	7.57	12.12	10.85
2-Methylheptane	1.28	0.77	1.20	2.15	21.99	0.97
4-Methylheptane	0.42	0.00	0.00	1.09	0.00	0.00
1-Methylcyclohexene	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylheptane	1.11	0.50	1.83	3.02	17.36	0.85
c-1,3-Dimethylcyclohexane	0.98	0.65	0.24	0.90	20.26	0.69
t-1,4-Dimethylcyclohexane	0.53	0.28	0.00	0.40	11.52	0.27
EDB (1,2-Dibromoethane)	0.00	0.00	0.00	0.00	0.00	0.00
2,2,5-Trimethylhexane	0.06	0.00	0.19	0.22	0.24	0.00
1-Octene	3.96	12.75	1.29	0.84	0.00	0.00
Octane	2.82	1.82	0.96	2.14	34.40	2.27
Tetrachloroethene	0.00	0.00	0.00	0.00	0.00	0.00
c-1,4/t-1,3-Dimethylcyclohexane	0.31	0.25	0.21	0.47	4.88	0.17
c-2-Octene	0.54	2.27	0.00	0.39	0.00	0.00
Chlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00
Ethylbenzene	1.49	0.64	2.86	2.07	2.59	2.53
m/p-Xylene	5.60	2.20	9.55	6.38	8.67	9.59
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00
1,4-Dichlorobutane	0.00	0.00	0.00	0.00	0.00	0.00
Styrene	0.08	0.00	0.48	0.25	0.62	1.53
1,1,2,2-Tetrachloroethane	0.00	0.00	0.00	0.00	0.00	0.00
o-Xylene	2.04	0.81	3.08	2.08	2.53	3.19
1-Nonene	0.00	27.82	0.00	0.00	0.00	0.00
Nonane	3.64	3.04	0.55	1.17	14.37	2.82
iso-Propylbenzene	0.25	0.19	0.19	0.18	0.51	0.46
3,6-Dimethyloctane	0.00	0.23	0.00	0.00	1.39	0.62
n-Propylbenzene	0.92	1.18	0.66	0.72	0.87	1.16
3-Ethyltoluene	2.37	1.21	2.08	1.99	2.20	3.45
4-Ethyltoluene	1.14	0.64	0.95	0.98	0.99	1.74
1,3,5-Trimethylbenzene	1.47	1.04	1.04	1.08	1.51	2.19
2-Ethyltoluene	0.96	0.68	0.68	0.70	0.90	1.49
1-Decene	0.00	0.00	0.00	0.00	0.00	0.00
1,2,4-Trimethylbenzene	4.79	5.41	3.23	3.42	4.38	8.87
Decane	5.39	4.71	0.58	0.78	8.33	8.34
1,3-Dichlorobenzene	0.06	0.00	0.00	0.16	0.00	0.00
1,4-Dichlorobenzene	0.13	0.00	0.00	0.13	0.21	1.40
iso-Butylbenzene	0.12	0.00	0.08	0.09	0.13	0.19
sec-Butylbenzene	0.21	0.22	0.09	0.09	0.25	0.39
1,2,3-Trimethylbenzene	1.40	1.23	0.68	0.76	1.45	3.06
p-Cymene	0.44	0.00	0.00	0.77	0.00	2.60
1,2-Dichlorobenzene	0.06	0.00	0.00	0.19	0.00	0.00
Indane	0.45	0.29	0.30	0.37	0.30	0.71
1,3-Diethylbenzene	0.41	0.26	0.23	0.27	0.26	0.60
1,4-Diethylbenzene	1.69	1.05	1.00	0.71	1.62	0.00
n-Butylbenzene	0.56	0.49	0.24	0.26	0.40	0.71
1,2-Diethylbenzene	0.15	0.00	0.00	0.13	0.00	0.25
Undecane	10.97	9.83	0.55	0.96	7.20	7.95
Naphthalene	2.47	0.00	2.03	1.49	1.42	1.24
Dodecane	17.17	10.67	1.55	1.97	5.57	1.70
Hexylbenzene	8.55	0.00	6.31	2.47	3.90	0.00

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

	R/C H2-CA			Convair		
COMPOUNDS	background	burn 1		background August 07, 1993		
Canister ID:	13872	T2B1R2	T2B1R3	EPS233	EPS233	AVERAGE
Sample Volume (mL) :	270	246	270	495	248	
TOTAL VOC	**271**	**405**	**264**	**979**	**859**	**919**
Propene	22.79	38.57	19.76	25.85	1.20	13.52
Propane	3.75	9.69	0.59	0.00	0.00	0.00
Freon22 (Chlorodifluoromethane)	0.33	0.49	0.61	0.30	0.33	0.32
Propyne	0.18	0.35	0.00	0.00	0.00	0.00
Chloromethane	0.77	0.79	0.63	1.00	0.27	0.63
Isobutane (2-Methylpropane)	1.79	8.45	1.07	0.32	0.00	0.16
Freon114 (1,2-Dichlorotetrafluroethane)	0.39	0.48	0.46	0.23	0.48	0.36
Vinylchloride (Chloroethene)	0.00	0.00	0.00	0.00	0.00	0.00
1-Butene/2-Methylpropene	5.85	3.34	3.14	0.42	0.42	0.42
1,3-Butadiene	0.63	0.30	0.22	0.00	0.00	0.00
Butane	4.26	26.17	3.23	0.71	0.69	0.70
t-2-Butene	0.47	0.26	0.21	0.00	0.00	0.00
2,2-Dimethylpropane	0.00	0.12	0.00	0.00	0.00	0.00
Bromomethane	0.00	0.00	0.00	0.00	0.00	0.00
1-Butyne	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Butene	0.72	0.38	0.36	0.00	0.00	0.00
Chloroethane	0.56	0.70	0.60	0.00	0.00	0.00
2-Methylbutane	8.91	28.51	3.46	1.74	1.47	1.61
Freon11 (Trichlorofluoromethane)	1.01	0.95	0.85	2.27	2.10	2.19
1-Pentene	0.67	0.46	0.37	0.00	0.00	0.00
Pentane	6.11	27.36	3.61	0.21	0.23	0.22
Isoprene (2-Methyl-1,3-Butadiene)	0.35	0.17	0.19	0.00	0.00	0.00
Ethylbromide	0.00	0.00	0.00	0.00	0.00	0.00
t-2-Pentene	0.47	0.47	0.11	0.00	0.00	0.00
1,1-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Pentene	0.42	0.31	0.09	0.00	0.00	0.00
Dichloromethane	1.12	2.30	6.65	0.00	0.00	0.00
Freon113 (1,1,2-Trichlorotrifluoroethane	3.34	3.38	3.69	1.61	3.07	2.34
2,2-Dimethylbutane	0.80	1.25	0.14	0.00	0.00	0.00
Cyclopentene	0.00	0.00	0.00	0.00	0.00	0.00
t-1,2-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
1,1-Dichloroethane	0.00	0.00	0.00	0.00	0.00	0.00
Cyclopentane	0.91	2.72	0.40	0.00	0.00	0.00
2,3-Dimethylbutane	1.08	2.30	0.32	0.49	0.38	0.43
t-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
2-Methylpentane	5.16	17.54	2.42	0.28	0.27	0.28
c-4-Methyl-2-Pentene	0.15	0.11	0.00	0.00	0.00	0.00
3-Methylpentane	3.93	9.08	4.60	0.28	0.19	0.23
1-Hexene/2-Methyl-1-Pentene	1.06	0.55	0.55	0.00	0.00	0.00
c-1,2-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
Hexane	11.69	22.81	90.62	0.23	0.22	0.22
Chloroform	0.07	0.00	0.00	0.53	0.45	0.49
t-2-Hexene	0.28	0.27	0.08	0.00	0.00	0.00
t-3-Methyl-2-Pentene	0.26	0.22	0.08	0.00	0.00	0.00
c-2-Hexene	0.22	0.18	0.06	0.00	0.00	0.00
c-3-Methyl-2-Pentene	0.32	0.28	0.11	0.00	0.00	0.00
2,2-Dimethylpentane	0.19	0.41	0.07	0.00	0.00	0.00
1,2-Dichloroethane	0.00	0.00	0.09	0.00	0.00	0.00
Methylcyclopentane	4.74	10.32	10.80	0.00	0.00	0.00
2,4-Dimethylpentane	0.56	1.07	0.18	0.46	0.40	0.43
1,1,1-Trichloroethane	0.63	0.59	0.35	0.83	0.74	0.79
2,2,3-Trimethylbutane	0.43	0.40	0.42	0.00	0.00	0.00
1-Methylcyclopentene	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	3.33	2.72	0.97	0.18	0.19	0.18
Carbontetrachloride	0.36	0.27	0.24	0.84	0.74	0.79
Cyclohexane	2.46	8.60	2.62	0.00	0.16	0.08
2-Methylhexane	1.47	2.18	0.49	0.00	0.00	0.00
2,3-Dimethylpentane	1.08	1.82	0.37	0.30	0.25	0.28
Cyclohexene	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylhexane	3.15	5.00	1.25	0.00	0.00	0.00
Dibromomethane	0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.00	0.00	0.00	0.00	0.00	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Trichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
1-Heptene	0.00	0.00	0.00	0.00	0.00	0.00
2,2,4-Trimethylpentane	0.71	0.94	0.30	6.01	4.85	5.43
t-3-Heptene	0.13	0.13	0.04	0.00	0.00	0.00

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	R/C H2-CA background	R/C H2-CA burn 1		Convair background August 07, 1993		
Canister ID:	13872	T2B1R2	T2B1R3	EPS233	EPS233	AVERAGE
Sample Volume (mL) :	270	246	270	495	248	
Heptane	4.97	8.63	2.29	0.03	0.05	0.04
t-2-Heptene	0.29	0.33	0.17	0.00	0.00	0.00
c-2-Heptene	0.45	0.00	0.00	0.00	0.00	0.00
c-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00	0.00
2,2-Dimethylhexane	0.00	0.28	0.00	0.00	0.00	0.00
Methylcyclohexane	4.94	10.16	2.21	0.00	0.00	0.00
2,5-Dimethylhexane	0.38	0.51	0.14	0.62	0.49	0.55
2,4-Dimethylhexane	0.58	0.78	0.22	0.86	0.66	0.76
t-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00	0.00
1,1,2-Trichloroethane	0.00	0.00	0.00	0.00	0.00	0.00
Bromotrichloromethane	0.00	0.00	0.00	0.00	0.00	0.00
2,3,4-Trimethylpentane	0.29	0.47	0.11	1.81	1.47	1.64
Toluene	25.81	58.45	35.35	5.15	4.68	4.92
2-Methylheptane	1.91	2.23	0.73	0.00	0.00	0.00
4-Methylheptane	0.73	0.92	0.32	0.00	0.00	0.00
1-Methylcyclohexene	15.06	0.00	10.76	0.00	0.00	0.00
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylheptane	2.26	2.65	0.82	0.00	0.00	0.00
c-1,3-Dimethylcyclohexane	1.00	1.74	0.40	0.00	0.00	0.00
t-1,4-Dimethylcyclohexane	0.45	0.71	0.20	0.00	0.00	0.00
EDB (1,2-Dibromoethane)	0.00	0.00	0.00	0.00	0.00	0.00
2,2,5-Trimethylhexane	0.15	0.29	0.07	0.71	0.54	0.63
1-Octene	1.00	0.19	0.63	0.00	0.00	0.00
Octane	3.14	3.66	1.20	0.03	0.00	0.01
Tetrachloroethene	0.11	0.14	0.10	0.00	0.00	0.00
c-1,4/t-1,3-Dimethylcyclohexane	0.36	0.58	0.16	0.00	0.00	0.00
c-2-Octene	0.00	0.32	0.00	0.00	0.00	0.00
Chlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00
Ethylbenzene	5.41	4.71	2.65	0.42	0.37	0.39
m/p-Xylene	17.60	14.92	8.67	0.42	1.00	0.71
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00
1,4-Dichlorobutane	0.00	0.00	0.00	0.00	0.00	0.00
Styrene	0.55	0.29	0.30	41.75	44.94	43.34
1,1,2,2-Tetrachloroethane	0.00	0.03	0.00	0.00	0.00	0.00
o-Xylene	6.19	5.26	3.08	0.14	0.31	0.23
1-Nonene	0.00	0.00	0.00	0.00	0.00	0.00
Nonane	2.69	3.34	1.21	0.00	0.09	0.05
iso-Propylbenzene	14.47	0.42	0.31	0.00	0.00	0.00
3,6-Dimethyloctane	0.19	0.47	0.10	0.00	0.00	0.00
n-Propylbenzene	2.07	1.51	1.05	0.13	0.15	0.14
3-Ethyltoluene	6.36	4.29	2.83	0.08	0.30	0.19
4-Ethyltoluene	3.16	2.02	1.34	0.06	0.19	0.12
1,3,5-Trimethylbenzene	3.43	2.44	1.59	0.07	0.20	0.13
2-Ethyltoluene	2.18	1.57	1.01	0.04	0.12	0.08
1-Decene	0.00	0.00	0.00	0.00	0.00	0.00
1,2,4-Trimethylbenzene	11.63	7.66	5.14	0.24	1.19	0.71
Decane	3.73	4.30	2.46	0.28	0.34	0.31
1,3-Dichlorobenzene	0.15	0.07	0.08	0.00	0.00	0.00
1,4-Dichlorobenzene	0.81	0.82	0.76	0.00	0.00	0.00
iso-Butylbenzene	0.19	0.13	0.10	0.00	0.00	0.00
sec-Butylbenzene	0.23	0.22	0.13	0.00	0.00	0.00
1,2,3-Trimethylbenzene	2.84	1.93	1.30	0.09	0.26	0.18
p-Cymene	0.42	0.77	0.44	0.00	0.49	0.24
1,2-Dichlorobenzene	0.07	0.07	0.06	0.00	0.00	0.00
Indane	1.20	0.68	0.47	0.00	0.00	0.00
1,3-Diethylbenzene	0.70	0.36	0.25	0.00	0.00	0.00
1,4-Diethylbenzene	2.45	1.07	0.89	0.00	0.21	0.10
n-Butylbenzene	0.70	0.36	0.30	0.00	0.00	0.00
1,2-Diethylbenzene	0.18	0.14	0.08	0.00	0.00	0.00
Undecane	4.05	3.29	2.15	0.53	0.80	0.66
Naphthalene	1.84	0.00	0.69	0.25	1.13	0.69
Dodecane	1.62	2.84	0.87	0.87	1.40	1.13
Hexylbenzene	0.00	0.00	0.00	0.00	2.58	1.29

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

	Convair					
COMPOUNDS	**background 1**			**background 1**		
Canister ID:	EPS53	EPS53	AVERAGE	EPS132	EPS132	AVERAGE
Sample Volume (mL) :	494	504		497	248	
TOTAL VOC	**83**	**78**	**81**	**608**	**610**	**609**
Propene	0.00	0.00	0.00	17.11	6.58	11.85
Propane	0.00	0.00	0.00	0.00	0.00	0.00
Freon22 (Chlorodifluoromethane)	0.31	0.20	0.25	0.54	0.20	0.37
Propyne	0.00	0.00	0.00	0.00	0.00	0.00
Chloromethane	0.94	0.71	0.82	0.83	0.43	0.63
Isobutane (2-Methylpropane)	0.24	0.00	0.12	0.20	0.00	0.10
Freon114 (1,2-Dichlorotetrafluroethane)	0.23	0.20	0.22	0.00	0.35	0.18
Vinylchloride (Chloroethene)	0.00	0.00	0.00	0.00	0.00	0.00
1-Butene/2-Methylpropene	0.41	0.39	0.40	0.68	0.36	0.52
1,3-Butadiene	0.00	0.00	0.00	0.00	0.00	0.00
Butane	1.47	1.35	1.41	0.62	0.70	0.66
t-2-Butene	0.00	0.00	0.00	0.00	0.00	0.00
2,2-Dimethylpropane	0.00	0.00	0.00	0.00	0.00	0.00
Bromomethane	0.00	0.00	0.00	0.00	0.00	0.00
1-Butyne	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Butene	0.00	0.00	0.00	0.00	0.00	0.00
Chloroethane	0.00	0.00	0.00	0.00	0.00	0.00
2-Methylbutane	3.94	3.40	3.67	1.48	1.62	1.55
Freon11 (Trichlorofluoromethane)	2.32	2.10	2.21	2.05	2.16	2.11
1-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
Pentane	0.22	0.19	0.21	0.12	0.00	0.06
Isoprene (2-Methyl-1,3-Butadiene)	0.21	0.20	0.20	0.00	0.00	0.00
Ethylbromide	0.00	0.00	0.00	0.00	0.00	0.00
t-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
1,1-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
Dichloromethane				0.00	0.00	0.00
Freon113 (1,1,2-Trichlorotrifluoroethane	1.48	1.51	1.49	1.53	2.48	2.01
2,2-Dimethylbutane	0.00	0.00	0.00	0.00	0.00	0.00
Cyclopentene	0.00	0.00	0.00	0.00	0.00	0.00
t-1,2-Dichloroethene	0.21	0.19	0.20	0.00	0.00	0.00
1,1-Dichloroethane	0.00	0.00	0.00	0.00	0.00	0.00
Cyclopentane	0.06	0.06	0.06	0.00	0.00	0.00
2,3-Dimethylbutane	1.17	1.14	1.15	0.48	0.54	0.51
t-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
2-Methylpentane	0.61	0.54	0.58	0.27	0.29	0.28
c-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylpentane	0.41	0.30	0.36	0.15	0.20	0.18
1-Hexene/2-Methyl-1-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
c-1,2-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
Hexane	1.00	0.39	0.70	0.14	0.21	0.18
Chloroform	0.33	0.31	0.32	0.24	0.26	0.25
t-2-Hexene	0.00	0.00	0.00	0.00	0.00	0.00
t-3-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Hexene	0.00	0.00	0.00	0.00	0.00	0.00
c-3-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
2,2-Dimethylpentane	0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichloroethane	0.00	0.00	0.00	0.00	0.00	0.00
Methylcyclopentane	0.14	0.06	0.10	0.00	0.00	0.00
2,4-Dimethylpentane	1.29	1.20	1.24	0.58	0.62	0.60
1,1,1-Trichloroethane	0.73	0.68	0.70	0.72	0.79	0.75
2,2,3-Trimethylbutane	0.05	0.00	0.03	0.00	0.00	0.00
1-Methylcyclopentene	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	0.13	0.12	0.12	0.13	0.13	0.13
Carbontetrachloride	0.75	0.73	0.74	0.75	0.83	0.79
Cyclohexane	0.08	0.12	0.10	0.00	0.00	0.00
2-Methylhexane	0.07	0.07	0.07	0.00	0.00	0.00
2,3-Dimethylpentane	0.72	0.72	0.72	0.34	0.39	0.37
Cyclohexene	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylhexane	0.20	0.09	0.15	0.00	0.00	0.00
Dibromomethane	0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.00	0.00	0.00	0.00	0.00	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Trichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
1-Heptene	0.00	0.00	0.00	0.00	0.00	0.00
2,2,4-Trimethylpentane	15.12	14.67	14.90	7.81	8.64	8.22
t-3-Heptene	0.00	0.00	0.00	0.00	0.00	0.00

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	Convair background 1			background 1		
Canister ID:	EPS53	EPS53	AVERAGE	EPS132	EPS132	AVERAGE
Sample Volume (mL) :	494	504		497	248	
Heptane	0.08	0.04	**0.06**	0.02	0.02	**0.02**
t-2-Heptene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-2-Heptene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-1,3-Dichloropropene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,2-Dimethylhexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Methylcyclohexane	0.07	0.02	**0.04**	0.00	0.00	**0.00**
2,5-Dimethylhexane	1.98	1.93	**1.95**	1.02	1.10	**1.06**
2,4-Dimethylhexane	2.38	2.37	**2.37**	1.36	1.45	**1.40**
t-1,3-Dichloropropene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,1,2-Trichloroethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Bromotrichloromethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,3,4-Trimethylpentane	5.19	5.12	**5.16**	2.82	3.07	**2.95**
Toluene	11.38	10.97	**11.17**	7.08	8.07	**7.57**
2-Methylheptane	0.09	0.07	**0.08**	0.00	0.00	**0.00**
4-Methylheptane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1-Methylcyclohexene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Dibromochloromethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
3-Methylheptane	0.08	0.07	**0.08**	0.06	0.06	**0.06**
c-1,3-Dimethylcyclohexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
t-1,4-Dimethylcyclohexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
EDB (1,2-Dibromoethane)	0.13	0.12	**0.13**	0.00	0.00	**0.00**
2,2,5-Trimethylhexane	2.05	1.91	**1.98**	1.26	1.39	**1.33**
1-Octene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Octane	0.09	0.07	**0.08**	0.02	0.02	**0.02**
Tetrachloroethene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-1,4/t-1,3-Dimethylcyclohexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-2-Octene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Chlorobenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Ethylbenzene	0.33	0.25	**0.29**	0.50	0.37	**0.44**
m/p-Xylene	0.34	0.29	**0.32**	0.29	0.45	**0.37**
Bromoform	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,4-Dichlorobutane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Styrene	21.00	20.92	**20.96**	16.18	17.57	**16.88**
1,1,2,2-Tetrachloroethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
o-Xylene	0.11	0.11	**0.11**	0.10	0.14	**0.12**
1-Nonene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Nonane	0.16	0.08	**0.12**	0.00	0.00	**0.00**
iso-Propylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
3,6-Dimethyloctane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
n-Propylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
3-Ethyltoluene	0.09	0.06	**0.08**	0.07	0.09	**0.08**
4-Ethyltoluene	0.05	0.03	**0.04**	0.05	0.00	**0.03**
1,3,5-Trimethylbenzene	0.06	0.04	**0.05**	0.06	0.08	**0.07**
2-Ethyltoluene	0.04	0.02	**0.03**	0.03	0.04	**0.04**
1-Decene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2,4-Trimethylbenzene	0.31	0.14	**0.23**	0.23	0.23	**0.23**
Decane	0.24	0.12	**0.18**	0.10	0.00	**0.05**
1,3-Dichlorobenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,4-Dichlorobenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
iso-Butylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
sec-Butylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2,3-Trimethylbenzene	0.08	0.05	**0.07**	0.07	0.00	**0.03**
p-Cymene	0.15	0.00	**0.07**	0.00	0.00	**0.00**
1,2-Dichlorobenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Indane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,3-Diethylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,4-Diethylbenzene	0.09	0.00	**0.05**	0.00	0.00	**0.00**
n-Butylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2-Diethylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Undecane	0.34	0.26	**0.30**	0.08	0.00	**0.04**
Naphthalene	0.68	0.60	**0.64**	0.12	0.00	**0.06**
Dodecane	0.68	0.78	**0.73**	0.30	0.00	**0.15**
Hexylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	Convair plume burn 1	Convair above cloud layer burn 1			
Canister ID:	EPS27	EPS151	EPS151	AVERAGE	EPS-6
Sample Volume (mL) :	504	497	246		511
TOTAL VOC	**759**	**739**	**743**	**741**	**544**
Propene	1.06	18.61	2.75	10.68	9.26
Propane	14.23	0.00	0.12	0.06	5.67
Freon22 (Chlorodifluoromethane)	0.16	0.69	0.40	0.55	0.00
Propyne	0.00	0.00	0.00	0.00	0.00
Chloromethane	0.53	0.85	0.91	0.88	0.86
Isobutane (2-Methylpropane)	9.81	0.43	0.29	0.36	5.08
Freon114 (1,2-Dichlorotetrafluroethane)	0.21	0.22	0.34	0.28	0.24
Vinylchloride (Chloroethene)	0.00	0.00	0.00	0.00	0.00
1-Butene/2-Methylpropene	1.01	0.82	0.67	0.74	1.57
1,3-Butadiene	0.41	0.30	0.27	0.28	0.53
Butane	47.25	1.19	1.45	1.32	16.39
t-2-Butene	0.21	0.00	0.05	0.03	0.12
2,2-Dimethylpropane	0.17	0.00	0.00	0.00	0.00
Bromomethane	0.00	0.00	0.00	0.00	0.00
1-Butyne	0.00	0.00	0.00	0.00	0.00
c-2-Butene	0.16	0.00	0.00	0.00	0.00
Chloroethane	0.00	0.00	0.00	0.00	0.00
2-Methylbutane	54.74	2.39	2.56	2.47	15.99
Freon11 (Trichlorofluoromethane)	1.94	2.01	2.01	2.01	2.13
1-Pentene	0.19	0.00	0.11	0.06	0.00
Pentane	53.72	1.12	1.16	1.14	15.65
Isoprene (2-Methyl-1,3-Butadiene)	0.16	0.21	0.23	0.22	0.18
Ethylbromide	0.00	0.00	0.00	0.00	0.00
t-2-Pentene	0.38	0.00	0.00	0.00	0.00
1,1-Dichloroethene	0.00	0.00	0.00	0.00	0.00
c-2-Pentene	0.21	0.00	0.00	0.00	0.00
Dichloromethane	0.00	0.00	0.00	0.00	0.00
Freon113 (1,1,2-Trichlorotrifluoroethane	1.47	1.46	2.21	1.84	1.83
2,2-Dimethylbutane	1.36	0.00	0.07	0.03	0.27
Cyclopentene	0.00	0.00	0.00	0.00	0.00
t-1,2-Dichloroethene	0.20	0.00	0.00	0.00	0.00
1,1-Dichloroethane	0.00	0.00	0.00	0.00	0.00
Cyclopentane	5.58	0.17	0.19	0.18	1.42
2,3-Dimethylbutane	3.94	0.57	0.58	0.57	1.17
t-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00
2-Methylpentane	24.18	1.04	1.07	1.06	6.61
c-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00
3-Methylpentane	14.77	0.73	0.75	0.74	3.84
1-Hexene/2-Methyl-1-Pentene	0.18	0.00	0.13	0.07	0.37
c-1,2-Dichloroethene	0.00	0.00	0.00	0.00	0.00
Hexane	28.39	1.43	1.37	1.40	8.33
Chloroform	0.26	0.24	0.27	0.25	0.17
t-2-Hexene	0.13	0.00	0.00	0.00	0.00
t-3-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.19
c-2-Hexene	0.00	0.00	0.00	0.00	0.00
c-3-Methyl-2-Pentene	0.15	0.07	0.00	0.04	0.24
2,2-Dimethylpentane	0.57	0.00	0.00	0.00	0.15
1,2-Dichloroethane	0.12	0.00	0.00	0.00	0.00
Methylcyclopentane	17.28	0.94	0.96	0.95	4.67
2,4-Dimethylpentane	1.76	0.61	0.62	0.61	0.72
1,1,1-Trichloroethane	0.69	0.93	0.76	0.84	0.75
2,2,3-Trimethylbutane	0.16	0.00	0.00	0.00	0.00
1-Methylcyclopentene	0.00	0.00	0.00	0.00	0.00
Benzene	5.45	2.71	2.57	2.64	5.58
Carbontetrachloride	0.73	0.77	0.75	0.76	0.82
Cyclohexane	11.33	0.82	0.77	0.79	2.89
2-Methylhexane	3.14	0.32	0.27	0.30	0.78
2,3-Dimethylpentane	2.35	0.49	0.49	0.49	0.70
Cyclohexene	0.00	0.00	0.00	0.00	0.00
3-Methylhexane	5.91	0.56	0.59	0.58	1.60
Dibromomethane	0.00	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.00	0.00	0.00	0.00	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00	0.00
Trichloroethene	0.00	0.00	0.00	0.00	0.00
1-Heptene	0.00	0.00	0.00	0.00	0.00
2,2,4-Trimethylpentane	4.27	7.02	7.15	7.09	5.53
t-3-Heptene	0.00	0.00	0.00	0.00	0.00

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	Convair plume burn 1	Convair above cloud layer burn 1			
Canister ID:	EPS27	EPS151	EPS151	AVERAGE	EPS-6
Sample Volume (mL) :	504	497	246		511
Heptane	11.56	1.46	1.47	1.47	3.15
t-2-Heptene	0.00	0.00	0.00	0.00	0.00
c-2-Heptene	0.00	0.00	0.00	0.00	0.00
c-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00
2,2-Dimethylhexane	0.35	0.06	0.00	0.03	0.00
Methylcyclohexane	15.15	2.38	2.43	2.41	4.42
2,5-Dimethylhexane	1.10	1.02	1.01	1.02	0.83
2,4-Dimethylhexane	1.39	1.34	1.34	1.34	1.08
t-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00
1,1,2-Trichloroethane	0.00	0.00	0.00	0.00	0.00
Bromotrichloromethane	0.00	0.00	0.00	0.00	0.00
2,3,4-Trimethylpentane	1.80	2.63	2.62	2.62	1.94
Toluene	9.77	8.35	7.24	7.80	4.61
2-Methylheptane	2.19	0.54	0.55	0.55	0.57
4-Methylheptane	0.72	0.00	0.18	0.09	0.00
1-Methylcyclohexene	0.00	0.00	0.00	0.00	0.00
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00
3-Methylheptane	1.94	0.47	0.48	0.47	0.47
c-1,3-Dimethylcyclohexane	1.61	0.47	0.50	0.48	0.50
t-1,4-Dimethylcyclohexane	0.85	0.22	0.26	0.24	0.25
EDB (1,2-Dibromoethane)	0.00	0.00	0.16	0.08	0.00
2,2,5-Trimethylhexane	0.68	1.10	1.09	1.10	0.81
1-Octene	0.00	0.00	0.00	0.00	0.00
Octane	3.02	0.97	1.02	0.99	0.84
Tetrachloroethene	0.00	0.00	0.00	0.00	0.00
c-1,4/t-1,3-Dimethylcyclohexane	0.39	0.14	0.15	0.14	0.12
c-2-Octene	0.00	0.00	0.00	0.00	0.00
Chlorobenzene	0.00	0.00	0.00	0.00	0.00
Ethylbenzene	1.01	0.67	0.32	0.49	0.40
m/p-Xylene	2.72	0.81	0.83	0.82	0.49
Bromoform	0.00	0.00	0.00	0.00	0.00
1,4-Dichlorobutane	0.10	0.00	0.00	0.00	0.00
Styrene	22.65	21.05	25.17	23.11	9.90
1,1,2,2-Tetrachloroethane	0.00	0.00	0.04	0.02	0.00
o-Xylene	0.85	0.29	0.30	0.29	0.17
1-Nonene	0.00	0.00	0.00	0.00	0.00
Nonane	1.03	0.65	0.67	0.66	0.35
iso-Propylbenzene	0.08	0.05	0.06	0.05	0.00
3,6-Dimethyloctane	0.13	0.00	0.00	0.00	0.00
n-Propylbenzene	0.19	0.10	0.06	0.08	0.06
3-Ethyltoluene	0.44	0.23	0.23	0.23	0.10
4-Ethyltoluene	0.20	0.11	0.17	0.14	0.05
1,3,5-Trimethylbenzene	0.24	0.14	0.18	0.16	0.07
2-Ethyltoluene	0.17	0.10	0.12	0.11	0.04
1-Decene	0.00	0.00	0.00	0.00	0.00
1,2,4-Trimethylbenzene	0.66	0.51	0.58	0.55	0.44
Decane	0.57	0.66	0.52	0.59	0.26
1,3-Dichlorobenzene	0.00	0.00	0.08	0.04	0.00
1,4-Dichlorobenzene	0.00	0.00	0.12	0.06	0.00
iso-Butylbenzene	0.00	0.00	0.05	0.03	0.00
sec-Butylbenzene	0.00	0.00	0.05	0.03	0.00
1,2,3-Trimethylbenzene	0.18	0.17	0.23	0.20	0.09
p-Cymene	0.00	0.21	0.37	0.29	0.00
1,2-Dichlorobenzene	0.00	0.00	0.13	0.07	0.00
Indane	0.06	0.06	0.10	0.08	0.00
1,3-Diethylbenzene	0.00	0.00	0.13	0.06	0.00
1,4-Diethylbenzene	0.16	0.09	0.21	0.15	0.00
n-Butylbenzene	0.00	0.03	0.00	0.02	0.00
1,2-Diethylbenzene	0.00	0.00	0.17	0.08	0.00
Undecane	0.57	0.88	0.69	0.79	0.48
Naphthalene	1.21	0.57	0.00	0.28	0.86
Dodecane	1.54	0.87	1.17	1.02	0.77
Hexylbenzene	0.00	0.00	0.00	0.00	0.00

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	Convair plume burn 1			
Canister ID:	EPS-22	EPS22	AVERAGE	GVRD430
Sample Volume (mL) :	497	272		504
TOTAL VOC	**583**	**572**	**577**	**232**
Propene	33.15	4.00	18.57	0.00
Propane	2.44	0.00	1.22	0.00
Freon22 (Chlorodifluoromethane)	0.59	0.28	0.44	0.33
Propyne	0.00	0.00	0.00	0.00
Chloromethane	0.49	0.40	0.44	0.94
Isobutane (2-Methylpropane)	2.27	2.59	2.43	0.43
Freon114 (1,2-Dichlorotetrafluroethane)	0.22	0.48	0.35	0.22
Vinylchloride (Chloroethene)	0.00	0.00	0.00	0.00
1-Butene/2-Methylpropene	1.12	1.14	1.13	0.35
1,3-Butadiene	0.30	0.00	0.15	0.00
Butane	7.84	8.99	8.42	1.16
t-2-Butene	0.51	0.59	0.55	0.00
2,2-Dimethylpropane	0.00	0.00	0.00	0.00
Bromomethane	0.00	0.00	0.00	0.00
1-Butyne	0.00	0.00	0.00	0.00
c-2-Butene	0.40	0.47	0.44	0.00
Chloroethane	0.00	0.00	0.00	0.00
2-Methylbutane	9.12	10.58	9.85	1.92
Freon11 (Trichlorofluoromethane)	2.19	2.36	2.28	2.01
1-Pentene	0.22	0.25	0.23	0.00
Pentane	7.83	9.11	8.47	1.10
Isoprene (2-Methyl-1,3-Butadiene)	0.00	0.00	0.00	0.00
Ethylbromide	0.00	0.00	0.00	0.00
t-2-Pentene	0.40	0.46	0.43	0.00
1,1-Dichloroethene	0.00	0.00	0.00	0.00
c-2-Pentene	0.47	0.54	0.51	0.00
Dichloromethane	0.00	0.00	0.00	0.00
Freon113 (1,1,2-Trichlorotrifluoroethane	1.51	3.29	2.40	1.60
2,2-Dimethylbutane	0.14	0.00	0.07	0.00
Cyclopentene	0.00	0.00	0.00	0.00
t-1,2-Dichloroethene	0.00	0.00	0.00	0.00
1,1-Dichloroethane	0.00	0.00	0.00	0.00
Cyclopentane	0.74	0.83	0.78	0.14
2,3-Dimethylbutane	1.22	1.31	1.26	0.31
t-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00
2-Methylpentane	3.66	4.05	3.85	0.69
c-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00
3-Methylpentane	2.20	2.39	2.29	0.51
1-Hexene/2-Methyl-1-Pentene	0.45	0.00	0.23	0.00
c-1,2-Dichloroethene	0.00	0.00	0.00	0.00
Hexane	5.25	5.71	5.48	0.73
Chloroform	0.26	0.28	0.27	0.14
t-2-Hexene	0.16	0.17	0.16	0.00
t-3-Methyl-2-Pentene	0.23	0.00	0.12	0.00
c-2-Hexene	0.11	0.00	0.06	0.00
c-3-Methyl-2-Pentene	0.31	0.19	0.25	0.00
2,2-Dimethylpentane	0.07	0.00	0.04	0.00
1,2-Dichloroethane	0.00	0.00	0.00	0.00
Methylcyclopentane	2.28	2.49	2.38	0.37
2,4-Dimethylpentane	1.06	1.18	1.12	0.29
1,1,1-Trichloroethane	1.05	1.40	1.23	0.71
2,2,3-Trimethylbutane	0.00	0.00	0.00	0.00
1-Methylcyclopentene	0.00	0.00	0.00	0.00
Benzene	3.16	3.35	3.25	0.52
Carbontetrachloride	0.75	0.81	0.78	0.77
Cyclohexane	1.22	1.23	1.22	0.25
2-Methylhexane	0.57	0.56	0.56	0.11
2,3-Dimethylpentane	0.77	0.84	0.81	0.23
Cyclohexene	0.00	0.00	0.00	0.00
3-Methylhexane	1.01	0.92	0.96	0.17
Dibromomethane	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.00	0.00	0.00	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00
Trichloroethene	0.00	0.00	0.00	0.00
1-Heptene	0.00	0.00	0.00	0.00
2,2,4-Trimethylpentane	11.83	13.10	12.47	3.40
t-3-Heptene	0.00	0.00	0.00	0.00

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	Convair plume burn 1			
Canister ID:	EPS-22	EPS22	AVERAGE	GVRD430
Sample Volume (mL) :	497	272		504
Heptane	1.56	1.73	1.64	0.30
t-2-Heptene	0.00	0.00	0.00	0.00
c-2-Heptene	0.00	0.00	0.00	0.00
c-1,3-Dichloropropene	0.00	0.00	0.00	0.00
2,2-Dimethylhexane	0.05	0.00	0.02	0.00
Methylcyclohexane	1.81	1.97	1.89	0.35
2,5-Dimethylhexane	1.57	1.64	1.61	0.49
2,4-Dimethylhexane	2.11	2.20	2.16	0.63
t-1,3-Dichloropropene	0.00	0.00	0.00	0.00
1,1,2-Trichloroethane	0.00	0.00	0.00	0.00
Bromotrichloromethane	0.00	0.00	0.00	0.00
2,3,4-Trimethylpentane	3.93	4.25	4.09	1.21
Toluene	11.65	14.88	13.26	3.04
2-Methylheptane	0.37	0.38	0.37	0.09
4-Methylheptane	0.00	0.00	0.00	0.00
1-Methylcyclohexene	0.00	0.00	0.00	0.00
Dibromochloromethane	0.00	0.00	0.00	0.00
3-Methylheptane	0.34	0.31	0.33	0.10
c-1,3-Dimethylcyclohexane	0.24	0.26	0.25	0.00
t-1,4-Dimethylcyclohexane	0.12	0.00	0.06	0.00
EDB (1,2-Dibromoethane)	0.00	0.00	0.00	0.00
2,2,5-Trimethylhexane	1.60	1.69	1.65	0.46
1-Octene	0.00	0.00	0.00	0.00
Octane	0.45	0.48	0.46	0.12
Tetrachloroethene	0.00	0.00	0.00	0.00
c-1,4/t-1,3-Dimethylcyclohexane	0.00	0.00	0.00	0.00
c-2-Octene	0.00	0.00	0.00	0.00
Chlorobenzene	0.00	0.00	0.00	0.00
Ethylbenzene	0.72	0.78	0.75	0.12
m/p-Xylene	1.60	1.78	1.69	0.29
Bromoform	0.00	0.00	0.00	0.00
1,4-Dichlorobutane	0.00	0.00	0.00	0.24
Styrene	19.78	21.16	20.47	11.04
1,1,2,2-Tetrachloroethane	0.00	0.00	0.00	0.00
o-Xylene	0.45	0.52	0.49	0.11
1-Nonene	0.00	0.00	0.00	0.00
Nonane	0.26	0.24	0.25	0.12
iso-Propylbenzene	0.04	0.00	0.02	0.00
3,6-Dimethyloctane	0.00	0.00	0.00	0.00
n-Propylbenzene	0.00	0.00	0.00	0.05
3-Ethyltoluene	0.21	0.19	0.20	0.08
4-Ethyltoluene	0.10	0.09	0.09	0.05
1,3,5-Trimethylbenzene	0.12	0.13	0.13	0.05
2-Ethyltoluene	0.08	0.09	0.08	0.04
1-Decene	0.00	0.00	0.00	0.00
1,2,4-Trimethylbenzene	0.40	0.43	0.42	0.26
Decane	0.33	0.38	0.35	0.28
1,3-Dichlorobenzene	0.00	0.00	0.00	0.00
1,4-Dichlorobenzene	0.00	0.00	0.00	0.00
iso-Butylbenzene	0.00	0.00	0.00	0.00
sec-Butylbenzene	0.00	0.00	0.00	0.00
1,2,3-Trimethylbenzene	0.12	0.14	0.13	0.11
p-Cymene	0.27	0.00	0.13	0.25
1,2-Dichlorobenzene	0.00	0.00	0.00	0.00
Indane	0.00	0.00	0.00	0.00
1,3-Diethylbenzene	0.00	0.00	0.00	0.00
1,4-Diethylbenzene	0.11	0.00	0.05	0.18
n-Butylbenzene	0.00	0.00	0.00	0.00
1,2-Diethylbenzene	0.00	0.00	0.00	0.00
Undecane	0.51	0.51	0.51	1.11
Naphthalene	0.46	0.00	0.23	0.99
Dodecane	0.72	0.71	0.71	1.71
Hexylbenzene	0.00	0.00	0.00	0.00

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	RS-1 pre-ignition 2				RS-1 burn 2				
Canister ID:	REAC17	REAC17	REAC17	AVE	EAC16	REAC167	REAC197	REAC197	AVE
Sample Volume (mL) :	504	20	504		509	20	507	123	
TOTAL VOC	**1674**	**3060**	**1741**	**2158**	**###**	**24741**	**12147**	**22226**	**16126**
Propene	4.82	0	5	3	12	0	9	168	47
Propane	38.16	67	35	47	143	429	232	320	281
Freon22 (Chlorodifluoromethane)	0.91		1	1	0		0	1	0
Propyne	0.00	0	0	0	0	0	0	0	0
Chloromethane	1.40	0	2	1	1	0	3	4	2
Isobutane (2-Methylpropane)	49.10	53	46	49	413	548	526	648	534
Freon114 (1,2-Dichlorotetrafluroethane)	0.38	0	0	0	1	0	1	1	1
Vinylchloride (Chloroethene)	0.00	0	0	0	0	0	0	0	0
1-Butene/2-Methylpropene	7.69	7	8	7	9	0	13	7	7
1,3-Butadiene	1.27	0	1	1	3	0	3	3	2
Butane	122.59	151	121	132		2071		2326	2198
t-2-Butene	1.88	0	2	1	0	0	0	1	0
2,2-Dimethylpropane	0.52	0	1	0	7	9	10	11	9
Bromomethane	0.00	0	0	0	0	0	0	0	0
1-Butyne	0.00	0	0	0	0	0	0	0	0
c-2-Butene	1.76	0	2	1	1	0	2	2	1
Chloroethane	0.96	0	1	1	1	0	2	2	1
2-Methylbutane	140.33	185	148	158		2893	2078	2885	2618
Freon11 (Trichlorofluoromethane)			4	4	5	0		10	5
1-Pentene	1.18	0	1	1	1	0	2	2	1
Pentane	150.15	200	156	169		3304			3304
Isoprene (2-Methyl-1,3-Butadiene)	0.46	0	0	0	1	0	1	1	1
Ethylbromide	0.00	0	0	0	0	0	0	0	0
t-2-Pentene	1.23	0	1	1	1	0	2	2	1
1,1-Dichloroethene	0.00	0	0	0	0	0	0	0	0
c-2-Pentene	0.66	0	1	0	1	0	1	1	1
Dichloromethane	0.00	0	0	0	2	26	35	36	25
Freon113 (1,1,2-Trichlorotrifluoroethane	2.25	13	2	6	4	24	3	11	10
2,2-Dimethylbutane	3.39	0	3	2	44	64	64	67	60
Cyclopentene	0.00	0	0	0	0	0	0	0	0
t-1,2-Dichloroethene	0.00	0	0	0	0	0	0	0	0
1,1-Dichloroethane	0.00	0	0	0	2	0	3	0	1
Cyclopentane	17.06	22	18	19	238	386	274	364	315
2,3-Dimethylbutane	11.82	14	12	13	152	234	176	245	202
t-4-Methyl-2-Pentene	0.00	0	0	0	0	0	0	0	0
2-Methylpentane	85.48	108	90	94		1740	887	1633	1420
c-4-Methyl-2-Pentene	0.00	0	0	0	0	0	0	0	0
3-Methylpentane	74.65	97	79	84	651	1104	830	1044	907
1-Hexene/2-Methyl-1-Pentene	1.00	0	1	1	1	0	2	2	1
c-1,2-Dichloroethene	0.00	0	0	0	0	0	0	0	0
Hexane		1016		1016		2521		2597	2559
Chloroform	0.11	0	0	0	0	0	0	0	0
t-2-Hexene	0.32	0	0	0	1	0	1	1	1
t-3-Methyl-2-Pentene	0.21	0	0	0	0	0	0	0	0
c-2-Hexene	0.24	0	0	0	0	0	0	0	0
c-3-Methyl-2-Pentene	0.24	0	0	0	0	0	0	1	0
2,2-Dimethylpentane	2.54	3	3	3	37	50	51	55	48
1,2-Dichloroethane	0.96	0	1	1	6	0	7	9	6
Methylcyclopentane	147.07	206	155	169		1472	1070	1424	1322
2,4-Dimethylpentane	6.03	8	6	7	79	113	108	122	105
1,1,1-Trichloroethane	0.84	0	1	1	1	0	1	1	1
2,2,3-Trimethylbutane	0.80	0	1	1	9	11	12	12	11
1-Methylcyclopentene	0.00	0	0	0	150	0	77	0	57
Benzene	4.80	7	5	6	31	44	39	44	40
Carbontetrachloride	0.69	0	1	0	1	0	1	1	1
Cyclohexane	51.90	68	55	58	615	1043	747	1009	853
2-Methylhexane	15.90	20	17	17	188	288	0	269	186
2,3-Dimethylpentane	10.22	13	11	11	134	184	174	201	173
Cyclohexene	0.00	0	0	0	4	0	0	0	1
3-Methylhexane	32.10	45	34	37	379	583	480	636	519
Dibromomethane	0.00	0	0	0	0	0	0	0	0
1,2-Dichloropropane	0.00	0	0	0	0	0	0	0	0
Bromodichloromethane	0.00	0	0	0	70	0	0	0	17
Trichloroethene	0.00	0	0	0	0	0	0	0	0
1-Heptene	0.00	0	0	0	0	0	0	0	0
2,2,4-Trimethylpentane	0.00	11	0	4	0	0	25	0	6
t-3-Heptene	0.39	0	0	0	0	0	0	0	0

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

	RS-1								
COMPOUNDS	**pre-ignition 2**				**burn 2**				
Canister ID:	REAC17	REAC17	REAC17	**AVE**	EAC16	REAC167	REAC197	REAC197	**AVE**
Sample Volume (mL) :	504	20	504		509	20	507	123	
Heptane	75.55	97	80	**84**		1360	987	1346	**1231**
t-2-Heptene	0.90	0	1	**1**	1	0	1	1	**1**
c-2-Heptene	0.64	0	1	**0**	1	0	0	1	**0**
c-1,3-Dichloropropene	0.00	0	0	**0**	0	0	0	0	**0**
2,2-Dimethylhexane	2.67	0	3	**2**	31	0	20	0	**13**
Methylcyclohexane	106.84	141	114	**121**		1938	1369	1992	**1766**
2,5-Dimethylhexane	3.04	3	3	**3**	36	47	36	49	**42**
2,4-Dimethylhexane	4.16	6	4	**5**	49	68	67	79	**66**
t-1,3-Dichloropropene	0.07	0	0	**0**	0	0	0	0	**0**
1,1,2-Trichloroethane	0.00	0	0	**0**	0	0	0	0	**0**
Bromotrichloromethane	0.00	0	0	**0**	0	0	0	0	**0**
2,3,4-Trimethylpentane	0.97	0	1	**1**	10	13	13	14	**13**
Toluene	9.90	14	10	**12**	74	107	95	108	**96**
2-Methylheptane	20.32	26	21	**22**	212	294	206	286	**250**
4-Methylheptane	6.35	0	7	**4**	69	0	91	110	**67**
1-Methylcyclohexene	0.00	0	0	**0**	0	0	0	0	**0**
Dibromochloromethane	0.00	0	0	**0**	0	0	0	0	**0**
3-Methylheptane	16.23	18	17	**17**	177	246	200	248	**218**
c-1,3-Dimethylcyclohexane	17.64	21	19	**19**	175	263	0	326	**191**
t-1,4-Dimethylcyclohexane	10.30	11	11	**10**	106	110	0	146	**90**
EDB (1,2-Dibromoethane)	0.00	0	0	**0**	0	0	0	0	**0**
2,2,5-Trimethylhexane	0.26	0	0	**0**	2	0	3	3	**2**
1-Octene	0.00	0	0	**0**	0	0	0	0	**0**
Octane	36.00	38	37	**37**	347	500	359	481	**422**
Tetrachloroethene	0.00	0	0	**0**	0	0	0	0	**0**
c-1,4/t-1,3-Dimethylcyclohexane	4.58	6	5	**5**	50	67	64	86	**67**
c-2-Octene	0.15	0	0	**0**	0	0	0	0	**0**
Chlorobenzene	0.00	0	0	**0**	0	0	0	0	**0**
Ethylbenzene	3.67	3	4	**3**	25	27	30	35	**29**
m/p-Xylene	12.30	11	13	**12**	83	95	102	116	**99**
Bromoform	0.00	0	0	**0**	0	0	0	0	**0**
1,4-Dichlorobutane	0.00	0	0	**0**	0	0	0	0	**0**
Styrene	0.94	0	1	**1**	1	0	1	1	**1**
1,1,2,2-Tetrachloroethane	0.64	0	1	**0**	0	0	0	0	**0**
o-Xylene	4.06	4	4	**4**	25	28	30	35	**29**
1-Nonene	0.00	0	0	**0**	0	0	0	0	**0**
Nonane	23.95	17	25	**22**	167	201	196	224	**197**
iso-Propylbenzene	0.76	0	1	**1**	5	6	6	7	**6**
3,6-Dimethyloctane	1.76	0	2	**1**	15	17	0	19	**13**
n-Propylbenzene	1.69	12	2	**5**	8	5	9	11	**8**
3-Ethyltoluene	4.38	3	4	**4**	20	11	21	28	**20**
4-Ethyltoluene	2.07	2	2	**2**	9	4	10	11	**8**
1,3,5-Trimethylbenzene	3.10	4	3	**3**	14	13	15	18	**15**
2-Ethyltoluene	1.92	3	2	**2**	8	7	9	10	**8**
1-Decene	0.00	0	0	**0**	0	0	0	0	**0**
1,2,4-Trimethylbenzene	9.59	8	10	**9**	31	26	33	44	**33**
Decane	20.57	13	21	**18**	80	61	87	98	**82**
1,3-Dichlorobenzene	0.00	0	0	**0**	0	0	0	0	**0**
1,4-Dichlorobenzene	0.27	0	0	**0**	0	0	0	0	**0**
iso-Butylbenzene	0.27	0	0	**0**	1	0	1	1	**1**
sec-Butylbenzene	0.50	0	1	**0**	2	0	2	3	**2**
1,2,3-Trimethylbenzene	3.42	3	3	**3**	10	10	12	14	**11**
p-Cymene	1.07	0	1	**1**	3	0	4	6	**3**
1,2-Dichlorobenzene	0.08	0	0	**0**	0	0	0	0	**0**
Indane	0.74	0	1	**0**	2	0	2	3	**2**
1,3-Diethylbenzene	0.64	0	1	**0**	2	0	2	2	**1**
1,4-Diethylbenzene	3.57	0	4	**2**	9	0	10	8	**7**
n-Butylbenzene	0.98	0	1	**1**	3	0	3	3	**2**
1,2-Diethylbenzene	0.22	0	0	**0**	1	0	1	1	**0**
Undecane	24.33	16	25	**22**	62	44	55	55	**54**
Naphthalene	5.31	0	6	**4**	12	0	7	0	**5**
Dodecane	28.44	15	30	**25**	50	34	39	23	**37**
Hexylbenzene	1.31	0	1	**1**	4	0	0	0	**1**

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	RS-2 burn 2				
Canister ID:	ESD-4	REAC212	REAC212	REAC212	AVERAGE
Sample Volume (mL) :	95	504	494	125	
TOTAL VOC	**1749**	**6966**	**8060**	**10967**	**6935**
Propene	3.33	4.69	3.99	5.53	**4.38**
Propane	0.00	69.52	144.81	116.15	**82.62**
Freon22 (Chlorodifluoromethane)	5.15	1.32	1.59	1.34	**2.35**
Propyne	0.00	0.00	0.00	0.00	**0.00**
Chloromethane	4.21	1.13	1.52	1.72	**2.15**
Isobutane (2-Methylpropane)	140.74	174.27	214.38	235.40	**191.20**
Freon114 (1,2-Dichlorotetrafluroethane)	2.04	0.35	0.51	1.26	**1.04**
Vinylchloride (Chloroethene)	0.00	0.00	0.00	0.00	**0.00**
1-Butene/2-Methylpropene	51.75	8.35	10.14	11.71	**20.48**
1,3-Butadiene	2.15	0.83	0.85	1.04	**1.22**
Butane	170.47	573.66	704.88	824.29	**568.32**
t-2-Butene	34.08	3.57	4.21	4.48	**11.58**
2,2-Dimethylpropane	0.00	2.51	3.36	3.62	**2.37**
Bromomethane	0.00	0.00	0.00	0.00	**0.00**
1-Butyne	0.00	0.00	0.00	0.00	**0.00**
c-2-Butene	28.91	2.71	3.39	3.93	**9.74**
Chloroethane	0.00	0.91	1.21	1.66	**0.95**
2-Methylbutane	227.23	798.40	932.06	1209.48	**791.79**
Freon11 (Trichlorofluoromethane)		3.65	14.13	4.14	**7.31**
1-Pentene	8.27	1.77	2.19	2.74	**3.74**
Pentane	120.75		668.32	1285.34	**691.47**
Isoprene (2-Methyl-1,3-Butadiene)	1.79	0.49	0.53	0.00	**0.70**
Ethylbromide	0.00	0.00	0.00	0.00	**0.00**
t-2-Pentene	17.19	2.89	3.42	2.66	**6.54**
1,1-Dichloroethene	0.00	0.26	0.32	0.00	**0.15**
c-2-Pentene	13.91	1.58	1.85	2.40	**4.93**
Dichloromethane	0.00	0.00	0.00	0.00	**0.00**
Freon113 (1,1,2-Trichlorotrifluoroethane	11.61	2.41	2.97	9.31	**6.57**
2,2-Dimethylbutane	4.20	20.63	24.90	28.48	**19.55**
Cyclopentene	0.00	0.00	0.00	0.00	**0.00**
t-1,2-Dichloroethene	0.00	0.00	0.35	0.00	**0.09**
1,1-Dichloroethane	0.00	1.08	1.07	0.00	**0.54**
Cyclopentane	12.10	126.78	130.73	160.76	**107.59**
2,3-Dimethylbutane	10.97	81.32	85.95	104.80	**70.76**
t-4-Methyl-2-Pentene	0.73	0.00	0.00	0.00	**0.18**
2-Methylpentane	75.03	514.35	487.15	727.03	**450.89**
c-4-Methyl-2-Pentene	3.17	0.00	0.00	0.00	**0.79**
3-Methylpentane	38.96	335.09	366.03	475.75	**303.96**
1-Hexene/2-Methyl-1-Pentene	4.25	1.56	1.83	2.38	**2.51**
c-1,2-Dichloroethene	0.00	0.00	0.00	0.00	**0.00**
Hexane	60.18	679.12	666.43	1018.22	**605.99**
Chloroform	1.00	0.00	0.00	0.00	**0.25**
t-2-Hexene	2.88	0.71	0.90	0.78	**1.32**
t-3-Methyl-2-Pentene	3.03	0.52	0.65	0.70	**1.22**
c-2-Hexene	2.14	0.63	0.69	0.56	**1.00**
c-3-Methyl-2-Pentene	3.90	0.70	0.85	0.87	**1.58**
2,2-Dimethylpentane	1.28	17.47	20.00	22.97	**15.43**
1,2-Dichloroethane	0.00	2.90	3.32	3.42	**2.41**
Methylcyclopentane	36.62	455.94	445.10	651.99	**397.41**
2,4-Dimethylpentane	3.84	41.54	43.36	52.75	**35.37**
1,1,1-Trichloroethane	4.64	1.06	1.15	1.24	**2.02**
2,2,3-Trimethylbutane	0.54	4.32	4.76	5.51	**3.78**
1-Methylcyclopentene	0.00	0.00	0.00	0.00	**0.00**
Benzene	15.90	14.50	15.97	19.44	**16.45**
Carbontetrachloride		0.69	0.76	0.76	**0.73**
Cyclohexane	20.78	342.35	339.10	457.63	**289.97**
2-Methylhexane	8.64	104.87	110.64	141.60	**91.44**
2,3-Dimethylpentane	9.14	64.99	67.13	127.18	**67.11**
Cyclohexene	0.00	0.00	0.00	0.00	**0.00**
3-Methylhexane	18.38	195.47	208.66	278.14	**175.16**
Dibromomethane	0.00	0.00	0.00	0.00	**0.00**
1,2-Dichloropropane	0.00	0.00	0.00	0.00	**0.00**
Bromodichloromethane	0.00	0.00	0.00	0.00	**0.00**
Trichloroethene	0.00	0.00	0.00	0.00	**0.00**
1-Heptene	0.00	0.00	0.00	0.00	**0.00**
2,2,4-Trimethylpentane	2.11	10.19	11.24	14.38	**9.48**
t-3-Heptene	0.40	0.00	0.39	0.18	**0.24**

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	RS-2 burn 2				
Canister ID:	ESD-4	REAC212	REAC212	REAC212	AVERAGE
Sample Volume (mL) :	95	504	494	125	
Heptane	31.77	421.60	445.11	573.21	**367.92**
t-2-Heptene	0.64	0.70	0.92	0.77	**0.76**
c-2-Heptene	0.00	0.72	0.71	1.31	**0.68**
c-1,3-Dichloropropene	0.00	0.00	0.00	0.00	**0.00**
2,2-Dimethylhexane	0.00	0.00	0.00	0.00	**0.00**
Methylcyclohexane	42.22	596.17	610.66	854.76	**525.96**
2,5-Dimethylhexane	1.80	18.76	18.80	22.53	**15.47**
2,4-Dimethylhexane	2.51	25.07	26.37	32.99	**21.74**
t-1,3-Dichloropropene	0.00	0.00	0.00	0.00	**0.00**
1,1,2-Trichloroethane	0.00	0.00	0.00	0.00	**0.00**
Bromotrichloromethane	0.00	0.00	0.00	0.00	**0.00**
2,3,4-Trimethylpentane	1.00	4.93	5.36	6.10	**4.35**
Toluene	35.80	42.89	44.80	58.20	**45.42**
2-Methylheptane	11.43	109.65	110.06	141.41	**93.14**
4-Methylheptane	0.00	37.26	36.19	0.00	**18.36**
1-Methylcyclohexene	0.00	0.00	0.00	0.00	**0.00**
Dibromochloromethane	0.00	0.00	0.00	0.00	**0.00**
3-Methylheptane	10.80	94.77	91.55	115.09	**78.05**
c-1,3-Dimethylcyclohexane	9.36	93.45	99.75	140.10	**85.67**
t-1,4-Dimethylcyclohexane	4.90	56.35	47.71	76.08	**46.26**
EDB (1,2-Dibromoethane)	0.00	0.00	0.00	0.00	**0.00**
2,2,5-Trimethylhexane	0.32	1.14	1.32	1.39	**1.04**
1-Octene	0.00	0.00	0.00	0.00	**0.00**
Octane	23.07	183.91	182.95	230.49	**155.11**
Tetrachloroethene	0.00	0.00	0.00	0.00	**0.00**
c-1,4/t-1,3-Dimethylcyclohexane	2.80	25.40	26.10	33.83	**22.03**
c-2-Octene	0.00	0.00	0.22	0.00	**0.05**
Chlorobenzene	0.00	0.00	0.00	0.00	**0.00**
Ethylbenzene	10.94	14.76	15.08	18.23	**14.75**
m/p-Xylene	37.73	48.71	50.43	61.70	**49.64**
Bromoform	0.00	0.00	0.00	0.00	**0.00**
1,4-Dichlorobutane	0.00	0.00	0.00	0.00	**0.00**
Styrene	2.33	0.79	0.82	1.17	**1.28**
1,1,2,2-Tetrachloroethane	0.00	0.00	0.00	0.73	**0.18**
o-Xylene	12.83	14.66	14.96	18.19	**15.16**
1-Nonene	0.00	0.00	0.00	0.00	**0.00**
Nonane	24.33	91.98	88.23	109.00	**78.39**
iso-Propylbenzene	1.41	2.62	2.87	3.24	**2.54**
3,6-Dimethyloctane	2.72	6.91	6.92	0.00	**4.14**
n-Propylbenzene	3.93	4.58	4.86	5.43	**4.71**
3-Ethyltoluene	12.28	11.52	12.17	13.91	**12.47**
4-Ethyltoluene	6.08	5.01	5.55	6.24	**5.72**
1,3,5-Trimethylbenzene	8.12	7.35	8.05	9.17	**8.17**
2-Ethyltoluene	5.48	4.50	4.89	5.29	**5.04**
1-Decane	0.00	0.00	0.00	0.00	**0.00**
1,2,4-Trimethylbenzene	31.30	19.65	20.02	26.46	**24.36**
Decane	37.37	41.67	41.25	47.26	**41.89**
1,3-Dichlorobenzene	0.00	0.00	0.10	0.00	**0.03**
1,4-Dichlorobenzene	1.50	0.46	0.49	0.61	**0.76**
iso-Butylbenzene	0.67	0.60	0.68	0.74	**0.67**
sec-Butylbenzene	1.10	1.10	1.21	1.28	**1.17**
1,2,3-Trimethylbenzene	10.77	6.16	6.75	7.22	**7.72**
p-Cymene	2.64	1.65	1.84	2.38	**2.13**
1,2-Dichlorobenzene	0.00	0.13	0.15	0.00	**0.07**
Indane	2.62	1.44	1.57	1.69	**1.83**
1,3-Diethylbenzene	2.15	1.02	1.15	1.25	**1.39**
1,4-Diethylbenzene	0.00	5.55	5.96	0.00	**2.88**
n-Butylbenzene	3.09	1.60	1.68	1.68	**2.01**
1,2-Diethylbenzene	0.77	0.35	0.38	0.44	**0.49**
Undecane	57.54	32.24	28.85	27.52	**36.54**
Naphthalene	8.44	5.86	5.92	0.00	**5.05**
Dodecane	54.09	33.97	24.21	14.67	**31.73**
Hexylbenzene	0.00	1.72	1.98	0.00	**0.92**

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	Downwind Station						
	pre-ignition 2			burn 2			
Canister ID:	REAC 215	REAC72	AVE	REAC219	REAC 200	REAC 200	AVE
Sample Volume (mL) :	488	504		504	488	488	
TOTAL VOC	**76**	**45**	**61**	**521**	**342**	**338**	**400**
Propene	3.41	5.57	**4.49**	6.89	5.99	5.76	**6.22**
Propane	0.00	0.00	**0.00**	1.89	1.31	0.00	**1.07**
Freon22 (Chlorodifluoromethane)	0.00	0.00	**0.00**	0.58	0.34	0.31	**0.41**
Propyne	0.00	0.00	**0.00**	0.29	0.24	0.00	**0.18**
Chloromethane	2.49	1.08	**1.78**	2.03	1.26	1.22	**1.50**
Isobutane (2-Methylpropane)	0.72	0.73	**0.73**	5.64	5.57	5.36	**5.53**
Freon114 (1,2-Dichlorotetrafluroethane)	1.89	1.32	**1.61**	0.92	0.59	0.68	**0.73**
Vinylchloride (Chloroethene)	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
1-Butene/2-Methylpropene	8.71	6.05	**7.38**	8.33	5.88	5.91	**6.71**
1,3-Butadiene	0.00	0.00	**0.00**	1.32	1.21	1.19	**1.24**
Butane	1.20	1.43	**1.31**	11.49	11.72	11.62	**11.61**
t-2-Butene	0.72	0.40	**0.56**	1.30	1.57	1.56	**1.48**
2,2-Dimethylpropane	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
Bromomethane	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
1-Butyne	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
c-2-Butene	0.00	0.33	**0.16**	1.25	1.14	1.12	**1.17**
Chloroethane	1.29	0.00	**0.64**	1.27	0.55	0.44	**0.75**
2-Methylbutane	1.80	1.91	**1.85**	30.68	33.57	33.45	**32.57**
Freon11 (Trichlorofluoromethane)	5.42		**5.42**		2.56	2.59	**2.57**
1-Pentene	0.95	1.20	**1.08**	1.11	1.31	1.25	**1.22**
Pentane	1.15	1.24	**1.19**	16.47	17.39	17.72	**17.19**
Isoprene (2-Methyl-1,3-Butadiene)	0.00	0.00	**0.00**	0.70	0.65	0.68	**0.68**
Ethylbromide	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
t-2-Pentene	0.00	0.35	**0.18**	2.06	2.09	2.19	**2.12**
1,1-Dichloroethene	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
c-2-Pentene	0.00	0.00	**0.00**	1.10	1.23	1.24	**1.19**
Dichloromethane	4.39	1.34	**2.86**	0.59	2.25	1.94	**1.60**
Freon113 (1,1,2-Trichlorotrifluoroethane	11.11	5.61	**8.36**	5.68	3.93	4.50	**4.71**
2,2-Dimethylbutane	0.00	0.00	**0.00**	3.03	3.24	3.20	**3.16**
Cyclopentene		0.00	**0.00**	0.00			**0.00**
t-1,2-Dichloroethene	0.67	0.00	**0.33**	0.00	0.25	0.00	**0.08**
1,1-Dichloroethane	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
Cyclopentane	0.00	0.00	**0.00**	2.21	2.53	2.58	**2.44**
2,3-Dimethylbutane	0.00	0.23	**0.11**	3.50	3.87	3.88	**3.75**
t-4-Methyl-2-Pentene	0.00	0.00	**0.00**	0.09	0.00	0.00	**0.03**
2-Methylpentane	9.00	0.67	**4.83**	22.12	22.67	23.64	**22.81**
c-4-Methyl-2-Pentene	0.00	0.00	**0.00**	0.68	0.74	0.71	**0.71**
3-Methylpentane	0.37	1.01	**0.69**	10.67	10.90	10.64	**10.74**
1-Hexene/2-Methyl-1-Pentene	0.94	0.99	**0.97**	1.17	1.28	1.28	**1.24**
c-1,2-Dichloroethene	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
Hexane	2.52	1.44	**1.98**	10.83	12.90	12.03	**11.92**
Chloroform	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
t-2-Hexene	0.00	0.00	**0.00**	0.85	0.91	0.93	**0.90**
t-3-Methyl-2-Pentene	0.00	0.00	**0.00**	0.67	0.71	0.71	**0.69**
c-2-Hexene	0.00	0.00	**0.00**	0.65	0.75	0.74	**0.71**
c-3-Methyl-2-Pentene	0.00	0.00	**0.00**	0.87	1.00	0.96	**0.94**
2,2-Dimethylpentane	0.00	0.00	**0.00**	0.49	0.52	0.55	**0.52**
1,2-Dichloroethane	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
Methylcyclopentane	0.54	0.45	**0.49**	6.71	7.89	7.78	**7.46**
2,4-Dimethylpentane	0.00	0.00	**0.00**	1.51	1.67	1.65	**1.61**
1,1,1-Trichloroethane	0.67	0.65	**0.66**	0.66	0.81	0.81	**0.76**
2,2,3-Trimethylbutane	0.43	0.00	**0.21**	0.40	0.35	0.32	**0.36**
1-Methylcyclopentene		0.00	**0.00**	178.30			**178.30**
Benzene	0.79	0.71	**0.75**	7.12	8.81	8.86	**8.26**
Carbontetrachloride	0.66	0.73	**0.70**	0.69	0.59	0.60	**0.63**
Cyclohexane	0.00	0.27	**0.13**	3.01	3.51	3.39	**3.30**
2-Methylhexane	0.00	0.00	**0.00**	2.82	7.37	7.49	**5.89**
2,3-Dimethylpentane	0.00	0.00	**0.00**	2.37	2.64	2.65	**2.56**
Cyclohexene		0.00	**0.00**	0.00			**0.00**
3-Methylhexane	0.00	0.87	**0.43**	5.80	6.27	6.36	**6.14**
Dibromomethane	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
1,2-Dichloropropane	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
Bromodichloromethane	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
Trichloroethene	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
1-Heptene	0.86	0.00	**0.43**	0.00	3.26	3.11	**2.12**
2,2,4-Trimethylpentane	0.52	0.34	**0.43**	1.91	1.67	1.68	**1.75**
t-3-Heptene	0.21	0.00	**0.10**	0.26	0.47	0.49	**0.41**

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

	Downwind Station						
COMPOUNDS	pre-ignition 2			burn 2			
Canister ID:	REAC 215	REAC72	AVE	REAC219	REAC 200	REAC 200	AVE
Sample Volume (mL) :	488	504		504	488	488	
Heptane	0.77	0.65	**0.71**	5.67	5.99	5.98	**5.88**
t-2-Heptene	0.00	0.00	**0.00**	0.52	0.84	0.88	**0.75**
c-2-Heptene	0.00	0.00	**0.00**	0.36	0.68	0.69	**0.57**
c-1,3-Dichloropropene	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
2,2-Dimethylhexane	0.00	0.00	**0.00**	0.22	0.25	0.24	**0.24**
Methylcyclohexane	0.00	0.00	**0.00**	3.31	3.57	3.56	**3.48**
2,5-Dimethylhexane	0.00	0.00	**0.00**	0.73	0.84	0.79	**0.78**
2,4-Dimethylhexane	0.00	0.00	**0.00**	0.93	1.00	1.00	**0.98**
t-1,3-Dichloropropene	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
1,1,2-Trichloroethane	0.00	0.62	**0.31**	0.00	0.00	0.00	**0.00**
Bromotrichloromethane	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
2,3,4-Trimethylpentane	0.00	0.00	**0.00**	0.74	0.71	0.72	**0.72**
Toluene	1.81	1.68	**1.75**	21.92	26.63	26.59	**25.05**
2-Methylheptane	0.00	0.00	**0.00**	2.42	2.59	2.66	**2.56**
4-Methylheptane	0.00	0.00	**0.00**	0.00	1.17	1.10	**0.76**
1-Methylcyclohexene		0.00	**0.00**	39.37			**39.37**
Dibromochloromethane	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
3-Methylheptane	0.00	0.00	**0.00**	3.45	3.85	3.82	**3.70**
c-1,3-Dimethylcyclohexane	0.00	0.00	**0.00**	0.63	0.63	0.63	**0.63**
t-1,4-Dimethylcyclohexane	0.00	0.00	**0.00**	0.35	0.30	0.34	**0.33**
EDB (1,2-Dibromoethane)	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
2,2,5-Trimethylhexane	0.00	0.00	**0.00**	0.23	0.24	0.24	**0.24**
1-Octene	1.04	0.59	**0.82**	0.28	0.45	0.54	**0.42**
Octane	0.42	0.37	**0.39**	2.38	2.40	2.47	**2.42**
Tetrachloroethene	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
c-1,4/t-1,3-Dimethylcyclohexane	0.00	0.00	**0.00**	0.36	0.40	0.38	**0.38**
c-2-Octene	0.00	0.00	**0.00**	0.19	0.00	0.00	**0.06**
Chlorobenzene	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
Ethylbenzene	0.43	0.42	**0.43**	5.96	7.06	7.18	**6.73**
m/p-Xylene	1.42	1.37	**1.39**	18.47	22.04	22.03	**20.85**
Bromoform	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
1,4-Dichlorobutane	0.00	0.00	**0.00**	0.00	1.50	1.01	**0.84**
Styrene	0.00	0.00	**0.00**	0.28	0.28	0.25	**0.27**
1,1,2,2-Tetrachloroethane	0.00	0.00	**0.00**	0.04	0.00	0.00	**0.01**
o-Xylene	0.52	0.48	**0.50**	6.46	8.18	8.25	**7.63**
1-Nonene	0.00	0.00	**0.00**	0.00	0.35	0.33	**0.23**
Nonane	0.52	0.21	**0.36**	1.77	1.51	1.50	**1.59**
iso-Propylbenzene	0.00	0.00	**0.00**	0.44	0.47	0.48	**0.46**
3,6-Dimethyloctane	0.00	0.00	**0.00**	0.00	0.20	0.21	**0.14**
n-Propylbenzene	0.33	0.00	**0.16**	1.80	1.87	1.87	**1.85**
3-Ethyltoluene	0.40	0.23	**0.32**	5.16	5.75	5.81	**5.57**
4-Ethyltoluene	0.21	0.15	**0.18**	2.44	2.78	2.79	**2.67**
1,3,5-Trimethylbenzene	0.29	0.20	**0.25**	2.66	2.95	2.93	**2.85**
2-Ethyltoluene	0.20	0.14	**0.17**	1.82	2.03	2.03	**1.96**
1-Decene	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
1,2,4-Trimethylbenzene	0.94	0.49	**0.71**	8.28	9.49	9.58	**9.12**
Decane	0.61	0.24	**0.43**	1.31	1.10	1.12	**1.18**
1,3-Dichlorobenzene	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
1,4-Dichlorobenzene	0.00	0.00	**0.00**	0.09	0.00	0.00	**0.03**
iso-Butylbenzene	0.00	0.00	**0.00**	0.14	0.15	0.15	**0.14**
sec-Butylbenzene	0.00	0.00	**0.00**	0.14	0.15	0.15	**0.15**
1,2,3-Trimethylbenzene	0.27	0.20	**0.24**	1.75	1.86	1.89	**1.83**
p-Cymene	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
1,2-Dichlorobenzene	0.00	0.00	**0.00**	0.00	0.00	0.00	**0.00**
Indane	0.00	0.00	**0.00**	0.79	0.91	0.91	**0.87**
1,3-Diethylbenzene	0.00	0.00	**0.00**	0.42	0.45	0.44	**0.44**
1,4-Diethylbenzene	0.00	0.00	**0.00**	0.00	2.32	2.29	**1.54**
n-Butylbenzene	0.00	0.00	**0.00**	0.38	0.38	0.39	**0.38**
1,2-Diethylbenzene	0.00	0.00	**0.00**	0.11	0.13	0.12	**0.12**
Undecane	0.75	0.00	**0.37**	1.28	1.02	1.04	**1.11**
Naphthalene	1.01	0.00	**0.50**	1.78	1.46	1.53	**1.59**
Dodecane	0.90	0.31	**0.61**	1.45	1.10	0.97	**1.17**
Hexylbenzene	0.00	0.00	**0.00**	0.83	2.28	0.00	**1.04**

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

	CCG 203		CCG 204	
COMPOUNDS	**pre-ignition 2**	**burn 2**	**pre-ignition 2**	**burn 2**
Canister ID:	REAC162	ESD-3	REAC 184	ESD-13
Sample Volume (mL) :	490	520	488	490
TOTAL VOC	**3345**	**750**	**90**	**19**
Propene	44.96	6.99	4.93	0.40
Propane	8.52	0.00	1.11	0.43
Freon22 (Chlorodifluoromethane)	0.17	0.45	0.43	0.00
Propyne	3.06	0.36	0.00	0.00
Chloromethane	1.03	0.73	1.44	0.95
Isobutane (2-Methylpropane)	59.48	15.77	1.94	0.86
Freon114 (1,2-Dichlorotetrafluoroethane)	0.39	0.66	0.85	0.45
Vinylchloride (Chloroethene)	0.00	0.00	0.00	0.00
1-Butene/2-Methylpropene	37.70	14.47	6.94	0.54
1,3-Butadiene	12.90	4.75	0.62	0.00
Butane	118.63	30.56	3.14	0.92
t-2-Butene	12.22	3.99	0.82	0.00
2,2-Dimethylpropane	0.72	0.18	0.00	0.00
Bromomethane	0.00	0.00	0.00	0.00
1-Butyne	0.50	0.00	0.00	0.00
c-2-Butene	12.98	3.61	0.60	0.00
Chloroethane	0.00	0.00	0.88	0.00
2-Methylbutane	365.99	90.24	3.51	1.23
Freon11 (Trichlorofluoromethane)	4.54	2.05	8.56	2.42
1-Pentene	9.49	2.41	1.36	0.04
Pentane	170.60	40.20	1.79	0.56
Isoprene (2-Methyl-1,3-Butadiene)	7.81	2.39	0.00	0.00
Ethylbromide	0.00	0.00	0.00	0.00
t-2-Pentene	19.54	4.74	0.36	0.00
1,1-Dichloroethene	0.00	0.00	0.00	0.00
c-2-Pentene	17.68	3.90	0.00	0.00
Dichloromethane	2.32	3.92	3.70	1.75
Freon113 (1,1,2-Trichlorotrifluoroethane	2.31	4.10	4.38	2.80
2,2-Dimethylbutane	41.34	9.41	0.00	0.00
Cyclopentene	0.00	0.00		0.00
t-1,2-Dichloroethene	0.00	0.00	0.52	0.00
1,1-Dichloroethane	0.22	0.00	0.00	0.00
Cyclopentane	29.48	6.65	0.00	0.00
2,3-Dimethylbutane	48.90	10.22	0.30	0.12
t-4-Methyl-2-Pentene	1.32	0.29	0.00	0.00
2-Methylpentane	168.63	45.27	7.53	0.39
c-4-Methyl-2-Pentene	7.71	1.43	0.00	0.00
3-Methylpentane	114.66	27.70	0.80	0.33
1-Hexene/2-Methyl-1-Pentene	11.93	2.60	1.05	0.00
c-1,2-Dichloroethene	0.00	0.00	0.00	0.00
Hexane	109.72	31.53	2.50	0.69
Chloroform	0.00	0.32	0.00	0.18
t-2-Hexene	9.07	2.00	0.00	0.00
t-3-Methyl-2-Pentene	8.85	1.62	0.00	0.00
c-2-Hexene	6.36	1.32	0.00	0.00
c-3-Methyl-2-Pentene	11.83	2.37	0.00	0.00
2,2-Dimethylpentane	6.47	1.41	0.00	0.00
1,2-Dichloroethane	0.39	0.00	0.00	0.00
Methylcyclopentane	81.58	17.60	0.68	0.22
2,4-Dimethylpentane	22.12	4.45	0.00	0.00
1,1,1-Trichloroethane	0.88	0.93	0.74	0.74
2,2,3-Trimethylbutane	1.66	0.38	0.32	0.00
1-Methylcyclopentene	0.00	0.00		0.00
Benzene	101.32	22.37	1.61	0.29
Carbontetrachloride	0.71	0.72	0.62	0.71
Cyclohexane	36.79	7.86	0.47	0.00
2-Methylhexane	39.84	6.68	0.00	0.00
2,3-Dimethylpentane	34.79	0.00	0.00	0.00
Cyclohexene	0.00	0.00		0.00
3-Methylhexane	72.26	13.49	0.00	0.00
Dibromomethane	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.00	0.00	0.00	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00
Trichloroethene	0.00	0.00	0.00	0.00
1-Heptene	0.00	0.00	1.03	0.00
2,2,4-Trimethylpentane	28.95	7.07	0.40	0.10
t-3-Heptene	1.11	0.27	0.70	0.00

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

	CCG 203		CCG 204	
COMPOUNDS	pre-ignition 2	burn 2	pre-ignition 2	burn 2
Canister ID:	REAC162	ESD-3	REAC 184	ESD-13
Sample Volume (mL) :	490	520	488	490
Heptane	56.37	11.95	0.71	0.15
t-2-Heptene	4.16	0.81	1.46	0.00
c-2-Heptene	5.21	0.89	1.00	0.00
c-1,3-Dichloropropene	0.00	0.00	0.00	0.00
2,2-Dimethylhexane	2.68	0.59	0.00	0.00
Methylcyclohexane	34.19	6.07	0.38	0.00
2,5-Dimethylhexane	10.98	2.29	0.00	0.00
2,4-Dimethylhexane	13.64	2.25	0.00	0.00
t-1,3-Dichloropropene	0.00	0.00	0.00	0.00
1,1,2-Trichloroethane	0.00	0.00	0.00	0.00
Bromotrichloromethane	0.00	0.00	0.00	0.00
2,3,4-Trimethylpentane	15.02	3.11	0.00	0.00
Toluene	298.82	67.78	2.91	0.79
2-Methylheptane	27.95	6.04	0.22	0.00
4-Methylheptane	12.32	0.00	0.00	0.00
1-Methylcyclohexene	0.00	0.00		0.00
Dibromochloromethane	0.00	0.00	0.00	0.00
3-Methylheptane	42.88	8.47	0.00	0.00
c-1,3-Dimethylcyclohexane	5.57	0.77	0.00	0.00
t-1,4-Dimethylcyclohexane	3.13	0.00	0.00	0.00
EDB (1,2-Dibromoethane)	0.00	0.00	0.00	0.00
2,2,5-Trimethylhexane	4.92	1.06	0.00	0.00
1-Octene	0.00	0.00	0.68	0.00
Octane	21.70	4.36	0.40	0.09
Tetrachloroethene	0.00	0.00	0.00	0.00
c-1,4/t-1,3-Dimethylcyclohexane	4.12	0.65	0.00	0.00
c-2-Octene	3.16	0.54	0.00	0.00
Chlorobenzene	0.00	0.00	0.00	0.00
Ethylbenzene	77.85	17.25	0.56	0.16
m/p-Xylene	239.66	53.36	1.86	0.49
Bromoform	0.00	0.00	0.00	0.00
1,4-Dichlorobutane	0.00	0.00	0.00	0.00
Styrene	4.72	0.55	0.00	0.00
1,1,2,2-Tetrachloroethane	0.34	0.00	0.00	0.00
o-Xylene	80.45	18.21	0.64	0.17
1-Nonene	0.00	0.00	0.00	0.00
Nonane	10.90	1.90	0.37	0.00
iso-Propylbenzene	5.39	1.03	0.00	0.00
3,6-Dimethyloctane	2.18	0.41	0.00	0.00
n-Propylbenzene	20.70	4.40	0.23	0.03
3-Ethyltoluene	67.44	14.48	0.36	0.06
4-Ethyltoluene	33.83	6.69	0.20	0.00
1,3,5-Trimethylbenzene	35.35	6.91	0.25	0.07
2-Ethyltoluene	24.48	5.10	0.18	0.06
1-Decene	0.00	0.00	0.00	0.00
1,2,4-Trimethylbenzene	104.98	21.89	0.71	0.15
Decane	8.29	1.15	0.31	0.00
1,3-Dichlorobenzene	0.00	0.00	0.00	0.00
1,4-Dichlorobenzene	0.16	0.13	0.00	0.00
iso-Butylbenzene	1.72	0.35	0.00	0.00
sec-Butylbenzene	1.74	0.31	0.00	0.00
1,2,3-Trimethylbenzene	23.15	4.64	0.23	0.00
p-Cymene	1.13	0.00	0.00	0.00
1,2-Dichlorobenzene	0.00	0.00	0.00	0.00
Indane	12.50	1.99	0.00	0.00
1,3-Diethylbenzene	6.79	1.14	0.00	0.00
1,4-Diethylbenzene	33.84	0.00	0.28	0.00
n-Butylbenzene	5.55	0.81	0.00	0.00
1,2-Diethylbenzene	1.23	0.26	0.00	0.00
Undecane	12.04	1.27	0.51	0.00
Naphthalene	34.66	2.59	0.00	0.00
Dodecane	13.19	2.02	1.01	0.08
Hexylbenzene	1.46	0.84	8.37	0.00

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	CCG 212					
	pre-ignition 2			burn 2		
Canister ID:	REAC193	REAC193	AVE	REAC194	REAC194	AVE
Sample Volume (mL) :	495	502		502	495	
TOTAL VOC	**252**	**180**	**216**	**66**	**95**	**80**
Propene	129.49	71.03	100.26	23.98	49.66	36.82
Propane	0.00	0.00	0.00	0.00	0.00	0.00
Freon22 (Chlorodifluoromethane)	3.16	1.87	2.51	0.67	1.15	0.91
Propyne	0.00	0.00	0.00	0.00	0.00	0.00
Chloromethane	2.16	2.13	2.14	1.72	1.73	1.72
Isobutane (2-Methylpropane)	1.23	0.73	0.98	0.30	0.36	0.33
Freon114 (1,2-Dichlorotetrafluroethane)	2.01	0.76	1.39	0.57	0.62	0.59
Vinylchloride (Chloroethene)	0.00	0.00	0.00	0.00	0.00	0.00
1-Butene/2-Methylpropene	18.33	18.37	18.35	7.21	6.87	7.04
1,3-Butadiene	2.32	1.40	1.86	0.43	0.68	0.55
Butane	2.03	1.43	1.73	0.61	0.76	0.69
t-2-Butene	1.35	1.08	1.22	0.46	0.56	0.51
2,2-Dimethylpropane	0.00	0.00	0.00	0.00	0.00	0.00
Bromomethane	0.00	0.00	0.00	0.00	0.00	0.00
1-Butyne	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Butene	1.15	1.11	1.13	0.62	0.59	0.61
Chloroethane	2.31	2.38	2.34	1.38	1.38	1.38
2-Methylbutane	2.34	1.65	2.00	0.57	0.66	0.62
Freon11 (Trichlorofluoromethane)	2.20	1.97	2.09	1.85	2.00	1.93
1-Pentene	4.46	4.45	4.45	1.23	1.17	1.20
Pentane	1.80	1.22	1.51	0.45	0.48	0.47
Isoprene (2-Methyl-1,3-Butadiene)	0.00	0.00	0.00	0.00	0.00	0.00
Ethylbromide	0.00	0.00	0.00	0.00	0.00	0.00
t-2-Pentene	0.90	0.40	0.65	0.09	0.00	0.05
1,1-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
Dichloromethane	6.40	5.76	6.08	1.52	1.81	1.66
Freon113 (1,1,2-Trichlorotrifluoroethane	12.23	9.83	11.03	3.55	4.39	3.97
2,2-Dimethylbutane	0.00	0.00	0.00	0.00	0.00	0.00
Cyclopentene	0.00	0.00	0.00	0.00	0.00	0.00
t-1,2-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
1,1-Dichloroethane	0.00	0.00	0.00	0.00	0.00	0.00
Cyclopentane	0.00	0.00	0.00	0.00	0.00	0.00
2,3-Dimethylbutane	0.00	0.00	0.00	0.00	0.00	0.00
t-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
2-Methylpentane	7.05	5.74	6.40	1.62	2.01	1.81
c-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylpentane	0.84	2.23	1.54	0.09	0.00	0.05
1-Hexene/2-Methyl-1-Pentene	3.58	4.05	3.81	1.25	1.18	1.22
c-1,2-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
Hexane	3.61	2.55	3.08	0.50	0.80	0.65
Chloroform	0.00	0.00	0.00	0.00	0.00	0.00
t-2-Hexene	0.00	0.31	0.15	0.00	0.00	0.00
t-3-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Hexene	0.00	0.00	0.00	0.00	0.00	0.00
c-3-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
2,2-Dimethylpentane	0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichloroethane	0.00	0.00	0.00	0.00	0.00	0.00
Methylcyclopentane	0.68	0.53	0.61	0.00	0.00	0.00
2,4-Dimethylpentane	0.00	0.00	0.00	0.00	0.00	0.00
1,1,1-Trichloroethane	1.08	0.99	1.03	0.74	0.79	0.76
2,2,3-Trimethylbutane	2.19	1.79	1.99	0.38	0.42	0.40
1-Methylcyclopentene	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	1.04	0.85	0.94	0.31	0.38	0.35
Carbontetrachloride	0.76	0.68	0.72	0.74	0.79	0.76
Cyclohexane	1.14	0.98	1.06	0.00	0.30	0.15
2-Methylhexane	0.00	0.00	0.00	0.00	0.00	0.00
2,3-Dimethylpentane	0.00	0.00	0.00	0.00	0.00	0.00
Cyclohexene	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylhexane	0.00	0.00	0.00	0.00	0.00	0.00
Dibromomethane	0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.00	0.00	0.00	0.00	0.00	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Trichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
1-Heptene	3.14	4.59	3.86	1.46	0.00	0.73
2,2,4-Trimethylpentane	1.19	0.91	1.05	0.37	0.46	0.41
t-3-Heptene	2.45	0.83	1.64	0.21	0.58	0.40

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	CCG 212 pre-ignition 2			burn 2		
Canister ID:	REAC193	REAC193	AVE	REAC194	REAC194	AVE
Sample Volume (mL) :	495	502		502	495	
Heptane	0.57	1.04	**0.81**	0.15	0.43	**0.29**
t-2-Heptene	5.02	3.73	**4.37**	0.88	1.12	**1.00**
c-2-Heptene	2.61	6.28	**4.44**	1.83	0.78	**1.31**
c-1,3-Dichloropropene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,2-Dimethylhexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Methylcyclohexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,5-Dimethylhexane	1.14	0.00	**0.57**	0.00	0.00	**0.00**
2,4-Dimethylhexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
t-1,3-Dichloropropene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,1,2-Trichloroethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Bromotrichloromethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,3,4-Trimethylpentane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Toluene	3.10	2.30	**2.70**	0.50	0.74	**0.62**
2-Methylheptane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
4-Methylheptane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1-Methylcyclohexene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Dibromochloromethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
3-Methylheptane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-1,3-Dimethylcyclohexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
t-1,4-Dimethylcyclohexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
EDB (1,2-Dibromoethane)	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,2,5-Trimethylhexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1-Octene	1.68	4.45	**3.06**	2.26	0.72	**1.49**
Octane	0.58	0.54	**0.56**	0.19	0.20	**0.19**
Tetrachloroethene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-1,4/t-1,3-Dimethylcyclohexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-2-Octene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Chlorobenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Ethylbenzene	0.64	0.53	**0.59**	0.11	0.18	**0.14**
m/p-Xylene	2.20	1.77	**1.98**	0.34	0.65	**0.49**
Bromoform	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,4-Dichlorobutane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Styrene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,1,2,2-Tetrachloroethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
o-Xylene	0.75	0.56	**0.65**	0.10	0.21	**0.16**
1-Nonene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Nonane	0.84	0.62	**0.73**	0.24	0.28	**0.26**
iso-Propylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
3,6-Dimethyloctane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
n-Propylbenzene	0.49	0.39	**0.44**	0.26	0.28	**0.27**
3-Ethyltoluene	0.47	0.29	**0.38**	0.08	0.15	**0.11**
4-Ethyltoluene	0.15	0.21	**0.18**	0.05	0.09	**0.07**
1,3,5-Trimethylbenzene	0.39	0.30	**0.34**	0.06	0.09	**0.08**
2-Ethyltoluene	0.24	0.16	**0.20**	0.05	0.07	**0.06**
1-Decene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2,4-Trimethylbenzene	3.98	0.72	**2.35**	3.12	4.54	**3.83**
Decane	0.87	0.61	**0.74**	0.24	0.36	**0.30**
1,3-Dichlorobenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,4-Dichlorobenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
iso-Butylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
sec-Butylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2,3-Trimethylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
p-Cymene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2-Dichlorobenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Indane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,3-Diethylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,4-Diethylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
n-Butylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2-Diethylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Undecane	0.94	0.58	**0.76**	0.27	0.40	**0.33**
Naphthalene	0.00	0.00	**0.00**	0.00	0.19	**0.10**
Dodecane	0.43	0.28	**0.35**	0.25	0.41	**0.33**
Hexylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	CCG 214 pre-ignition 2	CCG 214 burn 2	Ann Harvey pre-ignition 2	Ann Harvey burn 2
Canister ID:	REAC190	REAC189	REAC66	ESD-1
Sample Volume (mL) :	511	495	495	504
TOTAL VOC	**1406**	**1189**	**78**	**27**
Propene	25.69	6.11	0.00	0.00
Propane	55.16	9.23	0.00	0.00
Freon22 (Chlorodifluoromethane)	0.95	0.00	2.21	0.68
Propyne	0.00	0.14	0.00	0.00
Chloromethane	3.59	1.27	0.86	0.88
Isobutane (2-Methylpropane)	46.93	27.65	1.53	1.01
Freon114 (1,2-Dichlorotetrafluroethane)	1.75	0.35	1.94	0.71
Vinylchloride (Chloroethene)	0.00	0.00	0.00	0.00
1-Butene/2-Methylpropene	25.07	11.19	4.78	0.76
1,3-Butadiene	2.40	2.07	0.00	0.00
Butane	152.29	85.47	2.52	0.48
t-2-Butene	1.39	2.00	0.54	0.00
2,2-Dimethylpropane	0.63	0.78	0.00	0.00
Bromomethane	0.00	0.00	0.00	0.00
1-Butyne	0.00	0.00	0.00	0.00
c-2-Butene	1.46	2.49	0.00	0.00
Chloroethane	3.31	0.77	0.00	0.00
2-Methylbutane	160.73	126.15	7.19	0.72
Freon11 (Trichlorofluoromethane)	3.44	1.86		3.04
1-Pentene	3.50	2.23	0.59	0.09
Pentane	168.00	97.37	3.25	0.52
Isoprene (2-Methyl-1,3-Butadiene)	1.08	0.99	0.00	0.00
Ethylbromide	0.00	0.00	0.00	0.00
t-2-Pentene	0.39	1.47	0.00	0.00
1,1-Dichloroethene	0.00	0.00	0.80	0.00
c-2-Pentene	0.56	1.92	0.00	0.00
Dichloromethane	4.41	0.39	4.76	3.64
Freon113 (1,1,2-Trichlorotrifluoroethane	14.50	1.30	9.27	4.39
2,2-Dimethylbutane	3.21	4.55	0.00	0.00
Cyclopentene	0.00	0.00	0.00	0.00
t-1,2-Dichloroethene	0.61	0.00	0.00	0.00
1,1-Dichloroethane	0.00	0.00	0.00	0.00
Cyclopentane	17.25	10.13	0.00	0.00
2,3-Dimethylbutane	10.26	8.87	0.00	0.00
t-4-Methyl-2-Pentene	0.00	0.21	0.00	0.00
2-Methylpentane	122.72	62.18	1.01	0.34
c-4-Methyl-2-Pentene	0.00	0.78	0.00	0.00
3-Methylpentane	51.46	35.45	1.16	0.60
1-Hexene/2-Methyl-1-Pentene	3.49	2.08	0.00	0.00
c-1,2-Dichloroethene	0.00	0.00	0.00	0.00
Hexane	107.62	70.71	5.83	1.59
Chloroform	0.00	0.00	0.00	0.00
t-2-Hexene	0.33	0.61	0.00	0.00
t-3-Methyl-2-Pentene	0.00	0.70	0.00	0.00
c-2-Hexene	0.29	0.52	0.00	0.00
c-3-Methyl-2-Pentene	0.19	1.03	0.00	0.00
2,2-Dimethylpentane	2.04	1.94	0.00	0.00
1,2-Dichloroethane	0.00	0.35	0.00	0.00
Methylcyclopentane	61.30	44.81	1.15	0.40
2,4-Dimethylpentane	4.36	4.85	0.00	0.00
1,1,1-Trichloroethane	0.96	0.57	4.05	0.99
2,2,3-Trimethylbutane	1.50	0.80	0.00	0.00
1-Methylcyclopentene	0.00	0.00	0.00	0.00
Benzene	2.47	10.66	0.92	0.28
Carbontetrachloride	0.76	0.54	0.67	0.68
Cyclohexane	39.51	32.04	0.78	0.30
2-Methylhexane	11.30	11.48	0.00	0.00
2,3-Dimethylpentane	6.72	8.71	0.00	0.00
Cyclohexene	0.00	0.00	0.00	0.00
3-Methylhexane	20.47	24.85	1.26	0.00
Dibromomethane	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.00	0.00	0.00	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00
Trichloroethene	0.00	0.00	0.00	0.00
1-Heptene	0.00	0.00	0.00	0.00
2,2,4-Trimethylpentane	0.00	3.01	0.33	0.13
t-3-Heptene	0.66	0.17	0.00	0.00

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

	CCG 214		Ann Harvey	
COMPOUNDS	pre-ignition 2	burn 2	pre-ignition 2	burn 2
Canister ID:	REAC190	REAC189	REAC66	ESD-1
Sample Volume (mL) :	511	495	495	504
Heptane	47.10	50.41	1.09	0.28
t-2-Heptene	2.88	0.67	0.00	0.00
c-2-Heptene	4.57	1.84	0.00	0.00
c-1,3-Dichloropropene	0.00	0.00	0.00	0.00
2,2-Dimethylhexane	0.00	1.95	0.00	0.00
Methylcyclohexane	61.13	68.08	0.57	0.00
2,5-Dimethylhexane	2.06	2.98	0.00	0.00
2,4-Dimethylhexane	2.25	3.93	0.00	0.00
t-1,3-Dichloropropene	0.00	0.00	0.00	0.00
1,1,2-Trichloroethane	0.00	0.00	0.00	0.00
Bromotrichloromethane	0.00	0.00	0.00	0.00
2,3,4-Trimethylpentane	0.45	1.51	0.00	0.00
Toluene	6.46	38.07	3.92	0.63
2-Methylheptane	10.44	16.70	0.00	0.00
4-Methylheptane	2.64	0.00	0.00	0.00
1-Methylcyclohexene	0.00	0.00	0.00	0.00
Dibromochloromethane	0.00	0.00	0.00	0.00
3-Methylheptane	6.91	16.32	0.00	0.00
c-1,3-Dimethylcyclohexane	7.40	12.94	0.00	0.00
t-1,4-Dimethylcyclohexane	3.90	6.79	0.00	0.00
EDB (1,2-Dibromoethane)	0.00	0.00	0.00	0.00
2,2,5-Trimethylhexane	0.12	0.46	0.00	0.00
1-Octene	4.28	0.00	0.00	0.00
Octane	14.75	29.56	0.63	0.21
Tetrachloroethene	0.00	0.00	0.00	0.00
c-1,4/t-1,3-Dimethylcyclohexane	1.71	4.02	0.00	0.00
c-2-Octene	2.10	0.83	0.00	0.00
Chlorobenzene	0.00	0.00	0.00	0.00
Ethylbenzene	1.57	11.77	0.70	0.26
m/p-Xylene	5.33	38.62	1.92	0.78
Bromoform	0.00	0.00	0.00	0.00
1,4-Dichlorobutane	0.78	0.00	0.00	0.00
Styrene	0.24	0.30	0.00	0.00
1,1,2,2-Tetrachloroethane	0.00	0.00	0.00	0.00
o-Xylene	1.68	13.21	0.77	0.28
1-Nonene	0.00	0.00	0.00	0.00
Nonane	6.83	23.77	0.60	0.22
iso-Propylbenzene	0.32	1.31	0.00	0.00
3,6-Dimethyloctane	0.00	2.25	0.00	0.00
n-Propylbenzene	1.14	3.91	0.21	0.11
3-Ethyltoluene	1.59	11.83	0.44	0.21
4-Ethyltoluene	0.74	5.78	0.33	0.11
1,3,5-Trimethylbenzene	1.09	6.74	0.27	0.10
2-Ethyltoluene	0.70	4.48	0.33	0.16
1-Decene	0.00	0.00	0.00	0.00
1,2,4-Trimethylbenzene	17.23	20.11	0.97	0.44
Decane	5.02	16.13	0.55	0.22
1,3-Dichlorobenzene	0.00	0.00	0.00	0.00
1,4-Dichlorobenzene	0.29	0.00	0.00	0.00
iso-Butylbenzene	0.00	0.45	0.00	0.00
sec-Butylbenzene	0.18	0.62	0.00	0.00
1,2,3-Trimethylbenzene	1.11	5.19	0.30	0.16
p-Cymene	0.63	0.84	0.00	0.00
1,2-Dichlorobenzene	0.00	0.00	0.00	0.00
Indane	0.29	1.88	0.00	0.00
1,3-Diethylbenzene	0.28	1.27	0.00	0.00
1,4-Diethylbenzene	1.06	0.00	0.00	0.00
n-Butylbenzene	0.40	1.47	0.00	0.00
1,2-Diethylbenzene	0.00	0.30	0.00	0.00
Undecane	8.67	14.65	0.37	0.00
Naphthalene	0.00	4.00	0.00	0.00
Dodecane	11.05	12.05	0.44	0.39
Hexylbenzene	10.08	3.09	6.57	0.00

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	SWG pre-ignition 2	SWG burn 2		
Canister ID:	REAC191	REAC192	REAC192	AVERAGE
Sample Volume (mL) :	502	502	502	
TOTAL VOC	**208**	**73**	**72**	**73**
Propene	68.85	16.37	11.80	14.09
Propane	0.00	0.00	0.00	0.00
Freon22 (Chlorodifluoromethane)	2.02	0.58	1.18	0.88
Propyne	0.00	0.00	0.00	0.00
Chloromethane	3.42	1.35	1.29	1.32
Isobutane (2-Methylpropane)	0.62	0.38	0.23	0.31
Freon114 (1,2-Dichlorotetrafluroethane)	2.12	1.31	0.71	1.01
Vinylchloride (Chloroethene)	0.00	0.00	0.00	0.00
1-Butene/2-Methylpropene	18.42	8.19	8.68	8.44
1,3-Butadiene	1.67	0.37	0.52	0.44
Butane	1.27	0.35	0.35	0.35
t-2-Butene	0.82	0.43	0.33	0.38
2,2-Dimethylpropane	0.00	0.00	0.00	0.00
Bromomethane	0.00	0.00	0.00	0.00
1-Butyne	0.00	0.00	0.00	0.00
c-2-Butene	1.06	0.51	0.46	0.48
Chloroethane	2.65	0.94	0.92	0.93
2-Methylbutane	0.55	0.30	0.23	0.26
Freon11 (Trichlorofluoromethane)	1.98	1.86	1.86	1.86
1-Pentene	4.31	2.08	2.15	2.12
Pentane	0.72	0.34	0.37	0.35
Isoprene (2-Methyl-1,3-Butadiene)	0.00	0.00	0.00	0.00
Ethylbromide	0.00	0.00	0.00	0.00
t-2-Pentene	0.00	0.12	0.00	0.06
1,1-Dichloroethene	0.00	0.00	0.00	0.00
c-2-Pentene	0.00	0.00	0.00	0.00
Dichloromethane	1.91	1.02	0.83	0.93
Freon113 (1,1,2-Trichlorotrifluoroethane	11.28	8.77	4.01	6.39
2,2-Dimethylbutane	0.00	0.00	0.00	0.00
Cyclopentene	0.00	0.00	0.00	0.00
t-1,2-Dichloroethene	0.00	0.00	0.00	0.00
1,1-Dichloroethane	0.00	0.00	0.00	0.00
Cyclopentane	0.00	0.00	0.00	0.00
2,3-Dimethylbutane	0.00	0.00	0.00	0.00
t-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00
2-Methylpentane	2.73	2.42	2.80	2.61
c-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00
3-Methylpentane	0.00	0.00	0.00	0.00
1-Hexene/2-Methyl-1-Pentene	4.08	2.07	2.19	2.13
c-1,2-Dichloroethene	0.00	0.00	0.00	0.00
Hexane	1.13	0.63	0.51	0.57
Chloroform	0.00	0.00	0.00	0.00
t-2-Hexene	0.00	0.00	0.00	0.00
t-3-Methyl-2-Pentene	0.00	0.00	0.00	0.00
c-2-Hexene	0.00	0.00	0.00	0.00
c-3-Methyl-2-Pentene	0.00	0.00	0.00	0.00
2,2-Dimethylpentane	0.00	0.00	0.00	0.00
1,2-Dichloroethane	0.00	0.00	0.00	0.00
Methylcyclopentane	0.00	0.00	0.00	0.00
2,4-Dimethylpentane	0.00	0.00	0.00	0.00
1,1,1-Trichloroethane	1.53	0.89	0.89	0.89
2,2,3-Trimethylbutane	0.66	0.71	0.73	0.72
1-Methylcyclopentene	0.00	0.00	0.00	0.00
Benzene	0.55	0.24	0.25	0.24
Carbontetrachloride	0.65	0.72	0.74	0.73
Cyclohexane	0.00	0.00	0.00	0.00
2-Methylhexane	0.00	0.00	0.00	0.00
2,3-Dimethylpentane	0.00	0.00	0.00	0.00
Cyclohexene	0.00	0.00	0.00	0.00
3-Methylhexane	0.00	0.00	0.00	0.00
Dibromomethane	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.00	0.00	0.00	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00
Trichloroethene	0.00	0.00	0.00	0.00
1-Heptene	6.31	2.38	2.82	2.60
2,2,4-Trimethylpentane	0.90	0.44	0.52	0.48
t-3-Heptene	0.51	0.27	0.24	0.26

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

	SWG			
COMPOUNDS	**pre-ignition 2**	**burn 2**		
Canister ID:	**REAC191**	REAC192	REAC192	**AVERAGE**
Sample Volume (mL) :	**502**	502	502	
Heptane	**0.39**	0.35	0.40	**0.37**
t-2-Heptene	**2.91**	1.50	1.22	**1.36**
c-2-Heptene	**7.06**	3.08	2.77	**2.93**
c-1,3-Dichloropropene	**0.00**	0.00	0.00	**0.00**
2,2-Dimethylhexane	**0.00**	0.00	0.00	**0.00**
Methylcyclohexane	**0.00**	0.00	0.00	**0.00**
2,5-Dimethylhexane	**0.00**	0.00	0.00	**0.00**
2,4-Dimethylhexane	**0.00**	0.00	0.00	**0.00**
t-1,3-Dichloropropene	**0.00**	0.00	0.00	**0.00**
1,1,2-Trichloroethane	**0.00**	0.00	0.00	**0.00**
Bromotrichloromethane	**0.00**	0.00	0.00	**0.00**
2,3,4-Trimethylpentane	**0.00**	0.00	0.00	**0.00**
Toluene	**1.05**	0.45	0.43	**0.44**
2-Methylheptane	**0.00**	0.00	0.00	**0.00**
4-Methylheptane	**0.00**	0.00	0.00	**0.00**
1-Methylcyclohexene	**0.00**	0.00	0.00	**0.00**
Dibromochloromethane	**0.00**	0.00	0.00	**0.00**
3-Methylheptane	**0.00**	0.00	0.00	**0.00**
c-1,3-Dimethylcyclohexane	**0.00**	0.00	0.00	**0.00**
t-1,4-Dimethylcyclohexane	**0.00**	0.00	0.00	**0.00**
EDB (1,2-Dibromoethane)	**0.00**	0.00	0.00	**0.00**
2,2,5-Trimethylhexane	**0.00**	0.00	0.00	**0.00**
1-Octene	**13.17**	3.97	5.85	**4.91**
Octane	**0.39**	0.21	0.16	**0.19**
Tetrachloroethene	**0.00**	0.00	0.00	**0.00**
c-1,4/t-1,3-Dimethylcyclohexane	**0.00**	0.00	0.00	**0.00**
c-2-Octene	**0.00**	0.00	0.00	**0.00**
Chlorobenzene	**0.00**	0.00	0.00	**0.00**
Ethylbenzene	**0.38**	0.08	0.08	**0.08**
m/p-Xylene	**1.28**	0.36	0.33	**0.35**
Bromoform	**0.00**	0.00	0.00	**0.00**
1,4-Dichlorobutane	**0.00**	0.00	0.00	**0.00**
Styrene	**0.00**	0.00	0.00	**0.00**
1,1,2,2-Tetrachloroethane	**0.00**	0.00	0.00	**0.00**
o-Xylene	**0.37**	0.11	0.10	**0.11**
1-Nonene	**25.24**	5.31	11.34	**8.32**
Nonane	**0.55**	0.23	0.25	**0.24**
iso-Propylbenzene	**0.00**	0.00	0.00	**0.00**
3,6-Dimethyloctane	**0.00**	0.00	0.00	**0.00**
n-Propylbenzene	**0.59**	0.16	0.19	**0.17**
3-Ethyltoluene	**0.23**	0.12	0.12	**0.12**
4-Ethyltoluene	**0.14**	0.08	0.07	**0.08**
1,3,5-Trimethylbenzene	**0.24**	0.12	0.11	**0.11**
2-Ethyltoluene	**0.11**	0.06	0.06	**0.06**
1-Decene	**0.00**	0.00	0.00	**0.00**
1,2,4-Trimethylbenzene	**8.45**	0.27	0.34	**0.30**
Decane	**0.77**	0.19	0.16	**0.17**
1,3-Dichlorobenzene	**0.00**	0.00	0.00	**0.00**
1,4-Dichlorobenzene	**0.00**	0.00	0.00	**0.00**
iso-Butylbenzene	**0.00**	0.00	0.00	**0.00**
sec-Butylbenzene	**0.00**	0.00	0.00	**0.00**
1,2,3-Trimethylbenzene	**0.00**	0.00	0.00	**0.00**
p-Cymene	**0.00**	0.00	0.00	**0.00**
1,2-Dichlorobenzene	**0.00**	0.00	0.00	**0.00**
Indane	**0.00**	0.00	0.00	**0.00**
1,3-Diethylbenzene	**0.00**	0.00	0.00	**0.00**
1,4-Diethylbenzene	**0.00**	0.00	0.00	**0.00**
n-Butylbenzene	**0.00**	0.00	0.00	**0.00**
1,2-Diethylbenzene	**0.00**	0.00	0.00	**0.00**
Undecane	**0.89**	0.27	0.21	**0.24**
Naphthalene	**0.00**	0.00	0.00	**0.00**
Dodecane	**0.71**	0.43	0.20	**0.32**
Hexylbenzene	**0.00**	0.00	0.00	**0.00**

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	Casaco					
	pre-ignition 2			burn 2		
Canister ID:	REAC144	REAC168	AVE	REAC213	REAC165	AVE
Sample Volume (mL) :	502	507		502	507	
TOTAL VOC	**103**	**162**	**133**	**67**	**56**	**62**
Propene	1.82	10.69	6.26	4.53	3.59	4.06
Propane	0.00	0.00	0.00	0.00	0.00	0.00
Freon22 (Chlorodifluoromethane)	0.86	1.65	1.26	0.58	1.19	0.88
Propyne	0.00	0.00	0.00	0.00	0.00	0.00
Chloromethane	1.45	4.94	3.20	1.56	1.16	1.36
Isobutane (2-Methylpropane)	1.84	0.87	1.35	0.32	0.00	0.16
Freon114 (1,2-Dichlorotetrafluroethane)	1.33	2.08	1.71	0.72	0.71	0.71
Vinylchloride (Chloroethene)	0.00	0.00	0.00	0.00	0.00	0.00
1-Butene/2-Methylpropene	4.96	16.13	10.54	6.28	7.33	6.81
1,3-Butadiene	0.00	0.91	0.46	0.39	0.00	0.20
Butane	3.96	1.87	2.92	0.64	0.80	0.72
t-2-Butene	0.85	1.13	0.99	0.38	0.40	0.39
2,2-Dimethylpropane	0.00	0.00	0.00	0.00	0.00	0.00
Bromomethane	0.00	0.00	0.00	0.00	0.00	0.00
1-Butyne	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Butene	0.73	1.51	1.12	0.42	0.48	0.45
Chloroethane	0.00	2.21	1.11	1.00	1.36	1.18
2-Methylbutane	4.19	1.13	2.66	0.42	0.44	0.43
Freon11 (Trichlorofluoromethane)						
1-Pentene	1.23	4.40	2.82	2.37	1.35	1.86
Pentane	3.38	1.06	2.22	0.43	0.48	0.46
Isoprene (2-Methyl-1,3-Butadiene)	0.00	0.00	0.00	0.00	0.00	0.00
Ethylbromide	0.00	0.00	0.00	0.00	0.00	0.00
t-2-Pentene	0.69	0.00	0.35	0.13	0.11	0.12
1,1-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Pentene	0.59	0.00	0.29	0.00	0.00	0.00
Dichloromethane	11.97	3.81	7.89	1.91	0.88	1.39
Freon113 (1,1,2-Trichlorotrifluoroethane	6.60	11.25	8.93	3.71	3.64	3.67
2,2-Dimethylbutane	0.00	0.00	0.00	0.00	0.00	0.00
Cyclopentene	0.00	0.00	0.00	0.00	0.00	0.00
t-1,2-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
1,1-Dichloroethane	0.00	0.00	0.00	0.00	0.00	0.00
Cyclopentane	0.31	0.00	0.15	0.00	0.00	0.00
2,3-Dimethylbutane	0.23	0.00	0.11	0.00	0.00	0.00
t-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
2-Methylpentane	1.30	30.16	15.73	12.33	1.13	6.73
c-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylpentane	1.36	0.00	0.68	0.00	0.00	0.00
1-Hexene/2-Methyl-1-Pentene	1.37	3.18	2.27	1.92	1.44	1.68
c-1,2-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
Hexane	18.74	2.38	10.56	1.22	1.01	1.12
Chloroform	0.00	0.00	0.00	0.00	0.00	0.00
t-2-Hexene	0.00	0.00	0.00	0.00	0.00	0.00
t-3-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Hexene	0.00	0.00	0.00	0.00	0.00	0.00
c-3-Methyl-2-Pentene	0.26	0.00	0.13	0.00	0.00	0.00
2,2-Dimethylpentane	0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichloroethane	0.00	0.00	0.00	0.00	0.00	0.00
Methylcyclopentane	0.93	0.42	0.68	0.19	0.25	0.22
2,4-Dimethylpentane	0.00	0.00	0.00	0.00	0.00	0.00
1,1,1-Trichloroethane	1.22	1.34	1.28	0.98	0.94	0.96
2,2,3-Trimethylbutane	0.00	0.90	0.45	0.65	0.41	0.53
1-Methylcyclopentene	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	1.62	0.83	1.23	0.29	0.38	0.33
Carbontetrachloride	0.49	0.78	0.64	0.68	0.79	0.74
Cyclohexane	0.77	0.85	0.81	0.32	0.44	0.38
2-Methylhexane	0.00	0.00	0.00	0.00	0.00	0.00
2,3-Dimethylpentane	0.00	0.00	0.00	0.00	0.00	0.00
Cyclohexene	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylhexane	1.13	1.42	1.28	0.00	0.00	0.00
Dibromomethane	0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.00	0.00	0.00	0.00	0.00	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Trichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
1-Heptene	1.38	3.51	2.45	2.80	0.00	1.40
2,2,4-Trimethylpentane	0.38	1.07	0.72	0.00	0.53	0.27
t-3-Heptene	0.00	0.91	0.46	0.20	0.23	0.21

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	Casaco					
	pre-ignition 2			burn 2		
Canister ID:	REAC144	REAC168	AVE	REAC213	REAC165	AVE
Sample Volume (mL) :	502	507		502	507	
Heptane	1.00	1.46	**1.23**	0.79	0.73	**0.76**
t-2-Heptene	0.00	3.85	**1.92**	0.71	0.95	**0.83**
c-2-Heptene	0.00	6.81	**3.40**	1.12	1.50	**1.31**
c-1,3-Dichloropropene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,2-Dimethylhexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Methylcyclohexane	0.90	1.09	**1.00**	0.58	0.70	**0.64**
2,5-Dimethylhexane	0.00	0.00	**0.00**	0.20	0.00	**0.10**
2,4-Dimethylhexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
t-1,3-Dichloropropene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,1,2-Trichloroethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Bromotrichloromethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,3,4-Trimethylpentane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Toluene	5.15	2.31	**3.73**	0.74	1.19	**0.97**
2-Methylheptane	0.40	0.38	**0.39**	0.48	0.21	**0.34**
4-Methylheptane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1-Methylcyclohexene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Dibromochloromethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
3-Methylheptane	0.49	0.00	**0.24**	0.15	0.15	**0.15**
c-1,3-Dimethylcyclohexane	0.29	0.00	**0.15**	0.18	0.25	**0.21**
t-1,4-Dimethylcyclohexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
EDB (1,2-Dibromoethane)	0.00	0.00	**0.00**	0.00	0.00	**0.00**
2,2,5-Trimethylhexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1-Octene	1.06	5.69	**3.37**	4.40	2.57	**3.49**
Octane	0.71	0.93	**0.82**	0.39	0.52	**0.45**
Tetrachloroethene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-1,4/t-1,3-Dimethylcyclohexane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
c-2-Octene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Chlorobenzene	0.31	0.00	**0.16**	0.00	0.00	**0.00**
Ethylbenzene	0.99	0.51	**0.75**	0.22	0.28	**0.25**
m/p-Xylene	2.88	1.73	**2.31**	0.71	0.94	**0.82**
Bromoform	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,4-Dichlorobutane	0.00	5.07	**2.54**	0.00	0.00	**0.00**
Styrene	0.30	0.00	**0.15**	0.00	0.00	**0.00**
1,1,2,2-Tetrachloroethane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
o-Xylene	0.92	0.65	**0.78**	0.26	0.33	**0.29**
1-Nonene	0.00	0.00	**0.00**	3.77	3.75	**3.76**
Nonane	1.19	1.37	**1.28**	0.68	0.81	**0.75**
iso-Propylbenzene	0.16	0.26	**0.21**	0.10	0.13	**0.12**
3,6-Dimethyloctane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
n-Propylbenzene	0.36	0.60	**0.48**	0.37	0.44	**0.40**
3-Ethyltoluene	0.61	0.76	**0.69**	0.27	0.42	**0.35**
4-Ethyltoluene	0.28	0.42	**0.35**	0.14	0.22	**0.18**
1,3,5-Trimethylbenzene	0.39	0.49	**0.44**	0.19	0.31	**0.25**
2-Ethyltoluene	0.32	0.38	**0.35**	0.15	0.22	**0.18**
1-Decene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2,4-Trimethylbenzene	1.85	1.99	**1.92**	0.98	1.01	**1.00**
Decane	1.68	1.71	**1.69**	0.68	0.83	**0.75**
1,3-Dichlorobenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,4-Dichlorobenzene	0.38	1.34	**0.86**	0.20	0.38	**0.29**
iso-Butylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
sec-Butylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2,3-Trimethylbenzene	0.46	0.64	**0.55**	0.21	0.38	**0.30**
p-Cymene	0.00	0.00	**0.00**	0.00	0.66	**0.33**
1,2-Dichlorobenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Indane	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,3-Diethylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,4-Diethylbenzene	0.00	0.67	**0.34**	0.00	0.39	**0.20**
n-Butylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
1,2-Diethylbenzene	0.00	0.00	**0.00**	0.00	0.00	**0.00**
Undecane	1.51	2.87	**2.19**	0.55	1.15	**0.85**
Naphthalene	0.00	2.32	**1.16**	0.00	0.91	**0.45**
Dodecane	0.96	2.78	**1.87**	0.51	1.11	**0.81**
Hexylbenzene	0.00	0.00	**0.00**	0.00	1.17	**0.58**

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	R/C H1-CA burn 2	R/C H2-CA burn 2	Convair pre-ignition 2	Convair plume burn 2	Convair plume burn 2		
Canister ID:	T1B2R1	T2B1R1	EPS223	EPS226	EPS220	EPS220	AVE
Sample Volume (mL) :	246	246	498	489	545	495	
TOTAL VOC	**43**	**1005**	**150**	**515**	**468**	**317**	**393**
Propene	20.39	54.01	0.00	0.28	28.62	3.55	16.09
Propane	0.31	0.09	0.00	0.15	0.00	1.43	0.71
Freon22 (Chlorodifluoromethane)	0.26	0.48	0.81	1.00	1.48	1.26	1.37
Propyne	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chloromethane	0.57	0.65	0.95	0.86	0.91	0.75	0.83
Isobutane (2-Methylpropane)	0.49	0.65	0.00	0.32	3.43	3.35	3.39
Freon114 (1,2-Dichlorotetrafluroethane)	0.30	0.37	0.24	0.22	0.24	0.22	0.23
Vinylchloride (Chloroethene)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-Butene/2-Methylpropene	1.10	3.21	0.35	1.01	1.13	1.06	1.09
1,3-Butadiene	0.20	0.10	0.00	0.16	0.44	0.43	0.43
Butane	1.21	1.11	0.23	1.70	14.21	13.00	13.60
t-2-Butene	0.00	0.15	0.00	0.00	0.16	0.11	0.14
2,2-Dimethylpropane	0.00	0.00	0.00	0.00	0.00	0.07	0.03
Bromomethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-Butyne	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Butene	0.15	0.31	0.00	0.00	0.00	0.09	0.05
Chloroethane	0.15	0.77	0.00	0.00	0.00	0.00	0.00
2-Methylbutane	1.42	1.74	0.29	3.21	21.26	16.16	18.71
Freon11 (Trichlorofluoromethane)	1.06	6.28	1.99	2.08	2.28	1.96	2.12
1-Pentene	0.11	0.44	0.00	0.00	0.12	0.11	0.11
Pentane	1.02	1.22	0.06	2.21	22.27	16.22	19.25
Isoprene (2-Methyl-1,3-Butadiene)	0.00	0.19	0.00	0.12	0.22	0.19	0.21
Ethylbromide	0.00	0.00	0.00	0.00	0.00	0.00	0.00
t-2-Pentene	0.07	0.23	0.00	0.00	0.13	0.05	0.09
1,1-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Pentene	0.07	0.16	0.00	0.00	0.00	0.00	0.00
Dichloromethane	0.29	0.00	0.00	0.00	0.00	0.00	0.00
Freon113 (1,1,2-Trichlorotrifluoroethane	2.08	2.75	1.47	1.41	1.50	1.24	1.37
2,2-Dimethylbutane	0.10	0.16	0.00	0.00	0.44	0.29	0.37
Cyclopentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
t-1,2-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,1-Dichloroethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cyclopentane	0.11	0.19	0.00	0.33	2.36	1.68	2.02
2,3-Dimethylbutane	0.12	0.29	0.08	0.71	2.05	1.52	1.79
t-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-Methylpentane	0.53	2.52	0.06	1.86	10.03	8.96	9.50
c-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylpentane	0.10	39.38	0.00	1.26	7.19	5.21	6.20
1-Hexene/2-Methyl-1-Pentene	0.19	0.59	0.00	0.00	0.00	0.00	0.00
c-1,2-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hexane	2.83	602.03	0.12	2.93	15.29	11.05	13.17
Chloroform	0.00	0.00	0.11	0.20	0.16	0.15	0.15
t-2-Hexene	0.00	0.17	0.00	0.00	0.00	0.00	0.00
t-3-Methyl-2-Pentene	0.00	0.13	0.00	0.00	0.00	0.00	0.00
c-2-Hexene	0.00	0.12	0.00	0.00	0.00	0.00	0.00
c-3-Methyl-2-Pentene	0.04	0.13	0.00	0.00	0.00	0.00	0.00
2,2-Dimethylpentane	0.00	0.00	0.00	0.07	0.29	0.22	0.26
1,2-Dichloroethane	0.00	0.61	0.00	0.00	0.00	0.00	0.00
Methylcyclopentane	0.58	97.97	0.00	1.86	9.21	6.59	7.90
2,4-Dimethylpentane	0.05	0.16	0.10	0.73	1.37	1.04	1.20
1,1,1-Trichloroethane	0.45	1.01	0.73	0.90	0.82	0.71	0.77
2,2,3-Trimethylbutane	0.06	0.00	0.00	0.00	0.11	0.09	0.10
1-Methylcyclopentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	0.34	1.62	0.10	1.39	2.70	2.03	2.36
Carbontetrachloride	0.40	0.17	0.76	0.76	0.86	0.74	0.80
Cyclohexane	0.17	0.81	0.23	1.45	5.80	4.07	4.94
2-Methylhexane	0.00	0.41	0.00	0.45	1.60	1.24	1.42
2,3-Dimethylpentane	0.11	0.36	0.08	0.68	1.42	1.05	1.24
Cyclohexene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylhexane	0.19	0.88	0.00	0.86	3.05	2.47	2.76
Dibromomethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trichloroethene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-Heptene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,2,4-Trimethylpentane	0.08	0.00	1.39	8.48	9.86	7.59	8.73
t-3-Heptene	0.00	0.06	0.00	0.00	0.00	0.02	0.01

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	R/C H1-CA burn 2	R/C H2-CA burn 2	Convair pre-ignition 2	Convair plume burn 2	Convair plume burn 2		
Canister ID:	T1B2R1	T2B1R1	EPS223	EPS226	EPS220	EPS220	AVE
Sample Volume (mL) :	246	246	498	489	545	495	
Heptane	0.27	1.23	0.00	2.11	6.77	5.34	6.05
t-2-Heptene	0.07	0.29	0.00	0.00	0.00	0.00	0.00
c-2-Heptene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,2-Dimethylhexane	0.00	0.00	0.00	0.08	0.00	0.00	0.00
Methylcyclohexane	0.25	0.50	0.00	3.25	9.77	7.25	8.51
2,5-Dimethylhexane	0.00	0.14	0.21	1.15	1.41	1.09	1.25
2,4-Dimethylhexane	0.00	0.20	0.28	1.51	2.04	1.48	1.76
t-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,1,2-Trichloroethane	0.21	0.00	0.00	0.00	0.00	0.00	0.00
Bromotrichloromethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,3,4-Trimethylpentane	0.00	0.18	0.58	2.95	3.22	2.49	2.86
Toluene	0.80	18.26	1.62	5.02	5.66	4.43	5.05
2-Methylheptane	0.07	0.52	0.00	0.49	1.30	1.02	1.16
4-Methylheptane	0.00	0.28	0.00	0.16	0.41	0.32	0.37
1-Methylcyclohexene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylheptane	0.12	0.79	0.00	0.41	1.03	0.76	0.90
c-1,3-Dimethylcyclohexane	0.06	0.16	0.00	0.44	1.14	0.84	0.99
t-1,4-Dimethylcyclohexane	0.00	0.00	0.00	0.19	0.64	0.47	0.55
EDB (1,2-Dibromoethane)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,2,5-Trimethylhexane	0.00	0.32	0.24	1.31	1.50	1.17	1.33
1-Octene	0.00	0.32	0.00	0.00	0.00	0.00	0.00
Octane	0.10	0.73	0.01	0.72	1.78	1.50	1.64
Tetrachloroethene	0.12	0.13	0.00	0.00	0.00	0.00	0.00
c-1,4/t-1,3-Dimethylcyclohexane	0.00	0.11	0.00	0.11	0.26	0.21	0.24
c-2-Octene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ethylbenzene	0.21	2.70	0.05	0.17	0.27	0.17	0.22
m/p-Xylene	0.71	8.65	0.13	0.32	0.57	0.50	0.53
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,4-Dichlorobutane	0.00	0.00	0.00	0.00	0.00	0.26	0.13
Styrene	0.00	0.35	6.52	4.01	5.36	5.85	5.61
1,1,2,2-Tetrachloroethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
o-Xylene	0.23	2.80	0.05	0.11	0.18	0.17	0.17
1-Nonene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nonane	0.07	0.86	0.00	0.00	0.53	0.48	0.50
iso-Propylbenzene	0.00	0.23	0.00	0.00	0.00	0.00	0.00
3,6-Dimethyloctane	0.00	0.19	0.00	0.00	0.00	0.00	0.00
n-Propylbenzene	0.06	0.78	0.02	0.00	0.00	0.08	0.04
3-Ethyltoluene	0.13	1.93	0.05	0.00	0.10	0.12	0.11
4-Ethyltoluene	0.07	0.93	0.03	0.00	0.59	0.08	0.33
1,3,5-Trimethylbenzene	0.10	1.18	0.04	0.00	0.08	0.09	0.08
2-Ethyltoluene	0.06	0.73	0.02	0.00	0.05	0.06	0.05
1-Decene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,2,4-Trimethylbenzene	0.31	3.64	0.14	0.00	0.25	0.42	0.34
Decane	0.14	1.67	0.18	0.00	0.30	0.30	0.30
1,3-Dichlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,4-Dichlorobenzene	0.00	0.55	0.00	0.00	0.00	0.00	0.00
iso-Butylbenzene	0.00	0.06	0.00	0.00	0.00	0.00	0.00
sec-Butylbenzene	0.00	0.11	0.00	0.00	0.00	0.00	0.00
1,2,3-Trimethylbenzene	0.11	0.96	0.07	0.00	0.09	0.12	0.10
p-Cymene	0.32	0.71	0.18	0.00	0.00	0.00	0.00
1,2-Dichlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Indane	0.04	0.33	0.00	0.00	0.00	0.00	0.00
1,3-Diethylbenzene	0.00	0.16	0.00	0.00	0.00	0.00	0.00
1,4-Diethylbenzene	0.00	0.47	0.00	0.00	0.11	0.13	0.12
n-Butylbenzene	0.00	0.18	0.00	0.00	0.00	0.00	0.00
1,2-Diethylbenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Undecane	0.18	1.33	0.39	0.00	0.45	0.49	0.47
Naphthalene	0.00	0.00	0.00	0.00	0.41	1.21	0.81
Dodecane	0.40	0.45	0.86		0.80	0.99	0.89
Hexylbenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	Convair plume burn 2	Convair plume burn 2			Convair below plume burn 2		
Canister ID:	AB-02	EPS100	EPS100	AVE	EPS24	EPS24	AVE
Sample Volume (mL) :	489	497	492		497	495	
TOTAL VOC	**171**	**69**	**56**	**62**	**47**	**47**	**47**
Propene	0.49	18.28	6.51	12.40	8.79	10.12	9.45
Propane	0.15	0.30	0.14	0.22	0.00	0.00	0.00
Freon22 (Chlorodifluoromethane)	0.00	0.84	0.62	0.73	0.40	0.65	0.52
Propyne	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chloromethane	0.98	0.43	0.22	0.33	0.89	0.33	0.61
Isobutane (2-Methylpropane)	0.48	0.28	0.21	0.25	0.00	0.00	0.00
Freon114 (1,2-Dichlorotetrafluroethane)	0.24	0.22	0.22	0.22	0.23	0.24	0.24
Vinylchloride (Chloroethene)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-Butene/2-Methylpropene	0.54	0.74	0.69	0.72	0.71	0.46	0.59
1,3-Butadiene	0.22	0.00	0.06	0.03	0.00	0.00	0.00
Butane	1.76	0.83	0.92	0.88	0.16	0.16	0.16
t-2-Butene	0.00	0.00	0.04	0.02	0.00	0.00	0.00
2,2-Dimethylpropane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bromomethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-Butyne	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Butene	0.00	0.00	0.04	0.02	0.00	0.00	0.00
Chloroethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-Methylbutane	2.75	1.09	1.27	1.18	0.30	0.28	0.29
Freon11 (Trichlorofluoromethane)	2.01	1.84	1.97	1.91	1.95	1.87	1.91
1-Pentene	0.10	0.00	0.00	0.00	0.00	0.00	0.00
Pentane	2.34	0.90	1.09	0.99	0.00	0.00	0.00
Isoprene (2-Methyl-1,3-Butadiene)	0.14	0.00	0.00	0.00	0.00	0.00	0.00
Ethylbromide	0.00	0.00	0.00	0.00	0.00	0.00	0.00
t-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,1-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dichloromethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Freon113 (1,1,2-Trichlorotrifluoroethane	1.30	1.47	1.39	1.43	1.53	1.61	1.57
2,2-Dimethylbutane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cyclopentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
t-1,2-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,1-Dichloroethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cyclopentane	0.29	0.11	0.12	0.11	0.00	0.00	0.00
2,3-Dimethylbutane	0.51	0.20	0.22	0.21	0.11	0.10	0.10
t-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-Methylpentane	1.58	0.56	0.61	0.58	0.08	0.06	0.07
c-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylpentane	1.06	0.41	0.46	0.43	0.00	0.04	0.02
1-Hexene/2-Methyl-1-Pentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-1,2-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hexane	2.24	0.85	0.80	0.82	0.16	0.15	0.16
Chloroform	0.13	0.00	0.12	0.06	0.00	0.11	0.06
t-2-Hexene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
t-3-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Hexene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-3-Methyl-2-Pentene	0.00	0.09	0.00	0.04	0.00	0.00	0.00
2,2-Dimethylpentane	0.05	0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichloroethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Methylcyclopentane	1.43	0.43	0.46	0.45	0.00	0.00	0.00
2,4-Dimethylpentane	0.49	0.21	0.22	0.22	0.14	0.13	0.13
1,1,1-Trichloroethane	0.76	0.72	0.75	0.73	0.74	0.73	0.74
2,2,3-Trimethylbutane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-Methylcyclopentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	3.16	0.51	0.52	0.52	0.11	0.08	0.10
Carbontetrachloride	0.78	0.75	0.77	0.76	0.76	0.77	0.76
Cyclohexane	1.00	0.31	0.31	0.31	0.00	0.00	0.00
2-Methylhexane	0.32	0.11	0.10	0.10	0.00	0.00	0.00
2,3-Dimethylpentane	0.44	0.17	0.18	0.18	0.10	0.09	0.09
Cyclohexene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylhexane	0.62	0.20	0.20	0.20	0.00	0.00	0.00
Dibromomethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trichloroethene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-Heptene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,2,4-Trimethylpentane	5.35	2.67	2.84	2.76	2.00	1.94	1.97
t-3-Heptene	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	Convair plume burn 2	Convair plume burn 2			Convair below plume burn 2		
Canister ID:	AB-02	EPS100	EPS100	AVE	EPS24	EPS24	AVE
Sample Volume (mL) :	489	497	492		497	495	
Heptane	1.44	0.40	0.44	0.42	0.02	0.02	0.02
t-2-Heptene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Heptene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,2-Dimethylhexane	0.05	0.00	0.01	0.01	0.00	0.00	0.00
Methylcyclohexane	2.17	0.58	0.62	0.60	0.00	0.00	0.00
2,5-Dimethylhexane	0.68	0.40	0.40	0.40	0.27	0.26	0.27
2,4-Dimethylhexane	0.97	0.55	0.55	0.55	0.38	0.37	0.37
t-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,1,2-Trichloroethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bromotrichloromethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,3,4-Trimethylpentane	1.71	1.06	1.12	1.09	0.77	0.76	0.77
Toluene	3.09	2.33	2.38	2.35	1.64	1.97	1.80
2-Methylheptane	0.34	0.11	0.12	0.11	0.00	0.00	0.00
4-Methylheptane	0.11	0.00	0.05	0.02	0.00	0.00	0.00
1-Methylcyclohexene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylheptane	0.25	0.10	0.10	0.10	0.00	0.00	0.00
c-1,3-Dimethylcyclohexane	0.31	0.09	0.09	0.09	0.00	0.00	0.00
t-1,4-Dimethylcyclohexane	0.14	0.00	0.05	0.02	0.00	0.00	0.00
EDB (1,2-Dibromoethane)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,2,5-Trimethylhexane	0.77	0.48	0.50	0.49	0.34	0.33	0.34
1-Octene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Octane	0.51	0.16	0.18	0.17	0.02	0.01	0.02
Tetrachloroethene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-1,4/t-1,3-Dimethylcyclohexane	0.09	0.00	0.03	0.01	0.00	0.00	0.00
c-2-Octene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ethylbenzene	0.10	0.14	0.10	0.12	0.13	0.17	0.15
m/p-Xylene	0.26	0.20	0.18	0.19	0.15	0.38	0.27
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,4-Dichlorobutane	0.07	0.00	0.00	0.00	0.00	0.00	0.00
Styrene	4.71	4.30	4.91	4.61	3.22	4.22	3.72
1,1,2,2-Tetrachloroethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
o-Xylene	0.09	0.07	0.07	0.07	0.06	0.13	0.09
1-Nonene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nonane	0.25	0.10	0.10	0.10	0.00	0.00	0.00
iso-Propylbenzene	0.00	0.00	0.01	0.01	0.00	0.00	0.00
3,6-Dimethyloctane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
n-Propylbenzene	0.04	0.00	0.00	0.00	0.45	0.05	0.25
3-Ethyltoluene	0.07	0.05	0.05	0.05	0.04	0.17	0.11
4-Ethyltoluene	0.05	0.03	0.02	0.03	0.02	0.09	0.06
1,3,5-Trimethylbenzene	0.06	0.05	0.03	0.04	0.03	0.13	0.08
2-Ethyltoluene	0.04	0.03	0.03	0.03	0.02	0.08	0.05
1-Decene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,2,4-Trimethylbenzene	0.19	0.18	0.14	0.16	0.14	0.83	0.48
Decane	0.24	0.18	0.15	0.17	0.12	0.16	0.14
1,3-Dichlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,4-Dichlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
iso-Butylbenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sec-Butylbenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,2,3-Trimethylbenzene	0.09	0.07	0.06	0.06	0.05	0.15	0.10
p-Cymene	0.19	0.00	0.12	0.06	0.00	0.00	0.00
1,2-Dichlorobenzene	0.07	0.00	0.00	0.00	0.00	0.00	0.00
Indane	0.04	0.00	0.02	0.01	0.00	0.00	0.00
1,3-Diethylbenzene	0.05	0.00	0.00	0.00	0.00	0.00	0.00
1,4-Diethylbenzene	0.16	0.00	0.00	0.00	0.00	0.00	0.00
n-Butylbenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,2-Diethylbenzene	0.07	0.00	0.00	0.00	0.00	0.00	0.00
Undecane	0.39	0.45	0.33	0.39	0.29	0.38	0.33
Naphthalene	1.24	0.27	0.00	0.13	0.21	0.00	0.11
Dodecane	0.98	0.57	0.73	0.65	0.58	0.57	0.57
Hexylbenzene	0.27	0.00	0.00	0.00	0.00	0.00	0.00

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	Convair post-burn 2				Convair background post-burn 2		
Canister ID:	GVRD433	EPS163	ESD-20	REAC223	EPS164	EPS164	AVE
Sample Volume (mL) :	489	498	498	489	489	513	
TOTAL VOC	**58**	**220**	**167**	**108**	**630**	**613**	**621**
Propene	0.26	0.24	0.26	0.57	0.00	0.00	0.00
Propane	0.15	0.00	0.18	0.19	0.00	0.00	0.00
Freon22 (Chlorodifluoromethane)	0.00	0.81	0.74		10.20	9.82	10.01
Propyne	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chloromethane	0.84	0.97	1.02	1.07	0.95	0.92	0.94
Isobutane (2-Methylpropane)	0.70	0.65	0.84	0.31	0.17	0.17	0.17
Freon114 (1,2-Dichlorotetrafluroethane)	0.24	0.23	0.43	0.22	0.23	0.22	0.23
Vinylchloride (Chloroethene)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-Butene/2-Methylpropene	0.64	0.53	0.88	1.66	0.31	0.28	0.30
1,3-Butadiene	0.15	0.00	0.00	0.00	0.00	0.00	0.00
Butane	2.63	2.87	3.69	3.06	0.81	0.73	0.77
t-2-Butene	0.00	0.00	0.08	0.25	0.00	0.00	0.00
2,2-Dimethylpropane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bromomethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-Butyne	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Butene	0.00	0.00	0.00	0.35	0.00	0.00	0.00
Chloroethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-Methylbutane	4.35	4.43	6.07	6.26	1.70	1.70	1.70
Freon11 (Trichlorofluoromethane)	2.26	2.24	2.59	2.85	2.19	2.22	2.21
1-Pentene	0.04	0.00	0.00	0.17	0.00	0.00	0.00
Pentane	2.48	2.93	3.35	0.54	0.10	0.09	0.10
Isoprene (2-Methyl-1,3-Butadiene)	0.17	0.13	0.12	0.24	0.13	0.11	0.12
Ethylbromide	0.00	0.00	0.00	0.00	0.00	0.00	0.00
t-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,1-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dichloromethane	0	0.00	0.00	0	0.00	0.00	0.00
Freon113 (1,1,2-Trichlorotrifluoroethane	1.61	1.45	2.76	1.39	1.42	1.36	1.39
2,2-Dimethylbutane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cyclopentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
t-1,2-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,1-Dichloroethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cyclopentane	0.24	0.30	0.34	0.08	0.00	0.00	0.00
2,3-Dimethylbutane	0.89	0.77	1.22	2.23	0.49	0.50	0.50
t-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-Methylpentane	1.38	1.58	1.99	1.46	0.22	0.21	0.22
c-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylpentane	0.90	0.99	1.26	0.52	0.20	0.17	0.19
1-Hexene/2-Methyl-1-Pentene	0.00	0.00	0.00	0.17	0.00	0.00	0.00
c-1,2-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hexane	1.75	2.02	2.24	0.63	0.23	0.16	0.19
Chloroform	0.17	0.13	0.13	0.47	0.16	0.16	0.16
t-2-Hexene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
t-3-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Hexene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-3-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,2-Dimethylpentane	0.00	0.00	0.05	0.00	0.00	0.00	0.00
1,2-Dichloroethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Methylcyclopentane	0.85	1.06	1.16	0.21	0.00	0.00	0.00
2,4-Dimethylpentane	0.84	0.73	1.18	2.41	0.55	0.55	0.55
1,1,1-Trichloroethane	0.74	0.72	0.70	0.75	0.89	0.73	0.81
2,2,3-Trimethylbutane	0.00	0.00	0.07	0.16	0.00	0.00	0.00
1-Methylcyclopentene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	1.08	0.91	1.08	0.50	0.13	0.14	0.14
Carbontetrachloride	0.80	0.76	0.77	0.79	0.76	0.76	0.76
Cyclohexane	0.54	0.70	0.89	0.14	0.00	0.00	0.00
2-Methylhexane	0.18	0.21	0.25	0.16	0.00	0.00	0.00
2,3-Dimethylpentane	0.50	0.46	0.60	1.30	0.33	0.28	0.30
Cyclohexene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylhexane	0.32	0.39	0.54	0.37	0.04	0.04	0.04
Dibromomethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Trichloroethene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-Heptene	0.00	0.00	1.18	0.00	0.00	0.00	0.00
2,2,4-Trimethylpentane	9.30	8.81	14.57	28.55	7.88	7.57	7.72
t-3-Heptene	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	Convair post-burn 2				Convair background post-burn 2		
Canister ID:	GVRD433	EPS163	ESD-20	REAC223	EPS164	EPS164	AVE
Sample Volume (mL) :	489	498	498	489	489	513	
Heptane	0.65	0.75	0.86	0.27	0.00	0.00	0.00
t-2-Heptene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Heptene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,2-Dimethylhexane	0.00	0.03	0.03	0.00	0.00	0.00	0.00
Methylcyclohexane	0.83	0.99	1.13	0.22	0.00	0.00	0.00
2,5-Dimethylhexane	1.06	0.98	1.73	3.63	0.90	0.87	0.89
2,4-Dimethylhexane	1.28	1.27	2.07	4.64	1.22	1.12	1.17
t-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,1,2-Trichloroethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bromotrichloromethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,3,4-Trimethylpentane	2.54	2.48	4.27	9.12	2.43	2.34	2.38
Toluene	4.11	3.53	5.61	11.01	3.78	3.49	3.63
2-Methylheptane	0.15	0.16	0.21	0.15	0.00	0.00	0.00
4-Methylheptane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1-Methylcyclohexene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylheptane	0.12	0.14	0.19	0.13	0.00	0.00	0.00
c-1,3-Dimethylcyclohexane	0.10	0.12	0.13	0.05	0.00	0.00	0.00
t-1,4-Dimethylcyclohexane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EDB (1,2-Dibromoethane)	0.00	0.00	0.00	0.13	0.00	0.00	0.00
2,2,5-Trimethylhexane	0.99	1.04	2.06	4.45	1.07	1.06	1.07
1-Octene	0.00	0.00	0.00	0.21	0.00	0.00	0.00
Octane	0.17	0.20	0.22	0.11	0.02	0.01	0.02
Tetrachloroethene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-1,4/t-1,3-Dimethylcyclohexane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Octene	0.00	0.00	0.00	0.10	0.00	0.00	0.00
Chlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ethylbenzene	0.12	0.08	0.10	0.16	0.07	0.07	0.07
m/p-Xylene	0.22	0.18	0.21	0.30	0.18	0.13	0.15
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,4-Dichlorobutane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Styrene	3.73	2.20	2.34	6.05	2.46	1.81	2.13
1,1,2,2-Tetrachloroethane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
o-Xylene	0.09	0.06	0.07	0.11	0.07	0.05	0.06
1-Nonene	0.00	0.00	0.00	0.42	0.00	0.00	0.00
Nonane	0.09	0.07	0.08	0.10	0.00	0.00	0.00
iso-Propylbenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,6-Dimethyloctane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
n-Propylbenzene	0.05	0.00	0.00	0.09	0.00	0.00	0.00
3-Ethyltoluene	0.05	0.03	0.04	0.07	0.04	0.02	0.03
4-Ethyltoluene	0.04	0.02	0.02	0.05	0.02	0.02	0.02
1,3,5-Trimethylbenzene	0.05	0.03	0.03	0.06	0.04	0.03	0.03
2-Ethyltoluene	0.03	0.02	0.02	0.04	0.02	0.02	0.02
1-Decene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,2,4-Trimethylbenzene	0.14	0.09	0.10	0.21	0.13	0.08	0.10
Decane	0.17	0.10	0.12	0.28	0.10	0.08	0.09
1,3-Dichlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,4-Dichlorobenzene	0.00	0.00	0.00	0.06	0.00	0.00	0.00
iso-Butylbenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sec-Butylbenzene	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,2,3-Trimethylbenzene	0.06	0.04	0.04	0.09	0.05	0.03	0.04
p-Cymene	0.00	0.00	0.00	0.19	0.00	0.00	0.00
1,2-Dichlorobenzene	0.00	0.00	0.00	0.07	0.00	0.00	0.00
Indane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,3-Diethylbenzene	0.00	0.00	0.00	0.07	0.00	0.00	0.00
1,4-Diethylbenzene	0.07	0.00	0.00	0.21	0.00	0.00	0.00
n-Butylbenzene	0.00	0.00	0.00	0.09	0.00	0.00	0.00
1,2-Diethylbenzene	0.00	0.00	0.00	0.09	0.00	0.00	0.00
Undecane	0.46	0.27	0.33	0.81	0.29	0.23	0.26
Naphthalene	1.15	0.00	0.47	1.58	0.52	0.48	0.50
Dodecane	1.77	0.72	0.88	1.97	0.79	0.56	0.67
Hexylbenzene	0.37	0.00	0.00	0.73	0.00	0.00	0.00

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	Convair post residue 2	blank				unused
Canister ID:	REAC224	REAC216	REAC218	REAC111	AVE	ESD-15
Sample Volume (mL) :	489	489	489	489		20
TOTAL VOC	**414**	**25**	**14**	**8**	**15**	**82**
Propene	0.66	0.71	0.81	0.00	0.51	0.00
Propane	0.00	0.13	0.13	0.18	0.15	0.00
Freon22 (Chlorodifluoromethane)	1.64	0.00	0.18	0.00	0.06	4.57
Propyne	0.00	0.00	0.00	0.00	0.00	0.00
Chloromethane	0.75	0.37	0.22	0.09	0.23	0.60
Isobutane (2-Methylpropane)	0.00	0.16	0.07	0.10	0.11	0.00
Freon114 (1,2-Dichlorotetrafluroethane)	0.22	0.56	0.30	0.35	0.41	7.86
Vinylchloride (Chloroethene)	0.00	0.00	0.00	0.00	0.00	0.00
1-Butene/2-Methylpropene	1.82	1.32	1.54	0.27	1.05	8.23
1,3-Butadiene	0.00	0.00	0.00	0.00	0.00	0.00
Butane	0.37	0.14	0.15	0.21	0.17	3.79
t-2-Butene	0.21	0.12	0.08	0.00	0.07	0.00
2,2-Dimethylpropane	0.00	0.00	0.00	0.00	0.00	0.00
Bromomethane	0.00	0.00	0.00	0.00	0.00	0.00
1-Butyne	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Butene	0.27	0.10	0.08	0.00	0.06	0.00
Chloroethane	0.00	0.00	0.20	0.00	0.07	0.00
2-Methylbutane	0.66	0.13	0.09	0.11	0.11	1.95
Freon11 (Trichlorofluoromethane)	1.88	0.17	0.00	2.26	0.81	0.00
1-Pentene	0.18	0.26	0.47	0.03	0.25	0.00
Pentane	0.07	0.13	0.08	0.17	0.13	2.45
Isoprene (2-Methyl-1,3-Butadiene)	0.12	0.00	0.00	0.00	0.00	0.00
Ethylbromide	0.00	0.00	0.00	0.00	0.00	0.00
t-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
1,1-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
Dichloromethane	0.00	0.63	0.34	0.25	0.41	6.88
Freon113 (1,1,2-Trichlorotrifluoroethane	1.61	3.55	1.55	1.92	2.34	34.63
2,2-Dimethylbutane	0.00	0.00	0.00	0.00	0.00	0.00
Cyclopentene	0.00	0.00	0.00	0.00	0.00	0.00
t-1,2-Dichloroethene	0.00	0.00	0.00	0.15	0.05	0.00
1,1-Dichloroethane	0.00	0.00	0.00	0.00	0.00	0.00
Cyclopentane	0.00	0.00	0.00	0.00	0.00	0.00
2,3-Dimethylbutane	0.22	0.00	0.00	0.00	0.00	0.00
t-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
2-Methylpentane	0.49	0.20	0.17	0.07	0.15	0.50
c-4-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylpentane	0.00	0.33	0.00	0.00	0.11	0.00
1-Hexene/2-Methyl-1-Pentene	0.14	0.24	0.41	0.00	0.21	0.00
c-1,2-Dichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
Hexane	0.12	8.77	0.22	0.30	3.10	4.23
Chloroform	0.09	0.00	0.00	0.00	0.00	0.00
t-2-Hexene	0.00	0.00	0.00	0.00	0.00	0.00
t-3-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Hexene	0.00	0.00	0.00	0.00	0.00	0.00
c-3-Methyl-2-Pentene	0.00	0.00	0.00	0.00	0.00	0.00
2,2-Dimethylpentane	0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichloroethane	0.00	0.00	0.00	0.00	0.00	0.00
Methylcyclopentane	0.00	0.98	0.06	0.05	0.36	0.00
2,4-Dimethylpentane	0.23	0.00	0.00	0.00	0.00	0.00
1,1,1-Trichloroethane	0.66	0.08	0.00	0.00	0.03	0.00
2,2,3-Trimethylbutane	0.23	0.07	0.07	0.00	0.05	0.00
1-Methylcyclopentene	0.00	0.00	0.00	0.00	0.00	0.00
Benzene	0.11	0.10	0.08	0.06	0.08	1.05
Carbontetrachloride	0.69	0.00	0.00	0.00	0.00	0.00
Cyclohexane	0.00	0.00	0.00	0.00	0.00	0.00
2-Methylhexane	0.00	0.00	0.00	0.00	0.00	0.00
2,3-Dimethylpentane	0.13	0.00	0.00	0.00	0.00	0.00
Cyclohexene	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylhexane	0.00	0.18	0.00	0.00	0.06	0.00
Dibromomethane	0.00	0.00	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.00	0.00	0.00	0.00	0.00	0.00
Bromodichloromethane	0.00	0.00	0.00	0.00	0.00	0.00
Trichloroethene	0.00	0.00	0.00	0.00	0.00	0.00
1-Heptene	0.00	0.30	0.57	0.00	0.29	0.00
2,2,4-Trimethylpentane	3.27	0.00	0.09	0.03	0.04	1.10
t-3-Heptene	0.04	0.02	0.07	0.00	0.03	0.00

Table 17 ctd **VOC results from SUMMA canisters (µg/m³)**

COMPOUNDS	Convair post residue 2	blank				unused
Canister ID:	REAC224	REAC216	REAC218	REAC111	AVE	ESD-15
Sample Volume (mL) :	469	469	469	469		20
Heptane	0.03	0.17	0.14	0.18	0.16	0.00
t-2-Heptene	0.09	0.00	0.26	0.00	0.09	0.00
c-2-Heptene	0.00	0.00	0.57	0.00	0.19	0.00
c-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00	0.00
2,2-Dimethylhexane	0.00	0.00	0.00	0.00	0.00	0.00
Methylcyclohexane	0.00	0.10	0.10	0.10	0.10	0.00
2,5-Dimethylhexane	0.38	0.00	0.00	0.00	0.00	0.00
2,4-Dimethylhexane	0.47	0.00	0.00	0.00	0.00	0.00
t-1,3-Dichloropropene	0.00	0.00	0.00	0.00	0.00	0.00
1,1,2-Trichloroethane	0.00	0.00	0.00	0.00	0.00	0.00
Bromotrichloromethane	0.00	0.00	0.00	0.00	0.00	0.00
2,3,4-Trimethylpentane	0.95	0.00	0.00	0.00	0.00	0.00
Toluene	1.88	0.20	0.19	0.13	0.17	2.36
2-Methylheptane	0.00	0.00	0.00	0.00	0.00	0.00
4-Methylheptane	0.00	0.00	0.00	0.00	0.00	0.00
1-Methylcyclohexene	0.00	0.00	0.00	0.00	0.00	0.00
Dibromochloromethane	0.00	0.00	0.00	0.00	0.00	0.00
3-Methylheptane	0.00	0.00	0.00	0.05	0.02	0.00
c-1,3-Dimethylcyclohexane	0.00	0.00	0.00	0.00	0.00	0.00
t-1,4-Dimethylcyclohexane	0.00	0.00	0.00	0.00	0.00	0.00
EDB (1,2-Dibromoethane)	0.00	0.00	0.00	0.00	0.00	0.00
2,2,5-Trimethylhexane	0.42	0.00	0.00	0.00	0.00	0.00
1-Octene	0.00	0.46	1.02	0.00	0.50	0.00
Octane	0.02	0.10	0.10	0.14	0.11	0.00
Tetrachloroethene	0.00	0.00	0.00	0.00	0.00	0.00
c-1,4/t-1,3-Dimethylcyclohexane	0.00	0.00	0.00	0.00	0.00	0.00
c-2-Octene	0.00	0.00	0.00	0.00	0.00	0.00
Chlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00
Ethylbenzene	0.07	0.05	0.05	0.04	0.05	0.00
m/p-Xylene	0.19	0.15	0.13	0.12	0.13	2.00
Bromoform	0.00	0.00	0.00	0.00	0.00	0.00
1,4-Dichlorobutane	0.00	0.00	0.00	0.00	0.00	0.00
Styrene	1.22	0.00	0.00	0.00	0.00	0.00
1,1,2,2-Tetrachloroethane	0.00	0.00	0.00	0.00	0.00	0.00
o-Xylene	0.06	0.05	0.05	0.04	0.05	0.00
1-Nonene	0.00	1.34	1.53	0.00	0.96	0.00
Nonane	0.05	0.15	0.15	0.10	0.13	0.00
iso-Propylbenzene	0.00	0.00	0.00	0.00	0.00	0.00
3,6-Dimethyloctane	0.00	0.00	0.00	0.00	0.00	0.00
n-Propylbenzene	0.03	0.07	0.06	0.01	0.05	0.00
3-Ethyltoluene	0.04	0.06	0.04	0.04	0.05	0.00
4-Ethyltoluene	0.03	0.03	0.03	0.00	0.02	0.00
1,3,5-Trimethylbenzene	0.03	0.05	0.03	0.02	0.04	0.00
2-Ethyltoluene	0.00	0.03	0.02	0.02	0.02	0.00
1-Decene	0.00	0.00	0.00	0.00	0.00	0.00
1,2,4-Trimethylbenzene	0.13	1.22	0.41	0.06	0.57	0.00
Decane	0.13	0.20	0.13	0.08	0.14	0.00
1,3-Dichlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00
1,4-Dichlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00
iso-Butylbenzene	0.00	0.00	0.00	0.00	0.00	0.00
sec-Butylbenzene	0.00	0.00	0.00	0.00	0.00	0.00
1,2,3-Trimethylbenzene	0.04	0.06	0.04	0.00	0.03	0.00
p-Cymene	0.22	0.00	0.00	0.00	0.00	0.00
1,2-Dichlorobenzene	0.00	0.00	0.00	0.00	0.00	0.00
Indane	0.00	0.00	0.00	0.00	0.00	0.00
1,3-Diethylbenzene	0.00	0.00	0.00	0.00	0.00	0.00
1,4-Diethylbenzene	0.00	0.00	0.00	0.00	0.00	0.00
n-Butylbenzene	0.00	0.00	0.00	0.00	0.00	0.00
1,2-Diethylbenzene	0.00	0.00	0.00	0.00	0.00	0.00
Undecane	0.33	0.28	0.13	0.10	0.17	0.00
Naphthalene	0.72	0.00	0.00	0.00	0.00	0.00
Dodecane	1.11	0.34	0.16	0.08	0.19	0.00
Hexylbenzene	0.37	0.00	0.31	0.00	0.10	0.00