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***Measurement of Emission Fluxes
from Technical Area 54,
Areas G and L***

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**Measurement of Emission Fluxes
from Technical Area 54, Areas G and L**

Abstract

The emission flux (mass/time-area) of tritiated water from TA-54 was measured to support the characterization of radioactive air emissions from waste sites for the Radioactive Air Emissions Management (RAEM) program and for the Area G Performance Assessment. Measurements were made at over 180 locations during the summers of 1993 and 1994, including randomly selected locations across Area G, three suspected areas of contamination at Area G, and the property surrounding TA-54. The emission fluxes of radon were measured at six locations and volatile organic compounds (VOCs) at 30 locations. Monitoring was performed at each location over a several-hour period using the U.S. EPA flux chamber approach. Separate samples for tritiated water, radon, and VOCs were collected and analyzed in off-site laboratories.

The measured tritiated water emission fluxes varied over several orders of magnitude, from background levels of about 3 pCi/m²-min to 9.69x10⁶ pCi/m²-min near a disposal shaft. Low levels of tritiated water were found to have migrated into Pajarito Canyon, directly south of Area G. The tritium flux data were used to generate an estimated annual emission rate of 14 Curies/yr for all of Area G, with the majority of this activity being emitted from relatively small areas adjacent to several disposal shafts. The estimated total annual release is less than 1% of the total tritium release from all LANL in 1992 and results in a negligible off-site dose. Based on the limited data available, the average emission flux of radon from Area G is estimated to be 8.1 pCi/m²-min. The measured emission fluxes of VOCs were <100 µg/m²-min, which is small compared with fluxes typically measured at hazardous waste landfills. The air quality impacts of these releases were evaluated in a separate report.

1.0 INTRODUCTION

This section contains information regarding the background, site description, project objectives, and general approach for the test program.

1.1 Background

Los Alamos National Laboratory (LANL) has operated a solid, low-level radioactive disposal facility in Area G of Technical Area 54 (TA-54), since 1957. A smaller adjacent disposal area, designated Area L, is used for the storage of low-level mixed waste. Various types of wastes have been historically disposed of in TA-54, including tritium waste, transuranic element (TRU) waste, volatile organic compounds (VOCs) such as solvents, and mixed waste. Only low-level radioactive waste currently is disposed of at TA-54. The waste disposal practices in Area G are designed to contain the waste and prevent or minimize migration of contaminants via all pathways, including the air pathway. To evaluate the waste containment, environmental monitoring has been routinely performed to look for possible migration of contaminants. The air pathway is addressed by a fence-line ambient air monitoring network. The air monitoring program consists of biweekly samples analyzed for tritium, alpha, beta, and isotopic gamma and samples analyzed quarterly for TRU (specifically, isotopic plutonium, americium-241, and total uranium). Additional monitoring is performed to examine concentration levels of various contaminants in the surface soils, vegetation, pore gas, and runoff.

The environmental monitoring to date has indicated that no significant air emissions of radioactive species at TA-54 has

occurred during the ambient air monitoring (AAM) program. There could, however, be relatively low-level emissions or localized emission "hot spots" that need to be characterized. The gas-phase contaminants that are the most mobile in the subsurface are tritium, radon, and VOCs; therefore, these species could be migrating from the subsurface waste disposal pits/shafts and could be released to the atmosphere once they migrate to the soil surface. This study involved a series of measurements to quantify the rate of fugitive emissions of tritiated water vapors from the soil surface at Areas G and L. In addition, a smaller number of measurements were made of VOC and radon emission fluxes.

The emissions data are needed to support the Radioactive Air Emissions Management (RAEM) program's characterization of radioactive air emissions from waste sites to assure compliance with the National Emission Standards for Hazardous Air Pollutants (NESHAP) for radionuclides. The data will also be used to support the Area G performance assessment required by DOE Order 5820.24.

1.2 Site Description¹

Technical Area (TA) 54 occupies about 63 acres on the southern half of Mesita del Buey on the Pajarito Plateau. Mesita del Buey is a narrow mesa about 2 miles long that extends to the southeast. The elevation of the mesa is roughly 6900 ft. on the west and 6600 ft. at the eastern end. The mesa is bounded by Parajito Canyon to the south and Canada del Buey to the north. The edges of the mesa have been cut to near vertical and vary in height from 50 to 100 ft. Area G is located on Mesita del Buey approximately 4.5 miles southeast

of the town of Los Alamos and 1 mile northwest of the subdivision of White Rock.

The soil covering the mesa is classified as a Hackroy sandy loam. It varies in thickness from 3-4 feet at the interior of the mesa and thins out near the canyon rims. Below the surface soil is underlying layers of volcanic rock. The layer immediately underneath the surface soils is ashfall material called the Bandelier tuff that includes pumiceous tuff and weathered rhyolitic tuff. Undisturbed tuff is subject to mass wasting. The disturbed tuff is subject to wind and rain erosion when it is exposed.

The tuff at the surface has a moisture range from 2% to 8% (by weight), with the moisture content decreasing with depth. Below 10 ft., the moisture content ranges from 0.5% to 2%. The hydraulic conductivity of the tuff is less than 10^{-8} cm/min (at 5% moisture content by volume). Waste has been deposited to a depth of roughly 60 ft. below the top of the mesa. The ground water beneath the mesa is more than 800 ft. below the mesa top and no perched water is present between the disposal area and the main aquifer. The mesa contains stands of pinion and juniper as well as some underbrush. Overall, the vegetation is relatively sparse.

Summer days at the site are generally sunny with moderately warm days and cool nights. Maximum daytime temperatures are usually below 90°F and nighttime summer temperatures usually drop below 60°F. The surface winds are variable, but the most common meteorology is a moderate SW up-valley wind during the day and either a light NW to N drainage wind or a moderate SW wind at night. The average wind speed is

2.9 m/sec (6 mph), with the most prevalent wind direction being south to southwest. The LANL area is semi-arid. The area gets 18 in. of annual precipitation with 40% occurring during July and August.

Area G occupies over 60 acres at the southern end of Mesita del Buey. A wide variety of waste has been disposed of underground at Area G, including the following categories: polychlorinated biphenyls (PCBs), low-level radioactive waste, mixed waste, transuranic waste (TRU), animal tissue, and tritium waste. Low-level waste has been disposed of in 30 pits and 209 shafts.

Low-level waste containing tritium with an activity less than 20 mCi/m³ is disposed of with noncompactible waste. This material includes large or bulky waste (i.e., greater than 16 in. x 19 in. x 36 in.) and other waste such as heavy pipe, angle iron, equipment, lumber, building rubble, and soil. The noncompactible waste is buried in disposal pits without compaction prior to burial. Additional material is buried after compaction. The wastes are buried in layers and covered with clean fill; i.e. sanitary landfilled.

The tritium waste disposed of at Area G is solid waste contaminated with tritium in excess of 20 mCi/m³ (waste with levels below 20 mCi/m³ is disposed of as routine low-level waste in pits, as described above). Waste contaminated with tritium between 20 and 100 mCi/m³ is packaged in 55-gallon or 30-gallon, asphalt-lined metal drums. The lids of the drums are sealed with asphalt and the waste is disposed of in unlined shafts. Tritium waste with levels exceeding 100 mCi/m³ must be completely encapsulated in asphalt. This typically involves putting a

30-gallon drum inside a 55-gallon drum and filling the annular space between the two drums with asphalt. These drums are disposed of in asphalt-lined shafts labeled high-level tritium disposal.

The pits and shafts at Area G may be no deeper than 65 feet, which is at least 10 feet above the floor of the adjacent canyon. Pits and shafts can be filled to a level no higher than 3 feet below the spill point (i.e., the lowest elevation of the pit rim). The top layer of a pit has at least 3 feet of crushed tuff covered by 4 inches of topsoil. The final cover of a shaft is uncontaminated concrete at least 3 feet thick, slightly rounded, and 0.5 feet above the surrounding land surface.

TRU wastes in 55-gallon drums also are stored above-ground, either in domes or on asphalt pads that are covered with dirt. The drums thus stored are scheduled for excavation and inspection in the near future. TRU wastes also are stored in fiberglass reinforced plywood (FRP) boxes and in standard waste boxes.

Area L occupies several acres immediately west of Area G within TA-54. Waste has been stored underground at Area L; the waste is believed to include tritium waste and organic solvents. Most of Area L, however, has been paved and is now used for temporary above-ground storage of drums of mixed wastes and gas cylinders. Less information is available about subsurface wastes at Area L, but subsurface VOCs are known to be present at the northern-most portion of the area and in the northeast quadrant of the area.

1.3 Objectives

This study is being performed for several reasons:

- Emissions data are needed to support the Radioactive Air Emissions Management (RAEM) program's characterization of radioactive air emissions from waste sites to assure compliance with the National Emission Standards for Hazardous Air Pollutants (NESHAP) for radionuclides.
- Although not a regulatory requirement, there is a need to characterize non-radioactive air emissions to determine if the Laboratory's waste operations are releasing toxic amounts of pollutants.
- The Department of Energy (DOE) requires that all facilities follow Best Management Practices (BMP) with regards to all of their activities. Quantifying releases of pollutants, even though not required by regulators, is a BMP.

The specific objectives of the test program were to:

- Measure the emission flux (mass/time-area) of tritium, VOCs, and radon at a series of twenty points across Area G;
- Measure the emission flux of tritium at a series of points in and around Area G where relatively high levels of tritium are suspected (i.e., "hot spots");
- Measure the emission flux of tritium at 20 locations and the emission flux

of VOCs at 5 locations on the canyon floor surrounding Area G.

- Measure the emission flux of tritium and VOCs at a series of five points in Area G during periods of both dry and wet weather;
- Measure the emission flux of tritium and VOCs at three points that are thought to be representative of emissions from Area L; and
- Develop an overall emission rate (mass/time) for Area G and for each hot spot based on the individual emission flux measurements.

average emission flux for each area and to estimate the spatial variability from point to point within each area. Ultimately, the data were used to develop an emission rate for the entire source.

1.4 General Approach

An enclosure device, referred to as a flux chamber, was placed over emitting surfaces and used to trap any gaseous emissions from the soil surface. The flux chamber method is a standard U.S. EPA approach for measuring emissions from area sources such as landfills. The flux chamber design used was approximately 0.41 m in diameter, covered an area of 0.13 m², and had a volume of about 0.030 m³. Samples of the atmosphere within the chamber were collected for subsequent off-site analysis. Tritium was collected on silica gel, radon was collected on activated charcoal, and VOCs were collected in evacuated, stainless-steel canisters. A variety of analytical techniques were employed, including scintillation counting and gas chromatography.

The surface area enclosed by the flux chamber is small relative to the size of the source, so a series of measurements at various locations were made. These individual measurements were used to generate an

2.0 TECHNICAL APPROACH

This section contains information on the sampling, analytical, and quality control procedures that were followed.

2.1 Sampling Procedures

The surface area enclosed by the flux chamber is small relative to the size of the source, so a series of measurements at various locations were made. These individual measurements were used to generate an average emission flux for each area and to estimate the spatial variability from point to point within each area. Ultimately, the data were used to develop an emission rate for the entire source.

Tritium, radon and VOC emissions were measured at up to twenty selected locations to develop a baseline, or overall, emission rate estimate for Area G. The selection of radon and VOC locations was based on getting coverage of as wide an area as possible while also collecting as much data as possible near any suspected hot spots. The baseline test matrix for Area G is shown in Table 1. Sampling locations for Area L are shown in Table 2.

Measurements of emissions of tritiated water vapor were also made at a series of locations within Area G that were potential "hot spots" based on waste disposal records and historical soil sampling data. Soil moisture collected in 1989 on a site-wide grid with sample points every 200 ft. showed three areas of elevated tritium activity. These were established as three potential tritium "hot spots" to be evaluated further in this present study. These locations are summarized in Table 3. The exact sampling locations were determined in the

field based on the dimensions and geometry of the suspected hot spots, and on any preliminary data available.

A set of measurements were made at twenty locations along the base of the mesa outside the fenceline for Areas G and L to evaluate whether any lateral off-site migration of vapors was occurring. This test matrix is shown in Table 4. Based on the 1993 test results, five locations each were selected for repeat tritium and VOC sampling. These points were sampled once during June of 1994 during the "dry" season and once during July of 1994 during the "wet" season. These locations are identified in Table 5.

The flux chamber sampling system consisted of a plexiglass flux chamber, sweep air (either ultra high purity air or nitrogen), a Type K thermocouple temperature readout, primary and secondary sorbent tubes, a sampling pump and sampling flow indicator. The pump was necessary to draw sample gas through the collection media. The sampling system is shown in Figure 1. Two modifications were made to the system shown in Figure 1: 1) a rotameter was in-line prior to the first silica gel tube to set the sampling flowrate; and 2) a second rotameter was in-line after the sampling pump to ensure that air was being exhausted from the system.

Gaseous emissions from the area were captured within the flux chamber, mixed with the sweep air and transported, via the sweep air, out an exit port and a pressure relief valve. For the purposes of tritium collection, silica gel sorbent tubes were attached to the exit port to absorb the tritiated water vapor in the gas stream. The silica gel was analyzed for the presence of

Table 1.
Test Matrix for Baseline Sampling at Area G

Sampling Point	Tritium	Radon	VOCs
T1	X		X
T2	X		X
T3	X	X	X
T4	X		X
T5	X		X
T6	X		X
T7	X	X	X
T8	X		X
T9	X		X
T10	X		X
T11	X		X
T12	X		X
T13	X	X	X
T14	X	X	X
T15	X		X
T16	X		X
T17	X		X
T18	X		X
T19	X	X	X
T20	X	X	X

Table 2.
Test Matrix for 1994 Sampling at Area L

Sampling Point	Tritium	VOCs
S1	X	X
S2	X	X
S3	X	X

Table 3.
Test Matrix for Tritium "Hot Spot" Sampling at Area G

Location	Number of Samples	ID of Sampling Points
1993 Sampling:		
Tritium Hot Spot #1	37	TR1-1 to TR1-41
Tritium Hot Spot #2	35	TR2-1 to TR2-69
Tritium Hot Spot #3	18	TR3-1 to TR3-18
Grassy Field	6	F1 to F6
Trench #10	8	P10-1 to P10-6
Shaft near 54-11	4	TR1-19 to TR1-22
Canyon Near TR1	10	C1 to C10
1994 Sampling:		
Tritium Hot Spot #1	21	TR1-101 to TR1-121
Tritium Hot Spot #2	3	TR2-101 to TR2-103

Table 4.
Test Matrix for Sampling Along Side of Mesa Near Area G

Sampling Point	Tritium	VOCs
C11	X	
C12	X	
C13	X	
C14	X	
C15	X	X
C16	X	
C17	X	
C18	X	
C19	X	
C20	X	
C21	X	
C22	X	X
C23	X	
C24	X	X
C25	X	
C26	X	
C27	X	X
C28	X	
C29	X	
C30	X	X

Table 5.
Test Matrix for 1994 Repeat Sampling at Area G

Sampling Point	Tritium	VOCs
T17	X	
T20	X	
TR1-24	X	X
TR1-30	X	
TR1-109 ^a	X	
T1		X
T2		X
T16		X
S3 ^b		X

^aReplaced point TR1-29 specified in test plan because TR1-29 obstructed by drilling activities during July repeat sampling.

^bReplaced point TR3-08 specified in test plan because TR3-08 obstructed by excavation debris during July repeat sampling.

Figure 1. Diagram of the Flux Chamber Sampling System.

tritium. Radon sampling was accomplished in the same manner, except that activated charcoal tubes were used as the collection media. During sampling, sorbent tubes were placed inside an ice chest to avoid exposing the sampling medium to direct sunlight, to avoid heating of the sampling media, and to prevent any photochemical reactions. The methods used for collection of tritium and radon samples are not standard, but are consistent with standard methods and procedures published by NIOSH³ and the U.S. EPA Air/Superfund program.⁴

Prior to sampling, the 1 inch by 6 inch primary and secondary silica gel tubes used to collect tritium emissions, were conditioned at 80°-120°C for several hours, weighed, and then sealed. The weight of the tubes was recorded. Each tube contained approximately 40 grams of silica gel which yielded a single-tube absorption capacity of approximately 12 grams of tritiated water. The primary tube contained Grade 15, mesh size 35-60 silica gel. The secondary tube contained indicating silica gel (the color of the silica gel changes from blue to pink upon exposure to water vapor), Grade 42, mesh size 6-16.

The charcoal tubes, used to collect radon emissions, were prepared in the field. Charcoal physically traps the radon gas. Plexiglass cylinders, approximately the same size as the tritium sampling cylinders, were filled with a measured amount of activated charcoal. Pipe to tubing connectors were installed at each end of the cylinder to contain the charcoal and provide inlet and outlet sample ports. Sampling was initiated by connecting the inlet of the charcoal tube to the flux chamber outlet line. The outlet port of the charcoal tube was connected to a sample pump and a flow measurement de-

vice. Sampling periods for radon were about 4 hours in duration.

For sampling, the flux chamber was placed directly over the area to be sampled and pressed into the soil to a depth of 2-3 centimeters. The sweep air was initiated at the desired flow rate (approximately 3 L/min) using both the sweep air regulator and the sweep air rotameter. The sweep air flowrate was at least 10% greater than the sampling pump flowrate. After four chamber residence times (60 minutes), the sorbent tubes were connected to the flux chamber followed by the sampling pump. The start time was recorded when the pump had begun drawing sample through the sorbent tubes.

The residence time, γ , is defined as the chamber volume divided by the sweep air flow rate. It typically takes three to four residence times before steady-state concentrations are reached inside the chamber and sampling can be initiated. The volume of the flux chamber is 30 liters. Assuming the sweep air flow rate was at least 2 liters/minute, steady state conditions were reached after 60 minutes $[(30/2) * 4 = 60]$.

Periodically following the initiation of sampling, the time, sweep air flowrate, sampling flowrate, interior chamber temperature, ambient air temperature, soil temperature, and the presence of color change in the indicator silica gel tube were recorded. Samples were collected for at least 4 hours or until breakthrough (saturation) was indicated by the indicator silica gel tube. If breakthrough occurred before completion of the sampling run, the run was considered complete and both tubes recovered for analysis. The flux chamber was wiped clean and dried prior to reuse. When the sam-

pling run was completed, the sorbent tubes were disconnected from the outlet line, weighed, transferred to glass jars, labeled, placed in ziploc bags, and sent to the laboratory for analysis.

Gas samples from the flux chamber were collected in SUMMA® polished stainless steel canisters for measurement of hydrocarbon soil emissions. The canister samples were taken after the flux chamber emissions reached a steady state level. The samples were drawn from a sampling manifold attached to the exit line of the flux chamber.

Soil samples were collected at each emission sampling location to determine soil moisture levels. A hand trowel was used to collect samples from the top several inches of soil at a given location. The soil was composited (i.e., mixed) in a pyrex pan and a sample aliquot of approximately 50 g was transferred to a beaker. The soil was weighed and then microwaved to dryness. The soil was cooled and then reweighed to determine the moisture fraction.

2.2 Analytical Procedures

The vapor phase water-bound tritium on silica gel samples were processed at Radian's Radiochemistry Laboratory in Austin. Once received, the tubes were stored at room temperature in order to minimize water condensation on the silica gel samples when they were briefly exposed to the laboratory atmosphere prior to analysis. The primary silica gel was placed in a distillation apparatus and heated to remove the trapped moisture. To prevent cross contamination, distillation glassware was rinsed with distilled mineral water (low

tritium level) and baked dry between distillations.

The silica gel condensate was collected and analyzed by liquid scintillation counting. This involved mixing a sample aliquot with a liquid scintillation mixture to yield a clear single phase mixture in a 20 milliliter (mL) scintillation vial. The vials were placed in the counter and dark adjusted for 1-2 hours before being counted on a Packard 2000CA liquid scintillation counter.

The count results for a set of ten quenched tritium standard vials from DuPont were used to establish a quench curve: tritium counting efficiency versus sample tSIE (Transform Spectral Index External Standard - a measure of sample quenching as determined using an external source). If the tSIE value of the sample fell between calibration points on the quench curve, linear interpolation were used to determine counting efficiency and calculate the tritium activity. For samples falling below the low standard, linear interpolation were performed using the low standard and the analytical blank.

The tritium region used in counting the samples was 0 to 18.6 kiloelectron volts (keV). The total count rate in the region from 0 to 2000 keV was also be measured to exclude the possibility of false counts from the tailing of high energy beta and alpha emitters. The presence of other beta and alpha emitters was unlikely due to the distillation/condensation step.

The Packard 2000CA was configured to record counts in both channels to indicate the presence of tritium and other contaminating isotopes in the samples. Sample results were reported by the laboratory as

picoCuries/liter (pCi/L) of water. These were converted to total tritium activity by multiplying by the water volume of the sample aliquot.

This method is substantially similar to EPA-600/4-80-032 Method 906.0 for Tritium in Drinking Water, which is designed for the preparation and measurement of drinking water samples. Since the samples in the study were silica gel, the use of sodium hydroxide or potassium permanganate (as specified in 906.0 to prevent radioiodine and radiocarbon contaminants in the drinking water sample from distilling over) was not necessary. Counting times were sufficient to meet the detection limit requirement using the equations provided in Appendix C of EPA-600/4-80-032.

Samples of radon emissions were collected on activated charcoal canisters. Radon analyses were performed by Thermo Analytical Inc. in Albuquerque, New Mexico using a gamma spectrometry system. The TMA/Eberline Activated Charcoal Canister Gamma Scintillation Counting System consists of a lead shielded, high sensitivity Bicron (Model G3 3" x 3" NaI(-TI)) Scintillation Detector; Nucleus, Inc. (Model 5010) Scintillation Amplifier and HV Power Supply, coupled to a Nucleus, Inc. (Model PCA-1000 Multichannel Analyzer Card and IBM/XT compatible computer, which utilizes the Nucleus, Inc. PCA-1000 EPA/Radon version 880104-HC Multichannel Analysis Program. All Rn-222 analyses were performed pursuant to EPA "Interim Indoor Radon and Radon Decay Product Measurements Protocol 2.4." To further ensure analytical accuracy and precision, the counting system was calibrated with a NIST standard with a lower level of

detection limit maintained at 0.5 pCi/l or less.

There are three prominent gamma rays from radon decay products that are used to measure the radon concentration. Radon has a 3.8-day half-life, so the analysis were performed within 1 to 2 half-lives of sample collection and the results adjusted for the time delay between sample collection and analysis.

Samples for speciated VOC analysis were collected from the flux chamber in evacuated, stainless-steel canisters. The analysis of volatile organic compounds collected in the evacuated canisters was performed using a gas chromatograph (GC) equipped with dual columns and multiple detectors. The detectors included a flame ionization detector (FID), a photoionization detector (PID), and an electrolytic conductivity detector (ELCD).

The canisters were pressurized with UHP-grade nitrogen or air to both dilute the sample and facilitate its removal from the canister. During analysis, the canister sample was collected on cryogenic traps to concentrate the sample and provide lower detection limits. The traps were thermally desorbed and the material cryogenically focussed onto a capillary column for compound separation. One column eluent was analyzed by the FID and PID detectors arranged in series or parallel configurations, and the eluent from the second column was analyzed by the ELCD. The FID/PID was used to quantify the aromatic and aliphatic hydrocarbons. The ELCD was used to quantify most halogenated hydrocarbon species.

Radian has three different GC systems that can be used to analyze samples. Whenever possible, all canister samples were analyzed on the same analytical system. The operating parameters for the three analytical systems are provided in Table 6.

The gas chromatographic-multidetector data was collected with a Nelson 2600 data acquisition system. The raw data were printed as peak areas, retention times, and chromatograms for review. The data also were stored on magnetic media for further data manipulation and permanent storage. Radian software, RPIP (Radian Peak Identification Program), were used to process the multidetector data, assign peak identification, and calculate peak concentrations.

Identification of peaks was based on normalized retention times, detector responses, and individual responses from the daily calibration standard. The retention time of each peak on the FID was calculated relative to the retention time of toluene (RRT). The PID data were scanned for any peaks that matched the FID retention times. The corresponding PID/FID response ratio were then compared with the sample's PID/FID response for toluene to generate a toluene-normalized response (TNR) factor. Different compound classes and individual compounds produce characteristic TNRs. The RRT and TNR data were compared to target compound database parameters for potential matches. The potential matches were reviewed and validated by experienced personnel to ensure data quality. During this program, only compounds on the target analyte list were validated. The quantitation of each target compound was based on individual response factors, which were calculated daily by analyzing a low-level standard containing all the target analytes.

During the 1993 sampling, soil samples and sampling media were weighed using a Fisher Model 7204 top loader balance. During the 1994 sampling, a Mettler PM600 top loader balance was used. Both balances were capable of determining mass to ± 10 mg (0.01g).

2.3 Quality Control Procedures

The quality control procedures employed in this program are described in detail in the two quality assurance project plans (QAPPs).^{5,6} Prior to the start of sampling, the measurement equipment components (i.e., rotameters, temperature readouts, and analytical balance) each were calibrated at three or more points and their linearity established. During the field sampling, several QC checks were performed in the field:

System Blanks -- Enclosures were checked for contamination by placing the flux chamber over a flat, clean surface (Teflon) and operating the flux chamber in a normal manner. This procedure was performed at least once per week. Samples were collected for tritium, radon, and VOCs and shipped off-site for analysis.

Duplicate Sampling -- Duplicate samples were collected for tritium, radon, and VOC samples to estimate the sampling variability associated with each of the above samples. The number of duplicates was a minimum of 10% each of the tritium, radon, and VOC samples collected. Sample collection for duplicate pairs was done by collecting duplicate samples from a single flux chamber system.

Control Point Sampling -- As a measure of temporal variability of the emis-

Table 6.
Gas Chromatograph Specifications

Instrument:	Varian 3000*	HP 5880	HP 5890 Series I GC
Columns:	60m x 0.32 SE-54	FID/PID-60m x 0.32 mm id DB-1	FID/PID-60m x 0.32 mm id DB-1
	60m x 0.32 SE-54	ELCD=60m x 0.25 mm id DB-1	ELCD=60m x 0.25 mm id DB-1
Column Flows:	2 mL/min	2 mL/min	FID: 2.8 mL/min ELCD: 1.9 mL/min
Oven Temperatures:			
Initial	-50°C for 2 min hold	-50°C for 2 min hold	-50°C for 2 min hold
Rates	6°C/min to 100°C	6°C/min to 150°C then 20°C to 240°C	6°C/min to 175°C then 15°C to 230°C
Detector Parameters:			
FID: Detector Temperature H2 Air Makeup Injector Temperature	220°C 40-mL/min 300-mL/min 30-mL/min 220°C	250°C 31 mL/min 400-mL/min 30-mL/min 200°C	275°C 34 mL/min 300-mL/min See PID 250°C
PID: Lamp intensity Makeup Detector Temperature	10 25 mL/min 200°C	1 24 mL/min 200°C	Med 27 mL/min 200°C
ELCD: H2 Makeup Detector Temperature Solvent Solvent Rate	40-mL/min 40-mL/min 875°C Propanol 500µL/min	100-mL/min 30-mL/min 860°C Propanol 45 µL/min	60-mL/min 35 mL/min 860°C Propanol 35 µL/min
Cryogenic System:			
N2 Purge:	25 psig	25 psig	<10 psig
Heat Valve Box Temp.	75°C	150°C	150°C

*System used for high-level (ppm) samples.

sion rate, a control point was resampled. For tritium sampling, the control point was sampled once or twice per week.

Sample handling and sample custody procedures were based on standard U.S. EPA procedures. Information related to field sampling activities was recorded on preformatted sampling sheets or in bound notebooks. Each entry was dated and signed or initialed. All samples were labeled and given a unique tracking number. A record of all samples was kept in a bound logbook. A chain-of-custody form was prepared in the field for each sample and accompanied the samples to the laboratory.

The analytical laboratories each followed their standard quality control program, as outlined in the QAPPs. Elements of the program included instrument calibrations, response factor checks, retention time checks, analytical blanks, spiked samples, and verification of canister cleanliness prior to use. Sampling and analytical precision associated with the collection of flux chamber tritium, radon, and VOC samples was evaluated through the collection of duplicate samples (simultaneous collection of two samples) and replicate analyses (repeated laboratory analyses of the same samples). The analytical accuracy of the flux chamber tritium, radon, and VOC measurements was evaluated by the analysis of internal laboratory standards.

3.0 RESULTS

This section contains tabulated results for the 1993 and 1994 sampling campaigns. The values for radon and tritium given in various tabulations are total activity and have units of picoCuries (pCi) per sample. The values for VOCs are concentrations and have units of micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). The tabulated values have not been corrected for field, method, or system blank values.

The results are further reduced and discussed in Section 4. The results of quality control checks are summarized in Section 5.

3.1 Results of 1993 Sampling Campaign

All sampling in 1993 was for Area G. The master log for the 1993 sampling is given in Appendix A to this report; it contains information about the location, time, duration, etc. of each sampling episode. A series of measurements were made at each of a number of general locations within Area G. The twenty sampling locations for determining the baseline emissions from Area G are depicted in Figure 2. Figure 3 is an overview of the site showing the general location of the suspected tritium hot spots as well as other sampling areas that are depicted in Figures 4 through 8.

The measured concentrations of VOCs, radon, and tritium are summarized in Tables 7, 8, and 9, respectively. In each case, these are the concentrations measured in the air inside the flux chamber sampler and are concentrated relative to ambient air. The complete analytical reports for the VOC samples are given in Appendix C. Based on

the blank values, any tritium activity of less than about 100-200 pCi is equal to background and all such values are essentially equivalent. The detection limit was approximately 5 pCi, which is well below the blank and background values that were measured. The weight percent of moisture was determined for the surface soils at each sampling point. These data are included in Table 9.

3.2 Results of 1994 Sampling Campaign

The master log for the 1994 sampling is given in Appendix B to this report; it contains information about the location, time, duration, etc. of each sampling episode. A series of measurements were made at each of several general locations within Area G as well as at three locations just outside the Area L fenceline.

3.2.1 Area G Results

The measured concentrations of VOCs and tritium are summarized in Tables 10 and 11, respectively. In each case, these are the concentrations measured in the air inside the flux chamber sampler and are concentrated relative to ambient air. The complete analytical reports for the VOC samples are given in Appendix D. The weight percent of moisture was determined for the surface soils at each sampling point. These data are included in Table 11. Sampling locations at suspected tritium hot spots are shown in Figures 4, 5, and 6. The suspected hot spots were identified based on 1989 surface soil sampling results (see Appendix F for 1989 data). Sampling locations outside the fenceline alongside the mesa are shown in Figure 2.

Figure 2. Location of Sampling Points T1 - T20 and C11 - C30.

Figure 3. Overview of Sampling Locations.

TA-54 Flux Study

Figure 4. Location of Sampling Points at Tritium Hot Spot #1.

Figure 5. Location of Sampling Points at Tritium Hot Spot #2.

TA-54 Flux Study

Figure 6. Location of Sampling Points at Tritium Hot Spot #3.

Figure 7. Location of Sampling Points Near Trench #10.

Figure 8. Location of Sampling Points in Large, Grassy Field.

Table 7.
Summary of Measured VOC Concentrations of Selected Analytes

Sample ID	Sample Location	Concentration within Flux Chamber ^c (µg/m ³)					
		TNMHC	Methanol	Acetone	Methylene Chloride	1,1,1-TCA ^a	PCE ^b
A141	T1	2900	ND	210	498	7.1	7.8
A002	T2	1010	97.9	82.9	2920	22.9	159
A003	T3	435	37.4	38.8	1840	1.3	76.1
A145	T4	136	10.9	43.2	218	ND	1.9
A142	T5	177	ND	11.7	496	ND	8.7
A143	T6	560	ND	128	761	ND	23.2
A144	T7	391	ND	48.4	663	ND	19.7
A008	T8	919	44.5	73.2	3610	8.6	211
A010/A011	T9	281	17.7	8.1	938	1.0	57.8
A012	T10	2050	121	63.8	3800	63.0	238
A025	T11	1010	98.2	91.9	1130	63.7	61.3
A026	T12	259	5.1	7.8	1060	44.3	34.7
A027/A029	T13	292	20.4	17.7	338	21.1	17.0
A028	T14	421	31.5	24.9	793	9.2	45.7
A030	T15	623	131	72.2	1950	3.9	74.8
A031	T16	17100	489	64.8	2640	6.8	162
A032	T17	1140	137	27.8	3030	624	138
A033	T18	1070	10.1	11.4	4210	440	218
A034	T19	2310	121	268	4030	117	172
A035	T20	1970	114	186	3390	20.5	144
A050	T20	445	53.1	14.9	1840	100	52.5
A009	Field blank	4.3	ND	1.1	0.6	ND	ND
A049	System blank	249	1.1	ND	560	ND	10.6

^a 1,1,1-Trichloroethane

^b Tetrachloroethylene

^c Concentrations used to calculate emission fluxes.

ND = Not Detected. A value of 0 was assigned to the non detects.

TNMHC = Total Non-Methane Hydrocarbon (based on carbon number of 6 and a molecular weight of 84).

X/X = Duplicate sample. Values shown are averages of two or more determinations.

Table 8.
Summary of Measured Concentrations of Radon

Sample ID	Sample Location	Activity		Comments
		Total (pCi)	Concentration ^a (pCi/m ³)	
A018	T7	98.4	200	
A024	T3	115	440	
A038/A039	T13	29.5	240	Field duplicate
A040	T14	32.8	< 100	
A045	T19	65.6	455	Analytical duplicate
A054	T20	203	205	Analytical duplicate

^a Concentration within flux chamber. These concentrations (activities) were used to calculate emission fluxes.

Notes: 1. Field blank had activity of < 100 pCi/m³
2. System blank had activity of 110 pCi/m³
3. X/X = Duplicate sample. Values shown are averages of two or more determinations.

Table 9.
Measured Soil Moistures and Tritium Activities - 1993 Monitoring

Date	Sample ID	Grid Point	Soil Moisture (%)	Total Tritium Activity* (pCi)	Comments
6-29-93	A013	T1	1.75	54.4	
	A014	T2	1.37	74.3	
	A015	T4	1.61	108	
	A016	T5	0.71	67.3	
	A017	T6	3.14	34.6	
	A018	T7	1.20	52.1	
	A019	T8	1.46	37.1	
	A020	T9	1.40	51.8	Duplicate flux measurement
	A021	T9	N/A	68.5	Duplicate flux measurement
	A022	T10	1.81	38.5	
6-30-93	A024	T3	1.37	43.7	
7-01-93	A036	T12	1.25	47.2	
	A037	T11	5.36	40.8	
	A038	T13	1.68	33.3	Duplicate flux measurement
	A039	T13	N/A	27.9	Duplicate flux measurement
	A040	T14	2.26	64.6	
	A041	T15	2.97	156	
	A042	T16	1.96	44.5	
	A043	T17	0.35	452	
	A044	T18	1.94	55.3	
	A045	T19	0.18	38.0	
	A046	T20	2.58	39.2	
7-06-93	A053	T20	--	97.9	Control point
8-25-93	A055	TR2-4	7.97	134	
	A056	TR2-9	9.10	305	
	A057	TR2-14	2.89	397	
	A058	TR2-20	3.57	220	
	A059	TR2-28	4.60	135	
	A060	TR2-34	3.53	268	

Table 9
(Continued)

Date	Sample ID	Grid Point	Soil Moisture (%)	Total Tritium Activity* (pCi)	Comments
8-25-93 Cont'd	A061	TR2-40	2.80	501	
	A062	TR2-44	5.81	272	
	A063	TR2-45	3.09	10,100	Duplicate flux measurement
	A064	TR2-45	N/A	5,940	Duplicate flux measurement
	A065	T20	6.29	104	Control point
8-26-93	A068	TR2-44	6.57	457	
	A069	TR2-34	5.62	308	
8-30-93	A070	T20	--	99.8	Control point
	A071	TR2-44	15.8	197	
	A072	TR2-34	12.2	150	
8-31-93	A075	TR2-49	9.68	66.2	Duplicate flux measurement
	A076	TR2-49	N/A	92.2	Duplicate flux measurement
	A077	TR2-43	14.0	663	
	A078	TR2-42	10.4	457	
	A079	TR2-19	9.53	108	
	A080	TR2-22	9.86	82.4	
	A081	TR2-24	8.42	63.1	
	A082	T17	9.67	244	
	A083	T18	9.19	82.3	
	A084	T15	14.6	73.1	(Possible pump malfunction)
	A085	TR2-50	4.87	86.2	
9-02-93	A086	TR3-16	20.2	122	
	A087	TR3-12	13.0	179	
	A088	TR3-14	12.8	127	
	A090	TR3-13	15.1	111	
	A091	TR3-17	19.0	139	
	A092	TR3-11	13.8	140	Duplicate flux measurement
	A093	TR3-18	12.2	129	

Table 9
(Continued)

Date	Sample ID	Grid Point	Soil Moisture (%)	Total Tritium Activity* (pCi)	Comments
9-02-93 Cont'd	A094	T20	12.1	166	Control point
	A095	TR3-15	14.4	146	
	A096	TR3-11	13.8	143	Duplicate flux measurement
9-03-93	A097	TR3-6	9.54	144	
	A098	TR3-5	8.52	127	
	A099	TR3-3	8.32	121	
	A100	TR3-2	9.67	116	
	A101	TR3-1	7.96	163	
	A102	TR3-9	9.79	125	
	A103	TR3-7	10.4	138	Duplicate flux measurement
	A104	TR3-7	N/A	120	Duplicate flux measurement
	A105	TR3-8	11.2	207	
	A106	TR3-10	8.02	156	
9-08-93	A110	TR1-15	16.0	282	
	A111	TR1-16	13.0	253	
	A112	TR1-18	18.8	179	
	A113	TR1-14	9.95	249	
	A114	TR1-17	13.1	281	
	A115	TR1-13	18.0	184	
	A116	TR1-5	7.61	14,200	
	A117	TR1-7	7.83	128	Duplicate flux measurement
	A118	TR1-6	4.95	190	
	A119	TR3-4	16.4	106	
	A120	TR1-7	N/A	1,040	Duplicate flux measurement
	A121	T20	11.1	101	Control point
9-09-93	A123	T20	--	92.6	Control point
	A124	TR1-1	5.66	82.1	
	A125	TR1-9	7.47	1,300	

Table 9
(Continued)

Date	Sample ID	Grid Point	Soil Moisture (%)	Total Tritium Activity* (pCi)	Comments
9-09-93 Cont'd	A126	TR1-11	5.80	660	
	A127	TR1-4	6.98	3,090	
	A128	TR1-8	8.31	35,500	
	A129	TR1-2	4.62	145	Duplicate flux measurement
	A130	TR1-3	8.03	998	
	A131	TR1-12	4.87	316	
	A132	TR1-10	6.44	495	
	A133	TR1-2	4.87	258	Duplicate flux measurement
	A136	TR1-10	6.38	421	24-Hour flux test
	A137	TR1-10	6.76	752	24-Hour flux test
9-10-93	A138	TR1-10	8.34	433	24-Hour flux test
	A140	T4	6.23	160	
	A141	T1	11.8	N/A	VOC flux measurement
	A142	T5	3.22	N/A	VOC flux measurement
	A143	T6	7.93	N/A	VOC flux measurement
	A144	T7	6.08	N/A	VOC flux measurement
	A147	TR1-10	--	536	24-Hour flux test
9-14-93	A148	T20	14.2	132	Control point
	A149	TR2-51	7.53	562	
	A150	TR2-52	9.39	125	
	A151	TR2-53	9.21	171	
	A152	TR2-54	6.80	176	Duplicate flux measurement
	A153	TR2-55	8.08	182	
	A154	TR2-56	10.6	155	
	A155	TR2-57	8.84	315	
	A156	TR2-58	13.5	6,390	
	A157	TR2-59	10.1	688	
	A158	TR2-54	N/A	406	Duplicate flux measurement

Table 9
(Continued)

Date	Sample ID	Grid Point	Soil Moisture (%)	Total Tritium Activity* (pCi)	Comments
9-15-93	A160	TR2-60	6.97	110	
	A161	TR2-61	9.66	127	
	A162	TR2-62	10.8	196	
	A163	TR2-63	8.12	136	
	A164	TR2-64	9.38	174	
	A165	TR2-65	9.62	208	
	A166	TR2-66	8.73	254	
	A167	TR2-67	10.8	1,290	Duplicate flux measurement
	A168	TR2-67	N/A	2,110	Duplicate flux measurement
	A169	TR2-68	7.59	468	
	A170	TR2-69	8.74	1,930	
9-16-93	A173	P10-01	10.5	64.4	
	A174	P10-02	8.43	76.9	
	A175	P10-03	12.7	162	Duplicate flux measurement
	A176	P10-04	12.7	55.8	
	A177	P10-05	9.78	62.9	
	A178	P10-06	10.1	97.4	
	A179	P10-07	8.63	60.0	
	A180	P10-08	10.4	65.0	
	A181	P10-03	12.7	103	Duplicate flux measurement
	A182	T20	11.3	55.9	
9-17-93	A185	TR1-19	4.98	103	
	A187	TR1-20	6.95	281	
	A188	TR1-21	9.36	841	
	A189	TR1-22	6.47	201	
	A190	TR1-24	5.87	31,600	Duplicate flux measurement
	A191	TR1-24	N/A	35,000	Duplicate flux measurement
	A192	TR1-23	8.22	7,120	

Table 9
(Continued)

Date	Sample ID	Grid Point	Soil Moisture (%)	Total Tritium Activity* (pCi)	Comments
9-17-93 Cont'd	A193	TR1-25	6.91	1,320	
	A194	TR1-26	8.28	1,250	N ₂ flow stopped during run
	A195	TR1-27	10.3	2,140	
	A196	TR1-28	9.16	2,590	
9-21-93	A200	TR1-30	3.55	2,710	Duplicate flux measurement
	A201	TR1-30	N/A	6,370	Duplicate flux measurement
	A202	TR1-31	4.43	10,400	
	A203	TR1-29	2.20	72,200	
	A204	TR1-36	3.39	387	
	A205	TR1-32	1.62	2,970	
	A206	T20	4.36	248	
	A207	TR1-37	7.05	395	
	A208	TR1-34	2.47	309	
	A209	TR1-33	3.85	947	
9-22-93	A210	TR1-35	1.78	4,170	
	A211	F3	4.25	232	
	A212	TR1-41	6.34	645	
	A213	F6	4.46	189	
	A214	F4	5.57	8,630	
	A215	F1	3.89	1,110	
	A216	TR1-39	5.92	24,800	
	A217	TR1-40	4.02	1,810	Duplicate flux measurement
	A218	F2	3.77	163	
	A219	TR1-38	4.67	12,100	
	A220	F5	4.70	132	
	A221	TR1-40	4.02	1,440	Duplicate flux measurement
9-21-93	A223	T20	4.36	176	Overnight flux run
9-23-93	A224	T20	7.86	130	

Table 9
(Continued)

Date	Sample ID	Grid Point	Soil Moisture (%)	Total Tritium Activity ^a (pCi)	Comments
9-24-93	A226	C1	3.95	49.5	
	A227	C2	2.74	73.1	
	A228	C3	0.40	77.6	
	A229	C4	2.25	155	
	A230	C5	4.85	653	
	A231	C6	2.16	542	
	A232	C7	2.44	548	Duplicate flux measurement
	A233	C7	N/A	684	Duplicate flux measurement
	A234	C8	2.42	70.5	
	A235	C9	1.61	165	
	A236	C10	0.86	219	

^a Activity values used to calculate emission fluxes.

Table 10
Summary of Measured VOC Concentrations of Selected Analytes

Sample ID	Sample Location	Concentration within Flux chamber ^c (µg/m ³)					
		TNMHC	Methanol	Acetone	Methylene Chloride	1,1,1-TCA ^a	PCE ^b
A301/A302	T1	33.7	ND	5.4	150	14.3	5.8
A303	T2	449	ND	ND	197	5.3	7.6
A304	TR1-24	1290	ND	11.5	337	1.5	14.0
A305	T16	53.1	ND	5.0	446	4.5	42.8
A306	TR3-08	98.1	ND	1.6	281	77.2	15.2
A319	C15	2400	109	16.4	48.8	3.1	0.7
A320	C22	788	21.2	19.6	210	1.8	3.8
A334	C30	544	16.7	ND	118	1.0	2.7
A335	C27	284	117	59.3	249	0.8	5.3
A343	C24	1160	ND	16.9	71.4	11.1	2.3
A459	T1	212	ND	20.5	233	28.6	6.0
A460	T2	12.6	ND	2.1	214	5.5	7.2
A461	TR1-24	21.5	ND	0.8	178	10.9	5.4
A463	T16	5.6	ND	1.6	106	3.3	2.2
A336	Field blank	293	106	ND	27.9	3.5	ND
A486	System blank	76.6	3.4	9.2	211	ND	2.8
A359	System blank	27.8	11.2	ND	89.1	ND	1.4
A372	Background point	832	ND	ND	498	0.5	20.9

^a 1,1,1-Trichloroethane

^b Tetrachloroethylene

^c Concentrations used to calculate emission fluxes.

ND = Not Detected. A value of 0 was assigned to the non detects.

TNMHC = Total Non-Methane Hydrocarbon (based on carbon number of 6 and a molecular weight of 84).

Table 11
Measured Soil Moistures and Tritium Activities - 1994 Monitoring

Date	Sample ID	Grid Point	Soil Moisture (%)	Total Tritium Activity (pCi)*	Comments
6-02-94	A301	T1	5.90	N/A	VOC flux measurement
	A303	T2	7.40	N/A	VOC flux measurement
	A304	TR1-24	6.45	N/A	VOC flux measurement
	A305	T16	9.11	N/A	VOC flux measurement
	A306	TR3-08	11.4	N/A	VOC flux measurement
6-06-94	A307	TR1-29	0.48	132,000	
	A308	TR1-30	0.22	23,300	
	A309	TR1-24	1.26	273,000	
	A310	T20	1.36	122	Control point
	A311	T17	0.16	617	
6-07-94	A313	C12	0.42	51.8	
	A314	C11	0.75	51.9	
	A315	C13	0.97	64.8	
	A316	C14	3.45	49.6	
	A317	C15	2.36	57.8	Duplicate flux measurement
	A318	C15	N/A	49.0	Duplicate fulx measurement
6-08-94	A321	C19	1.91	2,000	
	A322	C17	2.18	138	
	A323	C18	1.88	111	
	A324	C16	2.34	120	
	A325	C20	1.40	658	
	A326	C21	3.91	168	
	A327	C22	4.75	80.3	
	A328	C23	6.97	138	
6-09-94	A337	C27	4.20	62.0	
	A338	C28	1.86	89.2	
	A339	C29	3.93	84.4	
	A340	C30	3.15	72.8	Duplicate flux measurement
	A341	C30	N/A	71.6	Duplicate flux measurement

Table 11.
(Continued)

Date	Sample ID	Grid Point	Soil Moisture (%)	Total Tritium Activity (pCi) ^a	Comments
6-10-94	A344	C24	5.40	115	
	A345	C25	4.84	79.3	
	A346	C26	2.44	93.6	
6-13-94	A376	T20	2.49	155	Control point
	A378	B1	4.48	71.0	Background point
6-14-94	A393	T20	2.49	243	Control point
6-15-94	A394	TR1-101	1.06	12,300	
	A395	TR1-102	4.38	1,970	
	A396	TR1-103	1.25	10,700	
	A397	TR1-104	4.00	3,370	
	A398	TR1-114	3.41	5,340	Duplicate flux measurement
	A399	TR1-114	N/A	6,150	Duplicate flux measurement
6-16-94	A408	TR1-105	0.72	5.36e+08	
	A409	TR1-106	0.33	4.40e+07	
	A410	TR1-107	1.10	15,300	
	A411	TR1-108	0.90	2.51e+06	
	A412	TR1-109	0.58	3.75e+08	
	A413	TR1-110	--	72,700	
	A414	TR1-111	--	9.31e+07	
	A415	TR1-112	--	1.76e+08	
	A416	TR1-113	--	77,100	
	A417	TR1-115	--	1,140	
6-17-94	A431	T20	2.28	370	Control point
	A432	TR2-103	1.15	4.54e+06	
	A433	TR2-101	0.51	2.03e+06	
	A434	TR2-102	2.35	54,200	Duplicate flux measurement
	A435	TR2-102	N/A	78,000	Duplicate flux measurement
7-25-94	--	T17	4.38	N/A	
	--	T20	7.85	N/A	
	--	TR1-24	5.24	N/A	

Table 11.
(Continued)

Date	Sample ID	Grid Point	Soil Moisture (%)	Total Tritium Activity (pCi) ^a	Comments
7-26-94	A446	TR1-24	4.68	211,000	Duplicate flux measurement
	A447	TR1-24	N/A	163,000	Duplicate flux measurement
	A448	T20	6.03	1,770	Control point
	A449	TR1-30	1.97	17,900	
	A450	TR1-109	2.34	7.82e+06	
	A451	T17	2.34	1,600	
7-27-94	A452	TR1-116	8.46	1,520	
	A453	TR1-117	7.29	3,600	Duplicate flux measurement
	A454	TR1-117	N/A	8,730	Duplicate flux measurement
	A455	TR1-118	9.23	1,370	
	A456	TR1-119	8.13	756	
	A457	TR1-120	8.25	707	
	A458	TR1-121	10.1	257,000	
7-28-94	A459	T1	9.87	N/A	VOC flux measurement
	A460	T2	7.42	N/A	VOC flux measurement
	A461	TR1-24	7.29	N/A	VOC flux measurement
	A463	T16	10.4	N/A	VOC flux measurement
	--	T17	6.55	N/A	

^a Activity values used to calculate emission fluxes.

3.2.2 Area L Results

The three locations sampled for Area L are shown in Figure 9. The measured concentrations of VOCs and tritium for the Area L samples are summarized in Tables 12 and 13, respectively.

Figure 9. Location of Sampling Points for Area L.

Table 12.
Summary of Measured VOC Concentrations of Selected Analytes
Area L Samples

Sample ID	Sample Location	Concentration within Flux Chamber ^c (μg/m ³)					
		TNMHC	Methanol	Acetone	Methylene Chloride	1,1,1-TCA ^a	PCE ^b
A418/A419	S3	202	21.8	11.7	73.4	600	34.2
A420	S1	818	29.1	23.8	199	892	36.8
A421	S2	449	32.1	42.7	148	1210	77.2
A488	S3	306	ND	32.0	710	722	71.8

^a 1,1,1-Trichloroethane

^b Tetrachloroethylene

^c Concentration values used to calculate emission fluxes.

ND = Not Detected. A value of 0 was assigned to the non detects.

TNMHC = Total Non-Methane Hydrocarbon (based on carbon number of 6 and a molecular weight of 84).

X/X = Duplicate sample. Values shown are averages of two or more determinations.

Table 13.
Measured Soil Moistures and Tritium Activities for Area L Samples

Date	Sample ID	Grid Point	Soil Moisture (%)	Total Tritium Activity ^a (pCi)	Comments
6-17-94	A428	S1	0.18	121	
	A429	S2	1.17	754,000	
	A430	S3	2.21	1.16e+06	
7-28-94	A487	S3	9.16	N/A	VOC flux measurement

^a Activity values used to calculate emission fluxes.

4.0 DISCUSSION OF RESULTS

In this section, the results given in the previous section are further reduced and discussed. The spatial and temporal variability in emissions are evaluated. The degree of correlation with environmental and site-specific factors also are evaluated. An overall annual emission rate from Area G is calculated.

4.1 Calculated Emission Fluxes

Emission fluxes (mass per time per unit area) were calculated from the uncorrected activity and concentration data. Example calculations are given in Appendix E. The emission fluxes were calculated as follows. For VOCs, the applicable equation is:

$$EF = \frac{C \cdot Q}{A} \quad (Eq. 4-1)$$

where:

- EF = Emission flux ($\mu\text{g}/\text{min}\cdot\text{m}^2$);
- C = Concentration ($\mu\text{g}/\text{m}^3$);
- Q = Sweep air flow rate (m^3/min); and
- A = Surface area (m^2).

For tritium and radon, an activity was measured rather than a gas-phase concentration, so a slightly modified equation must be used:

$$EF = \frac{C \cdot R}{A \cdot t} \quad (Eq. 4-2)$$

where:

- EF = Emission flux ($\text{pCi}/\text{min}\cdot\text{m}^2$);
- C = Concentration (pCi);

- R = Ratio of sweep air flow to sampling flow (m^3/m^3);
- A = Surface area (m^2); and
- t = Duration of sample collection (min).

The ratio of sweep air flow to sampling flow adjusts the activity to account for the fact that excess air was added to the flux chamber to avoid diluting the samples with ambient air; i.e. the sweep air flow rate needed to exceed the sampling flow rate. Therefore, only a fraction of the total air introduced to the flux chamber was pulled through the sampling media (generally about 60-80% of the sweep air was sampled).

The calculated emission fluxes for the twenty baseline sampling locations are shown in Table 14. The calculated emission fluxes of tritium and VOCs for selected areas at Area G are given in Tables 15 and 16, respectively. The calculated emission fluxes of tritium and VOCs for Area L are given in Tables 17 and 18, respectively.

In equations 4-1 and 4-2 (and the tabulated results), the emission fluxes are not corrected for blank or background values. Therefore, they represent conservative values. Based on the blank and background samples collected during the program, the overall detection limit for tritiated water measurements was approximately 3 $\text{pCi}/\text{m}^2\cdot\text{min}$. This is based on Equation 4-2 and typical values of:

- C = Analytical background (blank) value of 100 pCi ;
- R = Air ratio of 1.25;
- A = Surface area sampled by flux chamber of 0.13 m^2 ; and
- t = Sampling duration of 300 minutes.

Table 14.
Summary of Calculated Emission Fluxes for Twenty Baseline Points

Sample Location	Emission Flux			
	Tritium (pCi/min-m ²)	Radon (pCi/min-m ²)	TNMHC (µg/min-m ²)	Methylene Chloride (µg/min-m ²)
T1	1.65	--	38.8	6.67
T2	2.26	--	16.7	48.3
T3	2.98	7.84	7.53	31.8
T4	6.00	--	3.04	4.88
T5	2.12	--	3.93	11.0
T6	1.16	--	12.4	16.9
T7	1.77	3.33	9.14	15.5
T8	1.27	--	14.8	58.0
T9	5.99	--	4.84	16.2
T10	1.51	--	34.8	64.6
T11	4.05	--	20.9	23.4
T12	4.45	--	4.36	17.9
T13	8.28	8.38	5.12	5.93
T14	2.98	1.51	6.93	13.0
T15	16.2	--	11.0	34.4
T16	5.89	--	278	42.8
T17	49.0	--	19.6	52.0
T18	5.48	--	17.5	69.0
T19	4.28	7.38	37.7	65.7
T20	3.86	20.0	7.74	32.0
Detection Limit ¹	1.5	1.5	0.04	0.04

¹Based on blank/background values. Analytical detection limits for tritium and radon were 1-2 orders of magnitude better than values shown.

Table 15.
Tritiated Water Fluxes Measured for Select Locations at Area G

Date	Sample ID	Grid Point	Tritiated Water Flux (pCi/m ² -min)	Comments
Hot Spot #1 (TR1)				
9-09-93	A124	TR1-1	2.86	
9-09-93	A129	TR1-2	8.65	Duplicate
9-09-93	A133	TR1-2	15.2	Duplicate
9-09-93	A130	TR1-3	35.1	
9-09-93	A127	TR1-4	122	
9-08-93	A116	TR1-5	416	
9-08-93	A118	TR1-6	6.82	
9-08-93	A117	TR1-7	8.10	Duplicate
9-08-93	A120	TR1-7	64.9	Duplicate
9-09-93	A128	TR1-8	1,280	
9-09-93	A125	TR1-9	46.8	
9-09-93	A132	TR1-10	18.0	
9-09-93	A136	TR1-10	16.3	24-Hour Test
9-09-93	A137	TR1-10	13.6	24-Hour Test
9-10-93	A138	TR1-10	10.1	24-Hour Test
9-10-93	A147	TR1-10	28.4	24-Hour Test
9-09-93	A126	TR1-11	27.8	
9-09-93	A131	TR1-12	13.0	
9-08-93	A115	TR1-13	6.62	
9-08-93	A113	TR1-14	7.70	
9-08-93	A110	TR1-15	9.63	
9-08-93	A111	TR1-16	9.59	
9-08-93	A114	TR1-17	9.69	
9-08-93	A112	TR1-18	6.86	
9-17-93	A185	TR1-19	3.62	
9-17-93	A187	TR1-20	8.33	
9-17-93	A188	TR1-21	28.1	
9-17-93	A189	TR1-22	7.33	
9-17-93	A192	TR1-23	239	
9-17-93	A190	TR1-24	1,960	Duplicate
9-17-93	A191	TR1-24	2,020	Duplicate

Table 15.
(Continued)

Date	Sample ID	Grid Point	Tritiated Water Flux (pCi/m ² -min)	Comments
6-06-94	A309	TR1-24	10,700	
7-26-94	A446	TR1-24	17,600	Duplicate
7-26-94	A447	TR1-24	12,500	Duplicate
9-17-93	A193	TR1-25	43.0	
9-17-93	A194	TR1-26	40.2	N ₂ stopped during run
9-17-93	A195	TR1-27	76.5	
9-17-93	A196	TR1-28	94.8	
9-21-93	A203	TR1-29	2,020	
6-06-94	A307	TR1-29	4,150	
9-21-93	A200	TR1-30	182	Duplicate
9-21-93	A201	TR1-30	347	Duplicate
6-06-94	A308	TR1-30	896	
7-26-94	A449	TR1-30	697	
9-21-93	A202	TR1-31	439	
9-21-93	A205	TR1-32	114	
9-21-93	A209	TR1-33	33.6	
9-21-93	A208	TR1-34	13.7	
9-21-93	A210	TR1-35	137	
9-21-93	A204	TR1-36	14.6	
9-21-93	A207	TR1-37	13.0	
9-22-93	A219	TR1-38	425	
9-22-93	A216	TR1-39	899	
9-22-93	A217	TR1-40	107	Duplicate
9-22-93	A221	TR1-40	106	Duplicate
9-22-93	A212	TR1-41	24.0	
6-15-94	A394	TR1-101	253	
6-15-94	A395	TR1-102	45.6	
6-15-94	A396	TR1-103	209	
6-15-94	A397	TR1-104	77.1	
6-16-94	A408	TR1-105	1.30E+07	
6-16-94	A409	TR1-106	1.10E+06	
6-16-94	A410	TR1-107	380	

Table 15.
(Continued)

Date	Sample ID	Grid Point	Tritiated Water Flux (pCi/m ² -min)	Comments
6-16-94	A411	TR1-108	351	
6-16-94	A412	TR1-109	9.69E+06	
7-26-94	A450	TR1-109	2.78E+05	
6-16-94	A413	TR1-110	2150	
6-16-94	A414	TR1-111	2.54E+06	
6-16-94	A415	TR1-112	5.08E+06	
6-16-94	A416	TR1-113	2190	
6-15-94	A398	TR1-114	250	Duplicate
6-15-94	A399	TR1-114	289	Duplicate
6-16-94	A417	TR1-115	15.3	
7-27-94	A452	TR1-116	52.6	
7-27-94	A453	TR1-117	263	Duplicate
7-27-94	A454	TR1-117	578	Duplicate
7-27-94	A455	TR1-118	51.7	
7-27-94	A456	TR1-119	28.5	
7-27-94	A457	TR1-120	24.4	
7-27-94	A458	TR1-121	7,910	
Hot Spot #2 (TR2)				
8-25-93	A055	TR2-4	4.98	
8-25-93	A056	TR2-9	10.2	
8-25-93	A057	TR2-14	14.5	
8-31-93	A079	TR2-19	6.38	
8-25-93	A058	TR2-20	8.04	
8-31-93	A080	TR2-22	4.17	
8-31-93	A081	TR2-24	3.73	
8-25-93	A059	TR2-28	4.11	
8-25-93	A060	TR2-34	7.56	
8-26-93	A069	TR2-34	12.7	
8-30-93	A072	TR2-34	6.07	
8-25-93	A061	TR2-40	16.2	
8-31-93	A078	TR2-42	22.2	
8-31-93	A077	TR2-43	29.5	

Table 15.
(Continued)

Date	Sample ID	Grid Point	Tritiated Water Flux (pCi/m ² -min)	Comments
8-25-93	A062	TR2-44	9.56	
8-26-93	A068	TR2-44	17.5	
8-30-93	A071	TR2-44	7.84	
8-25-93	A063	TR2-45	580	Duplicate
8-25-93	A064	TR2-45	328	Duplicate
8-31-93	A075	TR2-49	5.04	Duplicate
8-31-93	A076	TR2-49	6.49	Duplicate
8-31-93	A085	TR2-50	4.12	
9-14-93	A149	TR2-51	22.2	
9-14-93	A150	TR2-52	4.98	
9-14-93	A151	TR2-53	6.95	
9-14-93	A152	TR2-54	11.6	Duplicate
9-14-93	A158	TR2-54	31.0	Duplicate
9-14-93	A153	TR2-55	6.56	
9-14-93	A154	TR2-56	6.39	
9-14-93	A155	TR2-57	13.6	
9-14-93	A156	TR2-58	208	
9-14-93	A157	TR2-59	24.5	
9-15-93	A160	TR2-60	3.67	
9-15-93	A161	TR2-61	4.29	
9-15-93	A162	TR2-62	6.83	
9-15-93	A163	TR2-63	4.29	
9-15-93	A164	TR2-64	5.43	
9-15-93	A165	TR2-65	6.80	
9-15-93	A166	TR2-66	7.69	
9-15-93	A167	TR2-67	70.5	Duplicate
9-15-93	A168	TR2-67	130	Duplicate
9-15-93	A169	TR2-68	20.8	
9-15-93	A170	TR2-69	67.7	
6-17-94	A433	TR2-101	61,000	
6-17-94	A434	TR2-102	3,560	Duplicate
6-17-94	A435	TR2-102	4,870	Duplicate

Table 15.
(Continued)

Date	Sample ID	Grid Point	Tritiated Water Flux (pCi/m ² -min)	Comments
6-17-94	A4432	TR2-103	132,000	
Hot Spot #3 (TR3)				
9-03-93	A101	TR3-1	6.26	
9-03-93	A100	TR3-2	3.40	
9-03-93	A099	TR3-3	3.64	
9-08-93	A119	TR3-4	4.16	
9-03-93	A098	TR3-5	3.82	
9-03-93	A097	TR3-6	4.76	
9-03-93	A103	TR3-7	7.12	Duplicate
9-03-93	A104	TR3-7	5.29	Duplicate
9-03-93	A105	TR3-8	7.76	
9-03-93	A102	TR3-9	3.83	
9-03-93	A106	TR3-10	5.87	
9-02-93	A092	TR3-11	12.4	Duplicate
9-02-93	A096	TR3-11	10.4	Duplicate
9-02-93	A087	TR3-12	7.74	
9-02-93	A090	TR3-13	3.66	
9-02-93	A088	TR3-14	4.83	
9-02-93	A095	TR3-15	6.09	
9-02-93	A086	TR3-16	4.61	
9-02-93	A091	TR3-17	4.94	
9-02-93	A093	TR3-18	4.81	
Location P				
9-16-93	A173	P10-01	2.24	
9-16-93	A174	P10-02	2.85	
9-16-93	A175	P10-03	11.5	Duplicate
9-16-93	A181	P10-03	6.36	Duplicate
9-16-93	A176	P10-04	1.95	
9-16-93	A177	P10-05	2.03	
9-16-93	A178	P10-06	3.64	
9-16-93	A179	P10-07	2.26	
9-16-93	A180	P10-08	2.04	

Table 15.
(Continued)

Date	Sample ID	Grid Point	Tritiated Water Flux (pCi/m ² -min)	Comments
Location F				
9-22-93	A215	F1	36.6	
9-22-93	A218	F2	6.28	
9-22-93	A211	F3	9.24	
9-22-93	A214	F4	359	
9-22-93	A220	F5	4.94	
9-22-93	A213	F6	7.92	
Location C				
9-24-93	A226	C1	1.87	
9-24-93	A227	C2	2.13	
9-24-93	A228	C3	2.52	
9-24-93	A229	C4	6.45	
9-24-93	A230	C5	23.1	
9-24-93	A231	C6	19.4	
9-24-93	A232	C7	35.6	Duplicate
9-24-93	A233	C7	56.5	Duplicate
9-24-93	A234	C8	3.17	
9-24-93	A235	C9	6.15	
9-24-93	A236	C10	8.96	
6-07-94	A314	C11	3.40	
6-07-94	A313	C12	3.27	
6-07-94	A315	C13	4.88	
6-07-94	A316	C14	2.85	
6-07-94	A317	C15	5.71	Duplicate
6-07-94	A318	C15	3.64	Duplicate
6-08-94	A324	C16	3.44	
6-08-94	A322	C17	3.93	
6-08-94	A323	C18	3.16	
6-08-94	A321	C19	61.3	
6-08-94	A325	C20	18.8	
6-08-94	A326	C21	5.19	
6-08-94	A327	C22	3.09	

**Table 15.
(Continued)**

Date	Sample ID	Grid Point	Tritiated Water Flux (pCi/m ² -min)	Comments
6-08-94	A328	C23	4.11	
6-10-94	A344	C24	3.99	
6-10-94	A345	C25	2.33	
6-10-94	A346	C26	2.66	
6-09-94	A337	C27	2.41	
6-09-94	A338	C28	4.77	
6-09-94	A339	C29	3.69	
6-09-94	A340	C30	4.94	Duplicate
6-09-94	A341	C30	5.45	Duplicate

Note: Based on blank and background values, the detection limit was approximately 1.5 pCi/m²-min.

Table 16.
Summary of Calculated VOC Emission Fluxes for Area G

Sample Location	Sample ID	Emission Flux ($\mu\text{g}/\text{m}^2\text{-min}$)			
		TNMHC	MeCl	1,1,1-TCA	TCE
T1	A301/302	1.30	5.77	0.550	0.223
T1	A459	4.08	4.48	0.550	0.115
T2	A303	17.3	7.58	0.204	0.292
T2	A460	0.242	4.12	0.106	0.138
TR1-24	A304	49.6	13.0	0.0577	0.538
TR1-24	A461	0.413	3.42	0.210	0.104
T16	A305	2.04	17.2	0.173	1.65
T16	A463	0.108	2.04	0.0635	0.0423
TR3-8	A306	3.77	10.8	2.97	0.585
C15	A319	92.3	1.88	0.119	0.0269
C22	A320	15.2	4.04	0.0346	0.0731
C24	A343	22.3	1.37	0.213	0.0442
C27	A335	5.46	4.79	0.0154	0.102
C30	A334	20.9	4.54	0.0385	0.104
T16	A305	2.04	17.2	0.173	1.65
Bandelier	A372	16.0	9.58	0.00962	0.402

Notes: TNMHC = Total non-methane hydrocarbons

MeCl = Methylene chloride

TCA = 1,1,1-Trichloroethane

TCE = Trichloroethylene

A301/302 = Duplicate samples. Values shown are averages of two or more determinations.

The detection limit was approximately $0.04 \mu\text{g}/\text{m}^2\text{-min}$ for each compound.

Table 17.
Summary of Calculated Tritium Emission Fluxes for Area L

Sample Location	Emission Flux of Tritiated Water (pCi/min-m ²)
S1	2.90
S2	19,500
S3	28,600

Note: Based on blank and background values, the detection limit was approximately 1.5 pCi/m²-min.

Table 18.
Summary of Calculated VOC Emission Fluxes for Area L

Sample Location	Sample ID	Emission Flux (μg/m ² -min)			
		TNMHC	MeCl	1,1,1-TCA	TCE
S1	A420	15.7	3.83	17.2	0.708
S2	A421	8.63	2.85	23.3	1.48
S3	A418/A419	3.88	1.41	11.5	0.658
S3	A487	5.88	13.6	13.9	1.38

A418/A419 = Duplicate sample. Values shown are averages of two or more determinations.

Note: The detection limit was approximately 0.04 μg/m²-min for each compound.

This estimate is consistent with the background measurement performed at Bandelier where a flux of 2.88 pCi/m²-min was measured. This estimate is conservative and locations with measured emission fluxes within a factor of 2-3x of this (i.e., up to about 9 pCi/m²-min) are thought to have essentially negligible emissions. The areas thought to have no significant emissions include:

- General locations within Area G as represented by points T1 to T20;
- Locations outside the fence along the canyon floor surrounding Area G (C11 to C30);
- Tritium "Hot Spot" #3; and
- Trench #10.

Two areas have very low emissions that are close to background levels: the area near shaft 54-11 (TR1-19 to TR1-22) and the side of the mesa near TR1 (C1 to C10). Three areas have some emissions of tritiated water: Tritium hot spot #1 (TR1), tritium hot spot #2 (TR2), and the grassy field (F1 to F6). Of these three locations, TR1 has the largest measured emissions. Nearly all of the locations having the highest measured emissions are directly next to shafts known to contain high levels of tritium as shown in Table 19.

Isopleths of measured fluxes for tritiated water are shown in Figure 10 for the overall site, and in Figures 11, 12, and 13 for tritium hot spots #1, #2, and #3, respectively. Figure 14 is an isopleth for tritium hot spot #1 with the log 10 of the emission flux plotted.

A more limited set of VOC measurements were performed. The primary compounds detected were methylene chloride,

1,1,1-trichloroethane, and tetrachloroethylene. Other compounds detected in some samples included methanol, acetone, α -Pinene + benzaldehyde, freon 113, n-undecane, trichloroethylene, and 1,2-dichloroethane.

4.2 Spatial Variability in Emissions

The field measurements indicate that there is a large degree of spatial variability in emissions at Area G; i.e., there are areas of relatively high and low emissions. The variability in various sets of measurements is summarized in Table 20.

The twenty locations across Area G (T1 to T20) give a good indication of the spatial variability in emissions that was observed. The measured flux of tritium, radon, and VOCs at these points were relatively low and the values range about one order of magnitude above and below the average value. The percent coefficient of variation (%CV) for this data set was 161% for tritiated water, 74.9% for radon, 216% for TNMHC, and 68.7% for methylene chloride. Other sampling locations had comparable variability in tritiated water emissions. The area with the lowest spatial variability in emissions was TR3 with a %CV of 36.7% for eighteen measurements. All of these measurements were at or near background values, so this %CV may be more indicative of the combined sampling and analytical variability than the spatial variability in emissions.

The presence of waste pits beneath the sampling locations was shown in Figures 4 through 8. The samples collected directly over waste pits did not exhibit consistently higher emission fluxes. For example, radon flux samples were collected over pit 10 (T13)

Table 19.
Summary of Highest Measured Tritiated Water Fluxes

Grid Point	Location	Tritiated Water Flux (pCi/m ² -min)
TR1-24	Near Shaft 154	1,960 to 17,600
TR1-29	Near Shaft 151	2,020 to 4,150
TR1-105	Next to Shaft 154	1.30e+07
TR1-106	Next to Shaft 154	1.10e+06
TR1-108	Next to Shaft 151	351
TR1-109	Next to Shaft 151	2.78e+05 to 9.69e+06
TR1-111	Next to Shaft 150	2.54e+06
TR1-112	Next to Shaft 150	5.08e+06
TR2-101	Near Shaft 18	61,000
TR2-102	Near Shaft 13	3,560 to 4,870
TR2-103	Near Shaft 24	132,000
S2	Along L-G Fenceline	19,500
S3	Along L-G Fenceline	28,600

Figure 10. Contour Plot of Tritiated Water Flux for Area G

Figure 11. Contour Plot of Tritiated Water Flux for Tritium Hot Spot #1

Figure 12. Contour Plot of Tritiated Water Flux for Tritium Hot Spot #2

Figure 13. Contour Plot of Tritiated Water Flux for Tritium Hot Spot #3.

Figure 14. Contour Plot of Log 10 of Tritiated Water Flux for Tritium Hot Spot #1

Table 20.
Evaluation of Spatial Variability for Flux Measurements

General Location	Analyte	Sampling Locations	n	Range	Average	Standard Deviation	%CV
Area G	Tritium	T1 - T20	20	1.16 - 49.01	6.56	10.56	161
	Radon	T1 - T20	6	1.51 - 20.0	8.07	6.05	74.9
	TNMHC	T1 - T20	20	3.04 - 278	27.7	59.8	216
TR1	Tritium	TR1-1 to TR1-41	37	2.86 - 2020	245	501	205
	Tritium	TR1-101 to TR1-121	21	15.3 - 1.30e+07	1.27e+06	3.10e+06	244
TR2	Tritium	TR2-1 to TR2-69	35	3.67 - 454	32.9	82.4	251
	Tritium	TR2-101 to TR2-103	3	4,220 - 132,000	65,800	64,100	97.4
TR3	Tritium	TR3-1 to TR3-18	18	3.40 - 11.4	5.43	2.00	36.7
Grassy Field	Tritium	F1 - F6	6	4.94 - 359	70.7	141.8	201
Trench #10	Tritium	P10-1 to P10-6	8	1.95 - 8.94	3.24	2.37	73.0
Shaft nr. 54-11	Tritium	TR1-19 to TR1-22	4	3.62 - 28.1	11.8	11.0	93.1
Mesaside	Tritium	C1 - C10	10	1.87 - 46.1	12.0	14.1	117
Canyon	Tritium	C11 - C30	20	2.33 - 61.3	7.36	13.17	179
Canyon	TNMHC	C15 - C30	5	5.46 - 92.3	31.2	34.8	111
Area L	Tritium	S1 - S3	3	2.90 - 28,600	16,000	14,600	91.1
Area L	TNMHC	S1 - S3	4	3.88 - 15.7	8.53	5.18	60.68

Note: All values are in pCi/m²-min for tritiated water and radon and µg/m²-min for VOCs.

and pit 2 (T19), but the radon flux at these points was not higher than the fluxes measured at four other locations not directly over a waste pit.

4.3 Temporal Variability in Emissions

The temporal variability in emissions can be evaluated by repeat measurements at a given location. In this study, repeat measurements were made at a control point designated T20. The results of these measurements are shown in Table 21. Factors that contribute to temporal variability include changes in environmental factors such as soil moisture, soil and ambient temperatures, and barometric pressure as well as statistical errors, especially for samples near the detection limit. The coefficient of variation for all of the measurements at the control point was 49.2%. When compared to the spatial variabilities reported in Table 19, temporal variability appears to be a less significant source of variability than the choice of sampling location.

A second check of temporal variability was repeat measurements made at a given location over a 24-hr period. Five measurements were made at location TR1-10 over a 30-hr period of June 9 and 10, 1993. The measured flux of tritiated water ranged from 10.1 to 28.4 pCi/m²-min. The %CV for these measurements was 39.9%. Figure 15 illustrates the fluctuation in emission flux with time at this point.

A third check of temporal variability is a comparison of data from 1993 to 1994 collected on different days at the same locations under similar soil moisture conditions. There were not enough data of this type to make a meaningful comparison (see Section 4.4 for tabulated data).

Based on the limited available data, the temporal variability in VOC emissions appears to have been large. Measurements made at the same location sometimes differed by more than an order of magnitude from 1993 to 1994 or even within the same year. Interestingly, the background measurement performed at Bandelier exhibited relatively high levels.

4.4 Correlation of Emission Fluxes with Environmental Parameters

The tritium waste at Area G is disposed of in below-ground shafts. Any tritium that escapes from the shafts migrates through the soil. Over time, the tritium may reach the soil surface and pass into the atmosphere. The overall emission rate of tritium will be limited or controlled by the slowest step in the overall emission process. For buried wastes in a controlled landfill, the overall emission rate generally is limited by the rate at which waste escapes from the primary and/or secondary containment barriers. The buried tritium at Area G is up to 60 ft. below surface level and is thereby at relatively constant temperature and well insulated from surface meteorological effects.

The second most important step in the overall emission process is believed to be transport through the soil. The rate is controlled by the rate at which gas diffuses through the soil pore spaces. Any factors that significantly affect this diffusion rate will significantly affect the tritiated water emission rate. In general, physical transport is controlled by the diffusivity in air for the specific compound of interest and the number and type of air spaces that are present in the soil. The bulk soil temperature tends to vary little over time and therefore has mini-

Table 21a.
Summary of Measured Emission Fluxes at Control Point
(T20)

Date	Sample ID	% Soil Moisture	Tritiated Water Flux (pCi/m ² -min)	Evaporation Rate (mg/min-m ²)	Ambient Temperature (°C)
7-01-93	A046	2.58	3.86	348	52
7-06-93	A053	--	1.71	117	48
8-25-93	A065	6.29	3.62	533	33
8-30-93	A070	--	3.91	358	26
9-02-93	A094	12.1	5.77	497	33
9-08-93	A121	11.1	3.81	499	27
9-09-93	A123	--	3.78	641	27
9-14-93	A148	14.2	5.41	485	22
9-16-93	A182	11.3	1.95	544	31
9-21-93	A206	4.36	9.28	374	27
9-22-93	A223	--	2.71	198	16
9-23-93	A224	7.86	4.80	525	31
6-06-94	A310	1.36	5.35	639	34
6-13-94	A376	2.49	5.02	505	35
6-14-94	A393	2.49	6.54	331	35
6-17-94	A431	2.28	10.8	338	40
7-26-94	A448	6.03	75.1 ^a	737	32

^a Outlier removed from data set

Table 21b.
Summary Statistics for Tritiated Water Fluxes at Control Point (T20)

Value	1993 Data Set	1994 Data Set	Combined Data Set
n	12	4	16
Range	1.71 - 9.28	5.02 - 10.8	1.71 - 10.8
Average	4.22	6.92	4.89
Standard Deviation	2.01	2.64	2.41
%CV	47.6	38.1	49.2

Changes in Emission Flux over a 30-Hour Period at TR1-10

Figure 15. Changes in Emission Flux Over a 30-hr Period.

mal effect on the emission rate. Macro-spaces due to cracks and fissures will allow for relatively rapid mass transport. The diffusion rate through soil lacking such obvious pathways will be a function of the air-filled porosity (i.e., permeability to air). Two factors may affect the porosity. One, precipitation causes water to fill some of the interstitial spaces in the soil and thereby inhibits diffusion. Two, the operation of trucks or other heavy equipment may lead to compaction of the soil and diminished emissions due to the change in soil porosity.

Transport across the soil-atmosphere boundary generally will be extremely rapid compared to the transport rate through the soil. Therefore, surface winds and ambient temperature have limited effect on the emission rate from buried wastes. This is not the case, however, for wastes spilled, leaked, or stored on the surface.

Chemical reactions may also influence the emission rate. Gas molecules may be adsorbed onto the liquid film surrounding soil particles and these adsorbed molecules may diffuse into the liquid film and/or undergo chemical reactions. Another factor that may affect the emission rate is the presence of barriers at the surface. The barriers present at Area G include pavement, piles of overburden, and vegetation. All of these barriers will slow diffusion. Paved areas will tend to cause vapors to migrate laterally. Piles of overburden will increase the distance which vapors must diffuse to reach the soil-air interface.

Few of the sampling locations had any significant amount vegetative cover. In most cases, measurements were made on bare soil, or soil containing only decaying organic matter such as pine needles. The

sampling locations with grass cover were all in the same general open grassy area southeast of building 54-11 and other structures. The points with grass cover included: T13, T14, T15, T16, T20, F1 through F6, and P10-1 through P10-6. Of these locations, all but one had relatively low emission fluxes. The exception is location F4 at 359 pCi/m²-min.

At Area G, the primary environmental parameter of interest is soil moisture. The most complete set of data is for the control point - T20. These data were listed in Table 21. There were 13 measurements of soil moisture with an average value of 6.49% and a CV of 68.1%. The relationship between soil moisture and measured emission flux at this location is shown in Figure 16. The emission flux of tritiated water appears to decrease slightly with increasing soil moisture. The coefficient of correlation for this data set, however, is only 0.162.

Additional data related to tritiated water emission fluxes over time are compiled in Table 22. At all nine locations, the highest soil moisture value does not correspond to the highest emission flux of tritiated water. The data were collected over a one-year period, so various factors may be affecting the emissions and not just soil moisture.

The most clear-cut data are for locations TR1-34 and TR1-44. Three measurements were made at each point over a 6-day period and rainfall occurred between each measurement. The data for these two points is depicted in Figure 17. A small increase in soil moisture resulted in an increase in emissions, while a large increase in soil moisture resulted in an overall decrease in

Figure 16. Emission Flux Versus Soil Moisture at Central Point - T20.

Table 22.
Summary of Flux vs. Soil Moisture Data

Sampling Location	ID	Date	% Soil Moisture	Tritium Flux (pCi/m ² -min)
TR2-34	A060	8-25-93	3.53	7.56
	A069	8-26-93	5.62	12.7
	A072	8-30-93	12.2	6.07
TR2-44	A062	8-25-93	5.81	9.56
	A068	8-26-93	6.57	17.5
	A071	8-30-93	15.8	7.84
T18	A044	7-01-93	1.94	5.48
	A083	8-31-93	9.19	3.65
T15	A041	7-01-93	2.97	16.2
	A084	8-31-93	14.6	4.21
T17	A311	6-06-94	0.16	34.8
	A043	7-01-93	0.35	49.0
	A451	7-26-94	2.34	53.9
	A082	8-31-93	9.67	11.1
TR1-30	A308	6-06-94	0.22	896
	A449	7-26-94	1.97	697
	A200/201	9-21-93	3.55	265
TR1-29	A308	6-06-94	0.48	4,150
	A203	9-21-93	2.20	2,020
TR1-24	A309	6-06-94	1.26	10,700
	A446/AA7	7-26-94	4.68	15,050
	A190/191	9-17-93	5.87	1,990
TR1-109	A412	6-16-94	0.58	9.69e+06
	A450	7-26-94	2.34	2.87e+05

X/X = Duplicate samples. Values shown are averages of two or more determinations.

Change in Tritiated Water Emission Flux with Soil Moisture at Two Locations

Figure 17. Change in Tritiated Water Emission Flux with Soil Moisture at Two Locations.

generally has a maximum water retention capacity of less than 25%). The reason for the initial increase in emissions as soil moisture increased may be that the added moisture displaced some of the vapors present as the water percolated down into the soil. However, given the 40-50% CV for repeat measurements at a given location, these increases would not be considered statistically significant. Another possible reason is that there are "active" sites on the soil that bind to or hold water molecules and that these sites are not all filled until the soil moisture rises somewhere above about 7%. Thus, at lower soil moistures, tritiated water migrating upwards from the subsurface may be attracted to these active sites and the emission rate retarded. As the soil moisture level increases slightly, more active sites are filled and the tritiated water can diffuse at a more rapid rate through the soil.

The control point data were evaluated to determine the effect of temperature on the measured flux. For both ambient temperature and flux chamber air temperature, the correlation coefficient was <0.1 . These emission flux data were, however, relatively close to the method detection limit and therefore any such correlations may be obscured by other sources of variability. The data plotted in Figure 15 also were evaluated for the effect of temperature. Correlation coefficients of 0.38 and 0.24 were found for the emission flux versus ambient temperature and flux chamber atmosphere temperature, respectively.

The VOC data did not show any clear trend with respect to dry season versus wet season sampling. For both TNMHC and for major individual VOCs, there was not a consistent decrease or increase in emissions as the soil moisture increased.

4.5 Correlation of Emission Fluxes with Site Parameters

Samples of surface soils were collected at Area G in 1993 and analyzed for tritium, as well as other analytes. These results are plotted in Figure 18. The tritium contour plot can be compared to Figure 10.

The 1993 surface soils data are given in Appendix G.

4.6 Calculation of Annual Tritium Flux from Area G

The various emission flux measurements were combined to develop an estimate of the overall emission rate from Area G. The general approach was to divide the site into grids and develop an average emission flux value for each grid. If the variability within a grid was large, the grid was further subdivided into more grids to decrease the variability. The majority of Area G was represented by the twenty locations spread across the site (i.e., T1 to T20). This was considered to be a single grid. Additional areas were identified such as the three initially suspected tritium hot spots (TR1, TR2, and TR3). In all, a total of 16 different grids was used. The average emission flux for each area was developed by averaging the measurements made within that area in 1993 and 1994. Data were corrected for the estimated background/blank flux of 3 pCi-/m²-min; i.e., the measured emission fluxes were reduced by the estimated contribution from blank contamination in the samples. The reduction amounted to 7.71% of the total emissions. Once this was accomplished, the area of each grid was estimated. The emission flux was multiplied by the area to yield an emission rate for each grid. These emission rates were then summed to

Figure 18. Contour Plot of Tritium in Surface Soils Collected in 1993

hed, the area of each grid was estimated. The emission flux was multiplied by the area to yield an emission rate for each grid. These emission rates were then summed to yield an emission rate for the entire site as shown in Table 23.

The emissions shown in Table 23 are from areas both inside and outside the fence-line for Area G. The area inside the fence for each grid was estimated and summed. This total was subtracted from 60 acres to yield the area for the twenty T points of roughly 50 acres.

The most difficult areas to assign an area to were the hottest spots: TR1- 24, 29, 105, 106, 107, 108, 109, 111, 112 and TR2-45, 58, 67, 69, 101, 102, and 103. Each was assigned an area of 1.25 m². The rationale for this was as follows. It was assumed that each shaft was a 4-ft diameter concrete cylinder and that all emissions were from the edge of the cylinder; i.e., there was a preferential pathway for vapor transport along the outer edge of the cylinder where it met the soil. A 4-ft circle has a circumference of 150.8 in. or 9.42 flux chamber diameters. That is, 9.42 flux chambers placed around the shaft would completely encircle it with the chamber half-on and half-off the concrete. The area of the flux chamber is 0.13 m², so 9.42 flux chambers have a total area of 1.23 m². This was rounded up slightly to 1.25. For shafts where two measurements were made, the total area assigned for both measurement locations was 1.25 m².

The estimated total annual emissions of tritiated water from Area G are 14.0 Curies per year. The obvious finding from the data in Table 23 is that over 90% of the emissions are coming from tritium hot spot

#1 and over 70% of the emissions are coming from just three shafts: 150, 151, and 154. The annual emission rate estimate is thus dependent on only a handful of the over 200 flux measurements that were performed. As such, the estimate is not affected by changes in the assumed background/blank correction, the estimate emitting area outside the fence, or other assumptions except one. The emission rate estimate is highly dependent on the assumed area of the hottest spots.

Table 23.
Overall Tritiated Water Emission Rate for Area G

General Location	Sampling Locations	n	Est. Area (m ²)	Emission Flux (pCi/m ² -min)	Emission Rate		% of Total Emissions
					pCi/min	Ci/yr	
T points	T1-T20	19	201,000	1.33	268,000	0.141	1.00
T points	T17	1	100	46.0	4,600	0.002	0.02
TR1	1-41	35	14,400	141	2.46e+06	1.29	9.22
TR1	24 & 29	2	2.5	2,010	5,020	0.003	0.02
TR1	101-121	14	290	975	2.83e+06	1.49	10.6
TR1	105-109 111-112	7	5.0	3.82e+06	1.91e+07	10.0	71.7
TR2	1-69	31	3120	7.34	22,900	0.012	0.09
TR2	45,58,- 67,69	4	5.0	204	1,020	0.001	0.00
TR2	101-103	3	3.75	65,800	247,000	0.130	0.93
TR3	1-18	18	14,900	2.43	36,100	0.019	0.14
Grassy Field	F1-F6	6	18,600	67.7	1.26e+06	0.661	4.72
Trench #10	P10 1-6	6	1930	0.24	464	0.000	0.00
Shaft nr. 54-11	TR1 19-22	4	232	8.8	2,040	0.001	0.01
Mesa side	C 1-10	10	5810	9.0	52,300	0.027	0.20
Canyon	C 11-30	18	476,000	0.72	342,000	0.180	1.29
Canyon	19 & 20	2	200	37.1	7,420	0.004	0.03

5.0 RESULTS OF QUALITY CONTROL CHECKS

This section contains tabulated results of blanks and replicates for the 1993 and 1994 sampling campaigns. The master logs for the 1993 and 1994 sampling are given in Appendices A and B to this report; they contain information about the location, time, duration, etc. of each sampling episode.

Indicators of laboratory control, such as calibrations and laboratory control samples and laboratory control sample duplicates, were within expected limits. Sampling equipment calibrations were also within performance criteria.

5.1 Radon Measurements

The results of the QC checks for the radon sampling are summarized in Table 5-1. The field blank was charcoal prepared in the usual manner, put into sampling tubes, taken to the field locations, but not connected to the sampling pump. The system blank was collected by placing the flux chamber over a sheet of teflon and operating the system in the normal manner for several hours. Both the field blank and the system blank had relatively low levels of activity. The system blank showed 110 pCi/m³, just above the detection limit of 100 pCi/m³, but within five times the amount found in routine samples.

There were too few duplicate samples/analyses performed to adequately assess the sampling and analytical variability. The one duplicate sample collected in the field yielded a RPD of 0.0% indicating that the two samples gave the exact same result. As a measure of analytical replicability, the two

analytical duplicates had an average RPD of 31%.

5.2 VOC Measurements

The results of the field blank and system blank for VOC analysis for selected analytes were given in Tables 7 and 10 in Section 3. The 1993 field blank was prepared by taking an evacuated canister to the field and then shipping it back to the analytical laboratory where it was filled with nitrogen and analyzed. The 1994 field blanks were prepared by filling evacuated canisters in the field with the nitrogen used as sweep air. The 1993 field blank exhibited negligible concentrations of all VOCs. The system blank was collected as described above and is a measure of the total sampling and analytical background levels. It serves as a check of cross-contamination between sampling points due to residual contamination that remains in the sampling system after cleaning.

The 1993 system blank exhibited minimal contamination except for 560 µg/m³ of methylene chloride and a small amount of tetrachloroethylene. The 1994 system blank was substantially cleaner, having only 89.1 µg/m³ of methylene chloride and relatively small amounts of other compounds. The amount of methylene chloride present in the system blanks implies that cross-contamination may have occurred.

Nested duplicates were collected and analyzed; i.e., duplicate samples were collected in the field and each of the duplicate samples was analyzed in duplicate. This was done to evaluate the relative contribution of both sampling and analysis to the overall measurement variability. The results of these checks are summarized in Table

Table 5-1.
Summary of QC Results for Radon Measurements

Sample ID	Sample Location	Concentration (pCi/m ³)	RPD (%)	Comments
A038 A039	T13	240 240	0.00	Sampling duplicate
A045	T19	520 390	28.6	Analytical duplicate
A054	T20	170 240	34.2	Analytical duplicate
A047	N/A	<100	--	Field blank
A052	N/A	110	--	System blank

5-2. These results show that analytical variability (based on duplicate analysis results) is small, and that total variability (based on duplicate samples) is typically more affected by sample variability than analytical, as would be expected. Overall, precision for VOC sampling and analysis was within expected limits.

5.3 Tritium Measurements

A standard set of quality control checks were performed by the analytical laboratory personnel including calibrations, analysis of quality control (spiked) samples, and analysis of duplicates. All checks were within acceptance criteria. Results for the analysis of QC standards generally showed 95-105% recovery. Results of duplicate analysis generally showed a relative percent difference (RPD) of <5%. Results (% recovery) for one tritium standard were not within expected limits, but the standard itself could not be verified. Checks with independent standard verified the accuracy of the tritium measurements, and the suspect standard was subsequently analyzed with all the analysis batches as a check on repeatability, which was very good.

The results of the various blank checks for tritium for the 1993 sampling are summarized in Table 5-3. Results for the 1994 sampling are given in Table 5-4. The field blanks were silica gel prepared in the usual manner, put into sampling tubes, taken to the field locations, but not connected to the sampling pump. In 1994, field blanks were spiked in the field with mineral water. Method blanks were prepared in the laboratory from silica gel sent from the field using tritium-free water. As previously described, system blanks were collected by placing the flux chamber over a sheet of teflon and

operating the system in the normal manner for several hours. The blank sample results for 1993 and 1994 are summarized and compared in Table 5-5. As indicated in Table 5-5 (and seen in detail in Table 5-4), the field blanks show a bimodal distribution, with a shift in mean blank results for the August 1, 1994 field blank sampling. The laboratory method blanks do not show this shift, and investigation of laboratory results has not found the laboratory to be a source of contamination. The July 29, 1994 system blank also shows anomalously high results for tritium, which could not be attributed to laboratory contamination. A field source of higher blank activity is suspected during this period. The overall impact of blank results, however, is not considered to be significant.

Duplicate samples for tritium were regularly collected in the field. The reproducibility of the tritium flux measurements are shown in Tables 5-6 and 5-7 for the 1993 and 1994 data, respectively. A summary of analytical variability estimates, based on 1994 duplicate analysis results for tritium is shown in Table 5-8. Although this not a nested duplicate design, the analytical variability is very small compared with the total (sampling plus analytical variability) indicated by duplicate field sample results.

5.4 Moisture Determinations

A limited number of sampling and analytical duplicates were analyzed for percent moisture. These results are summarized in Table 5-9.

Table 5-2.
Summary of Nested Duplicate VOC Sampling and Analysis Results
 (Results in ug/m³)

Date	Grid Point	Sample ID Pair	TNMHC	Methanol	Acetone	MeCl ₂	TCA	TCE
1993								
6-29-93	T9	A010	344	21.0	7.3	957	1.0	55.9
			339	21.0	6.8	955	0.9	52.2
		A011	221	14.0	9.3	922	0.9	60.9
			219	14.0	8.9	917	1.0	62.1
7-01-93	T13	A027	389	21.8	21.4	341	20.7	17.6
			398	15.9	24.5	334	20.4	17.0
		A029	197	21.5	12.8	338	21.4	16.9
			191	22.3	12	338	21.6	16.7
1994								
6-17-94	S3	A418	291	21.7	12.1	68.3	568	32.6
			272	20.9	10.5	73.2	559	34.3
		A419	135	24.2	11.7	77.2	633	35.8
			111	20.2	12.4	74.7	638	34.3
Summary								
Analytical Duplicates		Mean RPD	5.7%	9.5%	8.6%	2.2%	4.3%	3.8%
Sampling Duplicates		Mean RPD	63.2%	21.6%	31.1%	4.0%	7.3%	6.8%

Note: MeCl₂ = Methylene Chloride
 TCA = 1,1,1-Trichloroethane
 TCE = Tetrachloroethylene
 TNMHC = Total Non-Methane Hydrocarbons

Table 5-3.
Summary of 1993 Blank Sample Results for Tritium

Date	Sample ID	Total Tritium Activity (pCi)
Field Blanks		
6-29-93	A023	20.1
8-25-93	A066	17.5
9-02-93	A089	75.3
9-09-93	A122	14.8
9-14-93	A159	40.0
9-17-93	A186	33.1
9-22-93	A222	48.7
System Blanks		
7-06-93	A051	32.2
8-26-93	A067	69.3
9-07-93	A109	112
9-10-93	A139	93.0
9-16-93	A183	286
9-20-93	A197	54.1
9-23-93	A225	180
Method Blanks		
7-08-93	N/A	37.7
7-12-93	N/A	47.9
9-01-93	N/A	14.5
9-09-93	N/A	81.5
9-09-93	N/A	213
9-13-93	N/A	82.8
9-16-93	N/A	62.8
9-21-93	N/A	89.5
9-22-93	N/A	91.3
9-24-93	N/A	23.6
9-27-93	N/A	98.5
9-27-93	N/A	173

Table 5-4.
Summary of 1994 Blank Sample Results for Tritium

Date	Sample ID	Total Tritium Activity (pCi)
Field Blanks		
6-09-94	A329	90.7
	A330	94.2
	A331	58.5
	A332	64.1
	A333	88.8
6-13-94	A373	62.6
	A374	62.7
	A375	60
6-14-94	A389	69.8
	A390	59.2
	A391	61.9
8-01-94	A531	851
	A532	363
	A533	268
	A534	404
	A535	204
	A536	225
	A537	234
	A538	623
	A539	233
	A540	237
System Blanks		
6-09-94	A342	178
6-13-94	A377	144
6-14-94	A392	319*
7-29-94	A507	1,980

Table 5-4.
(continued)

Date	Sample ID	Total Tritium Activity (pCi)
Method Blanks		
6-13-94	N/A	29.2
6-14-94	N/A	32.6
6-15-94	N/A	64.9
6-16-94	N/A	72.7
6-17-94	N/A	55.4
6-20-94	N/A	70.9
7-06-94	N/A	28.0
7-07-94	N/A	176
8-09-94	N/A	23.0
8-15-94	N/A	20.8
8-16-94	N/A	20.4
8-17-94	N/A	18.2

* Suspected carryover contamination of 170-180 pCi from previous high-level sample.

Table 5-5.
Summary of Blank Sample Results for Tritium

Blank Type	Time Period	Number of Blanks	Mean Value (pCi)	Std Dev (pCi)	CV (%)
Field Blanks	1993	7	36	22	60%
	1994	21	70/364	14/214	20%/59%
System Blanks	1993	7	118	88	75%
	1994	4	657	889	135%
Method Blanks	1993	12	85	58	69%
	1994	12	68	53	79%

NOTE: 1) 1994 Field blank results show a bimodal distribution.
2) 1994 System blank results exhibit extreme skewness.
The median value is 249 pCi, compared with mean of 657 pCi.
3) The high blank results occur in the period of 7/29-8/1/94. (see Table 5-4)

Table 5-6.
Results of 1993 Duplicate Tritium Sampling

Date	Grid Point	Sample ID Pair	Tritiated Water Fluxes (pCi/m ² -min)	Relative Percent Difference (%)
6-29-93	T9	A020	4.93	35.4
		A021	7.05	
7-01-93	T13	A038	9.46	28.5
		A039	7.10	
8-25-93	TR2-45	A063	580	55.6
		A064	328	
8-31-93	TR2-49	A075	5.04	25.2
		A076	6.49	
9-02-93	TR3-11	A092	12.4	16.9
		A096	10.4	
9-03-93	TR3-7	A103	7.12	29.5
		A104	5.29	
9-08-93	TR1-7	A117	8.1	156
		A120	64.9	
9-09-93	TR1-2	A129	8.65	55.2
		A133	15.24	
9-14-93	TR2-54	A152	11.6	91.4
		A158	31.0	
9-15-93	TR2-67	A167	70.5	59.4
		A168	130	
9-16-93	P10-03	A175	11.5	57.6
		A181	6.36	
9-17-93	TR1-24	A190	1,960	3.20
		A191	2,020	
9-21-93	TR1-30	A200	182	62.2
		A201	347	
9-22-93	TR1-40	A217	107	0.90
		A221	106	
9-24-93	C7	A232	35.6	45.3
		A233	56.5	

Table 5-7.
Results of 1994 Duplicate Tritium Sampling

Date	Grid Point	Sample ID Pair	Tritiated Water Fluxes (pCi/M²-min)	Relative Percent Difference (%)
6-07-94	C15	A317 A318	5.71 3.64	44.3
6-09-94	C30	A340 A341	4.94 5.45	9.82
6-15-94	TR1-114	A398 A399	250 289	14.6
6-17-94	TR2-102	A434 A435	3,560 4,870	30.9
7-26-94	TR1-24	A446 A447	15,600 12,600	20.8
7-27-94	T41-117	A453 A454	263 578	75.0

Table 5-8.
Summary of Duplicate Analysis Results for Tritium

Sample ID	Routine Value (pCi)	Duplicate Value (pCi)	RPD
A339	84.4	75.6	11.0%
A341	71.6	71.4	0.3%
A361	23,689	23,780	0.4%
A376	155.2	159	2.4%
A378	71	65.2	8.5%
A410	15,274	15,449	1.1%
A412	220,000,000	221,000,000	0.5%
A415	177,000,000	175,000,000	1.1%
A435	78,452	77,449	1.3%
A446	211,337	210,780	0.3%
A458	257,323	257,177	0.1%
A480	215.6	212.8	1.3%
A489	8740	8692	0.6%
A495	38,242	38,322	0.2%
A531	849	853	0.5%
A533	267	269	0.7%
A539	229	236	3.0%

Table 5-9.
Summary of Duplicate Results for Moisture Determinations

Date	Grid Point	% Moisture	RPD (%)
Sampling Duplicates			
9-09-93	TR1-9	7.30 7.47	2.30
9-14-93	TR2-55	8.20 7.95	1.55
9-15-93	TR2-61	9.66 9.73	0.67
6-02-94	T1	6.45 5.36	18.5
6-15-94	TR1-101	1.05 1.08	2.82
6-16-94	TR1-105	0.82 0.63	26.2
Analytical Duplicates			
6-25-93	S3	1.26 1.15	9.13
6-06-94	T20	1.31 1.42	8.06
6-06-94	T17	0.06 0.25	123
6-06-94	TR1-29	0.57 0.39	37.5
6-07-94	C13	0.99 0.95	4.12
6-10-94	C24	5.55 5.24	5.75
6-17-94	TR2-102	2.42 2.25	8.51

6.0 CONCLUSIONS AND RECOMMENDATIONS

A series of emission flux measurements were made at various locations at and around Area G. A limited number of additional measurements were made for Area L. The emitted gases were analyzed for tritiated water, radon, and volatile organic compounds (VOCs). Based on 180 measurements made at a variety of locations, the total emission rate of tritiated water from Area G and surrounding property is 26.6 $\mu\text{Ci}/\text{min}$, which equals 14.0 Ci/yr if extrapolated to an annual basis. Based on measurements at the six locations shown in Table 14, the total emission rate of radon from Area G (60 acres) is estimated to be 2.0 $\mu\text{Ci}/\text{min}$ or 8.1 pCi/m²-min (1 Ci/yr). Based on measurements at twenty locations, the total emission rates of TNMHC (as hexane) and methylene chloride from Area G are 6.7 g/min and 7.6 g/min, respectively.

The conclusions arrived at for this study are given below followed by recommendations. Additional information and conclusions are given in a companion document to this report titled, "Air Quality Impacts Analysis for Area G."

6.1 Conclusions

Several conclusions can be drawn from the presented in this document:

- The flux chamber sampling approach used in this study was successful for the measurement of the gaseous emission flux from fugitive area sources and for the mapping of emission plumes.

- The estimated total annual release of tritiated water is of relatively insignificant. The estimate of 14 Ci/year is less than 1% of the 1,298 Ci of tritium estimated to be released by all of LANL in 1992 (the year for which most recent data are available).
- The measured emission fluxes of VOCs ($< 100 \mu\text{g}/\text{m}^2\text{-min}$) are small compared to fluxes typically measured at spill sites or at RCRA landfills.
- Some tritiated water has migrated beyond the Area G fenceline. Measurements made on the mesa top just outside the fence at the general location designated TR1 showed levels several orders of magnitude above background levels at some points.
- The only area off the mesa where tritiated water was being emitted at above background levels was the mesa-side and canyon floor directly adjacent to TR1. The other locations along the canyon floor where measurements were made had levels at or near background levels.
- The tritiated water emissions from Area G are highly localized, with over 90% of the emissions estimated to come from the roughly 3-acre TR1 and over 70% estimated to come from a few square meters surrounding three disposal shafts: 150, 151, and 154;

- The temporal variability in emissions of tritiated water was small relative to the spatial variability based on the coefficient of variation (%CV) of 39.9% for five measurements made at one location over a 30-hr period and 49.2% for 16 measurements made at one location over the course of two summers, versus the orders of magnitude variability from the lowest to highest emission locations;
- Increases in soil moisture appear to result in a decrease in the measured emission flux of tritiated water, but the correlation is poor; and
- Neither ambient temperature nor the temperature within the flux chamber showed a correlation with the measured emission flux at the control point. This may be due to the variability introduced by data points near the detection limit. The correlation in emissions with temperature has been shown elsewhere to be significant at certain other locations such as TRI-10 (see Figure 15).

6.2 Recommendations

Several recommendations merit consideration:

- Additional radon flux measurements would be necessary to more accurately define the overall flux of radon from TA-54. The existing data set contains data for only six points.
- Based on recent surface soils data (1993), additional tritium flux measurements may be needed near a hot

spot recently identified as shown in Figure 18.

- Any further tritium measurements should address the spatial variability of emissions in the immediate area of the high-level tritium disposal shafts. The measurement study should evaluate how quickly emissions drop off in the few meters surrounding each shaft, how variable the emissions are around the perimeter of each shaft and how the near-by vegetation influences the emission field.
- No further measurements of baseline emission levels are warranted, given the low levels of emissions detected at most locations.
- Flux measurements could be performed under wintertime conditions if more accurate annual emission estimates are needed. If one assumes the emission flux will be limited by the rate of diffusion of the tritium vapors, the emission rate should be directly proportional to the absolute temperature, so wintertime emission rates would be expected to be about 10% lower than summertime emission rates (assuming 270°K versus 300°K). However, if emissions are directly tied to the evapotranspiration rate, much lower emission rates would be expected in the winter. Snow cover, however, would add an additional resistance term and would decrease the rate of vapor transport.

7.0 REFERENCES

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APPENDIX A
1993 MASTER LOG for FLUX SAMPLING

APPENDIX A 1993 MASTER LOG for FLUX SAMPLING

Date	Sample ID	Sample Type	Grid Point	Sampling Media ID			Time			Elapsed Time (min)	Total Weight Gain (g)	Evaporation Rate (mg/min-m ²)	Ambient Temp. (deg C)	Flux Chamber Temp. (deg C)	Sampled Flow Rate (l/min)	Soil Moisture (%)	Comments
				Can	Silica	Char	Start	Sampling	Elapsed (hh:mm)								
6-29-93	A001	Canister	T1	919	--	--	0844	1022	1:38	98	--	--	32	55	--	1.92	--
	A002	Canister	T2	782	--	--	0853	1035	1:42	102	--	--	30	42	--	2.15	--
	A003	Canister	T3	963	--	--	0858	1045	1:47	107	--	--	37	52	--	2.25	--
	A004	Canister	T4	850	--	--	0903	1052	1:49	109	--	--	35	37	--	2.27	--
	A005	Canister	T5	964	--	--	0907	1102	1:55	115	--	--	35	45	--	2.14	--
	A006	Canister	T6	895	--	--	0911	1108	1:57	117	--	--	31	41	--	2.09	--
	A007	Canister	T7	903	--	--	0914	1117	2:03	123	--	--	31	43	--	2.19	--
	A008	Canister	T8	880	--	--	0925	1130	2:15	135	--	--	41	28	--	2.09	--
	A009	Canister	T8	968	--	--	N/A	1130	2:15	135	--	--	41	28	--	2.09	Field blank
	A010	Canister	T9	812	--	--	0917	1146	2:29	149	--	--	31	31	--	4.48	Duplicate
	A011	Canister	T9	922	--	--	0917	1147	2:30	150	--	--	31	31	--	4.48	Duplicate
	A012	Canister	T10	920	--	--	0921	1154	2:33	153	--	--	39	44	--	2.21	--
	A013	Silica Gel	T1	--	E001	--	0844	0941-1950	10:09	609	5.10	155	28	31	17.15	1.92	1.75
	A014	Silica Gel	T2	--	E002	--	0853	0953-2006	10:13	613	8.69	265	28	31	19.17	2.15	1.37
	A015	Silica Gel	T4	--	E004	--	0903	1015-1557	5:42	342	7.97	445			11.05	2.27	1.61
	A016	Silica Gel	T5	--	E005	--	0907	1024-1954	9:30	570	8.43	266	28	32	18.7	2.17	0.71
	A017	Silica Gel	T6	--	E006	--	0911	1033-2009	9:36	576	4.74	158	28	30	17.0	2.09	3.14
	A018	SG + Char	T7	--	E007	E007	0914	1043-2025	9:42	582	7.95	269	28	30	17.55	2.19	1.20
	A019	Silica Gel	T8	--	E008	--	0925	1116-1947	8:31	511	4.62	159	28.6	28.3	16.54	2.09	1.46
	A020	Silica Gel	T9	--	E009	--	0917	1056-2018	9:22	562	2.04	194	28.2	28.1	12.79	4.48	1.40
	A021	Silica Gel	T9	--	E012	--	0917	1056-2018	9:22	562	1.14	117	28.2	28.1	11.83	4.48	1.40
	A022	Silica Gel	T10	--	E010	--	0921	1106-2001	8:55	535	6.12	240	28.3	31.5	15.31	2.21	1.81
	A023	Silica Gel	T10	--	E011	--	N/A	N/A	N/A		-0.21		28.3	31.5	--	2.21	1.81
6-30-93	A024	SG + Char	T3	--	E013	E024	0843	0939-1643	7:04	424	6.25	426	34	46	9.162	2.3	1.37
7-01-93	A025	Canister	T11	923	--	--	0839	0942	1:03		--	--	27	42	--	2.69	--

APPENDIX A 1993 MASTER LOG for FLUX SAMPLING

Date	Sample ID	Sample Type	Grid Point	Sampling Media ID			Time		Elapsed Time (min)	Total Weight Gain (g)	Evaporation Rate (mg/min-m ²)	Ambient Temp. (deg C)	Flux Chamber Temp. (deg C)	Sampled Flow Rate (mL)	Sweep Air Flow Rate (L/min)	Soil Moisture (%)	Comments
				Can	Silica	Char	Start	Sampling									
	A026	Canister	T12	878	-	-	0851	0957	1:06	-	-	25	38	-	2.19	-	
	A027	Canister	T13	973	-	-	0834	1030	1:56	-	-	33	48	-	4.57	-	Duplicate
	A029	Canister	T13	967	-	-	0834	1031	1:57	-	-	33	48	-	4.57	-	Duplicate
	A028	Canister	T14	908	-	-	0844	1014	1:30	-	-	31	48	-	2.14	-	
	A030	Canister	T15	625	-	-	0905	1048	1:43	-	-	31	53	-	2.29	-	
	A031	Canister	T16	807	-	-	0856	1056	2:00	-	-	28	43	-	2.11	-	
	A032	Canister	T17	802	-	-	0834	1123	2:49	-	-	37	59	-	2.23	-	
	A033	Canister	T18	910	-	-	0850	1130	2:40	-	-	44	39	-	2.13	-	
	A034	Canister	T19	846	-	-	0842	1142	3:04	-	-	34	51	-	2.12	-	
	A035	Canister	T20	911	-	-	0856	1150	2:54	-	-	34	56	-	2.26	-	
	A036	Silica Gel	T12	-	E014	-	0851	0956-1533	5:36	5.13	484	37	59	6.303	2.19	1.25	
	A037	Silica Gel	T11	-	E015	-	0839	0939-1457	5:17	7.42	737	36	64	7.36	2.69	5.36	
	A038	SG + Char	T13	-	E016	E025	0834	1116-1556	4:40	1.70	483	36	55	4.37	4.57	1.68	Duplicate
	A039	SG + Char	T13	-	E017	E026	0834	1049-1554	5:05	1.12	285	36	55	4.88	4.57	1.68	Duplicate
	A040	SG + Char	T14	-	E018	E027	0844	1017-1536	5:22	3.33	153	35	59	12.62	2.14	2.26	
	A041	Silica Gel	T15	-	E019	-	0905	1042-1547	5:05	7.13	743	37	63	5.970	2.29	2.97	
	A042	Silica Gel	T16	-	E020	-	0856	1028-1554	5:26	5.84	772	38	52	4.333	2.11	1.96	
	A043	Silica Gel	T17	-	E021	-	0834	1128-1602	4:34	3.79	411	36	64	5.585	2.23	0.35	
	A044	Silica Gel	T18	-	E022	-	0850	1127-1601	4:34	5.06	501	50	36	5.843	2.13	1.94	
	A045	Silica Gel	T19	-	E023	E029	0842	1141-1547	4:06	4.07	459	41	52	5.111	2.12	0.18	
	A046	Silica Gel	T20	-	E030	-	0856	1122-1608	3:46	3.54	348	52	59	5.853	2.12	2.58	
	A047	Charcoal	T13	-	-	E028	-	-	-	-	-	-	-	-	-	-	Field Blank
7-06-93	A048	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No Run
	A049	Canister	-	830	-	-	0734	1041	3:07	-	-	27	27	-	2.3	-	System blank
	A050	Canister	T20	861	-	-	0822	1103	2:41	-	-	31	28	-	2.26	-	Control point

APPENDIX A 1993 MASTER LOG for FLUX SAMPLING

Date	Sample ID	Sample Type	Grid Point	Sampling Media ID			Time			Elapsed Time (min)	Total Weight Gain (g)	Evaporation Rate (mg/min-m ²)	Ambient Temp. (deg C)	Flux Chamber Temp. (deg C)	Sampled Flow Rate (l/min)	Sweep Air Flow Rate (l/min)	Soil Moisture (%)	Comments
				Can	Silica	Char	Start	Sampling	Elapsed (hh:mm)									
	A051	Silica Gel	--	--	014/043	--	0734	0855-1516	6:21	381	0.40	46.3	31	31	5.3965	2.3	--	System blank
	A052	Charcoal	--	--	--	004	0734	0855-1516	6:21		--		31	31	5.3965	2.3	--	System blank
	A053	Silica Gel	TR20	--	008/006	--	0822	0924-1521	5:57	357	6.68	117	48	66	35.127	2.26	N/A	Control point
	A054	Charcoal	TR20	--	--	020	0822	0924-1521	5:57		--		48	66	35.127	2.26	--	Control point
8-25-93	A055	Silica Gel	TR2-4	--	061/070	--	0901	1016-1505	4:49	289	15.73	586	32	63	21.373	2.93	7.97	
	A056	Silica Gel	TR2-9	--	046/038	--	0853	1006-1501	4:55	295	12.33	413	45	50	23.425	2.89	9.1	
	A057	Silica Gel	TR2-14	--	049/048	--	0848	1008-1457	4:49	289	17.27	629	31	51	21.55	2.89	2.89	
	A058	Silica Gel	TR2-20	--	013/072	--	0838	0956-1451	4:55	295	16.84	617	31	52	22.545	3.04	3.57	
	A059	Silica Gel	TR2-28	--	064/018	--	0831	0949-1445	4:56	296	11.49	350	33	64	25.74	2.89	4.6	
	A060	Silica Gel	TR2-34	--	043/041	--	0824	0943-1447	5:04	304	14.84	419	33	38	27.999	2.91	3.53	
	A061	Silica Gel	TR2-40	--	031/076	--	0807	0924-1440	5:16	316	10.67	345	34	36	24.228	2.88	2.8	
	A062	Silica Gel	TR2-44	--	040/006	--	0758	0916-1431	5:15	315	11.59	408	34	51	22.326	2.89	5.81	
	A063	Silica Gel	TR2-45	--	073/033	--	0816	0935-1431	4:56	296	11.16	639	35	46	24.515	5.17	3.09	Duplicate
	A064	Silica Gel	TR2-45	--	066/060	--	0816	0935-1431	4:56	296	8.31	458	35	46	25.478	5.17	3.09	Duplicate
	A065	Silica Gel	TR20	--	001/037	--	0906	1024-1512	4:48	288	15.36	533	33	58	22.77	2.91	6.29	Control Point
	A066	Silica Gel	--	--	023/008	--	--	--	--		-0.01				--	--	--	Field Blank
8-26-93	A067	Silica Gel	--	--	010/034	--	0734	0848-1446	5:58	358	0.32	9.15	26	25	27.707	2.91	--	System Blank
	A068	Silica Gel	TR2-44	--	044/074	--	0843	0949-1416	4:27	267	12.11	463	32	33	20.44	2.88	6.57	
	A069	Silica Gel	TR2-34	--	057/068	--	0836	0943-1406	4:23	263	10.62	439	32	42	19.01	2.89	5.62	
8-30-93	A070	Silica Gel	TR20	--	032/038	--	0952	1050-1444	3:54	234	9.13	358	26	38	20.156	2.91	N/A	Control Point
	A071	Silica Gel	TR2-44	--	024/042	--	0932	1033-1434	4:01	241	9.58	382	23	30	19.68	2.89	15.77	
	A072	Silica Gel	TR2-34	--	028/012	--	0939	1041-1426	3:45	225	9	364	26	37	19.325	2.88	12.15	
	A073	Silica Gel	--	--	--	--	--	--	--		--				--	--	--	No Run
	A074	Silica Gel	--	--	--	--	--	--	--		--				--	--	--	No Run

APPENDIX A

1993 MASTER LOG for FLUX SAMPLING

Date	Sample ID	Sample Type	Grid Point	Sampling Media ID			Time			Elapsed Time (min)	Total Weight Gain (g)	Evaporation Rate (mg/min-in ²)	Ambient Temp. (deg C)	Flux Chamber Temp. (deg C)	Sampled Flow Rate (ft ³)	Sweep Air Flow Rate (L/min)	Soil Moisture (%)	Comments
				Can	Silica	Char.	Start	Sampling	Elapsed (hh:mm)									
8-31-93	A075	Silica Gel	TR2-49	--	054/020	--	0839	1018-1522	5:04	304	5.2	396	23	22	18.461	5.17	9.68	Duplicate
	A076	Silica Gel	TR2-49	--	019/025	--	0839	1018-1522	5:04	304	6.48	456	23	22	19.94	5.17	9.68	Duplicate
	A077	Silica Gel	TR2-43	--	003/055	--	0851	1034-1521	4:47	287	7.32	326	23	33	17.626	2.89	13.99	
	A078	Silica Gel	TR2-42	--	062/035	--	0859	1043-1530	4:47	287	7.47	363	22	36	16.105	2.88	10.45	
	A079	Silica Gel	TR2-19	--	036/067	--	0910	1102-1531	4:29	269	6.26	370	22	35	13.969	3.04	9.53	
	A080	Silica Gel	TR2-22	--	055/011	--	0919	1109-1539	4:50	290	7.45	377	25	43	15.502	2.89	9.86	
	A081	Silica Gel	TR2-24	--	050/030	--	0927	1116-1544	4:28	268	6.45	382	25	44	13.262	2.89	8.42	
	A082	Silica Gel	T17	--	016/021	--	0939	1054-1537	4:43	283	9.33	426	24	40	17.203	2.89	9.67	
	A083	Silica Gel	T18	--	014/059	--	0947	1123-1547	4:24	264	9.31	413	24	36	17.922	2.93	9.19	
	A084	Silica Gel	T15	--	051/056	--	0959	1106-1558	4:52	292	4.68	270	21	36	13.721	2.91	14.55	(Possible Pump Malfunction)
	A085	Silica Gel	TR2-50	--	047/026	--	1026	1115-1555	4:40	280	7.78	372	22	34	16.513	2.91	4.87	
9-02-93	A086	Silica Gel	TR3-16	--	040/028	--	0823	1014-1510	4:56	296	16.79	633	32	30	21.885	3.04	20.2	
	A087	Silica Gel	TR3-12	--	057/012	--	0918	1035-1450	4:15	255	13.56	587	33	31	18.134	2.89	12.96	
	A088	Silica Gel	TR3-14	--	008/042	--	0800	1003-1443	4:40	280	15.75	598	35	41	20.97	2.93	12.82	
	A089	Silica Gel	TR3-11	--	033/024	--	0930	0930-1458	5:28	328	0.18	0.00			--	--	13.84	Field Blank
	A090	Silica Gel	TR3-13	--	061/029	--	0813	1007-1449	4:42	282	19.59	648	29	41	23.906	2.91	15.12	
	A091	Silica Gel	TR3-17	--	034/027	--	0835	1019-1504	4:45	285	14.31	508	29	44	22.124	2.89	19	
	A092	Silica Gel	TR3-11	--	068/038	--	0925	1042-1432	3:50	230	10.69	940	25	24	15.966	5.17	13.84	Duplicate
	A093	Silica Gel	TR3-18	--	053/032	--	0857	1015-1458	4:43	283	14.6	564	34	41	20.975	2.89	12.17	
	A094	Silica Gel	T20	--	066/017	--	0906	1029-1455	4:26	266	14.27	497	33	40	22.449	2.88	12.06	Control Point
	A095	Silica Gel	TR3-15	--	006/063	--	0750	0953-1436	4:43	283	9.4	391	25	35	18.85	2.89	14.35	
	A096	Silica Gel	TR3-11	--	074/065	--	0925	1042-1433	3:51	231	7.99	584	25	24	19.22	5.17	13.84	Duplicate
9-03-93	A097	Silica Gel	TR3-6	--	013/049	--	0815	0917-1431	5:14	314	13.23	436	27	43	23.795	2.89	9.54	
	A098	Silica Gel	TR3-5	--	010/071	--	0821	0922-1437	5:15	315	14.36	433	27	42	26.229	2.91	8.52	

APPENDIX A **1993 MASTER LOG for FLUX SAMPLING**

Date	Sample ID	Sample Type	Grid Point	Sampling Media ID			Time			Elapsed Time (min)	Total Weight Gain (g)	Evaporation Rate (mg/min-m ²)	Ambient Temp. (deg C)	Flux Chamber Temp. (deg C)	Sampled Flow Rate (ft ³)	Sweep Air Flow Rate (L/min)	Soil Moisture (%)	Comments
				Can	Silica	Char	Start	Sampling	Elapsed (hh:mm)									
	A099	Silica Gel	TR3-3	--	076/058	--	0830	0932-1443	5:11	311	11.86	356	30	50	26.527	2.93	8.32	
	A100	Silica Gel	TR3-2	--	018/005	--	0837	0938-1449	5:11	311	14.64	427	27	42	26.92	2.89	9.67	
	A101	Silica Gel	TR3-1	--	046/073	--	0842	0945-1454	5:09	309	17.01	654	26	25	21.471	3.04	7.96	
	A102	Silica Gel	TR3-9	--	022/009	--	0847	0946-1507	5:21	321	14.31	438	29	41	25.582	2.88	9.79	
	A103	Silica Gel	TR3-7	--	041/064	--	0850	0953-1520	5:27	327	4	206	26	46	27.237	5.17	10.43	Duplicate
	A104	Silica Gel	TR3-7	--	031/043	--	0850	0953-1520	5:27	327	4.43	195	26	46	31.824	5.17	10.43	Duplicate
	A105	Silica Gel	TR3-8	--	007/045	--	0855	0954-1501	5:07	307	13.21	494	31	44	20.984	2.89	11.19	
	A106	Silica Gel	TR3-10	--	048/044	--	0859	1000-1512	5:12	312	12.1	455	32	41	20.86	2.89	8.02	
9-07-93	A107	Silica Gel	--	--	--	--	--	--	--		--				--	--	--	No Run
	A108	Silica Gel	--	--	--	--	--	--	--		--				--	--	--	No Run
	A109	Silica Gel	--	--	001/072	--	0900	1005-1505	5:00	300	0.36	12.1	24	24	23.336	2.89	--	System Blank
9-08-93	A110	Silica Gel	TR1-15	--	034/039	--	0759	0911-1449	5:38	338	12.27	419	27	28	22.995	2.89	16.04	
	A111	Silica Gel	TR1-16	--	025/004	--	0813	0917-1436	5:19	319	17.57	666	26	34	20.701	2.89	12.98	
	A112	Silica Gel	TR1-18	--	015/021	--	0803	0913-1441	5:28	328	12.21	467	35	51	20.671	2.91	18.83	
	A113	Silica Gel	TR1-14	--	060/032	--	0754	0908-1442	5:34	334	12.39	383	28	31	25.367	2.89	9.95	
	A114	Silica Gel	TR1-17	--	061/074	--	0808	0915-1439	5:24	324	15.59	537	31	61	22.713	2.88	13.09	
	A115	Silica Gel	TR1-13	--	029/035	--	0751	0904-1436	5:32	332	10.74	387	22	27	23.215	3.08	17.98	
	A116	Silica Gel	TR1-5	--	006/042	--	0815	0926-1500	5:34	334	17.47	514	25	41	26.864	2.91	7.61	
	A117	Silica Gel	TR1-7	--	012/055	--	0832	0952-1501	5:09	309	7.2	456	26	27	22.179	5.17	7.83	Duplicate
	A118	Silica Gel	TR1-6	--	008/057	--	0824	0955-1506	5:11	311	12.61	452	25	29	21.905	2.89	4.95	
	A119	Silica Gel	TR3-4	--	024/068	--	0855	1130-1515	3:45	225	12.89	504	27	44	18.069	2.6	16.43	
	A120	Silica Gel	TR1-7	--	055/030	--	0832	0950-1501	5:11	311	10.63	661	26	27	22.585	5.17	7.83	Duplicate
	A121	Silica Gel	T20	--	036/051	--	0752	1005-1515	5:08	308	13.25	499	27	25	20.823	2.89	11.08	Control Point
9-09-93	A122	Silica Gel	TR1-2	--	038/047	--	0930	0930-1500	7:30	450	0.51	0.00			--	--	4.62	Field Blank
	A123	Silica Gel	T20	--	028/040	--	0900	1023-1438	4:15	255	15.71	641	27	43	19.241	2.89	N/A	Control Point

APPENDIX A

1993 MASTER LOG for FLUX SAMPLING

Date	Sample ID	Sample Type	Grid Point	Sampling Media ID			Time			Elapsed Time (min)	Total Weight Gain (g)	Evaporation Rate (mg/mln-in)	Ambient Temp. (deg C)	Flux Chamber Temp. (deg C)	Sampled Flow Rate (ft3)	Sweep Air Flow Rate (L/mln)	Soil Moisture (%)	Comments
				Can	Silica	Char	Start	Sampling	Elapsed (h:mm)									
	A124	Silica Gel	TR1-1	--	020/016	--	0749	0913-1452	5:39	339	16.79	585	34	43	23.711	3.04	5.66	
	A125	Silica Gel	TR1-9	--	027/059	--	0913	1021-1504	4:43	283	13.03	469	36	45	21.747	2.88	7.47	
	A126	Silica Gel	TR1-11	--	053/026	--	0826	0958-1419	4:21	261	17.56	739	36	33	18.779	2.91	5.8	
	A127	Silica Gel	TR1-4	--	065/067	--	0814	0940-1413	4:33	273	15.24	600	28	47	20.226	2.93	6.98	
	A128	Silica Gel	TR1-8	--	017/007	--	0900	1012-1409	3:57	237	15.94	577	36	42	21.679	2.89	8.31	
	A129	Silica Gel	TR1-2	--	033/003	--	0800	0928-1512	5:44	344	9.64	575	27	26	23.539	5.17	4.62	Collocated
	A130	Silica Gel	TR1-3	--	056/011	--	0802	0926-1405	4:39	279	15.81	557	33	42	22.299	2.89	8.03	
	A131	Silica Gel	TR1-12	--	063/062	--	0815	1007-1417	4:10	250	17.09	701	32	44	19.145	2.89	4.87	
	A132	Silica Gel	TR1-10	--	014/023	--	0845	1003-1425	4:22	262	17.63	641	28	46	21.75	2.91	6.44	
	A133	Silica Gel	TR1-2	--	066/046	--	0800	0928-1512	5:44	344	7.39	437	27	26	23.754	5.17	4.87	Collocated
	A134	Silica Gel	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	No Run
	A135	Silica Gel	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	No Run
	A136	Silica Gel	TR1-10	--	009/043	--	1532	1600-2003	4:03	243	10.13	393	22.1	24.5	20.386	2.91	6.38	24-Hour Test
	A137	Silica Gel	TR1-10	--	071/041	--	2013	2013-0603	10:16	616	9.29	168	12	12	43.832	2.91	6.66	24-Hour Test
9-10-93	A138	Silica Gel	TR1-10	--	045/037	--	0613	0613-1304	6:51	411	15.03	351	28	51	33.874	2.91	8.34	24-Hour Test
	A139	Silica Gel	--	--	031/044	--	0754	0848-1504	6:16	416	0.7	21.8	24	24	25.315	2.9	--	System Blank
	A140	Silica Gel	T4	--	048/010	--	0824	0934-1521	5:47	347	13.04	441	32	43	23.388	2.91	6.23	
	A141	Canister	T1	840		--	1026	1136	--		--				--	1.74	N/A	
	A142	Canister	T5	812		--	1031	1216	--		--		30	33	--	2.89	3.2	
	A143	Canister	T6	802		--	1036	1231	--		--		27	44	--	2.89	7.93	
	A144	Canister	T7	789		--	1041	1244	--		--		27	25	--	3.04	14.8	
	A145	Canister	T4	816		--	0824	1201	--		--		26	30	--	2.91	6.23	
	A146	Canister	T4	813		--	0824	1153	--		--		26	30	--	2.91	6.23	VOID
	A147	Silica Gel	TR1-10		058/013	--	1312	1312-1600	2:48	168	10.44	552	29	46	14.951	2.91	8.34	24-Hour Test
9-14-93	A148	Silica Gel	T20	--	018/050	--	1020	1123-1541	4:18	258	11.85	485	22	32	19.181	2.89	14.25	Control Point

APPENDIX A 1993 MASTER LOG for FLUX SAMPLING

Date	Sample ID	Sample Type	Grid Point	Sampling Media ID			Time		Elapsed Time (min)	Total Weight Gain (g)	Evaporation Rate (mg/min-m ²)	Ambient Temp. (deg C)	Flux Chamber Temp. (deg C)	Sampled Flow Rate (l/min)	Sweep Air Flow Rate (l/min)	Soil Moisture (%)	Comments
				Can	Silica	Char	Start	Sampling									
	A149	Silica Gel	TR2-51	-	022/049	-	1015	1134-1559	4:25	12.57	497	22	27	19.834	2.89	7.53	
	A150	Silica Gel	TR2-52	-	055/012	-	1018	1136-1608	4:32	11.5	459	18	27	19.938	2.93	9.39	
	A151	Silica Gel	TR2-53	-	040/029	-	1036	1138-1619	4:41	14.72	598	21	31	19.308	2.89	9.21	
	A152	Silica Gel	TR2-54	-	019/069	-	1040	1140-1639	4:59	14.53	956	24	40	21.35	5.17	6.8	Collocated
	A153	Silica Gel	TR2-55	-	028/023	-	1022	1139-1622	4:43	14.32	517	24	38	21.651	2.88	8.08	
	A154	Silica Gel	TR2-56	-	005/064	-	1031	1141-1633	4:52	13.76	566	23	26	20.078	3.04	10.65	
	A155	Silica Gel	TR2-57	-	024/053	-	1032	1148-1601	4:13	14.44	622	22	37	18.227	2.89	8.84	
	A156	Silica Gel	TR2-58	-	073/052	-	1008	1133-1644	5:11	17.17	559	21	32	24.274	2.91	13.54	
	A157	Silica Gel	TR2-59	-	054/076	-	1006	1130-1631	5:21	15.66	558	24	36	22.197	2.91	10.09	
	A158	Silica Gel	TR2-54	-	020/007	-	1040	1148-1639	4:51	7.39	565	24	40	18.352	5.17	6.8	Collocated
	A159	Silica Gel	-	-	046/042	-	1130	-	-	-0.27	-	-	-	-	-	-	Field Blank
9-15-93	A160	Silica Gel	TR2-60	-	016/015	-	0821	0926-1456	5:30	15.04	501	25	38	23.543	2.89	6.97	
	A161	Silica Gel	TR2-61	-	056/031	-	0813	0915-1449	5:41	14.18	478	25	38	23.278	2.89	9.66	
	A162	Silica Gel	TR2-62	-	062/025	-	0818	0921-1452	5:31	14.83	516	26	29	23.71	3.04	10.79	
	A163	Silica Gel	TR2-63	-	038/048	-	0826	0930-1504	5:34	14.6	461	25	35	24.776	2.88	8.12	
	A164	Silica Gel	TR2-64	-	043/044	-	0831	0934-1510	5:36	14.78	460	24	28	25.563	2.93	9.38	
	A165	Silica Gel	TR2-65	-	034/013	-	0835	0939-1514	5:35	15.55	509	26	38	23.973	2.89	9.62	
	A166	Silica Gel	TR2-66	-	033/037	-	0840	0943-1517	5:34	16.5	499	22	23	25.942	2.89	8.73	
	A167	Silica Gel	TR2-67	-	065/057	-	0845	0947-1425	4:38	11.49	626	24	35	25.787	5.17	10.83	Duplicate
	A168	Silica Gel	TR2-67	-	009/061	-	0845	0947-1425	4:38	17.3	1060	24	35	22.813	5.17	10.83	Duplicate
	A169	Silica Gel	TR2-68	-	047/017	-	0850	0947-1322	3:35	10.44	463	23	39	17.759	2.91	7.59	
	A170	Silica Gel	TR2-69	-	067/026	-	0855	0952-1525	5:17	11.89	410	24	36	22.574	2.91	8.74	
9-16-93	A171	Silica Gel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No Run
	A172	Silica Gel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	No Run
	A173	Silica Gel	P10-01	-	053/058	-	0723	0838-1353	5:15	18.02	628	33	32	23.7	3.04	10.53	

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Date	Sample ID	Sample Type	Grid Point	Sampling Media ID			Time			Elapsed Time (min)	Total Weight Gain (g)	Evaporation Rate (mg/min-in ²)	Ambient Temp (deg C)	Flux Chamber Temp (deg C)	Sampled Flow Rate (l/min)	Sweep Air Flow Rate (L/min)	Soil Moisture (%)	Comments
				Can	Silica	Char	Start	Sampling	Elapsed (hh:mm)									
	A174	Silica Gel	P10-02	--	049/040	--	0738	0841-1400	5:19	319	14.75	548	28	45	21.433	2.93	8.43	
	A175	Silica Gel	P10-03	--	014/022	--	0745	0913-1416	5:03	303	14.36	1020	29	45	19.818	5.17	12.68	Collocated
	A176	Silica Gel	P10-04	--	076/054	--	0754	0904-1422	5:18	318	13.93	486	29	54	22.435	2.88	12.67	
	A177	Silica Gel	P10-05	--	073/046	--	0758	0912-1431	5:19	319	18.19	587	26	40	24.324	2.89	9.78	
	A178	Silica Gel	P10-06	--	012/005	--	0803	0919-1436	5:17	317	15.69	586	30	49	21.167	2.91	10.11	
	A179	Silica Gel	P10-07	--	055/023	--	0808	0848-1407	5:19	319	17.56	662	27	44	20.81	2.89	8.63	
	A180	Silica Gel	P10-08	--	007/028	--	0740	0856-1410	5:14	314	18.66	587	25	43	24.968	2.89	10.37	
	A181	Silica Gel	P10-03	--	050/019	--	0745	0913-1415	5:02	302	11.72	724	29	45	22.722	5.17	12.68	Collocated
	A182	Silica Gel	T20	--	064/018	--	0825	0927-1441	5:14	314	15.55	544	31	44	22.438	2.89	11.29	
	A183	Silica Gel	--	--	042/029	--	0729	0818-1501	6:43	403	7.1	166	23	23	33.814	2.91	N/A	System Blank
	A184	Silica Gel	--	--	069/052	--	0845	--	--		0.03		33	32	--	--	--	Field Blank
9-17-93	A185	Silica Gel	TRI-19	--	033/025	--	0742	0845-1410	5:25	325	13.76	483	28	31	23.548	3.04	4.98	
	A186	Silica Gel	--	--	016/044	--	0744	--	--		-0.77		20		--	--	6.95	Field Blank
	A187	Silica Gel	TRI-20	--	034/026	--	0744	0845-1359	5:14	314	14.78	439	27	31	26.449	2.89	6.95	
	A188	Silica Gel	TRI-21	--	030/062	--	0747	0851-1426	5:35	335	10.21	342	27	43	23.468	2.89	9.36	
	A189	Silica Gel	TRI-22	--	010/048	--	0750	0855-1419	5:24	324	11.06	402	27	41	21.584	2.89	6.47	
	A190	Silica Gel	TRI-24	--	017/065	--	0801	0908-1432	5:24	324	12.75	790	28	43	22.663	5.17	5.87	Duplicate
	A191	Silica Gel	TRI-24	--	031/057	--	0801	0908-1432	5:24	324	15.33	886	28	43	24.295	5.17	5.87	Duplicate
	A192	Silica Gel	TRI-23	--	013/047	--	0802	0906-1425	5:19	319	14.81	498	29	32	23.647	2.93	8.22	
	A193	Silica Gel	TRI-25	--	037/061	--	0806	0918-1439	5:21	321	14.1	461	27	43	23.929	2.88	6.91	
	A194	Silica Gel	TRI-26	--	015/043	--	0812	0918-1445	5:27	327	17.17	554	28	43	24.348	2.89	8.28	N2 Flow Stopped During Run
	A195	Silica Gel	TRI-27	--	038/056	--	0816	0924-1345	4:21	261	16	572	28	36	22.114	2.91	10.27	
	A196	Silica Gel	TRI-28	--	009/067	--	0821	0928-1446	5:18	318	13.38	491	29	48	21.546	2.91	9.16	
9-20-93	A197	Silica Gel	--	--	022/054	--	0858	1024-1459	4:35	275	-0.47	-17	23	23	21.262	2.89	--	System Blank

APPENDIX A 1993 MASTER LOG for FLUX SAMPLING

Date	Sample ID	Sample Type	Grid Point	Sampling Media ID			Time		Elapsed Time (min)	Total Weight Gain (g)	Evaporation Rate (mg/min-m ²)	Ambient Temp. (deg C)	Flux Chamber Temp. (deg C)	Sampled Flow Rate (l/min)	Swept Air Flow Rate (L/min)	Soil Moisture (%)	Comments
				Can	Silica	Char	Start	Sampling									
9-21-93	A198	Silica Gel	--	--	--	--	--	--	--	--	--	--	--	--	--	--	No Run
	A199	Silica Gel	--	--	--	--	--	--	--	--	--	--	--	--	--	--	No Run
	A200	Silica Gel	TRI-30	--	049/012	--	0729	0843-1355	5:12	7.63	514	30	41	20.852	5.17	3.55	Duplicate
	A201	Silica Gel	TRI-30	--	007/023	--	0729	0843-1355	5:12	8.96	487	30	41	25.811	5.17	3.55	Duplicate
	A202	Silica Gel	TRI-31	--	073/042	--	0731	0851-1342	4:51	13.32	565	33	50	18.432	2.88	4.43	
	A203	Silica Gel	TRI-29	--	040/064	--	0726	0826-1334	5:08	11.44	321	31	52	27.985	2.89	2.2	
	A204	Silica Gel	TRI-36	--	076/029	--	0737	0911-1418	5:07	11.01	414	31	59	21.006	2.91	3.39	
	A205	Silica Gel	TRI-32	--	053/005	--	0747	0914-1355	4:41	8.43	323	32	31	20.503	2.89	1.62	
	A206	Silica Gel	T20	--	052/055	--	0756	0945-1441	4:56	14.16	530	29	44	20.967	2.89	4.36	
	A207	Silica Gel	TRI-37	--	014/028	--	0741	0918-1421	5:03	11.34	374	27	46	24.134	2.93	7.05	
	A208	Silica Gel	TRI-34	--	058/050	--	0749	0926-1410	4:44	9.68	429	28	29	18.648	3.04	2.47	
	A209	Silica Gel	TRI-33	--	018/069	--	0746	0923-1400	4:37	14.78	525	33	42	22.259	2.91	3.85	
	A210	Silica Gel	TRI-35	--	019/046	--	0735	0904-1415	5:11	10.21	337	32	48	23.816	2.89	1.78	
9-22-93	A211	Silica Gel	F3	--	041/074	--	0815	0922-1413	4:51	16.8	669	29	28	20.744	3.04	4.25	
	A212	Silica Gel	TRI-41	--	039/060	--	0802	0958-1350	3:52	13.45	501	28	26	21.072	2.89	6.34	
	A213	Silica Gel	F6	--	070/006	--	0829	0938-1426	4:48	12.49	523	31	48	19.007	2.93	4.46	
	A214	Silica Gel	F4	--	010/016	--	0823	0932-1423	4:51	17.73	738	31	49	18.999	2.91	5.57	
	A215	Silica Gel	F1	--	003/008	--	0815	0912-1405	4:53	15.09	500	30	47	23.869	2.91	3.89	
	A216	Silica Gel	TRI-39	--	032/066	--	0749	0850-1321	4:31	17.15	623	31	48	21.612	2.89	5.92	
	A217	Silica Gel	TRI-40	--	001/011	--	0758	0902-1328	4:26	11.48	677	32	50	23.809	5.17	4.02	Duplicate
	A218	Silica Gel	F2	--	071/059	--	0806	0916-1408	4:52	16.52	638	31	34	20.34	2.89	3.77	
	A219	Silica Gel	TRI-38	--	063/020	--	0742	0847-1342	4:55	12.48	438	33	51	22.302	2.88	4.67	
	A220	Silica Gel	F5	--	035/024	--	0818	0930-1418	4:48	15.78	591	29	44	20.95	2.89	4.7	
	A221	Silica Gel	TRI-40	--	021/045	--	0758	0902-1330	4:28	9.86	725	32	51	19.093	5.17	4.02	Duplicate
	A222	Silica Gel	TRI-38	--	004/072	--	--	0748	--	0.47		33		--	--	4.67	Field Blank

APPENDIX A

1993 MASTER LOG for FLUX SAMPLING

Date	Sample ID	Sample Type	Grid Point	Sampling Media ID			Time			Elapsed Time (min)	Total Weight Gain (g)	Evaporation Rate (mg/min-m ²)	Ambient Temp. (deg C)	Flux Chamber Temp. (deg C)	Sampled Flow Rate (l/s)	Sweep Air Flow Rate (L/min)	Soil Moisture (%)	Comments
				Can	Silica	Char	Start	Sampling	Elapsed (h:min)									
9-21-93	A223	Silica Gel	T20	--	068/036	--	1720	2018-0726	12:52	772	12.86	198	16	15	50.911	2.89	4.36	Overnight Run
9-23-93	A224	Silica Gel	T20	--	044/017	--	0720	0818-1319	5:01	301	14.26	525	31	47	21.312	2.89	7.86	
	A225	Silica Gel	--	--	031/057	--	0724	0825-1316	4:51	291	0.41	16.3	26	24	19.918	2.91	--	System Blank
9-24-93	A226	Silica Gel	C1	--	062/009	--	0800	0900-1443	5:43	343	7.11	269	30	32	21.802	3.04	3.95	
	A227	Silica Gel	C2	--	027/038	--	0807	0912-1449	5:37	337	10.67	311	32	32	26.951	2.89	2.74	
	A228	Silica Gel	C3	--	061/034	--	0816	0924-1407	4:43	283	10	325	34	55	24.476	2.93	0.4	
	A229	Silica Gel	C4	--	051/022	--	0825	0935-1416	4:41	281	8.71	362	34	39	19.005	2.91	2.25	
	A230	Silica Gel	C5	--	065/054	--	0834	0944-1424	4:40	280	14.61	517	30	50	22.318	2.91	4.85	
	A231	Silica Gel	C6	--	033/025	--	0800	0905-1400	4:55	295	16.46	590	36	56	21.905	2.89	2.16	
	A232	Silica Gel	C7	--	015/026	--	0808	0931-1411	4:40	280	11.44	744	32	41	21.603	5.17	2.44	Duplicate
	A233	Silica Gel	C7	--	048/030	--	0808	0931-1411	4:40	280	9.5	785	32	41	16.997	5.17	2.44	Duplicate
	A234	Silica Gel	C8	--	037/056	--	0822	0948-1429	4:41	281	16.97	764	39	47	17.44	2.89	2.42	
	A235	Silica Gel	C9	--	047/013	--	0836	1001-1437	4:36	276	19.2	714	31	62	21.027	2.88	1.61	
	A236	Silica Gel	C10	--	043/067	--	0842	0956-1431	4:35	275	8.29	340	35	52	19.144	2.89	0.86	

APPENDIX B

1994 MASTER LOG for FLUX SAMPLING

APPENDIX B

1994 MASTER LOG for FLUX SAMPLING

Date	Sample ID	Sample Type	Grid Point	Can ID	Silica Gel ID	Start Time	Sampling Time	Elapsed Time (hh:mm)	Elapsed (min)	Weight Gain (g)	Evaporation Rate (mg/min-m ²)	Ambient Temp. (deg C)	Flux Temp. (deg C)	Sampled Airflow (ft ³)	Sweep Airflow (L/min)	Soil Moisture (%)	Comments
6-02-94	A301	Canister	T1	886	--	1321	1345	N/A		N/A		30.5	44.6	N/A	5.00	6.45	
	A302	Canister	T1	896	--	1321	1347	N/A		N/A		30.5	44.6	N/A	5.00	5.36	
	A303	Canister	T2	884	--	1330	1354	N/A		N/A		45	52.1	N/A	5.00	7.40	
	A304	Canister	TR1-24	901	--	1347	1411	N/A		N/A		38	45.2	N/A	5.00	6.45	
	A305	Canister	T16	984	--	1359	1423	N/A		N/A		34.4	49.8	N/A	5.00	9.11	
	A306	Canister	TR3-8	892	--	1414	1438	N/A		N/A		37.1	56.9	N/A	5.00	11.40	
6-06-94	A307	Silica Gel	TR1-29	--	025/035	0839	1001-1423	4:22	262	10.08	318	38	59	21.502	2.50	0.57, 0.39	
	A308	Silica Gel	TR1-30	--	044/040	0852	1010-1432	4:22	262	10.23	393	35	55	17.674	2.50	0.22	
	A309	Silica Gel	TR1-24	--	041/056	0839	0948-1412	4:28	268	11.93	466	37	64	17.382	2.50	1.26	
	A310	Silica Gel	T-20	--	069/014	0906	1022-1351	3:29	209	14.54	639	34	39	15.46	2.50	1.31, 1.42	
	A311	Silica Gel	T-17	--	059/023	0912	1033-1318	2:45	165	15.7	885	37	58	12.044	2.50	0.06, 0.25	
6-07-94	A313	Silica Gel	C-2	--	031/007	0731	0903-1116	2:13	133	8.24	520	33	41	10.768	2.50	0.42	
	A314	Silica Gel	C-11	--	010/073	0723	0902-1123	2:21	141	5.41	354	30	48	10.379	2.50	0.75	
	A315	Silica Gel	C-13	--	072/070	0741	0914-1127	2:13	133	11.03	830	40	49	9.026	2.50	0.99, 0.95	
	A316	Silica Gel	C-14	--	024/038	0727	0921-1101	1:40	100	9.59	551	31	54	11.813	2.50	3.45	
	A317	Silica Gel	C-15	--	019/017	0745	0946-1334	3:46	226	8.31	821	34	50	13.752	5.00	2.36	Duplicate
	A318	Silica Gel	C-15	--	013/020	0745	0946-1334	3:46	226	9.47	703	34	50	18.283	5.00	2.36	Duplicate
	A319	Canister	C-15	930	--	0745	942	N/A		N/A		25	23	N/A	5.00	2.36	
6-08-94	A320	Canister	C-22	888	--	0739	0901-0905	N/A		N/A		27	33	N/A	2.50	4.75	
	A321	Silica Gel	C-19	--	023/059	0746	0838-1353	5:15	315	12.39	379	37	56	22.194	2.50	1.91	
	A322	Silica Gel	C-17	--	014/056	0710	0829-1400	5:31	331	12.95	369	31	71	23.845	2.50	2.18	
	A323	Silica Gel	C-18	--	009/067	0734	0818-1407	5:49	349	9.09	260	33	45	23.774	2.50	1.88	
	A324	Silica Gel	C-16	--	028/044	0728	0809-1412	6:03	363	12.44	355	31	37	23.77	2.50	2.34	
	A325	Silica Gel	C-20	--	065/039	0750	0850-1347	4:57	297	9.14	261	35	64	23.76	2.50	1.40	
	A326	Silica Gel	C-21	--	068/061	0729	0852-1426	5:34	334	10.35	319	32	33	22.065	2.50	3.91	
	A327	Silica Gel	C-22	--	069/058	0739	0906-1148	2:42	162	9.42	362	35	60	17.668	2.50	4.75	

APPENDIX B
1994 MASTER LOG for FLUX SAMPLING

Date	Sample ID	Sample Type	Grid Point	Can ID	Silica Gel ID	Start Time	Sampling Time	Elapsed Time (h:mm)	Elapsed Time (min)	Weight (g)	Evaporation Rate (mg/ml-hr)	Ambient Temp. (deg C)	Flux Temp. (deg C)	Sampled Airflow (m3)	Sweep Airflow (L/min)	Soil Moisture (%)	Comments
	A328	Silica Gel	C-23	--	035/041	0748	0916-1436	5:20	320	15.06	448	36	35	22.825	2.50	6.97	
6-09-94	A329	Silica Gel	N/A	--	025/053	N/A	N/A	N/A		11.69				N/A	N/A		Field Blank
	A330	Silica Gel	N/A	--	021/002	N/A	N/A	N/A		11.77				N/A	N/A		Field Blank
	A331	Silica Gel	N/A	--	072/024	N/A	N/A	N/A		11.05				N/A	N/A		Field Blank
	A332	Silica Gel	N/A	--	060/001	N/A	N/A	N/A		11.31				N/A	N/A		Field Blank
	A333	Silica Gel	N/A	--	053/010	N/A	N/A	N/A		12.11				N/A	N/A		Field Blank
	A334	Canister	C-30	908	--	0841	930	N/A	N/A	N/A		27	43	N/A	N/A	3.15	
	A335	Canister	C-27	921	--	0917	1017	N/A	N/A	N/A		28.6	26.4	N/A	N/A	4.20	
	A336	Canister	N/A	N/A	--	N/A	1148	N/A	N/A	N/A				N/A	N/A		Field Blank
	A337	Silica Gel	C-27	--	005/031	0917	1022-1302	2:40	160	12.76	495	34	33	17.499	2.50	4.20	
	A338	Silica Gel	C-28	--	013/007	0903	1010-1324	3:14	194	11.75	628	34	39	12.706	2.50	1.86	
	A339	Silica Gel	C-29	--	035/052	0855	0958-1343	3:45	225	22.02	963	43	50	15.534	2.50	3.93	
	A340	Silica Gel	C-30	--	017/006	0841	0941-1403	4:22	262	14.29	970	35	75	20.011	5.00	3.15	Duplicate
	A341	Silica Gel	C-30	--	062/070	0841	0941-1403	4:22	262	14.13	1080	35	75	17.852	5.00	3.15	Duplicate
	A342	Silica Gel	N/A	--	058/069	0840	0926-1505	4:39	279	10.83	303			24.298	2.50		Field Blank
6-10-94	A343	Canister	C-24	920	--	0834	918	N/A		N/A		25	27	N/A	2.50	5.55	
	A344	Silica Gel	C-24	--	073/020	0834	0923-1416	4:53	293	9.96	346	38	55	19.565	2.50	5.24	
	A345	Silica Gel	C-25	--	028/019	0813	0908-1358	4:50	290	14.51	426	34	64	23.129	2.50	4.84	
	A346	Silica Gel	C-26	--	045/055	0759	0853-1341	4:48	288	12.88	366	38	42	23.912	2.50	2.44	
6-13-94	A359	Canister	N/A	889	--	0815	0904-0906	0:02		N/A				N/A	2.50		System Blank
	A372	Canister	B-1	906	--	929	1008-1009	0:01		N/A				N/A	2.50		Background (Blank)
	A373	Silica Gel	N/A	--	001/042	N/A	1150	N/A		11.66				N/A	N/A		Field Blank
	A374	Silica Gel	N/A	--	010/016	N/A	1150	N/A		11.76				N/A	N/A		Field Blank
	A375	Silica Gel	N/A	--	059/050	N/A	1150	N/A		11.63				N/A	N/A		Field Blank
	A376	Silica Gel	T-20	--	067/003	0750	0822-1347	7:05	425	15.61	505	35	54	20.98	2.50	2.49	Control Pt.

APPENDIX B **1994 MASTER LOG for FLUX SAMPLING**

Date	Sample ID	Sample Type	Grid Point	Can ID	Silica Gel ID	Start Time	Sampling Time	Elapsed Time (hh:mm)	Elapsed (min)	Weight Gain (g)	Evaporation Rate (mg/min-m ²)	Ambient Temp. (deg C)	Flux Temp. (deg C)	Sampled Airflow (ft ³)	Sweep Airflow (L/min)	Soil Moisture (%)	Comments
	A377	Silica Gel	N/A	--	021/034	0815	0853-1536	8:43	523	12.86	255	34		34.253	2.50		System Blank
	A378	Silica Gel	B-1	--	053/012	0929	1014-1352	3:38	218	19.66	800	31	33	16.763	2.50	4.48	Background (Bandelier)
6-14-94	A389	Silica Gel	N/A	--	016/068	N/A	N/A	N/A		11.68				N/A	N/A		Field Blank
	A390	Silica Gel	N/A	--	030/011	N/A	N/A	N/A		11.71				N/A	N/A		Field Blank
	A391	Silica Gel	N/A	--	045/020	N/A	N/A	N/A		11.75				N/A	N/A		Field Blank
	A392	Silica Gel	N/A	--	059/065	0742	0817-1411	5:54	354	12.16	245	33	36	33.641	2.50		System Blank
	A393	Silica Gel	T-20	--	061/014	0734	0805-1354	5:49	349	12.28	331	35	56	25.224	2.50	2.49	Control Pt.
6-15-94	A394	Silica Gel	TR1-101	--	004/062	0745	0822-1516	6:54	414	10.62	218	35	41	33.128	2.50	1.05, 1.08	
	A395	Silica Gel	TR1-102	--	047/076	0748	0828-1517	6:49	409	7.05	163	32	33	29.356	2.50	4.38	
	A396	Silica Gel	TR1-103	--	066/006	0751	0829-1524	6:55	415	11.95	233	39	44	34.77	2.50	1.25	
	A397	Silica Gel	TR1-104	--	018/017	0755	0837-1325	4:48	288	3.64	83.4	32	32	29.641	2.50	4.00	
	A398	Silica Gel	TR1-114	--	048/038	0759	0846-1536	6:50	410	5.27	246	34	38	29.044	5.00	3.41	Duplicate
	A399	Silica Gel	TR1-114	--	046/007	0759	0846-1536	6:50	410	5.46	257	34	38	28.861	5.00	3.41	Duplicate
6-16-94	A408	Silica Gel	TR1-105	--	064/052	0741	0842-1534	6:52	412	16.34	362	35	51	30.665	2.50	0.82, 0.63	
	A409	Silica Gel	TR1-106	--	043/058	0743	0837-1352	4:15	255	18.68	461	33	55	27.543	2.50	0.33	
	A410	Silica Gel	TR1-107	--	044/029	0750	0847-1403	5:16	316	18.73	466	39	50	27.3	2.50	1.10	
	A411	Silica Gel	TR1-108	--	040/005	0750	0852-1448	5:56	356	12.1	278	36	42	29.537	2.50	0.90	
	A412	Silica Gel	TR1-109	--	051/013	0758	0857-1500	6:03	363	24.93	644	36	61	26.269	2.50	0.58	
	A413	Silica Gel	TR1-110	--	037/070	0800	0902-1524	6:22	382	14.32	422	36	61	23.02	2.50		
	A414	Silica Gel	TR1-111	--	002/031	0813	0906-1512	6:06	366	17.01	464	39	61	24.884	2.50		
	A415	Silica Gel	TR1-112	--	049/022	0820	0912-1418	5:06	306	18.65	538	38	57	23.527	2.50		
	A416	Silica Gel	TR1-113	--	033/074	0805	0917-1437	5:20	320	13.82	393	42	58	23.882	2.50		
	A417	Silica Gel	TR1-115	--	073/027	0823	0924-1857	9:33	573	3.71	50.0	34	36	50.423	2.50		
6-17-94	A418	Canister	S-3	943	--	0834	0913	N/A		N/A		25	35	N/A	2.50	2.21	Duplicate
	A419	Canister	S-3	903	--	0834	0917	N/A		N/A		25	35	N/A	2.50	2.21	Duplicate

APPENDIX B **1994 MASTER LOG for FLUX SAMPLING**

Date	Sample ID	Sample Type	Grid Point	Can ID	Silica Gel ID	Start Time	Sampling Time	Elapsed Time (hh:mm)	Elapsed (min)	Weight Gain (g)	Evaporation Rate (mg/min-m ²)	Ambient Temp. (deg C)	Flux Temp. (deg C)	Sampled Airflow (ft ³)	Sweep Airflow (L/min)	Soil Moisture (%)	Comments
	A420	Canister	S-1	944	--	0730	0851	N/A		N/A		33	38	N/A	2.50	0.18	
	A421	Canister	S-2	965	--	0833	0923	N/A		N/A		30	30	N/A	2.50	1.17	
	A428	Silica Gel	S-1	--	008/069	0730	1024-1606	5:42	342	8.94	214	37	36	28.399	2.50	0.18	
	A429	Silica Gel	S-2	--	056/036	0833	0926-1444	5:18	318	14.74	381	36	35	26.266	2.50	1.17	
	A430	Silica Gel	S-3	--	054/026	0834	0921-1536	6:15	375	10.19	251	38	58	27.618	2.50	2.21	
	A431	Silica Gel	T-20	--	041/063	0730	0809-1320	5:11	311	11.63	338	40	59	23.354	2.50	2.28	Control PT.
	A432	Silica Gel	TR2-103	--	025/060	0754	0851-1401	5:10	310	14.48	421	38	64	23.336	2.50	1.15	
	A433	Silica Gel	TR2-101	--	053/015	0738	0820-1334	5:14	314	15.77	473	32	61	22.626	2.50	0.51	
	A434	Silica Gel	TR2-102	--	034/021	0746	0837-1344	5:07	307	17.61	1160	36	62	20.669	5.00	2.45	
	A435	Silica Gel	TR2-102	--	023/071	0746	0837-1344	5:07	307	20.8	1300	36	62	21.753	5.00	2.25	DUPLICATE
7-26-94	A446	Silica Gel	TR1-24	--	056/037	0819	0913-1316	4:03	243	13.52	1120	36	58	16.333	5.00		F/C
	A447	Silica Gel	TR1-24D	--	031/004	0819	0913-1316	4:03	243	11.62	895	36	58	17.642	5.00	4.68	DUPLICATE
	A448	Silica Gel	T-20	--	026/072	0809	0937-1337	4:00	240	17.32	737	32	55	15.965	2.50	6.03	CONTROL POINT
	A449	Silica Gel	TR1-30	--	074/002	0837	0925-1329	4:04	244	14.84	577	37	56	17.452	2.50	1.97	
	A450	Silica Gel	TR1-109	--	058/005	0832	0920-1325	4:05	245	15.7	576	39	47	18.073	2.44	2.34	
	A451	Silica Gel	T-17	--	043/046	0823	0945-1343	3:58	238	15.04	506	34	35	20.17	2.50	2.34	
7-27-94	A452	Silica Gel	TR1-116	--	052/065	0810	0851-1345	4:54	294	17.6	607	36	49	19.682	2.50	8.46	
	A453	Silica Gel	TR1-117	--	040/048	0826	0909-1350	4:41	281	12.23	892	35	46	18.399	4.94	7.29	Duplicate
	A454	Silica Gel	TR1-117	--	029/059	0826	0909-1350	4:41	281	12.53	829	35	46	20.274	4.94	7.29	Duplicate
	A455	Silica Gel	TR1-118	--	022/066	0832	0856-1341	4:45	285	17.21	650	32	47	17.988	2.50	9.23	
	A456	Silica Gel	TR1-119	--	063/013	0815	0815-1320	5:05	305	12.03	454	29	31	18.008	2.50	8.13	
	A457	Silica Gel	TR1-120	--	014/042	0808	0903-1326	4:23	263	18.67	645	33	39	19.664	2.50	8.25	
	A458	Silica Gel	TR1-121	--	051/033	0825	0908-1334	4:26	266	17.91	550	32	39	21.569	2.44	10.08	
7-28-94	A459	Canister	T-1	975	--	1058	1201	N/A		N/A		32	45	N/A	2.50	9.87	
	A460	Canister	T-2	986	--	1222	1335	N/A		N/A		26	32	N/A	2.50	7.42	
	A461	Canister	TR1-24	944	--	1357	1449	N/A		N/A		23	29	N/A	2.50	7.29	

APPENDIX B **1994 MASTER LOG for FLUX SAMPLING**

Date	Sample ID	Sample Type	Grid Point	Can ID	Silica Gel ID	Start Time	Sampling Time	Elapsed Time (hh:mm)	Elapsed (min)	Weight Gain (g)	Evaporation Rate (mg/min-m ²)	Ambient Temp. (deg C)	Flux Temp. (deg C)	Sampled Airflow (ft ³)	Sweep Airflow (L/min)	Soil Moisture (%)	Comments
	A463	Canister	T-16	982	--	1500	1600	N/A		N/A		24	28	N/A	2.50	10.42	
7-29-94	A466	Canister	N/A	978	--	0955	N/A	N/A		N/A				N/A	2.50		Field Blank
	A487	Canister	S-3	974	--	1140	1229	N/A		N/A				N/A	2.50	9.16	Duplicate
	A488	Canister	S-3	979	--	1140	1225	N/A		N/A				N/A	2.50	9.16	Duplicate
	A507	Silica Gel	N/A	--	043/046	0955	1040-1437	3:57	237	13.38	566			19.918	3.10		System Blank
8-01-94	A531	Silica Gel	N/A	--	049/061	N/A	N/A	N/A		11.71				N/A	N/A		Field Blank
	A532	Silica Gel	N/A	--	037/002	N/A	N/A	N/A		11.84				N/A	N/A		Field Blank
	A533	Silica Gel	N/A	--	044/041	N/A	N/A	N/A		11.75				N/A	N/A		Field Blank
	A534	Silica Gel	N/A	--	013/036	N/A	N/A	N/A		11.79				N/A	N/A		Field Blank
	A535	Silica Gel	N/A	--	070/038	N/A	N/A	N/A		11.83				N/A	N/A		Field Blank
	A536	Silica Gel	N/A	--	048/059	N/A	N/A	N/A		11.83				N/A	N/A		Field Blank
	A537	Silica Gel	N/A	--	072/014	N/A	N/A	N/A		11.78				N/A	N/A		Field Blank
	A538	Silica Gel	N/A	--	055/052	N/A	N/A	N/A		11.88				N/A	N/A		Field Blank
	A539	Silica Gel	N/A	--	029/056	N/A	N/A	N/A		11.88				N/A	N/A		Field Blank
	A540	Silica Gel	N/A	--	027/018	N/A	N/A	N/A		11.64				N/A	N/A		Field Blank

Appendix C

Laboratory Report for 1993 VOC Analyses (units of $\mu\text{g}/\text{m}^3$)

VOC AIR CANISTER ANALYSIS
FINAL REPORT

Client: LOS ALAMOS
Units: ug/m3

Radian Workorder #: V307007-02
Date Sampled: 6-29-93

Site Number:							
Sample wide footnotes:	None	None	None	None	None		
Analytical run FID:	C	D	C	C	C	NA	NA
Analytical run HALL:	C	D	D	D	D	NA	NA
FIELD SAMPLE NUMBER:	A002	A003	A008	A010	A012		
SAMPLE CONTROL NUMBER:	V307007-02	V307007-03	V307007-08	V307007-10A	V307007-12		
DATE SAMPLED:	6-29-93	6-29-93	6-29-93	6-29-93	6-29-93		
NELSON FILE NUMBER:	J0071221	W007075	J007133	J0071212	J0071216		
FID ANALYSIS DATE:	7-13-93	7-7-93	7-13-93	7-13-93	7-13-93		
HALL ANALYSIS DATE:	7-13-93	7-7-93	7-9-93	7-10-93	7-10-93		
C2C3 ANALYSIS DATE:	7-6-93	7-6-93	7-6-93	7-7-93	7-7-93		
CANISTER NUMBER:	782	963	880	812	920		
FID DILUTION FACTOR:	0.277898	0.291105	0.275339	0.264054	0.294595	0.000000	0.000000
HALL DILUTION FACTOR:	0.277898	0.291105	0.275339	0.264054	0.294595	0.000000	0.000000
C2C3 DILUTION FACTOR:	0.277898	0.291105	0.275339	0.264054	0.294595	0.000000	0.000000
FID VOLUME:	0.500000	0.500000	0.500000	0.500000	0.500000	0.000000	0.000000
HALL VOLUME:	0.500000	0.500000	0.500000	0.500000	0.500000	0.000000	0.000000
C2C3 VOLUME:	0.711681	0.587137	0.640513	0.593067	0.604929	0.000000	0.000000

Client: LOS ALAMOS

Radian Workorder #: V307007-02

FIELD SAMPLE NUMBER:		A002	A003	A008	A010	A012		
ETHYLENE	193	4.6	1.0	1.7	0.6	5.8	- NA	- NA
ACETYLENE	194	-	0.3	-	-	0.2	- NA	- NA
FREON 23	214	-	-	-	-	-	- NA	- NA
ETHANE	2	3.0	1.2	1.6	0.8	19.0	- NA	- NA
CHLORODIFLUOROMETHANE	195	-	-	-	-	-	- NA	- NA
PROPYLENE	3	2.1	0.6	1.2	0.4	2.1	- NA	- NA
PROPANE	4	2.7	0.6	1.4	0.4	4.0	- NA	- NA
DIMETHYL ETHER	190	-	-	-	-	-	- NA	- NA
CHLOROMETHANE	5	0.3	0.3	-	-	0.4	- NA	- NA
PROPENE	6	-	-	-	-	-	- NA	- NA
DICHLORODIFLUOROMETHANE	7	0.7	0.8	0.9	0.4	10.4	- NA	- NA
FREON 114	215	-	-	-	-	-	- NA	- NA
ISOBUTANE	8	1.2	-	-	3.4	3.2	- NA	- NA
ACETALDEHYDE	9	-	-	-	-	-	- NA	- NA
VINYL CHLORIDE	10	-	-	-	-	-	- NA	- NA
ISOBUTENE + 1-BUTENE	11	7.1	3.6	10.1	2.5	14.0	- NA	- NA
1,3-BUTADIENE	12	-	-	-	-	-	- NA	- NA
METHYL MERCAPTAN	13	-	-	-	-	-	- NA	- NA
N-BUTANE	14	2.3	-	0.8	3.9	6.3	- NA	- NA
METHANOL	15	97.7	37.4	44.5	21.4	121	- NA	- NA
BROMOMETHANE	16	-	-	-	-	-	- NA	- NA
T-2-BUTENE	17	-	-	-	-	-	- NA	- NA
NEOPENTANE	18	-	-	-	-	-	- NA	- NA
DIMETHYL ACETAL	189	-	-	-	-	-	- NA	- NA
METHYL FORMATE	191	-	-	-	-	-	- NA	- NA
1-BUTYNE	19	-	-	-	-	-	- NA	- NA
C-2-BUTENE	20	-	-	-	-	-	- NA	- NA
CHLOROETHANE	21	-	-	-	-	-	- NA	- NA
VINYL BROMIDE	22	-	-	-	-	-	- NA	- NA
3-METHYL-1-BUTENE	23	-	-	-	-	-	- NA	- NA
ETHANOL + ACETONITRILE	233	57.2	18.5	-	2.4	1110 m	- NA	- NA
ISOPENTANE	26	11.4	-	1.0	6.0	-	- NA	- NA
ACETONE	27	82.9	38.8	73.2	7.3	63.8	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307007-02

FIELD SAMPLE NUMBER:		A002	A003	A008	A010	A012		
PROPIONALDEHYDE	28	-	-	-	-	-	- NA	- NA
TRICHLOROFLUOROMETHANE	29	1.8	1.2	2.8	0.7	5.3	- NA	- NA
2-BUTYNE	30	-	-	-	-	-	- NA	- NA
ETHYL MERCAPTAN	31	-	-	-	-	-	- NA	- NA
1-PENTENE	32	1.2	-	-	-	2.4	- NA	- NA
IODOMETHANE	33	-	-	-	-	-	- NA	- NA
2-METHYL-1-BUTENE	34	-	-	-	-	-	- NA	- NA
ACRYLONITRILE	35	-	-	-	-	-	- NA	- NA
N-PENTANE	36	9.9	0.7	0.8	2.9	13.7	- NA	- NA
ISOPRENE	37	3.8	1.0	3.2	-	4.1	- NA	- NA
DIMETHYLSULFIDE	38	-	-	-	-	-	- NA	- NA
DIETHYL ETHER + 2-PROPANOL	239	-	-	-	-	-	- NA	- NA
T-2-PENTENE	41	0.5	-	-	-	-	- NA	- NA
DICHLOROFLUOROMETHANE	196	-	-	-	-	-	- NA	- NA
1,1-DICHLOROETHYLENE	42	-	-	-	-	-	- NA	- NA
C-2-PENTENE	43	-	-	-	-	-	- NA	- NA
METHYLENE CHLORIDE	44	2920 v	1840 v	3610 v	957 v	3800 v	- NA	- NA
2-METHYL-2-BUTENE	45	-	-	-	-	-	- NA	- NA
NEOHXANE	46	-	-	-	-	-	- NA	- NA
FREON 113	199	15.9 v	13.1 v	22.2 v	-	38.0 v	- NA	- NA
ISOBUTYRALDEHYDE	47	-	-	-	-	-	- NA	- NA
CYCLOPENTENE	48	-	-	-	-	-	- NA	- NA
T-1,2-DICHLOROETHYLENE	49	-	-	-	-	-	- NA	- NA
4-METHYL-1-PENTENE	50	-	-	-	-	-	- NA	- NA
1,1-DICHLOROETHANE	51	-	-	-	-	-	- NA	- NA
CYCLOPENTANE	52	1.2	-	0.7	-	0.6	- NA	- NA
1-PROPANOL	53	-	-	-	-	-	- NA	- NA
2,3-DIMETHYLBUTANE	54	1.0	-	-	-	0.8	- NA	- NA
MTBE + ISOHEX + C-4-M-2-PENTENE	232	11.9	4.1	10.0	3.0	9.7	- NA	- NA
VINYL ACETATE	203	1.2	-	0.7	-	4.9	- NA	- NA
BUTYRALDEHYDE	58	3.3	0.9	4.4	1.5	5.3	- NA	- NA
T-4-METHYL-2-PENTENE	59	-	-	-	-	-	- NA	- NA
CHLOROPRENE	192	-	-	-	-	-	- NA	- NA
2-BUTANONE	60	2.9	-	2.1	-	2.2	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307007-02

FIELD SAMPLE NUMBER:		A002	A003	A008	A010	A012		
3-METHYLPENTANE	61	1.3	-	-	1.2	-	- NA	- NA
1-HEXENE	62	2.3	-	-	-	-	- NA	- NA
2-METHYL-1-PENTENE	63	-	-	-	-	-	- NA	- NA
BROMOCHLOROMETHANE	212	-	-	-	-	-	- NA	- NA
C-1,2-DICHLOROETHYLENE	64	-	-	-	-	-	- NA	- NA
2-ETHYL-1-BUTENE	65	-	-	-	-	-	- NA	- NA
N-HEXANE	66	3.7	0.9	2.6	1.8	3.6	- NA	- NA
METHYL ACRYLATE	204	-	-	-	-	-	- NA	- NA
CHLOROFORM	67	-	-	-	-	-	- NA	- NA
C-3-HEXENE	68	-	-	-	-	-	- NA	- NA
T-2-HEXENE	69	-	-	-	-	-	- NA	- NA
2-METHYL-2-PENTENE	70	-	-	-	-	-	- NA	- NA
C-2-HEXENE	71	-	-	-	-	-	- NA	- NA
C-3-METHYL-2-PENTENE	72	-	-	-	-	-	- NA	- NA
METHYLCYCLOPENTANE	73	0.6	1.0	2.0	0.7	0.7	- NA	- NA
1,2-DICHLOROETHANE	74	-	-	-	0.4	-	- NA	- NA
2,4-DIMETHYLPENTANE	75	-	-	0.5	-	-	- NA	- NA
1,1,1-TRICHLOROETHANE	76	22.9	1.3	8.6	1.0	63.0	- NA	- NA
2-METHYL-1,3-DIOXOLANE	188	-	-	-	-	-	- NA	- NA
ISOVALERALDEHYDE	77	-	-	-	-	-	- NA	- NA
METHYLCYCLOPENTENE	78	-	-	-	-	-	- NA	- NA
BENZENE	79	2.7	0.5	1.4	1.6	2.5	- NA	- NA
CARBON TETRACHLORIDE	80	-	0.2	0.2	-	0.4	- NA	- NA
1-BUTANOL + CYCLOHEXANE	238	3.0	-	9.3	14.9	6.0	- NA	- NA
THIOPHENE	82	-	-	-	-	-	- NA	- NA
ISOHEPTANE + 2,3-DIMETHYLPENTANE	84	-	0.8	-	-	-	- NA	- NA
2-PENTANONE	85	-	-	-	-	-	- NA	- NA
CYCLOHEXENE	86	-	-	-	-	-	- NA	- NA
3-METHYLHEXANE	87	-	-	2.2	-	2.8	- NA	- NA
VALERALDEHYDE	88	-	-	-	-	-	- NA	- NA
1,2-DICHLOROPROPANE	89	-	-	-	-	-	- NA	- NA
3-PENTANONE	90	-	-	-	-	-	- NA	- NA
TRICHLOROETHYLENE + BDCMETHANE	235	0.6	0.1	0.2	-	4.4	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307007-02

FIELD SAMPLE NUMBER:		A002	A003	A008	A010	A012		
1-HEPTENE	93	-	-	-	-	-	- NA	- NA
1,4-DIOXANE + 2,2,4-IMPENTANE	234	4.2 hh	-	-	-	2.6	- NA	- NA
N-HEPTANE	95	7.1	0.8	5.8	1.4	11.3	- NA	- NA
N-BUTYL MERCAPTAN	96	-	-	-	-	-	- NA	- NA
T-3-HEPTENE	97	-	-	-	-	-	- NA	- NA
BISCHLOROMETHYL ETHER	98	-	-	-	-	-	- NA	- NA
C-3-HEPTENE	99	-	-	-	-	-	- NA	- NA
T-2-HEPTENE	100	-	-	-	-	-	- NA	- NA
2,4,4-TRIMETHYL-1-PENTENE	101	-	-	-	-	-	- NA	- NA
C-1,3-DICHLOROPROPENE	102	-	-	-	-	-	- NA	- NA
METHYLCYCLOHEXANE	103	-	-	-	-	-	- NA	- NA
METHYLISOBUTYLKETONE	104	0.8	-	-	-	-	- NA	- NA
2,4,4-TRIMETHYL-2-PENTENE	105	-	-	-	-	-	- NA	- NA
2,5-DIMETHYLHEXANE	106	0.8	-	0.6	-	0.6	- NA	- NA
2,2,3-TRIMETHYLPENTANE	107	0.6	-	-	-	0.5	- NA	- NA
T-1,3-DICHLOROPROPENE	108	-	-	-	-	-	- NA	- NA
1,1,2-TRICHLOROETHANE	109	-	-	-	-	-	- NA	- NA
2,3,4-TRIMETHYLPENTANE	110	0.6	-	-	-	0.6	- NA	- NA
TOLUENE	111	5.4	1.3	1.9	2.0	9.6	- NA	- NA
2-METHYLTHIOPHENE	112	-	-	-	-	-	- NA	- NA
3-METHYLTHIOPHENE	113	-	-	-	-	-	- NA	- NA
1-METHYLCYCLOHEXENE	114	-	-	-	-	-	- NA	- NA
3,5,5-TRIMETHYL-1-HEXENE	115	-	-	-	-	-	- NA	- NA
DIBROMOCHLOROMETHANE	116	-	-	-	-	-	- NA	- NA
3-METHYLHEPTANE	117	1.0	0.5	0.8	-	0.9	- NA	- NA
HEXANAL	118	6.1	1.4	2.7	0.8	6.0	- NA	- NA
1,2-DIBROMOETHANE	119	-	-	-	-	-	- NA	- NA
2-CHLOROETHYL VINYL ETHER	120	-	-	-	-	-	- NA	- NA
2,2,5-TRIMETHYLHEXANE	121	-	-	-	-	-	- NA	- NA
1-OCTENE	122	-	-	-	-	-	- NA	- NA
TETRAHYDROTHIOPHENE	123	-	-	-	-	-	- NA	- NA
N-OCTANE	124	3.2	-	1.9	0.7	2.6	- NA	- NA
TETRACHLOROETHYLENE	125	159 v	76.1	211 v	55.9	238 v	- NA	- NA
C-2-OCTENE	126	-	-	-	-	-	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307007-02

FIELD SAMPLE NUMBER:		A002	A003	A008	A010	A012		
ISOPENTYL MERCAPTAN	127	-	-	-	-	-	- NA	- NA
CHLOROBENZENE	128	-	-	-	-	-	- NA	- NA
ETHYLBENZENE	129	-	-	-	-	0.5	- NA	- NA
2,5-DIMETHYLTHIOPHENE	130	-	-	-	-	-	- NA	- NA
P-XYLENE + M-XYLENE	131	1.5	0.6	0.5	0.7	1.3	- NA	- NA
BROMOFORM	132	-	-	-	-	-	- NA	- NA
CYCLOHEXANONE	133	7.7	4.0	6.4	2.3	6.3	- NA	- NA
BUTYL ACRYLATE	205	-	-	-	-	-	- NA	- NA
STYRENE	134	2.0	0.8	-	0.9	2.0	- NA	- NA
HEPTANAL	135	2.2	-	2.4	-	2.9	- NA	- NA
1,1,2,2-TETRACHLOROETHANE	136	-	-	-	-	-	- NA	- NA
O-XYLENE	137	0.8	-	-	-	0.6	- NA	- NA
1-NONENE	138	-	-	-	-	-	- NA	- NA
N-NONANE	139	1.0	-	0.6	-	0.9	- NA	- NA
4-NONENE	140	-	-	-	-	-	- NA	- NA
ISOPROPYLBENZENE	141	-	-	-	-	-	- NA	- NA
A-PINENE + BENZALDEHYDE	236	15.8	-	11.0	8.1	23.1	- NA	- NA
O-CHLOROTOLUENE	144	-	-	-	-	-	- NA	- NA
M-CHLOROTOLUENE	145	-	-	-	-	-	- NA	- NA
N-PROPYLBENZENE	146	-	-	-	-	-	- NA	- NA
P-CHLOROTOLUENE	147	-	-	-	-	-	- NA	- NA
M-ETHYLTOLUENE	148	1.7	0.8	1.2	-	2.6	- NA	- NA
BISCHLOROETHYL ETHER	149	-	-	-	-	-	- NA	- NA
P-ETHYLTOLUENE	150	49.4	4.4	36.7	7.2	86.1	- NA	- NA
1,3,5-TRIMETHYLBENZENE	151	1.8	-	-	-	0.7	- NA	- NA
O-ETHYLTOLUENE	152	0.7	-	-	-	0.8	- NA	- NA
3-OCTANONE	202	-	-	-	-	-	- NA	- NA
B-PINENE	153	5.1	-	2.4	-	4.6	- NA	- NA
1-DECENE	154	-	-	-	-	-	- NA	- NA
1,2,4-TMBENZENE + T-BUTYLBENZENE	237	1.3	0.4	-	-	0.6	- NA	- NA
BENZYL CHLORIDE + M-DCBENZENE	230	-	-	-	-	-	- NA	- NA
ISOBUTYLBENZENE	158	-	-	-	-	-	- NA	- NA
N-DECANE + P-DICHLOROBENZENE	231	6.2	-	0.7	-	24.7	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307007-02

FIELD SAMPLE NUMBER:		A002	A003	A008	A010	A012		
1,2,3-TRIMETHYLBENZENE	161	3.5	1.0	3.1	3.3	7.9	- NA	- NA
P-ISOPROPYLTOLUENE	162	27.8	0.7	3.5	1.2	17.1	- NA	- NA
O-DICHLOROBENZENE	163	-	-	-	-	-	- NA	- NA
LIMONENE	164	2.3	1.1	1.8	0.8	2.5	- NA	- NA
INDAN	165	-	-	-	-	-	- NA	- NA
INDENE	166	-	-	-	-	-	- NA	- NA
M-DIETHYLBENZENE	167	-	-	-	-	0.4	- NA	- NA
N-BUTYLBENZENE	168	0.6	-	-	-	0.4	- NA	- NA
P-DIETHYLBENZENE	169	0.5	-	1.0	-	2.4	- NA	- NA
1-UNDECENE	170	-	-	-	-	-	- NA	- NA
N-UNDECANE	171	9.5	0.4	1.3	0.5	44.2	- NA	- NA
DICHLOROTOLUENE	172	-	-	-	-	-	- NA	- NA
NAPHTHALENE	173	0.6	-	-	-	0.6	- NA	- NA
1,2,4-TRICHLOROBENZENE	220	-	-	-	-	-	- NA	- NA
HEXACHLORO-1,3-BUTADIENE	210	-	-	-	-	-	- NA	- NA
UNIDENTIFIED VOC	174	97.8	30.2	61.4	94.2	172	- NA	- NA
UNIDENTIFIED HALOGENATED VOC	175	0.9	-	0.2	0.2	1.8	- NA	- NA
TNMHC		1010	435	919	344	2050	-	-

NA Not Analyzed

Analytical system: HP 5890 GC [C2C3]

Analytical system: HP 5890 GC [C]

Analytical system: HP 5890 GC [D]

FID/PID - Analytical system: HP 5890 GC [C]

HECD - Analytical system: HP 5890 GC [D]

hh. Quantitation biased due to coelution with halogenated compound.

m. Detector response over 20% higher than the high point of the calibration range for this compound.

v. Concentration of halogenated compound quantitated from Flame Ionization Detector response.

Field/Analytical Dup

VOC AIR CANISTER ANALYSIS FINAL REPORT

Client: LOS ALAMOS
Units: ug/m3

Radian Workorder #: V307007-10A
Date Sampled: 6-29-93

Site Number:							
Sample wide footnotes:	None	o	None	o			
Analytical run FID:	C	C	C	C	NA	NA	NA
Analytical run HALL:	D	D	C	C	NA	NA	NA
FIELD SAMPLE NUMBER:	A010	A010	A011	A011			
SAMPLE CONTROL NUMBER:	V307007-10A	V307007-10B	V307007-11A	V307007-11B			
DATE SAMPLED:	6-29-93	6-29-93	6-29-93	6-29-93			
NELSON FILE NUMBER:	J0071212	J0071214	J0071218	J0071220			
FID ANALYSIS DATE:	7-13-93	7-13-93	7-13-93	7-13-93			
HALL ANALYSIS DATE:	7-10-93	7-10-93	7-13-93	7-13-93			
C2C3 ANALYSIS DATE:	7-7-93	7-7-93	7-7-93	7-7-93			
CANISTER NUMBER:	812	812	922	922			
FID DILUTION FACTOR:	0.264054	0.264054	0.281351	0.281351	0.000000	0.000000	0.000000
HALL DILUTION FACTOR:	0.264054	0.264054	0.281351	0.281351	0.000000	0.000000	0.000000
C2C3 DILUTION FACTOR:	0.264054	0.264054	0.281351	0.281351	0.000000	0.000000	0.000000
FID VOLUME:	0.500000	0.500000	0.500000	0.500000	0.000000	0.000000	0.000000
HALL VOLUME:	0.500000	0.500000	0.500000	0.500000	0.000000	0.000000	0.000000
C2C3 VOLUME:	0.593067	0.604929	0.604929	0.628651	0.000000	0.000000	0.000000

Client: LOS ALAMOS

Radian Workorder #: V307007-10A

FIELD SAMPLE NUMBER:		A010	A010	A011	A011			
ETHYLENE	193	0.6	0.6	0.4	0.4	- NA	- NA	- NA
ACETYLENE	194	-	-	-	-	- NA	- NA	- NA
FREON 23	214	-	-	-	-	- NA	- NA	- NA
ETHANE	2	0.8	0.7	0.6	0.6	- NA	- NA	- NA
CHLORODIFLUOROMETHANE	195	-	-	-	-	- NA	- NA	- NA
PROPYLENE	3	0.4	0.4	0.3	0.3	- NA	- NA	- NA
PROPANE	4	0.4	0.5	0.4	0.3	- NA	- NA	- NA
DIMETHYL ETHER	190	-	-	-	-	- NA	- NA	- NA
CHLOROMETHANE	5	-	-	-	-	- NA	- NA	- NA
PROPYNE	6	-	-	-	-	- NA	- NA	- NA
DICHLORODIFLUOROMETHANE	7	0.4	0.3	0.6	0.5	- NA	- NA	- NA
FREON 114	215	-	-	-	-	- NA	- NA	- NA
ISOBUTANE	8	3.4	3.6	-	-	- NA	- NA	- NA
ACETALDEHYDE	9	-	-	-	-	- NA	- NA	- NA
VINYL CHLORIDE	10	-	-	-	-	- NA	- NA	- NA
ISOBUTENE + 1-BUTENE	11	2.5	2.4	2.3	2.2	- NA	- NA	- NA
1,3-BUTADIENE	12	-	-	-	-	- NA	- NA	- NA
METHYL MERCAPTAN	13	-	-	-	-	- NA	- NA	- NA
N-BUTANE	14	3.9	4.1	-	-	- NA	- NA	- NA
METHANOL	15	21.4	21.4	14.0	14.0	- NA	- NA	- NA
BROMOMETHANE	16	-	-	-	-	- NA	- NA	- NA
1-2-BUTENE	17	-	-	-	-	- NA	- NA	- NA
NEOPENTANE	18	-	-	-	-	- NA	- NA	- NA
DIMETHYL ACETAL	189	-	-	-	-	- NA	- NA	- NA
METHYL FORMATE	191	-	-	-	-	- NA	- NA	- NA
1-BUTYNE	19	-	-	-	-	- NA	- NA	- NA
C-2-BUTENE	20	-	-	-	-	- NA	- NA	- NA
CHLOROETHANE	21	-	-	-	-	- NA	- NA	- NA
VINYL BROMIDE	22	-	-	-	-	- NA	- NA	- NA
3-METHYL-1-BUTENE	23	-	-	-	-	- NA	- NA	- NA
ETHANOL + ACETONITRILE	233	2.4	2.4	1.7	1.4	- NA	- NA	- NA
ISOPENTANE	26	6.0	6.0	-	-	- NA	- NA	- NA
ACETONE	27	7.3	6.8	9.3	8.9	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307007-10A

FIELD SAMPLE NUMBER:		A010	A010	A011	A011			
PROPIONALDEHYDE	28	-	-	-	-	- NA	- NA	- NA
TRICHLOROFLUOROMETHANE	29	0.7	0.6	2.0	1.9	- NA	- NA	- NA
2-BUTYNE	30	-	-	-	-	- NA	- NA	- NA
ETHYL MERCAPTAN	31	-	-	-	-	- NA	- NA	- NA
1-PENTENE	32	-	-	-	-	- NA	- NA	- NA
IODOMETHANE	33	-	-	-	-	- NA	- NA	- NA
2-METHYL-1-BUTENE	34	-	-	-	-	- NA	- NA	- NA
ACRYLONITRILE	35	-	-	-	-	- NA	- NA	- NA
N-PENTANE	36	2.9	3.0	-	-	- NA	- NA	- NA
ISOPRENE	37	-	-	-	-	- NA	- NA	- NA
DIMETHYLSULFIDE	38	-	-	-	-	- NA	- NA	- NA
DIETHYL ETHER + 2-PROPANOL	239	-	-	-	-	- NA	- NA	- NA
T-2-PENTENE	41	-	-	-	-	- NA	- NA	- NA
DICHLOROFLUOROMETHANE	196	-	-	-	-	- NA	- NA	- NA
1,1-DICHLOROETHYLENE	42	-	-	-	-	- NA	- NA	- NA
C-2-PENTENE	43	-	-	-	-	- NA	- NA	- NA
METHYLENE CHLORIDE	44	957 v	955 v	922 v	917 v	- NA	- NA	- NA
2-METHYL-2-BUTENE	45	-	-	-	-	- NA	- NA	- NA
NEOHXANE	46	-	-	-	-	- NA	- NA	- NA
FREON 113	199	-	-	-	-	- NA	- NA	- NA
ISOBUTYRALDEHYDE	47	-	-	-	-	- NA	- NA	- NA
CYCLOPENTENE	48	-	-	-	-	- NA	- NA	- NA
T-1,2-DICHLOROETHYLENE	49	-	-	-	-	- NA	- NA	- NA
4-METHYL-1-PENTENE	50	-	-	-	-	- NA	- NA	- NA
1,1-DICHLOROETHANE	51	-	-	-	-	- NA	- NA	- NA
CYCLOPENTANE	52	-	-	-	-	- NA	- NA	- NA
1-PROPANOL	53	-	-	-	-	- NA	- NA	- NA
2,3-DIMETHYLBUTANE	54	-	-	-	-	- NA	- NA	- NA
MTBE + ISOHEX + C-4-M-2-PENTENE	232	3.0	3.5	1.9	2.0	- NA	- NA	- NA
VINYL ACETATE	203	-	-	-	-	- NA	- NA	- NA
BUTYRALDEHYDE	58	1.5	1.1	-	-	- NA	- NA	- NA
T-4-METHYL-2-PENTENE	59	-	-	-	-	- NA	- NA	- NA
CHLOROPRENE	192	-	-	-	-	- NA	- NA	- NA
2-BUTANONE	60	-	-	-	-	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307007-10A

FIELD SAMPLE NUMBER:		A010	A010	A011	A011			
3-METHYLPENTANE	61	1.2	1.1	-	-	- NA	- NA	- NA
1-HEXENE	62	-	-	-	-	- NA	- NA	- NA
2-METHYL-1-PENTENE	63	-	-	-	-	- NA	- NA	- NA
BROMOCHLOROMETHANE	212	-	-	-	-	- NA	- NA	- NA
C-1,2-DICHLOROETHYLENE	64	-	-	-	-	- NA	- NA	- NA
2-ETHYL-1-BUTENE	65	-	-	-	-	- NA	- NA	- NA
N-HEXANE	66	1.8	1.8	0.7	0.6	- NA	- NA	- NA
METHYL ACRYLATE	204	-	-	-	-	- NA	- NA	- NA
CHLOROFORM	67	-	-	-	-	- NA	- NA	- NA
C-3-HEXENE	68	-	-	-	-	- NA	- NA	- NA
T-2-HEXENE	69	-	-	-	-	- NA	- NA	- NA
2-METHYL-2-PENTENE	70	-	-	-	-	- NA	- NA	- NA
C-2-HEXENE	71	-	-	-	-	- NA	- NA	- NA
C-3-METHYL-2-PENTENE	72	-	-	-	-	- NA	- NA	- NA
METHYLCYCLOPENTANE	73	0.7	0.7	-	-	- NA	- NA	- NA
1,2-DICHLOROETHANE	74	0.4	0.6	0.5	0.5	- NA	- NA	- NA
2,4-DIMETHYLPENTANE	75	-	-	-	-	- NA	- NA	- NA
1,1,1-TRICHLOROETHANE	76	1.0	0.9	0.9	1.0	- NA	- NA	- NA
2-METHYL-1,3-DIOXOLANE	188	-	-	-	-	- NA	- NA	- NA
ISOVALERALDEHYDE	77	-	-	-	-	- NA	- NA	- NA
METHYLCYCLOPENTENE	78	-	-	-	-	- NA	- NA	- NA
BENZENE	79	1.6	1.6	1.0	0.8	- NA	- NA	- NA
CARBON TETRACHLORIDE	80	-	-	-	-	- NA	- NA	- NA
1-BUTANOL + CYCLOHEXANE	238	14.9	8.8	1.8	1.6	- NA	- NA	- NA
THIOPHENE	82	-	-	-	-	- NA	- NA	- NA
ISOHEPTANE + 2,3-DIMETHYLPENTANE	84	-	-	-	-	- NA	- NA	- NA
2-PENTANONE	85	-	-	-	-	- NA	- NA	- NA
CYCLOHEXENE	86	-	-	-	-	- NA	- NA	- NA
3-METHYLHEXANE	87	-	-	-	-	- NA	- NA	- NA
VALERALDEHYDE	88	-	-	-	-	- NA	- NA	- NA
1,2-DICHLOROPROPANE	89	-	-	-	-	- NA	- NA	- NA
3-PENTANONE	90	-	-	-	-	- NA	- NA	- NA
TRICHLOROETHYLENE + BDCMETHANE	235	-	-	-	-	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307007-10A

FIELD SAMPLE NUMBER:		A010	A010	A011	A011			
1-HEPTENE	93	-	-	-	-	- NA	- NA	- NA
1,4-DIOXANE + 2,2,4-TMPENTANE	234	-	-	-	-	- NA	- NA	- NA
N-HEPTANE	95	1.4	1.5	1.8	1.8	- NA	- NA	- NA
N-BUTYL MERCAPTAN	96	-	-	-	-	- NA	- NA	- NA
T-3-HEPTENE	97	-	-	-	-	- NA	- NA	- NA
BISCHLOROMETHYL ETHER	98	-	-	-	-	- NA	- NA	- NA
C-3-HEPTENE	99	-	-	-	-	- NA	- NA	- NA
T-2-HEPTENE	100	-	-	-	-	- NA	- NA	- NA
2,4,4-TRIMETHYL-1-PENTENE	101	-	-	-	-	- NA	- NA	- NA
C-1,3-DICHLOROPROPENE	102	-	-	-	-	- NA	- NA	- NA
METHYLCYCLOHEXANE	103	-	-	-	-	- NA	- NA	- NA
METHYLISOBUTYLKETONE	104	-	-	-	-	- NA	- NA	- NA
2,4,4-TRIMETHYL-2-PENTENE	105	-	-	-	-	- NA	- NA	- NA
2,5-DIMETHYLHEXANE	106	-	-	-	-	- NA	- NA	- NA
2,2,3-TRIMETHYLPENTANE	107	-	-	-	-	- NA	- NA	- NA
T-1,3-DICHLOROPROPENE	108	-	-	-	-	- NA	- NA	- NA
1,1,2-TRICHLOROETHANE	109	-	-	-	-	- NA	- NA	- NA
2,3,4-TRIMETHYLPENTANE	110	-	-	-	-	- NA	- NA	- NA
TOLUENE	111	2.0	2.1	1.1	1.1	- NA	- NA	- NA
2-METHYLTHIOPHENE	112	-	-	-	-	- NA	- NA	- NA
3-METHYLTHIOPHENE	113	-	-	-	-	- NA	- NA	- NA
1-METHYLCYCLOHEXENE	114	-	-	-	-	- NA	- NA	- NA
3,5,5-TRIMETHYL-1-HEXENE	115	-	-	-	-	- NA	- NA	- NA
DIBROMOCHLOROMETHANE	116	-	-	-	-	- NA	- NA	- NA
3-METHYLHEPTANE	117	-	-	-	-	- NA	- NA	- NA
HEXANAL	118	0.8	0.7	0.7	1.0	- NA	- NA	- NA
1,2-DIBROMOETHANE	119	-	-	-	-	- NA	- NA	- NA
2-CHLOROETHYL VINYL ETHER	120	-	-	-	-	- NA	- NA	- NA
2,2,5-TRIMETHYLHEXANE	121	-	-	-	-	- NA	- NA	- NA
1-OCTENE	122	-	-	-	-	- NA	- NA	- NA
TETRAHYDROTHIOPHENE	123	-	-	-	-	- NA	- NA	- NA
N-OCTANE	124	0.7	0.7	0.5	0.5	- NA	- NA	- NA
TETRACHLOROETHYLENE	125	55.9	52.2	60.9	62.1	- NA	- NA	- NA
C-2-OCTENE	126	-	-	-	-	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307007-10A

FIELD SAMPLE NUMBER:		A010	A010	A011	A011			
ISOPENTYL MERCAPTAN	127	-	-	-	-	- NA	- NA	- NA
CHLOROBENZENE	128	-	-	-	-	- NA	- NA	- NA
ETHYLBENZENE	129	-	-	-	-	- NA	- NA	- NA
2,5-DIMETHYLTHIOPHENE	130	-	-	-	-	- NA	- NA	- NA
P-XYLENE + M-XYLENE	131	0.7	0.7	-	-	- NA	- NA	- NA
BROMOFORM	132	-	-	-	-	- NA	- NA	- NA
CYCLOHEXANONE	133	2.3	2.3	2.1	2.0	- NA	- NA	- NA
BUTYL ACRYLATE	205	-	-	-	-	- NA	- NA	- NA
STYRENE	134	0.9	2.1	0.9	0.8	- NA	- NA	- NA
HEPTANAL	135	-	-	-	-	- NA	- NA	- NA
1,1,2,2-TETRACHLOROETHANE	136	-	-	-	-	- NA	- NA	- NA
O-XYLENE	137	-	-	-	-	- NA	- NA	- NA
1-NONENE	138	-	-	-	-	- NA	- NA	- NA
N-NONANE	139	-	-	-	-	- NA	- NA	- NA
4-NONENE	140	-	-	-	-	- NA	- NA	- NA
ISOPROPYLBENZENE	141	-	-	-	-	- NA	- NA	- NA
A-PINENE + BENZALDEHYDE	236	8.1	7.8	7.0	7.0	- NA	- NA	- NA
O-CHLOROTOLUENE	144	-	-	-	-	- NA	- NA	- NA
M-CHLOROTOLUENE	145	-	-	-	-	- NA	- NA	- NA
N-PROPYLBENZENE	146	-	-	-	-	- NA	- NA	- NA
P-CHLOROTOLUENE	147	-	-	-	-	- NA	- NA	- NA
M-ETHYLTOLUENE	148	-	-	-	-	- NA	- NA	- NA
BISCHLOROETHYL ETHER	149	-	-	-	-	- NA	- NA	- NA
P-ETHYLTOLUENE	150	7.2	7.1	7.0	6.9	- NA	- NA	- NA
1,3,5-TRIMETHYLBENZENE	151	-	-	-	-	- NA	- NA	- NA
O-ETHYLTOLUENE	152	-	-	-	-	- NA	- NA	- NA
3-OCTANONE	202	-	-	-	-	- NA	- NA	- NA
B-PINENE	153	-	-	0.4	-	- NA	- NA	- NA
1-DECENE	154	-	-	-	-	- NA	- NA	- NA
1,2,4-TMBENZENE + T-BUTYLBENZENE	237	-	-	-	-	- NA	- NA	- NA
BENZYL CHLORIDE + M-DCBENZENE	230	-	-	-	-	- NA	- NA	- NA
ISOBUTYLBENZENE	158	-	-	-	-	- NA	- NA	- NA
N-DECANE + P-DICHLOROBENZENE	231	-	-	-	-	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307007-10A

FIELD SAMPLE NUMBER:		A010	A010	A011	A011			
1,2,3-TRIMETHYLBENZENE	161	3.3	2.7	0.8	0.9	- NA	- NA	- NA
P-ISOPROPYLTOLUENE	162	1.2	1.0	1.0	0.9	- NA	- NA	- NA
O-DICHLOROBENZENE	163	-	-	-	-	- NA	- NA	- NA
LIMONENE	164	0.8	0.7	0.7	0.6	- NA	- NA	- NA
INDAN	165	-	-	-	-	- NA	- NA	- NA
INDENE	166	-	-	-	-	- NA	- NA	- NA
M-DIETHYLBENZENE	167	-	-	-	-	- NA	- NA	- NA
N-BUTYLBENZENE	168	-	-	-	-	- NA	- NA	- NA
P-DIETHYLBENZENE	169	-	-	-	-	- NA	- NA	- NA
1-UNDECENE	170	-	-	-	-	- NA	- NA	- NA
N-UNDECANE	171	0.5	0.5	-	-	- NA	- NA	- NA
DICHLOROTOLUENE	172	-	-	-	-	- NA	- NA	- NA
NAPHTHALENE	173	-	-	-	-	- NA	- NA	- NA
1,2,4-TRICHLOROBENZENE	220	-	-	-	-	- NA	- NA	- NA
HEXACHLORO-1,3-BUTADIENE	210	-	-	-	-	- NA	- NA	- NA
UNIDENTIFIED VOC	174	94.2	94.9	19.7	20.3	- NA	- NA	- NA
UNIDENTIFIED HALOGENATED VOC	175	0.2	0.4	-	-	- NA	- NA	- NA
TNMHC		344	339	221	219	-	-	-

NA Not Analyzed

Analytical system: HP 5890 GC [C2C3]

Analytical system: HP 5890 GC [C]

FID/PID - Analytical system: HP 5890 GC [C]

HECD - Analytical system: HP 5890 GC [D]

o. Laboratory duplicate of V307007-10A

o. Laboratory duplicate of V307007-11A

v. Concentration of halogenated compound quantitated from
Flame Ionization Detector response.

Teip blank

VOC AIR CANISTER ANALYSIS
FINAL REPORT

Client: LOS ALAMOS
Units: ug/m3

Radian Workorder #: V307007-09
Date Sampled: 6-29-93

Site Number:	_____	_____	_____	_____	_____	_____	_____
Sample wide footnotes:	None						
Analytical run FID:	C	NA	NA	NA	NA	NA	NA
Analytical run HALL:	D	NA	NA	NA	NA	NA	NA

FIELD SAMPLE NUMBER:	A009						
SAMPLE CONTROL NUMBER:	V307007-09						
DATE SAMPLED:	6-29-93						
NELSON FILE NUMBER:	J007129						
FID ANALYSIS DATE:	7-12-93						
HALL ANALYSIS DATE:	7-9-93						
C2C3 ANALYSIS DATE:	7-6-93						
CANISTER NUMBER:	968						
FID DILUTION FACTOR:	0.384865	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
HALL DILUTION FACTOR:	0.384865	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
C2C3 DILUTION FACTOR:	0.384865	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
FID VOLUME:	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
HALL VOLUME:	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
C2C3 VOLUME:	0.604929	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Client: LOS ALAMOS

Radian Workorder #: V307007-09

FIELD SAMPLE NUMBER:

A009

ETHYLENE	193	-	- NA	- NA	- NA	- NA	- NA	- NA
ACETYLENE	194	-	- NA	- NA	- NA	- NA	- NA	- NA
FREON 23	214	-	- NA	- NA	- NA	- NA	- NA	- NA
ETHANE	2	0.7	- NA	- NA	- NA	- NA	- NA	- NA
CHLORODIFLUOROMETHANE	195	-	- NA	- NA	- NA	- NA	- NA	- NA
PROPYLENE	3	0.1	- NA	- NA	- NA	- NA	- NA	- NA
PROPANE	4	0.4	- NA	- NA	- NA	- NA	- NA	- NA
DIMETHYL ETHER	190	-	- NA	- NA	- NA	- NA	- NA	- NA
CHLOROMETHANE	5	-	- NA	- NA	- NA	- NA	- NA	- NA
PROPYNE	6	-	- NA	- NA	- NA	- NA	- NA	- NA
DICHLORODIFLUOROMETHANE	7	-	- NA	- NA	- NA	- NA	- NA	- NA
FREON 114	215	-	- NA	- NA	- NA	- NA	- NA	- NA
ISOBUTANE	8	-	- NA	- NA	- NA	- NA	- NA	- NA
ACETALDEHYDE	9	-	- NA	- NA	- NA	- NA	- NA	- NA
VINYL CHLORIDE	10	-	- NA	- NA	- NA	- NA	- NA	- NA
ISOBUTENE + 1-BUTENE	11	-	- NA	- NA	- NA	- NA	- NA	- NA
1,3-BUTADIENE	12	-	- NA	- NA	- NA	- NA	- NA	- NA
METHYL MERCAPTAN	13	-	- NA	- NA	- NA	- NA	- NA	- NA
N-BUTANE	14	-	- NA	- NA	- NA	- NA	- NA	- NA
METHANOL	15	-	- NA	- NA	- NA	- NA	- NA	- NA
BROMOMETHANE	16	-	- NA	- NA	- NA	- NA	- NA	- NA
T-2-BUTENE	17	-	- NA	- NA	- NA	- NA	- NA	- NA
NEOPENTANE	18	-	- NA	- NA	- NA	- NA	- NA	- NA
DIMETHYL ACETAL	189	-	- NA	- NA	- NA	- NA	- NA	- NA
METHYL FORMATE	191	-	- NA	- NA	- NA	- NA	- NA	- NA
1-BUTYNE	19	-	- NA	- NA	- NA	- NA	- NA	- NA
C-2-BUTENE	20	-	- NA	- NA	- NA	- NA	- NA	- NA
CHLOROETHANE	21	-	- NA	- NA	- NA	- NA	- NA	- NA
VINYL BROMIDE	22	-	- NA	- NA	- NA	- NA	- NA	- NA
3-METHYL-1-BUTENE	23	-	- NA	- NA	- NA	- NA	- NA	- NA
ETHANOL + ACETONITRILE	233	-	- NA	- NA	- NA	- NA	- NA	- NA
ISOPENTANE	26	-	- NA	- NA	- NA	- NA	- NA	- NA
ACETONE	27	1.1	- NA	- NA	- NA	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307007-09

FIELD SAMPLE NUMBER:

A009

PROPIONALDEHYDE	28	-	- NA	- NA	- NA	- NA	- NA	- NA
TRICHLOROFLUOROMETHANE	29	-	- NA	- NA	- NA	- NA	- NA	- NA
2-BUTYNE	30	-	- NA	- NA	- NA	- NA	- NA	- NA
ETHYL MERCAPTAN	31	-	- NA	- NA	- NA	- NA	- NA	- NA
1-PENTENE	32	-	- NA	- NA	- NA	- NA	- NA	- NA
IODOMETHANE	33	-	- NA	- NA	- NA	- NA	- NA	- NA
2-METHYL-1-BUTENE	34	-	- NA	- NA	- NA	- NA	- NA	- NA
ACRYLONITRILE	35	-	- NA	- NA	- NA	- NA	- NA	- NA
N-PENTANE	36	-	- NA	- NA	- NA	- NA	- NA	- NA
ISOPRENE	37	-	- NA	- NA	- NA	- NA	- NA	- NA
DIMETHYLSULFIDE	38	-	- NA	- NA	- NA	- NA	- NA	- NA
DIETHYL ETHER + 2-PROPANOL	239	-	- NA	- NA	- NA	- NA	- NA	- NA
T-2-PENTENE	41	-	- NA	- NA	- NA	- NA	- NA	- NA
DICHLOROFLUOROMETHANE	196	-	- NA	- NA	- NA	- NA	- NA	- NA
1,1-DICHLOROETHYLENE	42	-	- NA	- NA	- NA	- NA	- NA	- NA
C-2-PENTENE	43	-	- NA	- NA	- NA	- NA	- NA	- NA
METHYLENE CHLORIDE	44	0.6	- NA	- NA	- NA	- NA	- NA	- NA
2-METHYL-2-BUTENE	45	-	- NA	- NA	- NA	- NA	- NA	- NA
NEOHXANE	46	-	- NA	- NA	- NA	- NA	- NA	- NA
FREON 113	199	-	- NA	- NA	- NA	- NA	- NA	- NA
ISOBUTYRALDEHYDE	47	-	- NA	- NA	- NA	- NA	- NA	- NA
CYCLOPENTENE	48	-	- NA	- NA	- NA	- NA	- NA	- NA
T-1,2-DICHLOROETHYLENE	49	-	- NA	- NA	- NA	- NA	- NA	- NA
4-METHYL-1-PENTENE	50	-	- NA	- NA	- NA	- NA	- NA	- NA
1,1-DICHLOROETHANE	51	-	- NA	- NA	- NA	- NA	- NA	- NA
CYCLOPENTANE	52	-	- NA	- NA	- NA	- NA	- NA	- NA
1-PROPANOL	53	-	- NA	- NA	- NA	- NA	- NA	- NA
2,3-DIMETHYLBUTANE	54	-	- NA	- NA	- NA	- NA	- NA	- NA
MTBE + ISOHEX + C-4-M-2-PENTENE	232	0.3	- NA	- NA	- NA	- NA	- NA	- NA
VINYL ACETATE	203	-	- NA	- NA	- NA	- NA	- NA	- NA
BUTYRALDEHYDE	58	-	- NA	- NA	- NA	- NA	- NA	- NA
T-4-METHYL-2-PENTENE	59	-	- NA	- NA	- NA	- NA	- NA	- NA
CHLOROPRENE	192	-	- NA	- NA	- NA	- NA	- NA	- NA
2-BUTANONE	60	-	- NA	- NA	- NA	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307007-09

FIELD SAMPLE NUMBER:

A009

3-METHYLPENTANE	61	-	- NA	- NA	- NA	- NA	- NA	- NA
1-HEXENE	62	-	- NA	- NA	- NA	- NA	- NA	- NA
2-METHYL-1-PENTENE	63	-	- NA	- NA	- NA	- NA	- NA	- NA
BROMOCHLOROMETHANE	212	-	- NA	- NA	- NA	- NA	- NA	- NA
C-1,2-DICHLOROETHYLENE	64	-	- NA	- NA	- NA	- NA	- NA	- NA
2-ETHYL-1-BUTENE	65	-	- NA	- NA	- NA	- NA	- NA	- NA
N-HEXANE	66	-	- NA	- NA	- NA	- NA	- NA	- NA
METHYL ACRYLATE	204	-	- NA	- NA	- NA	- NA	- NA	- NA
CHLOROFORM	67	-	- NA	- NA	- NA	- NA	- NA	- NA
C-3-HEXENE	68	-	- NA	- NA	- NA	- NA	- NA	- NA
T-2-HEXENE	69	-	- NA	- NA	- NA	- NA	- NA	- NA
2-METHYL-2-PENTENE	70	-	- NA	- NA	- NA	- NA	- NA	- NA
C-2-HEXENE	71	-	- NA	- NA	- NA	- NA	- NA	- NA
C-3-METHYL-2-PENTENE	72	-	- NA	- NA	- NA	- NA	- NA	- NA
METHYLCYCLOPENTANE	73	-	- NA	- NA	- NA	- NA	- NA	- NA
1,2-DICHLOROETHANE	74	-	- NA	- NA	- NA	- NA	- NA	- NA
2,4-DIMETHYLPENTANE	75	-	- NA	- NA	- NA	- NA	- NA	- NA
1,1,1-TRICHLOROETHANE	76	-	- NA	- NA	- NA	- NA	- NA	- NA
2-METHYL-1,3-DIOXOLANE	188	-	- NA	- NA	- NA	- NA	- NA	- NA
ISOVALERALDEHYDE	77	-	- NA	- NA	- NA	- NA	- NA	- NA
METHYLCYCLOPENTENE	78	-	- NA	- NA	- NA	- NA	- NA	- NA
BENZENE	79	0.5	- NA	- NA	- NA	- NA	- NA	- NA
CARBON TETRACHLORIDE	80	-	- NA	- NA	- NA	- NA	- NA	- NA
1-BUTANOL + CYCLOHEXANE	238	0.9	- NA	- NA	- NA	- NA	- NA	- NA
THIOPHENE	82	-	- NA	- NA	- NA	- NA	- NA	- NA
ISOHEPTANE + 2,3-DIMETHYLPENTANE	84	-	- NA	- NA	- NA	- NA	- NA	- NA
2-PENTANONE	85	-	- NA	- NA	- NA	- NA	- NA	- NA
CYCLOHEXENE	86	-	- NA	- NA	- NA	- NA	- NA	- NA
3-METHYLHEXANE	87	-	- NA	- NA	- NA	- NA	- NA	- NA
VALERALDEHYDE	88	-	- NA	- NA	- NA	- NA	- NA	- NA
1,2-DICHLOROPROPANE	89	-	- NA	- NA	- NA	- NA	- NA	- NA
3-PENTANONE	90	-	- NA	- NA	- NA	- NA	- NA	- NA
TRICHLOROETHYLENE + BDCMETHANE	235	-	- NA	- NA	- NA	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307007-09

FIELD SAMPLE NUMBER:

A009

1-HEPTENE	93	-	- NA	- NA	- NA	- NA	- NA	- NA
1,4-DIOXANE + 2,2,4-TRIPENTANE	234	-	- NA	- NA	- NA	- NA	- NA	- NA
N-HEPTANE	95	-	- NA	- NA	- NA	- NA	- NA	- NA
N-BUTYL MERCAPTAN	96	-	- NA	- NA	- NA	- NA	- NA	- NA
1-3-HEPTENE	97	-	- NA	- NA	- NA	- NA	- NA	- NA
BISCHLOROMETHYL ETHER	98	-	- NA	- NA	- NA	- NA	- NA	- NA
C-3-HEPTENE	99	-	- NA	- NA	- NA	- NA	- NA	- NA
1-2-HEPTENE	100	-	- NA	- NA	- NA	- NA	- NA	- NA
2,4,4-TRIMETHYL-1-PENTENE	101	-	- NA	- NA	- NA	- NA	- NA	- NA
C-1,3-DICHLOROPROPENE	102	-	- NA	- NA	- NA	- NA	- NA	- NA
METHYLCYCLOHEXANE	103	-	- NA	- NA	- NA	- NA	- NA	- NA
METHYLISOBUTYLKETONE	104	-	- NA	- NA	- NA	- NA	- NA	- NA
2,4,4-TRIMETHYL-2-PENTENE	105	-	- NA	- NA	- NA	- NA	- NA	- NA
2,5-DIMETHYLHEXANE	106	-	- NA	- NA	- NA	- NA	- NA	- NA
2,2,3-TRIMETHYLPENTANE	107	-	- NA	- NA	- NA	- NA	- NA	- NA
1-1,3-DICHLOROPROPENE	108	-	- NA	- NA	- NA	- NA	- NA	- NA
1,1,2-TRICHLOROETHANE	109	-	- NA	- NA	- NA	- NA	- NA	- NA
2,3,4-TRIMETHYLPENTANE	110	-	- NA	- NA	- NA	- NA	- NA	- NA
TOLUENE	111	-	- NA	- NA	- NA	- NA	- NA	- NA
2-METHYLTHIOPHENE	112	-	- NA	- NA	- NA	- NA	- NA	- NA
3-METHYLTHIOPHENE	113	-	- NA	- NA	- NA	- NA	- NA	- NA
1-METHYLCYCLOHEXENE	114	-	- NA	- NA	- NA	- NA	- NA	- NA
3,5,5-TRIMETHYL-1-HEXENE	115	-	- NA	- NA	- NA	- NA	- NA	- NA
DIBROMOCHLOROMETHANE	116	-	- NA	- NA	- NA	- NA	- NA	- NA
3-METHYLHEPTANE	117	-	- NA	- NA	- NA	- NA	- NA	- NA
HEXANAL	118	-	- NA	- NA	- NA	- NA	- NA	- NA
1,2-DIBROMOETHANE	119	-	- NA	- NA	- NA	- NA	- NA	- NA
2-CHLOROETHYL VINYL ETHER	120	-	- NA	- NA	- NA	- NA	- NA	- NA
2,2,5-TRIMETHYLHEXANE	121	-	- NA	- NA	- NA	- NA	- NA	- NA
1-OCTENE	122	-	- NA	- NA	- NA	- NA	- NA	- NA
TETRAHYDROTHIOPHENE	123	-	- NA	- NA	- NA	- NA	- NA	- NA
N-OCTANE	124	-	- NA	- NA	- NA	- NA	- NA	- NA
TETRACHLOROETHYLENE	125	-	- NA	- NA	- NA	- NA	- NA	- NA
C-2-OCTENE	126	-	- NA	- NA	- NA	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307007-09

FIELD SAMPLE NUMBER:

A009

ISOPENTYL MERCAPTAN	127	-	- NA	- NA	- NA	- NA	- NA	- NA
CHLOROBENZENE	128	-	- NA	- NA	- NA	- NA	- NA	- NA
ETHYLBENZENE	129	-	- NA	- NA	- NA	- NA	- NA	- NA
2,5-DIMETHYLTHIOPHENE	130	-	- NA	- NA	- NA	- NA	- NA	- NA
P-XYLENE + M-XYLENE	131	-	- NA	- NA	- NA	- NA	- NA	- NA
BROMOFORM	132	-	- NA	- NA	- NA	- NA	- NA	- NA
CYCLOHEXANONE	133	-	- NA	- NA	- NA	- NA	- NA	- NA
BUTYL ACRYLATE	205	-	- NA	- NA	- NA	- NA	- NA	- NA
STYRENE	134	1.2	- NA	- NA	- NA	- NA	- NA	- NA
HEPTANAL	135	-	- NA	- NA	- NA	- NA	- NA	- NA
1,1,2,2-TETRACHLOROETHANE	136	-	- NA	- NA	- NA	- NA	- NA	- NA
O-XYLENE	137	-	- NA	- NA	- NA	- NA	- NA	- NA
1-NONENE	138	-	- NA	- NA	- NA	- NA	- NA	- NA
N-NONANE	139	-	- NA	- NA	- NA	- NA	- NA	- NA
4-NONENE	140	-	- NA	- NA	- NA	- NA	- NA	- NA
ISOPROPYLBENZENE	141	-	- NA	- NA	- NA	- NA	- NA	- NA
A-PINENE + BENZALDEHYDE	236	-	- NA	- NA	- NA	- NA	- NA	- NA
O-CHLOROTOLUENE	144	-	- NA	- NA	- NA	- NA	- NA	- NA
M-CHLOROTOLUENE	145	-	- NA	- NA	- NA	- NA	- NA	- NA
N-PROPYLBENZENE	146	-	- NA	- NA	- NA	- NA	- NA	- NA
P-CHLOROTOLUENE	147	-	- NA	- NA	- NA	- NA	- NA	- NA
M-ETHYLTOLUENE	148	-	- NA	- NA	- NA	- NA	- NA	- NA
BISCHLOROETHYL ETHER	149	-	- NA	- NA	- NA	- NA	- NA	- NA
P-ETHYLTOLUENE	150	-	- NA	- NA	- NA	- NA	- NA	- NA
1,3,5-TRIMETHYLBENZENE	151	-	- NA	- NA	- NA	- NA	- NA	- NA
O-ETHYLTOLUENE	152	-	- NA	- NA	- NA	- NA	- NA	- NA
3-OCTANONE	202	-	- NA	- NA	- NA	- NA	- NA	- NA
B-PINENE	153	-	- NA	- NA	- NA	- NA	- NA	- NA
1-DECENE	154	-	- NA	- NA	- NA	- NA	- NA	- NA
1,2,4-TMBENZENE + T-BUTYLBENZENE	237	-	- NA	- NA	- NA	- NA	- NA	- NA
BENZYL CHLORIDE + M-DCBENZENE	230	-	- NA	- NA	- NA	- NA	- NA	- NA
ISOBUTYLBENZENE	158	-	- NA	- NA	- NA	- NA	- NA	- NA
N-DECANE + P-DICHLOROBENZENE	231	-	- NA	- NA	- NA	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307007-09

FIELD SAMPLE NUMBER:

A009

1,2,3-TRIMETHYLBENZENE	161	-	- NA	- NA	- NA	- NA	- NA	- NA
P-ISOPROPYLTOLUENE	162	-	- NA	- NA	- NA	- NA	- NA	- NA
O-DICHLOROBENZENE	163	-	- NA	- NA	- NA	- NA	- NA	- NA
LIMONENE	164	-	- NA	- NA	- NA	- NA	- NA	- NA
INDAN	165	-	- NA	- NA	- NA	- NA	- NA	- NA
INDENE	166	-	- NA	- NA	- NA	- NA	- NA	- NA
M-DIETHYLBENZENE	167	-	- NA	- NA	- NA	- NA	- NA	- NA
N-BUTYLBENZENE	168	-	- NA	- NA	- NA	- NA	- NA	- NA
P-DIETHYLBENZENE	169	-	- NA	- NA	- NA	- NA	- NA	- NA
1-UNDECENE	170	-	- NA	- NA	- NA	- NA	- NA	- NA
N-UNDECANE	171	-	- NA	- NA	- NA	- NA	- NA	- NA
DICHLOROTOLUENE	172	-	- NA	- NA	- NA	- NA	- NA	- NA
NAPHTHALENE	173	-	- NA	- NA	- NA	- NA	- NA	- NA
1,2,4-TRICHLOROBENZENE	220	-	- NA	- NA	- NA	- NA	- NA	- NA
HEXACHLORO-1,3-BUTADIENE	210	-	- NA	- NA	- NA	- NA	- NA	- NA
UNIDENTIFIED VOC	174	-	- NA	- NA	- NA	- NA	- NA	- NA
UNIDENTIFIED HALOGENATED VOC	175	-	- NA	- NA	- NA	- NA	- NA	- NA

TNMHC

4.3

- - - - -

NA Not Analyzed

Analytical system: HP 5890 GC [C2C3]

FID/PID - Analytical system: HP 5890 GC [C]

HECD - Analytical system: HP 5890 GC [D]

VOC AIR CANISTER ANALYSIS
FINAL REPORT

Client: LOS ALAMOS
Units: ug/m3

Radian Workorder #: V307011-01
Date Sampled: 7-1-93

Site Number:							
Sample wide footnotes:	None	None	None	None	None		
Analytical run FID:	C	C	C	C	C	NA	NA
Analytical run HALL:	C	C	C	C	C	NA	NA
FIELD SAMPLE NUMBER:	A025	A026	A027	A028	A030		
SAMPLE CONTROL NUMBER:	V307011-01	V307011-02	V307011-3A	V307011-04	V307011-06		
DATE SAMPLED:	7-1-93	7-1-93	7-1-93	7-1-93	7-1-93		
NELSON FILE NUMBER:	J007137	J007138	J007136	J007139	J0071312		
FID ANALYSIS DATE:	7-13-93	7-14-93	7-13-93	7-14-93	7-14-93		
HALL ANALYSIS DATE:	7-13-93	7-14-93	7-13-93	7-14-93	7-14-93		
C2C3 ANALYSIS DATE:	7-13-93	7-13-93	7-13-93	7-13-93	7-13-93		
CANISTER NUMBER:	923	878	967	908	625		
FID DILUTION FACTOR:	0.289189	0.305135	0.293478	0.288618	0.270081	0.000000	0.000000
HALL DILUTION FACTOR:	0.289189	0.305135	0.293478	0.288618	0.270081	0.000000	0.000000
C2C3 DILUTION FACTOR:	0.289189	0.305135	0.293478	0.288618	0.270081	0.000000	0.000000
FID VOLUME:	0.500000	0.500000	0.500000	0.500000	0.500000	0.000000	0.000000
HALL VOLUME:	0.500000	0.500000	0.500000	0.500000	0.500000	0.000000	0.000000
C2C3 VOLUME:	0.604929	0.646443	0.729473	0.682027	0.598998	0.000000	0.000000

Client: LOS ALAMOS

Radian Workorder #: V307011-01

FIELD SAMPLE NUMBER:		A025	A026	A027	A028	A030		
ETHYLENE	193	2.9	0.3	0.6	0.9	1.4	- NA	- NA
ACETYLENE	194	0.2	-	0.1	-	2.4	- NA	- NA
FREON 23	214	-	-	-	-	-	- NA	- NA
ETHANE	2	1.8	1.9	1.9	1.7	-	- NA	- NA
CHLORODIFLUOROMETHANE	195	-	-	-	-	-	- NA	- NA
PROPYLENE	3	1.4	0.3	0.4	0.7	0.9	- NA	- NA
PROPANE	4	4.0	1.1	1.1	1.3	1.7	- NA	- NA
DIMETHYL ETHER	190	-	-	-	-	-	- NA	- NA
CHLOROMETHANE	5	46.1	0.5	0.2	0.4	0.6	- NA	- NA
PROPYNE	6	-	-	-	-	-	- NA	- NA
DICHLORODIFLUOROMETHANE	7	0.9	0.9	1.0	1.0	0.8	- NA	- NA
FREON 114	215	-	-	-	-	-	- NA	- NA
ISOBUTANE	8	244	-	-	0.8	-	- NA	- NA
ACETALDEHYDE	9	-	-	-	-	-	- NA	- NA
VINYL CHLORIDE	10	-	-	-	-	-	- NA	- NA
ISOBUTENE + 1-BUTENE	11	4.5	5.0	1.2	1.7	2.2	- NA	- NA
1,3-BUTADIENE	12	-	-	-	-	-	- NA	- NA
METHYL MERCAPTAN	13	-	-	-	-	-	- NA	- NA
N-BUTANE	14	1.4	0.8	0.5	1.2	-	- NA	- NA
METHANOL	15	98.2	5.1	21.8	31.5	131	- NA	- NA
BROMOMETHANE	16	-	-	-	-	-	- NA	- NA
T-2-BUTENE	17	-	-	-	-	-	- NA	- NA
NEOPENTANE	18	-	-	-	-	-	- NA	- NA
DIMETHYL ACETAL	189	-	-	-	-	-	- NA	- NA
METHYL FORMATE	191	-	-	-	-	-	- NA	- NA
1-BUTYNE	19	-	-	-	-	-	- NA	- NA
C-2-BUTENE	20	-	-	-	-	-	- NA	- NA
CHLOROETHANE	21	-	-	-	-	-	- NA	- NA
VINYL BROMIDE	22	-	-	-	-	-	- NA	- NA
3-METHYL-1-BUTENE	23	-	-	-	-	-	- NA	- NA
ETHANOL + ACETONITRILE	233	23.7	1.6	7.6	11.6	41.0	- NA	- NA
ISOPENTANE	26	203	0.8	0.6	1.4	0.5	- NA	- NA
ACETONE	27	91.9	7.8	21.4	24.9	72.2	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307011-01

FIELD SAMPLE NUMBER:		A025	A026	A027	A028	A030		
PROPIONALDEHYDE	28	-	-	-	-	-	- NA	- NA
TRICHLOROFLUOROMETHANE	29	6.4	2.2	69.6	1.7	0.5	- NA	- NA
2-BUTYNE	30	-	-	-	-	-	- NA	- NA
ETHYL MERCAPTAN	31	-	-	-	-	-	- NA	- NA
1-PENTENE	32	-	-	-	-	-	- NA	- NA
IODOMETHANE	33	-	-	-	-	-	- NA	- NA
2-METHYL-1-BUTENE	34	-	-	-	-	-	- NA	- NA
ACRYLONITRILE	35	-	-	-	-	-	- NA	- NA
N-PENTANE	36	21.0	0.5	1.5	0.9	0.7	- NA	- NA
ISOPRENE	37	-	0.6	0.5	0.8	-	- NA	- NA
DIMETHYLSULFIDE	38	-	-	-	-	-	- NA	- NA
DIETHYL ETHER + 2-PROPANOL	239	-	-	-	-	-	- NA	- NA
T-2-PENTENE	41	-	-	-	-	-	- NA	- NA
DICHLOROFLUOROMETHANE	196	-	-	-	-	-	- NA	- NA
1,1-DICHLOROETHYLENE	42	-	-	-	-	-	- NA	- NA
C-2-PENTENE	43	-	-	-	-	-	- NA	- NA
METHYLENE CHLORIDE	44	1130 v	1060 v	341 v	793 v	1950 v	- NA	- NA
2-METHYL-2-BUTENE	45	-	-	-	-	-	- NA	- NA
NEOHXANE	46	-	-	-	-	-	- NA	- NA
FREON 113	199	12.6 v	5.8 v	-	-	-	- NA	- NA
ISOBUTYRALDEHYDE	47	-	-	-	-	-	- NA	- NA
CYCLOPENTENE	48	-	-	-	-	-	- NA	- NA
T-1,2-DICHLOROETHYLENE	49	-	-	-	-	-	- NA	- NA
4-METHYL-1-PENTENE	50	-	-	-	-	-	- NA	- NA
1,1-DICHLOROETHANE	51	-	-	-	-	-	- NA	- NA
CYCLOPENTANE	52	1.1	-	-	-	-	- NA	- NA
1-PROPANOL	53	-	-	-	-	-	- NA	- NA
2,3-DIMETHYLBUTANE	54	0.9	-	-	-	-	- NA	- NA
MTBE + ISOHEX + C-4-M-2-PENTENE	232	7.8	2.5	1.4	1.4	1.1	- NA	- NA
VINYL ACETATE	203	2.1	-	-	-	1.9	- NA	- NA
BUTYRALDEHYDE	58	-	2.5	2.3	-	1.1	- NA	- NA
T-4-METHYL-2-PENTENE	59	-	-	-	-	-	- NA	- NA
CHLOROPRENE	192	-	-	-	-	-	- NA	- NA
2-BUTANONE	60	13.6	-	0.7	0.8	4.2	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307011-01

FIELD SAMPLE NUMBER:		A025	A026	A027	A028	A030		
3-METHYLPENTANE	61	-	-	6.3	-	-	- NA	- NA
1-HEXENE	62	-	-	-	-	-	- NA	- NA
2-METHYL-1-PENTENE	63	-	-	-	-	-	- NA	- NA
BROMOCHLOROMETHANE	212	-	-	-	-	-	- NA	- NA
C-1,2-DICHLOROETHYLENE	64	-	-	-	-	-	- NA	- NA
2-ETHYL-1-BUTENE	65	-	-	-	-	-	- NA	- NA
N-HEXANE	66	5.3	0.9	1.6	0.7	0.7	- NA	- NA
METHYL ACRYLATE	204	-	-	-	-	-	- NA	- NA
CHLOROFORM	67	-	-	-	-	-	- NA	- NA
C-3-HEXENE	68	-	-	-	-	-	- NA	- NA
T-2-HEXENE	69	-	-	-	-	-	- NA	- NA
2-METHYL-2-PENTENE	70	-	-	-	-	-	- NA	- NA
C-2-HEXENE	71	-	-	-	-	-	- NA	- NA
C-3-METHYL-2-PENTENE	72	-	-	-	-	-	- NA	- NA
METHYLCYCLOPENTANE	73	2.0	-	-	-	-	- NA	- NA
1,2-DICHLOROETHANE	74	-	-	-	-	-	- NA	- NA
2,4-DIMETHYLPENTANE	75	-	-	-	-	-	- NA	- NA
1,1,1-TRICHLOROETHANE	76	63.7	44.3	20.7	9.2	3.9	- NA	- NA
2-METHYL-1,3-DIOXOLANE	188	-	-	-	-	-	- NA	- NA
ISOVALERALDEHYDE	77	-	-	-	-	-	- NA	- NA
METHYLCYCLOPENTENE	78	-	-	-	-	-	- NA	- NA
BENZENE	79	2.1	1.4	1.3	1.5	1.3	- NA	- NA
CARBON TETRACHLORIDE	80	-	-	0.3	0.3	-	- NA	- NA
1-BUTANOL + CYCLOHEXANE	238	7.0	15.9	16.9	10.0	4.3	- NA	- NA
THIOPHENE	82	-	-	-	-	-	- NA	- NA
ISOHEPTANE + 2,3-DIMETHYLPENTANE	84	3.1	-	0.6	-	-	- NA	- NA
2-PENTANONE	85	-	-	-	-	-	- NA	- NA
CYCLOHEXENE	86	-	-	-	-	-	- NA	- NA
3-METHYLHEXANE	87	3.8	-	0.8	-	0.7	- NA	- NA
VALERALDEHYDE	88	-	-	-	-	-	- NA	- NA
1,2-DICHLOROPROPANE	89	-	-	-	-	-	- NA	- NA
3-PENTANONE	90	-	-	-	-	-	- NA	- NA
TRICHLOROETHYLENE + BDCMETHANE	235	0.4	0.4	0.3	1.9	0.4	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307011-01

FIELD SAMPLE NUMBER:		A025	A026	A027	A028	A030		
1-HEPTENE	93	-	-	-	-	-	- NA	- NA
1,4-DIOXANE + 2,2,4-TMPENTANE	234	3.6	-	-	-	-	- NA	- NA
N-HEPTANE	95	5.6	3.4	1.7	1.7	5.2	- NA	- NA
N-BUTYL MERCAPTAN	96	-	-	-	-	-	- NA	- NA
T-3-HEPTENE	97	-	-	-	-	-	- NA	- NA
BISCHLOROMETHYL ETHER	98	-	-	-	-	-	- NA	- NA
C-3-HEPTENE	99	-	-	-	-	-	- NA	- NA
T-2-HEPTENE	100	-	-	-	-	-	- NA	- NA
2,4,4-TRIMETHYL-1-PENTENE	101	-	-	-	-	-	- NA	- NA
C-1,3-DICHLOROPROPENE	102	-	-	-	-	-	- NA	- NA
METHYLCYCLOHEXANE	103	0.9	-	-	-	0.7	- NA	- NA
METHYLISOBUTYLKETONE	104	0.5	-	-	-	-	- NA	- NA
2,4,4-TRIMETHYL-2-PENTENE	105	-	-	-	-	-	- NA	- NA
2,5-DIMETHYLHEXANE	106	0.5	-	-	-	-	- NA	- NA
2,2,3-TRIMETHYLPENTANE	107	-	-	-	-	-	- NA	- NA
T-1,3-DICHLOROPROPENE	108	-	-	-	-	-	- NA	- NA
1,1,2-TRICHLOROETHANE	109	-	-	-	-	-	- NA	- NA
2,3,4-TRIMETHYLPENTANE	110	0.5	-	-	-	-	- NA	- NA
TOLUENE	111	19.2	1.2	1.8	1.1	1.1	- NA	- NA
2-METHYLTHIOPHENE	112	-	-	-	-	-	- NA	- NA
3-METHYLTHIOPHENE	113	-	-	-	-	-	- NA	- NA
1-METHYLCYCLOHEXENE	114	-	-	-	-	-	- NA	- NA
3,5,5-TRIMETHYL-1-HEXENE	115	-	-	-	-	-	- NA	- NA
DIBROMOCHLOROMETHANE	116	-	-	-	-	-	- NA	- NA
3-METHYLHEPTANE	117	-	-	-	-	-	- NA	- NA
HEXANAL	118	2.5	1.6	2.5	1.2	2.3	- NA	- NA
1,2-DIBROMOETHANE	119	-	-	-	-	-	- NA	- NA
2-CHLOROETHYL VINYL ETHER	120	-	-	-	-	-	- NA	- NA
2,2,5-TRIMETHYLHEXANE	121	-	-	-	-	-	- NA	- NA
1-OCTENE	122	-	-	-	-	-	- NA	- NA
TETRAHYDROTHIOPHENE	123	-	-	-	-	-	- NA	- NA
N-OCTANE	124	1.0	0.7	-	0.4	0.5	- NA	- NA
TETRACHLOROETHYLENE	125	61.3	34.7	17.6	45.7	74.8	- NA	- NA
C-2-OCTENE	126	-	-	-	-	-	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307011-01

FIELD SAMPLE NUMBER:		A025	A026	A027	A028	A030		
ISOPENTYL MERCAPTAN	127	-	-	-	-	-	- NA	- NA
CHLOROBENZENE	128	-	-	-	-	-	- NA	- NA
ETHYLBENZENE	129	1.0	-	-	-	-	- NA	- NA
2,5-DIMETHYLTHIOPHENE	130	-	-	-	-	-	- NA	- NA
P-XYLENE + M-XYLENE	131	1.0	0.7	0.6	-	1.0	- NA	- NA
BROMOFORM	132	-	-	-	-	-	- NA	- NA
CYCLOHEXANONE	133	2.5	2.5	2.0	1.3	-	- NA	- NA
BUTYL ACRYLATE	205	-	-	-	-	-	- NA	- NA
STYRENE	134	3.6	1.4	0.8	1.0	1.6	- NA	- NA
HEPTANAL	135	-	1.2	-	-	1.2	- NA	- NA
1,1,2,2-TETRACHLOROETHANE	136	-	-	-	-	-	- NA	- NA
O-XYLENE	137	0.4	0.6	-	-	-	- NA	- NA
1-NONENE	138	-	-	-	-	-	- NA	- NA
N-NONANE	139	0.6	-	-	9.0	-	- NA	- NA
4-NONENE	140	-	-	-	-	-	- NA	- NA
ISOPROPYLBENZENE	141	-	-	-	-	-	- NA	- NA
A-PINENE + BENZALDEHYDE	236	21.6	0.8	2.0	77.7	16.0	- NA	- NA
O-CHLOROTOLUENE	144	-	-	-	-	-	- NA	- NA
M-CHLOROTOLUENE	145	-	-	-	-	-	- NA	- NA
N-PROPYLBENZENE	146	-	-	-	-	-	- NA	- NA
P-CHLOROTOLUENE	147	-	-	-	-	-	- NA	- NA
M-ETHYLTOLUENE	148	-	-	-	2.5	-	- NA	- NA
BISCHLOROETHYL ETHER	149	-	-	-	-	-	- NA	- NA
P-ETHYLTOLUENE	150	11.0	-	6.6	51.2	22.1	- NA	- NA
1,3,5-TRIMETHYLBENZENE	151	0.6	-	-	-	-	- NA	- NA
O-ETHYLTOLUENE	152	0.4	-	-	-	-	- NA	- NA
3-OCTANONE	202	-	-	-	-	-	- NA	- NA
8-PINENE	153	2.0	1.1	0.4	16.9	3.7	- NA	- NA
1-DECENE	154	-	-	-	-	-	- NA	- NA
1,2,4-TMBENZENE + T-BUTYLBENZENE	237	0.6	-	0.7	-	-	- NA	- NA
BENZYL CHLORIDE + M-DCBENZENE	230	-	-	-	-	-	- NA	- NA
ISOBUTYLBENZENE	158	-	-	-	-	-	- NA	- NA
N-DECANE + P-DICHLOROBENZENE	231	8.1	0.6	0.7	-	-	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307011-01

FIELD SAMPLE NUMBER:		A025	A026	A027	A028	A030		
1,2,3-TRIMETHYLBENZENE	161	2.0	1.3	5.4	1.7	3.0	- NA	- NA
P-ISOPROPYLTOLUENE	162	5.4	0.7	1.5	3.5	2.9	- NA	- NA
O-DICHLOROBENZENE	163	-	-	-	-	-	- NA	- NA
LIMONENE	164	1.1	1.0	-	0.4	-	- NA	- NA
INDAN	165	-	-	-	-	-	- NA	- NA
INDENE	166	-	-	-	-	-	- NA	- NA
M-DIETHYLBENZENE	167	0.8	-	0.9	-	-	- NA	- NA
N-BUTYLBENZENE	168	-	-	0.5	-	-	- NA	- NA
P-DIETHYLBENZENE	169	0.6	0.6	-	0.5	-	- NA	- NA
1-UNDECENE	170	-	-	-	-	-	- NA	- NA
N-UNDECANE	171	13.3	0.6	1.1	-	-	- NA	- NA
DICHLOROTOLUENE	172	-	-	-	-	-	- NA	- NA
NAPHTHALENE	173	0.4	-	-	-	-	- NA	- NA
1,2,4-TRICHLOROBENZENE	220	-	-	-	-	-	- NA	- NA
HEXACHLORO-1,3-BUTADIENE	210	-	-	-	-	-	- NA	- NA
UNIDENTIFIED VOC	174	56.7	20.4	235	62.1	74.4	- NA	- NA
UNIDENTIFIED HALOGENATED VOC	175	0.4	-	0.4	-	-	- NA	- NA
TNMHC		1010	259	389	421	623	-	-

NA Not Analyzed

Analytical system: HP 5890 GC [C2C3]

Analytical system: HP 5890 GC [C]

v. Concentration of halogenated compound quantitated from
Flame Ionization Detector response.

Field/Analytical ^{dupr} ~~Block~~

VOC AIR CANISTER ANALYSIS
FINAL REPORT

Client: LOS ALAMOS
Units: ug/m3

Radian Workorder #: V307011-3A
Date Sampled: 7-1-93

Site Number:

Sample wide footnotes:

Analytical run FID:

Analytical run HALL:

None

o

None

o

C

C

C

C

NA

NA

NA

C

C

C

C

NA

NA

NA

FIELD SAMPLE NUMBER:

A027

A027

A029

A029

SAMPLE CONTROL NUMBER:

V307011-3A

V307011-03B

V307011-05A

V307011-05B

DATE SAMPLED:

7-1-93

7-1-93

7-1-93

7-1-93

NELSON FILE NUMBER:

J007136

J007135

J0071310

J0071311

FID ANALYSIS DATE:

7-13-93

7-13-93

7-14-93

7-14-93

HALL ANALYSIS DATE:

7-13-93

7-13-93

7-14-93

7-14-93

C2C3 ANALYSIS DATE:

7-13-93

7-13-93

7-15-93

7-13-93

CANISTER NUMBER:

967

967

973

973

FID DILUTION FACTOR:

0.293478

0.293478

0.295393

0.295393

0.000000

0.000000

0.000000

HALL DILUTION FACTOR:

0.293478

0.293478

0.295393

0.295393

0.000000

0.000000

0.000000

C2C3 DILUTION FACTOR:

0.293478

0.293478

0.295393

0.295393

0.000000

0.000000

0.000000

FID VOLUME:

0.500000

0.500000

0.500000

0.500000

0.000000

0.000000

0.000000

HALL VOLUME:

0.500000

0.500000

0.500000

0.500000

0.000000

0.000000

0.000000

C2C3 VOLUME:

0.729473

0.610859

0.604929

0.593067

0.000000

0.000000

0.000000

Client: LOS ALAMOS

Radian Workorder #: V307011-3A

FIELD SAMPLE NUMBER:		A027	A027	A029	A029			
ETHYLENE	193	0.6	0.4	0.5	0.5	- NA	- NA	- NA
ACETYLENE	194	0.1	-	-	-	- NA	- NA	- NA
FREON 23	214	-	-	-	-	- NA	- NA	- NA
ETHANE	2	1.9	2.0	1.6	1.5	- NA	- NA	- NA
CHLORODIFLUOROMETHANE	195	-	-	-	-	- NA	- NA	- NA
PROPYLENE	3	0.4	0.4	0.4	0.4	- NA	- NA	- NA
PROPANE	4	1.1	1.2	0.8	0.9	- NA	- NA	- NA
DIMETHYL ETHER	190	-	-	-	-	- NA	- NA	- NA
CHLOROMETHANE	5	0.2	0.1	0.4	0.4	- NA	- NA	- NA
PROPYNE	6	-	-	-	-	- NA	- NA	- NA
DICHLORODIFLUOROMETHANE	7	1.0	0.9	1.3	1.3	- NA	- NA	- NA
FREON 114	215	-	-	-	-	- NA	- NA	- NA
ISOBUTANE	8	-	-	0.8	0.8	- NA	- NA	- NA
ACETALDEHYDE	9	-	-	-	-	- NA	- NA	- NA
VINYL CHLORIDE	10	-	-	-	-	- NA	- NA	- NA
ISOBUTENE + 1-BUTENE	11	1.2	1.2	1.5	1.5	- NA	- NA	- NA
1,3-BUTADIENE	12	-	-	-	-	- NA	- NA	- NA
METHYL MERCAPTAN	13	-	-	-	-	- NA	- NA	- NA
N-BUTANE	14	0.5	-	-	-	- NA	- NA	- NA
METHANOL	15	21.8	15.9	21.5	22.3	- NA	- NA	- NA
BROMOMETHANE	16	-	-	-	-	- NA	- NA	- NA
T-2-BUTENE	17	-	-	-	-	- NA	- NA	- NA
NEOPENTANE	18	-	-	-	-	- NA	- NA	- NA
DIMETHYL ACETAL	189	-	-	-	-	- NA	- NA	- NA
METHYL FORMATE	191	-	-	-	-	- NA	- NA	- NA
1-BUTYNE	19	-	-	-	-	- NA	- NA	- NA
C-2-BUTENE	20	-	-	-	-	- NA	- NA	- NA
CHLOROETHANE	21	-	-	-	-	- NA	- NA	- NA
VINYL BROMIDE	22	-	-	-	-	- NA	- NA	- NA
3-METHYL-1-BUTENE	23	-	-	-	-	- NA	- NA	- NA
ETHANOL + ACETONITRILE	233	7.6	6.7	7.8	7.3	- NA	- NA	- NA
ISOPENTANE	26	0.6	0.5	1.0	1.1	- NA	- NA	- NA
ACETONE	27	21.4	24.5	12.8	12.0	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307011-3A

FIELD SAMPLE NUMBER:		A027	A027	A029	A029			
PROPIONALDEHYDE	28	-	-	-	-	- NA	- NA	- NA
TRICHLOROFLUOROMETHANE	29	69.6	69.6	62.4	61.6	- NA	- NA	- NA
2-BUTYNE	30	-	-	-	-	- NA	- NA	- NA
ETHYL MERCAPTAN	31	-	-	-	-	- NA	- NA	- NA
1-PENTENE	32	-	-	-	-	- NA	- NA	- NA
IODOMETHANE	33	-	-	-	-	- NA	- NA	- NA
2-METHYL-1-BUTENE	34	-	-	-	-	- NA	- NA	- NA
ACRYLONITRILE	35	-	-	-	-	- NA	- NA	- NA
N-PENTANE	36	1.5	1.6	1.4	1.3	- NA	- NA	- NA
ISOPRENE	37	0.5	0.4	0.4	-	- NA	- NA	- NA
DIMETHYLSULFIDE	38	-	-	-	-	- NA	- NA	- NA
DIETHYL ETHER + 2-PROPANOL	239	-	-	-	-	- NA	- NA	- NA
T-2-PENTENE	41	-	-	-	-	- NA	- NA	- NA
DICHLOROFLUOROMETHANE	196	-	-	-	-	- NA	- NA	- NA
1,1-DICHLOROETHYLENE	42	-	-	-	-	- NA	- NA	- NA
C-2-PENTENE	43	-	-	-	-	- NA	- NA	- NA
METHYLENE CHLORIDE	44	341 v	334 v	338 v	338 v	- NA	- NA	- NA
2-METHYL-2-BUTENE	45	-	-	-	-	- NA	- NA	- NA
NEOHEXANE	46	-	-	-	-	- NA	- NA	- NA
FREON 113	199	-	-	-	-	- NA	- NA	- NA
ISOBUTYRALDEHYDE	47	-	-	-	-	- NA	- NA	- NA
CYCLOPENTENE	48	-	-	-	-	- NA	- NA	- NA
T-1,2-DICHLOROETHYLENE	49	-	-	-	-	- NA	- NA	- NA
4-METHYL-1-PENTENE	50	-	-	-	-	- NA	- NA	- NA
1,1-DICHLOROETHANE	51	-	-	-	-	- NA	- NA	- NA
CYCLOPENTANE	52	-	-	-	-	- NA	- NA	- NA
1-PROPANOL	53	-	-	-	-	- NA	- NA	- NA
2,3-DIMETHYLBUTANE	54	-	-	-	-	- NA	- NA	- NA
MTBE + ISOHEX + C-4-M-2-PENTENE	232	1.4	1.2	1.4	1.4	- NA	- NA	- NA
VINYL ACETATE	203	-	-	-	-	- NA	- NA	- NA
BUTYRALDEHYDE	58	2.3	4.2	1.3	1.1	- NA	- NA	- NA
T-4-METHYL-2-PENTENE	59	-	-	-	-	- NA	- NA	- NA
CHLOROPRENE	192	-	-	-	-	- NA	- NA	- NA
2-BUTANONE	60	0.7	0.7	1.8	1.6	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307011-3A

FIELD SAMPLE NUMBER:		A027	A027	A029	A029			
3-METHYLPENTANE	61	6.3	12.2	-	-	- NA	- NA	- NA
1-HEXENE	62	-	-	-	-	- NA	- NA	- NA
2-METHYL-1-PENTENE	63	-	-	-	-	- NA	- NA	- NA
BROMOCHLOROMETHANE	212	-	-	-	-	- NA	- NA	- NA
C-1,2-DICHLOROETHYLENE	64	-	-	-	-	- NA	- NA	- NA
2-ETHYL-1-BUTENE	65	-	-	-	-	- NA	- NA	- NA
N-HEXANE	66	1.6	1.6	1.4	1.4	- NA	- NA	- NA
METHYL ACRYLATE	204	-	-	-	-	- NA	- NA	- NA
CHLOROFORM	67	-	-	-	-	- NA	- NA	- NA
C-3-HEXENE	68	-	-	-	-	- NA	- NA	- NA
T-2-HEXENE	69	-	-	-	-	- NA	- NA	- NA
2-METHYL-2-PENTENE	70	-	-	-	-	- NA	- NA	- NA
C-2-HEXENE	71	-	-	-	-	- NA	- NA	- NA
C-3-METHYL-2-PENTENE	72	-	-	-	-	- NA	- NA	- NA
METHYLCYCLOPENTANE	73	-	-	-	-	- NA	- NA	- NA
1,2-DICHLOROETHANE	74	-	-	-	-	- NA	- NA	- NA
2,4-DIMETHYLPENTANE	75	-	-	-	-	- NA	- NA	- NA
1,1,1-TRICHLOROETHANE	76	20.7	20.4	21.4	21.6	- NA	- NA	- NA
2-METHYL-1,3-DIOXOLANE	188	-	-	-	-	- NA	- NA	- NA
ISOVALERALDEHYDE	77	-	-	-	-	- NA	- NA	- NA
METHYLCYCLOPENTENE	78	-	-	-	-	- NA	- NA	- NA
BENZENE	79	1.3	1.4	1.2	1.3	- NA	- NA	- NA
CARBON TETRACHLORIDE	80	0.3	0.3	0.3	0.3	- NA	- NA	- NA
1-BUTANOL + CYCLOHEXANE	238	16.9	19.5	4.2	3.9	- NA	- NA	- NA
THIOPHENE	82	-	-	-	-	- NA	- NA	- NA
ISOHEPTANE + 2,3-DIMETHYLPENTANE	84	0.6	0.6	1.0	1.0	- NA	- NA	- NA
2-PENTANONE	85	-	-	-	-	- NA	- NA	- NA
CYCLOHEXENE	86	-	-	-	-	- NA	- NA	- NA
3-METHYLHEXANE	87	0.8	0.8	0.7	0.7	- NA	- NA	- NA
VALERALDEHYDE	88	-	-	-	-	- NA	- NA	- NA
1,2-DICHLOROPROPANE	89	-	-	-	-	- NA	- NA	- NA
3-PENTANONE	90	-	-	-	-	- NA	- NA	- NA
TRICHLOROETHYLENE + BDCMETHANE	235	0.3	0.3	-	-	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307011-3A

FIELD SAMPLE NUMBER:		A027	A027	A029	A029			
1-HEPTENE	93	-	-	-	-	- NA	- NA	- NA
1,4-DIOXANE + 2,2,4-IMPENTANE	234	-	-	-	-	- NA	- NA	- NA
N-HEPTANE	95	1.7	1.7	1.7	1.6	- NA	- NA	- NA
N-BUTYL MERCAPTAN	96	-	-	-	-	- NA	- NA	- NA
T-3-HEPTENE	97	-	-	-	-	- NA	- NA	- NA
BISCHLOROMETHYL ETHER	98	-	-	-	-	- NA	- NA	- NA
C-3-HEPTENE	99	-	-	-	-	- NA	- NA	- NA
T-2-HEPTENE	100	-	-	-	-	- NA	- NA	- NA
2,4,4-TRIMETHYL-1-PENTENE	101	-	-	-	-	- NA	- NA	- NA
C-1,3-DICHLOROPROPENE	102	-	-	-	-	- NA	- NA	- NA
METHYLCYCLOHEXANE	103	-	-	-	-	- NA	- NA	- NA
METHYLISOBUTYLKETONE	104	-	-	-	-	- NA	- NA	- NA
2,4,4-TRIMETHYL-2-PENTENE	105	-	-	-	-	- NA	- NA	- NA
2,5-DIMETHYLHEXANE	106	-	-	-	-	- NA	- NA	- NA
2,2,3-TRIMETHYLPENTANE	107	-	-	-	-	- NA	- NA	- NA
T-1,3-DICHLOROPROPENE	108	-	-	-	-	- NA	- NA	- NA
1,1,2-TRICHLOROETHANE	109	-	-	-	-	- NA	- NA	- NA
2,3,4-TRIMETHYLPENTANE	110	-	-	-	-	- NA	- NA	- NA
TOLUENE	111	1.8	1.9	1.5	1.6	- NA	- NA	- NA
2-METHYLTHIOPHENE	112	-	-	-	-	- NA	- NA	- NA
3-METHYLTHIOPHENE	113	-	-	-	-	- NA	- NA	- NA
1-METHYLCYCLOHEXENE	114	-	-	-	-	- NA	- NA	- NA
3,5,5-TRIMETHYL-1-HEXENE	115	-	-	-	-	- NA	- NA	- NA
DIBROMOCHLOROMETHANE	116	-	-	-	-	- NA	- NA	- NA
3-METHYLHEPTANE	117	-	-	-	-	- NA	- NA	- NA
HEXANAL	118	2.5	2.9	2.4	2.5	- NA	- NA	- NA
1,2-DIBROMOETHANE	119	-	-	-	-	- NA	- NA	- NA
2-CHLOROETHYL VINYL ETHER	120	-	-	-	-	- NA	- NA	- NA
2,2,5-TRIMETHYLHEXANE	121	-	-	-	-	- NA	- NA	- NA
1-OCTENE	122	-	-	0.4	0.4	- NA	- NA	- NA
TETRAHYDROTHIOPHENE	123	-	-	-	-	- NA	- NA	- NA
N-OCTANE	124	-	-	-	-	- NA	- NA	- NA
TETRACHLOROETHYLENE	125	17.6	17.0	16.9	16.7	- NA	- NA	- NA
C-2-OCTENE	126	-	-	-	-	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307011-3A

FIELD SAMPLE NUMBER:		A027	A027	A029	A029			
ISOPENTYL MERCAPTAN	127	-	-	-	-	- NA	- NA	- NA
CHLOROBENZENE	128	-	-	-	-	- NA	- NA	- NA
ETHYLBENZENE	129	-	-	-	-	- NA	- NA	- NA
2,5-DIMETHYLTHIOPHENE	130	-	-	-	-	- NA	- NA	- NA
P-XYLENE + M-XYLENE	131	0.6	0.6	0.5	0.5	- NA	- NA	- NA
BROMOFORM	132	-	-	-	-	- NA	- NA	- NA
CYCLOHEXANONE	133	2.0	2.1	1.9	2.0	- NA	- NA	- NA
BUTYL ACRYLATE	205	-	-	-	-	- NA	- NA	- NA
STYRENE	134	0.8	1.0	1.3	1.7	- NA	- NA	- NA
HEPTANAL	135	-	-	-	-	- NA	- NA	- NA
1,1,2,2-TETRACHLOROETHANE	136	-	-	-	-	- NA	- NA	- NA
O-XYLENE	137	-	-	-	-	- NA	- NA	- NA
1-NONENE	138	-	-	-	-	- NA	- NA	- NA
N-NONANE	139	-	-	-	-	- NA	- NA	- NA
4-NONENE	140	-	-	-	-	- NA	- NA	- NA
ISOPROPYLBENZENE	141	-	-	-	-	- NA	- NA	- NA
A-PINENE + BENZALDEHYDE	236	2.0	2.2	2.5	2.4	- NA	- NA	- NA
O-CHLOROTOLUENE	144	-	-	-	-	- NA	- NA	- NA
M-CHLOROTOLUENE	145	-	-	-	-	- NA	- NA	- NA
N-PROPYLBENZENE	146	-	-	-	-	- NA	- NA	- NA
P-CHLOROTOLUENE	147	-	-	-	-	- NA	- NA	- NA
M-ETHYLTOLUENE	148	-	-	-	-	- NA	- NA	- NA
BISCHLOROETHYL ETHER	149	-	-	-	-	- NA	- NA	- NA
P-ETHYLTOLUENE	150	6.6	6.5	7.1	7.1	- NA	- NA	- NA
1,3,5-TRIMETHYLBENZENE	151	-	-	-	-	- NA	- NA	- NA
O-ETHYLTOLUENE	152	-	-	-	-	- NA	- NA	- NA
3-OCTANONE	202	-	-	-	-	- NA	- NA	- NA
B-PINENE	153	0.4	0.6	1.0	1.0	- NA	- NA	- NA
1-DECENE	154	-	-	-	-	- NA	- NA	- NA
1,2,4-TMBENZENE + T-BUTYLBENZENE	237	0.7	0.7	0.6	0.5	- NA	- NA	- NA
BENZYL CHLORIDE + M-DCBENZENE	230	-	-	-	-	- NA	- NA	- NA
ISOBUTYLBENZENE	158	-	-	-	-	- NA	- NA	- NA
N-DECANE + P-DICHLOROBENZENE	231	0.7	0.7	-	-	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307011-3A

FIELD SAMPLE NUMBER:		A027	A027	A029	A029			
1,2,3-TRIMETHYLBENZENE	161	5.4	4.6	6.1	6.1	- NA	- NA	- NA
P-ISOPROPYLTOLUENE	162	1.5	1.6	1.5	1.4	- NA	- NA	- NA
O-DICHLOROBENZENE	163	-	-	-	-	- NA	- NA	- NA
LIMONENE	164	-	0.5	0.5	-	- NA	- NA	- NA
INDAN	165	-	-	-	-	- NA	- NA	- NA
INDENE	166	-	-	-	-	- NA	- NA	- NA
M-DIETHYLBENZENE	167	0.9	0.9	0.7	0.6	- NA	- NA	- NA
N-BUTYLBENZENE	168	0.5	0.5	-	-	- NA	- NA	- NA
P-DIETHYLBENZENE	169	-	-	0.5	0.5	- NA	- NA	- NA
1-UNDECENE	170	-	-	-	-	- NA	- NA	- NA
N-UNDECANE	171	1.1	0.9	0.6	0.8	- NA	- NA	- NA
DICHLOROTOLUENE	172	-	-	-	-	- NA	- NA	- NA
NAPHTHALENE	173	-	-	-	-	- NA	- NA	- NA
1,2,4-TRICHLOROBENZENE	220	-	-	-	-	- NA	- NA	- NA
HEXACHLORO-1,3-BUTADIENE	210	-	-	-	-	- NA	- NA	- NA
UNIDENTIFIED VOC	174	235	236	65.7	62.3	- NA	- NA	- NA
UNIDENTIFIED HALOGENATED VOC	175	0.4	0.2	-	-	- NA	- NA	- NA
TNMHC		389	398	197	191	-	-	-

NA Not Analyzed

Analytical system: HP 5890 GC [C2C3]

Analytical system: HP 5890 GC [C]

o. Laboratory duplicate of V307011-03A

o. Laboratory duplicate of V307011-05A.

v. Concentration of halogenated compound quantitated from
Flame Ionization Detector response.

VOC AIR CANISTER ANALYSIS
FINAL REPORT

Client: LOS ALAMOS
Units: ug/m3

Radian Workorder #: V307011-07
Date Sampled: 7-1-93

Site Number:

Sample wide footnotes:

Analytical run FID:

Analytical run HALL:

xx

None

None

xx

xx

C

C

C

C

C

NA

NA

C

C

C

C

C

NA

NA

FIELD SAMPLE NUMBER:

A031

A032

A033

A034

A035

SAMPLE CONTROL NUMBER:

V307011-07

V307011-08

V307011-09

V307011-10

V307011-11

DATE SAMPLED:

7-1-93

7-1-93

7-1-93

7-1-93

7-1-93

NELSON FILE NUMBER:

J0071313

J0071320

J0071315

J0071316

J007155

FID ANALYSIS DATE:

7-14-93

7-14-93

7-14-93

7-14-93

7-15-93

HALL ANALYSIS DATE:

7-14-93

7-14-93

7-14-93

7-14-93

7-14-93

C2C3 ANALYSIS DATE:

7-13-93

7-13-93

7-13-93

7-13-93

7-13-93

CANISTER NUMBER:

807

802

910

846

911

FID DILUTION FACTOR:

0.281769

0.279088

0.282880

0.239037

0.280163

0.000000

0.000000

HALL DILUTION FACTOR:

0.281769

0.279088

0.282880

0.239037

0.280163

0.000000

0.000000

C2C3 DILUTION FACTOR:

0.281769

0.279088

0.282880

0.239037

0.280163

0.000000

0.000000

FID VOLUME:

0.500000

0.500000

0.500000

0.500000

0.500000

0.000000

0.000000

HALL VOLUME:

0.500000

0.500000

0.500000

0.500000

0.500000

0.000000

0.000000

C2C3 VOLUME:

0.593067

0.598998

0.610859

0.729473

0.800641

0.000000

0.000000

Client: LOS ALAMOS

Radian Workorder #: V307011-07

FIELD SAMPLE NUMBER:		A031	A032	A033	A034	A035		
ETHYLENE	193	3.2	2.3	0.6	2.0	3.1	- NA	- NA
ACETYLENE	194	0.2	0.7	-	0.2	-	- NA	- NA
FREON 23	214	-	-	-	-	-	- NA	- NA
ETHANE	2	2.1	4.0	1.8	1.8	2.6	- NA	- NA
CHLORODIFLUOROMETHANE	195	-	-	-	-	-	- NA	- NA
PROPYLENE	3	1.6	1.3	0.5	1.1	1.5	- NA	- NA
PROPANE	4	3.8	3.5	2.1	1.5	1.7	- NA	- NA
DIMETHYL ETHER	190	-	-	-	-	-	- NA	- NA
CHLOROMETHANE	5	0.5	0.2	8.2	0.6	0.4	- NA	- NA
PROPYLENE	6	-	-	-	-	-	- NA	- NA
DICHLORODIFLUOROMETHANE	7	0.9	0.8	0.9	0.5	0.3	- NA	- NA
FREON 114	215	-	-	-	-	-	- NA	- NA
ISOBUTANE	8	0.6	3.8	44.4	10.2	9.4	- NA	- NA
ACETALDEHYDE	9	-	-	-	-	-	- NA	- NA
VINYL CHLORIDE	10	-	-	-	-	-	- NA	- NA
ISOBUTENE + 1-BUTENE	11	4.4	10.1	8.6	7.4	5.8	- NA	- NA
1,3-BUTADIENE	12	-	-	-	-	-	- NA	- NA
METHYL MERCAPTAN	13	-	-	-	-	-	- NA	- NA
N-BUTANE	14	1.3	5.3	1.5	0.8	1.1	- NA	- NA
METHANOL	15	489	137	10.1	121	114	- NA	- NA
BROMOMETHANE	16	-	-	-	-	-	- NA	- NA
T-2-BUTENE	17	-	-	-	-	-	- NA	- NA
NEOPENTANE	18	-	-	-	-	-	- NA	- NA
DIMETHYL ACETAL	189	-	-	-	-	-	- NA	- NA
METHYL FORMATE	191	-	-	-	-	-	- NA	- NA
1-BUTYNE	19	-	-	-	-	-	- NA	- NA
C-2-BUTENE	20	-	-	-	-	-	- NA	- NA
CHLOROETHANE	21	-	-	-	-	-	- NA	- NA
VINYL BROMIDE	22	-	-	-	-	-	- NA	- NA
3-METHYL-1-BUTENE	23	-	-	-	-	-	- NA	- NA
ETHANOL + ACETONITRILE	233	836 m	106	-	1460 m	1350 m	- NA	- NA
ISOPENTANE	26	-	5.7	38.9	-	-	- NA	- NA
ACETONE	27	64.8 g	27.8 g	11.4	268 g	186 g	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307011-07

FIELD SAMPLE NUMBER:		A031	A032	A033	A034	A035		
PROPIONALDEHYDE	28	-	-	-	-	-	- NA	- NA
TRICHLOROFLUOROMETHANE	29	0.6	1.0	1.7	0.4	-	- NA	- NA
2-BUTYNE	30	-	-	-	-	-	- NA	- NA
ETHYL MERCAPTAN	31	-	-	-	-	-	- NA	- NA
1-PENTENE	32	-	-	-	-	-	- NA	- NA
IODOMETHANE	33	-	-	-	-	-	- NA	- NA
2-METHYL-1-BUTENE	34	-	-	-	-	-	- NA	- NA
ACRYLONITRILE	35	-	-	-	-	-	- NA	- NA
N-PENTANE	36	2.3	4.7	4.4	4.3	4.4	- NA	- NA
ISOPRENE	37	3.3	0.7	-	2.8	3.1	- NA	- NA
DIMETHYLSULFIDE	38	-	-	-	-	-	- NA	- NA
DIETHYL ETHER + 2-PROPANOL	239	-	-	-	-	-	- NA	- NA
T-2-PENTENE	41	3.4	3.1	2.3	3.4	3.2	- NA	- NA
DICHLOROFLUOROMETHANE	196	-	-	-	-	-	- NA	- NA
1,1-DICHLOROETHYLENE	42	-	27.9	24.1	2.1	0.3	- NA	- NA
C-2-PENTENE	43	-	-	-	-	-	- NA	- NA
METHYLENE CHLORIDE	44	2640 v	3030 v	4210 v	4030 v	3390 v	- NA	- NA
2-METHYL-2-BUTENE	45	-	-	-	-	-	- NA	- NA
NEOHXANE	46	-	-	-	-	-	- NA	- NA
FREON 113	199	4.9 v	12.8 v	8.6 v	6.6 v	4.7 v	- NA	- NA
ISOBUTYRALDEHYDE	47	-	-	-	-	-	- NA	- NA
CYCLOPENTENE	48	-	-	-	-	-	- NA	- NA
T-1,2-DICHLOROETHYLENE	49	-	-	-	-	-	- NA	- NA
4-METHYL-1-PENTENE	50	-	-	-	-	-	- NA	- NA
1,1-DICHLOROETHANE	51	-	-	-	2.6	-	- NA	- NA
CYCLOPENTANE	52	-	7.4	5.4	1.0	0.9	- NA	- NA
1-PROPANOL	53	-	-	-	-	-	- NA	- NA
2,3-DIMETHYLBUTANE	54	-	0.7	0.5	-	-	- NA	- NA
MTBE + ISOHEX + C-4-M-2-PENTENE	232	3.0	7.8	4.5	4.4	4.8	- NA	- NA
VINYL ACETATE	203	2.9	1.4	-	3.3	2.9	- NA	- NA
BUTYRALDEHYDE	58	2.9	1.4	4.3	1.2	1.0	- NA	- NA
T-4-METHYL-2-PENTENE	59	-	-	-	-	-	- NA	- NA
CHLOROPRENE	192	-	-	-	-	-	- NA	- NA
2-BUTANONE	60	8.2	3.6	1.8	2.6	2.6	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307011-07

FIELD SAMPLE NUMBER:		A031	A032	A033	A034	A035		
3-METHYLPENTANE	61	-	1.4	0.6	-	-	- NA	- NA
1-HEXENE	62	-	-	-	-	-	- NA	- NA
2-METHYL-1-PENTENE	63	-	-	-	-	-	- NA	- NA
BROMOCHLOROMETHANE	212	-	-	-	-	-	- NA	- NA
C-1,2-DICHLOROETHYLENE	64	-	-	-	-	-	- NA	- NA
2-ETHYL-1-BUTENE	65	-	-	-	-	-	- NA	- NA
N-HEXANE	66	1.0	3.3	2.1	1.8	1.6	- NA	- NA
METHYL ACRYLATE	204	-	-	-	-	-	- NA	- NA
CHLOROFORM	67	-	1.1	1.2	0.2	0.2	- NA	- NA
C-3-HEXENE	68	-	-	-	-	-	- NA	- NA
T-2-HEXENE	69	-	-	-	-	-	- NA	- NA
2-METHYL-2-PENTENE	70	-	-	-	-	-	- NA	- NA
C-2-HEXENE	71	-	-	-	-	-	- NA	- NA
C-3-METHYL-2-PENTENE	72	-	-	-	-	-	- NA	- NA
METHYLCYCLOPENTANE	73	2.2	0.5	0.9	-	-	- NA	- NA
1,2-DICHLOROETHANE	74	-	1.4	-	-	1.9	- NA	- NA
2,4-DIMETHYLPENTANE	75	-	-	-	-	-	- NA	- NA
1,1,1-TRICHLOROETHANE	76	6.8	624 v	440 v	117	20.5	- NA	- NA
2-METHYL-1,3-DIOXOLANE	188	-	-	-	-	-	- NA	- NA
ISOVALERALDEHYDE	77	-	-	-	-	-	- NA	- NA
METHYLCYCLOPENTENE	78	-	-	-	-	-	- NA	- NA
BENZENE	79	1.9	2.3	1.4	1.6	1.8	- NA	- NA
CARBON TETRACHLORIDE	80	0.2	-	-	-	-	- NA	- NA
1-BUTANOL + CYCLOHEXANE	238	4.4	12.4	4.8	-	5.3	- NA	- NA
THIOPHENE	82	-	-	-	-	-	- NA	- NA
ISOHEPTANE + 2,3-DIMETHYLPENTANE	84	-	-	-	-	-	- NA	- NA
2-PENTANONE	85	-	-	-	-	-	- NA	- NA
CYCLOHEXENE	86	-	-	-	-	-	- NA	- NA
3-METHYLHEXANE	87	3.0	0.7	0.6	-	-	- NA	- NA
VALERALDEHYDE	88	-	-	-	-	-	- NA	- NA
1,2-DICHLOROPROPANE	89	-	-	-	-	-	- NA	- NA
3-PENTANONE	90	-	-	-	-	-	- NA	- NA
TRICHLOROETHYLENE + BDCMETHANE	235	-	8.8	33.7	2.5	0.9	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307011-07

FIELD SAMPLE NUMBER:		A031	A032	A033	A034	A035		
1-HEPTENE	93	-	-	-	-	-	- NA	- NA
1,4-DIOXANE + 2,2,4-TMPENTANE	234	0.8	-	-	0.6	0.6	- NA	- NA
N-HEPTANE	95	19.1	10.2	16.2	5.7	4.6	- NA	- NA
N-BUTYL MERCAPTAN	96	-	-	-	-	-	- NA	- NA
T-3-HEPTENE	97	-	-	-	-	-	- NA	- NA
BISCHLOROMETHYL ETHER	98	-	-	-	-	-	- NA	- NA
C-3-HEPTENE	99	-	-	-	-	-	- NA	- NA
T-2-HEPTENE	100	-	-	-	-	-	- NA	- NA
2,4,4-TRIMETHYL-1-PENTENE	101	-	-	-	-	-	- NA	- NA
C-1,3-DICHLOROPROPENE	102	-	-	-	-	-	- NA	- NA
METHYLCYCLOHEXANE	103	2.9	-	-	-	-	- NA	- NA
METHYLISOBUTYLKETONE	104	5.7	-	-	-	-	- NA	- NA
2,4,4-TRIMETHYL-2-PENTENE	105	-	-	-	-	-	- NA	- NA
2,5-DIMETHYLHEXANE	106	1.0	1.3	-	-	-	- NA	- NA
2,2,3-TRIMETHYLPENTANE	107	-	-	-	-	-	- NA	- NA
T-1,3-DICHLOROPROPENE	108	-	-	-	-	-	- NA	- NA
1,1,2-TRICHLOROETHANE	109	-	-	-	-	-	- NA	- NA
2,3,4-TRIMETHYLPENTANE	110	-	-	-	-	-	- NA	- NA
TOLUENE	111	4.9	3.5	4.5	2.4	2.0	- NA	- NA
2-METHYLTHIOPHENE	112	-	-	-	-	-	- NA	- NA
3-METHYLTHIOPHENE	113	-	-	-	-	-	- NA	- NA
1-METHYLCYCLOHEXENE	114	-	-	-	-	-	- NA	- NA
3,5,5-TRIMETHYL-1-HEXENE	115	-	-	-	-	-	- NA	- NA
DIBROMOCHLOROMETHANE	116	-	-	-	-	-	- NA	- NA
3-METHYLHEPTANE	117	-	0.9	-	-	-	- NA	- NA
HEXANAL	118	9.9	3.5	1.7	1.8	1.7	- NA	- NA
1,2-DIBROMOETHANE	119	-	-	-	-	-	- NA	- NA
2-CHLOROETHYL VINYL ETHER	120	-	-	-	-	-	- NA	- NA
2,2,5-TRIMETHYLHEXANE	121	-	-	-	-	-	- NA	- NA
1-OCTENE	122	9.7	0.4	-	-	-	- NA	- NA
TETRAHYDROTHIOPHENE	123	-	-	-	-	-	- NA	- NA
N-OCTANE	124	1.7	1.6	0.8	1.1	1.1	- NA	- NA
TETRACHLOROETHYLENE	125	162 v	138 v	218 v	172 v	144 v	- NA	- NA
C-2-OCTENE	126	-	-	-	-	-	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307011-07

FIELD SAMPLE NUMBER:		A031	A032	A033	A034	A035		
ISOPENTYL MERCAPTAN	127	-	-	-	-	-	- NA	- NA
CHLOROBENZENE	128	-	-	-	-	-	- NA	- NA
ETHYLBENZENE	129	3.9	0.7	-	-	-	- NA	- NA
2,5-DIMETHYLTHIOPHENE	130	-	-	-	-	-	- NA	- NA
P-XYLENE + M-XYLENE	131	-	1.8	0.8	0.6	-	- NA	- NA
BROMOFORM	132	-	-	-	-	-	- NA	- NA
CYCLOHEXANONE	133	1.7	5.8	3.9	3.1	2.9	- NA	- NA
BUTYL ACRYLATE	205	-	-	-	-	-	- NA	- NA
STYRENE	134	11.4	1.7	0.9	0.9	1.8	- NA	- NA
HEPTANAL	135	-	1.7	-	-	1.3	- NA	- NA
1,1,2,2-TETRACHLOROETHANE	136	-	-	-	-	-	- NA	- NA
O-XYLENE	137	0.6	0.8	-	-	-	- NA	- NA
1-NONENE	138	-	-	-	-	-	- NA	- NA
N-NONANE	139	1.0	0.5	-	-	-	- NA	- NA
4-NONENE	140	-	-	-	-	-	- NA	- NA
ISOPROPYLBENZENE	141	7.3	-	-	-	-	- NA	- NA
A-PINENE + BENZALDEHYDE	236	1190	6.0	1.0	3.8	3.4	- NA	- NA
O-CHLOROTOLUENE	144	-	-	-	-	-	- NA	- NA
M-CHLOROTOLUENE	145	-	-	-	-	-	- NA	- NA
N-PROPYLBENZENE	146	45.0	-	-	-	-	- NA	- NA
P-CHLOROTOLUENE	147	-	-	-	-	-	- NA	- NA
M-ETHYLTOLUENE	148	-	-	-	-	-	- NA	- NA
BISCHLOROETHYL ETHER	149	-	-	-	-	-	- NA	- NA
P-ETHYLTOLUENE	150	2510	5.7	0.7	33.3	27.7	- NA	- NA
1,3,5-TRIMETHYLBENZENE	151	14.1	-	-	-	-	- NA	- NA
O-ETHYLTOLUENE	152	95.2	-	-	-	-	- NA	- NA
3-OCTANONE	202	-	-	-	-	-	- NA	- NA
B-PINENE	153	736 m	8.6	1.2	1.1	0.9	- NA	- NA
1-DECENE	154	-	-	-	-	-	- NA	- NA
1,2,4-TMBENZENE + T-BUTYLBENZENE	237	0.8	1.5	-	-	-	- NA	- NA
BENZYL CHLORIDE + M-DCBENZENE	230	-	-	-	-	-	- NA	- NA
ISOBUTYLBENZENE	158	-	-	-	-	-	- NA	- NA
N-DECANE + P-DICHLOROBENZENE	231	-	0.8	1.4	0.8	1.0	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307011-07

FIELD SAMPLE NUMBER:		A031	A032	A033	A034	A035		
1,2,3-TRIMETHYLBENZENE	161	286	5.0	1.6	2.6	3.5	- NA	- NA
P-ISOPROPYLTOLUENE	162	236	3.3	-	4.8	4.6	- NA	- NA
O-DICHLOROBENZENE	163	-	-	-	-	-	- NA	- NA
LIMONENE	164	10.9	1.8	1.1	0.9	1.0	- NA	- NA
INDAN	165	-	-	-	-	-	- NA	- NA
INDENE	166	-	-	-	-	-	- NA	- NA
M-DIETHYLBENZENE	167	-	-	-	-	-	- NA	- NA
N-BUTYLBENZENE	168	-	-	-	-	-	- NA	- NA
P-DIETHYLBENZENE	169	382	1.6	0.9	1.4	1.1	- NA	- NA
1-UNDECENE	170	-	-	-	-	-	- NA	- NA
N-UNDECANE	171	1.3	1.2	2.2	1.1	1.6	- NA	- NA
DICHLOROTOLUENE	172	-	-	-	-	-	- NA	- NA
NAPHTHALENE	173	26.4	-	-	-	-	- NA	- NA
1,2,4-TRICHLOROBENZENE	220	-	-	-	-	-	- NA	- NA
HEXACHLORO-1,3-BUTADIENE	210	-	-	-	-	-	- NA	- NA
UNIDENTIFIED VOC	174	10500	162	46.3	266	180	- NA	- NA
UNIDENTIFIED HALOGENATED VOC	175	-	5.7	-	52.2	2.5	- NA	- NA
TNMHC		17100	1140	1070	2310	1970	-	-

NA Not Analyzed

Analytical system: HP 5890 GC [C2C3]

Analytical system: HP 5890 GC [C]

g. Quantitation biased due to interference peak or electronic spike.

m. Detector response over 20% higher than the high point of the calibration range for this compound.

v. Concentration of halogenated compound quantitated from Flame Ionization Detector response.

xx. Refer to attached document for additional information.

VOC AIR CANISTER ANALYSIS
FINAL REPORT

Client: LOS ALAMOS
Units: ug/m3

Radian Workorder #: V307030-01
Date Sampled: 7-6-93

Site Number:							
Sample wide footnotes:	None	None					
Analytical run FID:	C	C	NA	NA	NA	NA	NA
Analytical run HALL:	D	D	NA	NA	NA	NA	NA
FIELD SAMPLE NUMBER:	A049	A050					
SAMPLE CONTROL NUMBER:	V307030-01	V307030-02					
DATE SAMPLED:	7-6-93	7-6-93					
NELSON FILE NUMBER:	J0071513	J0071514					
FID ANALYSIS DATE:	7-16-93	7-16-93					
HALL ANALYSIS DATE:	7-17-93	7-17-93					
C2C3 ANALYSIS DATE:	7-14-93	7-14-93					
CANISTER NUMBER:	830	861					
FID DILUTION FACTOR:	0.269459	0.259350	0.000000	0.000000	0.000000	0.000000	0.000000
HALL DILUTION FACTOR:	0.269459	0.259350	0.000000	0.000000	0.000000	0.000000	0.000000
C2C3 DILUTION FACTOR:	0.269459	0.259350	0.000000	0.000000	0.000000	0.000000	0.000000
FID VOLUME:	0.500000	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000
HALL VOLUME:	0.500000	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000
C2C3 VOLUME:	0.598998	0.604929	0.000000	0.000000	0.000000	0.000000	0.000000

Client: LOS ALAMOS

Radian Workorder #: V307030-01

FIELD SAMPLE NUMBER:		A049	A050					
ETHYLENE	193	-	1.3	- NA	- NA	- NA	- NA	- NA
ACETYLENE	194	-	-	- NA	- NA	- NA	- NA	- NA
FREON 23	214	-	-	- NA	- NA	- NA	- NA	- NA
ETHANE	2	0.6	2.1	- NA	- NA	- NA	- NA	- NA
CHLORODIFLUOROMETHANE	195	-	-	- NA	- NA	- NA	- NA	- NA
PROPYLENE	3	0.2	0.9	- NA	- NA	- NA	- NA	- NA
PROPANE	4	0.9	1.2	- NA	- NA	- NA	- NA	- NA
DIMETHYL ETHER	190	-	-	- NA	- NA	- NA	- NA	- NA
CHLOROMETHANE	5	-	0.2	- NA	- NA	- NA	- NA	- NA
PROPYNE	6	-	-	- NA	- NA	- NA	- NA	- NA
DICHLORODIFLUOROMETHANE	7	-	0.6	- NA	- NA	- NA	- NA	- NA
FREON 114	215	-	-	- NA	- NA	- NA	- NA	- NA
ISOBUTANE	8	18.1	1.2	- NA	- NA	- NA	- NA	- NA
ACETALDEHYDE	9	-	-	- NA	- NA	- NA	- NA	- NA
VINYL CHLORIDE	10	-	-	- NA	- NA	- NA	- NA	- NA
ISOBUTENE + 1-BUTENE	11	2.9	15.5	- NA	- NA	- NA	- NA	- NA
1,3-BUTADIENE	12	-	-	- NA	- NA	- NA	- NA	- NA
METHYL MERCAPTAN	13	-	-	- NA	- NA	- NA	- NA	- NA
N-BUTANE	14	18.0	0.9	- NA	- NA	- NA	- NA	- NA
METHANOL	15	1.1	53.1	- NA	- NA	- NA	- NA	- NA
BROMOMETHANE	16	-	-	- NA	- NA	- NA	- NA	- NA
T-2-BUTENE	17	1.1	-	- NA	- NA	- NA	- NA	- NA
NEOPENTANE	18	-	-	- NA	- NA	- NA	- NA	- NA
DIMETHYL ACETAL	189	-	-	- NA	- NA	- NA	- NA	- NA
METHYL FORMATE	191	-	-	- NA	- NA	- NA	- NA	- NA
1-BUTYNE	19	-	-	- NA	- NA	- NA	- NA	- NA
C-2-BUTENE	20	1.1	-	- NA	- NA	- NA	- NA	- NA
CHLOROETHANE	21	-	-	- NA	- NA	- NA	- NA	- NA
VINYL BROMIDE	22	-	-	- NA	- NA	- NA	- NA	- NA
3-METHYL-1-BUTENE	23	-	-	- NA	- NA	- NA	- NA	- NA
ETHANOL + ACETONITRILE	233	-	7.7	- NA	- NA	- NA	- NA	- NA
ISOPENTANE	26	26.6	1.9	- NA	- NA	- NA	- NA	- NA
ACETONE	27	-	14.9	- NA	- NA	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307030-01

FIELD SAMPLE NUMBER:		A049	A050					
PROPIONALDEHYDE	28	-	-	- NA	- NA	- NA	- NA	- NA
TRICHLOROFLUOROMETHANE	29	-	0.2	- NA	- NA	- NA	- NA	- NA
2-BUTYNE	30	-	-	- NA	- NA	- NA	- NA	- NA
ETHYL MERCAPTAN	31	-	-	- NA	- NA	- NA	- NA	- NA
1-PENTENE	32	0.9	-	- NA	- NA	- NA	- NA	- NA
IODOMETHANE	33	-	-	- NA	- NA	- NA	- NA	- NA
2-METHYL-1-BUTENE	34	1.8	-	- NA	- NA	- NA	- NA	- NA
ACRYLONITRILE	35	-	-	- NA	- NA	- NA	- NA	- NA
N-PENTANE	36	14.3	1.9	- NA	- NA	- NA	- NA	- NA
ISOPRENE	37	-	1.3	- NA	- NA	- NA	- NA	- NA
DIMETHYLSULFIDE	38	-	-	- NA	- NA	- NA	- NA	- NA
DIETHYL ETHER + 2-PROPANOL	239	-	-	- NA	- NA	- NA	- NA	- NA
T-2-PENTENE	41	2.1	1.0	- NA	- NA	- NA	- NA	- NA
DICHLOROFLUOROMETHANE	196	-	-	- NA	- NA	- NA	- NA	- NA
1,1-DICHLOROETHYLENE	42	-	1.8	- NA	- NA	- NA	- NA	- NA
C-2-PENTENE	43	0.9	-	- NA	- NA	- NA	- NA	- NA
METHYLENE CHLORIDE	44	560 v	1840 v	- NA	- NA	- NA	- NA	- NA
2-METHYL-2-BUTENE	45	-	-	- NA	- NA	- NA	- NA	- NA
NEOHXANE	46	-	-	- NA	- NA	- NA	- NA	- NA
FREON 113	199	4.0 v	3.3 v	- NA	- NA	- NA	- NA	- NA
ISOBUTYRALDEHYDE	47	-	-	- NA	- NA	- NA	- NA	- NA
CYCLOPENTENE	48	-	-	- NA	- NA	- NA	- NA	- NA
T-1,2-DICHLOROETHYLENE	49	-	-	- NA	- NA	- NA	- NA	- NA
4-METHYL-1-PENTENE	50	-	-	- NA	- NA	- NA	- NA	- NA
1,1-DICHLOROETHANE	51	-	2.9	- NA	- NA	- NA	- NA	- NA
CYCLOPENTANE	52	1.0	0.6	- NA	- NA	- NA	- NA	- NA
1-PROPANOL	53	-	-	- NA	- NA	- NA	- NA	- NA
2,3-DIMETHYLBUTANE	54	1.5	1.2	- NA	- NA	- NA	- NA	- NA
MTBE + ISOHEX + C-4-M-2-PENTENE	232	8.8	3.6	- NA	- NA	- NA	- NA	- NA
VINYL ACETATE	203	-	-	- NA	- NA	- NA	- NA	- NA
BUTYRALDEHYDE	58	-	1.4	- NA	- NA	- NA	- NA	- NA
T-4-METHYL-2-PENTENE	59	-	-	- NA	- NA	- NA	- NA	- NA
CHLOROPRENE	192	-	-	- NA	- NA	- NA	- NA	- NA
2-BUTANONE	60	0.8	0.6	- NA	- NA	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307030-01

FIELD SAMPLE NUMBER:		A049	A050					
3-METHYLPENTANE	61	4.4	-	- NA	- NA	- NA	- NA	- NA
1-HEXENE	62	-	-	- NA	- NA	- NA	- NA	- NA
2-METHYL-1-PENTENE	63	-	-	- NA	- NA	- NA	- NA	- NA
BROMOCHLOROMETHANE	212	-	-	- NA	- NA	- NA	- NA	- NA
C-1,2-DICHLOROETHYLENE	64	-	-	- NA	- NA	- NA	- NA	- NA
2-ETHYL-1-BUTENE	65	-	-	- NA	- NA	- NA	- NA	- NA
N-HEXANE	66	5.3	1.4	- NA	- NA	- NA	- NA	- NA
METHYL ACRYLATE	204	-	-	- NA	- NA	- NA	- NA	- NA
CHLOROFORM	67	-	0.2	- NA	- NA	- NA	- NA	- NA
C-3-HEXENE	68	-	-	- NA	- NA	- NA	- NA	- NA
T-2-HEXENE	69	-	-	- NA	- NA	- NA	- NA	- NA
2-METHYL-2-PENTENE	70	-	-	- NA	- NA	- NA	- NA	- NA
C-2-HEXENE	71	-	-	- NA	- NA	- NA	- NA	- NA
C-3-METHYL-2-PENTENE	72	-	-	- NA	- NA	- NA	- NA	- NA
METHYLCYCLOPENTANE	73	3.0	-	- NA	- NA	- NA	- NA	- NA
1,2-DICHLOROETHANE	74	-	-	- NA	- NA	- NA	- NA	- NA
2,4-DIMETHYLPENTANE	75	0.5	-	- NA	- NA	- NA	- NA	- NA
1,1,1-TRICHLOROETHANE	76	-	100	- NA	- NA	- NA	- NA	- NA
2-METHYL-1,3-DIOXOLANE	188	-	-	- NA	- NA	- NA	- NA	- NA
ISOVALERALDEHYDE	77	-	-	- NA	- NA	- NA	- NA	- NA
METHYLCYCLOPENTENE	78	-	-	- NA	- NA	- NA	- NA	- NA
BENZENE	79	2.6	1.2	- NA	- NA	- NA	- NA	- NA
CARBON TETRACHLORIDE	80	-	-	- NA	- NA	- NA	- NA	- NA
1-BUTANOL + CYCLOHEXANE	238	1.1	5.0	- NA	- NA	- NA	- NA	- NA
THIOPHENE	82	-	-	- NA	- NA	- NA	- NA	- NA
ISOHEPTANE + 2,3-DIMETHYLPENTANE	84	2.5	-	- NA	- NA	- NA	- NA	- NA
2-PENTANONE	85	-	-	- NA	- NA	- NA	- NA	- NA
CYCLOHEXENE	86	-	-	- NA	- NA	- NA	- NA	- NA
3-METHYLHEXANE	87	1.4	0.5	- NA	- NA	- NA	- NA	- NA
VALERALDEHYDE	88	-	-	- NA	- NA	- NA	- NA	- NA
1,2-DICHLOROPROPANE	89	-	-	- NA	- NA	- NA	- NA	- NA
3-PENTANONE	90	-	-	- NA	- NA	- NA	- NA	- NA
TRICHLOROETHYLENE + BDCMETHANE	235	-	1.4	- NA	- NA	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307030-01

FIELD SAMPLE NUMBER:		A049	A050					
1-HEPTENE	93	-	-	- NA	- NA	- NA	- NA	- NA
1,4-DIOXANE + 2,2,4-TMPENTANE	234	-	2.9	- NA	- NA	- NA	- NA	- NA
N-HEPTANE	95	0.6	1.7	- NA	- NA	- NA	- NA	- NA
N-BUTYL MERCAPTAN	96	-	-	- NA	- NA	- NA	- NA	- NA
T-3-HEPTENE	97	-	-	- NA	- NA	- NA	- NA	- NA
BISCHLOROMETHYL ETHER	98	-	-	- NA	- NA	- NA	- NA	- NA
C-3-HEPTENE	99	-	-	- NA	- NA	- NA	- NA	- NA
T-2-HEPTENE	100	-	-	- NA	- NA	- NA	- NA	- NA
2,4,4-TRIMETHYL-1-PENTENE	101	-	-	- NA	- NA	- NA	- NA	- NA
C-1,3-DICHLOROPROPENE	102	-	-	- NA	- NA	- NA	- NA	- NA
METHYLCYCLOHEXANE	103	0.5	-	- NA	- NA	- NA	- NA	- NA
METHYLISOBUTYLKETONE	104	-	-	- NA	- NA	- NA	- NA	- NA
2,4,4-TRIMETHYL-2-PENTENE	105	-	-	- NA	- NA	- NA	- NA	- NA
2,5-DIMETHYLHEXANE	106	0.5	-	- NA	- NA	- NA	- NA	- NA
2,2,3-TRIMETHYLPENTANE	107	-	-	- NA	- NA	- NA	- NA	- NA
T-1,3-DICHLOROPROPENE	108	-	-	- NA	- NA	- NA	- NA	- NA
1,1,2-TRICHLOROETHANE	109	-	-	- NA	- NA	- NA	- NA	- NA
2,3,4-TRIMETHYLPENTANE	110	-	-	- NA	- NA	- NA	- NA	- NA
TOLUENE	111	4.0	1.6	- NA	- NA	- NA	- NA	- NA
2-METHYLTHIOPHENE	112	-	-	- NA	- NA	- NA	- NA	- NA
3-METHYLTHIOPHENE	113	-	-	- NA	- NA	- NA	- NA	- NA
1-METHYLCYCLOHEXENE	114	-	-	- NA	- NA	- NA	- NA	- NA
3,5,5-TRIMETHYL-1-HEXENE	115	-	-	- NA	- NA	- NA	- NA	- NA
DIBROMOCHLOROMETHANE	116	-	-	- NA	- NA	- NA	- NA	- NA
3-METHYLHEPTANE	117	0.9	-	- NA	- NA	- NA	- NA	- NA
HEXANAL	118	-	1.1	- NA	- NA	- NA	- NA	- NA
1,2-DIBROMOETHANE	119	-	-	- NA	- NA	- NA	- NA	- NA
2-CHLOROETHYL VINYL ETHER	120	-	-	- NA	- NA	- NA	- NA	- NA
2,2,5-TRIMETHYLHEXANE	121	-	-	- NA	- NA	- NA	- NA	- NA
1-OCTENE	122	-	-	- NA	- NA	- NA	- NA	- NA
TETRAHYDROTHIOPHENE	123	-	-	- NA	- NA	- NA	- NA	- NA
N-OCTANE	124	0.6	0.7	- NA	- NA	- NA	- NA	- NA
TETRACHLOROETHYLENE	125	10.6	52.5	- NA	- NA	- NA	- NA	- NA
C-2-OCTENE	126	-	-	- NA	- NA	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307030-01

FIELD SAMPLE NUMBER:		A049	A050					
ISOPENTYL MERCAPTAN	127	-	-	- NA	- NA	- NA	- NA	- NA
CHLOROBENZENE	128	-	-	- NA	- NA	- NA	- NA	- NA
ETHYLBENZENE	129	-	-	- NA	- NA	- NA	- NA	- NA
2,5-DIMETHYLTHIOPHENE	130	-	-	- NA	- NA	- NA	- NA	- NA
P-XYLENE + M-XYLENE	131	1.1	0.5	- NA	- NA	- NA	- NA	- NA
BROMOFORM	132	-	-	- NA	- NA	- NA	- NA	- NA
CYCLOHEXANONE	133	2.3	2.1	- NA	- NA	- NA	- NA	- NA
BUTYL ACRYLATE	205	-	-	- NA	- NA	- NA	- NA	- NA
STYRENE	134	1.5	1.2	- NA	- NA	- NA	- NA	- NA
HEPTANAL	135	-	-	- NA	- NA	- NA	- NA	- NA
1,1,2,2-TETRACHLOROETHANE	136	-	-	- NA	- NA	- NA	- NA	- NA
O-XYLENE	137	-	-	- NA	- NA	- NA	- NA	- NA
1-NONENE	138	-	-	- NA	- NA	- NA	- NA	- NA
N-NONANE	139	-	-	- NA	- NA	- NA	- NA	- NA
4-NONENE	140	-	-	- NA	- NA	- NA	- NA	- NA
ISOPROPYLBENZENE	141	-	-	- NA	- NA	- NA	- NA	- NA
A-PINENE + BENZALDEHYDE	236	-	0.7	- NA	- NA	- NA	- NA	- NA
O-CHLOROTOLUENE	144	-	-	- NA	- NA	- NA	- NA	- NA
M-CHLOROTOLUENE	145	-	-	- NA	- NA	- NA	- NA	- NA
N-PROPYLBENZENE	146	-	-	- NA	- NA	- NA	- NA	- NA
P-CHLOROTOLUENE	147	-	-	- NA	- NA	- NA	- NA	- NA
M-ETHYLTOLUENE	148	-	-	- NA	- NA	- NA	- NA	- NA
BISCHLOROETHYL ETHER	149	-	-	- NA	- NA	- NA	- NA	- NA
P-ETHYLTOLUENE	150	-	-	- NA	- NA	- NA	- NA	- NA
1,3,5-TRIMETHYLBENZENE	151	-	-	- NA	- NA	- NA	- NA	- NA
O-ETHYLTOLUENE	152	-	-	- NA	- NA	- NA	- NA	- NA
3-OCTANONE	202	-	-	- NA	- NA	- NA	- NA	- NA
B-PINENE	153	-	0.5	- NA	- NA	- NA	- NA	- NA
1-DECENE	154	-	-	- NA	- NA	- NA	- NA	- NA
1,2,4-TMBENZENE + T-BUTYLBENZENE	237	-	0.5	- NA	- NA	- NA	- NA	- NA
BENZYL CHLORIDE + M-DCBENZENE	230	-	-	- NA	- NA	- NA	- NA	- NA
ISOBUTYLBENZENE	158	-	-	- NA	- NA	- NA	- NA	- NA
N-DECANE + P-DICHLOROBENZENE	231	-	6.2	- NA	- NA	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V307030-01

FIELD SAMPLE NUMBER:		A049	A050					
1,2,3-TRIMETHYLBENZENE	161	-	3.6	- NA	- NA	- NA	- NA	- NA
P-ISOPROPYLTOLUENE	162	-	-	- NA	- NA	- NA	- NA	- NA
O-DICHLOROBENZENE	163	-	-	- NA	- NA	- NA	- NA	- NA
LIMONENE	164	-	0.6	- NA	- NA	- NA	- NA	- NA
INDAN	165	-	-	- NA	- NA	- NA	- NA	- NA
INDENE	166	-	-	- NA	- NA	- NA	- NA	- NA
M-DIETHYLBENZENE	167	-	-	- NA	- NA	- NA	- NA	- NA
N-BUTYLBENZENE	168	-	-	- NA	- NA	- NA	- NA	- NA
P-DIETHYLBENZENE	169	-	-	- NA	- NA	- NA	- NA	- NA
1-UNDECENE	170	-	-	- NA	- NA	- NA	- NA	- NA
N-UNDECANE	171	-	4.0	- NA	- NA	- NA	- NA	- NA
DICHLOROTOLUENE	172	-	-	- NA	- NA	- NA	- NA	- NA
NAPHTHALENE	173	-	-	- NA	- NA	- NA	- NA	- NA
1,2,4-TRICHLOROBENZENE	220	-	-	- NA	- NA	- NA	- NA	- NA
HEXACHLORO-1,3-BUTADIENE	210	-	-	- NA	- NA	- NA	- NA	- NA
UNIDENTIFIED VOC	174	18.6	25.4	- NA	- NA	- NA	- NA	- NA
UNIDENTIFIED HALOGENATED VOC	175	-	1.3	- NA	- NA	- NA	- NA	- NA
TNMHC		249	445	-	-	-	-	-

NA Not Analyzed

Analytical system: HP 5890 GC [C2C3]

FID/PID - Analytical system: HP 5890 GC [C]

HECD - Analytical system: HP 5890 GC [D]

v. Concentration of halogenated compound quantitated from
Flame Ionization Detector response.

VOC AIR CANISTER ANALYSIS
FINAL REPORT

Client: LOS ALAMOS
Units: ug/m³

Radian Workorder #: V309026-01A
Date Sampled: 9-10-93

Site Number:

Sample wide footnotes:

Analytical run FID:

Analytical run HALL:

i,xx

None

i,xx

xx

xx

NA

NA

C

C

C

C

C

NA

NA

C

C

C

C

C

FIELD SAMPLE NUMBER:

A-141

A-142

A-143

A-144

A-145

SAMPLE CONTROL NUMBER:

V309026-01A

V309026-02

V309026-03

V309026-04

V309026-05

DATE SAMPLED:

9-10-93

9-10-93

9-10-93

9-10-93

9-10-93

NELSON FILE NUMBER:

J0092212

J0092214

J0092215

J0092216

J0092217

FID ANALYSIS DATE:

9-23-93

9-23-93

9-23-93

9-23-93

9-23-93

HALL ANALYSIS DATE:

9-23-93

9-23-93

9-23-93

9-23-93

9-23-93

C2C3 ANALYSIS DATE:

9-23-93

9-23-93

9-23-93

9-24-93

9-24-93

CANISTER NUMBER:

840

812

802

789

816

FID DILUTION FACTOR:

0.228954

0.252846

0.247425

0.254839

0.254178

0.000000

0.000000

HALL DILUTION FACTOR:

0.228954

0.252846

0.247425

0.254839

0.254178

0.000000

0.000000

C2C3 DILUTION FACTOR:

0.228954

0.252846

0.247425

0.254839

0.254178

0.000000

0.000000

FID VOLUME:

0.500000

0.500000

0.500000

0.500000

0.500000

0.000000

0.000000

HALL VOLUME:

0.500000

0.500000

0.500000

0.500000

0.500000

0.000000

0.000000

C2C3 VOLUME:

0.622721

0.616790

0.604929

0.593067

0.598998

0.000000

0.000000

Client: LOS ALAMOS

Radian Workorder #: V309026-01A

FIELD SAMPLE NUMBER:		A-141	A-142	A-143	A-144	A-145		
ETHYLENE	193	15.5	0.8	6.4	1.5	4.9	- NA	- NA
ACETYLENE	194	-	-	0.2	-	0.2	- NA	- NA
FREON 23	214	-	-	-	-	-	- NA	- NA
ETHANE	2	8.0	0.8	3.3	1.1	1.7	- NA	- NA
CHLORODIFLUOROMETHANE	195	-	-	-	-	-	- NA	- NA
PROPYLENE	3	12.8	0.7	3.3	1.1	1.1	- NA	- NA
PROPANE	4	1.7	0.2	1.6	0.5	0.4	- NA	- NA
DIMETHYL ETHER	190	-	-	-	-	-	- NA	- NA
CHLOROMETHANE	5	-	-	-	-	-	- NA	- NA
PROPYNE	6	-	-	-	-	-	- NA	- NA
DICHLORODIFLUOROMETHANE	7	-	-	-	-	-	- NA	- NA
FREON 114	215	-	-	-	-	-	- NA	- NA
ISOBUTANE	8	6.1	-	-	-	0.7	- NA	- NA
ACETALDEHYDE	9	-	-	-	-	-	- NA	- NA
VINYL CHLORIDE	10	-	-	-	-	-	- NA	- NA
ISOBUTENE + 1-BUTENE	11	367	6.0	4.2	4.7	4.1	- NA	- NA
1,3-BUTADIENE	12	-	-	-	-	-	- NA	- NA
METHYL MERCAPTAN	13	-	-	-	-	-	- NA	- NA
N-BUTANE	14	-	-	-	-	0.4	- NA	- NA
METHANOL	15	-	-	-	-	10.9	- NA	- NA
BROMOMETHANE	16	-	-	-	-	-	- NA	- NA
T-2-BUTENE	17	0.7	-	-	-	-	- NA	- NA
NEOPENTANE	18	-	-	-	-	-	- NA	- NA
DIMETHYL ACETAL	189	-	-	-	-	-	- NA	- NA
METHYL FORMATE	191	-	-	-	-	-	- NA	- NA
1-BUTYNE	19	-	-	-	-	-	- NA	- NA
1-2-BUTENE	20	-	-	-	-	1.2	- NA	- NA
CHLOROETHANE	21	-	-	-	-	-	- NA	- NA
VINYL BROMIDE	22	-	-	-	-	-	- NA	- NA
3-METHYL-1-BUTENE	23	-	-	-	-	-	- NA	- NA
ETHANOL + ACETONITRILE	233	-	-	-	-	-	- NA	- NA
ISOPENTANE	26	5.5	-	-	0.4	-	- NA	- NA
ACETONE	27	221 g	11.7	128 g	48.4 g	43.2 g	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V309026-01A

FIELD SAMPLE NUMBER:		A-141	A-142	A-143	A-144	A-145		
PROPIONALDEHYDE	28	-	-	-	-	-	- NA	- NA
TRICHLOROFLUOROMETHANE	29	3.3	-	-	-	-	- NA	- NA
2-BUTYNE	30	-	-	-	-	-	- NA	- NA
ETHYL MERCAPTAN	31	-	-	-	-	-	- NA	- NA
1-PENTENE	32	-	-	-	-	-	- NA	- NA
IODOMETHANE	33	-	-	-	-	-	- NA	- NA
2-METHYL-1-BUTENE	34	-	-	-	-	-	- NA	- NA
ACRYLONITRILE	35	-	-	-	-	-	- NA	- NA
N-PENTANE	36	2.1	-	0.8	-	-	- NA	- NA
ISOPRENE	37	-	-	-	-	-	- NA	- NA
DIMETHYLSULFIDE	38	-	-	-	-	-	- NA	- NA
DIETHYL ETHER + 2-PROPANOL	239	-	-	-	-	-	- NA	- NA
T-2-PENTENE	41	0.6	-	0.5	-	-	- NA	- NA
DICHLOROFLUOROMETHANE	196	-	-	-	-	-	- NA	- NA
1,1-DICHLOROETHYLENE	42	-	-	-	-	-	- NA	- NA
C-2-PENTENE	43	-	-	-	-	-	- NA	- NA
METHYLENE CHLORIDE	44	497 v	496 v	761 v	663 v	218 v	- NA	- NA
2-METHYL-2-BUTENE	45	-	-	-	-	-	- NA	- NA
NEOHXANE	46	-	-	-	-	-	- NA	- NA
FREON 113	199	-	0.7	1.1	-	5.0	- NA	- NA
ISOBUTYRALDEHYDE	47	36.0	-	-	-	-	- NA	- NA
CYCLOPENTENE	48	-	-	-	-	-	- NA	- NA
T-1,2-DICHLOROETHYLENE	49	-	-	-	-	-	- NA	- NA
4-METHYL-1-PENTENE	50	-	-	-	-	-	- NA	- NA
1,1-DICHLOROETHANE	51	-	-	-	-	-	- NA	- NA
CYCLOPENTANE	52	-	-	-	-	-	- NA	- NA
1-PROPANOL	53	-	-	-	-	-	- NA	- NA
2,3-DIMETHYLBUTANE	54	7.3	-	-	-	-	- NA	- NA
MTBE + ISOHEX + C-4-M-2-PENTENE	232	56.4	1.4	1.1	1.0	1.3	- NA	- NA
VINYL ACETATE	203	-	-	-	-	-	- NA	- NA
BUTYRALDEHYDE	58	10.7	1.9	4.5	1.9	-	- NA	- NA
T-4-METHYL-2-PENTENE	59	-	-	-	-	-	- NA	- NA
CHLOROPRENE	192	-	-	-	-	-	- NA	- NA
2-BUTANONE	60	1.9	-	4.0	0.9	-	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V309026-01A

FIELD SAMPLE NUMBER:		A-141	A-142	A-143	A-144	A-145		
3-METHYLPENTANE	61	3.2	-	-	-	-	- NA	- NA
1-HEXENE	62	6.0	-	-	-	-	- NA	- NA
2-METHYL-1-PENTENE	63	-	-	-	-	-	- NA	- NA
BROMOCHLOROMETHANE	212	-	-	-	-	-	- NA	- NA
C-1,2-DICHLOROETHYLENE	64	-	-	-	-	-	- NA	- NA
2-ETHYL-1-BUTENE	65	-	-	-	-	-	- NA	- NA
N-HEXANE	66	7.0	-	-	-	-	- NA	- NA
METHYL ACRYLATE	204	-	-	-	-	-	- NA	- NA
CHLOROFORM	67	-	-	-	-	-	- NA	- NA
C-3-HEXENE	68	-	-	-	-	-	- NA	- NA
T-2-HEXENE	69	-	-	-	-	-	- NA	- NA
2-METHYL-2-PENTENE	70	-	-	-	-	-	- NA	- NA
C-2-HEXENE	71	-	-	-	-	-	- NA	- NA
C-3-METHYL-2-PENTENE	72	-	-	-	-	-	- NA	- NA
METHYLCYCLOPENTANE	73	0.7	-	-	-	-	- NA	- NA
1,2-DICHLOROETHANE	74	-	-	-	-	-	- NA	- NA
2,4-DIMETHYLPENTANE	75	0.6	-	-	-	-	- NA	- NA
1,1,1-TRICHLOROETHANE	76	7.1	-	-	-	-	- NA	- NA
2-METHYL-1,3-DIOXOLANE	188	-	-	-	-	-	- NA	- NA
ISOVALERALDEHYDE	77	0.7	-	-	-	-	- NA	- NA
METHYLCYCLOPENTENE	78	-	-	-	-	-	- NA	- NA
BENZENE	79	4.2	1.1	4.0	1.8	2.1	- NA	- NA
CARBON TETRACHLORIDE	80	-	-	-	-	-	- NA	- NA
1-BUTANOL + CYCLOHEXANE	238	9.4	20.7	2.2	11.3	4.8	- NA	- NA
THIOPHENE	82	-	-	-	-	-	- NA	- NA
ISOHEPTANE + 2,3-DIMETHYLPENTANE	84	2.8	-	-	-	-	- NA	- NA
2-PENTANONE	85	-	-	-	-	-	- NA	- NA
CYCLOHEXENE	86	-	-	-	-	-	- NA	- NA
3-METHYLHEXANE	87	0.9	-	1.5	1.9	-	- NA	- NA
VALERALDEHYDE	88	-	-	-	-	-	- NA	- NA
1,2-DICHLOROPROPANE	89	-	-	-	-	-	- NA	- NA
3-PENTANONE	90	-	-	-	-	-	- NA	- NA
TRICHLOROETHYLENE + BDCMETHANE	235	1.4	-	2.8	-	-	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V309026-01A

FIELD SAMPLE NUMBER:		A-141	A-142	A-143	A-144	A-145		
1-HEPTENE	93	-	-	-	-	-	- NA	- NA
1,4-DIOXANE + 2,2,4-TRIPENTANE	234	1.5 hh	-	-	-	-	- NA	- NA
N-HEPTANE	95	3.5	1.1	3.5	2.2	1.0	- NA	- NA
N-BUTYL MERCAPTAN	96	-	-	-	-	-	- NA	- NA
T-3-HEPTENE	97	-	-	-	-	-	- NA	- NA
BISCHLOROMETHYL ETHER	98	-	-	-	-	-	- NA	- NA
C-3-HEPTENE	99	-	-	-	-	-	- NA	- NA
T-2-HEPTENE	100	-	-	-	-	-	- NA	- NA
2,4,4-TRIMETHYL-1-PENTENE	101	-	-	-	-	-	- NA	- NA
C-1,3-DICHLOROPROPENE	102	-	-	-	-	-	- NA	- NA
METHYLCYCLOHEXANE	103	-	-	-	-	-	- NA	- NA
METHYLISOBUTYLKETONE	104	2.8	-	-	-	-	- NA	- NA
2,4,4-TRIMETHYL-2-PENTENE	105	-	-	-	-	-	- NA	- NA
2,5-DIMETHYLHEXANE	106	7.8	-	-	-	-	- NA	- NA
2,2,3-TRIMETHYLPENTANE	107	4.1	-	-	-	-	- NA	- NA
T-1,3-DICHLOROPROPENE	108	-	-	-	-	-	- NA	- NA
1,1,2-TRICHLOROETHANE	109	-	-	-	-	-	- NA	- NA
2,3,4-TRIMETHYLPENTANE	110	4.4	-	-	-	-	- NA	- NA
TOLUENE	111	8.5	2.0	5.8	1.5	4.2	- NA	- NA
2-METHYLTHIOPHENE	112	-	-	-	-	-	- NA	- NA
3-METHYLTHIOPHENE	113	-	-	-	-	-	- NA	- NA
1-METHYLCYCLOHEXENE	114	-	-	-	-	-	- NA	- NA
3,5,5-TRIMETHYL-1-HEXENE	115	-	-	-	-	-	- NA	- NA
DIBROMOCHLOROMETHANE	116	-	-	-	-	-	- NA	- NA
3-METHYLHEPTANE	117	3.8	-	-	-	-	- NA	- NA
HEXANAL	118	1.7	0.7	1.6	1.7	0.7	- NA	- NA
1,2-DIBROMOETHANE	119	-	-	-	-	-	- NA	- NA
2-CHLOROETHYL VINYL ETHER	120	-	-	-	-	-	- NA	- NA
2,2,5-TRIMETHYLHEXANE	121	2.0	-	-	-	-	- NA	- NA
1-OCTENE	122	-	-	-	-	-	- NA	- NA
TETRAHYDROTHIOPHENE	123	-	-	-	-	-	- NA	- NA
N-OCTANE	124	8.3	-	0.6	-	-	- NA	- NA
TETRACHLOROETHYLENE	125	7.9	8.7	23.2	19.7	1.9	- NA	- NA
C-2-OCTENE	126	-	-	-	-	-	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V309026-01A

FIELD SAMPLE NUMBER:		A-141	A-142	A-143	A-144	A-145		
ISOPENTYL MERCAPTAN	127	-	-	-	-	-	- NA	- NA
CHLOROBENZENE	128	-	-	-	-	-	- NA	- NA
ETHYLBENZENE	129	0.7	-	-	-	-	- NA	- NA
2,5-DIMETHYLTHIOPHENE	130	-	-	-	-	-	- NA	- NA
P-XYLENE + M-XYLENE	131	2.2	0.7	0.7	-	-	- NA	- NA
BROMOFORM	132	-	-	-	-	-	- NA	- NA
CYCLOHEXANONE	133	75.0	-	1.2	0.7	0.7	- NA	- NA
BUTYL ACRYLATE	205	-	-	-	-	-	- NA	- NA
STYRENE	134	20.5	-	-	-	-	- NA	- NA
HEPTANAL	135	33.3	0.5	0.6	1.4	-	- NA	- NA
1,1,2,2-TETRACHLOROETHANE	136	-	-	-	-	-	- NA	- NA
O-XYLENE	137	9.6	-	3.1	-	2.8	- NA	- NA
1-NONENE	138	43.8	-	-	-	-	- NA	- NA
N-NONANE	139	53.5	-	-	-	-	- NA	- NA
4-NONENE	140	-	-	-	-	-	- NA	- NA
ISOPROPYLBENZENE	141	71.3	-	-	-	-	- NA	- NA
A-PINENE + BENZALDEHYDE	236	80.9	2.6	27.9	18.9	1.6	- NA	- NA
O-CHLOROTOLUENE	144	-	-	-	-	-	- NA	- NA
M-CHLOROTOLUENE	145	-	-	-	-	-	- NA	- NA
N-PROPYLBENZENE	146	1.4	-	-	-	-	- NA	- NA
P-CHLOROTOLUENE	147	-	-	-	-	-	- NA	- NA
M-ETHYLTOLUENE	148	7.1	0.5	2.5	4.4	-	- NA	- NA
BISCHLOROETHYL ETHER	149	-	-	-	-	-	- NA	- NA
P-ETHYLTOLUENE	150	32.7	-	-	-	-	- NA	- NA
1,3,5-TRIMETHYLBENZENE	151	4.9	-	-	-	-	- NA	- NA
O-ETHYLTOLUENE	152	3.1	-	-	-	-	- NA	- NA
3-OCTANONE	207	-	-	-	-	-	- NA	NA
α-PINENE	153	72.7	-	14.5	1.6	-	- NA	- NA
1-DECENE	154	-	-	-	-	-	- NA	- NA
1,2,4-TMBENZENE + T-BUTYLBENZENE	237	-	-	0.7	-	-	- NA	- NA
BENZYL CHLORIDE + M-DCBENZENE	230	-	-	-	-	-	- NA	- NA
ISOBUTYLBENZENE	158	-	-	-	-	-	- NA	- NA
N-DECANE + P-DICHLOROBENZENE	231	97.8	0.9	1.6	-	1.1	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V309026-01A

FIELD SAMPLE NUMBER:		A-141	A-142	A-143	A-144	A-145		
1,2,3-TRIMETHYLBENZENE	161	32.0	3.4	12.4	3.8	1.7	- NA	- NA
P-ISOPROPYLTOLUENE	162	39.8	1.3	12.8	3.6	0.8	- NA	- NA
O-DICHLOROBENZENE	163	-	-	-	-	-	- NA	- NA
LIMONENE	164	44.0	0.7	0.9	0.6	-	- NA	- NA
INDAN	165	40.3	-	-	-	-	- NA	- NA
INDENE	166	9.1	-	-	-	-	- NA	- NA
M-DIETHYLBENZENE	167	-	-	-	-	-	- NA	- NA
N-BUTYLBENZENE	168	36.3	1.0	2.6	0.5	1.5	- NA	- NA
P-DIETHYLBENZENE	169	1.5	-	-	-	-	- NA	- NA
1-UNDECENE	170	-	-	-	-	-	- NA	- NA
N-UNDECANE	171	6.9	0.7	1.2	0.7	0.8	- NA	- NA
DICHLOROTOLUENE	172	-	-	-	-	-	- NA	- NA
NAPHTHALENE	173	3.5	-	-	-	0.4	- NA	- NA
1,2,4-TRICHLOROBENZENE	220	11.9	-	-	-	-	- NA	- NA
HEXACHLORO-1,3-BUTADIENE	210	43.6	-	-	-	-	- NA	- NA
UNIDENTIFIED VOC	174	1390	38.4	207	177	23.7	- NA	- NA
UNIDENTIFIED HALOGENATED VOC	175	-	-	-	-	-	- NA	- NA
TNMHC		2920	177	560	391	136	-	-

NA Not Analyzed

Analytical system: HP 5890 GC [C2C3]

Analytical system: HP 5890 GC [C]

g. Quantitation biased due to interference peak or electronic spike.

hh. Quantitation biased due to coelution with halogenated compound.

i. Detection limits are increased.

v. Concentration of halogenated compound quantitated from Flame Ionization Detector response.

xx. Refer to attached document for additional information.

VOC AIR CANISTER ANALYSIS
FINAL REPORT

Client: LOS ALAMOS
Units: ug/m3

Radian Workorder #: V309026-01A
Date Sampled: 9-10-93

Site Number:							
Sample wide footnotes:	i,xx	i,xx,o					
Analytical run FID:	C	C	NA	NA	NA	NA	NA
Analytical run HALL:	C	C	NA	NA	NA	NA	NA
FIELD SAMPLE NUMBER:	A-141	A-141					
SAMPLE CONTROL NUMBER:	V309026-01A	V309026-01B					
DATE SAMPLED:	9-10-93	9-10-93					
NELSON FILE NUMBER:	J0092212	J0092213					
FID ANALYSIS DATE:	9-23-93	9-23-93					
HALL ANALYSIS DATE:	9-23-93	9-23-93					
C2C3 ANALYSIS DATE:	9-23-93	9-23-93					
CANISTER NUMBER:	840	840					
FID DILUTION FACTOR:	0.228954	0.228954	0.000000	0.000000	0.000000	0.000000	0.000000
HALL DILUTION FACTOR:	0.228954	0.228954	0.000000	0.000000	0.000000	0.000000	0.000000
C2C3 DILUTION FACTOR:	0.228954	0.228954	0.000000	0.000000	0.000000	0.000000	0.000000
FID VOLUME:	0.500000	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000
HALL VOLUME:	0.500000	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000
C2C3 VOLUME:	0.622721	0.729473	0.000000	0.000000	0.000000	0.000000	0.000000

Client: LOS ALAMOS

Radian Workorder #: V309026-01A

FIELD SAMPLE NUMBER:		A-141	A-141					
ETHYLENE	193	15.5	15.4	- NA	- NA	- NA	- NA	- NA
ACETYLENE	194	-	-	- NA	- NA	- NA	- NA	- NA
FREON 23	214	-	-	- NA	- NA	- NA	- NA	- NA
ETHANE	2	8.0	7.9	- NA	- NA	- NA	- NA	- NA
CHLORODIFLUOROMETHANE	195	-	-	- NA	- NA	- NA	- NA	- NA
PROPYLENE	3	12.8	12.8	- NA	- NA	- NA	- NA	- NA
PROPANE	4	1.7	1.6	- NA	- NA	- NA	- NA	- NA
DIMETHYL ETHER	190	-	-	- NA	- NA	- NA	- NA	- NA
CHLOROMETHANE	5	-	-	- NA	- NA	- NA	- NA	- NA
PROPYNE	6	-	-	- NA	- NA	- NA	- NA	- NA
DICHLORODIFLUOROMETHANE	7	-	-	- NA	- NA	- NA	- NA	- NA
FREON 114	215	-	-	- NA	- NA	- NA	- NA	- NA
ISOBUTANE	8	6.1	5.8	- NA	- NA	- NA	- NA	- NA
ACETALDEHYDE	9	-	-	- NA	- NA	- NA	- NA	- NA
VINYL CHLORIDE	10	-	-	- NA	- NA	- NA	- NA	- NA
ISOBUTENE + 1-BUTENE	11	367	318	- NA	- NA	- NA	- NA	- NA
1,3-BUTADIENE	12	-	-	- NA	- NA	- NA	- NA	- NA
METHYL MERCAPTAN	13	-	-	- NA	- NA	- NA	- NA	- NA
N-BUTANE	14	-	-	- NA	- NA	- NA	- NA	- NA
METHANOL	15	-	-	- NA	- NA	- NA	- NA	- NA
BROMOMETHANE	16	-	-	- NA	- NA	- NA	- NA	- NA
1-2-BUTENE	17	0.7	0.7	- NA	- NA	- NA	- NA	- NA
NEOPENTANE	18	-	-	- NA	- NA	- NA	- NA	- NA
DIMETHYL ACETAL	189	-	-	- NA	- NA	- NA	- NA	- NA
METHYL FORMATE	191	-	-	- NA	- NA	- NA	- NA	- NA
1-BUTYNE	19	-	-	- NA	- NA	- NA	- NA	- NA
C-2-BUTENE	20	-	-	- NA	- NA	- NA	- NA	- NA
CHLOROETHANE	21	-	-	- NA	- NA	- NA	- NA	- NA
VINYL BROMIDE	22	-	-	- NA	- NA	- NA	- NA	- NA
3-METHYL-1-BUTENE	23	-	-	- NA	- NA	- NA	- NA	- NA
ETHANOL + ACETONITRILE	233	-	-	- NA	- NA	- NA	- NA	- NA
ISOPENTANE	26	5.5	4.9	- NA	- NA	- NA	- NA	- NA
ACETONE	27	221 g	198 g	- NA	- NA	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V309026-01A

FIELD SAMPLE NUMBER:		A-141	A-141					
PROPIONALDEHYDE	28	-	-	- NA	- NA	- NA	- NA	- NA
TRICHLOROFLUOROMETHANE	29	3.3	3.2	- NA	- NA	- NA	- NA	- NA
2-BUTYNE	30	-	-	- NA	- NA	- NA	- NA	- NA
ETHYL MERCAPTAN	31	-	-	- NA	- NA	- NA	- NA	- NA
1-PENTENE	32	-	-	- NA	- NA	- NA	- NA	- NA
IODOMETHANE	33	-	-	- NA	- NA	- NA	- NA	- NA
2-METHYL-1-BUTENE	34	-	-	- NA	- NA	- NA	- NA	- NA
ACRYLONITRILE	35	-	-	- NA	- NA	- NA	- NA	- NA
N-PENTANE	36	2.1	1.9	- NA	- NA	- NA	- NA	- NA
ISOPRENE	37	-	-	- NA	- NA	- NA	- NA	- NA
DIMETHYLSULFIDE	38	-	-	- NA	- NA	- NA	- NA	- NA
DIETHYL ETHER + 2-PROPANOL	239	-	-	- NA	- NA	- NA	- NA	- NA
T-2-PENTENE	41	0.6	0.6	- NA	- NA	- NA	- NA	- NA
DICHLOROFLUOROMETHANE	196	-	-	- NA	- NA	- NA	- NA	- NA
1,1-DICHLOROETHYLENE	42	-	-	- NA	- NA	- NA	- NA	- NA
C-2-PENTENE	43	-	-	- NA	- NA	- NA	- NA	- NA
METHYLENE CHLORIDE	44	497 v	500 v	- NA	- NA	- NA	- NA	- NA
2-METHYL-2-BUTENE	45	-	-	- NA	- NA	- NA	- NA	- NA
NEOHXANE	46	-	-	- NA	- NA	- NA	- NA	- NA
FREON 113	199	-	-	- NA	- NA	- NA	- NA	- NA
ISOBUTYRALDEHYDE	47	36.0	31.5	- NA	- NA	- NA	- NA	- NA
CYCLOPENTENE	48	-	-	- NA	- NA	- NA	- NA	- NA
T-1,2-DICHLOROETHYLENE	49	-	-	- NA	- NA	- NA	- NA	- NA
4-METHYL-1-PENTENE	50	-	-	- NA	- NA	- NA	- NA	- NA
1,1-DICHLOROETHANE	51	-	-	- NA	- NA	- NA	- NA	- NA
CYCLOPENTANE	52	-	-	- NA	- NA	- NA	- NA	- NA
1-PROPANOL	53	-	-	- NA	NA	- NA	- NA	- NA
2,3-DIMETHYLBUTANE	54	7.3	7.2	- NA	- NA	- NA	- NA	- NA
MTBE + ISOHEX + C-4-M-2-PENTENE	232	56.4	56.7	- NA	- NA	- NA	- NA	- NA
VINYL ACETATE	203	-	-	- NA	- NA	- NA	- NA	- NA
BUTYRALDEHYDE	58	10.7	7.2	- NA	- NA	- NA	- NA	- NA
T-4-METHYL-2-PENTENE	59	-	-	- NA	- NA	- NA	- NA	- NA
CHLOROPRENE	192	-	-	- NA	- NA	- NA	- NA	- NA
2-BUTANONE	60	1.9	7.6 g	- NA	- NA	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V309026-01A

FIELD SAMPLE NUMBER:		A-141	A-141					
3-METHYLPENTANE	61	3.2	1.9	- NA	- NA	- NA	- NA	- NA
1-HEXENE	62	6.0	- f	- NA	- NA	- NA	- NA	- NA
2-METHYL-1-PENTENE	63	-	-	- NA	- NA	- NA	- NA	- NA
BROMOCHLOROMETHANE	212	-	-	- NA	- NA	- NA	- NA	- NA
C-1,2-DICHLOROETHYLENE	64	-	-	- NA	- NA	- NA	- NA	- NA
2-ETHYL-1-BUTENE	65	-	-	- NA	- NA	- NA	- NA	- NA
N-HEXANE	66	7.0	7.1	- NA	- NA	- NA	- NA	- NA
METHYL ACRYLATE	204	-	-	- NA	- NA	- NA	- NA	- NA
CHLOROFORM	67	-	-	- NA	- NA	- NA	- NA	- NA
C-3-HEXENE	68	-	-	- NA	- NA	- NA	- NA	- NA
T-2-HEXENE	69	-	-	- NA	- NA	- NA	- NA	- NA
2-METHYL-2-PENTENE	70	-	-	- NA	- NA	- NA	- NA	- NA
C-2-HEXENE	71	-	-	- NA	- NA	- NA	- NA	- NA
C-3-METHYL-2-PENTENE	72	-	-	- NA	- NA	- NA	- NA	- NA
METHYLCYCLOPENTANE	73	0.7	0.8	- NA	- NA	- NA	- NA	- NA
1,2-DICHLOROETHANE	74	-	-	- NA	- NA	- NA	- NA	- NA
2,4-DIMETHYLPENTANE	75	0.6	0.6	- NA	- NA	- NA	- NA	- NA
1,1,1-TRICHLOROETHANE	76	7.1	7.1	- NA	- NA	- NA	- NA	- NA
2-METHYL-1,3-DIOXOLANE	188	-	-	- NA	- NA	- NA	- NA	- NA
ISOVALERALDEHYDE	77	0.7	0.6	- NA	- NA	- NA	- NA	- NA
METHYLCYCLOPENTENE	78	-	-	- NA	- NA	- NA	- NA	- NA
BENZENE	79	4.2	4.3	- NA	- NA	- NA	- NA	- NA
CARBON TETRACHLORIDE	80	-	-	- NA	- NA	- NA	- NA	- NA
1-BUTANOL + CYCLOHEXANE	238	9.4	3.5	- NA	- NA	- NA	- NA	- NA
THIOPHENE	82	-	-	- NA	- NA	- NA	- NA	- NA
ISOHEPTANE + 2,3-DIMETHYLPENTANE	84	2.8	2.8	- NA	- NA	- NA	- NA	- NA
2-PENTANONE	85	-	-	- NA	- NA	- NA	- NA	- NA
CYCLOHEXENE	86	-	-	- NA	- NA	- NA	- NA	- NA
3-METHYLHEXANE	87	0.9	1.4	- NA	- NA	- NA	- NA	- NA
VALERALDEHYDE	88	-	-	- NA	- NA	- NA	- NA	- NA
1,2-DICHLOROPROPANE	89	-	-	- NA	- NA	- NA	- NA	- NA
3-PENTANONE	90	-	-	- NA	- NA	- NA	- NA	- NA
TRICHLOROETHYLENE + BDCMETHANE	235	1.4	1.5	- NA	- NA	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V309026-01A

FIELD SAMPLE NUMBER:		A-141	A-141					
1-HEPTENE	93	-	-	- NA	- NA	- NA	- NA	- NA
1,4-DIOXANE + 2,2,4-IMPENTANE	234	1.5 hh	1.6 hh	- NA	- NA	- NA	- NA	- NA
N-HEPTANE	95	3.5	3.7	- NA	- NA	- NA	- NA	- NA
N-BUTYL MERCAPTAN	96	-	-	- NA	- NA	- NA	- NA	- NA
T-3-HEPTENE	97	-	-	- NA	- NA	- NA	- NA	- NA
BISCHLOROMETHYL ETHER	98	-	-	- NA	- NA	- NA	- NA	- NA
C-3-HEPTENE	99	-	-	- NA	- NA	- NA	- NA	- NA
T-2-HEPTENE	100	-	-	- NA	- NA	- NA	- NA	- NA
2,4,4-TRIMETHYL-1-PENTENE	101	-	-	- NA	- NA	- NA	- NA	- NA
C-1,3-DICHLOROPROPENE	102	-	-	- NA	- NA	- NA	- NA	- NA
METHYLCYCLOHEXANE	103	-	-	- NA	- NA	- NA	- NA	- NA
METHYLISOBUTYLKETONE	104	2.8	2.3	- NA	- NA	- NA	- NA	- NA
2,4,4-TRIMETHYL-2-PENTENE	105	-	-	- NA	- NA	- NA	- NA	- NA
2,5-DIMETHYLHEXANE	106	7.8	8.0	- NA	- NA	- NA	- NA	- NA
2,2,3-TRIMETHYLPENTANE	107	4.1	4.2	- NA	- NA	- NA	- NA	- NA
T-1,3-DICHLOROPROPENE	108	-	-	- NA	- NA	- NA	- NA	- NA
1,1,2-TRICHLOROETHANE	109	-	-	- NA	- NA	- NA	- NA	- NA
2,3,4-TRIMETHYLPENTANE	110	4.4	5.1	- NA	- NA	- NA	- NA	- NA
TOLUENE	111	8.5	8.2	- NA	- NA	- NA	- NA	- NA
2-METHYLTHIOPHENE	112	-	-	- NA	- NA	- NA	- NA	- NA
3-METHYLTHIOPHENE	113	-	-	- NA	- NA	- NA	- NA	- NA
1-METHYLCYCLOHEXENE	114	-	-	- NA	- NA	- NA	- NA	- NA
3,5,5-TRIMETHYL-1-HEXENE	115	-	-	- NA	- NA	- NA	- NA	- NA
DIBROMOCHLOROMETHANE	116	-	-	- NA	- NA	- NA	- NA	- NA
3-METHYLHEPTANE	117	3.8	3.9	- NA	- NA	- NA	- NA	- NA
HEXANAL	118	1.7	1.7	- NA	- NA	- NA	- NA	- NA
1,2-DIBROMOETHANE	119	-	-	- NA	- NA	- NA	- NA	- NA
2-CHLOROETHYL VINYL ETHER	120	-	-	- NA	- NA	- NA	- NA	- NA
2,2,5-TRIMETHYLHEXANE	121	2.0	2.1	- NA	- NA	- NA	- NA	- NA
1-OCTENE	122	-	-	- NA	- NA	- NA	- NA	- NA
TETRAHYDROTHIOPHENE	123	-	-	- NA	- NA	- NA	- NA	- NA
N-OCTANE	124	8.3	8.3	- NA	- NA	- NA	- NA	- NA
TETRACHLOROETHYLENE	125	7.9	7.8	- NA	- NA	- NA	- NA	- NA
C-2-OCTENE	126	-	-	- NA	- NA	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V309026-01A

FIELD SAMPLE NUMBER:		A-141	A-141					
ISOPENTYL MERCAPTAN	127	-	-	- NA	- NA	- NA	- NA	- NA
CHLOROBENZENE	128	-	-	- NA	- NA	- NA	- NA	- NA
ETHYLBENZENE	129	0.7	0.8	- NA	- NA	- NA	- NA	- NA
2,5-DIMETHYLTHIOPHENE	130	-	-	- NA	- NA	- NA	- NA	- NA
P-XYLENE + M-XYLENE	131	2.2	2.5	- NA	- NA	- NA	- NA	- NA
BROMOFORM	132	-	-	- NA	- NA	- NA	- NA	- NA
CYCLOHEXANONE	133	75.0	75.8	- NA	- NA	- NA	- NA	- NA
BUTYL ACRYLATE	205	-	-	- NA	- NA	- NA	- NA	- NA
STYRENE	134	20.5	20.3	- NA	- NA	- NA	- NA	- NA
HEPTANAL	135	33.3	33.2	- NA	- NA	- NA	- NA	- NA
1,1,2,2-TETRACHLOROETHANE	136	-	-	- NA	- NA	- NA	- NA	- NA
O-XYLENE	137	9.6	9.6	- NA	- NA	- NA	- NA	- NA
1-NONENE	138	43.8	43.7	- NA	- NA	- NA	- NA	- NA
N-NONANE	139	53.5	53.4	- NA	- NA	- NA	- NA	- NA
4-NONENE	140	-	-	- NA	- NA	- NA	- NA	- NA
ISOPROPYLBENZENE	141	71.3	71.4	- NA	- NA	- NA	- NA	- NA
A-PINENE + BENZALDEHYDE	236	80.9	79.2	- NA	- NA	- NA	- NA	- NA
O-CHLOROTOLUENE	144	-	-	- NA	- NA	- NA	- NA	- NA
M-CHLOROTOLUENE	145	-	-	- NA	- NA	- NA	- NA	- NA
N-PROPYLBENZENE	146	1.4	1.1	- NA	- NA	- NA	- NA	- NA
P-CHLOROTOLUENE	147	-	-	- NA	- NA	- NA	- NA	- NA
M-ETHYLTOLUENE	148	7.1	6.9	- NA	- NA	- NA	- NA	- NA
BISCHLOROETHYL ETHER	149	-	-	- NA	- NA	- NA	- NA	- NA
P-ETHYLTOLUENE	150	32.7	32.1	- NA	- NA	- NA	- NA	- NA
1,3,5-TRIMETHYLBENZENE	151	4.9	5.3	- NA	- NA	- NA	- NA	- NA
O-ETHYLTOLUENE	152	3.1	3.1	- NA	- NA	- NA	- NA	- NA
3-OCTANONE	202	-	-	- NA	- NA	- NA	- NA	- NA
B-PINENE	153	22.7	22.6	- NA	- NA	- NA	- NA	- NA
1-DECENE	154	-	-	- NA	- NA	- NA	- NA	- NA
1,2,4-TMBENZENE + T-BUTYLBENZENE	237	-	2.5	- NA	- NA	- NA	- NA	- NA
BENZYL CHLORIDE + M-DCBENZENE	230	-	-	- NA	- NA	- NA	- NA	- NA
ISOBUTYLBENZENE	158	-	-	- NA	- NA	- NA	- NA	- NA
N-DECANE + P-DICHLOROBENZENE	231	97.8	120	- NA	- NA	- NA	- NA	- NA

Client: LOS ALAMOS

Radian Workorder #: V309026-01A

FIELD SAMPLE NUMBER:		A-141	A-141					
1,2,3-TRIMETHYLBENZENE	161	32.0	28.8	- NA	- NA	- NA	- NA	- NA
P-ISOPROPYLTOLUENE	162	39.8	41.9	- NA	- NA	- NA	- NA	- NA
O-DICHLOROBENZENE	163	-	-	- NA	- NA	- NA	- NA	- NA
LIMONENE	164	44.0	42.8	- NA	- NA	- NA	- NA	- NA
INDAN	165	40.3	40.2	- NA	- NA	- NA	- NA	- NA
INDENE	166	9.1	9.2	- NA	- NA	- NA	- NA	- NA
M-DIETHYLBENZENE	167	-	-	- NA	- NA	- NA	- NA	- NA
N-BUTYLBENZENE	168	36.3	36.0	- NA	- NA	- NA	- NA	- NA
P-DIETHYLBENZENE	169	1.5	1.4	- NA	- NA	- NA	- NA	- NA
1-UNDECENE	170	-	-	- NA	- NA	- NA	- NA	- NA
N-UNDECANE	171	6.9	6.3	- NA	- NA	- NA	- NA	- NA
DICHLOROTOLUENE	172	-	-	- NA	- NA	- NA	- NA	- NA
NAPHTHALENE	173	3.5	2.4	- NA	- NA	- NA	- NA	- NA
1,2,4-TRICHLOROBENZENE	220	11.9	11.2	- NA	- NA	- NA	- NA	- NA
HEXACHLORO-1,3-BUTADIENE	210	43.6	38.9	- NA	- NA	- NA	- NA	- NA
UNIDENTIFIED VOC	174	1390	1390	- NA	- NA	- NA	- NA	- NA
UNIDENTIFIED HALOGENATED VOC	175	-	-	- NA	- NA	- NA	- NA	- NA
TNMHC		2920	2870	-	-	-	-	-

NA Not Analyzed

Analytical system: HP 5890 GC [C2C3]

Analytical system: HP 5890 GC [C]

f. Quantitation not available due to interference peak or electronic spike.

g. Quantitation biased due to interference peak or electronic spike.

hh. Quantitation biased due to coelution with halogenated compound.

i. Detection limits are increased.

o. Laboratory duplicate of V309026-01A

v. Concentration of halogenated compound quantitated from Flame Ionization Detector response.

xx. Refer to attached document for additional information.

Appendix D

Laboratory Report for 1994 VOC Analyses

(units of $\mu\text{g}/\text{m}^3$)

Radian Workorder #: 9406300-01A
Date Sampled: 6-2-94

Site Number:	None	d	None	xx	None		
Sample wide footnotes:							
Analytical run FID:	C	C	C	C	C	NA	NA
Analytical run HALL:	C	D	C	C	C	NA	NA
FIELD SAMPLE NUMBER:	A301	A303	A304	A305	A306		
SAMPLE CONTROL NUMBER:	9406300-01A	9406300-03	9406300-04	9406300-05	9406300-06		
DATE SAMPLED:	6-2-94	6-2-94	6-2-94	6-2-94	6-2-94		
NELSON FILE NUMBER:	J006158	J006156	J006157	J006154	J006155		
FID ANALYSIS DATE:	6-15-94	6-15-94	6-15-94	6-15-94	6-15-94		
HALL ANALYSIS DATE:	6-15-94	6-27-94	6-15-94	6-15-94	6-15-94		
C2C3 ANALYSIS DATE:	6-9-94	6-9-94	6-9-94	6-9-94	6-9-94		
CANISTER NUMBER:	886	884	901	984	892		
FID DILUTION FACTOR:	0.288410	0.287534	0.279404	0.282114	0.282114	0.000000	0.000000
HALL DILUTION FACTOR:	0.288410	0.287534	0.279404	0.282114	0.282114	0.000000	0.000000
C2C3 DILUTION FACTOR:	0.288410	0.287534	0.279404	0.282114	0.282114	0.000000	0.000000
FID VOLUME:	0.500000	0.500000	0.500000	0.500000	0.500000	0.000000	0.000000
HALL VOLUME:	0.500000	0.500000	0.500000	0.500000	0.500000	0.000000	0.000000
C2C3 VOLUME:	0.500000	0.500000	0.500000	0.500000	0.500000	0.000000	0.000000

Client: LOS ALAMOS

Radian Workorder #: 9406300-01A

FIELD SAMPLE NUMBER:		A301	A303	A304	A305	A306		
ETHYLENE	193	1.2	1.9	1.1	2.2	1.3	NA	NA
ACETYLENE	194	ND	ND	ND	ND	ND	NA	NA
FREON 23	214	ND	ND	ND	ND	ND	NA	NA
ETHANE	2	0.6	1.2	0.6	0.8	0.6	NA	NA
CHLORODIFLUOROMETHANE	195	ND	ND	ND	ND	ND	NA	NA
PROPYLENE	3	1.2	1.1	1.0	1.1	1.3	NA	NA
PROPANE	4	0.7	1.0	0.3	0.7	0.3	NA	NA
DIMETHYL ETHER	190	ND	ND	ND	ND	ND	NA	NA
CHLOROMETHANE	5	1.2	6.1	1.1	1.6	2.3	NA	NA
PROPYNE	6	ND	ND	ND	ND	ND	NA	NA
DICHLORODIFLUOROMETHANE	7	ND	8.8	ND	ND	ND	NA	NA
FREON 114	215	ND	ND	ND	ND	ND	NA	NA
ISOBUTANE	8	ND	65.1	ND	ND	ND	NA	NA
ACETALDEHYDE	9	ND	ND	ND	ND	ND	NA	NA
VINYL CHLORIDE	10	ND	ND	ND	ND	ND	NA	NA
ISOBUTENE + 1-BUTENE	11	ND	0.6	0.8	0.8	0.9	NA	NA
1,3-BUTADIENE	12	ND	ND	ND	ND	ND	NA	NA
METHYL MERCAPTAN	13	ND	ND	ND	ND	ND	NA	NA
N-BUTANE	14	ND	3.0	ND	ND	ND	NA	NA
METHANOL	15	ND	ND	ND	ND	ND	NA	NA
BROMOMETHANE	16	ND	ND	ND	ND	ND	NA	NA
T-2-BUTENE	17	ND	ND	ND	ND	ND	NA	NA
NEOPENTANE	18	ND	ND	ND	ND	ND	NA	NA
DIMETHYL ACETAL	189	ND	ND	ND	ND	ND	NA	NA
METHYL FORMATE	191	ND	ND	ND	ND	ND	NA	NA
1-BUTYNE	19	ND	ND	ND	ND	ND	NA	NA
C-2-BUTENE	20	ND	ND	ND	ND	ND	NA	NA
CHLOROETHANE	21	ND	ND	ND	ND	ND	NA	NA
VINYL BROMIDE	22	ND	ND	ND	ND	ND	NA	NA
3-METHYL-1-BUTENE	23	ND	ND	ND	ND	ND	NA	NA
ETHANOL + ACETONITRILE	233	ND	ND	ND	ND	ND	NA	NA
ISOPENTANE	26	1.6	169	ND	ND	ND	NA	NA
ACETONE	27	5.2	ND	11.5	5.0 g	1.6	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406300-01A

FIELD SAMPLE NUMBER:		A301	A303	A304	A305	A306		
PROPIONALDEHYDE	28	ND	ND	ND	ND	ND	NA	NA
TRICHLOROFLUOROMETHANE	29	0.8	1.0	ND	ND	ND	NA	NA
2-BUTYNE	30	ND	ND	ND	ND	ND	NA	NA
ETHYL MERCAPTAN	31	ND	ND	ND	ND	ND	NA	NA
1-PENTENE	32	ND	ND	ND	ND	ND	NA	NA
IODOMETHANE	33	ND	ND	ND	ND	ND	NA	NA
2-METHYL-1-BUTENE	34	ND	ND	ND	ND	ND	NA	NA
ACRYLONITRILE	35	ND	ND	ND	ND	ND	NA	NA
N-PENTANE	36	ND	19.0	0.6	0.5	ND	NA	NA
ISOPRENE	37	ND	ND	ND	ND	ND	NA	NA
DIMETHYLSULFIDE	38	ND	ND	ND	ND	ND	NA	NA
DIETHYL ETHER + 2-PROPANOL	239	ND	ND	ND	ND	ND	NA	NA
T-2-PENTENE	41	ND	ND	ND	ND	ND	NA	NA
DICHLOROFLUOROMETHANE	196	ND	ND	ND	ND	ND	NA	NA
1,1-DICHLOROETHYLENE	42	ND	ND	ND	ND	0.6	NA	NA
C-2-PENTENE	43	ND	ND	ND	ND	ND	NA	NA
METHYLENE CHLORIDE	44	149	197	337	446	281	NA	NA
2-METHYL-2-BUTENE	45	ND	ND	ND	ND	ND	NA	NA
NEOHXANE	46	ND	ND	ND	ND	ND	NA	NA
FREON 113	199	13.9	106	19.8	20.6	20.9	NA	NA
ISOBUTYRALDEHYDE	47	ND	ND	ND	ND	ND	NA	NA
CYCLOPENTENE	48	ND	ND	ND	ND	ND	NA	NA
T-1,2-DICHLOROETHYLENE	49	ND	ND	ND	ND	ND	NA	NA
4-METHYL-1-PENTENE	50	ND	ND	ND	ND	ND	NA	NA
1,1-DICHLOROETHANE	51	ND	ND	ND	ND	2.0	NA	NA
CYCLOPENTANE	52	ND	1.6	ND	ND	0.5	NA	NA
1-PROPANOL	53	ND	ND	ND	ND	ND	NA	NA
2,3-DIMETHYLBUTANE	54	ND	ND	ND	ND	ND	NA	NA
MTBE + ISOHEX + C-4-M-2-PENTENE	232	ND	1.8	ND	ND	ND	NA	NA
VINYL ACETATE	203	ND	ND	ND	ND	ND	NA	NA
BUTYRALDEHYDE	58	ND	ND	ND	ND	ND	NA	NA
T-4-METHYL-2-PENTENE	59	ND	ND	ND	ND	ND	NA	NA
CHLOROPRENE	192	ND	ND	ND	ND	ND	NA	NA
2-BUTANONE	60	ND	4.1	ND	ND	ND	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406300-01A

FIELD SAMPLE NUMBER:		A301	A303	A304	A305	A306		
3-METHYLPENTANE	61	ND	1.8	ND	ND	ND	NA	NA
1-HEXENE	62	ND	ND	ND	ND	ND	NA	NA
2-METHYL-1-PENTENE	63	ND	ND	ND	ND	ND	NA	NA
BROMOCHLOROMETHANE	212	ND	ND	ND	ND	ND	NA	NA
C-1,2-DICHLOROETHYLENE	64	ND	ND	ND	ND	ND	NA	NA
2-ETHYL-1-BUTENE	65	ND	ND	ND	ND	ND	NA	NA
N-HEXANE	66	ND	3.6	ND	ND	ND	NA	NA
METHYL ACRYLATE	204	ND	ND	ND	ND	ND	NA	NA
CHLOROFORM	67	ND	ND	ND	ND	ND	NA	NA
C-3-HEXENE	68	ND	ND	ND	ND	ND	NA	NA
T-2-HEXENE	69	ND	ND	ND	ND	ND	NA	NA
2-METHYL-2-PENTENE	70	ND	ND	ND	ND	ND	NA	NA
C-2-HEXENE	71	ND	ND	ND	ND	ND	NA	NA
C-3-METHYL-2-PENTENE	72	ND	ND	ND	ND	ND	NA	NA
METHYLCYCLOPENTANE	73	ND	1.3	ND	ND	ND	NA	NA
1,2-DICHLOROETHANE	74	ND	ND	ND	0.3	ND	NA	NA
2,4-DIMETHYLPENTANE	75	ND	ND	ND	ND	ND	NA	NA
1,1,1-TRICHLOROETHANE	76	13.9	5.3	1.5	4.5	77.2	NA	NA
2-METHYL-1,3-DIOXOLANE	188	ND	ND	ND	ND	ND	NA	NA
ISOVALERALDEHYDE	77	ND	ND	ND	ND	ND	NA	NA
METHYLCYCLOPENTENE	78	ND	ND	ND	ND	ND	NA	NA
BENZENE	79	0.5	3.4	1.0	0.9	1.3	NA	NA
CARBON TETRACHLORIDE	80	ND	ND	ND	ND	ND	NA	NA
1-BUTANOL + CYCLOHEXANE	238	ND	1.1	ND	ND	ND	NA	NA
THIOPHENE	82	ND	ND	ND	ND	ND	NA	NA
ISOHEPTANE + 2,3-DIMETHYLPENTANE	84	ND	2.7	ND	ND	ND	NA	NA
2-PENTANONE	85	ND	ND	ND	ND	ND	NA	NA
CYCLOHEXENE	86	ND	ND	ND	ND	ND	NA	NA
3-METHYLHEXANE	87	ND	2.1	ND	ND	ND	NA	NA
VALERALDEHYDE	88	ND	ND	ND	ND	ND	NA	NA
1,2-DICHLOROPROPANE	89	ND	ND	ND	ND	ND	NA	NA
3-PENTANONE	90	ND	ND	ND	ND	ND	NA	NA
TRICHLOROETHYLENE + BDCMETHANE	235	0.7	0.9	ND	ND	0.4	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406300-01A

FIELD SAMPLE NUMBER:		A301	A303	A304	A305	A306		
1-HEPTENE	93	ND	ND	ND	ND	ND	NA	NA
1,4-DIOXANE + 2,2,4-TMPENTANE	234	ND	1.6 hh	ND	ND	ND	NA	NA
N-HEPTANE	95	ND	2.5	0.7	1.7	1.0	NA	NA
N-BUTYL MERCAPTAN	96	ND	ND	ND	ND	ND	NA	NA
T-3-HEPTENE	97	ND	ND	ND	ND	ND	NA	NA
BISCHLOROMETHYL ETHER	98	ND	ND	ND	ND	ND	NA	NA
C-3-HEPTENE	99	ND	ND	ND	ND	ND	NA	NA
T-2-HEPTENE	100	ND	ND	ND	ND	ND	NA	NA
2,4,4-TRIMETHYL-1-PENTENE	101	ND	ND	ND	ND	ND	NA	NA
C-1,3-DICHLOROPROPENE	102	ND	ND	ND	ND	ND	NA	NA
METHYLCYCLOHEXANE	103	ND	0.9	ND	ND	ND	NA	NA
METHYLISOBUTYLKETONE	104	ND	1.1	ND	ND	ND	NA	NA
2,4,4-TRIMETHYL-2-PENTENE	105	ND	ND	ND	ND	ND	NA	NA
2,5-DIMETHYLHEXANE	106	ND	ND	ND	ND	ND	NA	NA
2,2,3-TRIMETHYLPENTANE	107	ND	ND	ND	ND	ND	NA	NA
T-1,3-DICHLOROPROPENE	108	ND	ND	ND	ND	ND	NA	NA
1,1,2-TRICHLOROETHANE	109	ND	ND	ND	ND	ND	NA	NA
2,3,4-TRIMETHYLPENTANE	110	ND	ND	ND	ND	ND	NA	NA
TOLUENE	111	1.7	35.6	5.9	1.3	1.7	NA	NA
2-METHYLTHIOPHENE	112	ND	ND	ND	ND	ND	NA	NA
3-METHYLTHIOPHENE	113	ND	ND	ND	ND	ND	NA	NA
1-METHYLCYCLOHEXENE	114	ND	ND	ND	ND	ND	NA	NA
3,5,5-TRIMETHYL-1-HEXENE	115	ND	ND	ND	ND	ND	NA	NA
DIBROMOCHLOROMETHANE	116	ND	ND	ND	ND	ND	NA	NA
3-METHYLHEPTANE	117	ND	2.0	ND	ND	ND	NA	NA
HEXANAL	118	ND	2.0	1.2	1.7	2.3	NA	NA
1,2-DIBROMOETHANE	119	ND	ND	ND	ND	ND	NA	NA
2-CHLOROETHYL VINYL ETHER	120	ND	ND	ND	ND	ND	NA	NA
2,2,5-TRIMETHYLHEXANE	121	ND	ND	ND	ND	ND	NA	NA
1-OCTENE	122	ND	ND	3.5	ND	ND	NA	NA
TETRAHYDROTHIOPHENE	123	ND	ND	ND	ND	ND	NA	NA
N-OCTANE	124	ND	0.9	1.0	ND	ND	NA	NA
TETRACHLOROETHYLENE	125	5.9	7.6	14.0	42.8	15.2	NA	NA
C-2-OCTENE	126	ND	ND	ND	ND	ND	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406300-01A

FIELD SAMPLE NUMBER:		A301	A303	A304	A305	A306		
ISOPENTYL MERCAPTAN	127	ND	ND	ND	ND	ND	NA	NA
CHLOROBENZENE	128	ND	ND	ND	ND	ND	NA	NA
ETHYLBENZENE	129	ND	3.5	0.9	ND	ND	NA	NA
2,5-DIMETHYLTHIOPHENE	130	ND	ND	ND	ND	ND	NA	NA
P-XYLENE + M-XYLENE	131	ND	11.5	4.6	0.8	0.7	NA	NA
BROMOFORM	132	ND	ND	ND	ND	ND	NA	NA
CYCLOHEXANONE	133	ND	ND	ND	ND	ND	NA	NA
BUTYL ACRYLATE	205	ND	ND	ND	ND	ND	NA	NA
STYRENE	134	ND	1.5	ND	ND	ND	NA	NA
HEPTANAL	135	ND	ND	0.7	0.9	2.0	NA	NA
1,1,2,2-TETRACHLOROETHANE	136	ND	ND	ND	ND	ND	NA	NA
O-XYLENE	137	ND	3.5	2.2	ND	ND	NA	NA
1-NONENE	138	ND	ND	ND	ND	ND	NA	NA
N-NONANE	139	ND	ND	ND	ND	ND	NA	NA
4-NONENE	140	ND	ND	ND	ND	ND	NA	NA
ISOPROPYLBENZENE	141	ND	ND	0.8	ND	ND	NA	NA
A-PINENE + BENZALDEHYDE	236	2.0	7.7	178	1.9	0.6	NA	NA
O-CHLOROTOLUENE	144	ND	ND	ND	ND	ND	NA	NA
M-CHLOROTOLUENE	145	ND	ND	ND	ND	ND	NA	NA
N-PROPYLBENZENE	146	ND	ND	0.6	ND	ND	NA	NA
P-CHLOROTOLUENE	147	ND	ND	ND	ND	ND	NA	NA
M-ETHYLTOLUENE	148	11.1	9.8	372	8.8	ND	NA	NA
BISCHLOROETHYL ETHER	149	ND	ND	ND	ND	ND	NA	NA
P-ETHYLTOLUENE	150	ND	ND	ND	ND	ND	NA	NA
1,3,5-TRIMETHYLBENZENE	151	ND	1.5	2.1	ND	ND	NA	NA
O-ETHYLTOLUENE	152	ND	0.8	11.3	ND	ND	NA	NA
3-OCTANONE	202	ND	ND	ND	ND	ND	NA	NA
B-PINENE	153	ND	3.3	66.5	1.4	0.7	NA	NA
1-DECENE	154	ND	ND	ND	ND	ND	NA	NA
1,2,4-TMBENZENE + T-BUTYLBENZENE	237	ND	2.5	5.1	0.5	0.6	NA	NA
BENZYL CHLORIDE + M-DCBENZENE	230	ND	ND	ND	ND	ND	NA	NA
ISOBUTYLBENZENE	158	ND	ND	6.6	ND	ND	NA	NA
N-DECANE + P-DICHLOROBENZENE	231	ND	5.9	ND	ND	ND	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406300-01A

FIELD SAMPLE NUMBER:		A301	A303	A304	A305	A306		
1,2,3-TRIMETHYLBENZENE	161	ND	ND	13.6	ND	0.5	NA	NA
P-ISOPROPYLTOLUENE	162	1.5	3.2	62.7	2.3	0.5	NA	NA
O-DICHLOROBENZENE	163	ND	ND	ND	ND	ND	NA	NA
LIMONENE	164	ND	2.0	184	2.1	0.9	NA	NA
INDAN	165	ND	ND	ND	ND	ND	NA	NA
INDENE	166	ND	ND	ND	ND	ND	NA	NA
M-DIETHYLBENZENE	167	ND	ND	ND	ND	ND	NA	NA
N-BUTYLBENZENE	168	ND	0.7	ND	ND	0.6	NA	NA
P-DIETHYLBENZENE	169	ND	ND	0.6	ND	ND	NA	NA
1-UNDECENE	170	ND	ND	ND	ND	ND	NA	NA
N-UNDECANE	171	0.5	17.3	ND	ND	2.0	NA	NA
DICHLOROTOLUENE	172	ND	ND	ND	ND	ND	NA	NA
NAPHTHALENE	173	ND	ND	ND	ND	ND	NA	NA
1,2,4-TRICHLOROBENZENE	220	ND	ND	ND	ND	ND	NA	NA
HEXACHLORO-1,3-BUTADIENE	210	ND	ND	ND	ND	ND	NA	NA
UNIDENTIFIED VOC	174	8.6	40.5	309	18.7	77.0	NA	NA
UNIDENTIFIED HALOGENATED VOC	175	0.3	118	0.2	0.7	1.1	NA	NA
TNMHC		35.7	449	1290	53.1	98.1	-	-

ND= Not Detected

NA= Not Analyzed

Analytical system: HP 5890 GC [C]

FID/PID - Analytical system: HP 5890 GC [C]

HECD - Analytical system: HP 5890 GC [D]

d. Sample analyzed outside of recommended laboratory internal holding time of 14 days.

g. Quantitation biased due to interference peak or electronic spike.

hh. Quantitation biased due to coelution with halogenated compound.

xx. Refer to attached document for additional information.

7-1-1994 16:08:45

VOC AIR CANISTER ANALYSIS
FINAL REPORT

Client: LOS ALAMOS
Units: ug/m3

Radian Workorder #: 9406300-01A
Date Sampled: 6-2-94

Site Number:							
Sample wide footnotes:	None	o	None	o			
Analytical run FID:	C	C	C	C	NA	NA	NA
Analytical run HALL:	C	C	C	C	NA	NA	NA
FIELD SAMPLE NUMBER:	A301	A301	A302	A302			
SAMPLE CONTROL NUMBER:	9406300-01A	9406300-01B	9406300-02A	9406300-02B			
DATE SAMPLED:	6-2-94	6-2-94	6-2-94	6-2-94			
NELSON FILE NUMBER:	J006158	J006159	J0061510	J0061511			
FID ANALYSIS DATE:	6-15-94	6-15-94	6-15-94	6-15-94			
HALL ANALYSIS DATE:	6-15-94	6-15-94	6-15-94	6-15-94			
C2C3 ANALYSIS DATE:	6-9-94	6-9-94	6-9-94	6-9-94			
CANISTER NUMBER:	886	886	896	896			
FID DILUTION FACTOR:	0.288410	0.288410	0.288315	0.288315	0.000000	0.000000	0.000000
HALL DILUTION FACTOR:	0.288410	0.288410	0.288315	0.288315	0.000000	0.000000	0.000000
C2C3 DILUTION FACTOR:	0.288410	0.288410	0.288315	0.288315	0.000000	0.000000	0.000000
FID VOLUME:	0.500000	0.500000	0.500000	0.500000	0.000000	0.000000	0.000000
HALL VOLUME:	0.500000	0.500000	0.500000	0.500000	0.000000	0.000000	0.000000
C2C3 VOLUME:	0.500000	0.500000	0.500000	0.500000	0.000000	0.000000	0.000000

Client: LOS ALAMOS

Radian Workorder #: 9406300-01A

FIELD SAMPLE NUMBER:		A301	A301	A302	A302			
ETHYLENE	193	1.2	1.1	1.1	1.1	NA	NA	NA
ACETYLENE	194	ND	ND	ND	ND	NA	NA	NA
FREON 23	214	ND	ND	ND	ND	NA	NA	NA
ETHANE	2	0.6	0.6	0.6	0.6	NA	NA	NA
CHLORODIFLUOROMETHANE	195	ND	ND	ND	ND	NA	NA	NA
PROPYLENE	3	1.2	1.0	1.1	1.1	NA	NA	NA
PROPANE	4	0.7	0.6	0.7	0.6	NA	NA	NA
DIMETHYL ETHER	190	ND	ND	ND	ND	NA	NA	NA
CHLOROMETHANE	5	1.2	1.3	1.0	1.3	NA	NA	NA
PROPYNE	6	ND	ND	ND	ND	NA	NA	NA
DICHLORODIFLUOROMETHANE	7	ND	ND	ND	ND	NA	NA	NA
FREON 114	215	ND	ND	ND	ND	NA	NA	NA
ISOBUTANE	8	ND	ND	ND	ND	NA	NA	NA
ACETALDEHYDE	9	ND	ND	ND	ND	NA	NA	NA
VINYL CHLORIDE	10	ND	ND	ND	ND	NA	NA	NA
ISOBUTENE + 1-BUTENE	11	ND	ND	ND	ND	NA	NA	NA
1,3-BUTADIENE	12	ND	ND	ND	ND	NA	NA	NA
METHYL MERCAPTAN	13	ND	ND	ND	ND	NA	NA	NA
N-BUTANE	14	ND	ND	ND	ND	NA	NA	NA
METHANOL	15	ND	ND	ND	ND	NA	NA	NA
BROMOMETHANE	16	ND	ND	ND	ND	NA	NA	NA
T-2-BUTENE	17	ND	ND	ND	ND	NA	NA	NA
NEOPENTANE	18	ND	ND	ND	ND	NA	NA	NA
DIMETHYL ACETAL	189	ND	ND	ND	ND	NA	NA	NA
METHYL FORMATE	191	ND	ND	ND	ND	NA	NA	NA
1-BUTYNE	19	ND	ND	ND	ND	NA	NA	NA
C-2-BUTENE	20	ND	ND	ND	ND	NA	NA	NA
CHLOROETHANE	21	ND	ND	ND	ND	NA	NA	NA
VINYL BROMIDE	22	ND	ND	ND	ND	NA	NA	NA
3-METHYL-1-BUTENE	23	ND	ND	ND	ND	NA	NA	NA
ETHANOL + ACETONITRILE	233	ND	ND	ND	ND	NA	NA	NA
ISOPENTANE	26	1.6	1.6	ND	ND	NA	NA	NA
ACETONE	27	5.2	4.1	6.2	6.3	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406300-01A

FIELD SAMPLE NUMBER:		A301	A301	A302	A302			
PROPIONALDEHYDE	28	ND	ND	ND	ND	NA	NA	NA
TRICHLOROFLUOROMETHANE	29	0.8	0.8	ND	ND	NA	NA	NA
2-BUTYNE	30	ND	ND	ND	ND	NA	NA	NA
ETHYL MERCAPTAN	31	ND	ND	ND	ND	NA	NA	NA
1-PENTENE	32	ND	ND	ND	ND	NA	NA	NA
IODOMETHANE	33	ND	ND	ND	ND	NA	NA	NA
2-METHYL-1-BUTENE	34	ND	ND	ND	ND	NA	NA	NA
ACRYLONITRILE	35	ND	ND	ND	ND	NA	NA	NA
N-PENTANE	36	ND	ND	ND	ND	NA	NA	NA
ISOPRENE	37	ND	ND	ND	ND	NA	NA	NA
DIMETHYLSULFIDE	38	ND	ND	ND	ND	NA	NA	NA
DIETHYL ETHER + 2-PROPANOL	239	ND	ND	ND	ND	NA	NA	NA
T-2-PENTENE	41	ND	ND	ND	ND	NA	NA	NA
DICHLOROFLUOROMETHANE	196	ND	ND	ND	ND	NA	NA	NA
1,1-DICHLOROETHYLENE	42	ND	ND	ND	ND	NA	NA	NA
C-2-PENTENE	43	ND	ND	ND	ND	NA	NA	NA
METHYLENE CHLORIDE	44	149	153	152	146	NA	NA	NA
2-METHYL-2-BUTENE	45	ND	ND	ND	ND	NA	NA	NA
NEOHXANE	46	ND	ND	ND	ND	NA	NA	NA
FREON 113	199	13.9	14.7	13.0	13.0	NA	NA	NA
ISOBUTYRALDEHYDE	47	ND	ND	ND	ND	NA	NA	NA
CYCLOPENTENE	48	ND	ND	ND	ND	NA	NA	NA
T-1,2-DICHLOROETHYLENE	49	ND	ND	ND	ND	NA	NA	NA
4-METHYL-1-PENTENE	50	ND	ND	ND	ND	NA	NA	NA
1,1-DICHLOROETHANE	51	ND	ND	ND	ND	NA	NA	NA
CYCLOPENTANE	52	ND	ND	ND	ND	NA	NA	NA
1-PROPANOL	53	ND	ND	ND	ND	NA	NA	NA
2,3-DIMETHYLBUTANE	54	ND	ND	ND	ND	NA	NA	NA
MTBE + ISOHEX + C-4-M-2-PENTENE	232	ND	ND	ND	ND	NA	NA	NA
VINYL ACETATE	203	ND	ND	ND	ND	NA	NA	NA
BUTYRALDEHYDE	58	ND	ND	ND	ND	NA	NA	NA
T-4-METHYL-2-PENTENE	59	ND	ND	ND	ND	NA	NA	NA
CHLOROPRENE	192	ND	ND	ND	ND	NA	NA	NA
2-BUTANONE	60	ND	ND	ND	ND	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406300-01A

FIELD SAMPLE NUMBER:		A301	A301	A302	A302			
3-METHYLPENTANE	61	ND	ND	ND	ND	NA	NA	NA
1-HEXENE	62	ND	ND	ND	ND	NA	NA	NA
2-METHYL-1-PENTENE	63	ND	ND	ND	ND	NA	NA	NA
BROMOCHLOROMETHANE	212	ND	ND	ND	ND	NA	NA	NA
C-1,2-DICHLOROETHYLENE	64	ND	ND	ND	ND	NA	NA	NA
2-ETHYL-1-BUTENE	65	ND	ND	ND	ND	NA	NA	NA
N-HEXANE	66	ND	ND	ND	ND	NA	NA	NA
METHYL ACRYLATE	204	ND	ND	ND	ND	NA	NA	NA
CHLOROFORM	67	ND	ND	ND	ND	NA	NA	NA
C-3-HEXENE	68	ND	ND	ND	ND	NA	NA	NA
T-2-HEXENE	69	ND	ND	ND	ND	NA	NA	NA
2-METHYL-2-PENTENE	70	ND	ND	ND	ND	NA	NA	NA
C-2-HEXENE	71	ND	ND	ND	ND	NA	NA	NA
C-3-METHYL-2-PENTENE	72	ND	ND	ND	ND	NA	NA	NA
METHYLCYCLOPENTANE	73	ND	ND	ND	ND	NA	NA	NA
1,2-DICHLOROETHANE	74	ND	ND	ND	ND	NA	NA	NA
2,4-DIMETHYLPENTANE	75	ND	ND	ND	ND	NA	NA	NA
1,1,1-TRICHLOROETHANE	76	13.9	14.2	14.6	14.5	NA	NA	NA
2-METHYL-1,3-DIOXOLANE	188	ND	ND	ND	ND	NA	NA	NA
ISOVALERALDEHYDE	77	ND	ND	ND	ND	NA	NA	NA
METHYLCYCLOPENTENE	78	ND	ND	ND	ND	NA	NA	NA
BENZENE	79	0.5	0.5	0.5	0.5	NA	NA	NA
CARBON TETRACHLORIDE	80	ND	ND	ND	ND	NA	NA	NA
1-BUTANOL + CYCLOHEXANE	238	ND	ND	ND	ND	NA	NA	NA
THIOPHENE	82	ND	ND	ND	ND	NA	NA	NA
ISOHEPTANE + 2,3-DIMETHYLPENTANE	84	ND	ND	ND	ND	NA	NA	NA
2-PENTANONE	85	ND	ND	ND	ND	NA	NA	NA
CYCLOHEXENE	86	ND	ND	ND	ND	NA	NA	NA
3-METHYLHEXANE	87	ND	ND	ND	ND	NA	NA	NA
VALERALDEHYDE	88	ND	ND	ND	ND	NA	NA	NA
1,2-DICHLOROPROPANE	89	ND	ND	ND	ND	NA	NA	NA
3-PENTANONE	90	ND	ND	ND	ND	NA	NA	NA
TRICHLOROETHYLENE + BDCMETHANE	235	0.7	0.7	0.7	0.8	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406300-01A

FIELD SAMPLE NUMBER:		A301	A301	A302	A302			
1-HEPTENE	93	ND	ND	ND	ND	NA	NA	NA
1,4-DIOXANE + 2,2,4-TMPENTANE	234	ND	ND	ND	ND	NA	NA	NA
N-HEPTANE	95	ND	ND	ND	ND	NA	NA	NA
N-BUTYL MERCAPTAN	96	ND	ND	ND	ND	NA	NA	NA
T-3-HEPTENE	97	ND	ND	ND	ND	NA	NA	NA
BISCHLOROMETHYL ETHER	98	ND	ND	ND	ND	NA	NA	NA
C-3-HEPTENE	99	ND	ND	ND	ND	NA	NA	NA
T-2-HEPTENE	100	ND	ND	ND	ND	NA	NA	NA
2,4,4-TRIMETHYL-1-PENTENE	101	ND	ND	ND	ND	NA	NA	NA
C-1,3-DICHLOROPROPENE	102	ND	ND	ND	ND	NA	NA	NA
METHYLCYCLOHEXANE	103	ND	ND	ND	ND	NA	NA	NA
METHYLISOBUTYLKETONE	104	ND	ND	ND	ND	NA	NA	NA
2,4,4-TRIMETHYL-2-PENTENE	105	ND	ND	ND	ND	NA	NA	NA
2,5-DIMETHYLHEXANE	106	ND	ND	ND	ND	NA	NA	NA
2,2,3-TRIMETHYLPENTANE	107	ND	ND	ND	ND	NA	NA	NA
T-1,3-DICHLOROPROPENE	108	ND	ND	ND	ND	NA	NA	NA
1,1,2-TRICHLOROETHANE	109	ND	ND	ND	ND	NA	NA	NA
2,3,4-TRIMETHYLPENTANE	110	ND	ND	ND	ND	NA	NA	NA
TOLUENE	111	1.7	1.7	1.1	1.2	NA	NA	NA
2-METHYLTHIOPHENE	112	ND	ND	ND	ND	NA	NA	NA
3-METHYLTHIOPHENE	113	ND	ND	ND	ND	NA	NA	NA
1-METHYLCYCLOHEXENE	114	ND	ND	ND	ND	NA	NA	NA
3,5,5-TRIMETHYL-1-HEXENE	115	ND	ND	ND	ND	NA	NA	NA
DIBROMOCHLOROMETHANE	116	ND	ND	ND	ND	NA	NA	NA
3-METHYLHEPTANE	117	ND	ND	ND	ND	NA	NA	NA
HEXANAL	118	ND	ND	ND	ND	NA	NA	NA
1,2-DIBROMOETHANE	119	ND	ND	ND	ND	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	120	ND	ND	ND	ND	NA	NA	NA
2,2,5-TRIMETHYLHEXANE	121	ND	ND	ND	ND	NA	NA	NA
1-OCTENE	122	ND	ND	ND	ND	NA	NA	NA
TETRAHYDROTHIOPHENE	123	ND	ND	ND	ND	NA	NA	NA
N-OCTANE	124	ND	ND	ND	ND	NA	NA	NA
TETRACHLOROETHYLENE	125	5.9	5.6	5.7	5.9	NA	NA	NA
C-2-OCTENE	126	ND	ND	ND	ND	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406300-01A

FIELD SAMPLE NUMBER:		A301	A301	A302	A302			
ISOPENTYL MERCAPTAN	127	ND	ND	ND	ND	NA	NA	NA
CHLOROBENZENE	128	ND	ND	ND	ND	NA	NA	NA
ETHYLBENZENE	129	ND	ND	ND	ND	NA	NA	NA
2,5-DIMETHYLTHIOPHENE	130	ND	ND	ND	ND	NA	NA	NA
P-XYLENE + M-XYLENE	131	ND	ND	ND	ND	NA	NA	NA
BROMOFORM	132	ND	ND	ND	ND	NA	NA	NA
CYCLOHEXANONE	133	ND	ND	ND	ND	NA	NA	NA
BUTYL ACRYLATE	205	ND	ND	ND	ND	NA	NA	NA
STYRENE	134	ND	ND	ND	ND	NA	NA	NA
HEPTANAL	135	ND	ND	ND	ND	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	136	ND	ND	ND	ND	NA	NA	NA
O-XYLENE	137	ND	ND	ND	ND	NA	NA	NA
1-NONENE	138	ND	ND	ND	ND	NA	NA	NA
N-NONANE	139	ND	ND	ND	ND	NA	NA	NA
4-NONENE	140	ND	ND	ND	ND	NA	NA	NA
ISOPROPYLBENZENE	141	ND	ND	ND	ND	NA	NA	NA
A-PINENE + BENZALDEHYDE	236	2.0	1.7	2.0	2.0	NA	NA	NA
O-CHLOROTOLUENE	144	ND	ND	ND	ND	NA	NA	NA
M-CHLOROTOLUENE	145	ND	ND	ND	ND	NA	NA	NA
N-PROPYLBENZENE	146	ND	ND	ND	ND	NA	NA	NA
P-CHLOROTOLUENE	147	ND	ND	ND	ND	NA	NA	NA
M-ETHYLTOLUENE	148	11.1	11.0	11.2	11.1	NA	NA	NA
BISCHLOROETHYL ETHER	149	ND	ND	ND	ND	NA	NA	NA
P-ETHYLTOLUENE	150	ND	ND	ND	ND	NA	NA	NA
1,3,5-TRIMETHYLBENZENE	151	ND	ND	ND	ND	NA	NA	NA
O-ETHYLTOLUENE	152	ND	ND	ND	ND	NA	NA	NA
3-OCTANONE	202	ND	ND	ND	ND	NA	NA	NA
B-PINENE	153	ND	ND	ND	ND	NA	NA	NA
1-DECENE	154	ND	ND	ND	ND	NA	NA	NA
1,2,4-TMBENZENE + T-BUTYLBENZENE	237	ND	ND	ND	ND	NA	NA	NA
BENZYL CHLORIDE + M-DCBENZENE	230	ND	ND	ND	ND	NA	NA	NA
ISOBUTYLBENZENE	158	ND	ND	ND	ND	NA	NA	NA
N-DECANE + P-DICHLOROBENZENE	231	ND	ND	ND	ND	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406300-01A

FIELD SAMPLE NUMBER:		A301	A301	A302	A302			
1,2,3-TRIMETHYLBENZENE	161	ND	ND	ND	ND	NA	NA	NA
P-ISOPROPYLTOLUENE	162	1.5	1.5	1.5	1.5	NA	NA	NA
O-DICHLOROBENZENE	163	ND	ND	ND	ND	NA	NA	NA
LIMONENE	164	ND	ND	ND	ND	NA	NA	NA
INDAN	165	ND	ND	ND	ND	NA	NA	NA
INDENE	166	ND	ND	ND	ND	NA	NA	NA
M-DIETHYLBENZENE	167	ND	ND	ND	ND	NA	NA	NA
N-BUTYLBENZENE	168	ND	ND	ND	ND	NA	NA	NA
P-DIETHYLBENZENE	169	ND	ND	ND	ND	NA	NA	NA
1-UNDECENE	170	ND	ND	ND	ND	NA	NA	NA
N-UNDECANE	171	0.5	0.5	ND	ND	NA	NA	NA
DICHLOROTOLUENE	172	ND	ND	ND	ND	NA	NA	NA
NAPHTHALENE	173	ND	ND	ND	ND	NA	NA	NA
1,2,4-TRICHLOROBENZENE	220	ND	ND	ND	ND	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	210	ND	ND	ND	ND	NA	NA	NA
UNIDENTIFIED VOC	174	8.6	8.7	6.9	7.8	NA	NA	NA
UNIDENTIFIED HALOGENATED VOC	175	0.3	0.2	0.2	ND	NA	NA	NA
TNMHC		35.7	34.3	32.0	32.9	-	-	-

ND= Not Detected

NA= Not Analyzed

Analytical system: HP 5890 GC [C]

o. Laboratory duplicate of 9406300-01A.

o. Laboratory duplicate of 9406300-02A.

7-7-1994 17:27:48

VOC AIR CANISTER ANALYSIS
FINAL REPORTClient: LOS ALAMOS
Units: ug/m3Radian Workorder #: 9406761-01
Date Sampled: 6-7-94

Site Number:	_____	_____	_____	_____	_____	_____	_____
Sample wide footnotes:	b,d	d	d,xx	d			
Analytical run FID:	C	C	C	C	NA	NA	NA
Analytical run HALL:	C	C	C	C	NA	NA	NA

FIELD SAMPLE NUMBER:	A319	A320	A334	A335			
SAMPLE CONTROL NUMBER:	9406761-01	9406761-02	9406761-03	9406761-04			
DATE SAMPLED:	6-7-94	6-8-94	6-9-94	6-9-94			
NELSON FILE NUMBER:	J006233	J006235	J006236	J006237			
FID ANALYSIS DATE:	6-23-94	6-23-94	6-23-94	6-23-94			
HALL ANALYSIS DATE:	6-23-94	6-23-94	6-23-94	6-23-94			
C2C3 ANALYSIS DATE:	6-17-94	6-17-94	6-17-94	6-17-94			
CANISTER NUMBER:	930	888	908	921			
FID DILUTION FACTOR:	0.257825	0.262567	0.234483	0.247439	0.000000	0.000000	0.000000
HALL DILUTION FACTOR:	0.257825	0.262567	0.234483	0.247439	0.000000	0.000000	0.000000
C2C3 DILUTION FACTOR:	0.257825	0.262567	0.234483	0.247439	0.000000	0.000000	0.000000
FID VOLUME:	0.500000	0.500000	0.500000	0.500000	0.000000	0.000000	0.000000
HALL VOLUME:	0.500000	0.500000	0.500000	0.500000	0.000000	0.000000	0.000000
C2C3 VOLUME:	0.500000	0.500000	0.500000	0.500000	0.000000	0.000000	0.000000

Client: LOS ALAMOS

Radian Workorder #: 9406761-01

FIELD SAMPLE NUMBER:		A319	A320	A334	A335			
ETHYLENE	193	0.6	1.4	0.6	1.0	NA	NA	NA
ACETYLENE	194	ND	ND	ND	ND	NA	NA	NA
FREON 23	214	ND	ND	ND	ND	NA	NA	NA
ETHANE	2	0.9	1.1	0.4	1.4	NA	NA	NA
CHLORODIFLUOROMETHANE	195	3.4	ND	ND	ND	NA	NA	NA
PROPYLENE	3	1.0	2.3	0.6	0.9	NA	NA	NA
PROPANE	4	6.7	ND	ND	5.2	NA	NA	NA
DIMETHYL ETHER	190	ND	ND	ND	ND	NA	NA	NA
CHLOROMETHANE	5	10.2	1.8	1.0	0.5	NA	NA	NA
PROPYNE	6	ND	ND	ND	ND	NA	NA	NA
DICHLORODIFLUOROMETHANE	7	ND	ND	ND	ND	NA	NA	NA
FREON 114	215	ND	ND	ND	ND	NA	NA	NA
ISOBUTANE	8	30.4	2.3	ND	16.7	NA	NA	NA
ACETALDEHYDE	9	ND	ND	ND	ND	NA	NA	NA
VINYL CHLORIDE	10	ND	ND	ND	ND	NA	NA	NA
ISOBUTENE + 1-BUTENE	11	ND	105	3.8	4.6	NA	NA	NA
1,3-BUTADIENE	12	ND	ND	ND	ND	NA	NA	NA
METHYL MERCAPTAN	13	ND	ND	ND	ND	NA	NA	NA
N-BUTANE	14	1.3	ND	ND	0.6	NA	NA	NA
METHANOL	15	109	21.2	16.7	117	NA	NA	NA
BROMOMETHANE	16	ND	ND	ND	ND	NA	NA	NA
T-2-BUTENE	17	ND	ND	ND	ND	NA	NA	NA
NEOPENTANE	18	ND	ND	ND	ND	NA	NA	NA
DIMETHYL ACETAL	189	ND	ND	ND	ND	NA	NA	NA
METHYL FORMATE	191	ND	ND	ND	ND	NA	NA	NA
1-BUTYNE	19	ND	ND	ND	ND	NA	NA	NA
C-2-BUTENE	20	ND	ND	ND	ND	NA	NA	NA
CHLOROETHANE	21	0.9	ND	ND	ND	NA	NA	NA
VINYL BROMIDE	22	ND	ND	ND	ND	NA	NA	NA
3-METHYL-1-BUTENE	23	1.3	ND	ND	ND	NA	NA	NA
ETHANOL + ACETONITRILE	233	30.6	ND	718 g	22.0	NA	NA	NA
ISOPENTANE	26	40.7	2.0	ND	23.6	NA	NA	NA
ACETONE	27	16.4	19.6	ND	59.3	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406761-01

FIELD SAMPLE NUMBER:		A319	A320	A334	A335			
PROPIONALDEHYDE	28	ND	ND	ND	ND	NA	NA	NA
TRICHLOROFLUOROMETHANE	29	0.7	ND	ND	ND	NA	NA	NA
2-BUTYNE	30	ND	ND	ND	ND	NA	NA	NA
ETHYL MERCAPTAN	31	ND	ND	ND	ND	NA	NA	NA
1-PENTENE	32	1.8	ND	ND	ND	NA	NA	NA
IODOMETHANE	33	ND	ND	ND	ND	NA	NA	NA
2-METHYL-1-BUTENE	34	ND	ND	ND	ND	NA	NA	NA
ACRYLONITRILE	35	ND	ND	ND	ND	NA	NA	NA
N-PENTANE	36	3.7	1.0	ND	1.2	NA	NA	NA
ISOPRENE	37	ND	ND	ND	1.1	NA	NA	NA
DIMETHYLSULFIDE	38	ND	ND	ND	ND	NA	NA	NA
DIETHYL ETHER + 2-PROPANOL	239	ND	ND	ND	ND	NA	NA	NA
T-2-PENTENE	41	ND	ND	ND	ND	NA	NA	NA
DICHLOROFLUOROMETHANE	196	ND	ND	ND	ND	NA	NA	NA
1,1-DICHLOROETHYLENE	42	ND	ND	ND	ND	NA	NA	NA
C-2-PENTENE	43	ND	ND	ND	ND	NA	NA	NA
METHYLENE CHLORIDE	44	48.8	210	118	249	NA	NA	NA
2-METHYL-2-BUTENE	45	ND	ND	ND	ND	NA	NA	NA
NEOHXANE	46	ND	ND	ND	ND	NA	NA	NA
FREON 113	199	1.4	ND	4.0	ND	NA	NA	NA
ISOBUTYRALDEHYDE	47	ND	ND	ND	ND	NA	NA	NA
CYCLOPENTENE	48	ND	ND	ND	ND	NA	NA	NA
T-1,2-DICHLOROETHYLENE	49	ND	ND	ND	ND	NA	NA	NA
4-METHYL-1-PENTENE	50	ND	ND	ND	ND	NA	NA	NA
1,1-DICHLOROETHANE	51	ND	ND	ND	ND	NA	NA	NA
CYCLOPENTANE	52	ND	ND	ND	ND	NA	NA	NA
1-PROPANOL	53	ND	ND	ND	ND	NA	NA	NA
2,3-DIMETHYLBUTANE	54	ND	1.6	ND	ND	NA	NA	NA
MTBE + ISOHEX + C-4-M-2-PENTENE	232	9.4	26.3	1.4	1.9	NA	NA	NA
VINYL ACETATE	203	ND	ND	ND	ND	NA	NA	NA
BUTYRALDEHYDE	58	3.0	ND	ND	2.6	NA	NA	NA
T-4-METHYL-2-PENTENE	59	ND	ND	ND	ND	NA	NA	NA
CHLOROPRENE	192	ND	ND	ND	ND	NA	NA	NA
2-BUTANONE	60	1.9	ND	0.9	2.5	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406761-01

FIELD SAMPLE NUMBER:		A319	A320	A334	A335			
3-METHYLPENTANE	61	1.6	1.4	ND	ND	NA	NA	NA
1-HEXENE	62	ND	2.7	ND	ND	NA	NA	NA
2-METHYL-1-PENTENE	63	ND	ND	ND	ND	NA	NA	NA
BROMOCHLOROMETHANE	212	ND	ND	ND	ND	NA	NA	NA
C-1,2-DICHLOROETHYLENE	64	ND	ND	ND	ND	NA	NA	NA
2-ETHYL-1-BUTENE	65	ND	ND	ND	ND	NA	NA	NA
N-HEXANE	66	2.3	8.3	ND	1.0	NA	NA	NA
METHYL ACRYLATE	204	ND	ND	ND	ND	NA	NA	NA
CHLOROFORM	67	ND	ND	ND	ND	NA	NA	NA
C-3-HEXENE	68	ND	ND	ND	ND	NA	NA	NA
T-2-HEXENE	69	ND	ND	ND	ND	NA	NA	NA
2-METHYL-2-PENTENE	70	ND	ND	ND	ND	NA	NA	NA
C-2-HEXENE	71	ND	ND	ND	ND	NA	NA	NA
C-3-METHYL-2-PENTENE	72	ND	ND	ND	ND	NA	NA	NA
METHYLCYCLOPENTANE	73	1.4	ND	ND	ND	NA	NA	NA
1,2-DICHLOROETHANE	74	ND	ND	ND	ND	NA	NA	NA
2,4-DIMETHYLPENTANE	75	ND	ND	ND	ND	NA	NA	NA
1,1,1-TRICHLOROETHANE	76	3.1	1.8	1.0	0.8	NA	NA	NA
2-METHYL-1,3-DIOXOLANE	188	ND	ND	ND	ND	NA	NA	NA
ISOVALERALDEHYDE	77	ND	ND	ND	ND	NA	NA	NA
METHYLCYCLOPENTENE	78	ND	ND	ND	ND	NA	NA	NA
BENZENE	79	1.4	1.0	0.8	1.2	NA	NA	NA
CARBON TETRACHLORIDE	80	ND	ND	ND	ND	NA	NA	NA
1-BUTANOL + CYCLOHEXANE	238	3.4	2.5	1.3	1.6	NA	NA	NA
THIOPHENE	82	ND	ND	ND	ND	NA	NA	NA
ISOHEPTANE + 2,3-DIMETHYLPENTANE	84	ND	1.2	ND	ND	NA	NA	NA
2-PENTANONE	85	ND	ND	ND	ND	NA	NA	NA
CYCLOHEXENE	86	ND	ND	ND	ND	NA	NA	NA
3-METHYLHEXANE	87	0.6	ND	ND	ND	NA	NA	NA
VALERALDEHYDE	88	ND	ND	ND	ND	NA	NA	NA
1,2-DICHLOROPROPANE	89	ND	ND	ND	ND	NA	NA	NA
3-PENTANONE	90	ND	ND	ND	ND	NA	NA	NA
TRICHLOROETHYLENE + BDCMETHANE	235	ND	ND	0.3	ND	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406761-01

FIELD SAMPLE NUMBER:		A319	A320	A334	A335			
1-HEPTENE	93	ND	ND	ND	ND	NA	NA	NA
1,4-DIOXANE + 2,2,4-TRIMETHYL-1-PENTENE	234	ND	ND	ND	ND	NA	NA	NA
N-HEPTANE	95	ND	1.6	ND	0.7	NA	NA	NA
N-BUTYL MERCAPTAN	96	ND	ND	ND	ND	NA	NA	NA
T-3-HEPTENE	97	ND	ND	ND	ND	NA	NA	NA
BISCHLOROMETHYL ETHER	98	ND	ND	ND	ND	NA	NA	NA
C-3-HEPTENE	99	ND	ND	ND	ND	NA	NA	NA
T-2-HEPTENE	100	ND	ND	ND	ND	NA	NA	NA
2,4,4-TRIMETHYL-1-PENTENE	101	ND	ND	ND	ND	NA	NA	NA
C-1,3-DICHLOROPROPENE	102	ND	ND	ND	ND	NA	NA	NA
METHYLCYCLOHEXANE	103	ND	ND	ND	ND	NA	NA	NA
METHYLISOBUTYLKETONE	104	0.6	ND	ND	ND	NA	NA	NA
2,4,4-TRIMETHYL-2-PENTENE	105	ND	ND	ND	ND	NA	NA	NA
2,5-DIMETHYLHEXANE	106	ND	3.6	ND	ND	NA	NA	NA
2,2,3-TRIMETHYLPENTANE	107	ND	1.9	ND	ND	NA	NA	NA
T-1,3-DICHLOROPROPENE	108	ND	ND	ND	ND	NA	NA	NA
1,1,2-TRICHLOROETHANE	109	ND	ND	ND	ND	NA	NA	NA
2,3,4-TRIMETHYLPENTANE	110	ND	2.6	ND	ND	NA	NA	NA
TOLUENE	111	80.8	3.1	1.8	36.8	NA	NA	NA
2-METHYLTHIOPHENE	112	ND	ND	ND	ND	NA	NA	NA
3-METHYLTHIOPHENE	113	ND	ND	ND	ND	NA	NA	NA
1-METHYLCYCLOHEXENE	114	ND	ND	ND	ND	NA	NA	NA
3,5,5-TRIMETHYL-1-HEXENE	115	ND	ND	ND	ND	NA	NA	NA
DIBROMOCHLOROMETHANE	116	ND	ND	ND	ND	NA	NA	NA
3-METHYLHEPTANE	117	ND	3.7	ND	ND	NA	NA	NA
HEXANAL	118	3.5	ND	0.7	ND	NA	NA	NA
1,2-DIBROMOETHANE	119	ND	ND	ND	ND	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	120	ND	ND	ND	ND	NA	NA	NA
2,2,5-TRIMETHYLHEXANE	121	0.7	1.4	ND	ND	NA	NA	NA
1-OCTENE	122	ND	ND	ND	ND	NA	NA	NA
TETRAHYDROTHIOPHENE	123	ND	ND	ND	ND	NA	NA	NA
N-OCTANE	124	0.5 hh	8.6	1.1	0.6	NA	NA	NA
TETRACHLOROETHYLENE	125	0.7	3.8	2.7	5.3	NA	NA	NA
C-2-OCTENE	126	ND	ND	ND	ND	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406761-01

FIELD SAMPLE NUMBER:		A319	A320	A334	A335			
ISOPENTYL MERCAPTAN	127	ND	ND	ND	ND	NA	NA	NA
CHLOROBENZENE	128	ND	ND	ND	ND	NA	NA	NA
ETHYLBENZENE	129	1.1	ND	ND	1.9	NA	NA	NA
2,5-DIMETHYLTHIOPHENE	130	ND	ND	ND	ND	NA	NA	NA
P-XYLENE + M-XYLENE	131	2.3	0.6	ND	2.7	NA	NA	NA
BROMOFORM	132	ND	ND	ND	ND	NA	NA	NA
CYCLOHEXANONE	133	ND	ND	ND	ND	NA	NA	NA
BUTYL ACRYLATE	205	ND	ND	ND	ND	NA	NA	NA
STYRENE	134	2.5	ND	ND	ND	NA	NA	NA
HEPTANAL	135	ND	ND	ND	ND	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	136	ND	ND	ND	ND	NA	NA	NA
O-XYLENE	137	0.9	ND	ND	0.9	NA	NA	NA
1-NONENE	138	ND	ND	ND	ND	NA	NA	NA
N-NONANE	139	ND	1.6	ND	ND	NA	NA	NA
4-NONENE	140	ND	ND	ND	ND	NA	NA	NA
ISOPROPYLBENZENE	141	ND	ND	ND	ND	NA	NA	NA
A-PINENE + BENZALDEHYDE	236	1650	1.0	1.9	1.1	NA	NA	NA
O-CHLOROTOLUENE	144	ND	ND	ND	ND	NA	NA	NA
M-CHLOROTOLUENE	145	ND	ND	ND	ND	NA	NA	NA
N-PROPYLBENZENE	146	ND	0.6	ND	ND	NA	NA	NA
P-CHLOROTOLUENE	147	ND	ND	ND	ND	NA	NA	NA
M-ETHYLTOLUENE	148	28.4	16.3	1.2	1.1	NA	NA	NA
BISCHLOROETHYL ETHER	149	ND	ND	ND	ND	NA	NA	NA
P-ETHYLTOLUENE	150	ND	ND	ND	ND	NA	NA	NA
1,3,5-TRIMETHYLBENZENE	151	1.2	3.1	ND	ND	NA	NA	NA
O-ETHYLTOLUENE	152	0.8	1.0	ND	ND	NA	NA	NA
3-OCTANONE	202	ND	ND	ND	ND	NA	NA	NA
B-PINENE	153	8.9	1.2	ND	ND	NA	NA	NA
1-DECENE	154	ND	ND	ND	ND	NA	NA	NA
1,2,4-TMBENZENE + T-BUTYLBENZENE	237	1.0	ND	ND	ND	NA	NA	NA
BENZYL CHLORIDE + M-DCBENZENE	230	ND	ND	ND	ND	NA	NA	NA
ISOBUTYLBENZENE	158	ND	ND	ND	ND	NA	NA	NA
N-DECANE + P-DICHLOROBENZENE	231	21.2	5.9	ND	2.5	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406761-01

FIELD SAMPLE NUMBER:		A319	A320	A334	A335			
1,2,3-TRIMETHYLBENZENE	161	2.5	10.0	1.5	1.0	NA	NA	NA
P-ISOPROPYLTOLUENE	162	21.6	21.0	2.5	ND	NA	NA	NA
O-DICHLOROBENZENE	163	ND	ND	ND	ND	NA	NA	NA
LIMONENE	164	66.1	1.6	ND	ND	NA	NA	NA
INDAN	165	ND	ND	ND	ND	NA	NA	NA
INDENE	166	ND	1.8	ND	ND	NA	NA	NA
M-DIETHYLBENZENE	167	ND	ND	ND	ND	NA	NA	NA
N-BUTYLBENZENE	168	ND	4.2	ND	ND	NA	NA	NA
P-DIETHYLBENZENE	169	ND	ND	ND	ND	NA	NA	NA
1-UNDECENE	170	ND	ND	ND	ND	NA	NA	NA
N-UNDECANE	171	77.5	6.8	4.6	17.7	NA	NA	NA
DICHLOROTOLUENE	172	ND	ND	ND	ND	NA	NA	NA
NAPHTHALENE	173	2.2	0.6	ND	ND	NA	NA	NA
1,2,4-TRICHLOROBENZENE	220	ND	ND	ND	ND	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	210	ND	ND	ND	ND	NA	NA	NA
UNIDENTIFIED VOC	174	313	514	37.5	39.2	NA	NA	NA
UNIDENTIFIED HALOGENATED VOC	175	9.0	0.6	0.8	1.9	NA	NA	NA
TNMHC		2400	788	544	284	-	-	-

ND= Not Detected

NA= Not Analyzed

Analytical system: HP 5890 GC [C2C3]

Analytical system: HP 5890 GC [C]

- b. Differences between recorded field and lab pressure measurements exceed laboratory or project specified criteria.
- d. Sample analyzed outside of recommended laboratory internal holding time of 14 days.
- g. Quantitation biased due to interference peak or electronic spike.
- hh. Quantitation biased due to coelution with halogenated compound.
- xx. Refer to attached document for additional information.

VOC AIR CANISTER ANALYSIS FINAL REPORT

Radian Workorder #: 9406761-05
Date Sampled: 6-9-94

Site Number:	b,d,i						
Sample wide footnotes:							
Analytical run FID:	C	NA	NA	NA	NA	NA	NA
Analytical run HALL:	C	NA	NA	NA	NA	NA	NA

FIELD SAMPLE NUMBER:	A336						
SAMPLE CONTROL NUMBER:	9406761-05						
DATE SAMPLED:	6-9-94						
NELSON FILE NUMBER:	J006238						
FID ANALYSIS DATE:	6-23-94						
HALL ANALYSIS DATE:	6-23-94						
C2C3 ANALYSIS DATE:	6-17-94						
CANISTER NUMBER:	968						
FID DILUTION FACTOR:	0.187791	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
HALL DILUTION FACTOR:	0.187791	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
C2C3 DILUTION FACTOR:	0.229787	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
FID VOLUME:	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
HALL VOLUME:	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
C2C3 VOLUME:	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Client: LOS ALAMOS

Radian Workorder #: 9406761-05

FIELD SAMPLE NUMBER:

A336

ETHYLENE	193	0.6	NA	NA	NA	NA	NA	NA
ACETYLENE	194	ND	NA	NA	NA	NA	NA	NA
FREON 23	214	ND	NA	NA	NA	NA	NA	NA
ETHANE	2	1.1	NA	NA	NA	NA	NA	NA
CHLORODIFLUOROMETHANE	195	ND	NA	NA	NA	NA	NA	NA
PROPYLENE	3	0.7	NA	NA	NA	NA	NA	NA
PROPANE	4	8.4	NA	NA	NA	NA	NA	NA
DIMETHYL ETHER	190	ND	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	5	9.8	NA	NA	NA	NA	NA	NA
PROPYNE	6	ND	NA	NA	NA	NA	NA	NA
DICHLORODIFLUOROMETHANE	7	1.0	NA	NA	NA	NA	NA	NA
FREON 114	215	ND	NA	NA	NA	NA	NA	NA
ISOBUTANE	8	36.8	NA	NA	NA	NA	NA	NA
ACETALDEHYDE	9	ND	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	10	ND	NA	NA	NA	NA	NA	NA
ISOBUTENE + 1-BUTENE	11	ND	NA	NA	NA	NA	NA	NA
1,3-BUTADIENE	12	ND	NA	NA	NA	NA	NA	NA
METHYL MERCAPTAN	13	ND	NA	NA	NA	NA	NA	NA
N-BUTANE	14	1.3	NA	NA	NA	NA	NA	NA
METHANOL	15	106	NA	NA	NA	NA	NA	NA
BROMOMETHANE	16	ND	NA	NA	NA	NA	NA	NA
T-2-BUTENE	17	ND	NA	NA	NA	NA	NA	NA
NEOPENTANE	18	ND	NA	NA	NA	NA	NA	NA
DIMETHYL ACETAL	189	ND	NA	NA	NA	NA	NA	NA
METHYL FORMATE	191	ND	NA	NA	NA	NA	NA	NA
1-BUTYNE	19	ND	NA	NA	NA	NA	NA	NA
C-2-BUTENE	20	ND	NA	NA	NA	NA	NA	NA
CHLOROETHANE	21	ND	NA	NA	NA	NA	NA	NA
VINYL BROMIDE	22	ND	NA	NA	NA	NA	NA	NA
3-METHYL-1-BUTENE	23	ND	NA	NA	NA	NA	NA	NA
ETHANOL + ACETONITRILE	233	ND	NA	NA	NA	NA	NA	NA
ISOPENTANE	26	53.0	NA	NA	NA	NA	NA	NA
ACETONE	27	ND	NA	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406761-05

FIELD SAMPLE NUMBER:

A336

PROPIONALDEHYDE	28	ND	NA	NA	NA	NA	NA	NA
TRICHLOROFLUOROMETHANE	29	0.9	NA	NA	NA	NA	NA	NA
2-BUTYNE	30	ND	NA	NA	NA	NA	NA	NA
ETHYL MERCAPTAN	31	ND	NA	NA	NA	NA	NA	NA
1-PENTENE	32	ND	NA	NA	NA	NA	NA	NA
IODOMETHANE	33	ND	NA	NA	NA	NA	NA	NA
2-METHYL-1-BUTENE	34	ND	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	35	ND	NA	NA	NA	NA	NA	NA
N-PENTANE	36	3.6	NA	NA	NA	NA	NA	NA
ISOPRENE	37	ND	NA	NA	NA	NA	NA	NA
DIMETHYLSULFIDE	38	ND	NA	NA	NA	NA	NA	NA
DIETHYL ETHER + 2-PROPANOL	239	ND	NA	NA	NA	NA	NA	NA
T-2-PENTENE	41	ND	NA	NA	NA	NA	NA	NA
DICHLOROFLUOROMETHANE	196	ND	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHYLENE	42	ND	NA	NA	NA	NA	NA	NA
C-2-PENTENE	43	ND	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	44	27.9	NA	NA	NA	NA	NA	NA
2-METHYL-2-BUTENE	45	ND	NA	NA	NA	NA	NA	NA
NEOHXANE	46	ND	NA	NA	NA	NA	NA	NA
FREON 113	199	2.1	NA	NA	NA	NA	NA	NA
ISOBUTYRALDEHYDE	47	ND	NA	NA	NA	NA	NA	NA
CYCLOPENTENE	48	ND	NA	NA	NA	NA	NA	NA
T-1,2-DICHLOROETHYLENE	49	ND	NA	NA	NA	NA	NA	NA
4-METHYL-1-PENTENE	50	ND	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	51	ND	NA	NA	NA	NA	NA	NA
CYCLOPENTANE	52	ND	NA	NA	NA	NA	NA	NA
1-PROPANOL	53	ND	NA	NA	NA	NA	NA	NA
2,3-DIMETHYLBUTANE	54	ND	NA	NA	NA	NA	NA	NA
MTBE + ISOHEX + C-4-M-2-PENTENE	232	1.7	NA	NA	NA	NA	NA	NA
VINYL ACETATE	203	ND	NA	NA	NA	NA	NA	NA
BUTYRALDEHYDE	58	ND	NA	NA	NA	NA	NA	NA
T-4-METHYL-2-PENTENE	59	ND	NA	NA	NA	NA	NA	NA
CHLOROPRENE	192	ND	NA	NA	NA	NA	NA	NA
2-BUTANONE	60	ND	NA	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406761-05

FIELD SAMPLE NUMBER:

A336

3-METHYLPENTANE	61	1.3	NA	NA	NA	NA	NA	NA
1-HEXENE	62	ND	NA	NA	NA	NA	NA	NA
2-METHYL-1-PENTENE	63	ND	NA	NA	NA	NA	NA	NA
BROMOCHLOROMETHANE	212	ND	NA	NA	NA	NA	NA	NA
C-1,2-DICHLOROETHYLENE	64	ND	NA	NA	NA	NA	NA	NA
2-ETHYL-1-BUTENE	65	ND	NA	NA	NA	NA	NA	NA
N-HEXANE	66	2.3	NA	NA	NA	NA	NA	NA
METHYL ACRYLATE	204	ND	NA	NA	NA	NA	NA	NA
CHLOROFORM	67	ND	NA	NA	NA	NA	NA	NA
C-3-HEXENE	68	ND	NA	NA	NA	NA	NA	NA
T-2-HEXENE	69	ND	NA	NA	NA	NA	NA	NA
2-METHYL-2-PENTENE	70	ND	NA	NA	NA	NA	NA	NA
C-2-HEXENE	71	ND	NA	NA	NA	NA	NA	NA
C-3-METHYL-2-PENTENE	72	ND	NA	NA	NA	NA	NA	NA
METHYLCYCLOPENTANE	73	2.0	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	74	ND	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPENTANE	75	ND	NA	NA	NA	NA	NA	NA
1,1,1-TRICHLOROETHANE	76	3.5	NA	NA	NA	NA	NA	NA
2-METHYL-1,3-DIOXOLANE	188	ND	NA	NA	NA	NA	NA	NA
ISOVALERALDEHYDE	77	ND	NA	NA	NA	NA	NA	NA
METHYLCYCLOPENTENE	78	ND	NA	NA	NA	NA	NA	NA
BENZENE	79	1.1	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	80	ND	NA	NA	NA	NA	NA	NA
1-BUTANOL + CYCLOHEXANE	238	2.3	NA	NA	NA	NA	NA	NA
THIOPHENE	82	ND	NA	NA	NA	NA	NA	NA
ISOHEPTANE + 2,3-DIMETHYLPENTANE	84	ND	NA	NA	NA	NA	NA	NA
2-PENTANONE	85	ND	NA	NA	NA	NA	NA	NA
CYCLOHEXENE	86	ND	NA	NA	NA	NA	NA	NA
3-METHYLHEXANE	87	ND	NA	NA	NA	NA	NA	NA
VALERALDEHYDE	88	ND	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	89	ND	NA	NA	NA	NA	NA	NA
3-PENTANONE	90	ND	NA	NA	NA	NA	NA	NA
TRICHLOROETHYLENE + BDCMETHANE	235	ND	NA	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406761-05

FIELD SAMPLE NUMBER:

A336

1-HEPTENE	93	ND	NA	NA	NA	NA	NA	NA
1,4-DIOXANE + 2,2,4-TRIMETHYL-1-PENTENE	234	ND	NA	NA	NA	NA	NA	NA
N-HEPTANE	95	ND	NA	NA	NA	NA	NA	NA
N-BUTYL MERCAPTAN	96	ND	NA	NA	NA	NA	NA	NA
T-3-HEPTENE	97	ND	NA	NA	NA	NA	NA	NA
BISCHLOROMETHYL ETHER	98	ND	NA	NA	NA	NA	NA	NA
C-3-HEPTENE	99	ND	NA	NA	NA	NA	NA	NA
T-2-HEPTENE	100	ND	NA	NA	NA	NA	NA	NA
2,4,4-TRIMETHYL-1-PENTENE	101	ND	NA	NA	NA	NA	NA	NA
C-1,3-DICHLOROPROPENE	102	ND	NA	NA	NA	NA	NA	NA
METHYLCYCLOHEXANE	103	ND	NA	NA	NA	NA	NA	NA
METHYLISOBUTYLKETONE	104	ND	NA	NA	NA	NA	NA	NA
2,4,4-TRIMETHYL-2-PENTENE	105	ND	NA	NA	NA	NA	NA	NA
2,5-DIMETHYLHEXANE	106	ND	NA	NA	NA	NA	NA	NA
2,2,3-TRIMETHYLPENTANE	107	ND	NA	NA	NA	NA	NA	NA
T-1,3-DICHLOROPROPENE	108	ND	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	109	ND	NA	NA	NA	NA	NA	NA
2,3,4-TRIMETHYLPENTANE	110	ND	NA	NA	NA	NA	NA	NA
TOLUENE	111	96.4	NA	NA	NA	NA	NA	NA
2-METHYLTHIOPHENE	112	ND	NA	NA	NA	NA	NA	NA
3-METHYLTHIOPHENE	113	ND	NA	NA	NA	NA	NA	NA
1-METHYLCYCLOHEXENE	114	ND	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-1-HEXENE	115	ND	NA	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	116	ND	NA	NA	NA	NA	NA	NA
3-METHYLHEPTANE	117	ND	NA	NA	NA	NA	NA	NA
HEXANAL	118	ND	NA	NA	NA	NA	NA	NA
1,2-DIBROMOETHANE	119	ND	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	120	ND	NA	NA	NA	NA	NA	NA
2,2,5-TRIMETHYLHEXANE	121	ND	NA	NA	NA	NA	NA	NA
1-OCTENE	122	ND	NA	NA	NA	NA	NA	NA
TETRAHYDROTHIOPHENE	123	ND	NA	NA	NA	NA	NA	NA
N-OCTANE	124	ND	NA	NA	NA	NA	NA	NA
TETRACHLOROETHYLENE	125	ND	NA	NA	NA	NA	NA	NA
C-2-OCTENE	126	ND	NA	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406761-05

FIELD SAMPLE NUMBER:

A336

ISOPENTYL MERCAPTAN	127	ND	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	128	ND	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	129	1.0	NA	NA	NA	NA	NA	NA
2,5-DIMETHYLTHIOPHENE	130	ND	NA	NA	NA	NA	NA	NA
P-XYLENE + M-XYLENE	131	1.8	NA	NA	NA	NA	NA	NA
BROMOFORM	132	ND	NA	NA	NA	NA	NA	NA
CYCLOHEXANONE	133	ND	NA	NA	NA	NA	NA	NA
BUTYL ACRYLATE	205	ND	NA	NA	NA	NA	NA	NA
STYRENE	134	ND	NA	NA	NA	NA	NA	NA
HEPTANAL	135	ND	NA	NA	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	136	ND	NA	NA	NA	NA	NA	NA
O-XYLENE	137	ND	NA	NA	NA	NA	NA	NA
1-NONENE	138	ND	NA	NA	NA	NA	NA	NA
N-NONANE	139	ND	NA	NA	NA	NA	NA	NA
4-NONENE	140	ND	NA	NA	NA	NA	NA	NA
ISOPROPYLBENZENE	141	ND	NA	NA	NA	NA	NA	NA
A-PINENE + BENZALDEHYDE	236	1.1	NA	NA	NA	NA	NA	NA
O-CHLOROTOLUENE	144	ND	NA	NA	NA	NA	NA	NA
M-CHLOROTOLUENE	145	ND	NA	NA	NA	NA	NA	NA
N-PROPYLBENZENE	146	ND	NA	NA	NA	NA	NA	NA
P-CHLOROTOLUENE	147	ND	NA	NA	NA	NA	NA	NA
M-ETHYLTOLUENE	148	ND	NA	NA	NA	NA	NA	NA
BISCHLOROETHYL ETHER	149	ND	NA	NA	NA	NA	NA	NA
P-ETHYLTOLUENE	150	ND	NA	NA	NA	NA	NA	NA
1,3,5-TRIMETHYLBENZENE	151	ND	NA	NA	NA	NA	NA	NA
O-ETHYLTOLUENE	152	ND	NA	NA	NA	NA	NA	NA
3-OCTANONE	202	ND	NA	NA	NA	NA	NA	NA
B-PINENE	153	ND	NA	NA	NA	NA	NA	NA
1-DECENE	154	ND	NA	NA	NA	NA	NA	NA
1,2,4-TMBENZENE + T-BUTYLBENZENE	237	ND	NA	NA	NA	NA	NA	NA
BENZYL CHLORIDE + M-DCBENZENE	230	ND	NA	NA	NA	NA	NA	NA
ISOBUTYLBENZENE	158	ND	NA	NA	NA	NA	NA	NA
N-DECANE + P-DICHLOROBENZENE	231	6.5	NA	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406761-05

FIELD SAMPLE NUMBER:

A336

1,2,3-TRIMETHYLBENZENE	161	ND	NA	NA	NA	NA	NA	NA
P-ISOPROPYLTOLUENE	162	ND	NA	NA	NA	NA	NA	NA
O-DICHLOROBENZENE	163	ND	NA	NA	NA	NA	NA	NA
LIMONENE	164	ND	NA	NA	NA	NA	NA	NA
INDAN	165	ND	NA	NA	NA	NA	NA	NA
INDENE	166	ND	NA	NA	NA	NA	NA	NA
M-DIETHYLBENZENE	167	ND	NA	NA	NA	NA	NA	NA
N-BUTYLBENZENE	168	ND	NA	NA	NA	NA	NA	NA
P-DIETHYLBENZENE	169	ND	NA	NA	NA	NA	NA	NA
1-UNDECENE	170	ND	NA	NA	NA	NA	NA	NA
N-UNDECANE	171	6.5	NA	NA	NA	NA	NA	NA
DICHLOROTOLUENE	172	ND	NA	NA	NA	NA	NA	NA
NAPHTHALENE	173	ND	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	220	ND	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	210	ND	NA	NA	NA	NA	NA	NA
UNIDENTIFIED VOC	174	12.3	NA	NA	NA	NA	NA	NA
UNIDENTIFIED HALOGENATED VOC	175	1.2	NA	NA	NA	NA	NA	NA

TNMHC

293

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ND= Not Detected

NA= Not Analyzed

Analytical system: HP 5890 GC [C2C3]

Analytical system: HP 5890 GC [C]

b. Differences between recorded field and lab pressure measurements

exceed laboratory or project specified criteria.

d. Sample analyzed outside of recommended laboratory internal holding

time of 14 days.

i. Detection limits are increased.

7-11-1994 15:04:12

VOC AIR CANISTER ANALYSIS
FINAL REPORT

Client: LOS ALAMOS
Units: ug/m3

Radian Workorder #: 9406865-01
Date Sampled: 6-10-94

Site Number:	_____	_____	_____	_____	_____	_____	_____
Sample wide footnotes:	b,xx	xx					
Analytical run FID:	C	C	NA	NA	NA	NA	NA
Analytical run HALL:	C	C	NA	NA	NA	NA	NA
FIELD SAMPLE NUMBER:	A343	A372					
SAMPLE CONTROL NUMBER:	9406865-01	9406865-03					
DATE SAMPLED:	6-10-94	6-13-94					
NELSON FILE NUMBER:	J006193	J006195					
FID ANALYSIS DATE:	6-19-94	6-19-94					
HALL ANALYSIS DATE:	6-19-94	6-19-94					
C2C3 ANALYSIS DATE:	6-18-94	6-18-94					
CANISTER NUMBER:	920	906					
FID DILUTION FACTOR:	0.270081	0.224599	0.000000	0.000000	0.000000	0.000000	0.000000
HALL DILUTION FACTOR:	0.270081	0.224599	0.000000	0.000000	0.000000	0.000000	0.000000
C2C3 DILUTION FACTOR:	0.270081	0.224599	0.000000	0.000000	0.000000	0.000000	0.000000
FID VOLUME:	0.500000	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000
HALL VOLUME:	0.500000	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000
C2C3 VOLUME:	0.500000	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000

Client: LOS ALAMOS

Radian Workorder #: 9406865-01

FIELD SAMPLE NUMBER:	A343		A372						
ETHYLENE	193	2.1		2.4	NA	NA	NA	NA	NA
ACETYLENE	194	1.4	ND		NA	NA	NA	NA	NA
FREON 23	214	ND	ND		NA	NA	NA	NA	NA
ETHANE	2	1.8		1.2	NA	NA	NA	NA	NA
CHLORODIFLUOROMETHANE	195	43.2	ND		NA	NA	NA	NA	NA
PROPYLENE	3	1.5		1.4	NA	NA	NA	NA	NA
PROPANE	4	6.5		0.8	NA	NA	NA	NA	NA
DIMETHYL ETHER	190	ND	ND		NA	NA	NA	NA	NA
CHLOROMETHANE	5	11.9		0.3	NA	NA	NA	NA	NA
PROPYNE	6	ND	ND		NA	NA	NA	NA	NA
DICHLORODIFLUOROMETHANE	7	ND	ND		NA	NA	NA	NA	NA
FREON 114	215	ND	ND		NA	NA	NA	NA	NA
ISOBUTANE	8	170	ND		NA	NA	NA	NA	NA
ACETALDEHYDE	9	ND	ND		NA	NA	NA	NA	NA
VINYL CHLORIDE	10	ND	ND		NA	NA	NA	NA	NA
ISOBUTENE + 1-BUTENE	11	6.5		16.6	NA	NA	NA	NA	NA
1,3-BUTADIENE	12	ND	ND		NA	NA	NA	NA	NA
METHYL MERCAPTAN	13	ND	ND		NA	NA	NA	NA	NA
N-BUTANE	14	10.9	ND		NA	NA	NA	NA	NA
METHANOL	15	ND	ND		NA	NA	NA	NA	NA
BROMOMETHANE	16	ND	ND		NA	NA	NA	NA	NA
T-2-BUTENE	17	1.4	ND		NA	NA	NA	NA	NA
NEOPENTANE	18	ND	ND		NA	NA	NA	NA	NA
DIMETHYL ACETAL	189	ND	ND		NA	NA	NA	NA	NA
METHYL FORMATE	191	ND	ND		NA	NA	NA	NA	NA
1-BUTYNE	19	ND	ND		NA	NA	NA	NA	NA
C-2-BUTENE	20	ND	ND		NA	NA	NA	NA	NA
CHLOROETHANE	21	ND	ND		NA	NA	NA	NA	NA
VINYL BROMIDE	22	ND	ND		NA	NA	NA	NA	NA
3-METHYL-1-BUTENE	23	ND	ND		NA	NA	NA	NA	NA
ETHANOL + ACETONITRILE	233	ND	ND		NA	NA	NA	NA	NA
ISOPENTANE	26	418		1.1	NA	NA	NA	NA	NA
ACETONE	27	16.9	ND		NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406865-01

FIELD SAMPLE NUMBER:		A343	A372					
PROPIONALDEHYDE	28	ND	ND	NA	NA	NA	NA	NA
TRICHLOROFLUOROMETHANE	29	3.4	ND	NA	NA	NA	NA	NA
2-BUTYNE	30	ND	ND	NA	NA	NA	NA	NA
ETHYL MERCAPTAN	31	ND	ND	NA	NA	NA	NA	NA
1-PENTENE	32	ND	0.9	NA	NA	NA	NA	NA
IODOMETHANE	33	ND	ND	NA	NA	NA	NA	NA
2-METHYL-1-BUTENE	34	ND	ND	NA	NA	NA	NA	NA
ACRYLONITRILE	35	ND	ND	NA	NA	NA	NA	NA
N-PENTANE	36	45.9	1.3	NA	NA	NA	NA	NA
ISOPRENE	37	ND	1.6	NA	NA	NA	NA	NA
DIMETHYLSULFIDE	38	ND	ND	NA	NA	NA	NA	NA
DIETHYL ETHER + 2-PROPANOL	239	ND	ND	NA	NA	NA	NA	NA
T-2-PENTENE	41	0.7	ND	NA	NA	NA	NA	NA
DICHLOROFLUOROMETHANE	196	ND	ND	NA	NA	NA	NA	NA
1,1-DICHLOROETHYLENE	42	ND	ND	NA	NA	NA	NA	NA
C-2-PENTENE	43	ND	ND	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	44	71.4	498	NA	NA	NA	NA	NA
2-METHYL-2-BUTENE	45	ND	ND	NA	NA	NA	NA	NA
NEOHXANE	46	1.0	ND	NA	NA	NA	NA	NA
FREON 113	199	245	ND	NA	NA	NA	NA	NA
ISOBUTYRALDEHYDE	47	ND	ND	NA	NA	NA	NA	NA
CYCLOPENTENE	48	ND	ND	NA	NA	NA	NA	NA
T-1,2-DICHLOROETHYLENE	49	ND	ND	NA	NA	NA	NA	NA
4-METHYL-1-PENTENE	50	ND	ND	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	51	ND	ND	NA	NA	NA	NA	NA
CYCLOPENTANE	52	5.2	ND	NA	NA	NA	NA	NA
1-PROPANOL	53	ND	ND	NA	NA	NA	NA	NA
2,3-DIMETHYLBUTANE	54	1.2	ND	NA	NA	NA	NA	NA
MTBE + ISOHEX + C-4-M-2-PENTENE	232	8.0	4.0	NA	NA	NA	NA	NA
VINYL ACETATE	203	ND	ND	NA	NA	NA	NA	NA
BUTYRALDEHYDE	58	ND	ND	NA	NA	NA	NA	NA
T-4-METHYL-2-PENTENE	59	ND	ND	NA	NA	NA	NA	NA
CHLOROPRENE	192	ND	ND	NA	NA	NA	NA	NA
2-BUTANONE	60	16.7	ND	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406865-01

FIELD SAMPLE NUMBER:		A343	A372					
3-METHYLPENTANE	61	4.3	ND	NA	NA	NA	NA	NA
1-HEXENE	62	ND	ND	NA	NA	NA	NA	NA
2-METHYL-1-PENTENE	63	ND	ND	NA	NA	NA	NA	NA
BROMOCHLOROMETHANE	212	ND	ND	NA	NA	NA	NA	NA
C-1,2-DICHLOROETHYLENE	64	ND	ND	NA	NA	NA	NA	NA
2-ETHYL-1-BUTENE	65	ND	ND	NA	NA	NA	NA	NA
N-HEXANE	66	8.6	1.4	NA	NA	NA	NA	NA
METHYL ACRYLATE	204	ND	ND	NA	NA	NA	NA	NA
CHLOROFORM	67	ND	ND	NA	NA	NA	NA	NA
C-3-HEXENE	68	ND	ND	NA	NA	NA	NA	NA
T-2-HEXENE	69	ND	ND	NA	NA	NA	NA	NA
2-METHYL-2-PENTENE	70	ND	ND	NA	NA	NA	NA	NA
C-2-HEXENE	71	ND	ND	NA	NA	NA	NA	NA
C-3-METHYL-2-PENTENE	72	ND	ND	NA	NA	NA	NA	NA
METHYLCYCLOPENTANE	73	4.6	ND	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	74	ND	ND	NA	NA	NA	NA	NA
2,4-DIMETHYLPENTANE	75	0.8	ND	NA	NA	NA	NA	NA
1,1,1-TRICHLOROETHANE	76	11.1	0.5	NA	NA	NA	NA	NA
2-METHYL-1,3-DIOXOLANE	188	ND	ND	NA	NA	NA	NA	NA
ISOVALERALDEHYDE	77	ND	ND	NA	NA	NA	NA	NA
METHYLCYCLOPENTENE	78	ND	ND	NA	NA	NA	NA	NA
BENZENE	79	4.0	1.0	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	80	ND	ND	NA	NA	NA	NA	NA
1-BUTANOL + CYCLOHEXANE	238	3.8	ND	NA	NA	NA	NA	NA
THIOPHENE	82	ND	ND	NA	NA	NA	NA	NA
ISOHEPTANE + 2,3-DIMETHYLPENTANE	84	4.9	ND	NA	NA	NA	NA	NA
2-PENTANONE	85	ND	ND	NA	NA	NA	NA	NA
CYCLOHEXENE	86	ND	ND	NA	NA	NA	NA	NA
3-METHYLHEXANE	87	4.3	ND	NA	NA	NA	NA	NA
VALERALDEHYDE	88	ND	ND	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	89	ND	ND	NA	NA	NA	NA	NA
3-PENTANONE	90	ND	ND	NA	NA	NA	NA	NA
TRICHLOROETHYLENE + BDCMETHANE	235	0.7	ND	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406865-01

FIELD SAMPLE NUMBER:		A343	A372					
1-HEPTENE	93	ND	ND	NA	NA	NA	NA	NA
1,4-DIOXANE + 2,2,4-TMPENTANE	234	2.4	ND	NA	NA	NA	NA	NA
N-HEPTANE	95	3.6	2.8	NA	NA	NA	NA	NA
N-BUTYL MERCAPTAN	96	ND	ND	NA	NA	NA	NA	NA
T-3-HEPTENE	97	ND	ND	NA	NA	NA	NA	NA
BISCHLOROMETHYL ETHER	98	ND	ND	NA	NA	NA	NA	NA
C-3-HEPTENE	99	ND	ND	NA	NA	NA	NA	NA
T-2-HEPTENE	100	ND	ND	NA	NA	NA	NA	NA
2,4,4-TRIMETHYL-1-PENTENE	101	ND	ND	NA	NA	NA	NA	NA
C-1,3-DICHLOROPROPENE	102	ND	ND	NA	NA	NA	NA	NA
METHYLCYCLOHEXANE	103	2.1	ND	NA	NA	NA	NA	NA
METHYLISOBUTYLKETONE	104	3.1	ND	NA	NA	NA	NA	NA
2,4,4-TRIMETHYL-2-PENTENE	105	ND	ND	NA	NA	NA	NA	NA
2,5-DIMETHYLHEXANE	106	1.0	ND	NA	NA	NA	NA	NA
2,2,3-TRIMETHYLPENTANE	107	0.9	ND	NA	NA	NA	NA	NA
T-1,3-DICHLOROPROPENE	108	ND	ND	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	109	ND	ND	NA	NA	NA	NA	NA
2,3,4-TRIMETHYLPENTANE	110	0.6	ND	NA	NA	NA	NA	NA
TOLUENE	111	121	1.9	NA	NA	NA	NA	NA
2-METHYLTHIOPHENE	112	ND	ND	NA	NA	NA	NA	NA
3-METHYLTHIOPHENE	113	ND	ND	NA	NA	NA	NA	NA
1-METHYLCYCLOHEXENE	114	ND	ND	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-1-HEXENE	115	ND	ND	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	116	ND	ND	NA	NA	NA	NA	NA
3-METHYLHEPTANE	117	1.8	ND	NA	NA	NA	NA	NA
HEXANAL	118	1.3	1.4	NA	NA	NA	NA	NA
1,2-DIBROMOETHANE	119	ND	ND	NA	NA	NA	NA	NA
2-CHLOROETHYLVINYL ETHER	120	ND	ND	NA	NA	NA	NA	NA
2,2,5-TRIMETHYLHEXANE	121	ND	ND	NA	NA	NA	NA	NA
1-OCTENE	122	ND	ND	NA	NA	NA	NA	NA
TETRAHYDROTHIOPHENE	123	ND	ND	NA	NA	NA	NA	NA
N-OCTANE	124	1.5	1.6	NA	NA	NA	NA	NA
TETRACHLOROETHYLENE	125	2.3	20.9	NA	NA	NA	NA	NA
C-2-OCTENE	126	ND	ND	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406865-01

FIELD SAMPLE NUMBER:		A343	A372					
ISOPENTYL MERCAPTAN	127	ND	ND	NA	NA	NA	NA	NA
CHLOROBENZENE	128	ND	ND	NA	NA	NA	NA	NA
ETHYLBENZENE	129	4.2	ND	NA	NA	NA	NA	NA
2,5-DIMETHYLTHIOPHENE	130	ND	ND	NA	NA	NA	NA	NA
P-XYLENE + M-XYLENE	131	8.6	5.4	NA	NA	NA	NA	NA
BROMOFORM	132	ND	ND	NA	NA	NA	NA	NA
CYCLOHEXANONE	133	ND	ND	NA	NA	NA	NA	NA
BUTYL ACRYLATE	205	ND	ND	NA	NA	NA	NA	NA
STYRENE	134	11.6	ND	NA	NA	NA	NA	NA
HEPTANAL	135	ND	ND	NA	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	136	ND	ND	NA	NA	NA	NA	NA
O-XYLENE	137	3.1	ND	NA	NA	NA	NA	NA
1-NONENE	138	ND	ND	NA	NA	NA	NA	NA
N-NONANE	139	0.7	ND	NA	NA	NA	NA	NA
4-NONENE	140	ND	ND	NA	NA	NA	NA	NA
ISOPROPYLBENZENE	141	ND	ND	NA	NA	NA	NA	NA
A-PINENE + BENZALDEHYDE	236	16.3	64.2	NA	NA	NA	NA	NA
O-CHLOROTOLUENE	144	ND	ND	NA	NA	NA	NA	NA
M-CHLOROTOLUENE	145	ND	ND	NA	NA	NA	NA	NA
N-PROPYLBENZENE	146	ND	ND	NA	NA	NA	NA	NA
P-CHLOROTOLUENE	147	ND	ND	NA	NA	NA	NA	NA
M-ETHYLTOLUENE	148	3.0	27.3	NA	NA	NA	NA	NA
BISCHLOROETHYL ETHER	149	ND	ND	NA	NA	NA	NA	NA
P-ETHYLTOLUENE	150	ND	ND	NA	NA	NA	NA	NA
1,3,5-TRIMETHYLBENZENE	151	1.1	ND	NA	NA	NA	NA	NA
O-ETHYLTOLUENE	152	0.6	23.2	NA	NA	NA	NA	NA
3-OCTANONE	202	ND	ND	NA	NA	NA	NA	NA
B-PINENE	153	0.7	7.0	NA	NA	NA	NA	NA
1-DECENE	154	ND	ND	NA	NA	NA	NA	NA
1,2,4-TMBENZENE + T-BUTYLBENZENE	237	1.6	1.0	NA	NA	NA	NA	NA
BENZYL CHLORIDE + M-DCBENZENE	230	ND	ND	NA	NA	NA	NA	NA
ISOBUTYLBENZENE	158	ND	ND	NA	NA	NA	NA	NA
N-DECANE + P-DICHLOROBENZENE	231	29.0	0.8	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406865-01

FIELD SAMPLE NUMBER:		A343	A372					
1,2,3-TRIMETHYLBENZENE	161	0.8	0.7	NA	NA	NA	NA	NA
P-ISOPROPYLTOLUENE	162	ND	13.5	NA	NA	NA	NA	NA
O-DICHLOROBENZENE	163	ND	ND	NA	NA	NA	NA	NA
LIMONENE	164	ND	85.7	NA	NA	NA	NA	NA
INDAN	165	ND	ND	NA	NA	NA	NA	NA
INDENE	166	ND	3.5	NA	NA	NA	NA	NA
M-DIETHYLBENZENE	167	ND	ND	NA	NA	NA	NA	NA
N-BUTYLBENZENE	168	2.3	ND	NA	NA	NA	NA	NA
P-DIETHYLBENZENE	169	ND	ND	NA	NA	NA	NA	NA
1-UNDECENE	170	ND	ND	NA	NA	NA	NA	NA
N-UNDECANE	171	88.9	2.5	NA	NA	NA	NA	NA
DICHLOROTOLUENE	172	ND	ND	NA	NA	NA	NA	NA
NAPHTHALENE	173	ND	ND	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	220	ND	ND	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	210	ND	ND	NA	NA	NA	NA	NA
UNIDENTIFIED VOC	174	108	550	NA	NA	NA	NA	NA
UNIDENTIFIED HALOGENATED VOC	175	394	0.3	NA	NA	NA	NA	NA
TNMHC		1160	832	-	-	-	-	-

ND= Not Detected

NA= Not Analyzed

Analytical system: HP 5890 GC [C2C3]

Analytical system: HP 5890 GC [C]

b. Differences between recorded field and lab pressure measurements
exceed laboratory or project specified criteria.

xx. Refer to attached document for additional information.

VOC AIR CANISTER ANALYSIS FINAL REPORT

Radian Workorder #: 9406865-02
Date Sampled: 6-13-94

Site Number:	None	_____	_____	_____	_____	_____	_____
Sample wide footnotes:	C	NA	NA	NA	NA	NA	NA
Analytical run FID:	C	NA	NA	NA	NA	NA	NA
Analytical run HALL:	C	NA	NA	NA	NA	NA	NA
<hr/>							
FIELD SAMPLE NUMBER:	A359						
SAMPLE CONTROL NUMBER:	9406865-02						
DATE SAMPLED:	6-13-94						
NELSON FILE NUMBER:	J006194						
FID ANALYSIS DATE:	6-19-94						
HALL ANALYSIS DATE:	6-19-94						
C2C3 ANALYSIS DATE:	6-18-94						
CANISTER NUMBER:	889						
FID DILUTION FACTOR:	0.223861	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
HALL DILUTION FACTOR:	0.223861	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
C2C3 DILUTION FACTOR:	0.223861	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
FID VOLUME:	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
HALL VOLUME:	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
C2C3 VOLUME:	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Client: LOS ALAMOS

Radian Workorder #: 9406865-02

FIELD SAMPLE NUMBER:

A359

ETHYLENE	193	ND	NA	NA	NA	NA	NA	NA
ACETYLENE	194	ND	NA	NA	NA	NA	NA	NA
FREON 23	214	ND	NA	NA	NA	NA	NA	NA
ETHANE	2	0.6	NA	NA	NA	NA	NA	NA
CHLORODIFLUOROMETHANE	195	ND	NA	NA	NA	NA	NA	NA
PROPYLENE	3	0.6	NA	NA	NA	NA	NA	NA
PROPANE	4	ND	NA	NA	NA	NA	NA	NA
DIMETHYL ETHER	190	ND	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	5	0.4	NA	NA	NA	NA	NA	NA
PROPENE	6	ND	NA	NA	NA	NA	NA	NA
DICHLORODIFLUOROMETHANE	7	ND	NA	NA	NA	NA	NA	NA
FREON 114	215	ND	NA	NA	NA	NA	NA	NA
ISOBUTANE	8	ND	NA	NA	NA	NA	NA	NA
ACETALDEHYDE	9	ND	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	10	ND	NA	NA	NA	NA	NA	NA
ISOBUTENE + 1-BUTENE	11	12.1	NA	NA	NA	NA	NA	NA
1,3-BUTADIENE	12	ND	NA	NA	NA	NA	NA	NA
METHYL MERCAPTAN	13	ND	NA	NA	NA	NA	NA	NA
N-BUTANE	14	ND	NA	NA	NA	NA	NA	NA
METHANOL	15	11.2	NA	NA	NA	NA	NA	NA
BROMOMETHANE	16	ND	NA	NA	NA	NA	NA	NA
T-2-BUTENE	17	ND	NA	NA	NA	NA	NA	NA
NEOPENTANE	18	ND	NA	NA	NA	NA	NA	NA
DIMETHYL ACETAL	189	ND	NA	NA	NA	NA	NA	NA
METHYL FORMATE	191	ND	NA	NA	NA	NA	NA	NA
1-BUTYNE	19	ND	NA	NA	NA	NA	NA	NA
C-2-BUTENE	20	ND	NA	NA	NA	NA	NA	NA
CHLOROETHANE	21	ND	NA	NA	NA	NA	NA	NA
VINYL BROMIDE	22	ND	NA	NA	NA	NA	NA	NA
3-METHYL-1-BUTENE	23	ND	NA	NA	NA	NA	NA	NA
ETHANOL + ACETONITRILE	233	ND	NA	NA	NA	NA	NA	NA
ISOPENTANE	26	0.6	NA	NA	NA	NA	NA	NA
ACETONE	27	ND	NA	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406865-02

FIELD SAMPLE NUMBER:

A359

PROPIONALDEHYDE	28	ND	NA	NA	NA	NA	NA	NA
TRICHLOROFLUOROMETHANE	29	ND	NA	NA	NA	NA	NA	NA
2-BUTYNE	30	ND	NA	NA	NA	NA	NA	NA
ETHYL MERCAPTAN	31	ND	NA	NA	NA	NA	NA	NA
1-PENTENE	32	ND	NA	NA	NA	NA	NA	NA
IODOMETHANE	33	ND	NA	NA	NA	NA	NA	NA
2-METHYL-1-BUTENE	34	ND	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	35	ND	NA	NA	NA	NA	NA	NA
N-PENTANE	36	ND	NA	NA	NA	NA	NA	NA
ISOPRENE	37	ND	NA	NA	NA	NA	NA	NA
DIMETHYLSULFIDE	38	ND	NA	NA	NA	NA	NA	NA
DIETHYL ETHER + 2-PROPANOL	239	ND	NA	NA	NA	NA	NA	NA
T-2-PENTENE	41	ND	NA	NA	NA	NA	NA	NA
DICHLOROFLUOROMETHANE	196	ND	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHYLENE	42	ND	NA	NA	NA	NA	NA	NA
C-2-PENTENE	43	ND	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	44	89.1	NA	NA	NA	NA	NA	NA
2-METHYL-2-BUTENE	45	ND	NA	NA	NA	NA	NA	NA
NEOHXANE	46	ND	NA	NA	NA	NA	NA	NA
FREON 113	199	2.7	NA	NA	NA	NA	NA	NA
ISOBUTYRALDEHYDE	47	ND	NA	NA	NA	NA	NA	NA
CYCLOPENTENE	48	ND	NA	NA	NA	NA	NA	NA
T-1,2-DICHLOROETHYLENE	49	ND	NA	NA	NA	NA	NA	NA
4-METHYL-1-PENTENE	50	ND	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	51	ND	NA	NA	NA	NA	NA	NA
CYCLOPENTANE	52	ND	NA	NA	NA	NA	NA	NA
1-PROPANOL	53	ND	NA	NA	NA	NA	NA	NA
2,3-DIMETHYLBUTANE	54	ND	NA	NA	NA	NA	NA	NA
MTBE + ISOHEX + C-4-M-2-PENTENE	232	2.2	NA	NA	NA	NA	NA	NA
VINYL ACETATE	203	ND	NA	NA	NA	NA	NA	NA
BUTYRALDEHYDE	58	ND	NA	NA	NA	NA	NA	NA
T-4-METHYL-2-PENTENE	59	ND	NA	NA	NA	NA	NA	NA
CHLOROPRENE	192	ND	NA	NA	NA	NA	NA	NA
2-BUTANONE	60	ND	NA	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406865-02

FIELD SAMPLE NUMBER:

A359

3-METHYLPENTANE	61	ND	NA	NA	NA	NA	NA	NA
1-HEXENE	62	ND	NA	NA	NA	NA	NA	NA
2-METHYL-1-PENTENE	63	ND	NA	NA	NA	NA	NA	NA
BROMOCHLOROMETHANE	212	ND	NA	NA	NA	NA	NA	NA
C-1,2-DICHLOROETHYLENE	64	ND	NA	NA	NA	NA	NA	NA
2-ETHYL-1-BUTENE	65	ND	NA	NA	NA	NA	NA	NA
N-HEXANE	66	0.6	NA	NA	NA	NA	NA	NA
METHYL ACRYLATE	204	ND	NA	NA	NA	NA	NA	NA
CHLOROFORM	67	ND	NA	NA	NA	NA	NA	NA
C-3-HEXENE	68	ND	NA	NA	NA	NA	NA	NA
T-2-HEXENE	69	ND	NA	NA	NA	NA	NA	NA
2-METHYL-2-PENTENE	70	ND	NA	NA	NA	NA	NA	NA
C-2-HEXENE	71	ND	NA	NA	NA	NA	NA	NA
C-3-METHYL-2-PENTENE	72	ND	NA	NA	NA	NA	NA	NA
METHYLCYCLOPENTANE	73	ND	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	74	ND	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPENTANE	75	ND	NA	NA	NA	NA	NA	NA
1,1,1-TRICHLOROETHANE	76	ND	NA	NA	NA	NA	NA	NA
2-METHYL-1,3-DIOXOLANE	188	ND	NA	NA	NA	NA	NA	NA
ISOVALERALDEHYDE	77	ND	NA	NA	NA	NA	NA	NA
METHYLCYCLOPENTENE	78	ND	NA	NA	NA	NA	NA	NA
BENZENE	79	0.6	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	80	ND	NA	NA	NA	NA	NA	NA
1-BUTANOL + CYCLOHEXANE	238	ND	NA	NA	NA	NA	NA	NA
THIOPHENE	82	ND	NA	NA	NA	NA	NA	NA
ISOHEPTANE + 2,3-DIMETHYLPENTANE	84	ND	NA	NA	NA	NA	NA	NA
2-PENTANONE	85	ND	NA	NA	NA	NA	NA	NA
CYCLOHEXENE	86	ND	NA	NA	NA	NA	NA	NA
3-METHYLHEXANE	87	ND	NA	NA	NA	NA	NA	NA
VALERALDEHYDE	88	ND	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	89	ND	NA	NA	NA	NA	NA	NA
3-PENTANONE	90	ND	NA	NA	NA	NA	NA	NA
TRICHLOROETHYLENE + BDCMETHANE	235	ND	NA	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406865-02

FIELD SAMPLE NUMBER:

A359

1-HEPTENE	93	ND	NA	NA	NA	NA	NA	NA
1,4-DIOXANE + 2,2,4-TRIMETHYLPENTANE	234	ND	NA	NA	NA	NA	NA	NA
N-HEPTANE	95	ND	NA	NA	NA	NA	NA	NA
N-BUTYL MERCAPTAN	96	ND	NA	NA	NA	NA	NA	NA
T-3-HEPTENE	97	ND	NA	NA	NA	NA	NA	NA
BISCHLOROMETHYL ETHER	98	ND	NA	NA	NA	NA	NA	NA
C-3-HEPTENE	99	ND	NA	NA	NA	NA	NA	NA
T-2-HEPTENE	100	ND	NA	NA	NA	NA	NA	NA
2,4,4-TRIMETHYL-1-PENTENE	101	ND	NA	NA	NA	NA	NA	NA
C-1,3-DICHLOROPROPENE	102	ND	NA	NA	NA	NA	NA	NA
METHYLCYCLOHEXANE	103	ND	NA	NA	NA	NA	NA	NA
METHYLISOBUTYLKETONE	104	ND	NA	NA	NA	NA	NA	NA
2,4,4-TRIMETHYL-2-PENTENE	105	ND	NA	NA	NA	NA	NA	NA
2,5-DIMETHYLHEXANE	106	ND	NA	NA	NA	NA	NA	NA
2,2,3-TRIMETHYLPENTANE	107	ND	NA	NA	NA	NA	NA	NA
T-1,3-DICHLOROPROPENE	108	ND	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	109	ND	NA	NA	NA	NA	NA	NA
2,3,4-TRIMETHYLPENTANE	110	ND	NA	NA	NA	NA	NA	NA
TOLUENE	111	1.5	NA	NA	NA	NA	NA	NA
2-METHYLTHIOPHENE	112	ND	NA	NA	NA	NA	NA	NA
3-METHYLTHIOPHENE	113	ND	NA	NA	NA	NA	NA	NA
1-METHYLCYCLOHEXENE	114	ND	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-1-HEXENE	115	ND	NA	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	116	ND	NA	NA	NA	NA	NA	NA
3-METHYLHEPTANE	117	ND	NA	NA	NA	NA	NA	NA
HEXANAL	118	ND	NA	NA	NA	NA	NA	NA
1,2-DIBROMOETHANE	119	ND	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	120	ND	NA	NA	NA	NA	NA	NA
2,2,5-TRIMETHYLHEXANE	121	ND	NA	NA	NA	NA	NA	NA
1-OCTENE	122	ND	NA	NA	NA	NA	NA	NA
TETRAHYDROTHIOPHENE	123	ND	NA	NA	NA	NA	NA	NA
N-OCTANE	124	ND	NA	NA	NA	NA	NA	NA
TETRACHLOROETHYLENE	125	1.4	NA	NA	NA	NA	NA	NA
C-2-OCTENE	126	ND	NA	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406865-02

FIELD SAMPLE NUMBER:

A359

ISOPENTYL MERCAPTAN	127	ND	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	128	ND	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	129	ND	NA	NA	NA	NA	NA	NA
2,5-DIMETHYLTHIOPHENE	130	ND	NA	NA	NA	NA	NA	NA
P-XYLENE + M-XYLENE	131	0.8	NA	NA	NA	NA	NA	NA
BROMOFORM	132	ND	NA	NA	NA	NA	NA	NA
CYCLOHEXANONE	133	ND	NA	NA	NA	NA	NA	NA
BUTYL ACRYLATE	205	ND	NA	NA	NA	NA	NA	NA
STYRENE	134	ND	NA	NA	NA	NA	NA	NA
HEPTANAL	135	ND	NA	NA	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	136	ND	NA	NA	NA	NA	NA	NA
O-XYLENE	137	ND	NA	NA	NA	NA	NA	NA
1-NONENE	138	ND	NA	NA	NA	NA	NA	NA
N-NONANE	139	ND	NA	NA	NA	NA	NA	NA
4-NONENE	140	ND	NA	NA	NA	NA	NA	NA
ISOPROPYLBENZENE	141	ND	NA	NA	NA	NA	NA	NA
A-PINENE + BENZALDEHYDE	236	ND	NA	NA	NA	NA	NA	NA
O-CHLOROTOLUENE	144	ND	NA	NA	NA	NA	NA	NA
M-CHLOROTOLUENE	145	ND	NA	NA	NA	NA	NA	NA
N-PROPYLBENZENE	146	ND	NA	NA	NA	NA	NA	NA
P-CHLOROTOLUENE	147	ND	NA	NA	NA	NA	NA	NA
M-ETHYLTOLUENE	148	ND	NA	NA	NA	NA	NA	NA
BISCHLOROETHYL ETHER	149	ND	NA	NA	NA	NA	NA	NA
P-ETHYLTOLUENE	150	ND	NA	NA	NA	NA	NA	NA
1,3,5-TRIMETHYLBENZENE	151	ND	NA	NA	NA	NA	NA	NA
O-ETHYLTOLUENE	152	ND	NA	NA	NA	NA	NA	NA
3-OCTANONE	202	ND	NA	NA	NA	NA	NA	NA
B-PINENE	153	ND	NA	NA	NA	NA	NA	NA
1-DECENE	154	ND	NA	NA	NA	NA	NA	NA
1,2,4-TMBENZENE + T-BUTYLBENZENE	237	ND	NA	NA	NA	NA	NA	NA
BENZYL CHLORIDE + M-DCBENZENE	230	ND	NA	NA	NA	NA	NA	NA
ISOBUTYLBENZENE	158	ND	NA	NA	NA	NA	NA	NA
N-DECANE + P-DICHLOROBENZENE	231	ND	NA	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406865-02

FIELD SAMPLE NUMBER:

A359

1,2,3-TRIMETHYLBENZENE	161	ND	NA	NA	NA	NA	NA	NA
P-ISOPROPYLTOLUENE	162	ND	NA	NA	NA	NA	NA	NA
O-DICHLOROBENZENE	163	ND	NA	NA	NA	NA	NA	NA
LIMONENE	164	ND	NA	NA	NA	NA	NA	NA
INDAN	165	ND	NA	NA	NA	NA	NA	NA
INDENE	166	ND	NA	NA	NA	NA	NA	NA
M-DIETHYLBENZENE	167	ND	NA	NA	NA	NA	NA	NA
N-BUTYLBENZENE	168	ND	NA	NA	NA	NA	NA	NA
P-DIETHYLBENZENE	169	ND	NA	NA	NA	NA	NA	NA
1-UNDECENE	170	ND	NA	NA	NA	NA	NA	NA
N-UNDECANE	171	ND	NA	NA	NA	NA	NA	NA
DICHLOROTOLUENE	172	ND	NA	NA	NA	NA	NA	NA
NAPHTHALENE	173	ND	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	220	ND	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	210	ND	NA	NA	NA	NA	NA	NA
UNIDENTIFIED VOC	174	4.0	NA	NA	NA	NA	NA	NA
UNIDENTIFIED HALOGENATED VOC	175	0.3	NA	NA	NA	NA	NA	NA

TNMHC

27.8

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ND= Not Detected

NA= Not Analyzed

Analytical system: HP 5890 GC [C2C3]

Analytical system: HP 5890 GC [C]

7-14-1994 18:58:03

VOC AIR CANISTER ANALYSIS
FINAL REPORT

Client: LOS ALAMOS
Units: ug/m³

Radian Workorder #: 9406A47-01A
Date Sampled: 6-17-94

Site Number:	_____	_____	_____	_____	_____	_____	_____
Sample wide footnotes:	i	xx	xx				
Analytical run FID:	D	D	D	NA	NA	NA	NA
Analytical run HALL:	D	D	D	NA	NA	NA	NA

	A418	A420	A421				
FIELD SAMPLE NUMBER:	A418	A420	A421				
SAMPLE CONTROL NUMBER:	9406A47-01A	9406A47-03	9406A47-04				
DATE SAMPLED:	6-17-94	6-17-94	6-17-94				
NELSON FILE NUMBER:	W006309	W0063013	W0063014				
FID ANALYSIS DATE:	6-30-94	7-1-94	7-1-94				
HALL ANALYSIS DATE:	6-30-94	7-1-94	7-1-94				
C2C3 ANALYSIS DATE:	6-29-94	6-29-94	6-29-94				
CANISTER NUMBER:	943	944	965				
FID DILUTION FACTOR:	0.178133	0.269600	0.275668	0.000000	0.000000	0.000000	0.000000
HALL DILUTION FACTOR:	0.178133	0.269600	0.275668	0.000000	0.000000	0.000000	0.000000
C2C3 DILUTION FACTOR:	0.178133	0.269600	0.275668	0.000000	0.000000	0.000000	0.000000
FID VOLUME:	0.500000	0.500000	0.500000	0.000000	0.000000	0.000000	0.000000
HALL VOLUME:	0.500000	0.500000	0.500000	0.000000	0.000000	0.000000	0.000000
C2C3 VOLUME:	0.500000	0.500000	0.500000	0.000000	0.000000	0.000000	0.000000

Client: LOS ALAMOS

Radian Workorder #: 9406A47-01A

FIELD SAMPLE NUMBER:		A418	A420	A421				
ETHYLENE	193	0.4	0.5	1.0	NA	NA	NA	NA
ACETYLENE	194	ND	ND	ND	NA	NA	NA	NA
FREON 23	214	ND	ND	ND	NA	NA	NA	NA
ETHANE	2	1.0	1.1	1.8	NA	NA	NA	NA
CHLORODIFLUOROMETHANE	195	ND	ND	ND	NA	NA	NA	NA
PROPYLENE	3	0.8	0.8	2.0	NA	NA	NA	NA
PROPANE	4	0.9	1.6	1.1	NA	NA	NA	NA
DIMETHYL ETHER	190	ND	ND	ND	NA	NA	NA	NA
CHLOROMETHANE	5	ND	0.6 g	0.8 g	NA	NA	NA	NA
PROPYNE	6	ND	ND	ND	NA	NA	NA	NA
DICHLORODIFLUOROMETHANE	7	ND	1.0	0.4	NA	NA	NA	NA
FREON 114	215	ND	ND	ND	NA	NA	NA	NA
ISOBUTANE	8	ND	0.6	0.5	NA	NA	NA	NA
ACETALDEHYDE	9	ND	ND	ND	NA	NA	NA	NA
VINYL CHLORIDE	10	ND	0.2	0.3	NA	NA	NA	NA
ISOBUTENE + 1-BUTENE	11	3.8	3.1	4.9	NA	NA	NA	NA
1,3-BUTADIENE	12	ND	ND	ND	NA	NA	NA	NA
METHYL MERCAPTAN	13	ND	ND	ND	NA	NA	NA	NA
N-BUTANE	14	ND	ND	ND	NA	NA	NA	NA
METHANOL	15	21.7	29.1	32.1	NA	NA	NA	NA
BROMOMETHANE	16	ND	ND	ND	NA	NA	NA	NA
T-2-BUTENE	17	ND	ND	ND	NA	NA	NA	NA
NEOPENTANE	18	ND	ND	ND	NA	NA	NA	NA
DIMETHYL ACETAL	189	ND	ND	ND	NA	NA	NA	NA
METHYL FORMATE	191	ND	ND	ND	NA	NA	NA	NA
1-BUTYNE	19	ND	ND	ND	NA	NA	NA	NA
C-2-BUTENE	20	ND	ND	ND	NA	NA	NA	NA
CHLOROETHANE	21	ND	ND	ND	NA	NA	NA	NA
VINYL BROMIDE	22	ND	ND	ND	NA	NA	NA	NA
3-METHYL-1-BUTENE	23	ND	ND	ND	NA	NA	NA	NA
ETHANOL + ACETONITRILE	233	ND	ND	ND	NA	NA	NA	NA
ISOPENTANE	26	ND	ND	ND	NA	NA	NA	NA
ACETONE	27	12.1	23.8	42.7	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406A47-01A

FIELD SAMPLE NUMBER:		A418	A420	A421				
PROPIONALDEHYDE	28	ND	ND	ND	NA	NA	NA	NA
TRICHLOROFLUOROMETHANE	29	1.4	1.9	2.4	NA	NA	NA	NA
2-BUTYNE	30	ND	ND	ND	NA	NA	NA	NA
ETHYL MERCAPTAN	31	ND	ND	ND	NA	NA	NA	NA
1-PENTENE	32	ND	ND	ND	NA	NA	NA	NA
IODOMETHANE	33	ND	ND	ND	NA	NA	NA	NA
2-METHYL-1-BUTENE	34	ND	ND	ND	NA	NA	NA	NA
ACRYLONITRILE	35	ND	ND	ND	NA	NA	NA	NA
N-PENTANE	36	ND	0.7	2.0	NA	NA	NA	NA
ISOPRENE	37	ND	0.6	ND	NA	NA	NA	NA
DIMETHYLSULFIDE	38	ND	ND	ND	NA	NA	NA	NA
DIETHYL ETHER + 2-PROPANOL	239	ND	ND	ND	NA	NA	NA	NA
T-2-PENTENE	41	ND	ND	ND	NA	NA	NA	NA
DICHLOROFLUOROMETHANE	196	ND	ND	ND	NA	NA	NA	NA
1,1-DICHLOROETHYLENE	42	3.0	4.6	6.8	NA	NA	NA	NA
C-2-PENTENE	43	ND	ND	ND	NA	NA	NA	NA
METHYLENE CHLORIDE	44	68.3	199	148	NA	NA	NA	NA
2-METHYL-2-BUTENE	45	ND	ND	ND	NA	NA	NA	NA
NEOHXANE	46	ND	ND	ND	NA	NA	NA	NA
FREON 113	199	33.6	18.1	57.8	NA	NA	NA	NA
ISOBUTYRALDEHYDE	47	ND	ND	ND	NA	NA	NA	NA
CYCLOPENTENE	48	ND	ND	ND	NA	NA	NA	NA
T-1,2-DICHLOROETHYLENE	49	ND	ND	ND	NA	NA	NA	NA
4-METHYL-1-PENTENE	50	ND	ND	ND	NA	NA	NA	NA
1,1-DICHLOROETHANE	51	14.1	25.8	16.6	NA	NA	NA	NA
CYCLOPENTANE	52	ND	ND	ND	NA	NA	NA	NA
1-PROPANOL	53	ND	ND	ND	NA	NA	NA	NA
2,3-DIMETHYLBUTANE	54	ND	ND	ND	NA	NA	NA	NA
MTBE + ISOHEX + C-4-M-2-PENTENE	232	1.0	1.0	1.6	NA	NA	NA	NA
VINYL ACETATE	203	ND	ND	ND	NA	NA	NA	NA
BUTYRALDEHYDE	58	ND	1.1	1.9	NA	NA	NA	NA
T-4-METHYL-2-PENTENE	59	ND	ND	ND	NA	NA	NA	NA
CHLOROPRENE	192	ND	ND	ND	NA	NA	NA	NA
2-BUTANONE	60	ND	0.8	1.2	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406A47-01A

FIELD SAMPLE NUMBER:		A418	A420	A421				
3-METHYLPENTANE	61	ND	ND	ND	NA	NA	NA	NA
1-HEXENE	62	ND	ND	ND	NA	NA	NA	NA
2-METHYL-1-PENTENE	63	ND	ND	ND	NA	NA	NA	NA
BROMOCHLOROMETHANE	212	ND	ND	ND	NA	NA	NA	NA
C-1,2-DICHLOROETHYLENE	64	ND	ND	ND	NA	NA	NA	NA
2-ETHYL-1-BUTENE	65	ND	ND	ND	NA	NA	NA	NA
N-HEXANE	66	ND	ND	ND	NA	NA	NA	NA
METHYL ACRYLATE	204	ND	ND	ND	NA	NA	NA	NA
CHLOROFORM	67	18.0	6.5	105	NA	NA	NA	NA
C-3-HEXENE	68	ND	ND	ND	NA	NA	NA	NA
T-2-HEXENE	69	ND	ND	ND	NA	NA	NA	NA
2-METHYL-2-PENTENE	70	ND	ND	ND	NA	NA	NA	NA
C-2-HEXENE	71	ND	ND	ND	NA	NA	NA	NA
C-3-METHYL-2-PENTENE	72	ND	ND	ND	NA	NA	NA	NA
METHYLCYCLOPENTANE	73	ND	ND	ND	NA	NA	NA	NA
1,2-DICHLOROETHANE	74	2.3	83.7	2.5	NA	NA	NA	NA
2,4-DIMETHYLPENTANE	75	ND	ND	ND	NA	NA	NA	NA
1,1,1-TRICHLOROETHANE	76	568	892	1210	NA	NA	NA	NA
2-METHYL-1,3-DIOXOLANE	188	ND	ND	ND	NA	NA	NA	NA
ISOVALERALDEHYDE	77	ND	ND	ND	NA	NA	NA	NA
METHYLCYCLOPENTENE	78	ND	ND	ND	NA	NA	NA	NA
BENZENE	79	0.7	0.9	0.7	NA	NA	NA	NA
CARBON TETRACHLORIDE	80	ND	ND	ND	NA	NA	NA	NA
1-BUTANOL + CYCLOHEXANE	238	ND	2.2	2.4	NA	NA	NA	NA
THIOPHENE	82	ND	ND	ND	NA	NA	NA	NA
ISOHEPTANE + 2,3-DIMETHYLPENTANE	84	ND	ND	ND	NA	NA	NA	NA
2-PENTANONE	85	ND	ND	ND	NA	NA	NA	NA
CYCLOHEXENE	86	ND	ND	ND	NA	NA	NA	NA
3-METHYLHEXANE	87	ND	ND	ND	NA	NA	NA	NA
VALERALDEHYDE	88	ND	ND	ND	NA	NA	NA	NA
1,2-DICHLOROPROPANE	89	25.3	ND	127	NA	NA	NA	NA
3-PENTANONE	90	ND	ND	ND	NA	NA	NA	NA
TRICHLOROETHYLENE + BDCMETHANE	235	169	664	150	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406A47-01A

FIELD SAMPLE NUMBER:		A418	A420	A421				
1-HEPTENE	93	ND	ND	ND	NA	NA	NA	NA
1,4-DIOXANE + 2,2,4-TRIPENTANE	234	ND	ND	ND	NA	NA	NA	NA
N-HEPTANE	95	ND	0.6	ND	NA	NA	NA	NA
N-BUTYL MERCAPTAN	96	ND	ND	ND	NA	NA	NA	NA
T-3-HEPTENE	97	ND	ND	ND	NA	NA	NA	NA
BISCHLOROMETHYL ETHER	98	ND	ND	ND	NA	NA	NA	NA
C-3-HEPTENE	99	ND	ND	ND	NA	NA	NA	NA
T-2-HEPTENE	100	ND	ND	ND	NA	NA	NA	NA
2,4,4-TRIMETHYL-1-PENTENE	101	ND	ND	ND	NA	NA	NA	NA
C-1,3-DICHLOROPROPENE	102	ND	ND	ND	NA	NA	NA	NA
METHYLCYCLOHEXANE	103	ND	ND	ND	NA	NA	NA	NA
METHYLISOBUTYLKETONE	104	ND	ND	ND	NA	NA	NA	NA
2,4,4-TRIMETHYL-2-PENTENE	105	ND	ND	ND	NA	NA	NA	NA
2,5-DIMETHYLHEXANE	106	ND	ND	ND	NA	NA	NA	NA
2,2,3-TRIMETHYLPENTANE	107	ND	ND	ND	NA	NA	NA	NA
T-1,3-DICHLOROPROPENE	108	ND	ND	ND	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	109	ND	ND	4.8	NA	NA	NA	NA
2,3,4-TRIMETHYLPENTANE	110	ND	ND	ND	NA	NA	NA	NA
TOLUENE	111	1.0	0.6	0.9	NA	NA	NA	NA
2-METHYLTHIOPHENE	112	ND	ND	ND	NA	NA	NA	NA
3-METHYLTHIOPHENE	113	ND	ND	ND	NA	NA	NA	NA
1-METHYLCYCLOHEXENE	114	ND	ND	ND	NA	NA	NA	NA
3,5,5-TRIMETHYL-1-HEXENE	115	ND	ND	ND	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	116	ND	ND	ND	NA	NA	NA	NA
3-METHYLHEPTANE	117	ND	ND	ND	NA	NA	NA	NA
HEXANAL	118	ND	0.5	0.8	NA	NA	NA	NA
1,2-DIBROMOETHANE	119	ND	ND	ND	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	120	ND	ND	ND	NA	NA	NA	NA
2,2,5-TRIMETHYLHEXANE	121	ND	ND	ND	NA	NA	NA	NA
1-OCTENE	122	ND	ND	ND	NA	NA	NA	NA
TETRAHYDROTHIOPHENE	123	ND	ND	ND	NA	NA	NA	NA
N-OCTANE	124	ND	ND	ND	NA	NA	NA	NA
TETRACHLOROETHYLENE	125	32.6	36.8	77.2	NA	NA	NA	NA
C-2-OCTENE	126	ND	ND	ND	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406A47-01A

FIELD SAMPLE NUMBER:		A418	A420	A421				
ISOPENTYL MERCAPTAN	127	ND	ND	ND	NA	NA	NA	NA
CHLOROBENZENE	128	ND	ND	ND	NA	NA	NA	NA
ETHYLBENZENE	129	ND	ND	ND	NA	NA	NA	NA
2,5-DIMETHYLTHIOPHENE	130	ND	ND	ND	NA	NA	NA	NA
P-XYLENE + M-XYLENE	131	ND	ND	0.4	NA	NA	NA	NA
BROMOFORM	132	ND	ND	ND	NA	NA	NA	NA
CYCLOHEXANONE	133	ND	ND	ND	NA	NA	NA	NA
BUTYL ACRYLATE	205	ND	ND	ND	NA	NA	NA	NA
STYRENE	134	ND	ND	ND	NA	NA	NA	NA
HEPTANAL	135	ND	ND	ND	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	136	ND	ND	ND	NA	NA	NA	NA
O-XYLENE	137	ND	ND	ND	NA	NA	NA	NA
1-NONENE	138	ND	ND	ND	NA	NA	NA	NA
N-NONANE	139	ND	ND	ND	NA	NA	NA	NA
4-NONENE	140	ND	ND	ND	NA	NA	NA	NA
ISOPROPYLBENZENE	141	ND	ND	ND	NA	NA	NA	NA
A-PINENE + BENZALDEHYDE	236	ND	1.9	2.5	NA	NA	NA	NA
O-CHLOROTOLUENE	144	ND	ND	ND	NA	NA	NA	NA
M-CHLOROTOLUENE	145	ND	ND	ND	NA	NA	NA	NA
N-PROPYLBENZENE	146	ND	ND	ND	NA	NA	NA	NA
P-CHLOROTOLUENE	147	ND	ND	ND	NA	NA	NA	NA
M-ETHYLTOLUENE	148	ND	1.6	2.3	NA	NA	NA	NA
BISCHLOROETHYL ETHER	149	ND	ND	ND	NA	NA	NA	NA
P-ETHYLTOLUENE	150	ND	ND	ND	NA	NA	NA	NA
1,3,5-TRIMETHYLBENZENE	151	ND	ND	ND	NA	NA	NA	NA
O-ETHYLTOLUENE	152	ND	ND	ND	NA	NA	NA	NA
3-OCTANONE	202	ND	ND	ND	NA	NA	NA	NA
B-PINENE	153	ND	ND	0.6	NA	NA	NA	NA
1-DECENE	154	ND	ND	ND	NA	NA	NA	NA
1,2,4-TMBENZENE + T-BUTYLBENZENE	237	ND	5.8	0.8	NA	NA	NA	NA
BENZYL CHLORIDE + M-DCBENZENE	230	ND	ND	ND	NA	NA	NA	NA
ISOBUTYLBENZENE	158	ND	ND	ND	NA	NA	NA	NA
N-DECANE + P-DICHLOROBENZENE	231	ND	0.8	ND	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406A47-01A

FIELD SAMPLE NUMBER:		A418	A420	A421				
1,2,3-TRIMETHYLBENZENE	161	ND	2.0	3.0	NA	NA	NA	NA
P-ISOPROPYLTOLUENE	162	ND	ND	ND	NA	NA	NA	NA
O-DICHLOROBENZENE	163	ND	ND	ND	NA	NA	NA	NA
LIMONENE	164	ND	ND	ND	NA	NA	NA	NA
INDAN	165	ND	ND	ND	NA	NA	NA	NA
INDENE	166	ND	ND	ND	NA	NA	NA	NA
M-DIETHYLBENZENE	167	ND	ND	ND	NA	NA	NA	NA
N-BUTYLBENZENE	168	ND	ND	ND	NA	NA	NA	NA
P-DIETHYLBENZENE	169	ND	ND	ND	NA	NA	NA	NA
1-UNDECENE	170	ND	ND	ND	NA	NA	NA	NA
N-UNDECANE	171	1.6	1.7	1.4	NA	NA	NA	NA
DICHLOROTOLUENE	172	ND	ND	ND	NA	NA	NA	NA
NAPHTHALENE	173	ND	ND	ND	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	220	ND	ND	ND	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	210	ND	ND	ND	NA	NA	NA	NA
UNIDENTIFIED VOC	174	261	756	368	NA	NA	NA	NA
UNIDENTIFIED HALOGENATED VOC	175	7.9	35.4	23.8	NA	NA	NA	NA
TNMHC		291	818	449	-	-	-	-

ND= Not Detected

NA= Not Analyzed

Analytical system: HP 5890 GC [C2C3]

Analytical system: HP 5890 GC [D]

g. Quantitation biased due to interference peak or electronic spike.

i. Detection limits are increased.

xx. Refer to attached document for additional information.

7-14-1994 18:58:32

VOC AIR CANISTER ANALYSIS
FINAL REPORTClient: LOS ALAMOS
Units: ug/m3Radian Workorder #: 9406A47-01A
Date Sampled: 6-17-94

Site Number:

Sample wide footnotes:

Analytical run FID:

Analytical run HALL:

i

i,o

None

o

D

D

D

D

NA

NA

NA

D

D

D

D

NA

NA

NA

FIELD SAMPLE NUMBER:

A418

A418

A419

A419

SAMPLE CONTROL NUMBER:

9406A47-01A

9406A47-01B

9406A47-02A

9406A47-02B

DATE SAMPLED:

6-17-94

6-17-94

6-17-94

6-17-94

NELSON FILE NUMBER:

W006309

W0063010

W0063011

W0063012

FID ANALYSIS DATE:

6-30-94

6-30-94

7-1-94

7-1-94

HALL ANALYSIS DATE:

6-30-94

6-30-94

7-1-94

7-1-94

C2C3 ANALYSIS DATE:

6-29-94

6-29-94

6-29-94

6-29-94

CANISTER NUMBER:

943

943

903

903

FID DILUTION FACTOR:

0.178133

0.178133

0.244784

0.244784

0.000000

0.000000

0.000000

HALL DILUTION FACTOR:

0.178133

0.178133

0.244784

0.244784

0.000000

0.000000

0.000000

C2C3 DILUTION FACTOR:

0.178133

0.178133

0.244784

0.244784

0.000000

0.000000

0.000000

FID VOLUME:

0.500000

0.500000

0.500000

0.500000

0.000000

0.000000

0.000000

HALL VOLUME:

0.500000

0.500000

0.500000

0.500000

0.000000

0.000000

0.000000

C2C3 VOLUME:

0.500000

0.500000

0.500000

0.500000

0.000000

0.000000

0.000000

Client: LOS ALAMOS

Radian Workorder #: 9406A47-01A

FIELD SAMPLE NUMBER:		A418	A418	A419	A419			
ETHYLENE	193	0.4	0.4	0.4	0.4	NA	NA	NA
ACETYLENE	194	ND	ND	ND	ND	NA	NA	NA
FREON 23	214	ND	ND	ND	ND	NA	NA	NA
ETHANE	2	1.0	0.9	0.9	0.7	NA	NA	NA
CHLORODIFLUOROMETHANE	195	ND	ND	ND	ND	NA	NA	NA
PROPYLENE	3	0.8	0.8	0.7	0.7	NA	NA	NA
PROPANE	4	0.9	1.0	0.7	0.6	NA	NA	NA
DIMETHYL ETHER	190	ND	ND	ND	ND	NA	NA	NA
CHLOROMETHANE	5	ND	ND	ND	ND	NA	NA	NA
PROPENE	6	ND	ND	ND	ND	NA	NA	NA
DICHLORODIFLUOROMETHANE	7	ND	ND	ND	0.3	NA	NA	NA
FREON 114	215	ND	ND	ND	ND	NA	NA	NA
ISOBUTANE	8	ND	ND	ND	0.5	NA	NA	NA
ACETALDEHYDE	9	ND	ND	ND	ND	NA	NA	NA
VINYL CHLORIDE	10	ND	ND	ND	ND	NA	NA	NA
ISOBUTENE + 1-BUTENE	11	3.8	4.3	5.0	3.9	NA	NA	NA
1,3-BUTADIENE	12	ND	ND	ND	ND	NA	NA	NA
METHYL MERCAPTAN	13	ND	ND	ND	ND	NA	NA	NA
N-BUTANE	14	ND	ND	ND	ND	NA	NA	NA
METHANOL	15	21.7	20.9	24.2	20.4	NA	NA	NA
BROMOMETHANE	16	ND	ND	ND	ND	NA	NA	NA
T-2-BUTENE	17	ND	ND	ND	ND	NA	NA	NA
NEOPENTANE	18	ND	ND	ND	ND	NA	NA	NA
DIMETHYL ACETAL	189	ND	ND	ND	ND	NA	NA	NA
METHYL FORMATE	191	ND	ND	ND	ND	NA	NA	NA
1-BUTYNE	19	ND	ND	ND	ND	NA	NA	NA
C-2-BUTENE	20	ND	ND	ND	ND	NA	NA	NA
CHLOROETHANE	21	ND	ND	ND	ND	NA	NA	NA
VINYL BROMIDE	22	ND	ND	ND	ND	NA	NA	NA
3-METHYL-1-BUTENE	23	ND	ND	ND	ND	NA	NA	NA
ETHANOL + ACETONITRILE	233	ND	ND	ND	ND	NA	NA	NA
ISOPENTANE	26	ND	ND	ND	ND	NA	NA	NA
ACETONE	27	12.1	10.5	11.7	12.4	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406A47-01A

FIELD SAMPLE NUMBER:		A418	A418	A419	A419			
PROPIONALDEHYDE	28	ND	ND	ND	ND	NA	NA	NA
TRICHLOROFUOROMETHANE	29	1.4	1.6	1.3	1.6	NA	NA	NA
2-BUTYNE	30	ND	ND	ND	ND	NA	NA	NA
ETHYL MERCAPTAN	31	ND	ND	ND	ND	NA	NA	NA
1-PENTENE	32	ND	ND	ND	ND	NA	NA	NA
IODOMETHANE	33	ND	ND	ND	ND	NA	NA	NA
2-METHYL-1-BUTENE	34	ND	ND	ND	ND	NA	NA	NA
ACRYLONITRILE	35	ND	ND	ND	ND	NA	NA	NA
N-PENTANE	36	ND	ND	0.7	ND	NA	NA	NA
ISOPRENE	37	ND	ND	ND	ND	NA	NA	NA
DIMETHYLSULFIDE	38	ND	ND	ND	ND	NA	NA	NA
DIETHYL ETHER + 2-PROPANOL	239	ND	ND	ND	ND	NA	NA	NA
T-2-PENTENE	41	ND	ND	ND	ND	NA	NA	NA
DICHLOROFUOROMETHANE	196	ND	ND	ND	ND	NA	NA	NA
1,1-DICHLOROETHYLENE	42	3.0	3.2	4.5	3.6	NA	NA	NA
C-2-PENTENE	43	ND	ND	ND	ND	NA	NA	NA
METHYLENE CHLORIDE	44	68.3	73.2	77.2	74.7	NA	NA	NA
2-METHYL-2-BUTENE	45	ND	ND	ND	ND	NA	NA	NA
NEOHXANE	46	ND	ND	ND	ND	NA	NA	NA
FREON 113	199	33.6	33.5	34.9	36.2	NA	NA	NA
ISOBUTYRALDEHYDE	47	ND	ND	ND	ND	NA	NA	NA
CYCLOPENTENE	48	ND	ND	ND	ND	NA	NA	NA
T-1,2-DICHLOROETHYLENE	49	ND	ND	ND	ND	NA	NA	NA
4-METHYL-1-PENTENE	50	ND	ND	ND	ND	NA	NA	NA
1,1-DICHLOROETHANE	51	14.1	13.9	12.7	15.5	NA	NA	NA
CYCLOPENTANE	52	ND	ND	ND	ND	NA	NA	NA
1-PROPANOL	53	ND	ND	ND	ND	NA	NA	NA
2,3-DIMETHYLBUTANE	54	ND	ND	ND	ND	NA	NA	NA
MTBE + ISOHEX + C-4-M-2-PENTENE	232	1.0	1.1	1.1	1.0	NA	NA	NA
VINYL ACETATE	203	ND	ND	ND	ND	NA	NA	NA
BUTYRALDEHYDE	58	ND	ND	ND	ND	NA	NA	NA
T-4-METHYL-2-PENTENE	59	ND	ND	ND	ND	NA	NA	NA
CHLOROPRENE	192	ND	ND	ND	ND	NA	NA	NA
2-BUTANONE	60	ND	ND	ND	ND	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406A47-01A

FIELD SAMPLE NUMBER:		A418	A418	A419	A419			
3-METHYLPENTANE	61	ND	ND	ND	ND	NA	NA	NA
1-HEXENE	62	ND	ND	ND	ND	NA	NA	NA
2-METHYL-1-PENTENE	63	ND	ND	ND	ND	NA	NA	NA
BROMOCHLOROMETHANE	212	ND	ND	ND	ND	NA	NA	NA
C-1,2-DICHLOROETHYLENE	64	ND	ND	ND	ND	NA	NA	NA
2-ETHYL-1-BUTENE	65	ND	ND	ND	ND	NA	NA	NA
N-HEXANE	66	ND	ND	ND	ND	NA	NA	NA
METHYL ACRYLATE	204	ND	ND	ND	ND	NA	NA	NA
CHLOROFORM	67	18.0	18.2	16.8	18.7	NA	NA	NA
C-3-HEXENE	68	ND	ND	ND	ND	NA	NA	NA
T-2-HEXENE	69	ND	ND	ND	ND	NA	NA	NA
2-METHYL-2-PENTENE	70	ND	ND	ND	ND	NA	NA	NA
C-2-HEXENE	71	ND	ND	ND	ND	NA	NA	NA
C-3-METHYL-2-PENTENE	72	ND	ND	ND	ND	NA	NA	NA
METHYLCYCLOPENTANE	73	ND	ND	ND	ND	NA	NA	NA
1,2-DICHLOROETHANE	74	2.3	2.4	1.5	2.2	NA	NA	NA
2,4-DIMETHYLPENTANE	75	ND	ND	ND	ND	NA	NA	NA
1,1,1-TRICHLOROETHANE	76	568	559	633	638	NA	NA	NA
2-METHYL-1,3-DIOXOLANE	188	ND	ND	ND	ND	NA	NA	NA
ISOVALERALDEHYDE	77	ND	ND	ND	ND	NA	NA	NA
METHYLCYCLOPENTENE	78	ND	ND	ND	ND	NA	NA	NA
BENZENE	79	0.7	0.7	0.6	0.6	NA	NA	NA
CARBON TETRACHLORIDE	80	ND	ND	ND	ND	NA	NA	NA
1-BUTANOL + CYCLOHEXANE	238	ND	ND	0.6	ND	NA	NA	NA
THIOPHENE	82	ND	ND	ND	ND	NA	NA	NA
ISOHEPTANE + 2,3-DIMETHYLPENTANE	84	ND	ND	ND	ND	NA	NA	NA
2-PENTANONE	85	ND	ND	ND	ND	NA	NA	NA
CYCLOHEXENE	86	ND	ND	ND	ND	NA	NA	NA
3-METHYLHEXANE	87	ND	ND	ND	ND	NA	NA	NA
VALERALDEHYDE	88	ND	ND	ND	ND	NA	NA	NA
1,2-DICHLOROPROPANE	89	25.3	25.2	23.6	24.1	NA	NA	NA
3-PENTANONE	90	ND	ND	ND	ND	NA	NA	NA
TRICHLOROETHYLENE + BDCMETHANE	235	169	167	184	187	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406A47-01A

FIELD SAMPLE NUMBER:		A418	A418	A419	A419			
1-HEPTENE	93	ND	ND	ND	ND	NA	NA	NA
1,4-DIOXANE + 2,2,4-IMPENTANE	234	ND	ND	ND	ND	NA	NA	NA
N-HEPTANE	95	ND	ND	ND	ND	NA	NA	NA
N-BUTYL MERCAPTAN	96	ND	ND	ND	ND	NA	NA	NA
T-3-HEPTENE	97	ND	ND	ND	ND	NA	NA	NA
BISCHLOROMETHYL ETHER	98	ND	ND	ND	ND	NA	NA	NA
C-3-HEPTENE	99	ND	ND	ND	ND	NA	NA	NA
T-2-HEPTENE	100	ND	ND	ND	ND	NA	NA	NA
2,4,4-TRIMETHYL-1-PENTENE	101	ND	ND	ND	ND	NA	NA	NA
C-1,3-DICHLOROPROPENE	102	ND	ND	ND	ND	NA	NA	NA
METHYLCYCLOHEXANE	103	ND	ND	ND	ND	NA	NA	NA
METHYLISOBUTYLKETONE	104	ND	ND	ND	ND	NA	NA	NA
2,4,4-TRIMETHYL-2-PENTENE	105	ND	ND	ND	ND	NA	NA	NA
2,5-DIMETHYLHEXANE	106	ND	ND	ND	ND	NA	NA	NA
2,2,3-TRIMETHYLPENTANE	107	ND	ND	ND	ND	NA	NA	NA
T-1,3-DICHLOROPROPENE	108	ND	ND	ND	ND	NA	NA	NA
1,1,2-TRICHLOROETHANE	109	ND	ND	ND	ND	NA	NA	NA
2,3,4-TRIMETHYLPENTANE	110	ND	ND	ND	ND	NA	NA	NA
TOLUENE	111	1.0	1.0	0.9	0.9	NA	NA	NA
2-METHYLTHIOPHENE	112	ND	ND	ND	ND	NA	NA	NA
3-METHYLTHIOPHENE	113	ND	ND	ND	ND	NA	NA	NA
1-METHYLCYCLOHEXENE	114	ND	ND	ND	ND	NA	NA	NA
3,5,5-TRIMETHYL-1-HEXENE	115	ND	ND	ND	ND	NA	NA	NA
DIBROMOCHLOROMETHANE	116	ND	ND	ND	ND	NA	NA	NA
3-METHYLHEPTANE	117	ND	ND	ND	ND	NA	NA	NA
HEXANAL	118	ND	ND	ND	ND	NA	NA	NA
1,2-DIBROMOETHANE	119	ND	ND	ND	ND	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	120	ND	ND	ND	ND	NA	NA	NA
2,2,5-TRIMETHYLHEXANE	121	ND	ND	ND	ND	NA	NA	NA
1-OCTENE	122	ND	ND	ND	ND	NA	NA	NA
TETRAHYDROTHIOPHENE	123	ND	ND	ND	ND	NA	NA	NA
N-OCTANE	124	ND	ND	ND	ND	NA	NA	NA
TETRACHLOROETHYLENE	125	32.6	34.3	35.8	34.3	NA	NA	NA
C-2-OCTENE	126	ND	ND	ND	ND	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406A47-01A

FIELD SAMPLE NUMBER:		A418	A418	A419	A419			
ISOPENTYL MERCAPTAN	127	ND	ND	ND	ND	NA	NA	NA
CHLOROBENZENE	128	ND	ND	ND	ND	NA	NA	NA
ETHYLBENZENE	129	ND	ND	ND	ND	NA	NA	NA
2,5-DIMETHYLTHIOPHENE	130	ND	ND	ND	ND	NA	NA	NA
P-XYLENE + M-XYLENE	131	ND	ND	ND	ND	NA	NA	NA
BROMOFORM	132	ND	ND	ND	ND	NA	NA	NA
CYCLOHEXANONE	133	ND	ND	ND	ND	NA	NA	NA
BUTYL ACRYLATE	205	ND	ND	ND	ND	NA	NA	NA
STYRENE	134	ND	ND	ND	ND	NA	NA	NA
HEPTANAL	135	ND	ND	ND	ND	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	136	ND	ND	ND	ND	NA	NA	NA
O-XYLENE	137	ND	ND	ND	ND	NA	NA	NA
1-NONENE	138	ND	ND	ND	ND	NA	NA	NA
N-NONANE	139	ND	ND	ND	ND	NA	NA	NA
4-NONENE	140	ND	ND	ND	ND	NA	NA	NA
ISOPROPYLBENZENE	141	ND	ND	ND	ND	NA	NA	NA
A-PINENE + BENZALDEHYDE	236	ND	ND	ND	ND	NA	NA	NA
O-CHLOROTOLUENE	144	ND	ND	ND	ND	NA	NA	NA
M-CHLOROTOLUENE	145	ND	ND	ND	ND	NA	NA	NA
N-PROPYLBENZENE	146	ND	ND	ND	ND	NA	NA	NA
P-CHLOROTOLUENE	147	ND	ND	ND	ND	NA	NA	NA
M-ETHYLTOLUENE	148	ND	ND	ND	ND	NA	NA	NA
BISCHLOROETHYL ETHER	149	ND	ND	ND	ND	NA	NA	NA
P-ETHYLTOLUENE	150	ND	ND	ND	ND	NA	NA	NA
1,3,5-TRIMETHYLBENZENE	151	ND	ND	ND	ND	NA	NA	NA
O-ETHYLTOLUENE	152	ND	ND	ND	ND	NA	NA	NA
3-OCTANONE	202	ND	ND	ND	ND	NA	NA	NA
B-PINENE	153	ND	ND	ND	ND	NA	NA	NA
1-DECENE	154	ND	ND	ND	ND	NA	NA	NA
1,2,4-TMBENZENE + T-BUTYLBENZENE	237	ND	ND	ND	ND	NA	NA	NA
BENZYL CHLORIDE + M-DCBENZENE	230	ND	ND	ND	ND	NA	NA	NA
ISOBUTYLBENZENE	158	ND	ND	ND	ND	NA	NA	NA
N-DECANE + P-DICHLOROBENZENE	231	ND	ND	ND	ND	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9406A47-01A

FIELD SAMPLE NUMBER:		A418	A418	A419	A419			
1,2,3-TRIMETHYLBENZENE	161	ND	ND	ND	ND	NA	NA	NA
P-ISOPROPYLTOLUENE	162	ND	ND	ND	ND	NA	NA	NA
O-DICHLOROBENZENE	163	ND	ND	ND	ND	NA	NA	NA
LIMONENE	164	ND	ND	ND	ND	NA	NA	NA
INDAN	165	ND	ND	ND	ND	NA	NA	NA
INDENE	166	ND	ND	ND	ND	NA	NA	NA
M-DIETHYLBENZENE	167	ND	ND	ND	ND	NA	NA	NA
N-BUTYLBENZENE	168	ND	ND	ND	ND	NA	NA	NA
P-DIETHYLBENZENE	169	ND	ND	ND	ND	NA	NA	NA
1-UNDECENE	170	ND	ND	ND	ND	NA	NA	NA
N-UNDECANE	171	1.6	1.5	1.2	1.2	NA	NA	NA
DICHLOROTOLUENE	172	ND	ND	ND	ND	NA	NA	NA
NAPHTHALENE	173	ND	ND	ND	ND	NA	NA	NA
1,2,4-TRICHLOROBENZENE	220	ND	ND	ND	ND	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	210	ND	ND	ND	ND	NA	NA	NA
UNIDENTIFIED VOC	174	261	243	103	82.5	NA	NA	NA
UNIDENTIFIED HALOGENATED VOC	175	7.9	8.7	28.1	11.6	NA	NA	NA
TNMHC		291	272	135	111	-	-	-

ND= Not Detected

NA= Not Analyzed

Analytical system: HP 5880 GC [C2C3]

Analytical system: HP 5890 GC [C2C3]

Analytical system: HP 5890 GC [D]

i. Detection limits are increased.

o. Laboratory duplicate of 9406A47-01A.

o. Laboratory duplicate of 9406A47-02A.

Radian Analytical Services
VOC Final Report

Client: LOS ALAMOS
Workorder #: 9408015-01

Certified by:

Date:

8-23-1994 13:25:57

8-23-1994 15:35:42

VOC AIR CANISTER ANALYSIS
FINAL REPORT

Client: LOS ALAMOS
Units: ug/m3

Radian Workorder #: 9408015-01
Date Sampled: 7-28-94

Site Number:

Sample wide footnotes:

Analytical run FID:

Analytical run HALL:

xx	None	None	None			
D	D	D	D	NA	NA	NA
D	D	D	D	NA	NA	NA

FIELD SAMPLE NUMBER:	A-459	A-460	A-461	A-463			
SAMPLE CONTROL NUMBER:	9408015-01	9408015-02	9408015-03	9408015-04			
DATE SAMPLED:	7-28-94	7-28-94	7-28-94	7-28-94			
NELSON FILE NUMBER:	W008085	W008086	W008087	W008088			
FID ANALYSIS DATE:	8-8-94	8-8-94	8-8-94	8-8-94			
HALL ANALYSIS DATE:	8-8-94	8-8-94	8-8-94	8-9-94			
C2C3 ANALYSIS DATE:	8-5-94	8-5-94	8-5-94	8-5-94			
CANISTER NUMBER:	975	986	944	982			
FID DILUTION FACTOR:	0.251132	0.208943	0.271046	0.246811	0.000000	0.000000	0.000000
HALL DILUTION FACTOR:	0.251132	0.208943	0.271046	0.246811	0.000000	0.000000	0.000000
C2C3 DILUTION FACTOR:	0.251132	0.208943	0.271046	0.246811	0.000000	0.000000	0.000000
FID VOLUME:	0.500000	0.500000	0.500000	0.500000	0.000000	0.000000	0.000000
HALL VOLUME:	0.500000	0.500000	0.500000	0.500000	0.000000	0.000000	0.000000
C2C3 VOLUME:	0.500000	0.500000	0.500000	0.500000	0.000000	0.000000	0.000000

Client: LOS ALAMOS

Radian Workorder #: 9408015-01

FIELD SAMPLE NUMBER:		A-459	A-460	A-461	A-463			
ETHYLENE	193	1.6	0.6	0.2	0.3	NA	NA	NA
ACETYLENE	194	ND	ND	ND	ND	NA	NA	NA
FREON 23	214	ND	ND	ND	ND	NA	NA	NA
ETHANE	2	0.8	0.7	0.6	0.4	NA	NA	NA
CHLORODIFLUOROMETHANE	195	ND	ND	ND	ND	NA	NA	NA
PROPYLENE	3	1.1	0.4	0.3	ND	NA	NA	NA
PROPANE	4	5.5	0.5	0.3	ND	NA	NA	NA
DIMETHYL ETHER	190	ND	ND	ND	ND	NA	NA	NA
CHLOROMETHANE	5	4.5 g	ND	ND	ND	NA	NA	NA
PROPYNE	6	ND	ND	ND	ND	NA	NA	NA
DICHLORODIFLUOROMETHANE	7	6.9	ND	ND	ND	NA	NA	NA
FREON 114	215	ND	ND	ND	ND	NA	NA	NA
ISOBUTANE	8	2.0	ND	ND	ND	NA	NA	NA
ACETALDEHYDE	9	ND	ND	ND	ND	NA	NA	NA
VINYL CHLORIDE	10	ND	ND	ND	ND	NA	NA	NA
ISOBUTENE + 1-BUTENE	11	0.8	ND	ND	ND	NA	NA	NA
1,3-BUTADIENE	12	ND	ND	ND	ND	NA	NA	NA
METHYL MERCAPTAN	13	ND	ND	ND	ND	NA	NA	NA
N-BUTANE	14	5.7	ND	ND	ND	NA	NA	NA
METHANOL	15	ND	ND	ND	ND	NA	NA	NA
BROMOMETHANE	16	ND	ND	ND	ND	NA	NA	NA
T-2-BUTENE	17	ND	ND	ND	ND	NA	NA	NA
NEOPENTANE	18	ND	ND	ND	ND	NA	NA	NA
DIMETHYL ACETAL	189	ND	ND	ND	ND	NA	NA	NA
METHYL FORMATE	191	ND	ND	ND	ND	NA	NA	NA
1-BUTYNE	19	ND	ND	ND	ND	NA	NA	NA
C-2-BUTENE	20	ND	ND	ND	ND	NA	NA	NA
CHLOROETHANE	21	ND	ND	ND	ND	NA	NA	NA
VINYL BROMIDE	22	ND	ND	ND	ND	NA	NA	NA
3-METHYL-1-BUTENE	23	ND	ND	ND	ND	NA	NA	NA
ETHANOL + ACETONITRILE	233	ND	ND	ND	ND	NA	NA	NA
ISOPENTANE	26	32.1	0.6	ND	ND	NA	NA	NA
ACETONE	27	20.5	2.1	0.8	1.6	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9408015-01

FIELD SAMPLE NUMBER:		A-459	A-460	A-461	A-463			
PROPIONALDEHYDE	28	ND	ND	ND	ND	NA	NA	NA
TRICHLOROFLUOROMETHANE	29	17.9	ND	ND	ND	NA	NA	NA
2-BUTYNE	30	ND	ND	ND	ND	NA	NA	NA
ETHYL MERCAPTAN	31	ND	ND	ND	ND	NA	NA	NA
1-PENTENE	32	ND	ND	ND	ND	NA	NA	NA
IODOMETHANE	33	ND	ND	ND	ND	NA	NA	NA
2-METHYL-1-BUTENE	34	ND	ND	ND	ND	NA	NA	NA
ACRYLONITRILE	35	ND	ND	ND	ND	NA	NA	NA
N-PENTANE	36	9.3	ND	ND	ND	NA	NA	NA
ISOPRENE	37	1.4	ND	ND	ND	NA	NA	NA
DIMETHYLSULFIDE	38	ND	ND	ND	ND	NA	NA	NA
DIETHYL ETHER + 2-PROPANOL	239	ND	ND	ND	ND	NA	NA	NA
T-2-PENTENE	41	ND	ND	ND	ND	NA	NA	NA
DICHLOROFLUOROMETHANE	196	ND	ND	ND	ND	NA	NA	NA
1,1-DICHLOROETHYLENE	42	ND	ND	ND	ND	NA	NA	NA
C-2-PENTENE	43	ND	ND	ND	ND	NA	NA	NA
METHYLENE CHLORIDE	44	233 m	214 m	178 m	106 m	NA	NA	NA
2-METHYL-2-BUTENE	45	ND	ND	ND	ND	NA	NA	NA
NEOHXANE	46	0.9	ND	ND	ND	NA	NA	NA
FREON 113	199	4.4	0.6	ND	0.3	NA	NA	NA
ISOBUTYRALDEHYDE	47	ND	ND	ND	ND	NA	NA	NA
CYCLOPENTENE	48	ND	ND	ND	ND	NA	NA	NA
T-1,2-DICHLOROETHYLENE	49	ND	ND	ND	ND	NA	NA	NA
4-METHYL-1-PENTENE	50	ND	ND	ND	ND	NA	NA	NA
1,1-DICHLOROETHANE	51	ND	ND	ND	ND	NA	NA	NA
CYCLOPENTANE	52	0.5	ND	ND	ND	NA	NA	NA
1-PROPANOL	53	ND	ND	ND	ND	NA	NA	NA
2,3-DIMETHYLBUTANE	54	0.9	ND	ND	ND	NA	NA	NA
MTBE + ISOHEX + C-4-M-2-PENTENE	232	14.6	ND	ND	ND	NA	NA	NA
VINYL ACETATE	203	ND	ND	ND	ND	NA	NA	NA
BUTYRALDEHYDE	58	3.2	ND	ND	ND	NA	NA	NA
T-4-METHYL-2-PENTENE	59	ND	ND	ND	ND	NA	NA	NA
CHLOROPRENE	192	ND	ND	ND	ND	NA	NA	NA
2-BUTANONE	60	3.2	ND	ND	ND	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9408015-01

FIELD SAMPLE NUMBER:		A-459	A-460	A-461	A-463			
3-METHYLPENTANE	61	2.2	ND	ND	ND	NA	NA	NA
1-HEXENE	62	ND	ND	ND	ND	NA	NA	NA
2-METHYL-1-PENTENE	63	ND	ND	ND	ND	NA	NA	NA
BROMOCHLOROMETHANE	212	ND	ND	ND	ND	NA	NA	NA
C-1,2-DICHLOROETHYLENE	64	ND	ND	ND	ND	NA	NA	NA
2-ETHYL-1-BUTENE	65	ND	ND	ND	ND	NA	NA	NA
N-HEXANE	66	12.3	ND	ND	ND	NA	NA	NA
METHYL ACRYLATE	204	ND	ND	ND	ND	NA	NA	NA
CHLOROFORM	67	0.2	ND	0.5	ND	NA	NA	NA
C-3-HEXENE	68	ND	ND	ND	ND	NA	NA	NA
T-2-HEXENE	69	ND	ND	ND	ND	NA	NA	NA
2-METHYL-2-PENTENE	70	ND	ND	ND	ND	NA	NA	NA
C-2-HEXENE	71	ND	ND	ND	ND	NA	NA	NA
C-3-METHYL-2-PENTENE	72	ND	ND	ND	ND	NA	NA	NA
METHYLCYCLOPENTANE	73	2.1	ND	ND	ND	NA	NA	NA
1,2-DICHLOROETHANE	74	ND	ND	ND	ND	NA	NA	NA
2,4-DIMETHYLPENTANE	75	ND	ND	ND	ND	NA	NA	NA
1,1,1-TRICHLOROETHANE	76	28.6	5.5	10.9	3.3	NA	NA	NA
2-METHYL-1,3-DIOXOLANE	188	ND	ND	ND	ND	NA	NA	NA
ISOVALERALDEHYDE	77	ND	ND	ND	ND	NA	NA	NA
METHYLCYCLOPENTENE	78	ND	ND	ND	ND	NA	NA	NA
BENZENE	79	3.5	ND	ND	ND	NA	NA	NA
CARBON TETRACHLORIDE	80	2.1	ND	ND	ND	NA	NA	NA
1-BUTANOL + CYCLOHEXANE	238	ND	ND	ND	ND	NA	NA	NA
THIOPHENE	82	ND	ND	ND	ND	NA	NA	NA
ISOHEPTANE + 2,3-DIMETHYLPENTANE	84	1.7	ND	ND	ND	NA	NA	NA
2-PENTANONE	85	ND	ND	ND	ND	NA	NA	NA
CYCLOHEXENE	86	ND	ND	ND	ND	NA	NA	NA
3-METHYLHEXANE	87	1.0	ND	ND	ND	NA	NA	NA
VALERALDEHYDE	88	ND	ND	ND	ND	NA	NA	NA
1,2-DICHLOROPROPANE	89	ND	ND	ND	ND	NA	NA	NA
3-PENTANONE	90	ND	ND	ND	ND	NA	NA	NA
TRICHLOROETHYLENE + BDCMETHANE	235	0.9	0.9	ND	ND	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9408015-01

FIELD SAMPLE NUMBER:		A-459	A-460	A-461	A-463			
1-HEPTENE	93	ND	ND	ND	ND	NA	NA	NA
1,4-DIOXANE + 2,2,4-TMPENTANE	234	2.1 hh	ND	ND	ND	NA	NA	NA
N-HEPTANE	95	1.4	ND	ND	ND	NA	NA	NA
N-BUTYL MERCAPTAN	96	ND	ND	ND	ND	NA	NA	NA
T-3-HEPTENE	97	ND	ND	ND	ND	NA	NA	NA
BISCHLOROMETHYL ETHER	98	ND	ND	ND	ND	NA	NA	NA
C-3-HEPTENE	99	ND	ND	ND	ND	NA	NA	NA
T-2-HEPTENE	100	ND	ND	ND	ND	NA	NA	NA
2,4,4-TRIMETHYL-1-PENTENE	101	ND	ND	ND	ND	NA	NA	NA
C-1,3-DICHLOROPROPENE	102	ND	ND	ND	ND	NA	NA	NA
METHYLCYCLOHEXANE	103	1.0	ND	ND	ND	NA	NA	NA
METHYLISOBUTYLKETONE	104	ND	ND	ND	ND	NA	NA	NA
2,4,4-TRIMETHYL-2-PENTENE	105	ND	ND	ND	ND	NA	NA	NA
2,5-DIMETHYLHEXANE	106	ND	ND	ND	ND	NA	NA	NA
2,2,3-TRIMETHYLPENTANE	107	ND	ND	ND	ND	NA	NA	NA
T-1,3-DICHLOROPROPENE	108	ND	ND	ND	ND	NA	NA	NA
1,1,2-TRICHLOROETHANE	109	ND	ND	ND	ND	NA	NA	NA
2,3,4-TRIMETHYLPENTANE	110	0.5	ND	ND	ND	NA	NA	NA
TOLUENE	111	11.6	0.7	ND	ND	NA	NA	NA
2-METHYLTHIOPHENE	112	ND	ND	ND	ND	NA	NA	NA
3-METHYLTHIOPHENE	113	ND	ND	ND	ND	NA	NA	NA
1-METHYLCYCLOHEXENE	114	ND	ND	ND	ND	NA	NA	NA
3,5,5-TRIMETHYL-1-HEXENE	115	ND	ND	ND	ND	NA	NA	NA
DIBROMOCHLOROMETHANE	116	ND	ND	ND	ND	NA	NA	NA
3-METHYLHEPTANE	117	ND	ND	ND	ND	NA	NA	NA
HEXANAL	118	3.8	ND	ND	ND	NA	NA	NA
1,2-DIBROMOETHANE	119	ND	ND	ND	ND	NA	NA	NA
2-CHLOROETHYLVINYL ETHER	120	ND	ND	ND	ND	NA	NA	NA
2,2,5-TRIMETHYLHEXANE	121	ND	ND	ND	ND	NA	NA	NA
1-OCTENE	122	ND	ND	ND	ND	NA	NA	NA
TETRAHYDROTHIOPHENE	123	ND	ND	ND	ND	NA	NA	NA
N-OCTANE	124	ND	ND	ND	ND	NA	NA	NA
TETRACHLOROETHYLENE	125	6.0	7.2	5.4	2.2	NA	NA	NA
C-2-OCTENE	126	ND	ND	ND	ND	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9408015-01

FIELD SAMPLE NUMBER:		A-459	A-460	A-461	A-463			
ISOPENTYL MERCAPTAN	127	ND	ND	ND	ND	NA	NA	NA
CHLOROBENZENE	128	ND	ND	ND	ND	NA	NA	NA
ETHYLBENZENE	129	1.9	ND	ND	ND	NA	NA	NA
2,5-DIMETHYLTHIOPHENE	130	ND	ND	ND	ND	NA	NA	NA
P-XYLENE + M-XYLENE	131	4.3	ND	ND	ND	NA	NA	NA
BROMOFORM	132	ND	ND	ND	ND	NA	NA	NA
CYCLOHEXANONE	133	ND	ND	ND	ND	NA	NA	NA
BUTYL ACRYLATE	205	ND	ND	ND	ND	NA	NA	NA
STYRENE	134	0.9	ND	ND	ND	NA	NA	NA
HEPTANAL	135	1.3	ND	ND	ND	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	136	ND	ND	ND	ND	NA	NA	NA
O-XYLENE	137	1.6	ND	ND	ND	NA	NA	NA
1-NONENE	138	ND	ND	ND	ND	NA	NA	NA
N-NONANE	139	ND	ND	ND	ND	NA	NA	NA
4-NONENE	140	ND	ND	ND	ND	NA	NA	NA
ISOPROPYLBENZENE	141	ND	ND	ND	ND	NA	NA	NA
A-PINENE + BENZALDEHYDE	236	19.6	3.5	2.6	ND	NA	NA	NA
O-CHLOROTOLUENE	144	ND	ND	ND	ND	NA	NA	NA
M-CHLOROTOLUENE	145	ND	ND	ND	ND	NA	NA	NA
N-PROPYLBENZENE	146	1.0	ND	ND	ND	NA	NA	NA
P-CHLOROTOLUENE	147	ND	ND	ND	ND	NA	NA	NA
M-ETHYLTOLUENE	148	1.1	ND	6.0	ND	NA	NA	NA
BISCHLOROETHYL ETHER	149	ND	ND	ND	ND	NA	NA	NA
P-ETHYLTOLUENE	150	1.4	ND	ND	ND	NA	NA	NA
1,3,5-TRIMETHYLBENZENE	151	ND	ND	ND	ND	NA	NA	NA
O-ETHYLTOLUENE	152	0.6	ND	ND	ND	NA	NA	NA
3-OCTANONE	202	ND	ND	ND	ND	NA	NA	NA
B-PINENE	153	1.8	ND	ND	ND	NA	NA	NA
1-DECENE	154	ND	ND	ND	ND	NA	NA	NA
1,2,4-TMBENZENE + T-BUTYLBENZENE	237	1.7	ND	ND	ND	NA	NA	NA
BENZYL CHLORIDE + M-DCBENZENE	230	ND	ND	ND	ND	NA	NA	NA
ISOBUTYLBENZENE	158	ND	ND	ND	ND	NA	NA	NA
N-DECANE + P-DICHLOROBENZENE	231	3.1	ND	ND	ND	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9408015-01

FIELD SAMPLE NUMBER:		A-459	A-460	A-461	A-463			
1,2,3-TRIMETHYLBENZENE	161	ND	ND	ND	ND	NA	NA	NA
P-ISOPROPYLTOLUENE	162	ND	ND	ND	ND	NA	NA	NA
O-DICHLOROBENZENE	163	1.4	ND	ND	ND	NA	NA	NA
LIMONENE	164	3.7	ND	4.8	ND	NA	NA	NA
INDAN	165	ND	ND	ND	ND	NA	NA	NA
INDENE	166	ND	ND	ND	ND	NA	NA	NA
M-DIETHYLBENZENE	167	ND	ND	ND	ND	NA	NA	NA
N-BUTYLBENZENE	168	ND	ND	ND	ND	NA	NA	NA
P-DIETHYLBENZENE	169	ND	ND	ND	ND	NA	NA	NA
1-UNDECENE	170	ND	ND	ND	ND	NA	NA	NA
N-UNDECANE	171	2.9	ND	ND	ND	NA	NA	NA
DICHLOROTOLUENE	172	ND	ND	ND	ND	NA	NA	NA
NAPHTHALENE	173	ND	ND	ND	ND	NA	NA	NA
1,2,4-TRICHLOROBENZENE	220	ND	ND	ND	ND	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	210	ND	ND	ND	ND	NA	NA	NA
UNIDENTIFIED VOC	174	26.7	4.1	5.4	3.6	NA	NA	NA
UNIDENTIFIED HALOGENATED VOC	175	203 m	ND	11.3	ND	NA	NA	NA
TNMHC		212	12.6	21.5	5.6	-	-	-

ND= Not Detected

NA= Not Analyzed

Analytical system: HP 5890 GC [C2C3]

Analytical system: HP 5890 GC [D]

g. Quantitation biased due to interference peak or
electronic spike.

hh. Quantitation biased due to coelution with halogenated compound.

m. Detector response over 20% higher than the high point of
the calibration range for this compound.

xx. Refer to attached document for additional information.

VOC AIR CANISTER ANALYSIS FINAL REPORT

Radian Workorder #: 9408063-01
Date Sampled: 7-29-94

Site Number:							
Sample wide footnotes:	None						
Analytical run FID:	D	NA	NA	NA	NA	NA	NA
Analytical run HALL:	D	NA	NA	NA	NA	NA	NA
<hr/>							
FIELD SAMPLE NUMBER:	A-486						
SAMPLE CONTROL NUMBER:	9408063-01						
DATE SAMPLED:	7-29-94						
NELSON FILE NUMBER:	W0080611						
FID ANALYSIS DATE:	8-6-94						
HALL ANALYSIS DATE:	8-6-94						
C2C3 ANALYSIS DATE:	8-5-94						
CANISTER NUMBER:	978						
FID DILUTION FACTOR:	0.212228	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
HALL DILUTION FACTOR:	0.212228	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
C2C3 DILUTION FACTOR:	0.212228	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
FID VOLUME:	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
HALL VOLUME:	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
C2C3 VOLUME:	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Client: LOS ALAMOS

Radian Workorder #: 9408063-01

FIELD SAMPLE NUMBER:

A-486

ETHYLENE	193	0.7	NA	NA	NA	NA	NA	NA
ACETYLENE	194	ND	NA	NA	NA	NA	NA	NA
FREON 23	214	ND	NA	NA	NA	NA	NA	NA
ETHANE	2	0.7	NA	NA	NA	NA	NA	NA
CHLORODIFLUOROMETHANE	195	ND	NA	NA	NA	NA	NA	NA
PROPYLENE	3	1.0	NA	NA	NA	NA	NA	NA
PROPANE	4	ND	NA	NA	NA	NA	NA	NA
DIMETHYL ETHER	190	ND	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	5	ND	NA	NA	NA	NA	NA	NA
PROPYNE	6	ND	NA	NA	NA	NA	NA	NA
DICHLORODIFLUOROMETHANE	7	ND	NA	NA	NA	NA	NA	NA
FREON 114	215	ND	NA	NA	NA	NA	NA	NA
ISOBUTANE	8	0.8	NA	NA	NA	NA	NA	NA
ACETALDEHYDE	9	ND	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	10	ND	NA	NA	NA	NA	NA	NA
ISOBUTENE + 1-BUTENE	11	12.6	NA	NA	NA	NA	NA	NA
1,3-BUTADIENE	12	ND	NA	NA	NA	NA	NA	NA
METHYL MERCAPTAN	13	ND	NA	NA	NA	NA	NA	NA
N-BUTANE	14	ND	NA	NA	NA	NA	NA	NA
METHANOL	15	3.4	NA	NA	NA	NA	NA	NA
BROMOMETHANE	16	ND	NA	NA	NA	NA	NA	NA
T-2-BUTENE	17	ND	NA	NA	NA	NA	NA	NA
NEOPENTANE	18	ND	NA	NA	NA	NA	NA	NA
DIMETHYL ACETAL	189	ND	NA	NA	NA	NA	NA	NA
METHYL FORMATE	191	ND	NA	NA	NA	NA	NA	NA
1-BUTYNE	19	ND	NA	NA	NA	NA	NA	NA
C-2-BUTENE	20	ND	NA	NA	NA	NA	NA	NA
CHLOROETHANE	21	ND	NA	NA	NA	NA	NA	NA
VINYL BROMIDE	22	ND	NA	NA	NA	NA	NA	NA
3-METHYL-1-BUTENE	23	ND	NA	NA	NA	NA	NA	NA
ETHANOL + ACETONITRILE	233	ND	NA	NA	NA	NA	NA	NA
ISOPENTANE	26	ND	NA	NA	NA	NA	NA	NA
ACETONE	27	9.2	NA	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9408063-01

FIELD SAMPLE NUMBER:

A-486

PROPIONALDEHYDE	28	ND	NA	NA	NA	NA	NA	NA
TRICHLOROFLUOROMETHANE	29	ND	NA	NA	NA	NA	NA	NA
2-BUTYNE	30	ND	NA	NA	NA	NA	NA	NA
ETHYL MERCAPTAN	31	ND	NA	NA	NA	NA	NA	NA
1-PENTENE	32	ND	NA	NA	NA	NA	NA	NA
IODOMETHANE	33	ND	NA	NA	NA	NA	NA	NA
2-METHYL-1-BUTENE	34	ND	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	35	ND	NA	NA	NA	NA	NA	NA
N-PENTANE	36	ND	NA	NA	NA	NA	NA	NA
ISOPRENE	37	ND	NA	NA	NA	NA	NA	NA
DIMETHYLSULFIDE	38	ND	NA	NA	NA	NA	NA	NA
DIETHYL ETHER + 2-PROPANOL	239	ND	NA	NA	NA	NA	NA	NA
T-2-PENTENE	41	ND	NA	NA	NA	NA	NA	NA
DICHLOROFLUOROMETHANE	196	ND	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHYLENE	42	ND	NA	NA	NA	NA	NA	NA
C-2-PENTENE	43	ND	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	44	211 m	NA	NA	NA	NA	NA	NA
2-METHYL-2-BUTENE	45	ND	NA	NA	NA	NA	NA	NA
NEOHXANE	46	ND	NA	NA	NA	NA	NA	NA
FREON 113	199	ND	NA	NA	NA	NA	NA	NA
ISOBUTYRALDEHYDE	47	ND	NA	NA	NA	NA	NA	NA
CYCLOPENTENE	48	ND	NA	NA	NA	NA	NA	NA
T-1,2-DICHLOROETHYLENE	49	ND	NA	NA	NA	NA	NA	NA
4-METHYL-1-PENTENE	50	ND	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	51	ND	NA	NA	NA	NA	NA	NA
CYCLOPENTANE	52	ND	NA	NA	NA	NA	NA	NA
1-PROPANOL	53	ND	NA	NA	NA	NA	NA	NA
2,3-DIMETHYLBUTANE	54	ND	NA	NA	NA	NA	NA	NA
MTBE + ISOHEX + C-4-M-2-PENTENE	232	ND	NA	NA	NA	NA	NA	NA
VINYL ACETATE	203	ND	NA	NA	NA	NA	NA	NA
BUTYRALDEHYDE	58	ND	NA	NA	NA	NA	NA	NA
T-4-METHYL-2-PENTENE	59	ND	NA	NA	NA	NA	NA	NA
CHLOROPRENE	192	ND	NA	NA	NA	NA	NA	NA
2-BUTANONE	60	ND	NA	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9408063-01

FIELD SAMPLE NUMBER:

A-486

3-METHYLPENTANE	61	ND	NA	NA	NA	NA	NA	NA
1-HEXENE	62	ND	NA	NA	NA	NA	NA	NA
2-METHYL-1-PENTENE	63	ND	NA	NA	NA	NA	NA	NA
BROMOCHLOROMETHANE	212	ND	NA	NA	NA	NA	NA	NA
C-1,2-DICHLOROETHYLENE	64	ND	NA	NA	NA	NA	NA	NA
2-ETHYL-1-BUTENE	65	ND	NA	NA	NA	NA	NA	NA
N-HEXANE	66	0.8	NA	NA	NA	NA	NA	NA
METHYL ACRYLATE	204	ND	NA	NA	NA	NA	NA	NA
CHLOROFORM	67	ND	NA	NA	NA	NA	NA	NA
C-3-HEXENE	68	ND	NA	NA	NA	NA	NA	NA
T-2-HEXENE	69	ND	NA	NA	NA	NA	NA	NA
2-METHYL-2-PENTENE	70	ND	NA	NA	NA	NA	NA	NA
C-2-HEXENE	71	ND	NA	NA	NA	NA	NA	NA
C-3-METHYL-2-PENTENE	72	ND	NA	NA	NA	NA	NA	NA
METHYLCYCLOPENTANE	73	ND	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	74	ND	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPENTANE	75	ND	NA	NA	NA	NA	NA	NA
1,1,1-TRICHLOROETHANE	76	ND	NA	NA	NA	NA	NA	NA
2-METHYL-1,3-DIOXOLANE	188	ND	NA	NA	NA	NA	NA	NA
ISOVALERALDEHYDE	77	ND	NA	NA	NA	NA	NA	NA
METHYLCYCLOPENTENE	78	ND	NA	NA	NA	NA	NA	NA
BENZENE	79	ND	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	80	ND	NA	NA	NA	NA	NA	NA
1-BUTANOL + CYCLOHEXANE	238	ND	NA	NA	NA	NA	NA	NA
THIOPHENE	82	ND	NA	NA	NA	NA	NA	NA
ISOHEPTANE + 2,3-DIMETHYLPENTANE	84	ND	NA	NA	NA	NA	NA	NA
2-PENTANONE	85	ND	NA	NA	NA	NA	NA	NA
CYCLOHEXENE	86	ND	NA	NA	NA	NA	NA	NA
3-METHYLHEXANE	87	ND	NA	NA	NA	NA	NA	NA
VALERALDEHYDE	88	ND	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	89	ND	NA	NA	NA	NA	NA	NA
3-PENTANONE	90	ND	NA	NA	NA	NA	NA	NA
TRICHLOROETHYLENE + BDCMETHANE	235	ND	NA	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9408063-01

FIELD SAMPLE NUMBER:

A-486

1-HEPTENE	93	ND	NA	NA	NA	NA	NA	NA
1,4-DIOXANE + 2,2,4-IMPENTANE	234	ND	NA	NA	NA	NA	NA	NA
N-HEPTANE	95	ND	NA	NA	NA	NA	NA	NA
N-BUTYL MERCAPTAN	96	ND	NA	NA	NA	NA	NA	NA
T-3-HEPTENE	97	ND	NA	NA	NA	NA	NA	NA
BISCHLOROMETHYL ETHER	98	ND	NA	NA	NA	NA	NA	NA
C-3-HEPTENE	99	ND	NA	NA	NA	NA	NA	NA
T-2-HEPTENE	100	ND	NA	NA	NA	NA	NA	NA
2,4,4-TRIMETHYL-1-PENTENE	101	ND	NA	NA	NA	NA	NA	NA
C-1,3-DICHLOROPROPENE	102	ND	NA	NA	NA	NA	NA	NA
METHYLCYCLOHEXANE	103	ND	NA	NA	NA	NA	NA	NA
METHYLISOBUTYLKETONE	104	ND	NA	NA	NA	NA	NA	NA
2,4,4-TRIMETHYL-2-PENTENE	105	ND	NA	NA	NA	NA	NA	NA
2,5-DIMETHYLHEXANE	106	ND	NA	NA	NA	NA	NA	NA
2,2,3-TRIMETHYLPENTANE	107	ND	NA	NA	NA	NA	NA	NA
T-1,3-DICHLOROPROPENE	108	ND	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	109	ND	NA	NA	NA	NA	NA	NA
2,3,4-TRIMETHYLPENTANE	110	ND	NA	NA	NA	NA	NA	NA
TOLUENE	111	0.9	NA	NA	NA	NA	NA	NA
2-METHYLTHIOPHENE	112	ND	NA	NA	NA	NA	NA	NA
3-METHYLTHIOPHENE	113	ND	NA	NA	NA	NA	NA	NA
1-METHYLCYCLOHEXENE	114	ND	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-1-HEXENE	115	ND	NA	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	116	ND	NA	NA	NA	NA	NA	NA
3-METHYLHEPTANE	117	ND	NA	NA	NA	NA	NA	NA
HEXANAL	118	ND	NA	NA	NA	NA	NA	NA
1,2-DIBROMOETHANE	119	ND	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	120	ND	NA	NA	NA	NA	NA	NA
2,2,5-TRIMETHYLHEXANE	121	ND	NA	NA	NA	NA	NA	NA
1-OCTENE	122	ND	NA	NA	NA	NA	NA	NA
TETRAHYDROTHIOPHENE	123	ND	NA	NA	NA	NA	NA	NA
N-OCTANE	124	2.3 hh	NA	NA	NA	NA	NA	NA
TETRACHLOROETHYLENE	125	2.8	NA	NA	NA	NA	NA	NA
C-2-OCTENE	126	ND	NA	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9408063-01

FIELD SAMPLE NUMBER:

A-486

ISOPENTYL MERCAPTAN	127	ND	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	128	ND	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	129	ND	NA	NA	NA	NA	NA	NA
2,5-DIMETHYLTHIOPHENE	130	ND	NA	NA	NA	NA	NA	NA
P-XYLENE + M-XYLENE	131	ND	NA	NA	NA	NA	NA	NA
BROMOFORM	132	ND	NA	NA	NA	NA	NA	NA
CYCLOHEXANONE	133	ND	NA	NA	NA	NA	NA	NA
BUTYL ACRYLATE	205	ND	NA	NA	NA	NA	NA	NA
STYRENE	134	ND	NA	NA	NA	NA	NA	NA
HEPTANAL	135	ND	NA	NA	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	136	ND	NA	NA	NA	NA	NA	NA
O-XYLENE	137	ND	NA	NA	NA	NA	NA	NA
1-NONENE	138	ND	NA	NA	NA	NA	NA	NA
N-NONANE	139	ND	NA	NA	NA	NA	NA	NA
4-NONENE	140	ND	NA	NA	NA	NA	NA	NA
ISOPROPYLBENZENE	141	ND	NA	NA	NA	NA	NA	NA
A-PINENE + BENZALDEHYDE	236	ND	NA	NA	NA	NA	NA	NA
O-CHLOROTOLUENE	144	ND	NA	NA	NA	NA	NA	NA
M-CHLOROTOLUENE	145	ND	NA	NA	NA	NA	NA	NA
N-PROPYLBENZENE	146	ND	NA	NA	NA	NA	NA	NA
P-CHLOROTOLUENE	147	ND	NA	NA	NA	NA	NA	NA
M-ETHYLTOLUENE	148	ND	NA	NA	NA	NA	NA	NA
BISCHLOROETHYL ETHER	149	ND	NA	NA	NA	NA	NA	NA
P-ETHYLTOLUENE	150	ND	NA	NA	NA	NA	NA	NA
1,3,5-TRIMETHYLBENZENE	151	ND	NA	NA	NA	NA	NA	NA
O-ETHYLTOLUENE	152	ND	NA	NA	NA	NA	NA	NA
3-OCTANONE	202	ND	NA	NA	NA	NA	NA	NA
B-PINENE	153	ND	NA	NA	NA	NA	NA	NA
1-DECENE	154	ND	NA	NA	NA	NA	NA	NA
1,2,4-TMBENZENE + T-BUTYLBENZENE	237	ND	NA	NA	NA	NA	NA	NA
BENZYL CHLORIDE + M-DCBENZENE	230	ND	NA	NA	NA	NA	NA	NA
ISOBUTYLBENZENE	158	ND	NA	NA	NA	NA	NA	NA
N-DECANE + P-DICHLOROBENZENE	231	0.8	NA	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9408063-01

FIELD SAMPLE NUMBER:

A-486

1,2,3-TRIMETHYLBENZENE	161	1.0	NA	NA	NA	NA	NA	NA
P-ISOPROPYLTOLUENE	162	1.6	NA	NA	NA	NA	NA	NA
O-DICHLOROBENZENE	163	ND	NA	NA	NA	NA	NA	NA
LIMONENE	164	ND	NA	NA	NA	NA	NA	NA
INDAN	165	ND	NA	NA	NA	NA	NA	NA
INDENE	166	ND	NA	NA	NA	NA	NA	NA
M-DIETHYLBENZENE	167	ND	NA	NA	NA	NA	NA	NA
N-BUTYLBENZENE	168	ND	NA	NA	NA	NA	NA	NA
P-DIETHYLBENZENE	169	ND	NA	NA	NA	NA	NA	NA
1-UNDECENE	170	ND	NA	NA	NA	NA	NA	NA
N-UNDECANE	171	ND	NA	NA	NA	NA	NA	NA
DICHLOROTOLUENE	172	ND	NA	NA	NA	NA	NA	NA
NAPHTHALENE	173	ND	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	220	ND	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	210	ND	NA	NA	NA	NA	NA	NA
UNIDENTIFIED VOC	174	46.1	NA	NA	NA	NA	NA	NA
UNIDENTIFIED HALOGENATED VOC	175	ND	NA	NA	NA	NA	NA	NA

TNMHC

76.6

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ND= Not Detected

NA= Not Analyzed

Analytical system: HP 5890 GC [C2C3]

Analytical system: HP 5890 GC [D]

hh. Quantitation biased due to coelution with halogenated compound.

m. Detector response over 20% higher than the high point of
the calibration range for this compound.

Radian Analytical Services
VOC Final Report

Client: LOS ALAMOS
Workorder #: 9408063

Certified by: _____
Date: 8-25-1994 18:08:45

VOC AIR CANISTER ANALYSIS FINAL REPORT

Radian Workorder #: 9408063-02A
Date Sampled: 7-29-94

Site Number:							
Sample wide footnotes:	None						
Analytical run FID:	D	NA	NA	NA	NA	NA	NA
Analytical run HALL:	D	NA	NA	NA	NA	NA	NA
<hr/>							
FIELD SAMPLE NUMBER:	A-487						
SAMPLE CONTROL NUMBER:	9408063-02A						
DATE SAMPLED:	7-29-94						
NELSON FILE NUMBER:	W0080612						
FID ANALYSIS DATE:	8-7-94						
HALL ANALYSIS DATE:	8-7-94						
C2C3 ANALYSIS DATE:	8-5-94						
CANISTER NUMBER:	974						
FID DILUTION FACTOR:	0.291553	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
HALL DILUTION FACTOR:	0.291553	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
C2C3 DILUTION FACTOR:	0.291553	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
FID VOLUME:	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
HALL VOLUME:	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
C2C3 VOLUME:	0.500000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Client: LOS ALAMOS

Radian Workorder #: 9408063-02A

FIELD SAMPLE NUMBER:

A-487

ETHYLENE	193	1.0	NA	NA	NA	NA	NA	NA
ACETYLENE	194	ND	NA	NA	NA	NA	NA	NA
FREON 23	214	ND	NA	NA	NA	NA	NA	NA
ETHANE	2	1.5	NA	NA	NA	NA	NA	NA
CHLORODIFLUOROMETHANE	195	ND	NA	NA	NA	NA	NA	NA
PROPYLENE	3	1.2	NA	NA	NA	NA	NA	NA
PROPANE	4	9.2	NA	NA	NA	NA	NA	NA
DIMETHYL ETHER	190	ND	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	5	ND	NA	NA	NA	NA	NA	NA
PROPENE	6	ND	NA	NA	NA	NA	NA	NA
DICHLORODIFLUOROMETHANE	7	0.9	NA	NA	NA	NA	NA	NA
FREON 114	215	ND	NA	NA	NA	NA	NA	NA
ISOBUTANE	8	ND	NA	NA	NA	NA	NA	NA
ACETALDEHYDE	9	ND	NA	NA	NA	NA	NA	NA
VINYL CHLORIDE	10	ND	NA	NA	NA	NA	NA	NA
ISOBUTENE + 1-BUTENE	11	8.2	NA	NA	NA	NA	NA	NA
1,3-BUTADIENE	12	ND	NA	NA	NA	NA	NA	NA
METHYL MERCAPTAN	13	ND	NA	NA	NA	NA	NA	NA
N-BUTANE	14	0.7	NA	NA	NA	NA	NA	NA
METHANOL	15	ND	NA	NA	NA	NA	NA	NA
BROMOMETHANE	16	ND	NA	NA	NA	NA	NA	NA
T-2-BUTENE	17	ND	NA	NA	NA	NA	NA	NA
NEOPENTANE	18	ND	NA	NA	NA	NA	NA	NA
DIMETHYL ACETAL	189	ND	NA	NA	NA	NA	NA	NA
METHYL FORMATE	191	ND	NA	NA	NA	NA	NA	NA
1-BUTYNE	19	ND	NA	NA	NA	NA	NA	NA
C-2-BUTENE	20	ND	NA	NA	NA	NA	NA	NA
CHLOROETHANE	21	ND	NA	NA	NA	NA	NA	NA
VINYL BROMIDE	22	ND	NA	NA	NA	NA	NA	NA
3-METHYL-1-BUTENE	23	ND	NA	NA	NA	NA	NA	NA
ETHANOL + ACETONITRILE	233	ND	NA	NA	NA	NA	NA	NA
ISOPENTANE	26	1.0	NA	NA	NA	NA	NA	NA
ACETONE	27	31.6	NA	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9408063-02A

FIELD SAMPLE NUMBER:

A-487

PROPIONALDEHYDE	28	ND	NA	NA	NA	NA	NA	NA
TRICHLOROFLUOROMETHANE	29	4.8	NA	NA	NA	NA	NA	NA
2-BUTYNE	30	ND	NA	NA	NA	NA	NA	NA
ETHYL MERCAPTAN	31	ND	NA	NA	NA	NA	NA	NA
1-PENTENE	32	0.5	NA	NA	NA	NA	NA	NA
IODOMETHANE	33	ND	NA	NA	NA	NA	NA	NA
2-METHYL-1-BUTENE	34	ND	NA	NA	NA	NA	NA	NA
ACRYLONITRILE	35	ND	NA	NA	NA	NA	NA	NA
N-PENTANE	36	1.4	NA	NA	NA	NA	NA	NA
ISOPRENE	37	ND	NA	NA	NA	NA	NA	NA
DIMETHYLSULFIDE	38	ND	NA	NA	NA	NA	NA	NA
DIETHYL ETHER + 2-PROPANOL	239	ND	NA	NA	NA	NA	NA	NA
T-2-PENTENE	41	ND	NA	NA	NA	NA	NA	NA
DICHLOROFLUOROMETHANE	196	ND	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHYLENE	42	6.4	NA	NA	NA	NA	NA	NA
C-2-PENTENE	43	ND	NA	NA	NA	NA	NA	NA
METHYLENE CHLORIDE	44	694 m	NA	NA	NA	NA	NA	NA
2-METHYL-2-BUTENE	45	ND	NA	NA	NA	NA	NA	NA
NEOHXANE	46	ND	NA	NA	NA	NA	NA	NA
FREON 113	199	78.1	NA	NA	NA	NA	NA	NA
ISOBUTYRALDEHYDE	47	ND	NA	NA	NA	NA	NA	NA
CYCLOPENTENE	48	ND	NA	NA	NA	NA	NA	NA
T-1,2-DICHLOROETHYLENE	49	ND	NA	NA	NA	NA	NA	NA
4-METHYL-1-PENTENE	50	ND	NA	NA	NA	NA	NA	NA
1,1-DICHLOROETHANE	51	22.8	NA	NA	NA	NA	NA	NA
CYCLOPENTANE	52	ND	NA	NA	NA	NA	NA	NA
1-PROPANOL	53	ND	NA	NA	NA	NA	NA	NA
2,3-DIMETHYLBUTANE	54	ND	NA	NA	NA	NA	NA	NA
MTBE + ISOHEX + C-4-M-2-PENTENE	232	ND	NA	NA	NA	NA	NA	NA
VINYL ACETATE	203	ND	NA	NA	NA	NA	NA	NA
BUTYRALDEHYDE	58	ND	NA	NA	NA	NA	NA	NA
T-4-METHYL-2-PENTENE	59	ND	NA	NA	NA	NA	NA	NA
CHLOROPRENE	192	ND	NA	NA	NA	NA	NA	NA
2-BUTANONE	60	ND	NA	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9408063-02A

FIELD SAMPLE NUMBER:

A-487

3-METHYLPENTANE	61	ND	NA	NA	NA	NA	NA	NA
1-HEXENE	62	ND	NA	NA	NA	NA	NA	NA
2-METHYL-1-PENTENE	63	ND	NA	NA	NA	NA	NA	NA
BROMOCHLOROMETHANE	212	ND	NA	NA	NA	NA	NA	NA
C-1,2-DICHLOROETHYLENE	64	ND	NA	NA	NA	NA	NA	NA
2-ETHYL-1-BUTENE	65	ND	NA	NA	NA	NA	NA	NA
N-HEXANE	66	0.7	NA	NA	NA	NA	NA	NA
METHYL ACRYLATE	204	ND	NA	NA	NA	NA	NA	NA
CHLOROFORM	67	23.8	NA	NA	NA	NA	NA	NA
C-3-HEXENE	68	ND	NA	NA	NA	NA	NA	NA
T-2-HEXENE	69	ND	NA	NA	NA	NA	NA	NA
2-METHYL-2-PENTENE	70	ND	NA	NA	NA	NA	NA	NA
C-2-HEXENE	71	ND	NA	NA	NA	NA	NA	NA
C-3-METHYL-2-PENTENE	72	ND	NA	NA	NA	NA	NA	NA
METHYLCYCLOPENTANE	73	2.1 hh	NA	NA	NA	NA	NA	NA
1,2-DICHLOROETHANE	74	4.0	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLPENTANE	75	ND	NA	NA	NA	NA	NA	NA
1,1,1-TRICHLOROETHANE	76	712	NA	NA	NA	NA	NA	NA
2-METHYL-1,3-DIOXOLANE	188	ND	NA	NA	NA	NA	NA	NA
ISOVALERALDEHYDE	77	ND	NA	NA	NA	NA	NA	NA
METHYLCYCLOPENTENE	78	ND	NA	NA	NA	NA	NA	NA
BENZENE	79	1.0	NA	NA	NA	NA	NA	NA
CARBON TETRACHLORIDE	80	ND	NA	NA	NA	NA	NA	NA
1-BUTANOL + CYCLOHEXANE	238	2.8	NA	NA	NA	NA	NA	NA
THIOPHENE	82	ND	NA	NA	NA	NA	NA	NA
ISOHEPTANE + 2,3-DIMETHYLPENTANE	84	ND	NA	NA	NA	NA	NA	NA
2-PENTANONE	85	ND	NA	NA	NA	NA	NA	NA
CYCLOHEXENE	86	ND	NA	NA	NA	NA	NA	NA
3-METHYLHEXANE	87	ND	NA	NA	NA	NA	NA	NA
VALERALDEHYDE	88	ND	NA	NA	NA	NA	NA	NA
1,2-DICHLOROPROPANE	89	39.9	NA	NA	NA	NA	NA	NA
3-PENTANONE	90	ND	NA	NA	NA	NA	NA	NA
TRICHLOROETHYLENE + BDCMETHANE	235	188	NA	NA	NA	NA	NA	NA

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Radian Workorder #: 9408063-02A

FIELD SAMPLE NUMBER:

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1-HEPTENE	93	ND	NA	NA	NA	NA	NA	NA
1,4-DIOXANE + 2,2,4-IMPENTANE	234	59.5 hh	NA	NA	NA	NA	NA	NA
N-HEPTANE	95	8.6	NA	NA	NA	NA	NA	NA
N-BUTYL MERCAPTAN	96	ND	NA	NA	NA	NA	NA	NA
T-3-HEPTENE	97	ND	NA	NA	NA	NA	NA	NA
BISCHLOROMETHYL ETHER	98	ND	NA	NA	NA	NA	NA	NA
C-3-HEPTENE	99	ND	NA	NA	NA	NA	NA	NA
T-2-HEPTENE	100	ND	NA	NA	NA	NA	NA	NA
2,4,4-TRIMETHYL-1-PENTENE	101	ND	NA	NA	NA	NA	NA	NA
C-1,3-DICHLOROPROPENE	102	ND	NA	NA	NA	NA	NA	NA
METHYLCYCLOHEXANE	103	ND	NA	NA	NA	NA	NA	NA
METHYLISOBUTYLKETONE	104	ND	NA	NA	NA	NA	NA	NA
2,4,4-TRIMETHYL-2-PENTENE	105	ND	NA	NA	NA	NA	NA	NA
2,5-DIMETHYLHEXANE	106	ND	NA	NA	NA	NA	NA	NA
2,2,3-TRIMETHYLPENTANE	107	ND	NA	NA	NA	NA	NA	NA
T-1,3-DICHLOROPROPENE	108	ND	NA	NA	NA	NA	NA	NA
1,1,2-TRICHLOROETHANE	109	ND	NA	NA	NA	NA	NA	NA
2,3,4-TRIMETHYLPENTANE	110	ND	NA	NA	NA	NA	NA	NA
TOLUENE	111	2.4	NA	NA	NA	NA	NA	NA
2-METHYLTHIOPHENE	112	ND	NA	NA	NA	NA	NA	NA
3-METHYLTHIOPHENE	113	ND	NA	NA	NA	NA	NA	NA
1-METHYLCYCLOHEXENE	114	ND	NA	NA	NA	NA	NA	NA
3,5,5-TRIMETHYL-1-HEXENE	115	ND	NA	NA	NA	NA	NA	NA
DIBROMOCHLOROMETHANE	116	ND	NA	NA	NA	NA	NA	NA
3-METHYLHEPTANE	117	ND	NA	NA	NA	NA	NA	NA
HEXANAL	118	0.8	NA	NA	NA	NA	NA	NA
1,2-DIBROMOETHANE	119	ND	NA	NA	NA	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	120	ND	NA	NA	NA	NA	NA	NA
2,2,5-TRIMETHYLHEXANE	121	ND	NA	NA	NA	NA	NA	NA
1-OCTENE	122	ND	NA	NA	NA	NA	NA	NA
TETRAHYDROTHIOPHENE	123	ND	NA	NA	NA	NA	NA	NA
N-OCTANE	124	ND	NA	NA	NA	NA	NA	NA
TETRACHLOROETHYLENE	125	71.9	NA	NA	NA	NA	NA	NA
C-2-OCTENE	126	ND	NA	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9408063-02A

FIELD SAMPLE NUMBER:

A-487

ISOPENTYL MERCAPTAN	127	ND	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	128	ND	NA	NA	NA	NA	NA	NA
ETHYLBENZENE	129	ND	NA	NA	NA	NA	NA	NA
2,5-DIMETHYLTHIOPHENE	130	ND	NA	NA	NA	NA	NA	NA
P-XYLENE + M-XYLENE	131	ND	NA	NA	NA	NA	NA	NA
BROMOFORM	132	ND	NA	NA	NA	NA	NA	NA
CYCLOHEXANONE	133	ND	NA	NA	NA	NA	NA	NA
BUTYL ACRYLATE	205	ND	NA	NA	NA	NA	NA	NA
STYRENE	134	ND	NA	NA	NA	NA	NA	NA
HEPTANAL	135	ND	NA	NA	NA	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	136	ND	NA	NA	NA	NA	NA	NA
O-XYLENE	137	ND	NA	NA	NA	NA	NA	NA
1-NONENE	138	ND	NA	NA	NA	NA	NA	NA
N-NONANE	139	ND	NA	NA	NA	NA	NA	NA
4-NONENE	140	ND	NA	NA	NA	NA	NA	NA
ISOPROPYLBENZENE	141	0.6	NA	NA	NA	NA	NA	NA
A-PINENE + BENZALDEHYDE	236	131	NA	NA	NA	NA	NA	NA
O-CHLOROTOLUENE	144	ND	NA	NA	NA	NA	NA	NA
M-CHLOROTOLUENE	145	ND	NA	NA	NA	NA	NA	NA
N-PROPYLBENZENE	146	ND	NA	NA	NA	NA	NA	NA
P-CHLOROTOLUENE	147	ND	NA	NA	NA	NA	NA	NA
M-ETHYLTOLUENE	148	4.0	NA	NA	NA	NA	NA	NA
BISCHLOROETHYL ETHER	149	ND	NA	NA	NA	NA	NA	NA
P-ETHYLTOLUENE	150	ND	NA	NA	NA	NA	NA	NA
1,3,5-TRIMETHYLBENZENE	151	ND	NA	NA	NA	NA	NA	NA
O-ETHYLTOLUENE	152	ND	NA	NA	NA	NA	NA	NA
3-OCTANONE	202	ND	NA	NA	NA	NA	NA	NA
B-PINENE	153	2.0	NA	NA	NA	NA	NA	NA
1-DECENE	154	ND	NA	NA	NA	NA	NA	NA
1,2,4-TMBENZENE + T-BUTYLBENZENE	237	ND	NA	NA	NA	NA	NA	NA
BENZYL CHLORIDE + M-DCBENZENE	230	ND	NA	NA	NA	NA	NA	NA
ISOBUTYLBENZENE	158	ND	NA	NA	NA	NA	NA	NA
N-DECANE + P-DICHLOROBENZENE	231	0.6	NA	NA	NA	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9408063-02A

FIELD SAMPLE NUMBER:

A-487

1,2,3-TRIMETHYLBENZENE	161	0.7	NA	NA	NA	NA	NA	NA
P-ISOPROPYLTOLUENE	162	0.8	NA	NA	NA	NA	NA	NA
O-DICHLOROBENZENE	163	ND	NA	NA	NA	NA	NA	NA
LIMONENE	164	7.5	NA	NA	NA	NA	NA	NA
INDAN	165	ND	NA	NA	NA	NA	NA	NA
INDENE	166	ND	NA	NA	NA	NA	NA	NA
M-DIETHYLBENZENE	167	ND	NA	NA	NA	NA	NA	NA
N-BUTYLBENZENE	168	ND	NA	NA	NA	NA	NA	NA
P-DIETHYLBENZENE	169	ND	NA	NA	NA	NA	NA	NA
1-UNDECENE	170	ND	NA	NA	NA	NA	NA	NA
N-UNDECANE	171	0.7	NA	NA	NA	NA	NA	NA
DICHLOROTOLUENE	172	ND	NA	NA	NA	NA	NA	NA
NAPHTHALENE	173	ND	NA	NA	NA	NA	NA	NA
1,2,4-TRICHLOROBENZENE	220	ND	NA	NA	NA	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	210	ND	NA	NA	NA	NA	NA	NA
UNIDENTIFIED VOC	174	46.7	NA	NA	NA	NA	NA	NA
UNIDENTIFIED HALOGENATED VOC	175	16.3	NA	NA	NA	NA	NA	NA

TNMHC

304

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ND= Not Detected

NA= Not Analyzed

Analytical system: HP 5890 GC [C2C3]

Analytical system: HP 5890 GC [D]

hh. Quantitation biased due to coelution with halogenated compound.

m. Detector response over 20% higher than the high point of
the calibration range for this compound.

8-25-1994 18:12:10

VOC AIR CANISTER ANALYSIS
FINAL REPORTClient: LOS ALAMOS
Units: ug/m3Radian Workorder #: 9408063-02A
Date Sampled: 7-29-94

Site Number:							
Sample wide footnotes:	None	o	None	o			
Analytical run FID:	D	D	C	C	NA	NA	NA
Analytical run HALL:	D	D	C	C	NA	NA	NA
FIELD SAMPLE NUMBER:	A-487	A-487	A-488	A-488			
SAMPLE CONTROL NUMBER:	9408063-02A	9408063-02B	9408063-03A	9408063-03B			
DATE SAMPLED:	7-29-94	7-29-94	7-29-94	7-29-94			
NELSON FILE NUMBER:	W0080612	W0080613	J008086	J008087			
FID ANALYSIS DATE:	8-7-94	8-7-94	8-8-94	8-8-94			
HALL ANALYSIS DATE:	8-7-94	8-7-94	8-8-94	8-8-94			
C2C3 ANALYSIS DATE:	8-5-94	8-5-94	8-9-94	8-9-94			
CANISTER NUMBER:	974	974	979	979			
FID DILUTION FACTOR:	0.291553	0.291553	0.274387	0.274387	0.000000	0.000000	0.000000
HALL DILUTION FACTOR:	0.291553	0.291553	0.274387	0.274387	0.000000	0.000000	0.000000
C2C3 DILUTION FACTOR:	0.291553	0.291553	0.171255	0.171255	0.000000	0.000000	0.000000
FID VOLUME:	0.500000	0.500000	0.500000	0.500000	0.000000	0.000000	0.000000
HALL VOLUME:	0.500000	0.500000	0.500000	0.500000	0.000000	0.000000	0.000000
C2C3 VOLUME:	0.500000	0.500000	0.500000	0.500000	0.000000	0.000000	0.000000

Client: LOS ALAMOS

Radian Workorder #: 9408063-02A

FIELD SAMPLE NUMBER:		A-487	A-487	A-488	A-488			
ETHYLENE	193	1.0	1.0	1.0	1.0	NA	NA	NA
ACETYLENE	194	ND	ND	ND	ND	NA	NA	NA
FREON 23	214	ND	ND	ND	ND	NA	NA	NA
ETHANE	2	1.5	1.4	1.1	1.1	NA	NA	NA
CHLORODIFLUOROMETHANE	195	ND	ND	ND	ND	NA	NA	NA
PROPYLENE	3	1.2	1.3	1.3	1.3	NA	NA	NA
PROPANE	4	9.2	9.4	8.3	8.8	NA	NA	NA
DIMETHYL ETHER	190	ND	ND	ND	ND	NA	NA	NA
CHLOROMETHANE	5	ND	ND	1.7	1.6	NA	NA	NA
PROPYNE	6	ND	ND	ND	ND	NA	NA	NA
DICHLORODIFLUOROMETHANE	7	0.9	1.0	1.2	1.2	NA	NA	NA
FREON 114	215	ND	ND	ND	ND	NA	NA	NA
ISOBUTANE	8	ND	0.7	0.6	0.7	NA	NA	NA
ACETALDEHYDE	9	ND	ND	ND	ND	NA	NA	NA
VINYL CHLORIDE	10	ND	ND	ND	ND	NA	NA	NA
ISOBUTENE + 1-BUTENE	11	8.2	8.3	4.4	4.5	NA	NA	NA
1,3-BUTADIENE	12	ND	ND	ND	ND	NA	NA	NA
METHYL MERCAPTAN	13	ND	ND	ND	ND	NA	NA	NA
N-BUTANE	14	0.7	0.6	0.6	0.5	NA	NA	NA
METHANOL	15	ND	ND	ND	ND	NA	NA	NA
BROMOMETHANE	16	ND	ND	ND	ND	NA	NA	NA
T-2-BUTENE	17	ND	ND	ND	ND	NA	NA	NA
NEOPENTANE	18	ND	ND	ND	ND	NA	NA	NA
DIMETHYL ACETAL	189	ND	ND	ND	ND	NA	NA	NA
METHYL FORMATE	191	ND	ND	ND	ND	NA	NA	NA
1-BUTYNE	19	ND	ND	ND	ND	NA	NA	NA
C-2-BUTENE	20	ND	ND	ND	ND	NA	NA	NA
CHLOROETHANE	21	ND	ND	ND	ND	NA	NA	NA
VINYL BROMIDE	22	ND	ND	ND	ND	NA	NA	NA
3-METHYL-1-BUTENE	23	ND	ND	ND	ND	NA	NA	NA
ETHANOL + ACETONITRILE	233	ND	ND	ND	ND	NA	NA	NA
ISOPENTANE	26	1.0	1.0	ND	ND	NA	NA	NA
ACETONE	27	31.6	32.3	1.3	1.3	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9408063-02A

FIELD SAMPLE NUMBER:		A-487	A-487	A-488	A-488			
PROPIONALDEHYDE	28	ND	ND	ND	ND	NA	NA	NA
TRICHLOROFLUOROMETHANE	29	4.8	4.5	3.1	3.5	NA	NA	NA
2-BUTYNE	30	ND	ND	ND	ND	NA	NA	NA
ETHYL MERCAPTAN	31	ND	ND	ND	ND	NA	NA	NA
1-PENTENE	32	0.5	0.6	ND	ND	NA	NA	NA
IODOMETHANE	33	ND	ND	ND	ND	NA	NA	NA
2-METHYL-1-BUTENE	34	ND	ND	ND	ND	NA	NA	NA
ACRYLONITRILE	35	ND	ND	ND	ND	NA	NA	NA
N-PENTANE	36	1.4	1.2	0.5	0.5	NA	NA	NA
ISOPRENE	37	ND	ND	ND	ND	NA	NA	NA
DIMETHYLSULFIDE	38	ND	ND	ND	ND	NA	NA	NA
DIETHYL ETHER + 2-PROPANOL	239	ND	ND	ND	ND	NA	NA	NA
T-2-PENTENE	41	ND	ND	ND	ND	NA	NA	NA
DICHLOROFLUOROMETHANE	196	ND	ND	ND	ND	NA	NA	NA
1,1-DICHLOROETHYLENE	42	6.4	6.1	3.7	4.1	NA	NA	NA
C-2-PENTENE	43	ND	ND	ND	ND	NA	NA	NA
METHYLENE CHLORIDE	44	694 m	726 m	378 m	392 m	NA	NA	NA
2-METHYL-2-BUTENE	45	ND	ND	ND	ND	NA	NA	NA
NEOHXANE	46	ND	ND	ND	ND	NA	NA	NA
FREON 113	199	78.1	78.6	80.1	85.5	NA	NA	NA
ISOBUTYRALDEHYDE	47	ND	ND	ND	ND	NA	NA	NA
CYCLOPENTENE	48	ND	ND	ND	ND	NA	NA	NA
T-1,2-DICHLOROETHYLENE	49	ND	ND	ND	ND	NA	NA	NA
4-METHYL-1-PENTENE	50	ND	ND	ND	ND	NA	NA	NA
1,1-DICHLOROETHANE	51	22.8	19.7	11.2	12.2	NA	NA	NA
CYCLOPENTANE	52	ND	ND	ND	ND	NA	NA	NA
1-PROPANOL	53	ND	ND	ND	ND	NA	NA	NA
2,3-DIMETHYLBUTANE	54	ND	ND	ND	ND	NA	NA	NA
MTBE + ISOHEX + C-4-M-2-PENTENE	232	ND	ND	ND	ND	NA	NA	NA
VINYL ACETATE	203	ND	ND	ND	ND	NA	NA	NA
BUTYRALDEHYDE	58	ND	ND	ND	ND	NA	NA	NA
T-4-METHYL-2-PENTENE	59	ND	ND	ND	ND	NA	NA	NA
CHLOROPRENE	192	ND	ND	ND	ND	NA	NA	NA
2-BUTANONE	60	ND	ND	ND	ND	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9408063-02A

FIELD SAMPLE NUMBER:		A-487	A-487	A-488	A-488			
3-METHYLPENTANE	61	ND	ND	ND	ND	NA	NA	NA
1-HEXENE	62	ND	ND	ND	ND	NA	NA	NA
2-METHYL-1-PENTENE	63	ND	ND	ND	ND	NA	NA	NA
BROMOCHLOROMETHANE	212	ND	ND	ND	ND	NA	NA	NA
C-1,2-DICHLOROETHYLENE	64	ND	ND	ND	ND	NA	NA	NA
2-ETHYL-1-BUTENE	65	ND	ND	ND	ND	NA	NA	NA
N-HEXANE	66	0.7	0.7	ND	ND	NA	NA	NA
METHYL ACRYLATE	204	ND	ND	ND	ND	NA	NA	NA
CHLOROFORM	67	23.8	25.7	15.8	15.8	NA	NA	NA
C-3-HEXENE	68	ND	ND	ND	ND	NA	NA	NA
T-2-HEXENE	69	ND	ND	ND	ND	NA	NA	NA
2-METHYL-2-PENTENE	70	ND	ND	ND	ND	NA	NA	NA
C-2-HEXENE	71	ND	ND	ND	ND	NA	NA	NA
C-3-METHYL-2-PENTENE	72	ND	ND	ND	ND	NA	NA	NA
METHYLCYCLOPENTANE	73	2.1 hh	2.1 hh	1.1 hh	1.1 hh	NA	NA	NA
1,2-DICHLOROETHANE	74	4.0	4.0	3.7	3.9	NA	NA	NA
2,4-DIMETHYLPENTANE	75	ND	ND	ND	ND	NA	NA	NA
1,1,1-TRICHLOROETHANE	76	712	731	410 m	446 m	NA	NA	NA
2-METHYL-1,3-DIOXOLANE	188	ND	ND	ND	ND	NA	NA	NA
ISOVALERALDEHYDE	77	ND	ND	ND	ND	NA	NA	NA
METHYLCYCLOPENTENE	78	ND	ND	ND	ND	NA	NA	NA
BENZENE	79	1.0	0.9	0.8	0.8	NA	NA	NA
CARBON TETRACHLORIDE	80	ND	ND	2.3	2.5	NA	NA	NA
1-BUTANOL + CYCLOHEXANE	238	2.8	2.4	1.4	1.5	NA	NA	NA
THIOPHENE	82	ND	ND	ND	ND	NA	NA	NA
ISOHEPTANE + 2,3-DIMETHYLPENTANE	84	ND	ND	ND	ND	NA	NA	NA
2-PENTANONE	85	ND	ND	ND	ND	NA	NA	NA
CYCLOHEXENE	86	ND	ND	ND	ND	NA	NA	NA
3-METHYLHEXANE	87	ND	ND	ND	ND	NA	NA	NA
VALERALDEHYDE	88	ND	ND	ND	ND	NA	NA	NA
1,2-DICHLOROPROPANE	89	39.9	36.8	14.5	18.1	NA	NA	NA
3-PENTANONE	90	ND	ND	ND	ND	NA	NA	NA
TRICHLOROETHYLENE + BDCMETHANE	235	188	195	104	120	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9408063-02A

FIELD SAMPLE NUMBER:		A-487	A-487	A-488	A-488			
1-HEPTENE	93	ND	ND	ND	ND	NA	NA	NA
1,4-DIOXANE + 2,2,4-TRIPENTANE	234	59.5 hh	59.2 hh	33.4 hh	32.9 hh	NA	NA	NA
N-HEPTANE	95	8.6	8.7	ND	ND	NA	NA	NA
N-BUTYL MERCAPTAN	96	ND	ND	ND	ND	NA	NA	NA
T-3-HEPTENE	97	ND	ND	ND	ND	NA	NA	NA
BISCHLOROMETHYL ETHER	98	ND	ND	ND	ND	NA	NA	NA
C-3-HEPTENE	99	ND	ND	ND	ND	NA	NA	NA
T-2-HEPTENE	100	ND	ND	ND	ND	NA	NA	NA
2,4,4-TRIMETHYL-1-PENTENE	101	ND	ND	ND	ND	NA	NA	NA
C-1,3-DICHLOROPROPENE	102	ND	ND	ND	ND	NA	NA	NA
METHYLCYCLOHEXANE	103	ND	ND	ND	ND	NA	NA	NA
METHYLISOBUTYLKETONE	104	ND	ND	ND	ND	NA	NA	NA
2,4,4-TRIMETHYL-2-PENTENE	105	ND	ND	ND	ND	NA	NA	NA
2,5-DIMETHYLHEXANE	106	ND	ND	ND	ND	NA	NA	NA
2,2,3-TRIMETHYLPENTANE	107	ND	ND	ND	ND	NA	NA	NA
T-1,3-DICHLOROPROPENE	108	ND	ND	ND	ND	NA	NA	NA
1,1,2-TRICHLOROETHANE	109	ND	ND	ND	ND	NA	NA	NA
2,3,4-TRIMETHYLPENTANE	110	ND	ND	ND	ND	NA	NA	NA
TOLUENE	111	2.4	2.3	1.1	1.0	NA	NA	NA
2-METHYLTHIOPHENE	112	ND	ND	ND	ND	NA	NA	NA
3-METHYLTHIOPHENE	113	ND	ND	ND	ND	NA	NA	NA
1-METHYLCYCLOHEXENE	114	ND	ND	ND	ND	NA	NA	NA
3,5,5-TRIMETHYL-1-HEXENE	115	ND	ND	ND	ND	NA	NA	NA
DIBROMOCHLOROMETHANE	116	ND	ND	ND	ND	NA	NA	NA
3-METHYLHEPTANE	117	ND	ND	ND	ND	NA	NA	NA
HEXANAL	118	0.8	0.7	ND	ND	NA	NA	NA
1,2-DIBROMOETHANE	119	ND	ND	ND	ND	NA	NA	NA
2-CHLOROETHYL VINYL ETHER	120	ND	ND	ND	ND	NA	NA	NA
2,2,5-TRIMETHYLHEXANE	121	ND	ND	ND	ND	NA	NA	NA
1-OCTENE	122	ND	ND	ND	ND	NA	NA	NA
TETRAHYDROTHIOPHENE	123	ND	ND	ND	ND	NA	NA	NA
N-OCTANE	124	ND	ND	ND	ND	NA	NA	NA
TETRACHLOROETHYLENE	125	71.9	71.6	39.9	42.5	NA	NA	NA
C-2-OCTENE	126	ND	ND	ND	ND	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9408063-02A

FIELD SAMPLE NUMBER:		A-487	A-487	A-488	A-488			
ISOPENTYL MERCAPTAN	127	ND	ND	ND	ND	NA	NA	NA
CHLOROBENZENE	128	ND	ND	ND	ND	NA	NA	NA
ETHYLBENZENE	129	ND	ND	ND	ND	NA	NA	NA
2,5-DIMETHYLTHIOPHENE	130	ND	ND	ND	ND	NA	NA	NA
P-XYLENE + M-XYLENE	131	ND	ND	ND	ND	NA	NA	NA
BROMOFORM	132	ND	ND	ND	ND	NA	NA	NA
CYCLOHEXANONE	133	ND	ND	ND	ND	NA	NA	NA
BUTYL ACRYLATE	205	ND	ND	ND	ND	NA	NA	NA
STYRENE	134	ND	ND	ND	ND	NA	NA	NA
HEPTANAL	135	ND	ND	ND	ND	NA	NA	NA
1,1,2,2-TETRACHLOROETHANE	136	ND	ND	ND	ND	NA	NA	NA
O-XYLENE	137	ND	ND	ND	ND	NA	NA	NA
1-NONENE	138	ND	ND	ND	ND	NA	NA	NA
N-NONANE	139	ND	ND	ND	ND	NA	NA	NA
4-NONENE	140	ND	ND	ND	ND	NA	NA	NA
ISOPROPYLBENZENE	141	0.6	0.7	ND	ND	NA	NA	NA
A-PINENE + BENZALDEHYDE	236	131	134	73.4	72.8	NA	NA	NA
O-CHLOROTOLUENE	144	ND	ND	ND	ND	NA	NA	NA
M-CHLOROTOLUENE	145	ND	ND	ND	ND	NA	NA	NA
N-PROPYLBENZENE	146	ND	ND	ND	ND	NA	NA	NA
P-CHLOROTOLUENE	147	ND	ND	ND	ND	NA	NA	NA
M-ETHYLTOLUENE	148	4.0	4.3	1.7	1.6	NA	NA	NA
BISCHLOROETHYL ETHER	149	ND	ND	ND	ND	NA	NA	NA
P-ETHYLTOLUENE	150	ND	ND	ND	ND	NA	NA	NA
1,3,5-TRIMETHYLBENZENE	151	ND	ND	ND	ND	NA	NA	NA
O-ETHYLTOLUENE	152	ND	ND	ND	ND	NA	NA	NA
3-OCTANONE	202	ND	ND	ND	ND	NA	NA	NA
B-PINENE	153	2.0	2.1	2.2	2.2	NA	NA	NA
1-DECENE	154	ND	ND	ND	ND	NA	NA	NA
1,2,4-TMBENZENE + T-BUTYLBENZENE	237	ND	ND	ND	ND	NA	NA	NA
BENZYL CHLORIDE + M-DCBENZENE	230	ND	ND	ND	ND	NA	NA	NA
ISOBUTYLBENZENE	158	ND	ND	ND	ND	NA	NA	NA
N-DECANE + P-DICHLOROBENZENE	231	0.6	0.6	ND	ND	NA	NA	NA

Client: LOS ALAMOS

Radian Workorder #: 9408063-02A

FIELD SAMPLE NUMBER:		A-487	A-487	A-488	A-488			
1,2,3-TRIMETHYLBENZENE	161	0.7	0.7	1.0	0.6	NA	NA	NA
P-ISOPROPYLTOLUENE	162	0.8	0.8	0.6	0.6	NA	NA	NA
O-DICHLOROBENZENE	163	ND	ND	ND	ND	NA	NA	NA
LIMONENE	164	7.5	8.0	3.3	3.3	NA	NA	NA
INDAN	165	ND	ND	ND	ND	NA	NA	NA
INDENE	166	ND	ND	ND	ND	NA	NA	NA
M-DIETHYLBENZENE	167	ND	ND	ND	ND	NA	NA	NA
N-BUTYLBENZENE	168	ND	ND	ND	ND	NA	NA	NA
P-DIETHYLBENZENE	169	ND	ND	ND	ND	NA	NA	NA
1-UNDECENE	170	ND	ND	ND	ND	NA	NA	NA
N-UNDECANE	171	0.7	0.7	ND	ND	NA	NA	NA
DICHLOROTOLUENE	172	ND	ND	ND	ND	NA	NA	NA
NAPHTHALENE	173	ND	ND	ND	ND	NA	NA	NA
1,2,4-TRICHLOROBENZENE	220	ND	ND	ND	ND	NA	NA	NA
HEXACHLORO-1,3-BUTADIENE	210	ND	ND	ND	ND	NA	NA	NA
UNIDENTIFIED VOC	174	46.7	47.8	17.2	16.6	NA	NA	NA
UNIDENTIFIED HALOGENATED VOC	175	16.3	15.7	0.3	0.8	NA	NA	NA
TNMHC		304	309	146	145	-	-	-

ND= Not Detected

NA= Not Analyzed

Analytical system: HP 5890 GC [C2C3]

Analytical system: HP 5890 GC [C]

Analytical system: HP 5890 GC [D]

hh. Quantitation biased due to coelution with halogenated compound.

m. Detector response over 20% higher than the high point of
the calibration range for this compound.

o. Laboratory duplicate of 9408063-02A.

o. Laboratory duplicate of 9408063-03A.

Appendix E
Example Calculations

APPENDIX E

EXAMPLE CALCULATIONS

Example calculations are given below for determining the emission flux of tritiated water and VOCs.

Tritiated Water Emission Fluxes

The concentration of tritium in the air samples was determined from the results of the analysis of the sorbent samples by scintillation counting. The total picocuries (pCi) collected on the sorbent medium was determined. This value will be divided by the volume of air sampled to yield the amount of picocuries per volume of air (pCi/m³).

The air concentrations of tritium were converted to emission fluxes in units of pCi/m²-minute using Equation 4-2 from Section 4:

$$EF = C * R / A * t \quad (\text{Eq. E-1})$$

where:

EF	=	Emission flux (pCi/m ² -min);
C	=	Concentration (pCi);
R	=	Ratio of sweep air to sampling flow (m ³ /m ³);
A	=	Surface area (m ²); and
t	=	Duration of sample collection (min).

The ratio of the sweep air volume to the sampling pump volume in the above equation accounts for the tritium that is vented directly to the atmosphere from the flux chamber. The volume of sweep air sampled by the sorbent columns was measured by the dry gas meter. The volume of sweep air delivered to the chamber was determined from the average rotameter reading and the elapsed sampling time.

For example, sample A014 was collected at location T2 on 6-29-93. From the second line of data given Table 9 in Section 3, the total tritium activity in this sample was 74.3 pCi. From Appendix A, the elapsed sampling time was 10:13 (613 min.), the total airflow pulled through the collection media was 19.17 ft³, and the sweep air flowrate was 2.15 L/min. From Section 2, the surface area isolated by the flux chamber is 0.13 m².

First, the sweep air flowrate must be multiplied by the duration of sampling to determine the total volume of sweep air added to the flux chamber. This value is divided by the total volume of air pulled through the sorbent tubes to calculate the ratio of sweep air to the total volume of air sampled (after both values are converted to the same basis):

Vol. sweep air/Vol air sampled

$$\begin{aligned} &= (\text{sweep air flowrate})(\text{duration of sampling})/\text{total airflow sampled} \quad (\text{Eq. E-2}) \\ &= (2.15 \text{ L/min})(613 \text{ min})(\text{m}^3/1000 \text{ L})/(19.17 \text{ ft}^3)(0.0283 \text{ m}^3/\text{ft}^3) \\ &= 1.32/0.543 = 2.43 \end{aligned}$$

The emission flux of tritiated water can now be calculated from Equation E-1:

$$\begin{aligned} E &= (74.3 \text{ pCi})(2.43)/(0.13 \text{ m}^2)(613 \text{ min}) \\ &= 2.26 \text{ pCi/m}^2\text{-min} \end{aligned}$$

This is the value given in Table 14 for location T2.

Also from Appendix A, the total water weight gain was 8.69 g. The evaporation rate is the result of the total water weight gain divided by the duration of sampling multiplied by the ratio of sweep air to volume of air sampled:

$$\begin{aligned} \text{Evaporation rate} &= [8.69 \text{ g} / 613 \text{ min}] * 2.43 \\ &= 0.0345 \text{ g/min} \\ &= 34.5 \text{ mg/min.} \end{aligned}$$

VOC Emission Fluxes

Samples for volatile organic compounds were collected in evacuated stainless steel canisters and shipped for gas chromatographic analysis to Radian's laboratory in Austin, Texas. The chromatographic peaks were identified by comparing retention times and response ratios (relative to toluene) to a database containing these values for each of the target analytes. Concentrations were determined by dividing the chromatographic peak's integrated area count by the individual compound response factor, the dilution factor, and the volume of sample loaded.

VOC emission fluxes were determined as follows:

$$E = \frac{(C)(Q)}{A} \quad (\text{Eq. E-3})$$

where:

E	=	emission flux of species (ug/m ² -minute);
C	=	measured concentration of species (ppmv converted to ug/m ³);
Q	=	sweep air flow rate (m ³ /min); and
A	=	exposed surface area (m ²).

For example, sample A002 was collected at location T2 on 6-29-93. From the second line of data in Appendix A, the sampling flowrate was 2.15 L/min. From Section 2, the surface area isolated by the flux chamber is 0.13 m². An emission flux can now be calculated for any compound identified in the sample. The complete analytical report for Sample A002 is given in Appendix C. The measured concentrations in the canister included:

Compound	Concentration ($\mu\text{g}/\text{m}^3$)
Methylene chloride (MeCl)	2920
Tetrachloroethylene (PCE)	159
Total Non-Methane Hydrocarbons (TNMHC)	1010

The emission fluxes can now be calculated using Equation E-3:

$$\begin{aligned} \text{EF}_{\text{MeCl}} &= (2920 \mu\text{g}/\text{m}^3)(0.00215 \text{ m}^3/\text{min})/(0.13 \text{ m}^2) \\ &= 48.3 \mu\text{g}/\text{m}^2\text{-min} \end{aligned}$$

$$\begin{aligned} \text{EF}_{\text{PCE}} &= (159 \mu\text{g}/\text{m}^3)(0.00215 \text{ m}^3/\text{min})/(0.13 \text{ m}^2) \\ &= 2.63 \mu\text{g}/\text{m}^2\text{-min} \end{aligned}$$

$$\begin{aligned} \text{EF}_{\text{TNMHC}} &= (1010 \mu\text{g}/\text{m}^3)(0.00215 \text{ m}^3/\text{min})/(0.13 \text{ m}^2) \\ &= 16.7 \mu\text{g}/\text{m}^2\text{-min} \end{aligned}$$

These are the values given in Table 14 in Section 4 for methylene chloride and TNMHC. It should be noted that the flux for one compound - MeCl - exceeds the flux for TNMHC. TNMHC is based on total FID response assuming hexane (i.e., six carbon atoms and a molecular weight of 84). For this sample, much of the response is due to the relatively light compound, methylene chloride, so the assumption of hexane as the typical compound present is not particularly good. In any event, the same assumption is used for TNMHC throughout the study so that data from different samples can be directly compared on an equal basis.

APPENDIX F

Results of Tritium Analysis of Surface Soils Collected by LANL in 1989

Figure 3. 1989 Soil Sampling Locations at Area G

Table 6 (continued) 1989 Soil Sampling
Radiochemistry Results for Area G

Location	Sample Number	³ H	
		Result (pCi/l) ^a	Uncertainty (pCi/l) ^a
10-1	89.14016	1500	400
10-2	89.14017	1800	400
10-3	89.14018	1300	300
10-4	89.14019	2200	400
6 11-1	89.14020	1100	300
11-2	89.14021	1700	400
11-3	89.14022	800	300
11-4	89.14023	1600	400
11-5	89.14024	1200	300
5 12-1	89.14025	500	300
12-2	89.14026	200	300
12-3	89.14027	600	300
12-4	89.14028	200	300
12-5	89.14029	900	300
4 13-1	89.14030	1100	300
13-2	89.14031	1600	400
3 14-1	89.14032	1100	300
14-2	89.14033	600	300
14-3	89.14034	200	300
14-4	89.14035	1100	300
14-5	89.14036	200	300
2 15-1	89.14037	500	300
15-2	89.14038	400	300
15-3	89.14039	3300	500
15-4	89.14040	1400	300
1 16-1	89.14041	500	300
16-2	89.14042	300	300
17-1	89.14043	3400	500
17-2	89.14044	200	300

^a liters of soil moisture

Coordinates of Sampling Locations

901	1,645,012.20848	1,757,916.35308
902	1,644,812.40132	1,757,916.02285
903	1,644,606.97353	1,757,964.28294
904	1,644,407.71733	1,757,960.46269
905	1,644,212.61683	1,757,917.32219
906	1,644,012.06067	1,757,917.84197
907	1,643,812.10652	1,757,919.18176
908	1,643,612.79934	1,757,917.51153
909	1,643,412.06218	1,757,917.79130
912	1,642,795.85680	1,757,913.31059
913	1,642,611.32551	1,757,915.42040
914	1,642,412.81836	1,757,919.04020
915	1,642,183.60057	1,757,935.17005
916	1,642,018.63697	1,757,918.00975
917	1,641,812.25386	1,757,917.73952
918	1,644,999.88130	1,757,724.78182
919	1,644,813.32896	1,757,717.36157
920	1,644,612.75380	1,757,717.81135
921	1,644,411.83265	1,757,717.96112
922	1,644,212.37648	1,757,718.36090
923	1,644,012.48533	1,757,719.33069
924	1,643,815.07214	1,757,719.74047
925	1,643,611.49400	1,757,718.05023
926	1,644,812.17361	1,757,516.73027
927	1,643,211.92467	1,757,718.17979
928	1,642,815.11634	1,757,723.18938
930	1,642,606.17324	1,757,719.61912
931	1,642,412.00901	1,757,718.22890
932	1,642,211.24986	1,757,719.20868
933	1,642,011.34668	1,757,717.71845
934	1,641,822.23344	1,757,720.14825
935	1,645,018.75558	1,757,496.88037
936	1,644,811.78961	1,757,516.74027
937	1,644,612.28745	1,757,517.51005
938	1,644,413.58034	1,757,527.24989
939	1,644,207.45217	1,757,518.51960
940	1,644,012.50097	1,757,519.41939
941	1,643,813.15480	1,757,518.91917
942	1,643,613.04064	1,757,519.72895
943	1,643,412.77748	1,757,519.25872
944	1,643,217.31330	1,757,524.17854
945	1,643,016.89011	1,757,518.93828
946	1,642,817.62191	1,757,515.21803
947	1,642,413.62165	1,757,519.27761
948	1,642,209.53250	1,757,515.42735
949	1,644,812.38025	1,757,317.17898
950	1,644,613.37709	1,757,318.25876
951	1,644,413.56792	1,757,317.97854
952	1,644,208.22681	1,757,317.66830
953	1,644,019.07968	1,757,337.24822
954	1,643,812.16846	1,757,319.44787
955	1,643,612.27529	1,757,318.52764
956	1,643,421.20510	1,757,327.11749
957	1,643,210.85698	1,757,320.20721
958	1,643,010.69678	1,757,313.32694
959	1,642,812.31164	1,757,318.98675
960	1,642,408.25034	1,757,318.48630
961	1,642,207.47221	1,757,321.97610
962	1,644,810.17089	1,757,113.48765
963	1,644,614.63571	1,757,116.87746
964	1,644,012.39025	1,757,118.09679
965	1,643,811.37610	1,757,118.14657
966	1,643,612.54793	1,757,117.99634
967	1,643,422.31173	1,757,126.06618
968	1,643,012.16644	1,757,118.16567
969	1,642,812.07228	1,757,118.21545