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Hazardous Material Division
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DATE: January 17, 1996

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Cliff Maupin, National Airmotive Corporation

BY: Lynn A. Gallagher, Project Geologist

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SOIL AND GROUNDWATER INVESTIGATION

NATIONAL AIRMOTIVE CORPORATION FACILITY

OAKLAND, CALIFORNIA

Prepared for

National Airmotive Corporation

January 16, 1996

Prepared by

EMCON
1921 Ringwood Avenue
San Jose, California 95131

Project 22077-001.001

Soil and Groundwater Investigation
National Airmotive Corporation Facility
Oakland, California

The material and data in this report were prepared under the supervision and direction of the undersigned.

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1 INTRODUCTION

EMCON conducted a site investigation to evaluate soil and groundwater conditions at the National Airmotive Corporation (NAC) test facility at 6701 Earhart Road in Oakland, California. The test facility is located at the northern terminus of Earhart Road (Figure 1), and is used for conducting performance tests of aircraft engines. The investigation was two-phased, and included on-site and off-site investigations. The following sections outline the purpose of the soil and groundwater characterization.

1.1 Jet Fuel UST Area

The NAC test cell is used to conduct performance tests of rebuilt jet engines. The test cell area investigated consists of the main test cell and engine preparation building, two storage sheds, one 30,000-gallon aboveground storage tank (AST) containing liquefied petroleum (LP) gas, and two 8,000-gallon underground storage tanks (USTs) containing jet fuel. In September 1992, an accidental spill occurred in the immediate vicinity of the jet fuel UST's resulting in the release of approximately 1,150 gallons of Jet-A fuel. NAC requested that EMCON conduct an investigation to evaluate soil and groundwater quality in the vicinity of the jet fuel release.

As part of the jet fuel UST area investigation, EMCON drilled eight exploratory borings (B-1 through B-8) across the test cell area on NAC property, and a ninth boring (OB-1),in the off-site area southwest of the USTs. EMCON collected soil and grab groundwater samples from each boring (Figures 2 and 3). The work was originally proposed in a May 24, 1994, workplan prepared by EMCON and was subsequently modified on February 17, 1995, to include an additional boring near the high-speed test cell. The scope of work, with modifications, was reviewed and approved by Alameda County Health Care Services Agency (ACHCSA) in a February 8, 1995, letter to NAC. Borings B-1 through B-8 were drilled and sampled on April 6, 1995. The ninth boring (OB-1) was sampled on November 3, 1995.

1.2 Graywater Discharge Area

NAC has used the area shown in Figure 4 for jet engine testing since the late 1960s. From the late 1960s until 1978, graywater from engine cleaning would on occasion flow through a shallow concrete channel that drained into an unlined storm culvert bounding the site to

the west. In 1978, NAC began treating the graywater discharge by using an oil-water separator before it drained to the culvert. In 1992, NAC stopped discharging the graywater to the culvert, and began to transport the water off site.

On May 12, 1994, the Alameda County Hazardous Materials Unit collected surface soil samples from the area west of the testing facility, at the locations shown in Figure 4. The total oil and grease analyses indicated concentrations between 0.1 and 15.1 percent, but did not exclude decaying vegetable matter and animal fats. The metals analyses indicated that soil sample S-4 contained lead concentrations that exceeded ten times the Title 22 soluble threshold limit concentration. The ACHCSA requested that NAC conduct a preliminary investigation to evaluate soil and groundwater quality in the vicinity of the graywater discharge area. The scope of work was originally proposed in a May 24, 1994, workplan prepared by EMCON, and was modified on March 14, 1995, to include additional analyses requested by the ACHCSA. The ACHCSA reviewed and approved the workplan with the subsequent modifications.

On November 3, 1995, as part of the graywater discharge area investigation, EMCON drilled five exploratory borings (OB-2 through OB-6) in and near the graywater discharge path and collected soil and grab groundwater samples from each boring (Figures 5 and 6). The placement of the borings was directed by Mr. Scott Seery of the ACHCSA.

2 FIELD INVESTIGATION

This section describes the methods and procedures used during the field investigations in the jet fuel UST area and the graywater discharge area.

2.1 Jet Fuel UST Area

EMCON conducted the jet fuel UST area field investigation on April 6, 1995 (on-site borings B-1 through B-8), and November 3, 1995 (off-site boring OB-1), drilling nine borings to groundwater and collecting soil and grab groundwater samples from each boring. The borings surround the UST and the locations are shown on Figures 2 and 3.

The exploratory borings were drilled with 7-inch-diameter hollow-stem augers. The augers and bit, as well as all other down-hole equipment, were steam-cleaned before re-use, to prevent possible cross-contamination of samples. The subsurface materials were logged under the direct supervision of a California-registered geologist, according to the Unified Soil Classification System. Boring logs and a copy of the drilling permit are included in Appendix A.

Soil samples were collected from the borings at depths of approximately 3 and 4.5 feet below ground surface (BGS). At some borings, the interval between ground surface and first-encountered groundwater was too short to permit collection of two unsaturated soil samples. Soil samples were collected in stainless-steel sleeves fitted into a modified California split-spoon sampler. A portion of each sample was set aside and field-screened for petroleum hydrocarbons, using a photoionization detector (PID). Where multiple samples were available, the samples that gave the highest PID reading were selected for analysis. Samples selected for analysis were sealed in the rings using Teflon® tape and vinyl end-caps, labeled, and chilled pending transport.

After all soil samples were collected from each boring, the auger was advanced into the groundwater to a sufficient depth to facilitate recharge of the boring (total boring depths ranged from 6 to 8 feet BGS). Grab groundwater samples were collected from all borings, using disposable Teflon bailers, or a stainless-steel bailer. The stainless steel bailer was steam-cleaned and triple-rinsed between borings to avoid possible cross-contamination of samples. All borings except B-6 recharged within ½ hour. A length of steam-cleaned, triple-rinsed polyvinyl chloride (PVC) casing with 0.01-inch slots was left

in the B-6 borehole to act as a temporary well point, and the boring was successfully sampled within an hour.

Groundwater samples were decanted from the bailer into 40-milliliter (ml) and 1,000-ml amber bottles appropriate to the analyses to be performed; bottles were overfilled to reduce possible loss of volatile compounds to headspace. Before decanting, the water in the bailer was visually examined for the presence of floating product; none was observed in any groundwater sample collected. After groundwater samples were collected from borings B-3 through B-7, the borings were allowed to stand open for at least ½ hour, to allow possible dispersed petroleum product to re-accumulate on the groundwater surface. **Water collected at the end of that time did not contain any floating product.**

"Sheen" noted on GW encountered in B-7.

After collection, groundwater and soil samples were properly labeled, stored in a chilled container, and transported, with appropriate chain-of-custody documentation, to a state-certified laboratory for chemical analysis. After all sampling and observation was complete, the soil borings were sealed to the surface with bentonite. Soil cuttings and cleaning rinseate generated during the investigation were placed in sealed 55-gallon drums, appropriately labeled, and stored on site.

2.2 Graywater Discharge Area

EMCON conducted the field investigation of the graywater discharge area on November 3, 1995, by drilling five off-site borings to groundwater and collecting soil and grab groundwater samples from each boring. Two of the borings (OB-2 and OB-3) were drilled with hollow-stem augers, at the southwest corner of the storage shed. The remaining three borings (OB-4, OB-5, and OB-6) were drilled with hand-augers, in the storm culvert that drains the graywater area. Boring OB-4 was drilled nearest the original discharge point, immediately adjacent to the channel that formerly emptied graywater into the storm culvert. Boring OB-5 was drilled next to the outlet pipe connecting the culvert with the property to the south. Boring OB-6 was drilled in the southeast corner of the culvert. Based on a visual evaluation and the relative shallowness of groundwater, the culvert appears to grade downward from OB-4 to OB-6, and to grade slightly upward from OB-6 to OB-5. Boring locations can be seen in Figures 5 and 6.

Sample logging and equipment decontamination procedures are as described in Section 2.1. Boring logs and a copy of the drilling permit are included in Appendix A.

Soil samples were collected from the borings at depths of approximately 0.5 and 2 feet BGS, conditions permitting. At borings OB-5 and OB-6, the interval between ground surface and first-encountered groundwater was too short to permit collection of two unsaturated soil samples. Soil samples at borings OB-2 and OB-3 were collected in stainless-steel sleeves fitted into a modified California split-spoon sampler; samples from the remaining borings were collected in the hand sampler and packed into stainless-steel

sleeves. A portion of each sample was set aside and field-screened for petroleum hydrocarbons, using a PID. Where multiple samples were available, the samples with the highest PID readings were selected for analysis.

After all soil samples were collected from each boring, the boring was advanced into the groundwater to a sufficient depth to facilitate recharge of the boring (total boring depths ranged from 2 to 9 feet BGS). Grab groundwater samples were collected in disposable Teflon bailers from borings OB-2 and OB-3; groundwater was collected in a PVC well cap from the remaining borings (the cap was steam-cleaned and triple-rinsed between borings, to avoid possible cross-contamination of samples). All borings except OB-2 recharged within ¼ hour. A length of steam-cleaned, triple-rinsed PVC casing with 0.01-inch slots was left in the OB-2 borehole to act as a temporary well point, and the boring was successfully sampled within ½ hour. Groundwater samples were decanted, labeled, and stored as described in Section 2.1; samples for metals analysis were field-filtered to remove sediment. Before decanting, the water in the bailer or cup was visually examined for the presence of floating petroleum product. **A sheen was observed on water collected at boring OB-4;** free product was not observed at any other boring.

After collection, groundwater and soil samples were labeled, stored, and transported as described in Section 2.1; borings were sealed and cuttings stored as previously described.

3 LABORATORY ANALYSIS OF SOIL AND GROUNDWATER

A total of 20 soil samples (12 from the jet fuel UST investigation and 8 from the graywater investigation) and 14 groundwater samples (9 from the jet fuel UST investigation and 5 from the graywater investigation) was delivered, with appropriate chain-of-custody documentation, to Columbia Analytical Services, a state-certified laboratory, for analysis. The following section describe the analyses conducted on the various samples.

3.1 Jet Fuel UST Area

The jet fuel UST area samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by U.S. Environmental Protection Agency (USEPA) method 8020, and for total petroleum hydrocarbons as gasoline (TPHG) and high-boiling-point hydrocarbons (HBHCs) by the methods recommended by the Department of Toxic Substances Control (DTSC) in the *Leaking Underground Fuel Tank* (LUFT) *Field Manual* (State Water Resources Control Board, October 1989). Samples were prepared for TPHG analysis by USEPA method 5030 (purge and trap), and for HBHC analysis by USEPA extraction methods 3550 (soil) and 3510 (water). At the request of ACHCSA, the HBHC analysis was modified to include peaks in the motor-oil range.

Analytical and quality assurance/quality control (QA/QC) procedures used in the analyses included preparation of a matrix spike and a matrix spike duplicate (MS/MSD), as well as evaluation of surrogate recovery in the matrix. The QA/QC data indicate that the analytical results are of acceptable quality, with the following exceptions. Surrogate recoveries of HBHCs were outside the laboratory acceptance limits for soil samples B-2 (3.5'), B-4 (3'), B-5 (3.5'), and B-7 (3.5'), due to matrix dilution or to the interference of target components with the identification of the surrogate. Surrogate recoveries of TPHG and BTEX were within the laboratory acceptance limits, as were MS/MSD results. Soil samples OB-1 (2-2.5) and OB-1 (3.5-4') were outside the acceptance limits for surrogate recovery of HBHCs as a result of matrix dilution. **The impact of the surrogate recovery excursions discussed above is diminished by the relatively high analyte concentrations observed in soil and groundwater samples.** Soil and groundwater analytical results for the jet fuel spill investigation are summarized in Tables 1 and 2 and presented graphically in Figures 2 and 3. Analytical reports are presented in Appendix B.

3.2 Graywater Discharge Area

The graywater discharge area samples were analyzed for HBHCs and BTEX compounds by the methods described above, for halogenated volatile organic compounds (HVOCs) by USEPA method 8010, for semivolatile organic compounds (SVOCs) by USEPA method 8270, and for 17 California Assessment Manual (CAM 17) metals. QA/QC procedures included evaluation of surrogate recovery in the matrix. The QA/QC data indicate that the analytical results are of acceptable quality, with the following exceptions. Surrogate recovery of HBHCs from soil samples OB-3 (2-2.5') and OB-4 (0-0.5') were outside the acceptance limits because matrix dilution brought the surrogate concentration below the method reporting limit. Surrogate recovery of HBHCs from groundwater sample OB-6 was outside the acceptance limits as a result of matrix interference from high analyte concentrations. Surrogate recovery of SVOCs in the soil and groundwater samples was not applicable due to a high dilution factor for the matrix. **The impact on data quality of the surrogate recovery excursions discussed above is diminished by the relatively high analyte concentrations observed in soil and groundwater samples.**

Soil and groundwater analytical results for the graywater area investigation are summarized in Tables 3 and 4 and presented graphically in Figures 5 and 6. Analytical reports are presented in Appendix B.

4 ANALYTICAL RESULTS

This section summarizes the analytical results obtained from the jet fuel UST area and graywater discharge area investigations.

4.1 Jet Fuel UST Area

4.1.1 Soil Analytical Results

HBHC compounds, primarily jet fuel and motor oil, were detected in all soil samples collected from the jet fuel UST area (Table 1). Jet fuel was detected in the soil samples at concentrations ranging from 4 to 6,100 parts per million (ppm); motor oil was present at concentrations ranging from 17 to 1,100 ppm. HBHC concentrations exceeding 1,000 ppm were limited to borings B-1 and B-2, which are immediately adjacent to the USTs (Figure 2).

TPHG was detected in soil samples from borings OB-1, B-1, B-2, and B-8, at concentrations ranging from 26 to 1,500 ppm (Table 1). The highest TPHG concentrations appeared in samples from boring B-2, immediately east of the USTs. Ethylbenzene and xylenes were detected in only three borings (B-1, B-2, and B-8). The highest xylene concentrations (16 ppm) were selected at boring B-2. Benzene was not detected in any of the soil samples collected from the jet fuel area. Borings B-4 through B-7 did not contain TPHG or BTEX compounds.

4.1.2 Groundwater Analytical Results

HBHCs, primarily jet fuel, diesel, and motor oil, were detected in groundwater from borings B-1, B-2, B-3, and OB-1 (Table 2). The concentration of jet fuel ranged from 6,300 to 270,000 parts per billion (ppb), and the concentration of motor oil ranged from 520 to 8,900 ppb. The highest HBHC concentrations appeared in samples collected from borings B-1 and B-2. However, samples collected from borings B-6, B-7, and B-8 on the eastern portion of the jet fuel area, did not contain any HBHCs.

TPHG was detected in groundwater from borings OB-1, B-1, B-2, and B-3, at concentrations ranging from 89 to 5,100 ppb. The highest concentrations appeared in

samples from the on-site borings bounding the USTs (B-1, B-2, and B-3) (Table 2). **Toluene, ethylbenzene, and xylenes were detected in groundwater from borings OB-1, B-1, B-2, and B-3, at concentrations ranging from 0.6 to 88 ppb;** as with the TPHG, the highest concentrations appeared in samples from borings B-1 and B-2 (Figure 3). **Benzene was not detected in any of the groundwater samples collected from the jet fuel UST area investigation.** In addition, TPHG and BTEX compounds were not detected in groundwater samples collected from borings B-4 through B-8.

4.2 Graywater Discharge Area

4.2.1 Soil Analytical Results

BTEX compounds were not detected in any of the soil samples collected from the graywater discharge area. VOCs and SVOCs were not detected in any of the graywater investigation samples, with two exceptions: *bis* (2-ethylhexyl) phthalate was detected in samples from borings OB-3 and OB-5, at concentrations just above the method reporting limit (MRL), and Freon 113 was detected at the MRL in a sample from boring OB-2 (Table 3). These compounds are common laboratory contaminants, and their detection in these samples is considered anomalous; they are therefore not included in Table 3. HBHCs, primarily diesel and motor oil, were detected in all soil samples from the graywater area, at concentrations ranging from 22 to 1,300 ppm. The highest HBHC concentrations were observed in the surface sample from boring OB-4, the boring nearest the graywater discharge source (Figure 5).

Cadmium, chromium, copper, lead, and mercury are found in soil at one or more locations at concentrations that exceed the Title 22 soluble threshold limit concentration (STLC) limits by a factor of 10 or more. Lead is found at concentrations that exceed the Title 22 total threshold limit concentration (TTLC) limits (1,000 ppm). The TTLC defines a waste as hazardous for the purposes of disposal. The highest metals concentrations are observed at borings OB-2 and OB-3, near the storage shed. These borings are outside the unlined storm culvert. EMCON understands that this area was used as a landfill by the Port of Oakland. The elevated metals concentrations could be associated with the fill material.

4.2.2 Groundwater Analytical Results

BTEX compounds detected in groundwater were limited to ethylbenzene and xylenes (concentrations of 0.7 to 38 ppb) (Table 4), with the highest concentrations appearing at boring OB-6 (Figure 6). Benzene was not detected in any of the groundwater samples collected from the graywater area. SVOCs detected in groundwater were limited to naphthalene compounds, which were detected in samples from borings OB-5 (10 µg/L) and OB-6 (up to 520 µg/L). VOCs were not detected in any of the groundwater samples.

HBHCs, primarily jet fuel, were detected in groundwater at concentrations ranging from 80 to 190,000 µg/L. The highest HBHC concentrations appeared in samples collected from the storm culvert, nearest the graywater discharge source.

Soil metals impact to groundwater appears to be minimal. Metals detected in groundwater were limited to arsenic, barium, lead, and zinc. Only barium was present at levels exceeding the maximum contaminant level (MCL) for drinking water.

5 CONCLUSIONS AND RECOMMENDATIONS

Analysis of samples collected in the jet fuel UST area confirmed petroleum-hydrocarbon impact to both soil and groundwater. However, the soil concentrations exceeding 1,000 ppm are limited to the area immediately adjacent to the USTs. In addition, floating product was not observed on the groundwater at any of the borings and benzene was not present in soil or groundwater samples.

Analysis of samples in the graywater discharge area indicates that the impact of graywater discharge to soil and groundwater in the area is limited to petroleum hydrocarbons, characterized primarily by concentrations of motor oil. Although a sheen was observed on groundwater at boring OB-4, measurable floating product was not observed on the groundwater at any of the borings. Benzene was not detected in soil or groundwater collected from the area.

The elevated HBHC concentrations observed at OB-6 in the corner of the storm culvert are likely associated with the fact that this area lies downslope of the original discharge point and served as a collection point for drainage. The HBHC concentrations observed at OB-5 (regionally downgradient) are significantly lower than those observed at OB-6. This indicates that there has been limited lateral migration since the late 1960s when NAC began jet engine testing and associated graywater discharge in this area.

The potential for harm to persons or wildlife from the presence of petroleum hydrocarbons at the site appears to be limited. Groundwater in the area can be presumed to be nonpotable because of the likely presence of high salinity due to the close proximity to the San Francisco Bay. The storm culvert was observed in April and November 1995, and at neither time was flowing water observed in the ditch. Surface water in the culvert would be transient and an unlikely water or food source for wildlife. The NAC site is bounded by open fields with no residential structures. The nearest cultural feature is the planned football practice stadium on the Port of Oakland property to the west. Therefore, it is unlikely that humans or wildlife would routinely contact soil or groundwater.

NAC is scheduled to replace the present jet fuel USTs with double-walled USTs by 1998. The shallow groundwater at the site will likely be exposed during the necessary excavation. During this excavation, EMCON recommends that NAC monitor for free product in the pit and be prepared to remove such free product if observed. The petroleum hydrocarbons identified in soil and groundwater during this investigation are likely to

naturally biodegrade in place, over time. Given the present use of the site and groundwater in the area (nonpotable), further action does not appear necessary.

The metals observed in the graywater area soil appear to be the result of the historical uses of the site; formerly a refuse disposal area. Metals solubility in area soils appears to be low; metals do not appear in groundwater in significant concentrations. As discussed above, human and wildlife contacts with soil and groundwater are expected to be minimal. Therefore, it does not appear that further action regarding the concentrations of metals in soil and groundwater beneath the site is necessary.

LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

Table 1

Soil Analytical Results[1]
Jet Fuel Spill Area
National Airmotive Corporation
Oakland, California

Sample Location	Sample Depth (ft)	TPHG	Benzene	Toluene	Ethylbenzene	Total Xylenes	Jet Fuel	Kerosene	Diesel	Motor Oil
OB-1	2	<5	<0.05	<0.1	<0.1	<0.1	<1	<1	<1	320
	3.5	110	<0.2[2]	<0.4[2]	<0.4[2]	<0.5[3]	600	<5[2]	190[7]	760
B-1	6	110	<0.1[2]	<0.2	0.3	1.3	780[4]	<10[2]	<10[2]	1,100[3]
B-2	3.5	1,500	<1[2]	<2[2]	5.1	16	6,100[5]	<10[2]	<10[2]	<10[2]
	5	270	<0.2[2]	<0.4[2]	1.2	3.8	1,000[4]	<10[2]	<10[2]	370[4]
B-3	3.5	<5	<0.05	<0.1	<0.1	<0.1	4[4]	<1	<1	50[4]
B-4	3	<5	<0.05	<0.1	<0.1	<0.1	4[4]	<1	<1	44[4]
	5	<5	<0.05	<0.1	<0.1	<0.1	<10[2]	<10[2]	<10[2]	360[4]
B-5	3.5	<5	<0.05	<0.1	<0.1	<0.1	<1	<1	<1	57[6]
B-6	3.5	<5	<0.05	<0.1	<0.1	<0.1	<1	<1	<1	17[6]
B-7	3.5	<5	<0.05	<0.1	<0.1	<0.1	<10[2]	<10[2]	<10[2]	150[6]
B-8	3.5	26	<0.05	<0.1	<0.1	0.1	92[4]	<10[2]	<10[2]	500[4]

1 Results are presented in milligrams per kilogram, or parts per million
2 Raised MRL; analyte concentration required sample dilution
3 Raised MRL due to matrix interference
4 The chromatogram fingerprint resembles a mixture of jet fuel and motor oil
5 The chromatogram fingerprint resembles jet fuel
6 The chromatogram fingerprint resembles motor oil
7 The chromatogram does not match the typical diesel fingerprint
8 The chromatogram does not match the typical jet fuel fingerprint

Table 2

Groundwater Analytical Results[1]
Jet Fuel Spill Area
Oakland, California

Sample Location	TPHG	Benzene	Toluene	Ethylbenzene	Total Xylenes	Jet Fuel	Kerosene	Diesel	Motor Oil
OB-1	89	<0.5	<0.5	<0.5	0.6	7,100	<250[2]	3,600	8,900
B-1	5,100	<2.5[2]	<2.5	24	88	150,000[3]	<500[2]	<500[2]	5,300[3]
B-2	650	<2.5[2]	<2.5	7.1	21	270,000[4]	<500[2]	<500[2]	<500[2]
B-3	420	<0.5	1.2	1.2	4.4	6,300[4]	<500[2]	<500[2]	<500[2]
B-4	<50	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	1,300[5]
B-5	<50	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	520[5]
B-6	<50	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	250
B-7	<50	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	250
B-8	<50	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	250

1 Results are presented in micrograms per liter, or parts per billion
2 Raised MRL; high analyte concentration required sample dilution
3 The chromatogram fingerprint resembles a mixture of jet fuel and motor oil
4 The chromatogram fingerprint resembles jet fuel
5 The chromatogram fingerprint resembles motor oil

Table 3

Soil Analytical Results[1]
Graywater Discharge Area
National Airmotive Corporation
Oakland, California

Sample Location	Sample Depth (ft)	Organic Compounds									
		Jet Fuel	Kerosene	Diesel	Motor Oil	VOCs	SVOCs	Benzene	Toluene	Ethylbenzene	Xylenes
OB-2	0.5	<1	<1	<1	170	ND	ND	<0.05	<0.1	<0.1	<0.1
	2	440	<1	54	190	ND	ND	<0.05	<0.1	<0.1	<0.1
OB-3	0	<10[2]	<10[2]	<10[2]	510	ND	ND	<0.05	<0.1	<0.1	<0.1
	2	<10[2]	<10[2]	<10[2]	1,300	ND	ND	<0.05	<0.1	<0.1	<0.1
OB-4	0	240	<10[2]	1,100	1,100	ND	ND	<0.05	<0.1	<0.1	<0.1
	1	430	<5[2]	22	310	ND	ND	<0.05	<0.1	<0.1	<0.1
OB-5	0	<5	130	250	300	ND	ND	<0.05	<0.1	<0.1	<0.1
OB-6	0	280	<1	120	120	ND	ND	<0.05	<0.1	<0.1	<0.1

		Metals													
		Antimony	Arsenic	Barium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Silver	Vanadium	Zinc
OB-2	0.5	<10	8	220	2	53[4]	12	89	280[5]	0.5	<10	60	1	38	340
	2	<10	<5	730	5	57[4]	25	1,300[4]	2,500[5]	0.5	<10	69	6	39	1,300
OB-3	0	<10	8	810	8	62[4]	18	280[4]	1,000[5]	2.0[4]	16	160	2	37	1,100
	2	11	10	750	6	110[4]	16	320[4]	1,700[5]	29[5]	10	63	3	28	1,600
OB-4	0	<10	<5	260	35[4]	190[4]	15	170	440[4]	1.7	10	90	4	25	820
	1	<10	<5	500	5	49	6	100	1,200[5]	0.7	<10	32	<1	21	1,400
OB-5	0	10	9	410	4	82[4]	6	240	710[4]	2.2[4]	<10	37	3	26	320
OB-6	0	<10	<5	93	2	33	7	120	38	0.3	<10	30	<1	27	150

1 Results are presented in parts per million

2 Raised MRL; high analyte concentration required sample dilution

3 Chromatogram does not match the typical jet fuel fingerprint

4 Metal concentration meets or exceeds Title 22 soluble threshold limit concentration by a factor of 10 or more

5 Metal concentration meet or exceeds Title 22 total threshold limit concentration

Note:

VOCs Volatile organic compounds by Method 8010

SVOCs Semivolatile organic compounds by method 8270

Table 4

Groundwater Analytical Results[1]
Graywater Discharge Area
National Airmotive Corporation
Oakland, California

Sample Location	Organic Compounds							
	Jet Fuel	Kerosene	Diesel	Motor Oil	Naphthalene	2-Methyl-Naphthalene	Ethylbenzene	Total Xylenes
OB-2	1,000	ND	80[3]	ND	ND	ND	ND	0.7
OB-3	11,000	<100[3]	<100[3]	<500[3]	ND	ND	ND	24
OB-4	3,100	<500[4]	1,700[2]	2,900	ND	ND	ND	1.8
OB-5	3,800	ND	2,300[2]	280	10	ND	ND	ND
OB-6	190,000	<500[4]	36,000[2]	5,200	520	50	19	38
	Metals							
	Arsenic	Barium	Lead	Zinc				
OB-2	ND	1,200[5]	ND	30				
OB-3	11	920	ND	10				
OB-4	ND	1,500[5]	4	110				
OB-5	9	880	ND	ND				
OB-6	ND	840	ND	20				

1 Results are presented in micrograms per liter, or parts per billion

2 The chromatogram does not match the typical diesel fingerprint

3 Raised MRL due to matrix interference (high sediment)

4 Raised MRL; high analyte concentration required sample dilution

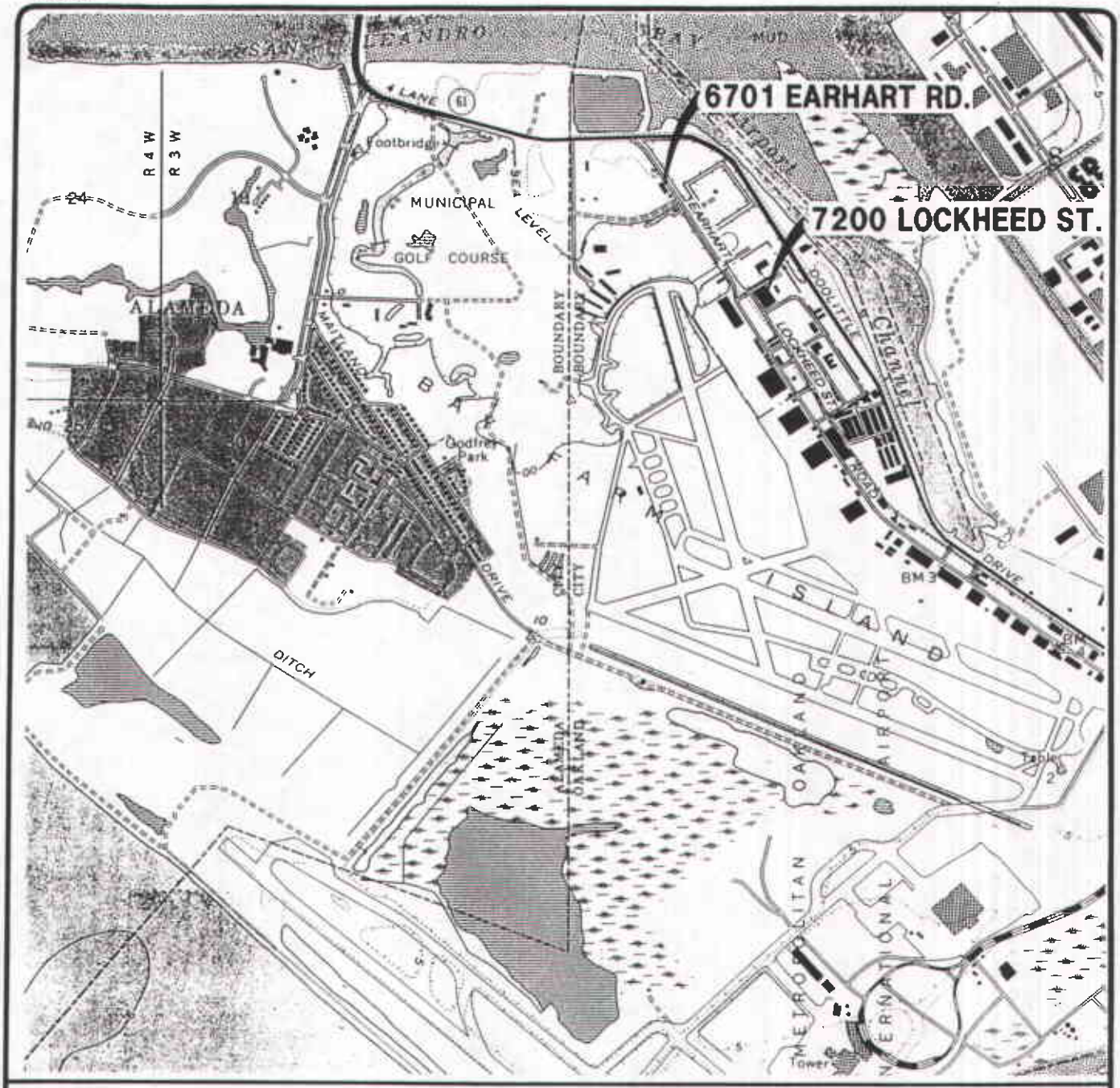
5 Metal concentration exceeds maximum contaminant level for drinking water

Note:

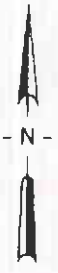
Naphthalene and 2-Methyl-Naphthalene based on Method 8270 analyses. All other 8270 compounds were not detected.

Samples OB-2 through OB-6 were also analyzed for volatile organic compounds by Method 8010. No VOCs were detected.

152753



Base map from USGS 7.5' Quad. Map:
San Leandro, California. (PR 1980).



Scale : 0 2000 4000 Feet

12/95

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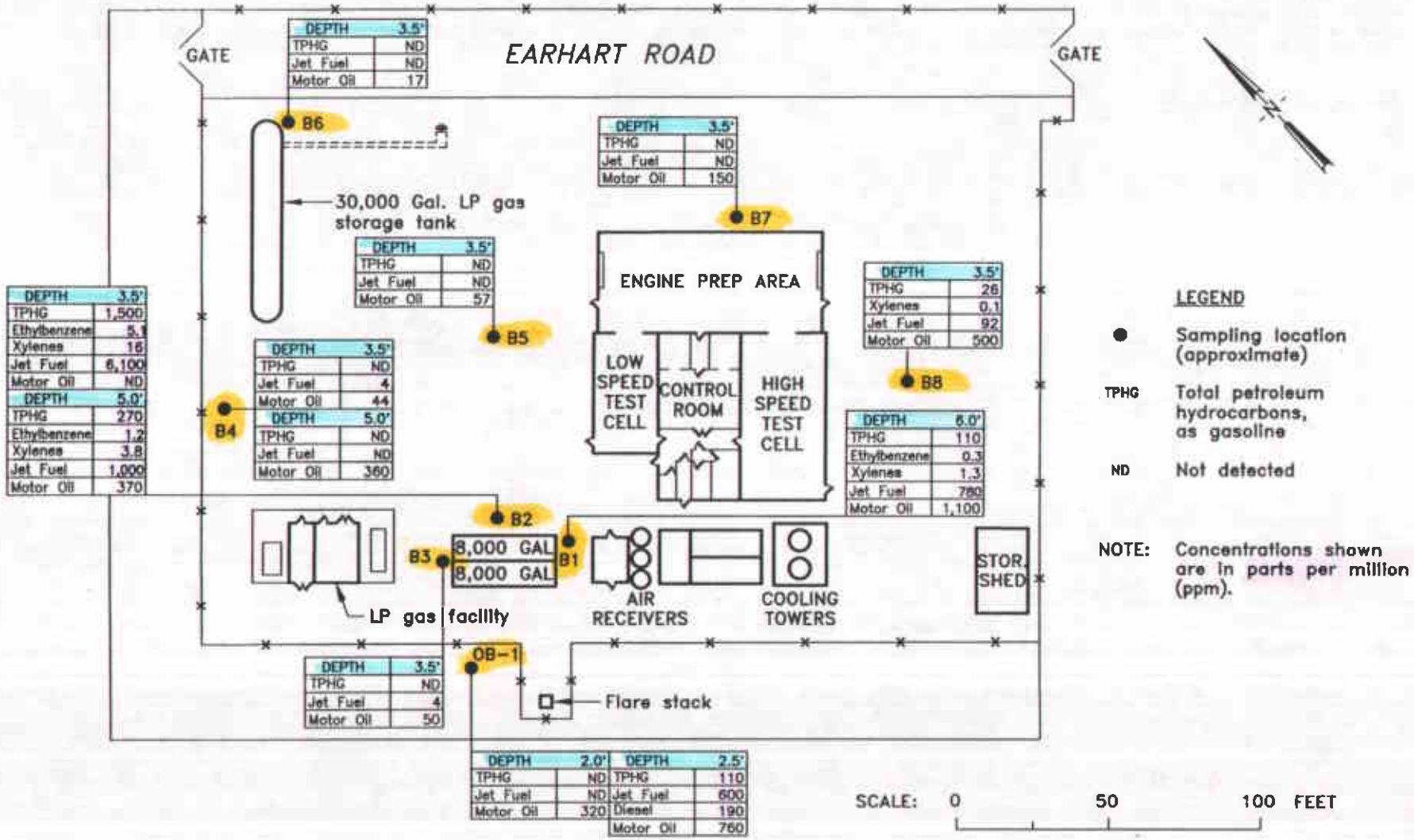
NATIONAL AIRMOTIVE CORPORATION
7200 LOCKHEED STREET
SOIL AND GROUNDWATER CHARACTERIZATION
OAKLAND, CALIFORNIA

SITE LOCATION

FIGURE
1
PROJECT NO.
2077-001.01



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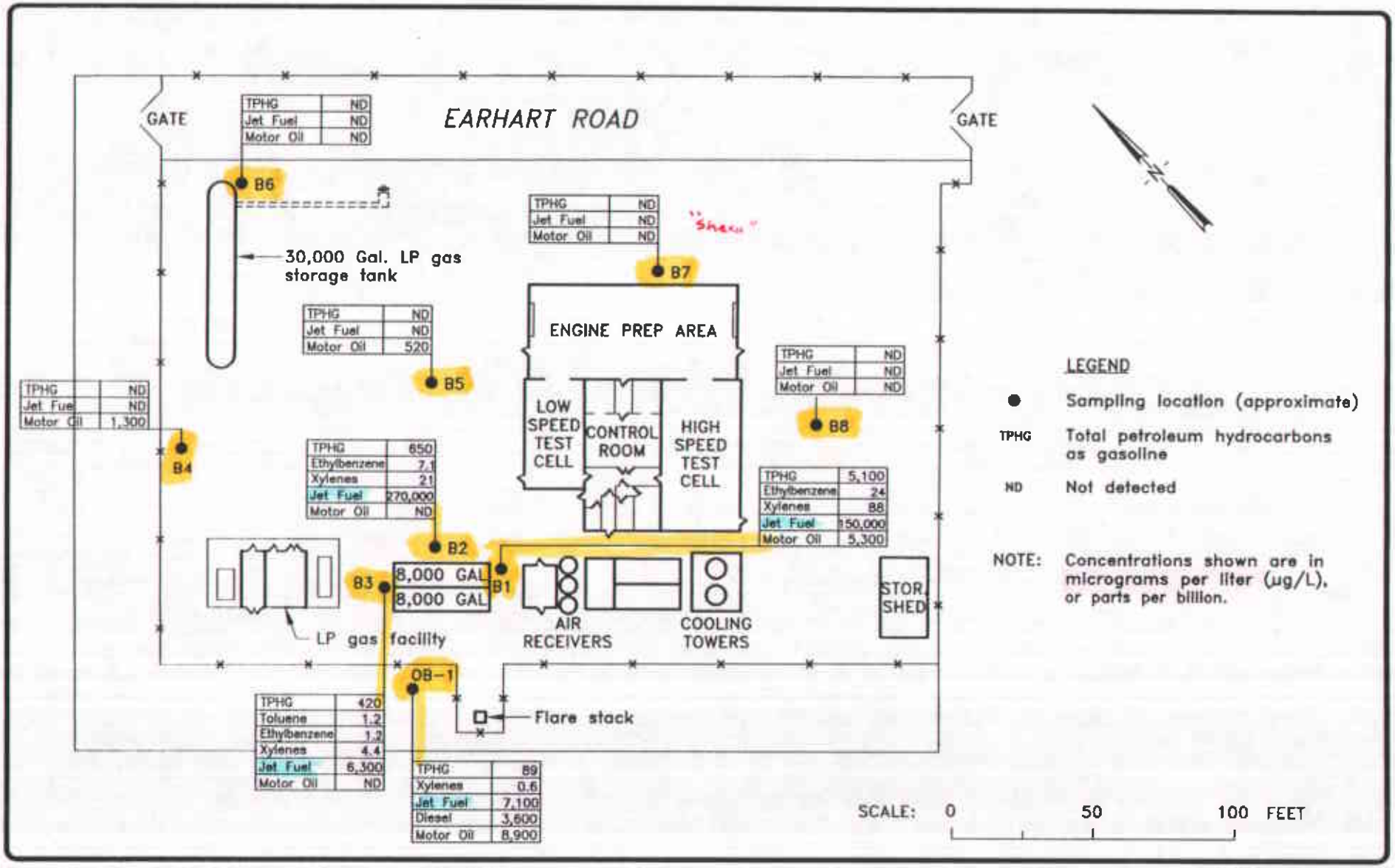
7200 LOCKHEED STREET
SOIL AND GROUNDWATER CHARACTERIZATION
OAKLAND, CALIFORNIA

JET FUEL UST AREA SOIL ANALYTICAL RESULTS

FIGURE
2
PROJECT NO.
2077-001.01



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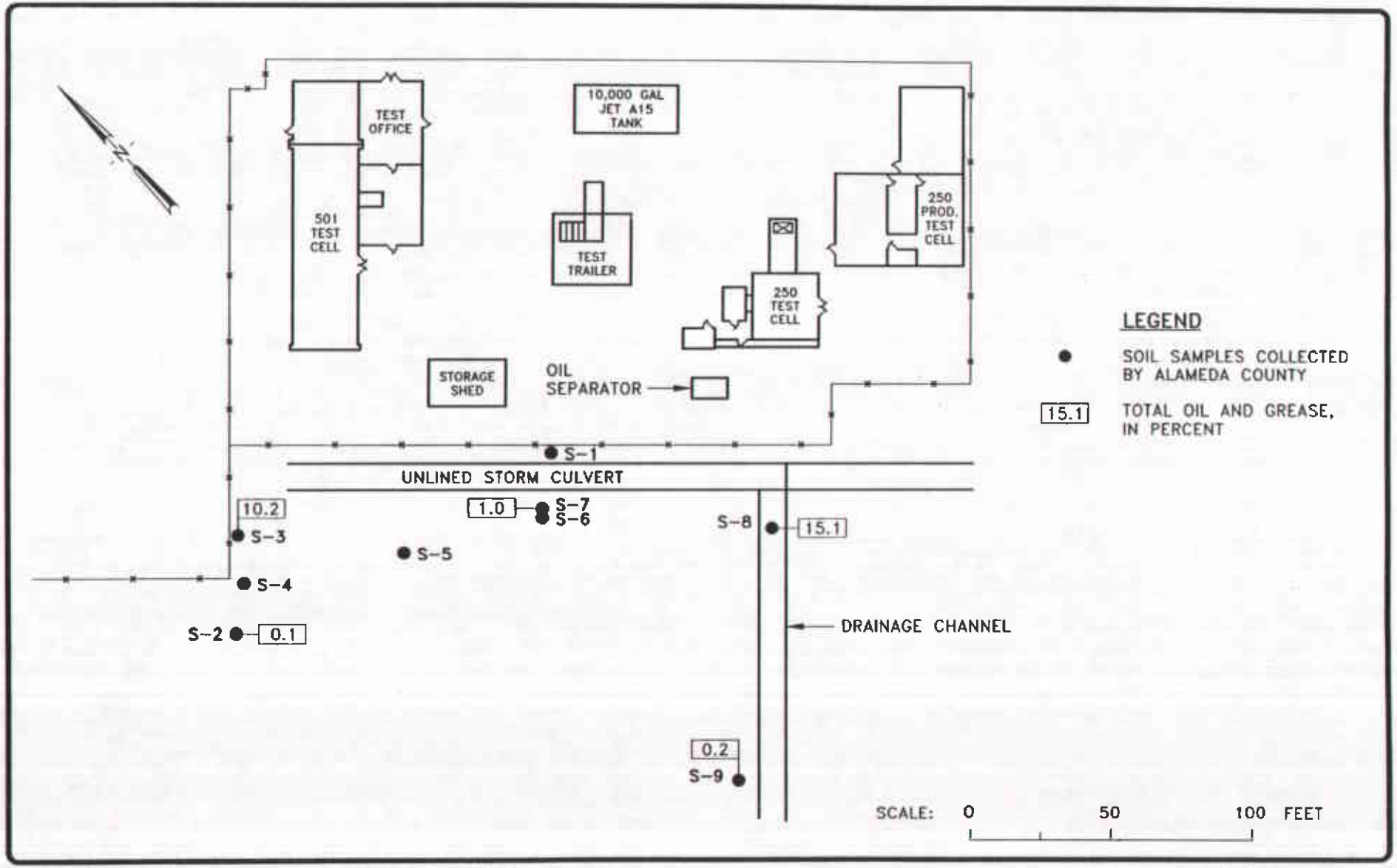
NATIONAL AIRMOTIVE CORPORATION
7200 LOCKHEED STREET
SOIL AND GROUNDWATER CHARACTERIZATION
OAKLAND, CALIFORNIA

JET FUEL UST AREA GROUNDWATER ANALYTICAL RESULTS

FIGURE
3
PROJECT NO.
2077-001.01



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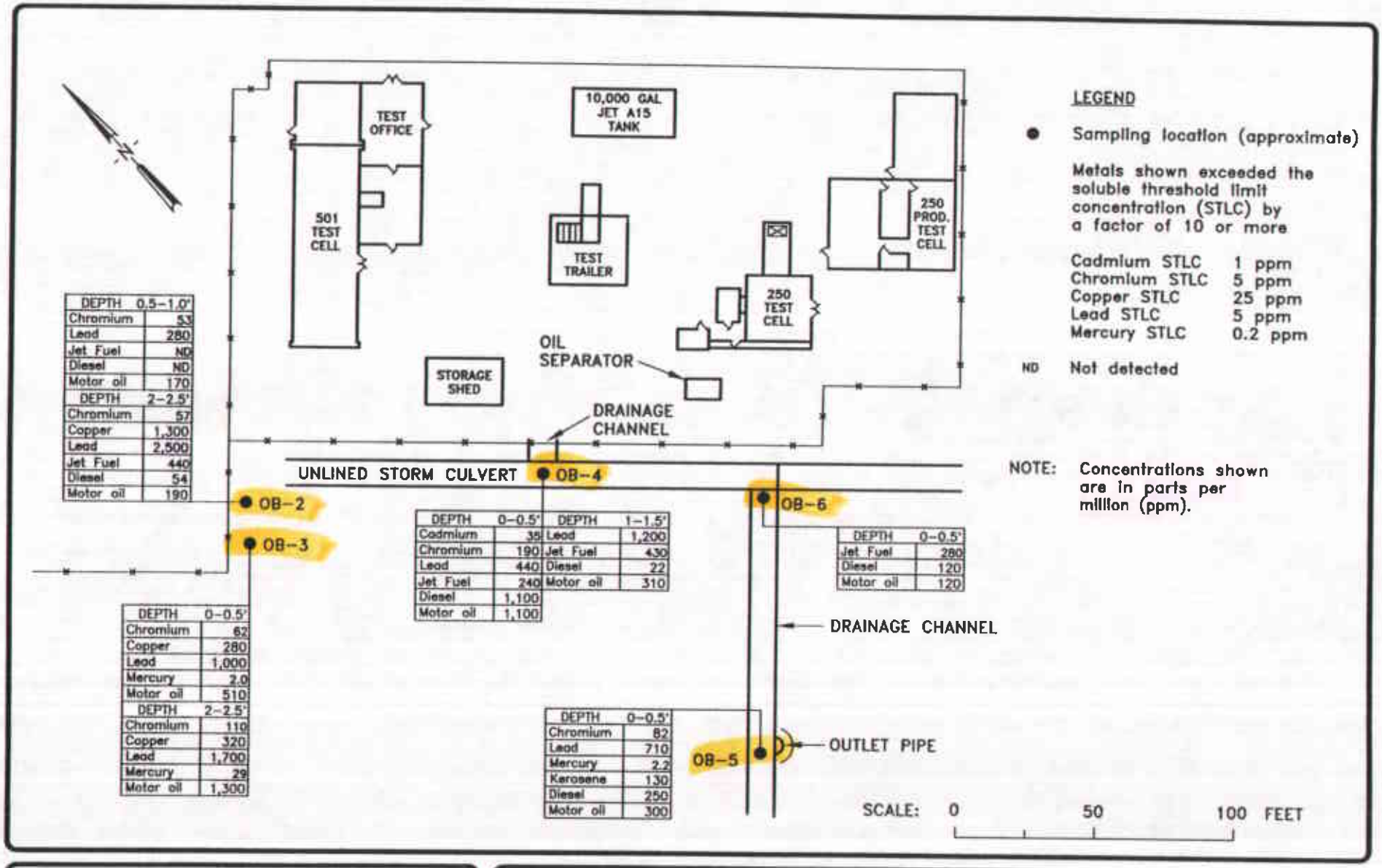
7200 LOCKHEED STREET
SOIL AND GROUNDWATER CHARACTERIZATION
OAKLAND, CALIFORNIA

GRAY WATER AREA PLAN

FIGURE
4
PROJECT NO.
2077-001.01



DEPTH	0.5–1.0'
Chromium	53
Lead	280
Jet Fuel	ND
Diesel	ND
Motor oil	170
DEPTH	2–2.5'
Chromium	57
Copper	1,300
Lead	2,500
Jet Fuel	440
Diesel	54
Motor oil	190

DEPTH	0–0.5'
Chromium	62
Copper	280
Lead	1,000
Mercury	2.0
Motor oil	510
DEPTH	2–2.5'
Chromium	110
Copper	320
Lead	1,700
Mercury	29
Motor oil	1,300

DEPTH	0–0.5'	DEPTH	1–1.5'
Cadmium	35	Lead	1,200
Chromium	190	Jet Fuel	430
Lead	440	Diesel	22
Jet Fuel	240	Motor oil	310
Diesel	1,100		
Motor oil	1,100		

DEPTH	0–0.5'
Jet Fuel	280
Diesel	120
Motor oil	120

DEPTH	0–0.5'
Chromium	82
Lead	710
Mercury	2.2
Kerosene	130
Diesel	250
Motor oil	300

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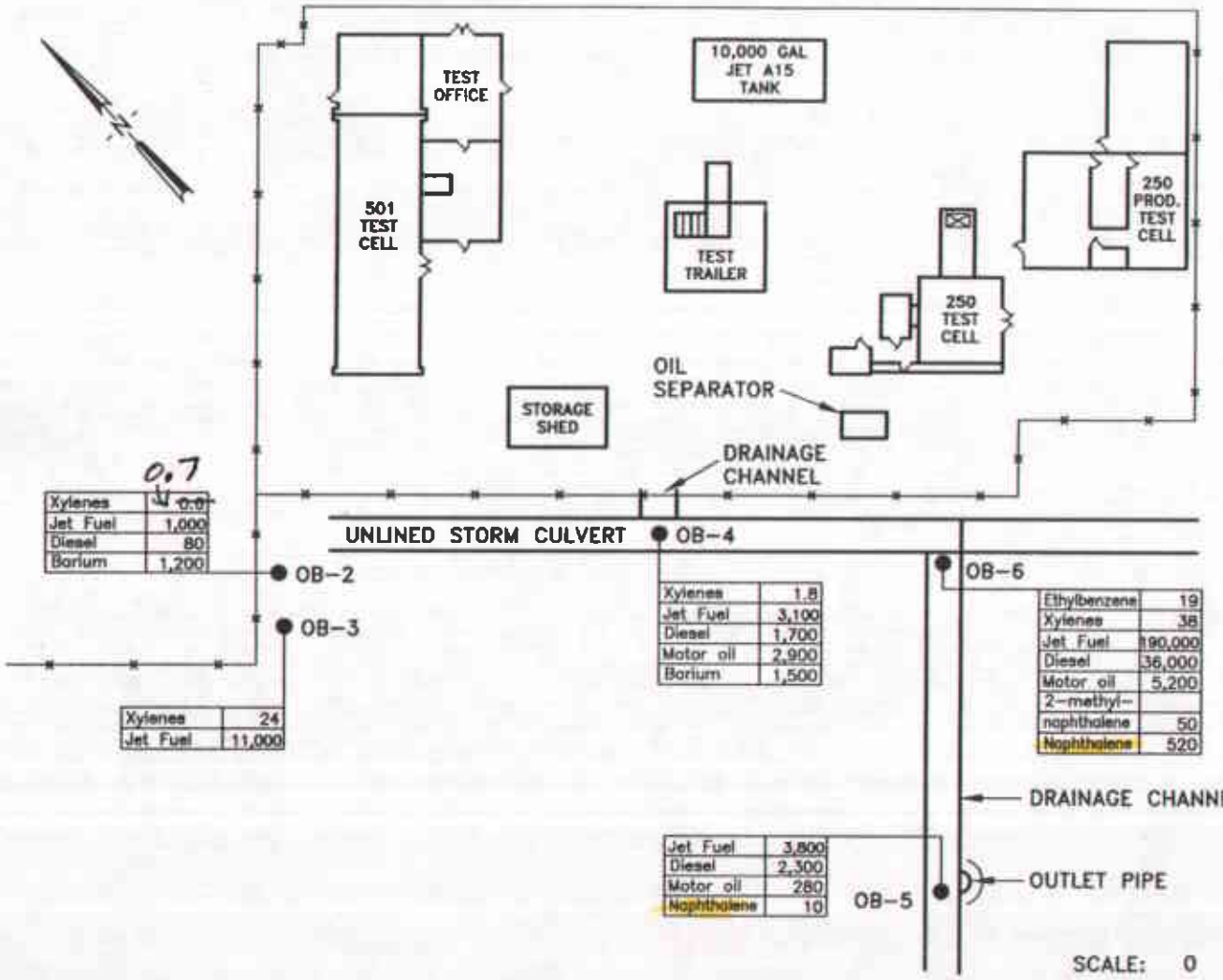
NATIONAL AIRMOTIVE CORPORATION
7200 LOCKHEED STREET
SOIL AND GROUNDWATER CHARACTERIZATION
OAKLAND, CALIFORNIA

GRAY WATER AREA SOIL ANAYTICAL RESULTS

FIGURE
5
PROJECT NO.
2077–001.01



LEGEND

● Sampling location (approximate)

Metals shown exceed the maximum contaminant level (MCL) for drinking water

Barium MCL 1,000 ug/l

NOTE: Concentrations shown are in micrograms per liter (ug/l) or parts per billion.

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NATIONAL AIRMOTIVE CORPORATION
7200 LOCKHEED STREET
SOIL AND GROUNDWATER CHARACTERIZATION
OAKLAND, CALIFORNIA

GRAY WATER AREA GROUNDWATER ANAYTICAL RESULTS

FIGURE 6

PROJECT NO. 2077-001.01

APPENDIX A

BORING LOGS

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **2077-001.01**

BORING NO.: **B-1**

PROJECT NAME: **National Airmotive Corporation**

PAGE: **1 of 1**

BY: **L.Gallagher**

DATE: **04/06/95**

SURFACE ELEVATION: **ft.**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
					☒		FILL, gravel,pale brown (10YR, 6/3); trace sand; fine angular gravel; dry; no hydrocarbon odor.	
0/1.5	0	16					@4': (from shoe) sandy gravel; 20% well-graded medium sand; 80% fine gravel, subangular to angular; some glass fragments and trash (small toy and shoe fragment); dry; no hydrocarbon odor.	
1.2/1.5	20	16		5			@6': gravel as above, with 2 inch layer of gravelly sandy silt marbled with hydrocarbons; black plant debris and wood fragments 1 to 2 inches in length at sample base; strong hydrocarbon odor.	
			▽ 4/6/95				@6.5': black plant debris as above; wet; strong hydrocarbon odor.	
				10			BOTTOM OF BORING AT 8 FEET BELOW GROUND SURFACE.	
				15				
				20				

EMCON ASSOCIATES

REMARKS

Boring drilled by a CME 75 portable rig driving an 8-inch diameter, continuous flight auger. Samples collected with a modified California split-spoon sampler fitted with stainless-steel liners. After sampling was complete, the boring was sealed to the ground surface with bentonite.

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **2077-001.01**

BORING NO.: **B-2**

PROJECT NAME: **National Airmotive**

PAGE: **1 of 1**

BY: **L.Gallagher**

DATE: **04/06/95**

SURFACE ELEVATION: **ft.**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
0.7/1.5	0	34					FILL, sandy gravel, pale brown (10YR,6/3); 5-10% coarse sand, 90-95% fine gravel, angular; dry; no hydrocarbon odor.	
1.2/1.5	15	15	4/6/95	5			@4': light yellow brown (10YR, 6/4); some brick fragments; medium dense; dry; no hydrocarbon odor. @ 5.25': silty wood fragments and masonry fragments; black (10YR, 2/1); moist; strong hydrocarbon odor. @5.6': wet. BOTTOM OF BORING AT 7 FEET BELOW GROUND SURFACE	
				10				
				15				
				20				

EMCON ASSOCIATES

REMARKS

Boring drilled by a CME 75 drill rig driving an 8-inch diameter continous flight auger. Samples collected with a modified California split-spoon sampler fitted with stainless-steel liners. After sampling was complete, the boring was sealed to the ground surface with bentonite.

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **2077-001.01**

BORING NO.: **B-3**

PROJECT NAME: **National Airmotive**

PAGE: **1 of 1**

BY: **L.Gallagher**

DATE: **04/06/95**

SURFACE ELEVATION: **ft.**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
					⊠		FILL, sandy gravel, pale brown (10YR,6/3); 10% coarse sand, 90% fine gravel, subangular to angular; dry; no hydrocarbon odor.	
0.9/1.5	0	40			▮		@3.2': sandy clay, dark yellow brown (10YR, 4/4); 40% coarse sand; damp to moist; no hydrocarbon odor.	
0.5/1.5	0	28	▽ 4/6/95	5	▮		@ 5': wood fragments, glass, wire and fine gravel in black (10YR,2/1) silt matrix; moderate hydrocarbon odor; wet.	
							BOTTOM OF BORING AT 6 FEET BELOW GROUND SURFACE	
				10				
				15				
				20				

EMCON ASSOCIATES

REMARKS

Boring drilled with a CME 75 drill rig driving an 8-inch diameter continous flight auger. Samples collected with a modified California split-spoon sampler fitted with stainless-steel liners. After sampling was complete, the boring was sealed to the ground surface with bentonite.

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **2077-001.01**

BORING NO.: **B-4**

PROJECT NAME: **National Airmotive**

PAGE: **1 of 1**

BY: **L.Gallagher**

DATE: **04/06/95**

SURFACE ELEVATION: **ft.**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
0.3/1.5	0	29					FILL, sandy gravel, dark brown (10YR, 4/3); 20% coarse sand, 80% fine gravel, angular; dry; no hydrocarbon odor.	
1.2/1.5	2	26	4/6/95	5			@ 4': 1" layer of sandy clay, dark yellow brown (10YR, 4/4); 60% moderate plasicity fines; 40% coarse sand; stiff; damp; no hydrocarbon odor. @ 5': black wood fragments, length approximately 1.5 inches; no soil matrix; moderate hydrocarbon odor; moist. @5.5':approximately 50% coarse sand to fine gravel clasts and wire, glass and wood fragments in approximately 50% matrix of low plasticity fines; moist to wet; slight hydrocarbon odor. BOTTOM OF BORING AT 7 FEET BELOW GROUND SURFACE	
				10				
				15				
				20				

REMARKS

Boring drilled with a CME 75 drill rig driving an 8-inch diameter continous flight auger. Samples collected with a modified California split-spoon sampler fitted with stainless-steel liners. After sampling was complete, the boring was sealed to the ground surface with bentonite.

EMCON ASSOCIATES

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **2077-001.01**

BORING NO.: **B-5**

PROJECT NAME: **National Airmotive**

PAGE: **1 of 1**

BY: **L.Gallagher**

DATE: **04/06/95**

SURFACE ELEVATION: **ft.**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
1.2/1.5	0	19	4/6/95	5 10 15 20			ASPHALT FILL, clayey gravel, dark brown (10YR, 3/3); 25% moderate plasticity fines; 25% coarse sand; 50% fine gravel; damp; no hydrocarbon odor. @ 3': above material with blue friable pumice-like fragments, 1/8" to 3/4 " diameter common; underlain at 3.25 feet by masonry and wood fragments 1/2" to 1-1/2" diameter in a silty clay matrix; no odor. @ 4.2': wet. BOTTOM OF BORING AT 6 FEET BELOW GROUND SURFACE	

EMCON ASSOCIATES

REMARKS

Boring drilled with a CME 75 drill rig driving an 8-inch diameter continous flight auger. Samples collected with a modified California split-spoon sampler fitted with stainless-steel liners. After sampling was complete, the boring was sealed to the ground surface with bentonite.

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **2077-001.01**

BORING NO.: **B-8**

PROJECT NAME: **National Airmotive**

PAGE: **1 of 1**

BY: **L.Gallagher**

DATE: **04/06/95**

SURFACE ELEVATION: **ft.**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
1.2/1.5	0	32	4/6/95	5 10 15 20			FILL, gravel, dark brown (10 YR, 4/3); 25% moderate plasticity fines; 25% coarse sand; 50% fine gravel; damp; no hydrocarbon odor. @ 3': gravelly sand, light olive brown (2.5 Y, 5/3), mottled with brown (7.5Y, 5/4); 10% nonplastic fines; 70% medium to coarse sand; 20% fine gravel, subrounded to angular; trace brick fragments; moist; no hydrocarbon odor. @ 4.25': wet. BOTTOM OF BORING AT 6 FEET BELOW GROUND SURFACE	

EMCON ASSOCIATES

REMARKS

Boring drilled with a CME 75 drill rig driving an 8-inch diameter continous flight auger. Samples collected with a modified California split-spoon sampler fitted with stainless-steel liners. After sampling was complete, the boring was sealed to the ground surface with bentonite.

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **2077-001.01**

BORING NO.: **B-7**

PROJECT NAME: **National Airmotive**

PAGE: **1 of 1**

BY: **L.Gallagher**

DATE: **04/06/95**

SURFACE ELEVATION: **ft.**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
1.0/1.5	0	33					ASPHALT FILL, pea gravel, 1/4' to 1/2" diameter, well-sorted; dry; no odor @1': silty sandy gravel, dark brown (10YR, 4/3); 25% low plasticity fines; 25% coarse sand; 50% fine gravel; dry to damp; no hydrocarbon odor. @2.5': fragments of plastic and glass in soil cuttings.	
0.25/1.5	na	18	▽ 4/6/95	5			@ 3.25': 2" layer of clayey gravel, brown (7.5YR, 5/4); 30% very stiff clay; 70% coarse sand and gravel; damp; no hydrocarbon odor. @ 4.75': silty sand, black (10YR, 2/1); 25% low plasticity fines; 75% coarse sand; wet; moderate hydrocarbon odor. Sheen observed on groundwater. BOTTOM OF BORING AT 6 FEET BELOW GROUND SURFACE	
				10				
				15				
				20				

EMCON ASSOCIATES

REMARKS

Boring drilled with a CME 75 drill rig driving an 8-inch diameter continous flight auger. Samples collected with a modified California split-spoon sampler fitted with stainless-steel liners. After sampling was complete, the boring was sealed to the ground surface with bentonite.

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **2077-001.01**

BORING NO.: **OB-1**

PROJECT NAME: **National Airmotive**

PAGE: **1 of 1**

BY: **L.Gallagher**

DATE: **11/03/95**

SURFACE ELEVATION: **ft.**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
0.5/1.5	13	18					FILL, silty sandy gravel, dark brown (10YR, 4/3); 20% low plastic icity fines; 20% fine to medium sand; 50% wood fragments 1" diameter and masonry fragments less than 1/8"; dry; loose; no hydrocarbon odor.	
0.6/1.5	28	13					@ 4.4': sandy silt, 10% sand, 60% low to medium plasticity fines; 30% wood fragments less than 1/2" diameter; firm; damp; hydrocarbon odor detected.	
			▽ 11/03/95	5				
				10			BOTTOM OF BORING AT 7 FEET BELOW GROUND SURFACE	
				15				
				20				

EMCON ASSOCIATES

REMARKS

Boring drilled with a B-61 drill rig driving an 8-inch diameter, continous flight hollow-stem auger. Samples collected with a modified California split-spoon sampler fitted with brass liners. After sampling was completed, the boring was sealed to the ground surface with a bentonite-cement grout.

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **2077-001.01**

BORING NO.: **OB-2**

PROJECT NAME: **National Airmotive**

PAGE: **1 of 1**

BY: **L.Gallagher**

DATE: **11/03/95**

SURFACE ELEVATION: **ft.**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
1.0/1.5	0	20					FILL, dark brown (7.5YR, 3.2); trace low plasticity fines; 20% fine to medium sand; 80% wood and masonry fragments less than 3/4"; medium dense; dry; no hydrocarbon odor.	
1.0/1.5	0	30					@ 1.5': small scraps of ceramic tile and paper in sample; some rounded coarse gravel; damp.	
			▽ 11/03/95					
				5			Boring suspended at 6' BGS for grab groundwater sampling. Boring continued to 9' BGS and set with temporary well casing after insufficient recharge at 6'BGS.	
				10			BOTTOM OF BORING AT 9 FEET BELOW GROUND SURFACE	
				15				
				20				

EMCON ASSOCIATES

REMARKS

Boring drilled with a B-61 drill rig driving an 8-inch diameter, continous flight hollow-stem auger. Samples collected with a modified California split-spoon sampler fitted with brass liners. After sampling was completed, the boring was sealed to the ground surface with a bentonite-cement grout.

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **2077-001.01**

BORING NO.: **OB-3**

PROJECT NAME: **National Airmotive**

PAGE: **1 of 1**

BY: **L.Gallagher**

DATE: **11/03/95**

SURFACE ELEVATION: **ft.**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
0.8/1.5	0	26					FILL, dark brown (7.5YR, 4/3); 10% low plasticity fines; 40% fine sand; 20% wood and 30% glass and masonry fragments 1/4"- 3/4" diameter; medium dense; dry; no hydrocarbon odor.	
0.8/1.5	0.3	9					@ 1.5': very dark grey; 20% non- to low-plasticity fines; 30% fine sand; 50% clean friable wood fragments 1/16"- 1" diameter; damp; organic odor.	
			▽ 11/03/95	5			Boring suspended at 6' BGS for grab groundwater sampling. Boring continued to 9' BGS after insufficient recharge at 6'BGS.	
				10			BOTTOM OF BORING AT 9 FEET BELOW GROUND SURFACE	
				15				
				20				

EMCON ASSOCIATES

REMARKS

Boring drilled with a B-61 drill rig driving an 8-inch diameter, continous flight hollow-stem auger. Samples collected with a modified California split-spoon sampler fitted with brass liners. After sampling was completed, the boring was sealed to the ground surface with a bentonite-cement grout.

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **2077-001.01**

BORING NO.: **OB-4**

PROJECT NAME: **National Airmotive**

PAGE: **1 of 1**

BY: **L.Gallagher**

DATE: **11/03/95**

SURFACE ELEVATION: **ft.**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
0.5/0.5	0	na			⊠		FILL, dark brown (7.5YR, 4/3); 15% low plasticity fines; 75% fine to medium sand; 10% rootlets and small wood fragments; minor glass fragments; damp; hydrocarbon odor.	
0.5/0.5	48	na	▽ 11/03/95		⊠		@ 1.0': black (10YR, 2/1); masonry fragments 3/4" diameter or less; moist to wet; stronger hydrocarbon odor.	
							Obstruction encountered at 3' BGS. Hole recharged sufficiently for collection of grab groundwater sample.	
				5			BOTTOM OF BORING AT 3 FEET BELOW GROUND SURFACE	
				10				
				15				
				20				

EMCON ASSOCIATES

REMARKS

Boring drilled with a hand auger; soil samples were collected in brass liners. After sampling was completed, the boring was sealed to the ground surface with a bentonite-cement grout.

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **2077-001.01**

BORING NO.: **OB-5**

PROJECT NAME: **National Airmotive**

PAGE: **1 of 1**

BY: **L.Gallagher**

DATE: **11/03/95**

SURFACE ELEVATION: **ft.**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
0.5/0.5	3.0	na	▽ 11/03/95	5 10 15 20	☒		SANDY SILT (ML), black (10YR, 2/1); 90-95% low plasticity fines; 5-10% fine sand; abundant rootlets; soft; moist to wet; organic odor. @ 0.5': wet BOTTOM OF BORING AT 2 FEET BELOW GROUND SURFACE	

EMCON ASSOCIATES

REMARKS

Boring drilled with a hand auger; soil samples were collected in brass liners. After sampling was completed, the boring was sealed to the ground surface with a bentonite-cement grout.

LOG OF EXPLORATORY BORING

PROJECT NUMBER: **2077-001.01**

BORING NO.: **OB-6**

PROJECT NAME: **National Airmotive**

PAGE: **1 of 1**

BY: **L.Gallagher**

DATE: **11/03/95**

SURFACE ELEVATION: **ft.**

RECOVERY (ft/ft)	PID (ppm)	PENETRATION (blws/ft)	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
0.5/0.5	130	na	▽ 11/03/95	5 10 15 20	☒		SILTY SAND (SM), dark yellowish brown (10YR, 4/4); 15-20% low to medium plasticity fines; 80-85% fine sand; trace fine gravel, rounded; soft; moist; strong hydrocarbon odor. @ 0.75': wet BOTTOM OF BORING AT 2 FEET BELOW GROUND SURFACE	

REMARKS

Boring drilled with a hand auger; soil samples were collected in brass liners. After sampling was completed, the boring was sealed to the ground surface with a bentonite-cement grout.

EMCON ASSOCIATES

APPENDIX B

CERTIFIED ANALYTICAL REPORTS

Columbia Analytical Services inc.

November 22, 1995

Service Request No: S951379

Mark Smolley
EMCON
1921 Ringwood Avenue
San Jose, CA 95131

Re: **National Airmotive / #2077-001.01**

Dear Mr. Smolley:

The following pages contain analytical results for sample(s) received by the laboratory on November 3, 1995. Results of sample analyses are followed by Appendix A which contains sample custody documentation and quality assurance deliverables requested for this project. The work requested has been assigned the Service Request No. listed above -to help expedite our service please refer to this number when contacting the laboratory.

Analytical results were produced by procedures consistent with Columbia Analytical Services' (CAS) Quality Assurance Manual (with any deviations noted). Signature of this CAS Analytical Report below confirms that pages 2 through 25, following, have been thoroughly reviewed and approved for release in accord with CAS Standard Operating Procedure ADM-DatRev3.

Please feel welcome to contact me should you have questions or further needs.

Sincerely:

Steven L. Green
Project Chemist

SLG/drf

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

COLUMBIA ANALYTICAL SERVICES, Inc.

Acronyms

A2LA	American Association for Laboratory Accreditation
ASTM	American Society for Testing and Materials
BOD	Biochemical Oxygen Demand
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CAM	California Assessment Metals
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
COD	Chemical Oxygen Demand
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank sample
ICP	Inductively Coupled Plasma atomic emission spectrometry
ICV	Initial Calibration Verification sample
J	Estimated concentration. The value is less than the MRL, but greater than or equal to the MDL. If the value is equal to the MRL, the result is actually <MRL before rounding.
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified
MBAS	Methylene Blue Active Substances
MCL	Maximum Contaminant Level. The highest permissible concentration of a substance allowed in drinking water as established by the U. S. EPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl tert-Butyl Ether
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the paper industry for Air and Stream Improvement
ND	Not Detected at or above the method reporting/detection limit (MRL/MDL)
NIOSH	National Institute for Occupational Safety and Health
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1992
STLC	Solubility Threshold Limit Concentration
SW	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Ed., 1986 and as amended by Updates I, II, IIA, and IIB.
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
tr	Trace level. The concentration of an analyte that is less than the PQL but greater than or equal to the MDL. If the value is equal to the PQL, the result is actually <PQL before rounding.
TRPH	Total Recoverable Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Soil

Service Request: L9503973
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: 11/16/95

Base Neutral/Acid Semivolatile Organic Compounds
EPA Methods 3550/8270
Units: mg/Kg (ppm)

		Sample Name:	**OB-2 0.5'-1'**	**OB-2 2'-2.5'**	**OB-3 0'-0.5'**
		Lab Code:	L9503973-001*	L9503973-002*	L9503973-003*
		Date Analyzed:	11/20/95	11/20/95	11/20/95
Base Neutral Analyte	**MRL**				
N-Nitrosodimethylamine	0.3		<3	<3	<15
Aniline	0.3		<3	<3	<15
Bis(2-chloroethyl) Ether	0.3		<3	<3	<15
1,2-Dichlorobenzene	0.3		<3	<3	<15
1,3-Dichlorobenzene	0.3		<3	<3	<15
1,4-Dichlorobenzene	0.3		<3	<3	<15
Bis(2-chloroisopropyl) Ether	0.3		<3	<3	<15
N-Nitrosodi-n-propylamine	0.3		<3	<3	<15
Hexachloroethane	0.3		<3	<3	<15
Nitrobenzene	0.3		<3	<3	<15
Isophorone	0.3		<3	<3	<15
Bis(2-chloroethoxy)methane	0.3		<3	<3	<15
1,2,4-Trichlorobenzene	0.3		<3	<3	<15
Naphthalene	0.3		<3	<3	<15
4-Chloroaniline	0.3		<3	<3	<15
Hexachlorobutadiene	0.3		<3	<3	<15
2-Methylnaphthalene	0.3		<3	<3	<15
Hexachlorocyclopentadiene	0.3		<3	<3	<15
2-Chloronaphthalene	0.3		<3	<3	<15
2-Nitroaniline	2		<20	<20	<100
Dimethyl Phthalate	0.3		<3	<3	<15
Acenaphthylene	0.3		<3	<3	<15
3-Nitroaniline	2		<20	<20	<100
Acenaphthene	0.3		<3	<3	<15
Dibenzofuran	0.3		<3	<3	<15
2,4-Dinitrotoluene	0.3		<3	<3	<15

* MRL is elevated because of matrix interferences and because the sample required diluting.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Soil

Service Request: L9503973
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: 11/16/95

Base Neutral/Acid Semivolatile Organic Compounds
EPA Methods 3550/8270
Units: mg/Kg (ppm)

		Sample Name:	**OB-2 0.5'-1'**	**OB-2 2'-2.5'**	**OB-3 0'-0.5'**
		Lab Code:	L9503973-001*	L9503973-002*	L9503973-003*
		Date Analyzed:	11/20/95	11/20/95	11/20/95
Base Neutral Analyte	**MRL**				
2,6-Dinitrotoluene	0.3		<3	<3	<15
Diethyl Phthalate	0.3		<3	<3	<15
4-Chlorophenyl Phenyl Ether	0.3		<3	<3	<15
Fluorene	0.3		<3	<3	<15
4-Nitroaniline	2		<20	<20	<100
N-Nitrosodiphenylamine	0.3		<3	<3	<15
4-Bromophenyl Phenyl Ether	0.3		<3	<3	<15
Hexachlorobenzene	0.3		<3	<3	<15
Phenanthrene	0.3		<3	<3	<15
Anthracene	0.3		<3	<3	<15
Di-n-butyl Phthalate	0.3		<3	<3	<15
Fluoranthene	0.3		<3	<3	<15
Pyrene	0.3		<3	<3	<15
Butylbenzyl Phthalate	0.3		<3	<3	<15
3,3'-Dichlorobenzidine	0.3		<3	<3	<15
Benz(a)anthracene	0.3		<3	<3	<15
Bis(2-ethylhexyl) Phthalate	0.3		<3	<3	<15
Chrysene	0.3		<3	<3	<15
Di-n-octyl Phthalate	0.3		<3	<3	<15
Benzo(b)fluoranthene	0.3		<3	<3	<15
Benzo(k)fluoranthene	0.3		<3	<3	<15
Benzo(a)pyrene	0.3		<3	<3	<15
Indeno(1,2,3-c,d)pyrene	0.3		<3	<3	<15
Dibenz(a,h)anthracene	0.3		<3	<3	<15
Benzo(g,h,i)perylene	0.3		<3	<3	<15
Pyridine	0.6		<6	<6	<30

* MRL is elevated because of matrix interferences and because the sample required diluting.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Soil

Service Request: L9503973
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: 11/16/95

Base Neutral/Acid Semivolatile Organic Compounds
EPA Methods 3550/8270
Units: mg/Kg (ppm)

	Sample Name:	**OB-2 0.5'-1'**	**OB-2 2'-2.5'**	**OB-3 0'-0.5'**
	Lab Code:	L9503973-001*	L9503973-002*	L9503973-003*
	Date Analyzed:	11/20/95	11/20/95	11/20/95
Acid Analyte	**MRL**			
Phenol	0.3	<3	<3	<15
2-Chlorophenol	0.3	<3	<3	<15
Benzyl Alcohol	0.3	<3	<3	<15
2-Methylphenol	0.3	<3	<3	<15
3- and 4-Methylphenol[a]	0.3	<3	<3	<15
2-Nitrophenol	0.3	<3	<3	<15
2,4-Dimethylphenol	0.3	<3	<3	<15
Benzoic Acid	2	<20	<20	<100
2,4-Dichlorophenol	0.3	<3	<3	<15
4-Chloro-3-methylphenol	0.3	<3	<3	<15
2,4,6-Trichlorophenol	0.3	<3	<3	<15
2,4,5-Trichlorophenol	0.3	<3	<3	<15
2,4-Dinitrophenol	2	<20	<20	<100
4-Nitrophenol	2	<20	<20	<100
2-Methyl-4,6-dinitrophenol	2	<20	<20	<100
Pentachlorophenol	2	<20	<20	<100

[a] Quantified as 4-Methylphenol.
* MRL is elevated because of matrix interferences and because the sample required diluting.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Soil

Service Request: L9503973
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: 11/16/95

Base Neutral/Acid Semivolatile Organic Compounds
EPA Methods 3550/8270
Units: mg/Kg (ppm)

		Sample Name:	**OB-3 2'-2.5'**	**OB-4 0'-0.5'**	**OB-4 1'-1.5'**
		Lab Code:	L9503973-004*	L9503973-005*	L9503973-006*
		Date Analyzed:	11/20/95	11/20/95	11/20/95
Base Neutral Analyte	**MRL**				
N-Nitrosodimethylamine	0.3		<3	<3	<15
Aniline	0.3		<3	<3	<15
Bis(2-chloroethyl) Ether	0.3		<3	<3	<15
1,2-Dichlorobenzene	0.3		<3	<3	<15
1,3-Dichlorobenzene	0.3		<3	<3	<15
1,4-Dichlorobenzene	0.3		<3	<3	<15
Bis(2-chloroisopropyl) Ether	0.3		<3	<3	<15
N-Nitrosodi-n-propylamine	0.3		<3	<3	<15
Hexachloroethane	0.3		<3	<3	<15
Nitrobenzene	0.3		<3	<3	<15
Isophorone	0.3		<3	<3	<15
Bis(2-chloroethoxy)methane	0.3		<3	<3	<15
1,2,4-Trichlorobenzene	0.3		<3	<3	<15
Naphthalene	0.3		<3	<3	<15
4-Chloroaniline	0.3		<3	<3	<15
Hexachlorobutadiene	0.3		<3	<3	<15
2-Methylnaphthalene	0.3		<3	<3	<15
Hexachlorocyclopentadiene	0.3		<3	<3	<15
2-Chloronaphthalene	0.3		<3	<3	<15
2-Nitroaniline	2		<20	<20	<100
Dimethyl Phthalate	0.3		<3	<3	<15
Acenaphthylene	0.3		<3	<3	<15
3-Nitroaniline	2		<20	<20	<100
Acenaphthene	0.3		<3	<3	<15
Dibenzofuran	0.3		<3	<3	<15
2,4-Dinitrotoluene	0.3		<3	<3	<15

* MRL is elevated because of matrix interferences and because the sample required diluting.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Soil

Service Request: L9503973
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: 11/16/95

Base Neutral/Acid Semivolatile Organic Compounds
EPA Methods 3550/8270
Units: mg/Kg (ppm)

	Sample Name:	**OB-3 2'-2.5'**	**OB-4 0'-0.5'**	**OB-4 1'-1.5'**
	Lab Code:	L9503973-004*	L9503973-005*	L9503973-006*
	Date Analyzed:	11/20/95	11/20/95	11/20/95
Base Neutral Analyte	**MRL**			
2,6-Dinitrotoluene	0.3	<3	<3	<15
Diethyl Phthalate	0.3	<3	<3	<15
4-Chlorophenyl Phenyl Ether	0.3	<3	<3	<15
Fluorene	0.3	<3	<3	<15
4-Nitroaniline	2	<20	<20	<100
N-Nitrosodiphenylamine	0.3	<3	<3	<15
4-Bromophenyl Phenyl Ether	0.3	<3	<3	<15
Hexachlorobenzene	0.3	<3	<3	<15
Phenanthrene	0.3	<3	<3	<15
Anthracene	0.3	<3	<3	<15
Di-n-butyl Phthalate	0.3	<3	<3	<15
Fluoranthene	0.3	<3	<3	<15
Pyrene	0.3	<3	<3	<15
Butylbenzyl Phthalate	0.3	<3	<3	<15
3,3'-Dichlorobenzidine	0.3	<3	<3	<15
Benz(a)anthracene	0.3	<3	<3	<15
Bis(2-ethylhexyl) Phthalate	0.3	5	<3	<15
Chrysene	0.3	<3	<3	<15
Di-n-octyl Phthalate	0.3	<3	<3	<15
Benzo(b)fluoranthene	0.3	<3	<3	<15
Benzo(k)fluoranthene	0.3	<3	<3	<15
Benzo(a)pyrene	0.3	<3	<3	<15
Indeno(1,2,3-c,d)pyrene	0.3	<3	<3	<15
Dibenz(a,h)anthracene	0.3	<3	<3	<15
Benzo(g,h,i)perylene	0.3	<3	<3	<15
Pyridine	0.6	<6	<6	<30

* MRL is elevated because of matrix interferences and because the sample required diluting.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Soil

Service Request: L9503973
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: 11/16/95

Base Neutral/Acid Semivolatile Organic Compounds
EPA Methods 3550/8270
Units: mg/Kg (ppm)

	Sample Name:	**OB-3 2'-2.5'**	**OB-4 0'-0.5'**	**OB-4 1'-1.5'**
	Lab Code:	L9503973-004*	L9503973-005*	L9503973-006*
	Date Analyzed:	11/20/95	11/20/95	11/20/95
Acid Analyte	**MRL**			
Phenol	0.3	<3	<3	<15
2-Chlorophenol	0.3	<3	<3	<15
Benzyl Alcohol	0.3	<3	<3	<15
2-Methylphenol	0.3	<3	<3	<15
3- and 4-Methylphenol[a]	0.3	<3	<3	<15
2-Nitrophenol	0.3	<3	<3	<15
2,4-Dimethylphenol	0.3	<3	<3	<15
Benzoic Acid	2	<20	<20	<100
2,4-Dichlorophenol	0.3	<3	<3	<15
4-Chloro-3-methylphenol	0.3	<3	<3	<15
2,4,6-Trichlorophenol	0.3	<3	<3	<15
2,4,5-Trichlorophenol	0.3	<3	<3	<15
2,4-Dinitrophenol	2	<20	<20	<100
4-Nitrophenol	2	<20	<20	<100
2-Methyl-4,6-dinitrophenol	2	<20	<20	<100
Pentachlorophenol	2	<20	<20	<100

[a] Quantified as 4-Methylphenol.
* MRL is elevated because of matrix interferences and because the sample required diluting.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Soil

Service Request: L9503973
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: 11/16/95

Base Neutral/Acid Semivolatile Organic Compounds
EPA Methods 3550/8270
Units: mg/Kg (ppm)

	Sample Name:	OB-5 0'-0.5'	OB-6 0'-0.5'	Method Blank
	Lab Code:	L9503973-007*	L9503973-008*	L9503973-MB
	Date Analyzed:	11/20/95	11/20/95	11/20/95
Base Neutral Analyte	**MRL**			
N-Nitrosodimethylamine	0.3	<3	<3	ND
Aniline	0.3	<3	<3	ND
Bis(2-chloroethyl) Ether	0.3	<3	<3	ND
1,2-Dichlorobenzene	0.3	<3	<3	ND
1,3-Dichlorobenzene	0.3	<3	<3	ND
1,4-Dichlorobenzene	0.3	<3	<3	ND
Bis(2-chloroisopropyl) Ether	0.3	<3	<3	ND
N-Nitrosodi-n-propylamine	0.3	<3	<3	ND
Hexachloroethane	0.3	<3	<3	ND
Nitrobenzene	0.3	<3	<3	ND
Isophorone	0.3	<3	<3	ND
Bis(2-chloroethoxy)methane	0.3	<3	<3	ND
1,2,4-Trichlorobenzene	0.3	<3	<3	ND
Naphthalene	0.3	<3	<3	ND
4-Chloroaniline	0.3	<3	<3	ND
Hexachlorobutadiene	0.3	<3	<3	ND
2-Methylnaphthalene	0.3	<3	<3	ND
Hexachlorocyclopentadiene	0.3	<3	<3	ND
2-Chloronaphthalene	0.3	<3	<3	ND
2-Nitroaniline	2	<20	<20	ND
Dimethyl Phthalate	0.3	<3	<3	ND
Acenaphthylene	0.3	<3	<3	ND
3-Nitroaniline	2	<20	<20	ND
Acenaphthene	0.3	<3	<3	ND
Dibenzofuran	0.3	<3	<3	ND
2,4-Dinitrotoluene	0.3	<3	<3	ND

* MRL is elevated because of matrix interferences and because the sample required diluting.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	L9503973
Project:	National Airmotive/#2077-001.01	**Date Collected:**	11/3/95
Sample Matrix:	Soil	**Date Received:**	11/3/95
		Date Extracted:	11/16/95

Base Neutral/Acid Semivolatile Organic Compounds
EPA Methods 3550/8270
Units: mg/Kg (ppm)

		Sample Name:	**OB-5 0'-0.5'**	**OB-6 0'-0.5'**	**Method Blank**
		Lab Code:	L9503973-007*	L9503973-008*	L9503973-MB
		Date Analyzed:	11/20/95	11/20/95	11/20/95
Base Neutral Analyte	**MRL**				
2,6-Dinitrotoluene	0.3		<3	<3	ND
Diethyl Phthalate	0.3		<3	<3	ND
4-Chlorophenyl Phenyl Ether	0.3		<3	<3	ND
Fluorene	0.3		<3	<3	ND
4-Nitroaniline	2		<20	<20	ND
N-Nitrosodiphenylamine	0.3		<3	<3	ND
4-Bromophenyl Phenyl Ether	0.3		<3	<3	ND
Hexachlorobenzene	0.3		<3	<3	ND
Phenanthrene	0.3		<3	<3	ND
Anthracene	0.3		<3	<3	ND
Di-n-butyl Phthalate	0.3		<3	<3	ND
Fluoranthene	0.3		<3	<3	ND
Pyrene	0.3		<3	<3	ND
Butylbenzyl Phthalate	0.3		<3	<3	ND
3,3'-Dichlorobenzidine	0.3		<3	<3	ND
Benz(a)anthracene	0.3		<3	<3	ND
Bis(2-ethylhexyl) Phthalate	0.3		5	<3	ND
Chrysene	0.3		<3	<3	ND
Di-n-octyl Phthalate	0.3		<3	<3	ND
Benzo(b)fluoranthene	0.3		<3	<3	ND
Benzo(k)fluoranthene	0.3		<3	<3	ND
Benzo(a)pyrene	0.3		<3	<3	ND
Indeno(1,2,3-c,d)pyrene	0.3		<3	<3	ND
Dibenz(a,h)anthracene	0.3		<3	<3	ND
Benzo(g,h,i)perylene	0.3		<3	<3	ND
Pyridine	0.6		<6	<6	ND

* MRL is elevated because of matrix interferences and because the sample required diluting.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Soil

Service Request: L9503973
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: 11/16/95

Base Neutral/Acid Semivolatile Organic Compounds
EPA Methods 3550/8270
Units: mg/Kg (ppm)

	Sample Name:	**OB-5 0'-0.5'**	**OB-6 0'-0.5'**	**Method Blank**
	Lab Code:	L9503973-007*	L9503973-008*	L9503973-MB
	Date Analyzed:	11/20/95	11/20/95	11/20/95
Acid Analyte	**MRL**			
Phenol	0.3	<3	<3	ND
2-Chlorophenol	0.3	<3	<3	ND
Benzyl Alcohol	0.3	<3	<3	ND
2-Methylphenol	0.3	<3	<3	ND
3- and 4-Methylphenol[a]	0.3	<3	<3	ND
2-Nitrophenol	0.3	<3	<3	ND
2,4-Dimethylphenol	0.3	<3	<3	ND
Benzoic Acid	2	<20	<20	ND
2,4-Dichlorophenol	0.3	<3	<3	ND
4-Chloro-3-methylphenol	0.3	<3	<3	ND
2,4,6-Trichlorophenol	0.3	<3	<3	ND
2,4,5-Trichlorophenol	0.3	<3	<3	ND
2,4-Dinitrophenol	2	<20	<20	ND
4-Nitrophenol	2	<20	<20	ND
2-Methyl-4,6-dinitrophenol	2	<20	<20	ND
Pentachlorophenol	2	<20	<20	ND

[a] Quantified as 4-Methylphenol.
* MRL is elevated because of matrix interferences and because the sample required diluting.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive / 2077-001.01
Sample Matrix: Soil

Service Request: S951379
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: NA

Halogenated Volatile Organic Compounds
EPA Methods 5030/8010
Units: mg/Kg (ppm)
As Received Basis

	Sample Name:	**OB-2 0.5'-1'**	**OB-2 2'-2.5'**	**OB-3 0'-0.5'**
	Lab Code:	S951379-003	S951379-004	S951379-005
	Date Analyzed:	11/15/95	11/15/95	11/15/95
Analyte	**MRL**			
Dichlorodifluoromethane (CFC 12)	0.1	ND	ND	ND
Chloromethane	0.1	ND	ND	ND
Vinyl Chloride	0.05	ND	ND	ND
Bromomethane	0.05	ND	ND	ND
Chloroethane	0.05	ND	ND	ND
Trichlorofluoromethane (CFC 11)	0.05	ND	ND	ND
1,1-Dichloroethene	0.05	ND	ND	ND
Trichlorotrifluoroethane (CFC 113)	0.05	ND	ND	ND
Methylene Chloride	0.05	0.05	ND	ND
trans-1,2-Dichloroethene	0.05	ND	ND	ND
cis-1,2-Dichloroethene	0.05	ND	ND	ND
1,1-Dichloroethane	0.05	ND	ND	ND
Chloroform	0.05	ND	ND	ND
1,1,1-Trichloroethane (TCA)	0.05	ND	ND	ND
Carbon Tetrachloride	0.05	ND	ND	ND
1,2-Dichloroethane	0.05	ND	ND	ND
Trichloroethene (TCE)	0.05	ND	ND	ND
1,2-Dichloropropane	0.05	ND	ND	ND
Bromodichloromethane	0.05	ND	ND	ND
2-Chloroethyl Vinyl Ether	0.5	ND	ND	ND
trans-1,3-Dichloropropene	0.05	ND	ND	ND
cis-1,3-Dichloropropene	0.05	ND	ND	ND
1,1,2-Trichloroethane	0.05	ND	ND	ND
Tetrachloroethene (PCE)	0.05	ND	ND	ND
Dibromochloromethane	0.05	ND	ND	ND
Chlorobenzene	0.05	ND	ND	ND
Bromoform	0.05	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.05	ND	ND	ND
1,3-Dichlorobenzene	0.1	ND	ND	ND
1,4-Dichlorobenzene	0.1	ND	ND	ND
1,2-Dichlorobenzene	0.1	ND	ND	ND

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive / 2077-001.01
Sample Matrix: Soil

Service Request: S951379
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: NA

Halogenated Volatile Organic Compounds
EPA Methods 5030/8010
Units: mg/Kg (ppm)
As Received Basis

		Sample Name:	**OB-3 2'-2.5'**	**OB-4 0'-0.5'**	**OB-4 1'-1.5'**
		Lab Code:	S951379-006	S951379-007	S951379-008
		Date Analyzed:	11/17/95	11/15/95	11/15/95
Analyte	**MRL**				
Dichlorodifluoromethane (CFC 12)	0.1		ND	ND	ND
Chloromethane	0.1		ND	ND	ND
Vinyl Chloride	0.05		ND	ND	ND
Bromomethane	0.05		ND	ND	ND
Chloroethane	0.05		ND	ND	ND
Trichlorofluoromethane (CFC 11)	0.05		ND	ND	ND
1,1-Dichloroethene	0.05		ND	ND	ND
Trichlorotrifluoroethane (CFC 113)	0.05		ND	ND	ND
Methylene Chloride	0.05		ND	ND	ND
trans-1,2-Dichloroethene	0.05		ND	ND	ND
cis-1,2-Dichloroethene	0.05		ND	ND	ND
1,1-Dichloroethane	0.05		ND	ND	ND
Chloroform	0.05		ND	ND	ND
1,1,1-Trichloroethane (TCA)	0.05		ND	ND	ND
Carbon Tetrachloride	0.05		ND	ND	ND
1,2-Dichloroethane	0.05		ND	ND	ND
Trichloroethene (TCE)	0.05		ND	ND	ND
1,2-Dichloropropane	0.05		ND	ND	ND
Bromodichloromethane	0.05		ND	ND	ND
2-Chloroethyl Vinyl Ether	0.5		ND	ND	ND
trans-1,3-Dichloropropene	0.05		ND	ND	ND
cis-1,3-Dichloropropene	0.05		ND	ND	ND
1,1,2-Trichloroethane	0.05		ND	ND	ND
Tetrachloroethene (PCE)	0.05		ND	ND	ND
Dibromochloromethane	0.05		ND	ND	ND
Chlorobenzene	0.05		ND	ND	ND
Bromoform	0.05		ND	ND	ND
1,1,2,2-Tetrachloroethane	0.05		ND	ND	ND
1,3-Dichlorobenzene	0.1		ND	ND	ND
1,4-Dichlorobenzene	0.1		ND	ND	ND
1,2-Dichlorobenzene	0.1		ND	ND	ND

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive / 2077-001.01
Sample Matrix: Soil

Service Request: S951379
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: NA

Halogenated Volatile Organic Compounds
EPA Methods 5030/8010
Units: mg/Kg (ppm)
As Received Basis

	Sample Name:	**OB-5 0'-0.5'**	**OB-6 0'-0.5'**	**Method Blank**
	Lab Code:	S951379-009	S951379-010	S951115-SMB
	Date Analyzed:	11/15/95	11/15/95	11/15/95
Analyte	**MRL**			
Dichlorodifluoromethane (CFC 12)	0.1	ND	ND	ND
Chloromethane	0.1	ND	ND	ND
Vinyl Chloride	0.05	ND	ND	ND
Bromomethane	0.05	ND	ND	ND
Chloroethane	0.05	ND	ND	ND
Trichlorofluoromethane (CFC 11)	0.05	ND	ND	ND
1,1-Dichloroethene	0.05	ND	ND	ND
Trichlorotrifluoroethane (CFC 113)	0.05	ND	ND	ND
Methylene Chloride	0.05	ND	ND	ND
trans-1,2-Dichloroethene	0.05	ND	ND	ND
cis-1,2-Dichloroethene	0.05	ND	ND	ND
1,1-Dichloroethane	0.05	ND	ND	ND
Chloroform	0.05	ND	ND	ND
1,1,1-Trichloroethane (TCA)	0.05	ND	ND	ND
Carbon Tetrachloride	0.05	ND	ND	ND
1,2-Dichloroethane	0.05	ND	ND	ND
Trichloroethene (TCE)	0.05	ND	ND	ND
1,2-Dichloropropane	0.05	ND	ND	ND
Bromodichloromethane	0.05	ND	ND	ND
2-Chloroethyl Vinyl Ether	0.5	ND	ND	ND
trans-1,3-Dichloropropene	0.05	ND	ND	ND
cis-1,3-Dichloropropene	0.05	ND	ND	ND
1,1,2-Trichloroethane	0.05	ND	ND	ND
Tetrachloroethene (PCE)	0.05	ND	ND	ND
Dibromochloromethane	0.05	ND	ND	ND
Chlorobenzene	0.05	ND	ND	ND
Bromoform	0.05	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.05	ND	ND	ND
1,3-Dichlorobenzene	0.1	ND	ND	ND
1,4-Dichlorobenzene	0.1	ND	ND	ND
1,2-Dichlorobenzene	0.1	ND	ND	ND

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive / 2077-001.01
Sample Matrix: Soil

Service Request: S951379
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: NA

Halogenated Volatile Organic Compounds
EPA Methods 5030/8010
Units: mg/Kg (ppm)
As Received Basis

Sample Name:	**Method Blank**
Lab Code:	S951117-SMB
Date Analyzed:	11/17/95

Analyte	**MRL**	
Dichlorodifluoromethane (CFC 12)	0.1	ND
Chloromethane	0.1	ND
Vinyl Chloride	0.05	ND
Bromomethane	0.05	ND
Chloroethane	0.05	ND
Trichlorofluoromethane (CFC 11)	0.05	ND
1,1-Dichloroethene	0.05	ND
Trichlorotrifluoroethane (CFC 113)	0.05	ND
Methylene Chloride	0.05	ND
trans-1,2-Dichloroethene	0.05	ND
cis-1,2-Dichloroethene	0.05	ND
1,1-Dichloroethane	0.05	ND
Chloroform	0.05	ND
1,1,1-Trichloroethane (TCA)	0.05	ND
Carbon Tetrachloride	0.05	ND
1,2-Dichloroethane	0.05	ND
Trichloroethene (TCE)	0.05	ND
1,2-Dichloropropane	0.05	ND
Bromodichloromethane	0.05	ND
2-Chloroethyl Vinyl Ether	0.5	ND
trans-1,3-Dichloropropene	0.05	ND
cis-1,3-Dichloropropene	0.05	ND
1,1,2-Trichloroethane	0.05	ND
Tetrachloroethene (PCE)	0.05	ND
Dibromochloromethane	0.05	ND
Chlorobenzene	0.05	ND
Bromoform	0.05	ND
1,1,2,2-Tetrachloroethane	0.05	ND
1,3-Dichlorobenzene	0.1	ND
1,4-Dichlorobenzene	0.1	ND
1,2-Dichlorobenzene	0.1	ND

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S951379
Project:	National Airmotive / 2077-001.01	**Date Collected:**	11/3/95
Sample Matrix:	Soil	**Date Received:**	11/3/95
		Date Extracted:	NA
		Date Analyzed:	11/14/95

BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method
As Received Basis

Analyte:	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes, Total
Units:	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)
Method Reporting Limit:	5	0.05	0.1	0.1	0.1
Sample Name	**Lab Code**				
OB-1 2'-2.5'	S951379-001	ND	ND	ND	ND	ND
OB-1 3.5'-4'	S951379-002	110*	<0.2**	<0.4*	<0.4*	<0.5***
OB-2 0.5'-1'	S951379-003	-	ND	ND	ND	ND
OB-2 2'-2.5'	S951379-004	-	ND	ND	ND	ND
OB-3 0'-0.5'	S951379-005	-	ND	ND	ND	ND
OB-3 2'-2.5'	S951379-006	-	ND	ND	ND	ND
OB-4 0'-0.5'	S951379-007	-	ND	ND	ND	ND
OB-4 1'-1.5'	S951379-008	-	ND	ND	ND	<0.2***
OB-5 0'-0.5'	S951379-009	-	ND	ND	ND	ND
OB-6 0'-0.5'	S951379-010	-	ND	ND	ND	ND
Method Blank	S951114-SMB	ND	ND	ND	ND	ND

* The sample contains components eluting in the naphtha range that were quantitated as naphtha. The chromatogram does not match the typical naphtha fingerprint.
** Raised MRL due to high analyte concentration requiring sample dilution.
*** Raised MRL due to matrix interference.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S951379
Project:	National Airmotive / 2077-001.01	**Date Collected:**	11/3/95
Sample Matrix:	Soil	**Date Received:**	11/3/95
		Date Extracted:	11/14/95
		Date Analyzed:	11/15,17/95

Hydrocarbon Scan
California DHS LUFT Method
Units: mg/Kg (ppm)
As Received Basis

Analyte:	Jet Fuel	Kerosene	TPH as Diesel	Motor Oil
Method Reporting Limit:	1	1	1	5
Sample Name	**Lab Code**			
OB-1 2'-2.5'	S951379-001	ND	ND	ND	320
OB-1 3.5'-4'	S951379-002	600***	<5*	190**	760
OB-2 0.5'-1'	S951379-003	ND	ND	ND	170
OB-2 2'-2.5'	S951379-004	440	ND	54	190
OB-3 0'-0.5'	S951379-005	<10*	<10*	<10*	510
OB-3 2'-2.5'	S951379-006	<10*	<10*	<10*	1,300
OB-4 0'-0.5'	S951379-007	240***	<10*	1,100	1,100
OB-4 1'-1.5'	S951379-008	430***	<5*	22	310
OB-5 0'-0.5'	S951379-009	<5*	130	250	300
OB-6 0'-0.5'	S951379-010	280***	ND	120	120
Method Blank	S951115-SMB	ND	ND	ND	ND

* Raised MRL due to high analyte concentration requiring sample dilution.

** The sample contains components eluting in the diesel range that were quantitated as diesel. The chromatogram does not match the typical diesel fingerprint.

*** The sample contains components eluting in the Jet Fuel range that were quantitated as Jet Fuel. The chromatogram does not match the typical Jet Fuel fingerprint.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Soil

Service Request: L9503973
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: NA

CAM TTLC Metals
Units: mg/Kg (ppm)

		Sample Name:	**OB-2 0.5'-1'**	**OB-2 2'-2.5'**	**OB-3 0'-0.5'**
		Lab Code:	L9503973-001	L9503973-002	L9503973-003
		Date Analyzed:	11/9-10/95	11/9-10/95	11/9-10/95
Analyte	**EPA Method**	**MRL**			
Antimony	3050/6010	10	ND	ND	ND
Arsenic	3050/7060	5	8	ND	8
Barium	3050/6010	1	220	730	810
Beryllium	3050/6010	0.5	ND	ND	ND
Cadmium	3050/6010	1	2	5	8
Chromium	3050/6010	2	53	57	62
Cobalt	3050/6010	2	12	25	18
Copper	3050/6010	2	89	1300	280
Lead	3050/6010	5	280	2500	1000
Mercury	7471	0.2	0.5	0.4	2.0
Molybdenum	3050/6010	10	ND	ND	16
Nickel	3050/6010	5	60	69	160
Selenium	3050/7740	5	ND	ND	ND
Silver	3050/6010	1	1	6	2
Thallium	3050/7841	5	ND	ND	ND
Vanadium	3050/6010	2	38	39	37
Zinc	3050/6010	1	340	1300	1100

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Soil

Service Request: L9503973
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: NA

CAM TTLC Metals
Units: mg/Kg (ppm)

		Sample Name:	**OB-3 2'-2.5'**	**OB-4 0'-0.5'**	**OB-4 1'-1.5'**
		Lab Code:	L9503973-004	L9503973-005	L9503973-006
		Date Analyzed:	11/9-10/95	11/9-10/95	11/9-10/95
Analyte	**EPA Method**	**MRL**			
Antimony	3050/6010	10	11	ND	ND
Arsenic	3050/7060	5	10	ND	ND
Barium	3050/6010	1	750	260	500
Beryllium	3050/6010	0.5	ND	ND	ND
Cadmium	3050/6010	1	6	35	5
Chromium	3050/6010	2	110	190	49
Cobalt	3050/6010	2	16	15	6
Copper	3050/6010	2	320	170	100
Lead	3050/6010	5	1700	440	1200
Mercury	7471	0.2	29	1.7	0.7
Molybdenum	3050/6010	10	10	10	ND
Nickel	3050/6010	5	63	90	32
Selenium	3050/7740	5	ND	ND	ND
Silver	3050/6010	1	3	4	ND
Thallium	3050/7841	5	ND	ND	ND
Vanadium	3050/6010	2	28	25	21
Zinc	3050/6010	1	1600	820	1400

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	L9503973
Project:	National Airmotive/#2077-001.01	**Date Collected:**	11/3/95
Sample Matrix:	Soil	**Date Received:**	11/3/95
		Date Extracted:	NA

CAM TTLC Metals
Units: mg/Kg (ppm)

		Sample Name:	**OB-5 0'-0.5'**	**OB-6 0'-0.5'**	**Method Blank**
		Lab Code:	L9503973-007	L9503973-008	L9503973-MB
		Date Analyzed:	11/9-10/95	11/9-10/95	11/9-10/95
Analyte	**EPA Method**	**MRL**			
Antimony	3050/6010	10	10	ND	ND
Arsenic	3050/7060	5	9	ND	ND
Barium	3050/6010	1	410	93	ND
Beryllium	3050/6010	0.5	ND	ND	ND
Cadmium	3050/6010	1	4	2	ND
Chromium	3050/6010	2	82	33	ND
Cobalt	3050/6010	2	6	7	ND
Copper	3050/6010	2	240	120	ND
Lead	3050/6010	5	710	38	ND
Mercury	7471	0.2	2.2	0.3	ND
Molybdenum	3050/6010	10	ND	ND	ND
Nickel	3050/6010	5	37	30	ND
Selenium	3050/7740	5	ND	ND	ND
Silver	3050/6010	1	3	ND	ND
Thallium	3050/7841	5	ND	ND	ND
Vanadium	3050/6010	2	26	27	ND
Zinc	3050/6010	1	320	150	ND

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON	**Service Request:**	L9503973
Project:	National Airmotive/#2077-001.01	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
		Date Extracted:	NA
		Date Analyzed:	NA

Surrogate Recovery Summary
Base Neutral/Acid Semivolatile Organic Compounds
EPA Methods 3550/8270

		Percent Recovery					
Sample Name	**Lab Code**	2FP	PHL	TBP	NBZ	FBP	TPH
OB-2 0.5'-1'	L9503973-001	*	*	*	*	*	*
OB-2 2'-2.5'	L9503973-002	*	*	*	*	*	*
OB-3 0'-0.5'	L9503973-003	*	*	*	*	*	*
OB-3 2'-2.5'	L9503973-004	*	*	*	*	*	*
OB-4 0'-0.5'	L9503973-005	*	*	*	*	*	*
OB-4 1'-1.5'	L9503973-006	*	*	*	*	*	*
OB-5 0'-0.5'	L9503973-007	*	*	*	*	*	*
OB-6 0'-0.5'	L9503973-008	*	*	*	*	*	*
Method Blank	L9503973-MB	91	90	92	88	105	135
CAS Acceptance Limits:		25-121	24-113	19-122	23-128	30-115	18-137

2FP	2-Fluorophenol
PHL	Phenol-D6
TBP	2,4,6-Tribromophenol
NBZ	Nitrobenzene-D5
FBP	2-Fluorobiphenyl
TPH	Terphenyl-D14

* Not Applicable because of the sample matrix. Analysis of this sample required a dilution such that the surrogate concentration was diluted below the method reporting limit.

SUR6/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: National Airmotive / 2077-001.01
Sample Matrix: Soil

Service Request: S951379
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: NA
Date Analyzed: 11/15,17/95

Surrogate Recovery Summary
Halogenated Volatile Organic Compounds
EPA Methods 5030/8010

Sample Name	Lab Code	Percent Recovery 4-Bromofluorobenzene
OB-2 0.5'-1'	S951379-003	89
OB-2 2'-2.5'	S951379-004	86
OB-3 0'-0.5'	S951379-005	81
OB-3 2'-2.5'	S951379-006	92
OB-4 0'-0.5'	S951379-007	81
OB-4 1'-1.5'	S951379-008	83
OB-5 0'-0.5'	S951379-009	82
OB-6 0'-0.5'	S951379-010	88
Method Blank	S951115-SMB	90
Method Blank	S951117-SMB	86

CAS Acceptance Limits: 79-141

SUR1/062994

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON	**Service Request:**	S951379
Project:	National Airmotive / 2077-001.01	**Date Collected:**	11/3/95
Sample Matrix:	Soil	**Date Received:**	11/3/95
		Date Extracted:	NA
		Date Analyzed:	

Surrogate Recovery Summary
TPH as Gasoline/BTEX
EPA Methods 5030/8020/California DHS LUFT Method

Sample Name	Lab Code	PID Detector Percent Recovery 4-Bromofluorobenzene	FID Detector Percent Recovery α,α,α–Trifluorotoluene
OB-1 2'-2.5'	S951379-001	91	98
OB-1 3.5'-4'	S951379-002	94	102
OB-2 0.5'-1'	S951379-003	90	-
OB-2 2'-2.5'	S951379-004	86	-
OB-3 0'-0.5'	S951379-005	94	-
OB-3 2'-2.5'	S951379-006	95	-
OB-4 0'-0.5'	S951379-007	88	-
OB-4 1'-1.5'	S951379-008	106	-
OB-5 0'-0.5'	S951379-009	93	-
OB-6 0'-0.5'	S951379-010	94	-
Method Blank	S951114-SMB	90	94
	CAS Acceptance Limits:	59-115	59-115

SUR2/060194

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON	**Service Request:**	S951379
Project:	National Airmotive / 2077-001.01	**Date Collected:**	11/3/95
Sample Matrix:	Soil	**Date Received:**	11/3/95
		Date Extracted:	11/14/95
		Date Analyzed:	11/15,17/95

Surrogate Recovery Summary
Hydrocarbon Scan
California DHS LUFT Method

Sample Name	Lab Code	Percent Recovery p-Terphenyl
OB-1 2'-2.5'	S951379-001	6*
OB-1 3.5'-4'	S951379-002	35*
OB-2 0.5'-1'	S951379-003	99
OB-2 2'-2.5'	S951379-004	82
OB-3 0'-0.5'	S951379-005	97
OB-3 2'-2.5'	S951379-006	24*
OB-4 0'-0.5'	S951379-007	16*
OB-4 1'-1.5'	S951379-008	66
OB-5 0'-0.5'	S951379-009	85
OB-6 0'-0.5'	S951379-010	81
Method Blank	S951115-SMB	79

CAS Acceptance Limits: 41-140

* Out of acceptance limits because of matrix

SUR1/062994

CHAIN OF CUSTODY/LABORATORY ANALYSIS REPORT FORM

Analytical Services
1921 Ringwood Ave. • San Jose, CA 95131 • (408) 437-2400 • FAX (408) 437-9356

SERVICE REQUEST NO. 5950379 P.O.# ____ PAGE 1 OF 3

CAS/L9503973

PROJECT NAME: NAT'L AUTOMOTIVE #2077-001.01
PROJECT MGR.: SMOLLEY
COMPANY/ADDRESS: EMCON
PHONE
FAX
SAMPLERS SIGNATURE: Lynn Gallagher

ANALYSIS REQUESTED

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	PRESERVATIVE	NP	HCl	HCl	HCl	NP	HCl	HCl	HNO_3	NP	H_2SO_4	H_2SO_4	H_2SO_4					REMARKS
							Base/Neut/Acid Organics GC/MS 625/8270	Volatile Organics GC/MS 624/8240/8260	Halogenated or Aromatic Volatiles 601/8010/8021	TPH as Gas/BTEX DHS LUFT / 8015 Mod/8020	TPH as Diesel (HC) DHS LUFT	TRPH - 418.1	Oil and Grease Method	Metals (total or dissolved) List Below	pH, Cond., Cl, SO_4, F, TDS, TSS Alk (circle)	NH_3-N, COD, Total-P, TKN, NO_3 / NO_2 (circle)	Total Organic Carbon TOC	Total Phenols	CAM 17 METALS					
OB-1 2'-2.5'	11/3			SOIL					X	X													G/BTEX
" 3.5'-4'									X	X													↓
1 OB-2 0.5'-1'							X		X	X								X					BTEX ONLY
2 2'-2.5'																							
3 OB-3 0'-0.5'																							
4 2-2.5'																							
5 OB-4 0'-0.5'																							
6 1'-1.5'																							
7 OB-5 0-0.5																							
8 OB-6 0-0.5	↓			↓																			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Lynn Gallagher	Signature: Joanne Brown	Signature:	Signature:
Printed Name: Lynn Gallagher	Printed Name: Joanne Brown	Printed Name:	Printed Name:
Firm: EMCON	Firm: CAS	Firm:	Firm:
Date/Time: 11/3/95 1708	Date/Time: 11-3-95 1708	Date/Time:	Date/Time:

RELINQUISHED BY:	RECEIVED BY:
Signature: Joanne Brown	Signature:
Printed Name: Joanne Brown	Printed Name: M. Sigman
Firm: CAS	Firm: CAS/L
Date/Time: 11-2-95 1930	Date/Time: 11-3-95 1140

TURNAROUND REQUIREMENTS
___ 24 hr ___ 48 hr. ___ 3-5 day
X Standard (10-15 working days)
___ Provide Verbal Preliminary Results
___ Provide FAX preliminary Results
Requested Report Date: ____

REPORT REQUIREMENTS
X I. Routine Report
___ II. Report (includes QUP,MAS, MSD, as required, may be charged as samples)
___ III. Data Validation Report (includes All Raw Data)
___ RWQCB (MDLs/PQLs/TRACE#)

SPECIAL INSTRUCTIONS/COMMENTS:

Circle which metals are to be analyzed:

Metals: Al Sb Ba Be B Cd Ca Cr Cu Co Fe Mg Mn Mo Ni K Ag Na Sn V Zn
As Pb Se Tl Hg

LLAB: 8270, Title 22 Metals

DISTRIBUTION WHITE - return to originator; YELLOW - lab; PINK - retained by originator

400-5

CHAIN OF CUSTODY / LABORATORY ANALYSIS REQUEST FORM

Columbia Analytical Services, Inc.
1921 Ringwood Ave. • San Jose, CA 95131 • (408) 437-2400 • FAX (408) 437-9356

SERVICE REQUEST NO. S950379 P.O.# _____ PAGE 2 OF 3

PROJECT NAME NAT'L AIRMOTIVE # 2077-001.01
PROJECT MGR. SMOLLEN
COMPANY/ADDRESS EMCON
PHONE _____
FAX _____
SAMPLERS SIGNATURE _____

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	Base/Neu/Acid Organics GC/MS 625/8270	Volatile Organics GC/MS 624/8240/8260	Halogenated or Aromatic Volatiles 601/8010 ☐ 602/8020 ☐	TPH as Gas/BTEX DHS LUFT / 8020	TPH as Diesel/HBHC DHS LUFT	TRPH - 418.1	Oil and Grease Method ____	Metals (total or dissolved) List Below	pH, Cond, Cl, SO_4, F, TDS, TSS Alk (circle)	NH_3-N, COD, Total-P, TKN, NO_3 / NO_2 (circle)	Total Organic Carbon TOC	Total Phenols	REMARKS
				PRESERVATIVE		NP	HCl	HCl	HCl	NP	HCl	HCl	HNO_3	NP	H_2SO_4	H_2SO_4	H_2SO_4	
DRUM 1	11/3			SOIL														HOLD
DRUM 2	〃			〃														〃
DRUM 3	〃			〃														〃

RELINQUISHED BY:
Signature: Lynn Gallagher
Printed Name: LYNN GALLAGHER
Firm: EMCON
Date/Time: 11/3/95 17:08

RECEIVED BY:
Signature: Joanne Brown
Printed Name: JOANNE BROWN
Firm: CAS
Date/Time: 11-3-95 1708

RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

TURNAROUND REQUIREMENTS
___ 24 hr ___ 48 hr. ___ 3-5 day
___ Standard (10-15 working days)
___ Provide Verbal Preliminary Results
___ Provide FAX preliminary Results
Requested Report Date _____

REPORT REQUIREMENTS
___ I. Routine Report
___ II. Report (includes DUP.MAS. MSD, as required, may be charged as samples)
___ III. Data Validation Report (includes All Raw Data)
___ RWQCB (MDLs/PQLs/TRACE#)

RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

SPECIAL INSTRUCTIONS/COMMENTS:
Circle which metals are to be analyzed:
Metals: Al Sb Ba Be B Cd Ca Cr Cu Co Fe Mg Mn Mo Ni K Ag Na Sn V Zn
As Pb Se Tl Hg

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

400-5

Columbia Analytical Services inc.

November 22, 1995

Service Request No: S951377

Mark Smolley
EMCON
1921 Ringwood Avenue
San Jose, CA 95131

Re: **National Airmotive / #2077-001.01**

Dear Mr. Smolley:

The following pages contain analytical results for sample(s) received by the laboratory on November 3, 1995. Results of sample analyses are followed by Appendix A which contains sample custody documentation and quality assurance deliverables requested for this project. The work requested has been assigned the Service Request No. listed above -to help expedite our service please refer to this number when contacting the laboratory.

Analytical results were produced by procedures consistent with Columbia Analytical Services' (CAS) Quality Assurance Manual (with any deviations noted). Signature of this CAS Analytical Report below confirms that pages 2 through 19, following, have been thoroughly reviewed and approved for release in accord with CAS Standard Operating Procedure ADM-DatRev3.

Please feel welcome to contact me should you have questions or further needs.

Sincerely:

Steven L. Green
Project Chemist

SLG/drf

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

COLUMBIA ANALYTICAL SERVICES, Inc.
Acronyms

A2LA	American Association for Laboratory Accreditation
ASTM	American Society for Testing and Materials
BOD	Biochemical Oxygen Demand
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CAM	California Assessment Metals
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
COD	Chemical Oxygen Demand
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
IC	Ion Chromatography
ICB	Initial Calibration Blank sample
ICP	Inductively Coupled Plasma atomic emission spectrometry
ICV	Initial Calibration Verification sample
J	Estimated concentration. The value is less than the MRL, but greater than or equal to the MDL. If the value is equal to the MRL, the result is actually <MRL before rounding.
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified
MBAS	Methylene Blue Active Substances
MCL	Maximum Contaminant Level. The highest permissible concentration of a substance allowed in drinking water as established by the U. S. EPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
MS	Matrix Spike
MTBE	Methyl tert-Butyl Ether
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the paper industry for Air and Stream Improvement
ND	Not Detected at or above the method reporting/detection limit (MRL/MDL)
NIOSH	National Institute for Occupational Safety and Health
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1992
STLC	Solubility Threshold Limit Concentration
SW	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Ed., 1986 and as amended by Updates I, II, IIA, and IIB.
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
tr	Trace level. The concentration of an analyte that is less than the PQL but greater than or equal to the MDL. If the value is equal to the PQL, the result is actually <PQL before rounding.
TRPH	Total Recoverable Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Water

Service Request: L9503946
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: 11/10/95

Base Neutral/Acid Semivolatile Organic Compounds
EPA Methods 3510/8270
Units: ug/L (ppb)

	Sample Name:	**OB-2**	**OB-3**	**OB-4**
	Lab Code:	L9503946-002	L9503946-003	L9503946-004*
	Date Analyzed:	11/13/95	11/13/95	11/14/95
Base Neutral Analyte	**MRL**			
N-Nitrosodimethylamine	5	ND	ND	<50
Aniline	5	ND	ND	<50
Bis(2-chloroethyl) Ether	5	ND	ND	<50
1,2-Dichlorobenzene	5	ND	ND	<50
1,3-Dichlorobenzene	5	ND	ND	<50
1,4-Dichlorobenzene	5	ND	ND	<50
Bis(2-chloroisopropyl) Ether	5	ND	ND	<50
N-Nitrosodi-n-propylamine	5	ND	ND	<50
Hexachloroethane	5	ND	ND	<50
Nitrobenzene	5	ND	ND	<50
Isophorone	5	ND	ND	<50
Bis(2-chloroethoxy)methane	5	ND	ND	<50
1,2,4-Trichlorobenzene	5	ND	ND	<50
Naphthalene	5	ND	ND	<50
4-Chloroaniline	5	ND	ND	<50
Hexachlorobutadiene	5	ND	ND	<50
2-Methylnaphthalene	5	ND	ND	<50
Hexachlorocyclopentadiene	10	ND	ND	<100
2-Chloronaphthalene	5	ND	ND	<50
2-Nitroaniline	20	ND	ND	<200
Dimethyl Phthalate	5	ND	ND	<50
Acenaphthylene	5	ND	ND	<50
3-Nitroaniline	20	ND	ND	<200
Acenaphthene	5	ND	ND	<50
Dibenzofuran	5	ND	ND	<50
2,4-Dinitrotoluene	5	ND	ND	<50

* MRL is elevated due to matrix interferences.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Water

Service Request: L9503946
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: 11/10/95

Base Neutral/Acid Semivolatile Organic Compounds
EPA Methods 3510/8270
Units: ug/L (ppb)

	Sample Name:	**OB-2**	**OB-3**	**OB-4**
	Lab Code:	L9503946-002	L9503946-003	L9503946-004*
	Date Analyzed:	11/13/95	11/13/95	11/14/95
Base Neutral Analyte	**MRL**			
2,6-Dinitrotoluene	5	ND	ND	<50
Diethyl Phthalate	5	ND	ND	<50
4-Chlorophenyl Phenyl Ether	5	ND	ND	<50
Fluorene	5	ND	ND	<50
4-Nitroaniline	20	ND	ND	<200
N-Nitrosodiphenylamine	5	ND	ND	<50
4-Bromophenyl Phenyl Ether	5	ND	ND	<50
Hexachlorobenzene	5	ND	ND	<50
Phenanthrene	5	ND	ND	<50
Anthracene	5	ND	ND	<50
Di-n-butyl Phthalate	5	ND	ND	<50
Fluoranthene	5	ND	ND	<50
Pyrene	5	ND	ND	<50
Butylbenzyl Phthalate	5	ND	ND	<50
3,3'-Dichlorobenzidine	20	ND	ND	<200
Benz(a)anthracene	5	ND	ND	<50
Bis(2-ethylhexyl) Phthalate	5	ND	ND	<50
Chrysene	5	ND	ND	<50
Di-n-octyl Phthalate	5	ND	ND	<50
Benzo(b)fluoranthene	5	ND	ND	<50
Benzo(k)fluoranthene	5	ND	ND	<50
Benzo(a)pyrene	5	ND	ND	<50
Indeno(1,2,3-c,d)pyrene	5	ND	ND	<50
Dibenz(a,h)anthracene	5	ND	ND	<50
Benzo(g,h,i)perylene	5	ND	ND	<50
Pyridine	10	ND	ND	<100

* MRL is elevated due to matrix interferences.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Water

Service Request: L9503946
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: 11/10/95

Base Neutral/Acid Semivolatile Organic Compounds
EPA Methods 3510/8270
Units: ug/L (ppb)

	Sample Name:	**OB-2**	**OB-3**	**OB-4**
	Lab Code:	L9503946-002	L9503946-003	L9503946-004*
	Date Analyzed:	11/13/95	11/13/95	11/14/95
Acid Analyte	**MRL**			
Phenol	5	ND	ND	<50
2-Chlorophenol	5	ND	ND	<50
Benzyl Alcohol	10	ND	ND	<100
2-Methylphenol	5	ND	ND	<50
3- and 4-Methylphenol[a]	5	ND	ND	<50
2-Nitrophenol	5	ND	ND	<50
2,4-Dimethylphenol	5	ND	ND	<50
Benzoic Acid	50	ND	ND	<500
2,4-Dichlorophenol	5	ND	ND	<50
4-Chloro-3-methylphenol	5	ND	ND	<50
2,4,6-Trichlorophenol	5	ND	ND	<50
2,4,5-Trichlorophenol	5	ND	ND	<50
2,4-Dinitrophenol	50	ND	ND	<500
4-Nitrophenol	50	ND	ND	<500
2-Methyl-4,6-dinitrophenol	20	ND	ND	<200
Pentachlorophenol	30	ND	ND	<300

[a] Quantified as 4-Methylphenol.
* MRL is elevated due to matrix interferences.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Water

Service Request: L9503946
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: 11/10/95

Base Neutral/Acid Semivolatile Organic Compounds
EPA Methods 3510/8270
Units: ug/L (ppb)

	Sample Name:	**OB-5**	**OB-6**	**Method Blank**
	Lab Code:	L9503946-005	L9503946-006*	L9503946-MB
	Date Analyzed:	11/13/95	11/13/95	11/13/95
Base Neutral Analyte	**MRL**			
N-Nitrosodimethylamine	5	ND	<50	ND
Aniline	5	ND	<50	ND
Bis(2-chloroethyl) Ether	5	ND	<50	ND
1,2-Dichlorobenzene	5	ND	<50	ND
1,3-Dichlorobenzene	5	ND	<50	ND
1,4-Dichlorobenzene	5	ND	<50	ND
Bis(2-chloroisopropyl) Ether	5	ND	<50	ND
N-Nitrosodi-n-propylamine	5	ND	<50	ND
Hexachloroethane	5	ND	<50	ND
Nitrobenzene	5	ND	<50	ND
Isophorone	5	ND	<50	ND
Bis(2-chloroethoxy)methane	5	ND	<50	ND
1,2,4-Trichlorobenzene	5	ND	<50	ND
Naphthalene	5	10	520	ND
4-Chloroaniline	5	ND	<50	ND
Hexachlorobutadiene	5	ND	<50	ND
2-Methylnaphthalene	5	ND	50	ND
Hexachlorocyclopentadiene	10	ND	<100	ND
2-Chloronaphthalene	5	ND	<50	ND
2-Nitroaniline	20	ND	<200	ND
Dimethyl Phthalate	5	ND	<50	ND
Acenaphthylene	5	ND	<50	ND
3-Nitroaniline	20	ND	<200	ND
Acenaphthene	5	ND	<50	ND
Dibenzofuran	5	ND	<50	ND
2,4-Dinitrotoluene	5	ND	<50	ND

* MRL is elevated due to matrix interferences.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Water

Service Request: L9503946
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: 11/10/95

Base Neutral/Acid Semivolatile Organic Compounds
EPA Methods 3510/8270
Units: ug/L (ppb)

	Sample Name:	**OB-5**	**OB-6**	**Method Blank**
	Lab Code:	L9503946-005	L9503946-006*	L9503946-MB
	Date Analyzed:	11/13/95	11/13/95	11/13/95
Base Neutral Analyte	**MRL**			
2,6-Dinitrotoluene	5	ND	<50	ND
Diethyl Phthalate	5	ND	<50	ND
4-Chlorophenyl Phenyl Ether	5	ND	<50	ND
Fluorene	5	ND	<50	ND
4-Nitroaniline	20	ND	<200	ND
N-Nitrosodiphenylamine	5	ND	<50	ND
4-Bromophenyl Phenyl Ether	5	ND	<50	ND
Hexachlorobenzene	5	ND	<50	ND
Phenanthrene	5	ND	<50	ND
Anthracene	5	ND	<50	ND
Di-n-butyl Phthalate	5	ND	<50	ND
Fluoranthene	5	ND	<50	ND
Pyrene	5	ND	<50	ND
Butylbenzyl Phthalate	5	ND	<50	ND
3,3'-Dichlorobenzidine	20	ND	<200	ND
Benz(a)anthracene	5	ND	<50	ND
Bis(2-ethylhexyl) Phthalate	5	ND	<50	ND
Chrysene	5	ND	<50	ND
Di-n-octyl Phthalate	5	ND	<50	ND
Benzo(b)fluoranthene	5	ND	<50	ND
Benzo(k)fluoranthene	5	ND	<50	ND
Benzo(a)pyrene	5	ND	<50	ND
Indeno(1,2,3-c,d)pyrene	5	ND	<50	ND
Dibenz(a,h)anthracene	5	ND	<50	ND
Benzo(g,h,i)perylene	5	ND	<50	ND
Pyridine	10	ND	<100	ND

* MRL is elevated due to matrix interferences.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Water

Service Request: L9503946
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: 11/10/95

Base Neutral/Acid Semivolatile Organic Compounds
EPA Methods 3510/8270
Units: ug/L (ppb)

	Sample Name:	**OB-5**	**OB-6**	**Method Blank**
	Lab Code:	L9503946-005	L9503946-006*	L9503946-MB
	Date Analyzed:	11/13/95	11/13/95	11/13/95
Acid Analyte	**MRL**			
Phenol	5	ND	<50	ND
2-Chlorophenol	5	ND	<50	ND
Benzyl Alcohol	10	ND	<100	ND
2-Methylphenol	5	ND	<50	ND
3- and 4-Methylphenol[a]	5	ND	<50	ND
2-Nitrophenol	5	ND	<50	ND
2,4-Dimethylphenol	5	ND	<50	ND
Benzoic Acid	50	ND	<500	ND
2,4-Dichlorophenol	5	ND	<50	ND
4-Chloro-3-methylphenol	5	ND	<50	ND
2,4,6-Trichlorophenol	5	ND	<50	ND
2,4,5-Trichlorophenol	5	ND	<50	ND
2,4-Dinitrophenol	50	ND	<500	ND
4-Nitrophenol	50	ND	<500	ND
2-Methyl-4,6-dinitrophenol	20	ND	<200	ND
Pentachlorophenol	30	ND	<300	ND

[a] Quantified as 4-Methylphenol.
* MRL is elevated due to matrix interferences.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive / 2077-001.01
Sample Matrix: Water

Service Request: S951377
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: NA

Halogenated Volatile Organic Compounds
EPA Methods 5030/8010
Units: ug/L (ppb)

		Sample Name:	**OB-2**	**OB-3***	**OB-4**
		Lab Code:	S951377-2	S951377-3	S951377-4
		Date Analyzed:	11/16/95	11/16/95	11/16/95
Analyte	**MRL**				
Dichlorodifluoromethane (CFC 12)	1		ND	<5	ND
Chloromethane	1		ND	<5	ND
Vinyl Chloride	0.5		ND	<2.5	ND
Bromomethane	0.5		ND	<2.5	ND
Chloroethane	0.5		ND	<2.5	ND
Trichlorofluoromethane (CFC 11)	0.5		ND	<2.5	ND
1,1-Dichloroethene	0.5		ND	<2.5	ND
Trichlorotrifluoroethane (CFC 113)	0.5		ND	<2.5	ND
Methylene Chloride	0.5		ND	<2.5	ND
trans-1,2-Dichloroethene	0.5		ND	<2.5	ND
cis-1,2-Dichloroethene	0.5		ND	<2.5	ND
1,1-Dichloroethane	0.5		ND	<2.5	ND
Chloroform	0.5		ND	<2.5	ND
1,1,1-Trichloroethane (TCA)	0.5		ND	<2.5	ND
Carbon Tetrachloride	0.5		ND	<2.5	ND
1,2-Dichloroethane	0.5		ND	<2.5	ND
Trichloroethene (TCE)	0.5		ND	<2.5	ND
1,2-Dichloropropane	0.5		ND	<2.5	ND
Bromodichloromethane	0.5		ND	<2.5	ND
2-Chloroethyl Vinyl Ether	5		ND	<25	ND
trans-1,3-Dichloropropene	0.5		ND	<2.5	ND
cis-1,3-Dichloropropene	0.5		ND	<2.5	ND
1,1,2-Trichloroethane	0.5		ND	<2.5	ND
Tetrachloroethene (PCE)	0.5		ND	<2.5	ND
Dibromochloromethane	0.5		ND	<2.5	ND
Chlorobenzene	0.5		ND	<2.5	ND
Bromoform	0.5		ND	<2.5	ND
1,1,2,2-Tetrachloroethane	0.5		ND	<2.5	ND
1,3-Dichlorobenzene	1		ND	<5	ND
1,4-Dichlorobenzene	1		ND	<5	ND
1,2-Dichlorobenzene	1		ND	<5	ND

* Dilution required by matrix interferences

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive / 2077-001.01
Sample Matrix: Water

Service Request: S951377
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: NA

Halogenated Volatile Organic Compounds
EPA Methods 5030/8010
Units: ug/L (ppb)

	Sample Name:	**OB-5**	**OB-6***	**Method Blank**
	Lab Code:	S951377-5	S951377-6	S951116-WMB
	Date Analyzed:	11/16/95	11/16/95	11/16/95
Analyte	**MRL**			
Dichlorodifluoromethane (CFC 12)	1	ND	<5	ND
Chloromethane	1	ND	<5	ND
Vinyl Chloride	0.5	ND	<2.5	ND
Bromomethane	0.5	ND	<2.5	ND
Chloroethane	0.5	ND	<2.5	ND
Trichlorofluoromethane (CFC 11)	0.5	ND	<2.5	ND
1,1-Dichloroethene	0.5	ND	<2.5	ND
Trichlorotrifluoroethane (CFC 113)	0.5	ND	<2.5	ND
Methylene Chloride	0.5	ND	<2.5	ND
trans-1,2-Dichloroethene	0.5	ND	<2.5	ND
cis-1,2-Dichloroethene	0.5	ND	<2.5	ND
1,1-Dichloroethane	0.5	ND	<2.5	ND
Chloroform	0.5	ND	<2.5	ND
1,1,1-Trichloroethane (TCA)	0.5	ND	<2.5	ND
Carbon Tetrachloride	0.5	ND	<2.5	ND
1,2-Dichloroethane	0.5	ND	<2.5	ND
Trichloroethene (TCE)	0.5	ND	<2.5	ND
1,2-Dichloropropane	0.5	ND	<2.5	ND
Bromodichloromethane	0.5	ND	<2.5	ND
2-Chloroethyl Vinyl Ether	5	ND	<25	ND
trans-1,3-Dichloropropene	0.5	ND	<2.5	ND
cis-1,3-Dichloropropene	0.5	ND	<2.5	ND
1,1,2-Trichloroethane	0.5	ND	<2.5	ND
Tetrachloroethene (PCE)	0.5	ND	<2.5	ND
Dibromochloromethane	0.5	ND	<2.5	ND
Chlorobenzene	0.5	ND	<2.5	ND
Bromoform	0.5	ND	<2.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND	<2.5	ND
1,3-Dichlorobenzene	1	ND	<5	ND
1,4-Dichlorobenzene	1	ND	<5	ND
1,2-Dichlorobenzene	1	ND	<5	ND

* Dilution required by matrix interferences

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S951377
Project:	National Airmotive / 2077-001.01	**Date Collected:**	11/3/95
Sample Matrix:	Water	**Date Received:**	11/3/95
		Date Extracted:	NA
		Date Analyzed:	11/13,14/95

BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method

Analyte:	**TPH as Gasoline**	**Benzene**	**Toluene**	**Ethyl-benzene**	**Xylenes, Total**
Units:	ug/L (ppb)	ug/L (ppb)	ug/L (ppb)	ug/L (ppb)	ug/L (ppb)
Method Reporting Limit:	50	0.5	0.5	0.5	0.5
Sample Name	**Lab Code**				
OB-1	S951377-1	89	ND	ND	ND	0.6
OB-2	S951377-2	-	ND	ND	ND	0.7
OB-3	S951377-3	-	<5*	<5*	<5*	24
OB-4	S951377-4	-	ND	ND	<2**	1.8
OB-5	S951377-5	-	ND	ND	ND	ND
OB-6	S951377-6	-	<5*	<5*	19	38
Method Blank	S951116-WMB	ND	ND	ND	ND	ND
Method Blank	S951117-WMB	ND	ND	ND	ND	ND

* Raised MRL due to high analyte concentration requiring sample dilution.
** Raised MRL due to matrix interference.

5ABTXGAS/061694

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S951377
Project:	National Airmotive / 2077-001.01	**Date Collected:**	11/3/95
Sample Matrix:	Water	**Date Received:**	11/3/95
		Date Extracted:	11/15,16/95
		Date Analyzed:	11/16,17/95

Hydrocarbon Scan
EPA Method 3510/California DHS LUFT Method
Units: ug/L (ppb)

Analyte:	**Jet Fuel**	**Kerosene**	**TPH as Diesel**	**Motor Oil**
Method Reporting Limit:	50	50	50	250
Sample Name	**Lab Code**			
OB-1	S951377-1	7,100	<250*	3,600**	8,900
OB-2	S951377-2	1,000	ND	80**	ND
OB-3	S951377-3	11,000	<100***	<100***	<500***
OB-4	S951377-4	3,100	<500*	1,700**	2,900
OB-5	S951377-5	3,800	ND	2,300**	260
OB-6	S951377-6	190,000	<500*	36,000**	5,200
Method Blank	S951115-WMB	ND	ND	ND	ND
Method Blank	S951117-WMB	ND	ND	ND	ND

* Raised MRL due to high analyte concentration requiring sample dilution.
** The sample contains components eluting in the diesel range that were quantitated as diesel. The chromatogram does not match the typical diesel fingerprint.
*** Raised MRL due to matrix interference. (high sediment)

5A/061694

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	L9503946
Project:	National Airmotive/#2077-001.01	**Date Collected:**	11/3/95
Sample Matrix:	Water	**Date Received:**	11/3/95
		Date Extracted:	NA

Title 22 Metals
Units: mg/L (ppm)

		Sample Name:	**OB-2**	**OB-3**	**OB-4**
		Lab Code:	L9503946-002	L9503946-003	L9503946-004
		Date Analyzed:	11/8-9/95	11/8-9/95	11/8-9/95
Analyte	**EPA Method**	**MRL**			
Antimony	3010/6010	0.05	ND	ND	ND
Arsenic	3020/7060	0.005	ND	0.011	ND
Barium	3010/6010	0.02	1.2	0.92	1.5
Beryllium	3010/6010	0.005	ND	ND	ND
Cadmium	3010/6010	0.005	ND	ND	ND
Chromium	3010/6010	0.01	ND	ND	ND
Cobalt	3010/6010	0.01	ND	ND	ND
Copper	3010/6010	0.01	ND	ND	ND
Lead	3020/7421	0.002	ND	ND	0.004
Mercury	7470	0.0005	ND	ND	ND
Molybdenum	3010/6010	0.02	ND	ND	ND
Nickel	3010/6010	0.04	ND	ND	ND
Selenium	3020/7740	0.005	ND	ND	ND
Silver	3010/6010	0.01	ND	ND	ND
Thallium	3020/7841	0.005	ND	ND	ND
Vanadium	3010/6010	0.01	ND	ND	ND
Zinc	3010/6010	0.01	0.03	0.01	0.11

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	L9503946
Project:	National Airmotive/#2077-001.01	**Date Collected:**	11/3/95
Sample Matrix:	Water	**Date Received:**	11/3/95
		Date Extracted:	NA

Title 22 Metals
Units: mg/L (ppm)

		Sample Name:	**OB-5**	**OB-6**	**Method Blank**
		Lab Code:	L9503946-005	L9503946-006	L9503946-MB
		Date Analyzed:	11/8-9/95	11/8-9/95	11/8-9/95
Analyte	**EPA Method**	**MRL**			
Antimony	3010/6010	0.05	ND	ND	ND
Arsenic	3020/7060	0.005	0.009	ND	ND
Barium	3010/6010	0.02	0.88	0.84	ND
Beryllium	3010/6010	0.005	ND	ND	ND
Cadmium	3010/6010	0.005	ND	ND	ND
Chromium	3010/6010	0.01	ND	ND	ND
Cobalt	3010/6010	0.01	ND	ND	ND
Copper	3010/6010	0.01	ND	ND	ND
Lead	3020/7421	0.002	ND	ND	ND
Mercury	7470	0.0005	ND	ND	ND
Molybdenum	3010/6010	0.02	ND	ND	ND
Nickel	3010/6010	0.04	ND	ND	ND
Selenium	3020/7740	0.005	ND	ND	ND
Silver	3010/6010	0.01	ND	ND	ND
Thallium	3020/7841	0.005	ND	ND	ND
Vanadium	3010/6010	0.01	ND	ND	ND
Zinc	3010/6010	0.01	ND	0.02	ND

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Water

Service Request: L9503946
Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: NA

Surrogate Recovery Summary
Base Neutral/Acid Semivolatile Organic Compounds
EPA Methods 3510/8270

Sample Name	Lab Code	Percent Recovery 2FP	PHL	TBP	NBZ	FBP	TPH
OB-2	L9503946-002	64	41	113	104	94	105
OB-3	L9503946-003	85	55	112	99	93	102
OB-4	L9503946-004	*	*	*	*	*	*
OB-5	L9503946-005	62	43	**	97	96	108
OB-6	L9503946-006	*	*	*	*	*	*
Method Blank	L9503946-MB	61	41	101	103	96	**
CAS Acceptance Limits:		21-100	10-94	10-123	35-114	43-116	33-141

2FP	2-Fluorophenol
PHL	Phenol-D6
TBP	2,4,6-Tribromophenol
NBZ	Nitrobenzene-D5
FBP	2-Fluorobiphenyl
TPH	Terphenyl-D14

* Not Applicable because of the sample matrix. Analysis of this sample required a dilution such that the surrogate concentration was diluted below the method reporting limit.

** The USEPA allows up to two surrogate recoveries (one acid and one base/neutral) to be outside of acceptance limits, without requiring reanalysis, according to the 2/88 Contract Laboratory Program Statement of work.

SUR6/120594

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON	**Service Request:**	S951377
Project:	National Airmotive / 2077-001.01	**Date Collected:**	11/3/95
Sample Matrix:	Water	**Date Received:**	11/3/95
		Date Extracted:	NA
		Date Analyzed:	11/16/95

Surrogate Recovery Summary
Halogenated Volatile Organic Compounds
EPA Methods 5030/8010

		Percent Recovery
Sample Name	**Lab Code**	4-Bromofluorobenzene
OB-2	S951377-2	80
OB-3	S951377-3	95
OB-4	S951377-4	98
OB-5	S951377-5	97
OB-6	S951377-6	88
Method Blank	S951116-WMB	94

CAS Acceptance Limits: 76-138

SUR1/062994

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: National Airmotive / 2077-001.01
Sample Matrix: Water

Service Request: S951377
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: NA
Date Analyzed:

Surrogate Recovery Summary
BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method

Sample Name	Lab Code	PID Detector Percent Recovery 4-Bromofluorobenzene	FID Detector Percent Recovery α,α,α–Trifluorotoluene
OB-1	S951377-1	101	102
OB-2	S951377-2	99	-
OB-3	S951377-3	98	-
OB-4	S951377-4	100	-
OB-5	S951377-5	96	-
OB-6	S951377-6	102	-
Method Blank	S951116-WMB	93	100
Method Blank	S951117-WMB	95	97
CAS Acceptance Limits:		69-116	69-116

SUR2/060194

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: National Airmotive / 2077-001.01
Sample Matrix: Water

Service Request: S951377
Date Collected: 11/3/95
Date Received: 11/3/95
Date Extracted: 11/15,16/95
Date Analyzed: 11/16,17/95

Surrogate Recovery Summary
Hydrocarbon Scan
EPA Method 3510/California DHS LUFT Method

Sample Name	Lab Code	Percent Recovery p-Terphenyl
OB-1	S951377-1	80
OB-2	S951377-2	79
OB-3	S951377-3	80
OB-4	S951377-4	120
OB-5	S951377-5	101
OB-6	S951377-6	39*
Method Blank	S951115-WMB	94
Method Blank	S951117-WMB	95

CAS Acceptance Limits: 66-123

* Out of acceptance limits due to matrix.

SUR1/062994

CHAIN OF CUSTODY/LABORATORY ANALYSIS REPORT FORM

Columbia Analytical Services™
1921 Ringwood Ave. • San Jose, CA 95131 • (408) 437-2400 • FAX (408) 437-9356

SERVICE REQUEST NO. 5950137 7 P.O.# _____ PAGE 1 OF _____

PROJECT NAME Nat'l Armotive 2077-001.01
PROJECT MGR. Smolley
COMPANY/ADDRESS EMCON
PHONE _____
FAX _____
SAMPLERS SIGNATURE Lynn Gallagher

CAS/L9503946

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	Base/Neut/Acid Organics GC/MS 625/8270	Volatile Organics GC/MS 624/8240/8260	Halogenated or Aromatic Volatiles 601/8010 602/8020	LPH as Gas/BTEX DHS LUFT 8020	TPH as Diesel/HBHC DHS LUFT	TRPH - 418.1	Oil and Grease Method	Metals (total & dissolved) See Below	pH, Cond. Cl, SO_4, F, TDS, TSS Alk (circle)	NH_3-N, COD, Total-P, TKN, NO_3 / NO_2 (circle)	Total Organic Carbon TOC	Total Phenols						REMARKS
					PRESERVATIVE	NP	HCl	HCl	HCl	NP	HCl	HCl	HNO_3	NP	H_2SO_4	H_2SO_4	H_2SO_4						
OB-1	11/3	0945	1	WATER	8	X		X	X	X													
OB-2		1100	2		9	X		X	X	X			X										
OB-3		1135	3		9																		
OB-4		1305	4		5																		
OB-5		1345	5		8																		
OB-6		1400	6		8																		

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Lynn Gallagher	Signature: Joanne Brown	Signature:	Signature:
Printed Name: Lynn Gallagher	Printed Name: Joanne Brown	Printed Name:	Printed Name:
Firm: EMCON	Firm: CAS	Firm:	Firm:
Date/Time: 11/3 1708	Date/Time: 11-3-95 1708	Date/Time:	Date/Time:

RELINQUISHED BY:	RECEIVED BY:
Signature: Joanne Brown	Signature: M. Sigman
Printed Name: Joanne Brown	Printed Name: M. Sigman
Firm: CAS	Firm: CASP
Date/Time: 11-3 1800	Date/Time: 11-4-95 1100

TURNAROUND REQUIREMENTS
___ 24 hr ___ 48 hr. ___ 3-5 day
X Standard (10-15 working days)
___ Provide Verbal Preliminary Results
___ Provide FAX preliminary Results
Requested Report Date 11-17

REPORT REQUIREMENTS
X I. Routine Report
___ II. Report (includes DUP, MAS, MSD, as required, may be charged as samples)
___ III. Data Validation Report (includes All Raw Data)
___ RWQCB (MDLs/PQLs/TRACE)

SPECIAL INSTRUCTIONS/COMMENTS:
Circle which metals are to be analyzed:
Metals: Al Sb Ba Be B Cd Ca Cr Cu Co Fe Mg Mn Mo Ni K Ag Na Sn V Zn As Pb Se Tl Hg

LLAB: 8270, Title 22 Metals (dis.)

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

400.5

11/15/95 16:37 FAX 005/007 GOLDEN STATE/CAS →→→ CAS SAN JOSE

Columbia Analytical Services, Inc.

May 3, 1995

Service Request No.: S950429/L952001

Mr. Mark Smolley
EMCON
1921 Ringwood Ave.
San Jose, California 95131

RE: **National Airmotive / Project No. 2077-001.01**

Dear Mr. Smolley:

Attached are the results of the soil and water samples submitted to our laboratory on April 7,1995. For your information, these analyses have been assigned our service request number S950429. The hydrocarbon scan analyses were performed by our Canoga Park, California laboratory.

All analyses were performed consistent with our laboratory's quality assurance program. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions.

Respectfully submitted,

Columbia Analytical Services, Inc.

Steven L. Green
Project Chemist

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COLUMBIA ANALYTICAL SERVICES, Inc.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the U. S. EPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the paper industry for Air and Stream Improvement
ND	Not Detected at or above the MRL
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL, but greater than or equal to the MDL

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S950429
Project:	National Airmotive / 2077-001.01	**Date Collected:**	4/6/95
Sample Matrix:	Soil	**Date Received:**	4/7/95
		Date Extracted:	NA
		Date Analyzed:	4/18-19/95

BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method
As Received Basis

Analyte:	**TPH as Gasoline**	**Benzene**	**Toluene**	**Ethyl-benzene**	**Xylenes, Total**
Units:	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)
Method Reporting Limit:	5	0.05	0.1	0.1	0.1
Sample Name	**Lab Code**				
B1-6'	S950429-001	110	<0.1*	<0.2*	0.3	1.3
B2-3.5'	S950429-002	1,500	<1*	<2*	5.1	16
B2-5'	S950429-003	270	<0.2*	<0.4*	1.2	3.8
B3-3.5'	S950429-004	ND	ND	ND	ND	ND
B4-3'	S950429-005	ND	ND	ND	ND	ND
B4-5'	S950429-006	ND	ND	ND	ND	ND
B5-3.5'	S950429-007	ND	ND	ND	ND	ND
B6-3.5'	S950429-008	ND	ND	ND	ND	ND
B7-3.5'	S950429-009	ND	ND	ND	ND	ND
B8-3.5'	S950429-010	26	ND	ND	ND	0.1
Method Blank	S950418-SB1	ND	ND	ND	ND	ND

* Raised MRL due to high analyte concentration requiring sample dilution.

Approved By: Steve Green Date: 4/24/95

5ABTXGAS/061694

0429.XLS - SHgbtex 4/20/95

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Soil

Service Request: L952001
Date Collected: 4/6/95
Date Received: 4/11/95
Date Extracted: 4/13/95

Hydrocarbon Scan
California DHS LUFT Method

Analyte:	**Jet Fuel**	**Kerosene**	**Diesel**	**Motor Oil**
Units:	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)	mg/Kg (ppm)
Method Reporting Limit:	1	1	1	5

Sample Name	**Lab Code**	**Date Analyzed**				
B1-6'	L952001-001**	4/20/95	780	*<10	*<10	1100
B2-3.5'	L952001-002***	4/19/95	6100	*<10	*<10	*<10
B2-5'	L952001-003**	4/15/95	1000	*<10	*<10	370
B3-3.5'	L952001-004**	4/19/95	4	ND	ND	50
B4-3'	L952001-005**	4/19/95	4	ND	ND	44
B4-5'	L952001-006**	4/15/95	*<10	*<10	*<10	360
B5-3.5'	L952001-007****	4/19/95	ND	ND	ND	57
B6-3.5'	L952001-008****	4/19/95	ND	ND	ND	17
B7-3.5'	L952001-009****	4/14/95	*<10	*<10	*<10	150
B8-3.5'	L952001-010**	4/15/95	92	*<10	*<10	500
Method Blank	L952001-MB	4/17/95	ND	ND	ND	ND

NA Not Applicable
ND None Detected at or above the method reporting limit.
* MRL is elevated because of matrix interferences and because the sample required diluting.
** The chromatogram fingerprint resembles a mixture of Jet Fuel and Motor Oil.
*** The chromatogram fingerprint resembles Jet Fuel.
**** The chromatogram fingerprint resembles Motor Oil.

Approved By: Eydie Schwartz Date: 4/25/95

5Abtxg_2/090794

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON	**Service Request:**	S950429
Project:	National Airmotive / 2077-001.01	**Date Collected:**	4/6/95
Sample Matrix:	Water	**Date Received:**	4/7/95
		Date Extracted:	NA
		Date Analyzed:	4/14-18/95

BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method

Analyte:	**TPH as Gasoline**	**Benzene**	**Toluene**	**Ethyl-benzene**	**Xylenes, Total**
Units:	ug/L (ppb)	ug/L (ppb)	ug/L (ppb)	ug/L (ppb)	ug/L (ppb)
Method Reporting Limit:	50	0.5	0.5	0.5	0.5
Sample Name	**Lab Code**				
B1	S950429-011	5,100	<2.5*	<2.5*	24	88
B2	S950429-012	650	<2.5*	<2.5*	7.1	21
B3	S950429-013	420	ND	1.2	1.2	4.4
B4	S950429-014	ND	ND	ND	ND	ND
B5	S950429-015	ND	ND	ND	ND	ND
B6	S950429-016	ND	ND	ND	ND	ND
B7	S950429-017	ND	ND	ND	ND	ND
B8	S950429-018	ND	ND	ND	ND	ND
Method Blank	S950414-WB1	ND	ND	ND	ND	ND
Method Blank	S940417-WB1	ND	ND	ND	ND	ND
Method Blank	S940418-WB1	ND	ND	ND	ND	ND

* Raised MRL due to high analyte concentration requiring sample dilution.

Approved By: _____ Date: 4/24/95

5ABTXGAS/061694

0429.XLS - Wgbtex 4/20/95

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Water

Service Request: L952001
Date Collected: 4/6/95
Date Received: 4/11/95
Date Extracted: 4/13-14/95

Hydrocarbon Scan
EPA Method 3510/California DHS LUFT Method

Analyte:	**Jet Fuel**	**Kerosene**	**Diesel**	**Motor Oil**
Units:	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)	µg/L (ppb)
Method Reporting Limit:	50	50	50	250

Sample Name	**Lab Code**	**Date Analyzed**				
B1	L952001-011**	4/17/95	150000	*<500	*<500	5300
B2	L952001-012***	4/17/95	270000	*<500	*<500	*<500
B3	L952001-013***	4/17/95	6300	*<500	*<500	*<500
B4	L952001-014****	4/18/95	ND	ND	ND	1300
B5	L952001-015****	4/18/95	ND	ND	ND	520
B6	L952001-016	4/18/95	ND	ND	ND	ND
B7	L952001-017	4/18/95	ND	ND	ND	ND
B8	L952001-018	4/18/95	ND	ND	ND	ND
Method Blank	L952001-MB	4/17/95	ND	ND	ND	ND
Method Blank	L952001-MB	4/17/95	ND	ND	ND	ND

NA Not Applicable
ND None Detected at or above the method reporting limit.
* MRL is elevated because of matrix interferences and because the sample required diluting.
** The chromatogram fingerprint resembles a mixture of Jet Fuel and Motor Oil.
*** The chromatogram fingerprint resembles Jet Fuel.
**** The chromatogram fingerprint resembles Motor Oil.

Approved By: Cydie Schwartz Date: 4/25/95

Abtxg_2/090794

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APPENDIX A

Laboratory QC Results

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: National Airmotive / 2077-001.01
Sample Matrix: Soil

Service Request: S950429
Date Collected: 4/6/95
Date Received: 4/7/95
Date Extracted: NA
Date Analyzed: 4/18-19/95

Surrogate Recovery Summary
BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method

Sample Name	Lab Code	Percent Recovery α,α,α-Trifluorotoluene
B1-6'	S950429-001	95
B2-3.5'	S950429-002	95
B2-5'	S950429-003	101
B3-3.5'	S950429-004	95
B4-3'	S950429-005	94
B4-5'	S950429-006	93
B5-3.5'	S950429-007	92
B6-3.5'	S950429-008	90
B7-3.5'	S950429-009	96
B8-3.5'	S950429-010	92
B7-3.5' (MS)	S950429-009MS	103
B7-3.5' (DMS)	S950429-009DMS	102
Method Blank	S950418-SB1	93

CAS Acceptance Limits: 59-115

Approved By: Steven Green Date: 4/24/95

SUR1/062994

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON	**Service Request:**	S950429
Project:	National Airmotive / 2077-001.01	**Date Collected:**	4/6/95
Sample Matrix:	Soil	**Date Received:**	4/7/95
		Date Extracted:	NA
		Date Analyzed:	4/18/95

Matrix Spike/Duplicate Matrix Spike Summary
TPH as Gasoline
EPA Methods 5030/California DHS LUFT Method
Units: mg/Kg (ppm)
As Received Basis

Sample Name: B7-3.5'
Lab Code: S950429-009

	Spike Level		Sample	Spike Result		Percent Recovery		CAS Acceptance	Relative Percent
Analyte	MS	DMS	**Result**	MS	DMS	MS	DMS	Limits	**Difference**
Gasoline	25	25	ND	22.1	22.1	88	88	62-125	<1

Approved By: Steven Green Date: 4/24/95

DMS1S/060194

0429.XLS - shgasms 4/20/95

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Soil

Service Request: L952001
Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: NA

Surrogate Recovery Summary
Hydrocarbon Scan
California DHS LUFT Method

Sample Name	Lab Code	Percent Recovery *p*-Terphenyl
B1-6'	L952001-001	103
B2-3.5'	L952001-002	*
B2-5'	L952001-003	101
B3-3.5'	L952001-004	79
B4-3'	L952001-005	**
B4-5'	L952001-006	81
B5-3.5'	L952001-007	**
B6-3.5'	L952001-008	82
B7-3.5'	L952001-009	86
B8-3.5'	L952001-010	**
Method Blank	L952001-MB	70
Matrix Spike	L951992-2MS	104
Duplicate Matrix Spike	L951992-2DMS	92

CAS Acceptance Limits: 50-140

NA	Not Applicable
*	Not Applicable because of the sample matrix. Analysis of this sample required a dilution such that the surrogate concentration was diluted below the method reporting limit.
**	Not Applicable because of the sample matrix. The gas chromatogram showed target components that interfered with determination of the surrogate.

Approved By: Eydie Schwartz Date: 4/25/95

SUR1/062994
L952001.XLS - 8015sras 4/25/95

6925 CANOGA AVENUE ■ CANOGA PARK, CA 91303 ■ 818 587-5550 ■ FAX 818 587-5555

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Soil

Service Request: L952001
Date Collected: NA
Date Received: NA
Date Extracted: 4/11/95
Date Analyzed: 4/12/95

Matrix Spike/Duplicate Matrix Spike Summary
Hydrocarbon Scan
California DHS LUFT Method
Units: mg/Kg (ppm)

Sample Name: BATCH QC
Lab Code: L951992-002

Analyte	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Limits	Relative Percent Difference
Diesel	200	200	ND	160	160	80	80	41-136	<1

NA Not Applicable
ND None Detected at or above the method reporting limit.

Approved By: Eydie Schwartz Date: 4/25/95

DMS1S/060194
L952001.XLS - 8015dmss 4/25/95

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: National Airmotive / 2077-001.01
Sample Matrix: Water

Service Request: S950429
Date Collected: 4/6/95
Date Received: 4/7/95
Date Extracted: NA
Date Analyzed: 4/14-18/95

Surrogate Recovery Summary
BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method

Sample Name	Lab Code	Percent Recovery α,α,α-Trifluorotoluene
B1	S950429-011	99
B2	S950429-012	99
B3	S950429-013	91
B4	S950429-014	94
B5	S950429-015	95
B6	S950429-016	92
B7	S950429-017	92
B8	S950429-018	93
B5 (MS)	S950429-015MS	93
B5 (DMS)	S950429-015DMS	91
Method Blank	S950414-WB1	91
Method Blank	S940417-WB1	91
Method Blank	S940418-WB1	91

CAS Acceptance Limits: 69-116

Approved By: _____ Date: 4/24/95

SUR1/062994

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON	**Service Request:**	S950429
Project:	National Airmotive / 2077-001.01	**Date Collected:**	4/6/95
Sample Matrix:	Water	**Date Received:**	4/7/95
		Date Extracted:	NA
		Date Analyzed:	4/17/95

Matrix Spike/Duplicate Matrix Spike Summary
BTE
EPA Methods 5030/8020
Units: ug/L (ppb)

Sample Name: B5
Lab Code: S950429-15

	Spike Level		Sample	Spike Result		Percent Recovery		CAS Acceptance	Relative Percent
Analyte	MS	DMS	**Result**	MS	DMS	MS	DMS	Limits	**Difference**
Benzene	25	25	ND	26.6	27.2	106	109	75-135	2
Toluene	25	25	ND	26.2	26.7	105	107	73-136	2
Ethylbenzene	25	25	ND	25.9	26.4	104	106	69-142	2

Approved By: _____ Date: 4/24/95

DMS1S/060194

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: National Airmotive/#2077-001.01
Sample Matrix: Water

Service Request: L952001
Date Collected: NA
Date Received: NA
Date Extracted: NA
Date Analyzed: NA

Surrogate Recovery Summary
Hydrocarbon Scan
EPA Method 3510/California DHS LUFT Method

Sample Name	Lab Code	Percent Recovery *p*-Terphenyl
B1	L952001-011	99
B2	L952001-012	91
B3	L952001-013	95
B4	L952001-014	78
B5	L952001-015	81
B6	L952001-016	92
B7	L952001-017	84
B8	L952001-018	81
Method Blank	L952001-MB	93
Method Blank	L952001-MB	94

CAS Acceptance Limits: 50-140

NA Not Applicable

Approved By: Eydie Schwartz Date: 5/2/95

SUR1/062994
L952001.XLS - 8015sras (2) 5/2/95

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON
Project: National Airmotive/#2077-001.01
LCS Matrix: Water

Service Request: L952001
Date Collected: NA
Date Received: NA
Date Extracted: 4/13/95
Date Analyzed: 4/17/95

*Laboratory Control Sample/Duplicate Laboratory Control Sample Summary
Hydrocarbon Scan
EPA Method 3510/California DHS LUFT Method
Units: µg/L (ppb)

Analyte	True Value LCS	True Value DLCS	Result LCS	Result DLCS	Percent Recovery LCS	Percent Recovery DLCS	CAS Acceptance Limits	Relative Percent Difference
Diesel	2000	2000	1470	1300	74	65	50-130	12

NA Not Applicable
* Sample quantity was insufficient to perform matrix spike and matrix spike duplicate. Three separate, replicate one liter samples are required to analyzed sample and spikes.

Approved By: Eydie Schwartz Date: 5/2/95

DLCS/060194
L952001.XLS - genlcs3 5/2/95

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APPENDIX B

Chain of Custody Information

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

Columbia Analytical Services, Inc.
1921 Ringwood Ave. • San Jose, CA 95131 • (408) 437-2400, FAX (408)437-9356

DATE 4/7/95 PAGE 1 OF 2

PROJECT NAME NATIONAL AIRMOTIVE #2077-001.01
PROJECT MNGR. MARK SMOLLEY
COMPANY/ADDRESS EMCON SAN JOSE
PHONE (408)453-7319
SAMPLERS SIGNATURE Lynn A Gallagher (X-2138)

GS/CAS # L952001

ANALYSIS REQUESTED

	SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	TPH as Gas/BTEX DHS LUFT / 8020	TPH as Diesel/HBHC DHS LUFT (SEE SELECT)	REMARKS
1	B1 - 6'	4/6/95	NA	L952001-1	SOIL	1	X	X	
2	B2 - 3.5'			2					
3	B2 - 5'			3					
4	B3 - 3.5'			4					
5	B4 - 3'			5					
6	B4 - 5'			6					
7	B5 - 3.5'			7					
8	B6 - 3.5'			8					
9	B7 - 3.5'			9					
10	B8 - 3.5'	↓	↓	10	↓	↓	↓	↓	

Base/Neu/Acid Organics GC/MS 625/8270
Volatile Organics GC/MS 624/8240
Halogenated or Aromatic Volatiles 601/8010 ☐ 602/8020 ☐
Oil and Grease Method
Metals (total or dissolved) List Below
pH, Cond, Cl, SO4, PO4, F, NO2, Alk, TDS, TSS (circle)
NH3-N, COD, Total-P, TKN, NO3 (circle)
Total Organic Carbon TOC 415/9060
Total Phenols

RELINQUISHED BY:
Signature: Lynn A Gallagher
Printed Name: LYNN A. GALLAGHER
Firm: EMCON
Date/Time: 4/7/95 10:43

RECEIVED BY:
Signature: Joanne Brown
Printed Name: Joanne Brown
Firm: CAS-SJ
Date/Time: 4-7-95 10:50

TURNAROUND REQUIREMENTS:
___ 24 hr ___ 48 hr ___ 5 day
X Standard (~ 10-15 working days)
___ Provide Verbal Preliminary Results
___ Provide FAX Preliminary Results
Requested Report Date: _____

REPORT REQUIREMENTS
___ I. Routine Report
X II. Report (includes DUP, MS, MSD, as required, may be charged as samples)
___ III. Data Validation Report (includes All Raw Data)
___ IV. CLP Deliverable Report

INVOICE INFORMATION:
P.O. #: _____
Bill to: _____

SAMPLE RECEIPT:
Shipping VIA: _____
Shipping #: _____
Condition: _____
Lab No.: 9950429

RELINQUISHED BY:
Signature: Joanne Brown
Printed Name: Joanne Brown
Firm: CAS-SJ
Date/Time: 4-10-95 1730
w/Custody Seal

RECEIVED BY:
Signature: M. Sigmar
Printed Name: GS/CAS
Firm: 4-11-95 0900
Date/Time: SEAL INTACT

SPECIAL INSTRUCTIONS/COMMENTS:

MODIFIED 8015 - TO INCLUDE JET FUEL, DIESEL, KEROSENE, MOTOR OIL RANGES.

NOTE: USE CAUTION WHEN HANDLING SAMPLES - SOME MAY CONTAIN GLASS OR METAL FRAGMENTS

Batch QC at prelym Gallagher

CAS-SJ: GBTEX
CAS-L: HBHC

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

400-05

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

Columbia Analytical Services, Inc.
1921 Ringwood Ave. • San Jose, CA 95131 • (408) 437-2400, FAX (408)437-9356

DATE 4/7/95 PAGE 2 OF 2

PROJECT NAME National Airmotive # 2077-001.01
PROJECT MNGR. Mark Shelley
COMPANY/ADDRESS EMCON San Jose
PHONE (408) 453-7319
SAMPLERS SIGNATURE Lynn A Gallagher (X-2136)

GE/CAS # L952001

ANALYSIS REQUESTED

	SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX	NUMBER OF CONTAINERS	TPH as Gas/BTEX DHS LUFT/8020	TPH as Diesel/BHC DHS LUFT SEE BELOW	REMARKS
11	B1	4/6/95	09:51	L952001-11	WATER	4	X	X	
12	B2		11:05	12					
13	B3		11:50	13					
14	B4		12:40	14					
15	B5		13:45	15					
16	B6		15:40	16					
17	B7		15:00	17					
18	B8	↓	16:12	18	↓	↓	↓	↓	

Base/Neu/Acid Organics GC/MS 625/8270
Volatile Organics GC/MS 624/8240
Halogenated or Aromatic Volatiles 601/8010 ☐ 602/8020 ☐
Oil and Grease Method
Metals (total or dissolved) List Below
pH, Cond, Cl, SO4, PO4, F; NO2, Alk, TDS, TSS (circle)
NH3-N, COD, Total-P, TKN; NO3 (circle)
Total Organic Carbon TOC 415/9060
Total Phenols

RELINQUISHED BY:	RECEIVED BY:
Signature: Lynn A Gallagher	Signature: Jeanne Brown
Printed Name: Lynn A. Gallagher	Printed Name: Jeanne Brown
Firm: EMCON	Firm: CAS-SJ
Date/Time: 4/7/95 10:43	Date/Time: 4-7-95 10.50

TURNAROUND REQUIREMENTS:
___ 24 hr ___ 48 hr ___ 5 day
X Standard (~ 10-15 working days)
___ Provide Verbal Preliminary Results
___ Provide FAX Preliminary Results
Requested Report Date ____

REPORT REQUIREMENTS
___ I. Routine Report
X II. Report (includes DUP, MS, MSD, as required, may be charged as samples)
___ III. Data Validation Report (includes All Raw Data)
___ IV. CLP Deliverable Report

INVOICE INFORMATION:
P.O. # ____
Bill to: ____

SAMPLE RECEIPT:
Shipping VIA: ____
Shipping #: ____
Condition: ____
Lab No: 5950129

RELINQUISHED BY:	RECEIVED BY:
Signature: Jeanne Brown	Signature:
Printed Name: Jeanne Brown	Printed Name: M. Sigman
Firm: CAS-SJ	Firm: GE/CAS
Date/Time: 4-10-95 1730	Date/Time: 4-11-95 0900
Custody Seal	Seal Intact

SPECIAL INSTRUCTIONS/COMMENTS:
MODIFIED 8015 - TO INCLUDE JET FUEL, DIESEL, KEROSENE AND MOTOR OIL
Batch QC ok per Lynn Gallagher.
CAS-SJ: GBTEX
CAS-L: HBHC

DISTRIBUTION: WHITE - return to originator; YELLOW - lab; PINK - retained by originator

400-05