AL-TR-1991-0145

AD-A248 703

ARMSTRONG LABORATORY

WASTEWATER CHARACTERIZATION SURVEY, DOBBINS AIR FORCE BASE, GEORGIA

Anita M. Acker, Second Lieutenant, USAF, BSC

OCCUPATIONAL AND ENVIRONMENTAL HEALTH DIRECTORATE
Brooks Air Force Base, TX 78235-5000

December 1991

Final Report for Period 9-21 June 1991

Approved for public release; distribution is unlimited.

AIR FORCE SYSTEMS COMMAND
BROOKS AIR FORCE BASE, TEXAS 78235-5000

NOTICES

When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely Government-related procurement, the United States Government incurs no responsibility or any obligation whatsoever. The fact that the Government may have formulated or in any way supplied the said drawings, specifications, or other data, is not to be regarded by implication, or otherwise in any manner construed, as licensing the holder or any other person or corporation; or as conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

The mention of trade names or commercial products in this publication is for illustration purposes and does not constitute endorsement or recommendation for use by the United States Air Force.

The Office of Public Affairs has reviewed this report, and it is releasable to the National Technical Information Service, where it will be available to the general public, including foreign nationals.

This report has been reviewed and is approved for publication.

Government agencies and their contractors registered with Defense Technical Information Center (DTIC) should direct requests for copies to: DTIC, Cameron Station, Alexandria VA 22304-6145.

Non-Government agencies may purchase copies of this report from: National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield VA 22161.

Anita M Acker

ANITA M. ACKER, 2Lt, USAF, BSC
Environmental Engineer Consultant

EDWARD F. MAHER, Lt Col, USAF, BSC
Chief, Bioenvironmental Engineering Division

REPORT DOCUMENTATION PAGE

Form Approved
OMB No 0704-0188

1. AGENCY USE ONLY (*Leave blank*)

2. REPORT DATE
December 1991

3. REPORT TYPE AND DATES COVERED
Final 9-21 June 1991

4. TITLE AND SUBTITLE
Wastewater Characterization Survey,
Dobbins Air Force Base, Georgia

5. FUNDING NUMBERS

6. AUTHOR(S)
Anita M. Acker

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Armstrong Laboratory
Occupational and Environmental Health Directorate
Brooks Air Force Base, Texas 78235-5000

8. PERFORMING ORGANIZATION REPORT NUMBER
AL-TR-1991-0145

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution is unlimited.

12b. DISTRIBUTION CODE

13. ABSTRACT (*Maximum 200 words*)

A wastewater characterization survey was conducted by members of the Armstrong Laboratory Occupational and Environmental Health Directorate Water Quality Function from 9-21 June 1991 at Dobbins AFB, GA. The purpose of this survey was to identify and characterize the wastewater, determine the appropriateness of present disposal methods, determine the need for routine sampling or monitoring, and recommend parameters for wastewater and storm water analysis. Results of the sampling showed the use of industrial chemicals is being well controlled and present disposal methods are appropriate. It is not necessary at this time for routine sampling or monitoring. If the Lockheed Plant experiences an upset in its treatment process, the Air Force Reserves and Air National Guard units can expect monitoring requirements to be imposed upon them under the Environmental Protection Agency Pretreatment Rule. The only need for any routine sampling would be as a result of an upset to the Lockheed Wastewater Treatment Plant.

14. SUBJECT TERMS
Wastewater characterization; Dobbins AFB

15. NUMBER OF PAGES
80

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	UL

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)

TABLE OF CONTENTS

ACKNOWLEDGMENTS

The author greatly appreciates the technical expertise and hard work provided by the other team members, Capt Richard P. McCoy, TSgt Mary K. Fields, and A1C Kaenue Byrd, without whose valuable assistance this survey could not have been accomplished.

We would also like to acknowledge the support given by Teresa Paulsen, Peggy DeBruyn, and TSgt Steve Watson of the Bioenvironmental Engineering Section and Hal Huddleston of the Civil Engineering Section. Thanks for your great support.

WASTEWATER CHARACTERIZATION SURVEY, DOBBINS AIR FORCE BASE, GEORGIA

INTRODUCTION

A wastewater characterization survey was conducted at Dobbins Air Force Base (AFB) from 9-21 June 1991 by personnel of the Water Quality Function of the Armstrong Laboratory (AL). The purpose of this survey was to identify and characterize the wastewater, determine the appropriateness of present disposal methods, determine the need for routine sampling or monitoring, and recommend parameters for wastewater and storm water analysis.

This survey was performed in response to a request from HQ AFRES/SGB to perform a wastewater characterization at Dobbins AFB, GA (Appendix A).

Armstrong Laboratory personnel performing the survey included: Capt Richard McCoy, 2Lt Anita Acker (Team Chief), TSgt Mary Fields (Team NCOIC), and A1C Keanue Byrd.

DISCUSSION

Background

Dobbins AFB is located 2 miles south of Marietta, Georgia, and 16 miles northwest of Atlanta, Georgia. The base is the home of the 14th Air Force Reserves (AFRES), 94th Tactical Airlift Wing (AFRES), 116th Tactical Fighter, Air National Guard (ANG), the 151st Military Intelligence Battalion, Army National Guard (ArNG), and the 145th and 412th Medical Detachments, United States Army Reserves (USAR). The Naval Air Station Atlanta and the Lockheed Aeronautical Systems Co/Air Force Plant 6 adjoin Dobbins AFB and jointly use the airfield facilities.

The base has approximately 4,500 personnel assigned: 1,250 active duty personnel, 2,000 reservists, and 1,250 civilian workers.

Wastewater treatment is accomplished with primary and secondary treatment. A primary clarifier collects solids which are pumped to an anaerobic digester. Secondary treatment is accomplished with 2 trickling filters operating in series. Prior to discharge, the effluent is chlorinated and an antifoam emulsion is added. The effluent is discharged into Nickajack and Rottenwood Creeks. The wastewater treatment plant is owned and operated by Lockheed-Georgia Company, a Division of the Lockheed Aircraft Corporation. The plant is equipped with a tertiary treatment facility in which industrial waste is pretreated. Since Dobbins AFB does not have the industrial lines to run to the pretreatment plant, only sanitary waste can be discharged from its shops and operations to the wastewater treatment plant (WWTP).

The Environmental Protection Agency (EPA) pretreatment standards (40 CFR 403.5) describe the prohibited discharges to Publicly Owned Treatment Works (POTW). These prohibited discharges include any pollutants which cause (a) fire or explosion hazard, (b) corrosive structural damage, (c) obstruction of flow, or (d) inhibition of the biological treatment process at the POTW. In addition to the general prohibitions, certain categorical users that may be found at Air Force installations include electroplating, metal finishing, photographic processing, and hospitals. Since there are no individual permits for these processes on the base, discharges from industrial facilities were compared to pretreatment standards in 40 CFR 403-471.

The Clean Water Act, Section 402p, requires EPA to establish storm water regulations under the National Pollutant Discharge Elimination System (NPDES) permit program. On 16 November 1990, EPA published final rules regulating certain industrial and municipal discharges of storm water. The related portion of these EPA rules requires industrial storm water dischargers to apply for a permit, either individually or as part of a group of similar industries, by May 1992. The categorical list of industries that must apply includes tractor trailor and truck maintenance shops, vehicle equipment operations, and airport facilities. Permits are required for areas where past industrial activities occurred and significant materials remain exposed to storm water. Analytical requirements include: (a) any pollutant limited in an effluent guideline, (b) any pollutant in a NPDES permit for process wastewater, (c) oil and grease, total suspended solids, chemical oxygen demand, pH, biochemical oxygen demand, total phosphorus, total Kjeldahl nitrogen, nitrate plus nitrite nitrogen, and (d) other pollutants the applicant is expected to know or has reason to believe are present, based on an evaluation of the expected use, production, or storage of the pollutant, or on any previous analyses for the pollutant.

Dobbins AFB is now one of the 9 Air Force Reserve (AFRES) bases that are included in a Stage I storm water survey conducted by (EA) Engineering, Science, and Technology. The Stage I survey is an on-site study to identify the number and type of industrial areas, to identify the number and locations of storm water conveyances, and to gather other information necessary to comply with monitoring requirements of NPDES storm water permits. The kick-off meeting for this survey was held 27 September 1991 at Youngstown, Ohio. According to the contract statement of work, the final storm water report is due 15 March 1992.

Permit Standards

The discharge from the WWTP is regulated by a NPDES permit (Appendix B). This permit lists the monitoring requirements Lockheed must perform to operate its WWTP. Currently the AFRES and ANG operations are not required to perform any monitoring of their discharges to the WWTP.

Sampling Strategy

A presurvey was conducted at Dobbins AFB from 9-10 April 1991. During this presurvey, the sample protocol, developed by 2Lt Acker, was reviewed by the base Bioenvironmental Engineer and the Environmental Coordinator. Nine sites had originally been chosen in the strategy. These locations were selected to characterize the general quality of the wastewater. The Bioenvironmental Engineer requested an additional 6 sites, and Civil Engineering requested 4 oil/water separators to be sampled. The final strategy is in Appendix C, along with a base map depicting the locations of each site.

Sampling Methods

Wastewater samples were typically collected over a 24-h period as a time-proportional composite. Samples collected for volatile organics, oils and greases, total petroleum hydrocarbons, and total toxic organics were collected as grab samples. The sample pH and temperature were recorded each day a sample was collected. All samples were collected and analyzed using EPA-approved procedures. Sample preservation was in accordance with the AFOEHL Sampling Guide, March 1989 (1) (Appendix D).

Composite samples were poured directly from the sampler's 11.35-liter (3-gal) glass collection jar into sample containers in the field. Samples were then preserved upon returning to the on-site laboratory set up in the Civil Engineering warehouse. Grab samples were collected by pumping a sample into a pitcher using the composite sampler's pump. The samples were then carefully poured into 40-ml vials to ensure no headspace or into 1-liter cubitainers. These samples were also preserved as needed upon return to the on-site laboratory.

Field Quality Assurance/Quality Control (QA/QC)

A field QA/QC program was used during this survey to verify the accuracy and reproducibility of laboratory results. Errors in the reporting of analytical data can result from many causes, including equipment malfunctions and operator error, both during the sampling and analysis. Sample contamination is a common error and may result from residue in sampling containers, preservation, handling, storage, or transport to the laboratory.

Equipment field blank samples are generally aliquots of distilled water that are as free of contaminants as possible and are transferred to a sample container at the sampling site and preserved with the appropriate reagents. The purpose of these blanks is to identify potential contamination contributed from the equipment. The possible contaminants that could be attributed to the equipment are oils and greases and total petroleum hydrocarbon. All other contaminants found in the equipment blanks can most likely be related to field technique or spill-over of samples from previous sampling periods. This affects the accuracy of the data reported.

Reagent blanks are aliquots of distilled water that are as free of contaminants as possible and contain all the reagents in the same volume as used in the processing of the samples. The reagent blank is used to correct for possible contamination resulting from the preparation or processing of the sample. All contaminants analyzed from the reagent blanks should be nondetected.

Spike samples are also aliquots of distilled water in which a known quantity of contaminant is added. Spikes serve as a check on the confidence of the data, through the recovery of known additions. Spike samples were prepared on-site using stock reagents prepared by Armstrong Laboratory Analytical Services. The concentration of the spike samples was 10 mg/l for cyanide, 3 mg/l for surfactants, 10 mg/l for chromium, and 10 mg/l for each metal.

Duplicate samples are 2 discrete samples taken from the same source, analyzed independently. These samples serve as a measure of precision, which is the agreement between a set of replicate measurements without assumption or knowledge of the true value. Duplicate samples were collected at 6 sites (#6, 8, 9, 13, 14, 15). All were collected on the third day of sampling. Duplicate samples can differ greatly due to the amount of solids in the collection jar not being dispersed evenly in each sample container, sample preservation techniques, or sample analysis techniques. All volatile organic samples were also collected in duplicate as part of our Analytical Services internal QA/QC program.

Internal QA/QC

The Armstrong Laboratory Analytical Division Quality Assurance Plan establishes the guidelines and rules necessary to meet the analytical laboratory requirements of 43 states, U.S. Environmental Protection Agency, and private accrediting agencies (Appendix E). Specific activities include inserting a minimum of one blind sample control for each parameter analyzed on a monthly basis, periodic auditing of the laboratory quality assurance items from each branch, all instruments are calibrated each day of use, at least 1 National Institute Standards and Technology/Standard Reference Materials (NIST/SRM) traceable standard and control sample will be included with each analytical run, corrective action is documented every time a quality assurance parameter is not met, all sample data will have established detection limits, the laboratory participates in numerous proficiency surveys and interlaboratory quality evaluation programs, and all quality control samples are plotted and tracked by the individual work sections.

RESULTS

QA/QC Results

All field QA/QC results are in Appendix F. The results of the reagent blanks indicate that sample containers and reagents were not a source of contamination.

Volatile Organic Chemical Results

Results of the sampling performed in the sanitary sewer system are in Appendix G. These results are discussed by sampling group. The Volatile Organic Chemical (VOC) screen measures the concentration of a number of volatile compounds. Tetrachloroethylene was found on 1 day at site 9, the Air Force Reserve Civil Engineering and Welding Shop, at a concentration around 10 μg/l. Trichloroethylene (TCE) was also found on 1 day at site 14, the Dobbins influent to the WWTP, at a concentration around 40 μg/l. 1,1,1-Trichloroethane was found at 10 sites in concentrations ranging from 1-80 μg/l. These intermittent solvent levels are indications that either small amounts of these chemicals are poured down the drains or entering the sewage system via rinse water.

1,1-Dichloroethane was also found at site 9 on 1 day at a concentration around 10 μg/l. This compound is commonly associated with industrial chemical usage. Since this lone result is near the detection limit, it is most likely an artifact of an analytical procedure.

Methylene chloride is a degreasing and cleaning fluid which is found in paints. This chemical was found in detectable concentrations at 4 sites. Concentrations ranged from a high around 180 μg/l to a low around 1 μg/l. The high concentration was found at the Dobbins influent to the WWTP. Methylene chloride was found consistently for 5 days at the Dobbins influent to the WWTP.

Chloroform was detected at 13 sites in concentrations ranging from around 1-100 μg/l. Bromodichloromethane was found at site 15, the WWTP effluent, on 2 days with a high concentration around 70 μg/l. These compounds are routinely found in wastewater analyses and are usually the products of reactions of organic compounds with residual disinfectants. 1,4-Dichlorobenzene was found at 13 sites in concentrations ranging from around 10-1000 μg/l. This compound is a solvent found in paints and cleaning and polishing agents. The high concentration around 1,000 μg/l was found on the first day of sampling at site 7, the lift station, where sewage comes from the chow hall, billeting, and VOQ. This level suggests that many household cleaners are used in this area. On the other 2 days of sampling at this site, concentrations of 1,4-dichlorobenzene were at much lower levels, suggesting that less household cleaners were used or that sampling contamination may have occurred from residue in sampling containers, preservation, handling, storage, or transport to the lab.

Toluene was detected at 7 sites in concentrations ranging from around 4-200 μg/l. The high concentration was found at site 10, the AFRES Motor Pool, on the first day of sampling. All other sampling at this site showed levels below the detection level. Ethyl benzene and benzene were only detected at site 9, the Air Force Reserve Civil Engineering and Welding Shop, at concentrations around 20 μg/l and 60 μg/l, respectively. Overall results indicate that the use of aromatic organic chemicals is being well controlled in the shops.

Metal Results

The NPDES Permit establishes daily average concentration limits for the effluent of the Lockheed Treatment Plant. There are no permit requirements that establish daily average concentration limits in the sanitary sewer system. Due to the absence of permit limits, discharges of industrial facilities were compared to pretreatment standards in 40 CFR 403-471 and to an 1988 AFOEHL Report, Design Criteria for Process Wastewater Pretreatment Facilities (2). Appendix H lists the typical discharge limitations for various waste sources. Also, the NPDES permit for the Lockheed Treatment Plant does not have standards for all the analytes that were tested. These additional analytes were compared to the U.S. EPA Handbook: Quality Criteria for Water 1986 (3). These standards can be found in Appendix I. All metal results are for the total dissolved and suspended form of the sampled metal.

Copper was found at site 10, the AFRES Motor Pool, at a concentration around 50 mg/l. This finding was a 1 day occurrence. All other metal results met pretreatment standards for industrial facilities and standards for water quality. There were, however, high concentrations of aluminum and iron found at 14 sites, probably as the result of these metals leaching from the soil. According to Kabata-Pendias (4), neutral soils contain aluminum in the order of about 400 μg/l, while in soils at pH 4.4, aluminum concentrations can be as high as 5,700 μg/l. The concentration of iron in soil solutions within common soil pH levels ranges from 30-550 μg/l, whereas in very acid soil it can exceed 2,000 μg/l. According to Fairbridge and Finkyl (5), acid soils are most extensive in the eastern half of the United States (U.S.). The distribution of acid soils in the U.S. is illustrated by the Ultisols, Oxisols, and Spodosols. Dobbins AFB is in the Ultisols region.

Other Results

Several other analyses were conducted to characterize the quality of the wastewater. These results are discussed next.

Ammonia, Chromium VI, Cyanide, and Silver analyses were conducted at 4 sites (#2, 3, 14, and 15) to determine if photographic processes, battery/electric processes, and civil engineering shop processes were discharging significant amounts of these pollutants. Cyanide and silver analyses were conducted at site 4 and chromium and silver analyses were only conducted at sites #5 and 9. The results shown in Appendix G show that none of these processes were discharging significant amounts of these pollutants. These processes all met the pretreatment standards set by 40 CFR.

Phosphorus concentrations were analyzed at 7 sites (#5, 6, 7, 12, 13, 14, and 15) and surfactant concentrations were analyzed at 4 sites (#6, 10, 14, and 15) to determine if shops were using soaps with high concentrations of these contaminants. All sites sampled showed low levels of phosphorus and surfactants indicating proper usage.

Phenol concentrations were analyzed at 3 sites (#6, 14, and 15) and found in low concentrations or below the detection limit, indicating proper disposal techniques are being used.

Glycol was found at site 10, the AFRES Motor Pool, at a concentration around 40 mg/l. The detection limit for this contaminant is 50 µg/l. This analyte was tested due to the sewage from this site being blue/green in appearance during 1 day of sampling. This test indicated antifreeze was poured or spilled down the drain. However, antifreeze is not considered a hazardous waste and disposing of it to a POTW is a proper disposal technique, due to its biodegradability. There are no pretreatment standards for glycol. The Lockheed WWTP does not have any limitations for this contaminant, but pouring it down the drain may not be considered good disposal practice.

Total Petroleum Hydrocarbon (TPH) and Oils and Greases analyses were performed to estimate the amount of hydrocarbons in the wastewater that originate from petroleum sources. Sites 1, 2, 9, and 12 had the highest concentrations of oils and greases. The concentrations of these analytes measured at site 15, the effluent of the wastewater treatment plant, indicate that the treatment plant is adequately controlling oils and grease levels.

A Total Toxic Organics (TTO) test was performed 1 day at site 15, the effluent of the treatment plant. This test was run to determine if any toxic substances listed in 40 CFR 433.11 were being discharged from the plant. The majority of the analytes tested were found below their detection limits indicating that no toxics are being discharged. Included in the TTO screen is the volatile organic chemical screen. Results less than 10 µg/l are not reported in this screen. Chloroform was detected on 2 days out of 6 days of sampling at levels higher than 10 µg/l. The high level was around 100 µg/l, and the low level was around 20 μg/l. Due to this detection only being a 2-day occurrence and the levels being relatively close to the nonreporting concentration, it is most likely an artifact of an analytical procedure. Also, 1,4-dichlorobenzene was found on 1 day around 10 μg/l, and 1,1,1-trichloroethane was found on 1 day around 10 μg/l. These levels are so close to the nonreporting concentration that they are just worth noting and no action needs to be taken.

PH Results

The pH of every sample was recorded. All ranges were between six and eight, which is normal for sanitary sewage.

Oil/Water Separator Results

Four oil/water separators were sampled to determine their operational effectiveness. The results are shown in Appendix J. The oil/water separator behind Building 819 was the only one with high effluent levels of oils and greases. This result indicates that this separator has reached its holding capacity and needs to be pumped out in order to perform properly.

CONCLUSIONS

The base's effort to ensure only sanitary waste is discharged into the sewer system is commended. Discharges from the shops on base that perform industrial processes met all the applicable pretreatment standards. None of the shops were discharging significant amounts of industrial pollutants, indicating that the use of industrial chemicals is being well controlled and that present disposal methods are appropriate. The sampling data is considered typical wastewater stream discharge from an Air Force base, according to a USAFOEHL Report (3).

The field QA/QC from this survey indicate the data for duplicates and spikes are not very precise or accurate. The duplicate samples for the most part showed no bias. Manganese, aluminum, and zinc were the only metals in which there was a significant difference in the duplicates taken. Even though the reagent blanks were negative, the low-level values noted in the equipment field blanks indicate a probability of contamination of the blank water source. The very low recovery for all the analytes in the spike samples indicates a dilution error.

The internal QA/QC was accurate and precise. The laboratory performed the analyses in accordance with U.S. EPA and the state of Georgia approved methodology.

Considering both the field and the internal QA/QC, the data results should not be used for regulatory purposes, but they still are valuable indicators of potential problems. Compared to other Air Force bases, the sampling data is typical, according to a USAFOEHL Report (3) which analyzed waste stream data from various Air Force bases.

The oil/water separators were, for the most part, in good operating condition. The inspection records of the separators in the AFRES area were up-to-date and Civil Engineering is playing an active role in the maintenance schedule for the separators. However, in the ANG area behind building 988, the separator needs to be pumped out before it can be sampled. The separator was full of a red, oily fluid suggesting that hydraulic fluid is being poured directly in this separator as a disposal procedure.

Based on the sampling we performed, the treatment plant appears to be properly removing pollutants from the base wastewater.

Due to the absence of industrial waste lines, the base drums all the industrial waste. From June 1989 to April 1991, it cost the base approximately $6,000 to dispose of the industrial waste. This price does not include the cost of each drum and the manpower it takes to label the drums and maintain them on site. To connect the base with the industrial wastewater treatment facilities, an 8,000-ft, 6-in. polyvinyl chloride (PVC) pipe is required. During a personal conversation with Mr Fischer, Civil Engineering Planning Department at Brooks AFB, he said it would cost $30,000 to install this pipe (ref. Means Mechanic Contracting Book 1990) (6). Therefore, if the base were to connect their industrial waste operation to the Lockheed Pretreatment facility, cost savings would not be realized for 5 years.

RECOMMENDATIONS

The base should continue their efforts to maintain proper waste disposal. As for the need for routine sampling or monitoring at the base effluent, we do not feel it is necessary at this time. However, if the Lockheed Plant experiences an upset in its treatment process, the AFRES and ANG units can expect monitoring requirements to be imposed upon them under the EPA Pretreatment Rule. The only need for any routine sampling would be as a result of an upset to the Lockheed WWTP. The need for quantitative data on wastewater composition would then be required to determine the cause and to control future upsets. If routine sampling is desired, we would suggest it be done quarterly at the Dobbins influent to the treatment plant. The parameters that should be sampled include volatile halocarbons, volatile aromatics, metals, oil and greases, and total petroleum hydrocarbons.

In the last 22 months, the base spent $6,000 on disposal of waste. At this current spending rate, it would take approximately 5 years for the base to pay off its expenditure of adding an industrial line. With the existing waste stream, we do not recommend adding an industrial line at this time.

REFERENCES

1. AFOEHL Sampling Guide, March 1989.

2. Binovi, R. and Riojas, A., Design Criteria for Process Wastewater Pretreatment Facilities, USAFOEHL-TR-88-069EQ0111EIB, May 1988.

3. United States Environmental Protection Agency Handbook: Quality Criteria for Water, EPA/440/5-86-001, U.S. Environmental Protection Agency, Washington, D.C., 1986.

4. Kabata-Pendias, A. and Pendias, H., Trace Elements in Soils and Plants, Baco Raton, Florida, CRC Press, Inc., 1984.

5. Fairbridge, R. and Finkyl, C., Jr., The Encyclopedia of Soil and Science Part 1, Volume XVII, Stroudsburg, Pennsylvania, Dowden, Hutchinson & Ross, Inc., 1979.

6. R.S. Means Company, Inc., Means Mechanic Contracting Book 1990, Kingston, Maine, Construction Consultant, Inc., 1990.

APPENDIX A

Request Letter

EQ - 2
EQW

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 94TH COMBAT SUPPORT GROUP AFRES
DOBBINS AIR FORCE BASE GEORGIA 30069-5000

REPLY TO
ATTN OF SGPB

24 Jul 90

SUBJECT Sanitary and Industrial Waste Survey

TO HQ-AFRES/SGB Fwd
AFOEHL/CC
IN TURN

1. Request subject survey from USAF Occupational and Environmental Health Laboratory, Hazardous Waste/Water Quality Function. Specifically request assistance in conducting a sanitary and industrial waste water survey to determine the following:

a. Identity and characteristic of waste water,

b. Appropriateness of present disposal methods,

c. The need for routine sampling or monitoring, and

d. Recommended parameters for waste water and storm water analysis.

2. Contact me at 925-5781 (AV) for any questions or regarding scheduling.

TERESA M PAULSEN
Bioenvironmental Engineer

cc: 14 AF/SGPB
94 CSG/CC

NOTE:
This Headquarters contacted HQ AFSC/SGPB, Lt Col Joseph Martin, and was instructed that coordination was not required unless it was an emergency request. tmp

APPENDIX B

NPDES Permit

PERMIT NO. GA 0001198

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Georgia Water Quality Control Act (Georgia Laws 1964, p. 416, as amended), hereinafter called the "State Act," the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq.), hereinafter called the "Federal Act," and the Rules and Regulations promulgated pursuant to each of these Acts,

DEPARTMENT OF THE AIR FORCE
Air Force Plant No. 6

is authorized to discharge from a facility located at Lockheed Aeronautical Systems Co.
Air Force Plant No. 6
Dobbins Air Force Base
Marietta, Cobb County, Georgia

to receiving waters

Nickajack Creek, Rottenwood Creek and Poorhouse Creek

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, and III hereof.

This permit shall become effective on June 30, 1988.

This permit and the authorization to discharge shall expire at midnight, June 15, 1993.

Signed this 30th day of June, 1988.

STATE OF GEORGIA 1776

Director,
Environmental Protection Division

EPD 2.21-1

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning effective date and lasting through June 15, 1993, the permittee is authorized to discharge from outfall(s) serial number(s) 001 - Tertiary Treatment Plant Effluent.

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations				Monitoring Requirements		
	kg/day (lbs/day)		Other Units(Specify) (mg/l)				
	Daily Avg.	Daily Max.	Daily Avg.	Daily Max.	Measurement Frequency	Sample Type	Sample Location
Flow-m^{3}Day (MGD)	26,495 (7.0)	-	-	-	Continuous	N/A	Effluent
BOD_5	-	265 (584)	-	10	3/Week	Composite	Effluent
Suspended Solids	-	199 (438)	-	10	3/Week	Composite	Effluent
Fecal Coliform, No/100 ml	-	-	200	400	3/Week	Grab	Effluent
Chemical Oxygen Demand	-	497.5 (1095)	-	25	3/Week	Composite	Effluent
Cyanide	-	0.13 (0.29)	-	0.005	1/Week	Grab	Effluent
Fluoride	-	53 (117)	-	2.0	2/Month	Composite	Effluent
Aluminum	-	8 (17.5)	-	0.4	2/Week	Composite	Effluent
Cadmium	-	0.4 (.876)	-	0.02	2/Week	Composite	Effluent
Chromium, Total	-	2.7 (5.8)	-	0.10	2/Week	Composite	Effluent
Copper	-	5.3 (11.7)	-	0.20	2/Week	Composite	Effluent
Lead	-	1.3 (2.9)	-	0.05	2/Week	Composite	Effluent
Mercury	-	0.005 (0.01)	-	0.002	1/Week	Composite	Effluent
Nickel	-	0.3 (0.6)	-	0.01	2/Week	Composite	Effluent
Silver	-	1.3 (2.9)	-	0.05	2/Week	Composite	Effluent
Zinc	-	2.92 (6.42)	-	0.11	2/Week	Composite	Effluent
Oil & Grease	-	265 (584)	-	10	1/Week	Grab	Effluent

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

During the period beginning effective date and lasting through June 15, 1993, the permittee is authorized to discharge from outfall(s) serial number(s) 001 - (continued)

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations kg/day (lbs/day)		Other Units(Specify) (mg/l)		Monitoring Requirements		
	Daily Avg.	Daily Max.	Daily Avg.	Daily Max.	Measurement Frequency	Sample Type	Sample Location
Orthophosphates	-	53 (117)	-	2.0	2/Week	Composite	Effluent
Phenol	-	0.13 (0.29)	-	0.005	2/Month	Grab	Effluent
Surfactants	-	9.95 (21.9)	-	0.5	1/Week	Composite	Effluent
Dissolved Oxygen	-	-	3.0	-	Daily	Grab	Effluent
Total Toxic Organics(1)	-	-	-	1.0	1/Year	Composite	Effluent

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored 3/week by grab sample.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

(1) Total Toxic Organics (TTO) must be monitored or certified in accordance with 40 CFR Part 433, dated July 15, 1983. See Part III, Section B., Special Requirements, on Page 13 of this permit.

STATE OF GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

During the period beginning effective date and lasting through June 15, 1993, the permittee is authorized to discharge from outfall(s) serial number(s)-Sample 1 thru 5 (Surface Streams).

Such discharges shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Discharge Limitations kg/day(lbs/day)		Discharge Limitations Other Units(Specify)		Monitoring Requirements		
	Daily Avg.	Daily Max.	Daily Avg.	Daily Max.	Measurement Frequency	Sample Type	Sample Location
Flow-m^3Day (MGD)	-						
pH					Daily	Grab	*
TOC					Daily	Grab	*
Total Chromium					3/Week	Grab	*

There shall be no discharge of floating solids or visible foam in other than trace amounts.

* Sampling shall be at the points indicated on the attached map to this permit.

B. SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

   Limitations are effective immediately upon issuance of permit.

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

Note: EPD as used herein means the Division of Environmental Protection of the Department of Natural Resources.

C. MONITORING AND REPORTING

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. Reporting

Monitoring results obtained during the previous one month shall be summarized for each month and reported on an Operation Monitoring Report (Form WQ 1.45), postmarked no later than the 28th day of the month following the completed reporting period. The first report is due on July 28, 1988.
The EPD may require reporting of additional monitoring results by written notification. Signed copies of these, and all other reports required herein, shall be submitted to the following address:

Georgia Environmental Protection Division
Industrial Wastewater Program
205 Butler Street, S.E., Floyd Towers East
Suite 1070
Atlanta, Georgia 30334

3. Definitions

a. The "daily average" discharge means the total discharge by weight during a calendar month divided by the number of days in the month that the production or commercial facility was operating. Where less than daily sampling is required by this permit, the daily average discharge shall be determined by the summation of all the measured daily discharges by weight divided by the number of days sampled during the calendar month when the measurements were made.

b. The "daily maximum" discharge means the total discharge by weight during any calendar day.

c. The "daily average" concentration means the arithmetic average of all the daily determinations of concentration made during a calendar month. Daily determinations of concentration made using a composite sample shall be the concentration of the composite sample. When grab samples are used, the daily determination of concentration shall be the arithmetic average (weighted by flow value) of all the samples collected during that calendar day.

d. The "daily maximum" concentration means the daily determination of concentration for any calendar day.

e. "Weighted by flow value" means the summation of each sample concentration times its respective flow in convenient units divided by the sum of the respective flows.

f. For the purpose of this permit, a calendar day is defined as any consecutive 24-hour period.

4. Test Procedures

Test procedures for the analysis of pollutants shall conform to regulations published pursuant to Section 304(g) of the Federal Act.

5. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

a. The exact place, date, and time of sampling;

b. The dates the analyses were performed;

c. The person(s) who performed the analyses;

d. The analytical techniques or methods used; and

e. The results of all required analyses.

6. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Operation Monitoring Report Form (WQ 1.45). Such increased monitoring frequency shall also be indicated. The EPD may require more frequent monitoring or the monitoring of other pollutants not required in this permit by written notification.

7. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed and calibration and maintenance of instrumentation and recordings from continuous monitoring instrumentation shall be retained by the permittee for a minimum of three (3) years, or longer if requested by the State Environmental Protection Division.

A. MANAGEMENT REQUIREMENTS

1. Change in Discharge

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit. Any anticipated facility expansions, production increases, or process modifications which will result in new, different, or increased discharges or pollutants must be reported by submission of a new NPDES application or, if such changes will not violate the effluent limitations specified in this permit, by notice to the EPD of such changes. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.

2. Noncompliance Notification

If, for any reason, the permittee does not comply with or will be unable to comply with any daily maximum effluent limitation specified in this permit, the permittee shall provide the Water Protection Branch of EPD with the following information, in writing, within five (5) days of becoming aware of such condition:

a. A description of the discharge and cause of noncompliance; and

b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

3. Facilities Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit.

4. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact to navigable waters resulting from noncompliance with any effluent limitations specified in this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

5. Bypassing

Any diversion from or bypass of facilities covered by this permit is prohibited, except (i) where unavoidable to prevent loss of life or severe property damage, or (ii) where excessive storm drainage, runoff, or infiltration would damage any facilities necessary for compliance with the effluent limitations and prohibitions of this permit. The permittee shall operate the treatment works, including the treatment plant and total sewer system, to minimize discharge of the pollutants listed in Part I of this permit from combined sewer overflows or bypasses. The permittee shall monitor all overflows and bypasses in the sewer and treatment system. A record of each overflow and bypass shall be kept with information on the location, cause, duration, and peak flow rate. Upon written notification by EPD, the permittee may be required to submit a plan and schedule for reducing bypasses, overflows, and infiltration in the system.

6. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the State.

7. Power Failures

In order to maintain compliance with the effluent limitations and prohibitions of this permit, the permittee shall either:

a. In accordance with the Schedule of Compliance contained in Part I, provide an alternative power source sufficient to operate the wastewater control facilities;

or, if such alternative power source is not in existence, and no date for its implementation appears in Part I,

b. Halt, reduce or otherwise control production and/or all discharges from wastewater control facilities upon the reduction, loss, or failure of the primary source of power to said wastewater control facilities.

B. RESPONSIBILITIES

1. Right of Entry

The permittee shall allow the Director of EPD, the Regional Administrator of EPA, and/or their authorized representatives, agents, or employees, upon the presentation of credentials:

a. To enter upon the permittee's premises where an effluent source is located or in which any records are required to be kept under the terms and conditions of this permit; and

b. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any monitoring equipment or monitoring method required in this permit; and to sample any discharge of pollutants.

2. Transfer of Ownership or Control

In the event of any change in control or ownership of facilities from which the authorized discharges emanate, the permittee shall notify the succeeding owner or controller of the existence of this permit by letter, a copy of which shall be forwarded to the Water Protection Branch of EPD.

3. Availability of Reports

Except for data determined by the Director of EPD to be confidential under Section 16 of the State Act or the Regional Administrator of the U. S. Environmental Protection Agency under Section 308 of the Federal Act, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the Atlanta office of the EPD. Effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for in Section 22(b) of the State Act.

4. Permit Modification

After written notice and opportunity for a hearing, this permit may be modified, suspended, revoked or reissued in whole or in part during its term for cause including, but not limited to, the following:

a. Violation of any conditions of this permit;

b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;

c. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge; or

d. To comply with any applicable effluent limitation issued pursuant to the order the United States District Court for the District of Columbia issued on June 8, 1976, in <u>Natural Resources Defense Council, Inc. et.al.</u> v. <u>Russell E. Train</u>, 8 ERC 2120(D.D.C. 1976), if the effluent limitation so issued:

(1) is different in conditions or more stringent than any effluent limitation in the permit; or

(2) controls any pollutant not limited in the permit.

5. Toxic Pollutants

Notwithstanding Part II, B-4 above, if a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Federal Act for a toxic pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for this pollutant in this permit, this permit shall be revised or modified in accordance with the toxic effluent standard or prohibition. A draft permit will be provided for review and comments prior to issuance.

6. Civil and Criminal Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

7. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Federal Act.

8. Water Quality Standards

Nothing in this permit shall be construed to preclude the modification of any condition of this permit when it is determined that the effluent limitations specified herein fail to achieve the applicable State water quality standards.

9. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

10. Expiration of Permit

Permittee shall not discharge after the expiration date. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit such information, forms, and fees as are required by the agency authorized to issue permits no later than 180 days prior to the expiration date.

11. Contested Hearings

Any person who is aggrieved or adversely affected by an action of the Director of EPD shall petition the Director for a hearing within thirty (30) days of notice of such action.

12. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

13. Best Available Technology Economically Achievable

Notwithstanding Part II, B-4 above, if an applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 301(b)2 of the Federal Act for a pollutant which is present in the discharge and such standard or prohibition is more stringent than any limitation for such pollutant in this permit, this permit shall be revised or modified in accordance with such effluent standard or prohibition. A draft permit will be provided for review and comments prior to issuance.

14. The permittee will implement best management practices to control the discharge of hazardous and/or toxic materials from ancillary manufacturing activities. Such activities include, but are not limited to, materials storage areas; in-plant transfer, process and material handling areas; loading and unloading operations; plant site runoff; and sludge and waste disposal areas.

PART III

A. PREVIOUS PERMITS

1. All previous State water quality permits issued to this facility, whether for construction or operation, are hereby revoked by the issuance of this permit. This action is taken to assure compliance with the Georgia Water Quality Control Act, as amended, and the Federal Clean Water Act, as amended. Receipt of the permit constitutes notice of such action. The conditions, requirements, terms and provisions of this permit authorizing discharge under the National Pollutant Discharge Elimination System govern discharges from this facility.

ENVIRONMENTAL PROTECTION DIVISION

B. SPECIAL REQUIREMENTS

a. Total Toxic Organics (TTO): TTO includes all of the 111 chemical listed in 40 CFR 433.11(e) and which are reasonably expected to be present in the wastewater. Those substances with quantifiable values greater than 0.01 mg/l will be added together to determine the TTO concentration present in the discharge. In lieu of annual monitoring for TTO, the permittee may certify on a monthly basis that no dumping of concentrated toxic organics into the wastewaters has occurred since filing of the last discharge monitoring report and that the solvent management plan is being implemented. This statement shall be made in accordance with 40 CFR 433.12(a). The solvent management plan is to be part of the request for the certification alternative.

b. On June 1, 1984, Lockheed Aeronautical Systems Company submitted to the Georgia Environmental Protection Division a Solvent Management Plan and requested the certification alternative in lieu of annual monitoring for TTO. The Georgia Environmental Protection Division reviewed this plan and determined that it met the requirements of 40 CFR 433.12. By letter of June 21, 1984, the Georgia Environmental Protection Division approved Lockheed's request for TTO certification.

C. BIOMONITORING AND TOXICITY REDUCTION REQUIREMENTS

The permittee may not discharge toxic wastes in concentrations or combinations which are harmful to humans, fish or aquatic life. The permittee shall not discharge an effluent which will kill 10% or more of the exposed test organisms in 96 hours or less, when the test solution contains volumes of effluent and dilution water proportional to the plant design flow and the 7Q10 flow of the receiving stream.

1. If toxicity is suspected in the permittee's effluent, the Division may require the permittee to develop a screening program for whole effluent biomonitoring. The schedule will be as follows for this screening approach:

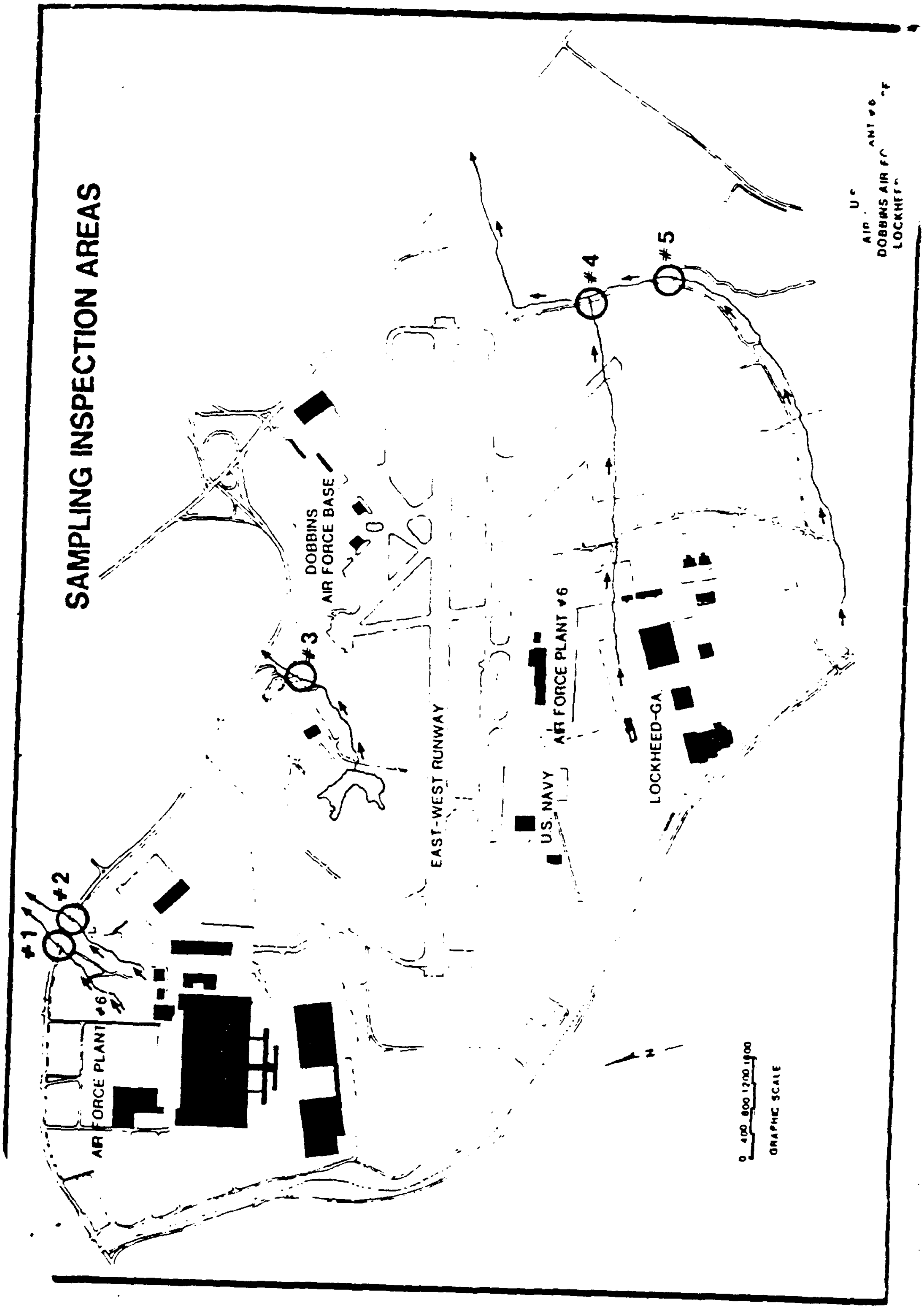
   a. Within 90 days of Division notification, a study plan detailing the test methodology and test organisms shall be submitted for conducting forty-eight hour acute static renewal tests of the final effluent. If residual chlorine is present in the final effluent from treatment and/or disinfection processes, a prechlorinated or dechlorinated sample will also be tested.

   b. Within 90 days of Division approval of the study plan, the permittee shall conduct and submit the results of the forty-eight hour static renewal tests.

2. If toxicity is found in the permittee's effluent based upon the results of the screering process, the permittee shall, within 90 days of written notification by the Division, submit a Toxicity Reduction Evaluation (TRE) plan to the Division. (Note: Toxicity is defined to be a situation in which the effluent quality is such that 10% or more of the test organisms are killed within 96 hours, in a test solution which contains volumes of effluent and dilution water proportional to the plant design flow and the 7Q10 flow of the receiving stream.) The TRE plan shall detail the action the permittee will implement to eliminate toxicity. Within 270 days of Division approval of the TRE plan, the permittee shall complete implementation of the TRE plan and conduct follow-up biomonitoring of the effluent in accordance with the approved TRE plan. If toxicity is still indicated, the permittee shall continue the TRE plan. The TRE plan shall not be complete until the permittee has eliminated the toxicity in its effluent. On a case specific basis, chronic toxicity testing procedures may be required to verify that the toxicity has been eliminated.

3. If toxicity is not indicated initially, or if there are substantial changes in the effluent composition, the permittee may be required to repeat the forty-eight hour static renewal test upon notification by the Division. On a case specific basis, chronic toxicity testing procedures may also be required. Biomonitoring of the effluent will be required at a minimum of once every three years unless otherwise noted.

Upon approval by the Division, all study plans and TRE plans will become part of the requirements of this permit.


SAMPLING INSPECTION AREAS
1
2
3
4
5
AIR FORCE PLANT #6
DOBBINS AIR FORCE BASE
EAST-WEST RUNWAY
AIR FORCE PLANT #6
U.S. NAVY
LOCKHEED-GA
N
0 400 800 1200 1600
GRAPHIC SCALE

APPENDIX C

Sampling Strategy for Dobbins AFB

Dobbins AFB Sampling Strategy

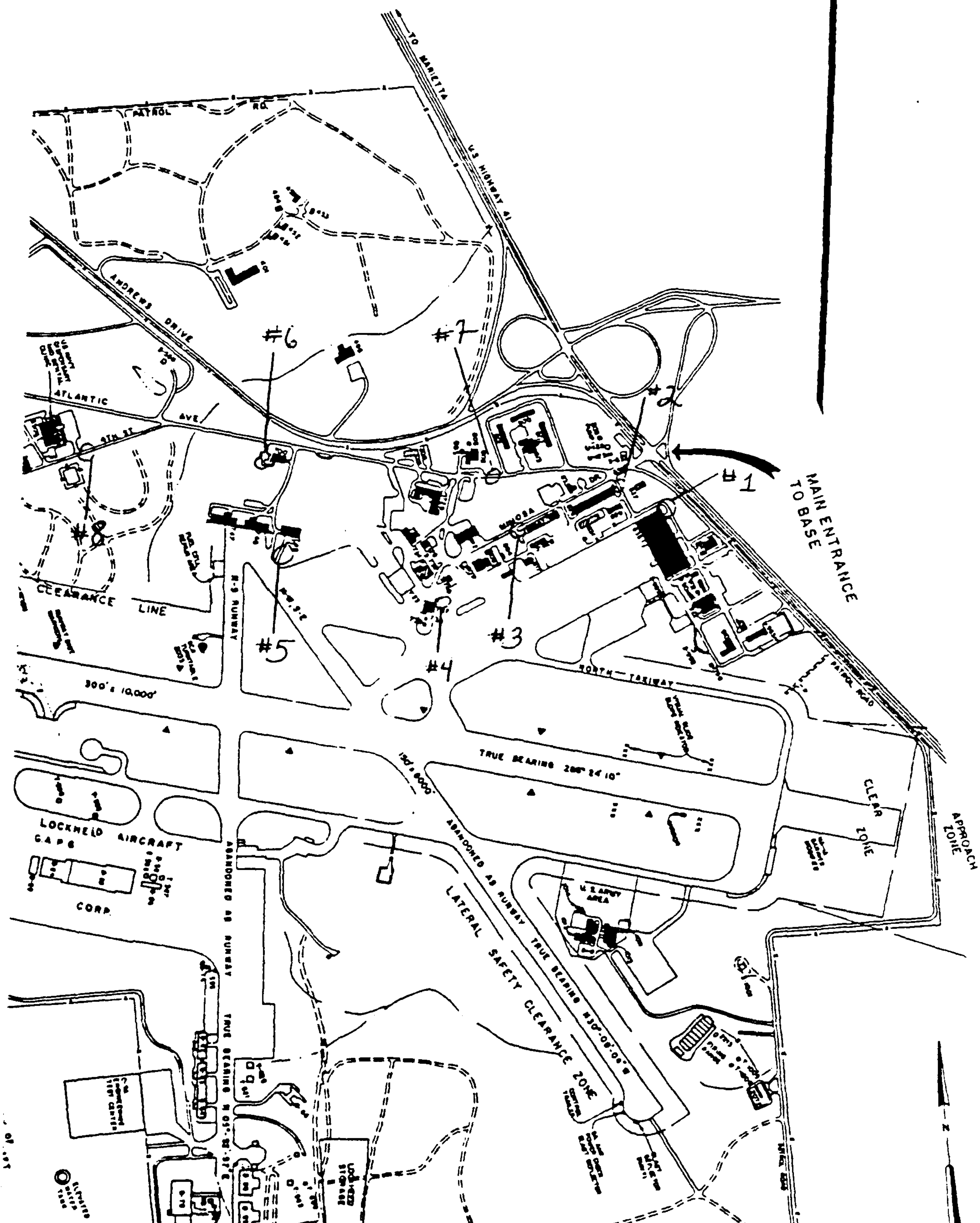
Site #	Manhole #	Site Description	Analyses
1	23	air guard & air reserve ~~Reproductions Lab~~ ~~(Army area)~~ photo labs and B-838 (aircraft maint.)	VOs, TPH, Metals, CN, NH_3, O&Gs
2	2/26	Photo Lab, Age, Battery/Elec Shop, Pneudraulics	Metals(esp. Ag, Cr(VI)) CN, VOs, TPH O&Gs, NH_3
3	28C	NDI	Metals, VOs, CN, NH_3
4	39C	Fuel Cell, TMO Transient Alert	Metals, VOs, TPH, O&Gs, Orthp
5	42	Fire Dept. Phase Dock	Metals, VOs, Phenols, Surfs, O&Gs, Orthp,TPH
6	~~56~~69 (lift station)	Admin, O'Club Chow Hall	Metals, VOs, Orthp
7	108	Dental Clinic	Metals, VOs
8	76	CE, Welding Shop	Metals, VOs, TPH, O&Gs
9	79	~~Army Area~~ motor pool ~~Fuel Farm, POL~~	Metals, VOs, TPH, O&Gs
*10	126	army guard complex ~~Photolab(Mobile)~~	Metals, VOs, CN, NH_3
11	46	Lockheed waste	Metals, VOs, Orthp, O&Gs
12	70	Lockheed waste	Metals, VOs, Orthp O&Gs
13	WWTP Inf.	Influent as it enters the plant	Metals, Phenols, Surfs, CN, O&Gs, VOs, AL, Orthp, NH_3
14	WWTP Eff.	Effluent as it leaves the plant	Metals, Phenols, TTO, Surfs, CN, O&Gs, VOs, AL, Orthp, NH_3
15	B-747	Oil/Water Separator C130 Nose Dock	O&Gs, TPH
16	B-819	Oil/Water Separator Engine Shop	O&Gs, TPH

17	~~B-965~~ B-1011	Oil/Water Separator Vehicle Maintenance	O&Gs, TPH
18	B-731	Oil/Water Separator Fuel System Maint	O&Gs, TPH
19	17	air guard vehicle maintenance, CE maintenance, weapons complex	

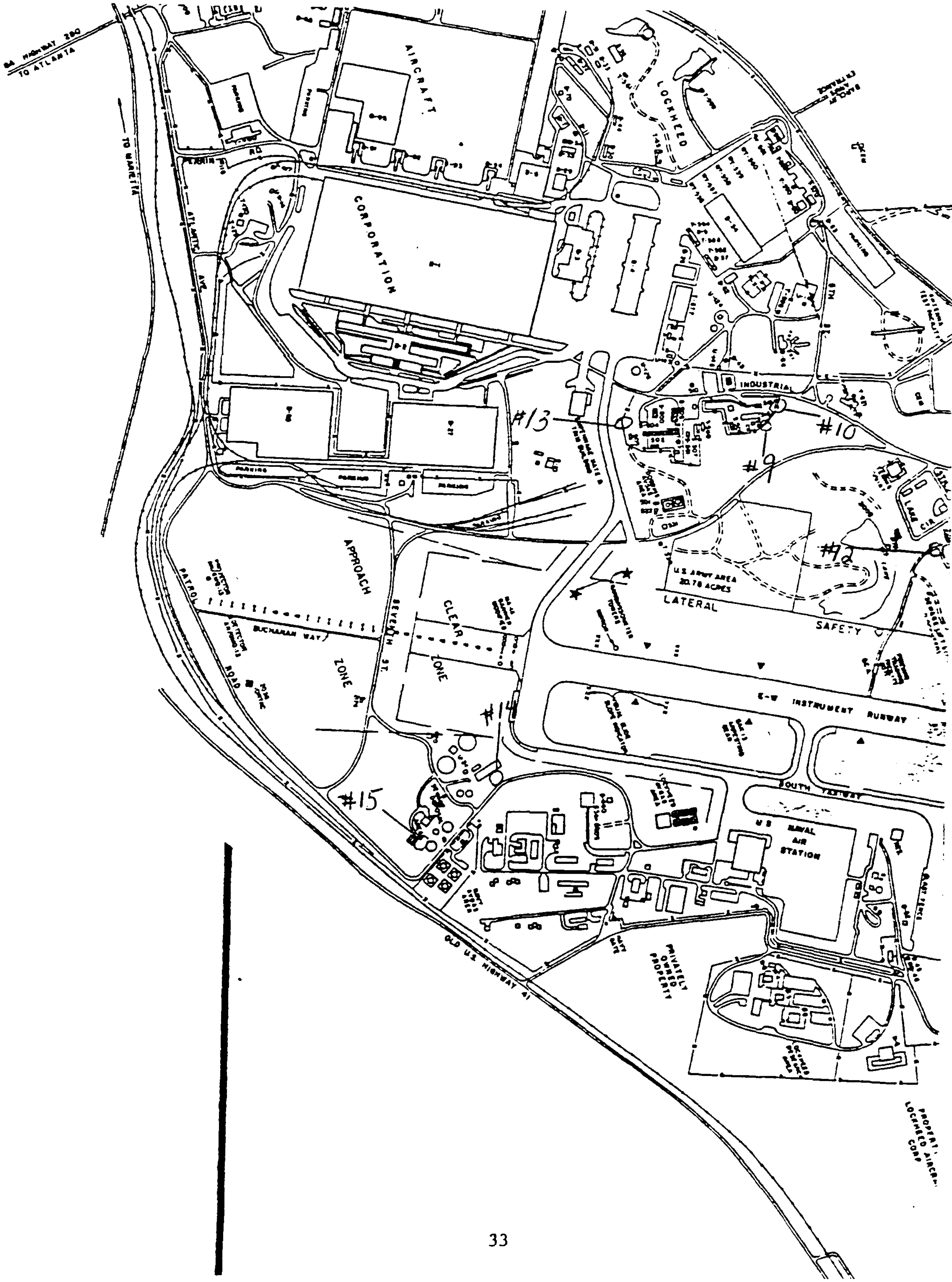
Key to Abbreviations

VOs: Volatile Organic Hydrocarbons and Volatile Organic Aromatics
TPH: Total Petroleum Hydrocarbons
CN: Cyanides (Total)
O&Gs: Oils and Greases
Surfs: Surfactants
NH_3: Ammonia
Ag: Silver
Cr(VI): Hexavalent Chromium
Al: Aluminum
TTO: Total Toxic Organics
Orthp: Orthophosphates

*Due to this site being mobile, sampling may or may not be conducted.



TO MARIETTA
US HIGHWAY 41
PATROL RD.
ANDREWS DRIVE
ATLANTIC AVE
4TH ST
MAIN ENTRANCE TO BASE
#1
#2
#3
#4
#5
#6
#7
#8
CLEARANCE LINE
N-S RUNWAY
300' x 10,000'
NORTH TAXIWAY
PATROL ROAD
TRUE BEARING
CLEAR ZONE
APPROACH ZONE
LOCKHEED AIRCRAFT CORP.
ABANDONED AS RUNWAY
LATERAL SAFETY CLEARANCE ZONE
U.S. ARMY AREA
LOCKHEED STORAGE



TO ATLANTA
TO MARIETTA
LOCKHEED
AIRCRAFT
CORPORATION
PARKING
INDUSTRIAL
#13
#10
#9
#12
U.S. ARMY AREA
20.78 ACRES
LATERAL
SAFETY
APPROACH
CLEAR
ZONE
ZONE
SEVENTH ST.
BUCHANAN WAY
PATROL
ROAD
E-W INSTRUMENT RUNWAY
SOUTH TAXIWAY
#14
#15
U S NAVAL
AIR
STATION
PRIVATELY
OWNED
PROPERTY
OLD U.S. HIGHWAY 41
PROPERTY
LOCKHEED AIRCRAFT
CORP

APPENDIX D

Sampling Methods

ANALYSES AND PRESERVATION METHOD

Analysis	Preservation	EPA Method	Holding days
Oil and Grease	H_2SO_4, 4°C	413.2	28
Hydrocarbons, Total	H_2SO_4, 4°C	418.1	28
Ammonia	H_2SO_4, 4°C	350.1	28
Nitrates, Nitrites	H_2SO_4, 4°C	353	28
Orthophosphate	H_2SO_4, 4°C	365	2
Phosphorus, Total	H_2SO_4, 4°C	365	2
Cyanide, Total	NaOH	335.3	14
Phenols	H_2SO_4, 4°C	420.2	28
Arsenic	HNO_3	206.2	28
Barium	HNO_3	200.7	28
Beryllium	HNO_3	210.2	28
Cadmium	HNO_3	213.2	28
Chromium	HNO_3	218.1	28
Copper	HNO_3	220.1	28
Iron	HNO_3	220.1	28
Lead	HNO_3	239.2	28
Magnesium	HNO_3	242.1	28
Manganese	HNO_3	243.1	28
Mercury	HNO_3	245.1	28
Nickel	HNO_3	249.1	28
Selenium	HNO_3	270.2	28
Silver	HNO_3	272.2	28
Zinc	HNO_3	289.1	28
Surfactants, MBAS	4°C	425.1	2
Volatile Organic Aromatics	4°C	602	14
Volatile Halocarbons	4°C	601	14
Total Toxic Organics (TTO)	4°C	.624	14

APPENDIX E

Laboratory Certification

Georgia Department of Natural Resources
205 Butler Street, S.E., Floyd Towers East, Atlanta, Georgia 3033-
J. Leonard Ledbetter Commissio-
Harold F. Reheis Assistant Dire-
Environmental Protection Divi-

November 23, 1987

FILE

Henry May, MSGT, USAF
NCOIC, Quality Assurance
Occupational & Environmental Health Laboratory
Brooks Air Force Base, Texas 78235

Dear Commander May

Reference your letter dated November 2, 1987 concerning certification status of the USAF Occupational and Environmental Health Laboratory at Brooks Air Force Base.

Please have the Environmental Protection Agency, Region VI, forward directly to this office copies of the August 6-7, 1987 on-site evaluation plus certification documents listing parameters and expiration dates.

Certification by reciprocity remains in effect per our conditions page of the certification document of December 1, 1983.

Very truly yours,

Loretta M. Lambert
Laboratory Certification Coordinator
Surface Water Program
(404) 656-4807

LML:hw

049h

APPENDIX F

Quality Assurance/Quality Control

SAMPLE SITE IDENTIFICATION: Equipment Field Blanks

DATE SAMPLED: 18 Jun 91

Equipment Field Blanks

METALS	UNITS	Site 9	Site 13
ARSENIC	ug/L	<10.0	<10.0
BARIUM	ug/L	<100	<100
BERYLLIUM	ug/L	<10.0	<10.0
CADMIUM	ug/L	<10.0	<10.0
CALCIUM	mg/L	0.1	0.1
CHROMIUM	ug/L	<50	<50
COPPER	ug/L	<20	<20
IRON	ug/L	<100	200
MANGANESE	ug/L	<50	<50
ZINC	ug/L	<50	<50
NICKEL	ug/L	<50	<50
ALUMINUM	ug/L	<100	300
COBALT	ug/L	<100	<100
TITANIUM	ug/L	<100	<100
VANADIUM	ug/L	<100	<100
MOLYBDENUM	ug/L	<100	<100
MERCURY	ug/L	<1.0	<1.0
MAGNESIUM	mg/L	0.1	0.4
Ortho phosphate	mg/L	<0.1	<0.1
Chromium VI	ug/L	<50	
Chromium	ug/l	<50	
Silver	ug/L	<10.0	
Lead	ug/l	<20	
Oils & Greases	mg/L	0.6	1.9
Total hydrocarbons	mg/L	<1.0	1.9
1,4-Dichlorobenzene	ug/L	61	<0.7
1,3-Dichlorobenzene	ug/L	<0.5	<0.5
Ethyl Benzene	ug/L	<0.3	<0.3
Chlorobenzene	ug/L	<0.6	<0.6
Toluene	ug/L	5.9	<0.3
Benzene	ug/L	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0
Chloroform	ug/L	<0.4	4.1
1,4-Dichlorobenzene	ug/L	26	<0.7
Bromodichlorobenzene	ug/L	<0.5	<0.5
Bromoform	ug/L	<0.6	<0.6
Carbon Tetrachloride	ug/L	<0.9	<0.9
Chlorobenzene	ug/L	<0.6	<0.6
Choloroethane	ug/L	<0.8	<0.8
Chloromethane	ug/L	<0.5	<0.5
Chlorodibromomethane	ug/L	<1.0	<1.0
1,2-Dichlorobenzene	ug/L	<0.5	<0.5
1,3-Dichlorobenzene	ug/L	<0.5	<0.5
Dichlorodiflouromethane	ug/L	<0.9	<0.9
1,1-Dichloroethane	ug/L	<0.4	<0.4
1,2-Dichloroethane	ug/L	<0.3	<0.3
1,1-Dichloroethene	ug/L	<0.3	<0.3
trans-1,2-Dichloroethene	ug/L	<0.5	<0.5
1,2-Dichloropropane	ug/L	<0.3	<0.3
cis-1,3-Dichloropropene	ug/L	<0.5	<0.5
trans-1,3-Dichloropropen	ug/L	<0.5	<0.5
1,1,2,2-Tetrachloroethan	ug/L	<0.4	<0.4
Tetrachloroethylene	ug/L	<0.5	<0.5
1,1,1-Trichloroethane	ug/L	6.3	<0.6
1,1,2-Trichloroethane	ug/L	<0.5	<0.5
Trichloroethylene	ug/L	<0.5	<0.5
Trichlorofluoromethane	ug/L	<0.5	<0.5
Vinyl chloride	ug/L	<0.4	<0.4
Bromomethane	ug/L	<0.9	<0.9
2-Chloroethylvinyl ether	ug/L	<0.9	<0.9
	ug/L	<0.9	<0.9

SAMPLE SITE IDENTIFICATION: Reagent Blanks

DATE SAMPLED: 19 Jun 91

Reagent Blanks

METALS	UNITS	
ARSENIC	ug/L	<10.0
BARIUM	ug/L	<100
BERYLLIUM	ug/L	<10.0
CADMIUM	ug/L	<10.0
CALCIUM	mg/L	<0.1
CHROMIUM	ug/L	<50
COPPER	ug/L	<20
IRON	ug/L	<100
MANGANESE	ug/L	<50
ZINC	ug/L	<50
NICKEL	ug/L	<50
ALUMINUM	ug/L	<100
COBALT	ug/L	<100
TITANIUM	ug/L	<100
VANADIUM	ug/L	<100
MOLYBDENUM	ug/L	<100
MERCURY	ug/L	<1.0
MAGNESIUM	mg/L	<10.0
Ammonia	mg/l	<0.2
Cyanide	mg/l	<0.005

SAMPLE SITE IDENTIFICATION: Spikes

DATE SAMPLED: 19 Jun 91

Spikes

METALS	Spike Conc (mg/l)	UNITS	Reported Day 1	Reported Day 2	Range Reported %
ARSENIC	10	ug/L	55	65	1
BARIUM	10	ug/L	590	470	5-6
BERYLLIUM	10	ug/L	<10.0	<10.0	0
CADMIUM	10	ug/L	<10.0	<10.0	0
CALCIUM	10	mg/L	0.4	0.1	1-4
CHROMIUM	10	ug/L	150	70	1-2
COPPER	10	ug/L	<20	<20	0
IRON	10	ug/L	1100	<100	0-11
MANGANESE	10	ug/L	<50	<50	0
ZINC	10	ug/L	<50	<50	0
NICKEL	10	ug/L	<50	<50	0
ALUMINUM	10	ug/L	1300	<100	0-13
COBALT	10	ug/L	<100	<100	0
TITANIUM	10	ug/L	100	<100	0
VANADIUM	10	ug/L	<100	<100	0
MOLYBDENUM	10	ug/L	<100	<100	0
MERCURY	10	ug/L	5.3	5.7	0
MAGNESIUM	10	mg/L	2.0	<0.1	0-20
Surfactants-MBAS	3	mg/l	9.8	9.0	300-330
Chromium VI	10	ug/l	480	470	5
Cyanide	10	mg/l	1.35	1.38	14

SAMPLE SITE IDENTIFICATION: Average Delta for Duplicates

Average Delta for Duplicates

METALS	UNITS	Average Delta (+ -)
ARSENIC	ug/L	0
BARIUM	ug/L	77
BERYLLIUM	ug/L	0
CADMIUM	ug/L	5
CALCIUM	mg/L	7
CHROMIUM	ug/L	0
COPPER	ug/L	70
IRON	ug/L	2000
MANGANESE	ug/L	100
ZINC	ug/L	544
NICKEL	ug/L	7
ALUMINUM	ug/L	1830
COBALT	ug/L	0
TITANIUM	ug/L	85
VANADIUM	ug/L	0
MOLYBDENUM	ug/L	0
MERCURY	ug/L	0
MAGNESIUM	mg/L	1
Ortho phosphate	mg/L	2
Phenol	ug/L	10
Surfactants-MBAS	mg/L	0
Chromium VI	ug/L	0
Silver	ug/L	0
Cyanide	ug/L	0
Oils & Greases	mg/L	16
Total hydrocarbons	mg/L	3
1,4-Dichlorobenzene	ug/L	1.6
1,3-Dichlorobenzene	ug/L	0
Ethyl Benzene	ug/L	0
Chlorobenzene	ug/L	0
Toluene	ug/L	0
Benzene	ug/L	0
1,2-Dichlorobenzene	ug/L	0
Chloroform	ug/L	1
1,4-Dichlorobenzene	ug/L	2
Bromodichlorobenzene	ug/L	0
Bromoform	ug/L	0
Carbon Tetrachloride	ug/L	0
Chlorobenzene	ug/L	0
Choloroethane	ug/L	0
Chloromethane	ug/L	0
Chlorodibromomethane	ug/L	0
1,2-Dichlorobenzene	ug/L	0
1,3-Dichlorobenzene	ug/L	0
Dichlorodiflouromethane	ug/L	0
1,1-Dichloroethane	ug/L	0
1,2-Dichloroethane	ug/L	0
1,1-Dichloroethene	ug/L	0
trans-1,2-Dichloroethene	ug/L	0
1,2-Dichloropropane	ug/L	0
cis-1,3-Dichloropropene	ug/L	0
trans-1,3-Dichloropropen	ug/L	0
1,1,2,2-Tetrachloroethan	ug/L	0
Tetrachloroethylene	ug/L	0
1,1,1-Trichloroethane	ug/L	0
1,1,2-Trichloroethane	ug/L	0
Trichloroethylene	ug/L	0
Trichlorofluoromethane	ug/L	0
Vinyl chloride	ug/L	0
Bromomethane	ug/L	0
2-Chloroethylvinyl ether	ug/L	0

APPENDIX G

Site Descriptions and Sampling Data

SAMPLE SITE IDENTIFICATION: Site 1, Manhole 21
Army National Guard and Army Reserve Area

DATE SAMPLED: 12 Jun ^'

DAYS OF SAMPLING: 3 Days

METALS	UNITS	Day 1	Day 2	Day 3
ARSENIC	ug/L	<10.0	<10.0	<10.0
BARIUM	ug/L	250	140	<100
BERYLLIUM	ug/L	<10.0	<10.0	<10.0
CADMIUM	ug/L	20	<10.0	20
CALCIUM	mg/L	21	19	15
CHROMIUM	ug/L	<50	<50	<50
COPPER	ug/L	130	110	50
IRON	ug/L	3200	4300	1900
MANGANESE	ug/L	60	60	<50
ZINC	ug/L	420	420	200
NICKEL	ug/L	<50	<50	<50
ALUMINUM	ug/L	1000	1200	400
COBALT	ug/L	<100	<100	<100
TITANIUM	ug/L	<100	<100	<100
VANADIUM	ug/L	<100	<100	<100
MOLYBDENUM	ug/L	<100	<100	<100
MERCURY	ug/L	<1.0	<1.0	<1.0
MAGNESIUM	mg/L	3.4	3.4	2.2
Oils & Greases	mg/L	176	12.6	352.0
Total hydrocarbons	mg/L	95.2	10.1	197.6
1,4-Dichlorobenzene	ug/L	see end	see end	<0.7
1,3-Dichlorobenzene	ug/L	see end	see end	<0.5
Ethyl Benzene	ug/L	see end	see end	<0.3
Chlorobenzene	ug/L	see end	see end	<0.6
Toluene	ug/L	64	64	<0.3
Benzene	ug/L	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	see end	see end	<1.0
Chloroform	ug/L	18	30	.9
1,4-Dichlorobenzene	ug/L	70.8	91	<0.7
Bromodichloromethane	ug/L	<0.4	<0.4	<0.4
Bromoform	ug/L	<0.7	<0.7	<0.7
Carbon Tetrachloride	ug/L	<0.5	<0.5	<0.5
Chlorobenzene	ug/L	<0.6	<0.6	<0.6
Choloroethane	ug/L	<0.9	<0.9	<0.9
Chloromethane	ug/L	<0.8	<0.8	<0.8
Chlorodibromomethane	ug/L	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5
Dichlorodiflouromethane	ug/L	<0.9	<0.9	<0.9
1,1-Dichloroethane	ug/L	<0.4	<0.4	<0.4
1,2-Dichloroethane	ug/L	<0.3	<0.3	<0.3
1,1-Dichloroethene	ug/L	<0.3	<0.3	<0.3
trans-1,2-Dichloroethene	ug/L	<0.5	<0.5	<0.5
1,2-Dichloropropane	ug/L	<0.3	<0.3	<0.3
cis-1,3-Dichloropropene	ug/L	<0.5	<0.5	<0.5
trans-1,3-Dichloropropen	ug/L	<0.5	<0.5	<0.5
Methylene chloride	ug/L	<0.4	<0.4	<0.4
1,1,2,2-Tetrachloroethan	ug/L	<0.5	<0.5	<0.5
Tetrachloroethylene	ug/L	<0.6	<0.6	<0.6
1,1,1-Trichloroethane	ug/L	26	22	<0.5
1,1,2-Trichloroethane	ug/L	<0.5	<0.5	<0.5
Trichloroethylene	ug/L	<0.5	<0.5	<0.5
Trichlorofluoromethane	ug/L	<0.4	<0.4	<0.4
Vinyl chloride	ug/L	<0.9	<0.9	<0.9
Bromomethane	ug/L	<0.9	<0.9	<0.9
2-Chloroethylvinyl ether	ug/L	<0.9	<0.9	<0.9

Due to interfering compounds, cannot accurately identify peaks.
Sample diluted 1:10. LOD should be adjusted by a factor of 10

SAMPLE SITE IDENTIFICATION: Site 2, Manhole 24
Army National Guard and Army Reserve Photolab

DATE SAMPLED: 12 Jun 91

DAYS OF SAMPLING: 3 Days

METALS	UNITS	Day 1	Day 2	Day 3
ARSENIC	ug/L	<10.0	<10.0	<10.0
BARIUM	ug/L	<100	<100	<100
BERYLLIUM	ug/L	<10.0	<10.0	<10.0
CADMIUM	ug/L	<10.0	<10.0	10
CALCIUM	mg/L	24	19	14
CHROMIUM	ug/L	<50	<50	<50
COPPER	ug/L	80	80	50
IRON	ug/L	1800	3200	1600
MANGANESE	ug/L	<50	50	<50
ZINC	ug/L	240	440	260
NICKEL	ug/L	<50	<50	<50
ALUMINUM	ug/L	600	700	600
COBALT	ug/L	<100	<100	<100
TITANIUM	ug/L	<100	<100	<100
VANADIUM	ug/L	<100	<100	<100
MOLYBDENUM	ug/L	<100	<100	<100
MERCURY	ug/L	<1.0	<1.0	<1.0
MAGNESIUM	mg/L	4.5	3.6	2.3
Chromium VI	ug/L	<50	<50	<50
Silver	ug/L	<10.0	213	89
Cyanide	ug/L	.010	.007	.007
Oils & Greases	mg/L	42.4	12.1	224.0
Total hydrocarbons	mg/L	32.0	12.1	192.0
Ammonia	mg/L	25.38	25.43	25.39
1,4-Dichlorobenzene	ug/L	see end	see end	<0.5
1,3-Dichlorobenzene	ug/L	see end	see end	<0.7
Ethyl Benzene	ug/L	see end	see end	<0.3
Chlorobenzene	ug/L	see end	see end	<0.6
Toluene	ug/L	<0.5	96	<0.3
Benzene	ug/L	see end	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	see end	see end	<1.0
Chloroform	ug/L	18	20	1.7
1,4-Dichlorobenzene	ug/L	17.3	25	<0.7
Bromodichloromethane	ug/L	<0.4	<0.4	<0.4
Bromoform	ug/L	<0.7	<0.7	<0.7
Carbon Tetrachloride	ug/L	<0.5	<0.5	<0.5
Chlorobenzene	ug/L	<0.6	<0.6	<0.6
Choloroethane	ug/L	<0.9	<0.9	<0.9
Chloromethane	ug/L	<0.8	<0.8	<0.8
Chlorodibromomethane	ug/L	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5
Dichlorodifluoromethane	ug/L	<0.9	<0.9	<0.9
1,1-Dichloroethane	ug/L	<0.4	<0.4	<0.4
1,2-Dichloroethane	ug/L	<0.3	<0.3	<0.3
1,1-Dichloroethene	ug/L	<0.3	<0.3	<0.3
trans-1,2-Dichloroethene	ug/L	<0.5	<0.5	<0.5
1,2-Dichloropropane	ug/L	<0.3	<0.3	<0.3
cis-1,3-Dichloropropene	ug/L	<0.5	<0.5	<0.5
trans-1,3-Dichloropropen	ug/L	<0.5	<0.5	<0.5
Methylene chloride	ug/L	<0.4	<0.4	<0.4
1,1,2,2-Tetrachloroethan	ug/L	<0.5	<0.5	<0.5
Tetrachloroethylene	ug/L	<0.6	<0.6	<0.6
1,1,1-Trichloroethane	ug/L	11.8	17	3.1
1,1,2-Trichloroethane	ug/L	<0.5	<0.5	<0.5
Trichloroethylene	ug/L	<0.5	<0.5	<0.5
Trichlorofluoromethane	ug/L	<0.4	<0.4	<0.4
Vinyl chloride	ug/L	<0.9	<0.9	<0.9
Bromomethane	ug/L	<0.9	<0.9	<0.9
2-Chloroethylvinyl ether	ug/L	<0.9	<0.9	<0.9

Due to interfering compounds, cannot accurately identify peaks.
Sample diluted 1:10. LOD should be adjusted by a factor of 10.

SAMPLE SITE IDENTIFICATION: Site 3, Manhole 26
Air Force Reserve Photolab, Structure Shop, Age Shop, Battery/Electric Shop, and Propulsion Shop

DATE SAMPLED: 18 Jun 91

DAYS OF SAMPLING: 3 Days

METALS	UNITS	Day 1	Day 2	Day 3
ARSENIC	ug/L	<10.0	<10.0	<10.0
BARIUM	ug/L	<100	<100	<100
BERYLLIUM	ug/L	<10.0	<10.0	<10.0
CADMIUM	ug/L	<10.0	<10.0	<10.0
CALCIUM	mg/L	13.0	13	15.0
CHROMIUM	ug/L	<50	<50	<50
COPPER	ug/L	20	30	40
IRON	ug/L	600	700	2200
MANGANESE	ug/L	<50	<50	<50
ZINC	ug/L	80	70	150
NICKEL	ug/L	<50	<50	<50
ALUMINUM	ug/L	200	200	1600
COBALT	ug/L	<100	<100	<100
TITANIUM	ug/L	<100	<100	200
VANADIUM	ug/L	<100	<100	<100
MOLYBDENUM	ug/L	<100	<100	<100
MERCURY	ug/L	<1.0	<1.0	<1.0
MAGNESIUM	mg/L	1.7	19.0	3.8
Lead	ug/L	<20	<20	<20
Chromium VI	ug/L	<50	<50	<50
Silver	ug/L	23	14	<10.0
Cyanide	ug/L	<0.005	<0.005	<0.005
Oils & Greases	mg/L	8.2	19.2	8.8
Total hydrocarbons	mg/L	6.1	10.7	7.0
Ammonia	mg/L	5.81	21.85	21.95
1,4-Dichlorobenzene	ug/L	25	49	15
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5
Ethyl Benzene	ug/L	<0.3	<0.3	<0.3
Chlorobenzene	ug/L	<0.6	<0.6	<0.6
Toluene	ug/L	<0.3	<0.3	<0.3
Benzene	ug/L	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0
Chloroform	ug/L	27	25	<0.3
1,4-Dichlorobenzene	ug/L	32	50	<6.1
Bromodichloromethane	ug/L	<0.4	<0.4	<0.4
Bromoform	ug/L	<0.7	<0.7	<0.7
Carbon Tetrachloride	ug/L	<0.5	<0.5	<0.5
Chlorobenzene	ug/L	<0.6	<0.6	<0.6
Choloroethane	ug/L	<0.9	<0.9	<0.9
Chloromethane	ug/L	<0.8	<0.8	<0.8
Chlorodibromomethane	ug/L	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5
Dichlorodiflouromethane	ug/L	<0.9	<0.9	<0.9
1,1-Dichloroethane	ug/L	<0.4	<0.4	<0.4
1,2-Dichloroethane	ug/L	<0.3	<0.3	<0.3
1,1-Dichloroethene	ug/L	<0.3	<0.3	<0.3
trans-1,2-Dichloroethene	ug/L	<0.5	<0.5	<0.5
1,2-Dichloropropane	ug/L	<0.3	<0.3	<0.3
cis-1,3-Dichloropropene	ug/L	<0.5	<0.5	<0.5
trans-1,3-Dichloropropen	ug/L	<0.5	<0.5	<0.5
Methylene chloride	ug/L	<0.4	<0.4	<0.4
1,1,2,2-Tetrachloroethan	ug/L	<0.5	<0.5	<0.5
Tetrachloroethylene	ug/L	<0.6	<0.6	<0.6
1,1,1-Trichloroethane	ug/L	<0.5	<0.5	20
1,1,2-Trichloroethane	ug/L	<0.5	<0.5	<0.5
Trichloroethylene	ug/L	<0.5	<0.5	<0.5
Trichlorofluoromethane	ug/L	<0.4	<0.4	<0.4
Vinyl chloride	ug/L	<0.9	<0.9	<0.9
Bromomethane	ug/L	<0.9	<0.9	<0.9
2-Chloroethylvinyl ether	ug/L	<0.9	<0.9	<0.9

SAMPLE SITE IDENTIFICATION: Site 4, Manhole 28C
Air Force Reserve NDI Shop

DATE SAMPLED: 12 Jun 91

DAYS OF SAMPLING: 3 Days

METALS	UNITS	Day 1	Day 2	Day 3
ARSENIC	ug/L	<10.0	<10.0	<10.0
BARIUM	ug/L	<100	<100	<100
BERYLLIUM	ug/L	<10.0	<10.0	<10.0
CADMIUM	ug/L	<10.0	<10.0	20
CALCIUM	mg/L	15.0	19.0	14.0
CHROMIUM	ug/L	<50	<50	<50
COPPER	ug/L	<20	60	30
IRON	ug/L	590	2100	1300
MANGANESE	ug/L	<50	<50	<50
ZINC	ug/L	70	<240	160
NICKEL	ug/L	<50	<50	<50
ALUMINUM	ug/L	100	400	300
COBALT	ug/L	<100	<100	<100
TITANIUM	ug/L	<100	<100	<100
VANADIUM	ug/L	<100	<100	<100
MOLYBDENUM	ug/L	<100	<100	<100
MERCURY	ug/L	<1.0	<1.0	<1.0
MAGNESIUM	mg/L	2.3	3.4	2.1
Cyanide	ug/L	<0.005	.007	.007
Ammonia	mg/L	24.12	24.11	24.10
1,4-Dichlorobenzene	ug/L	see end	see end	<0.7
1,3-Dichlorobenzene	ug/L	see end	see end	<0.5
Ethyl Benzene	ug/L	see end	see end	<0.3
Chlorobenzene	ug/L	see end	see end	<0.6
Toluene	ug/L	25	45	<0.3
Benzene	ug/L	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	see end	see end	<1.0
Chloroform	ug/L	10.4	8.8	1.7
1,4-Dichlorobenzene	ug/L	26.2	18	<0.7
Bromodichloromethane	ug/L	<0.4	0.4	<0.4
Bromoform	ug/L	<0.7	<0.7	<0.7
Carbon Tetrachloride	ug/L	<0.5	<0.5	<0.5
Chlorobenzene	ug/L	<0.6	<0.6	<0.6
Choloroethane	ug/L	<0.9	<0.9	<0.9
Chloromethane	ug/L	<0.8	<0.8	<0.8
Chlorodibromomethane	ug/L	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5
Dichlorodiflouromethane	ug/L	<0.9	<0.9	<0.9
1,1-Dichloroethane	ug/L	<0.4	<0.4	<0.4
1,2-Dichloroethane	ug/L	<0.3	<0.3	<0.3
1,1-Dichloroethene	ug/L	<0.3	<0.3	<0.3
trans-1,2-Dichloroethene	ug/L	<0.5	<0.5	<0.5
1,2-Dichloropropane	ug/L	<0.3	<0.3	<0.3
cis-1,3-Dichloropropene	ug/L	<0.5	<0.5	<0.5
trans-1,3-Dichloropropen	ug/L	<0.5	<0.5	<0.5
Methylene chloride	ug/L	<0.4	<0.4	<0.4
1,1,2,2-Tetrachloroethan	ug/L	<0.5	<0.5	<0.5
Tetrachloroethylene	ug/L	<0.6	<0.6	<0.6
1,1,1-Trichloroethane	ug/L	5.5	16	2.3
1,1,2-Trichloroethane	ug/L	<0.5	<0.5	<0.5
Trichloroethylene	ug/L	<0.5	<0.5	<0.5
Trichlorofluoromethane	ug/L	<0.4	<0.4	<0.4
Vinyl chloride	ug/L	<0.9	<0.9	<0.9
Bromomethane	ug/L	<0.9	<0.9	<0.9
2-Chloroethylvinyl ether	ug/L	<0.9	<0.9	<0.9

Due to interfering compounds*, cannot accurately identify peaks.

SAMPLE SITE IDENTIFICATION: Site 5, Manhole 39C
Air Force Reserve Fuel Cell, Transient Alert, and TMO Facilities

DATE SAMPLED: 18 Jun 91

DAYS OF SAMPLING: 3 Days

METALS	UNITS	Day 1	Day 2	Day 3
ARSENIC	ug/L	<10.0	<10.0	<10.0
BARIUM	ug/L	<100	90	<100
BERYLLIUM	ug/L	<10.0	<100	<10.0
CADMIUM	ug/L	<10.0	<10.0	<10.0
CALCIUM	mg/L	17.0	15.0	13.0
CHROMIUM	ug/L	<50	<50	<50
COPPER	ug/L	40	50	30
IRON	ug/L	2700	2100	1300
MANGANESE	ug/L	80	70	60
ZINC	ug/L	210	170	90
NICKEL	ug/L	<50	<50	<50
ALUMINUM	ug/L	1700	600	300
COBALT	ug/L	<100	<100	<100
TITANIUM	ug/L	<100	<100	<100
VANADIUM	ug/L	<100	<100	<100
MOLYBDENUM	ug/L	<100	<100	<100
MERCURY	ug/L	<1.0	<1.0	<1.0
MAGNESIUM	mg/L	2.1	2.1	19.0
Lead	ug/L	<20	<20	<20
Ortho phosphate	mg/L	1.55	4.25	3.5
Chromium VI	ug/L	<50	<50	<50
Silver	ug/L	<10.0	<10.0	<10.0
Oils & Greases	mg/L	9.3	44.8	13.3
Total hydrocarbons	mg/L	2.2	11.4	13.3
1,4-Dichlorobenzene	ug/L	12	30	9.4
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5
Ethyl Benzene	ug/L	<0.3	<0.3	<0.3
Chlorobenzene	ug/L	<0.6	<0.6	<0.6
Toluene	ug/L	<0.3	3.6	<0.3
Benzene	ug/L	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0
Chloroform	ug/L	5.5	<0.3	<0.3
1,4-Dichlorobenzene	ug/L	15	32	10
Bromodichloromethane	ug/L	<0.4	<0.4	<0.4
Bromoform	ug/L	<0.7	<0.7	<0.7
Carbon Tetrachloride	ug/L	<0.5	<0.5	<0.5
Chlorobenzene	ug/L	<0.6	<0.6	<0.6
Choloroethane	ug/L	<0.9	<0.9	<0.9
Chloromethane	ug/L	<0.8	<0.8	<0.8
Chlorodibromomethane	ug/L	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5
Dichlorodiflouromethane	ug/L	<0.9	<0.9	<0.9
1,1-Dichloroethane	ug/L	<0.4	<0.4	<0.4
1,2-Dichloroethane	ug/L	<0.3	<0.3	<0.3
1,1-Dichloroethene	ug/L	<0.3	<0.3	<0.3
trans-1,2-Dichloroethene	ug/L	<0.5	<0.5	<0.5
1,2-Dichloropropane	ug/L	<0.3	<0.3	<0.3
cis-1,3-Dichloropropene	ug/L	<0.5	<0.5	<0.5
trans-1,3-Dichloropropen	ug/L	<0.5	<0.5	<0.5
Methylene chloride	ug/L	<0.4	<0.4	<0.4
1,1,2,2-Tetrachloroethan	ug/L	<0.5	<0.5	<0.5
Tetrachloroethylene	ug/L	<0.6	<0.6	<0.6
1,1,1-Trichloroethane	ug/L	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	ug/L	<0.5	<0.5	<0.5
Trichloroethylene	ug/L	<0.5	<0.5	<0.5
Trichlorofluoromethane	ug/L	<0.4	<0.4	<0.4
Vinyl chloride	ug/L	<0.9	<0.9	<0.9
Bromomethane	ug/L	<0.9	<0.9	<0.9
2-Chloroethylvinyl ether	ug/L	<0.9	<0.9	<0.9

SAMPLE SITE IDENTIFICATION: Site 6, Manhole 42
Air Force Reserve Fire Department and Phase Dock

DATE SAMPLED: 18 Jun 91

DAYS OF SAMPLING: 3 Days

METALS	UNITS	Day 1	Day 2	Day 3	Duplicate
ARSENIC	ug/L	<10.0	<10.0	<10.0	<10.0
BARIUM	ug/L	<100	70	220	100
BERYLLIUM	ug/L	<10.0	<10.0	<100	<10.0
CADMIUM	ug/L	<10.0	10	<10.0	<10.0
CALCIUM	mg/L	13.0	16.0	18.0	12.0
CHROMIUM	ug/L	<50	<50	<50	<50
COPPER	ug/L	50	60	80	30
IRON	ug/L	900	1800	5400	3200
MANGANESE	ug/L	<50	60	90	60
ZINC	ug/L	80	150	330	80
NICKEL	ug/L	<50	<50	<50	<50
ALUMINUM	ug/L	200	600	1800	300
COBALT	ug/L	<100	<100	<100	<100
TITANIUM	ug/L	<100	<100	<100	<100
VANADIUM	ug/L	<100	<100	<100	<100
MOLYBDENUM	ug/L	<100	<100	<100	<100
MERCURY	ug/L	<1.0	<1.0	<1.0	<1.0
MAGNESIUM	mg/L	1.8	2.2	2.2	1.6
Ortho phosphate	mg/L	3.15	3.7	3.5	3.6
Phenol	ug/L	14	18	20	<10.0
Surfactants-MBAS	mg/L	see end	see end	see end	0.6
Oils & Greases	mg/L	15.8	9.0	15.0	5.7
Total hydrocarbons	mg/L	6.4	2.9	<1.0	1.9
1,4-Dichlorobenzene	ug/L	26	29	45	44
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5	<0.5
Ethyl Benzene	ug/L	<0.3	<0.3	<0.3	<0.3
Chlorobenzene	ug/L	<0.6	<0.6	<0.6	<0.6
Toluene	ug/L	<0.3	<0.3	<0.3	<0.3
Benzene	ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0	<1.0
Chloroform	ug/L	4.5	<0.3	4.0	3.9
1,4-Dichlorobenzene	ug/L	30	33	46	47
Bromodichloromethane	ug/L	<0.4	<0.4	<0.4	<0.4
Bromoform	ug/L	<0.7	<0.7	<0.7	<0.7
Carbon Tetrachloride	ug/L	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	ug/L	<0.6	<0.6	<0.6	<0.6
Choloroethane	ug/L	<0.9	<0.9	<0.9	<0.9
Chloromethane	ug/L	<0.8	<0.8	<0.8	<0.8
Chlorodibromomethane	ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5	<0.5
Dichlorodiflouromethane	ug/L	<0.9	<0.9	<0.9	<0.9
1,1-Dichloroethane	ug/L	<0.4	<0.4	<0.4	<0.4
1,2-Dichloroethane	ug/L	<0.3	<0.3	<0.3	<0.3
1,1-Dichloroethene	ug/L	<0.3	<0.3	<0.3	<0.3
trans-1,2-Dichloroethene	ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	ug/L	<0.3	<0.3	<0.3	<0.3
cis-1,3-Dichloropropene	ug/L	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropen	ug/L	<0.5	<0.5	<0.5	<0.5
Methylene chloride	ug/L	<0.4	<0.4	28	28
1,1,2,2-Tetrachloroethan	ug/L	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	ug/L	<0.6	<0.6	<0.6	<0.6
1,1,1-Trichloroethane	ug/L	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	ug/L	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	ug/L	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	ug/L	<0.4	<0.4	<0.4	<0.4
Vinyl chloride	ug/L	<0.9	<0.9	<0.9	<0.9
Bromomethane	ug/L	<0.9	<0.9	<0.9	<0.9
2-Chloroethylvinyl ether	ug/L	<0.9	<0.9	<0.9	<0.9

SAMPLE SITE IDENTIFICATION: Site 7, Manhole 69
Lift Station

DATE SAMPLED: 12 Jun 91

DAYS OF SAMPLING: 3 Days

METALS	UNITS	Day 1	Day 2	Day 3
ARSENIC	ug/L	<10.0	<10.0	<10.0
BARIUM	ug/L	<100	<100	<100
BERYLLIUM	ug/L	<10.0	<10.0	<10.0
CADMIUM	ug/L	<10.0	<10.0	<10.0
CALCIUM	mg/L	11.0	13.0	12.0
CHROMIUM	ug/L	<50	<50	<50
COPPER	ug/L	30	20	<20
IRON	ug/L	1000	1100	1000
MANGANESE	ug/L	90	90	70
ZINC	ug/L	<50	<50	70
NICKEL	ug/L	<50	<50	<50
ALUMINUM	ug/L	100	200	200
COBALT	ug/L	<100	<100	<100
TITANIUM	ug/L	<100	<100	<100
VANADIUM	ug/L	<100	<100	<100
MOLYBDENUM	ug/L	<100	<100	<100
MERCURY	ug/L	<1.0	<1.0	<1.0
MAGNESIUM	mg/L	1.7	2.1	1.9
Ortho phosphate	mg/L	3.55	3.6	2.9
Oils & Greases	mg/L	6.4	6.1	38.4
Total hydrocarbons	mg/L	3.8	1.9	2.6
1,4-Dichlorobenzene	ug/L	1174	75	<0.7
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5
Ethyl Benzene	ug/L	<0.3	<0.3	<0.3
Chlorobenzene	ug/L	<0.6	<0.6	<0.6
Toluene	ug/L	<0.3	<0.3	<0.3
Benzene	ug/L	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0
Chloroform	ug/L	5.5	9.7	2.2
1,4-Dichlorobenzene	ug/L	685.9	41	<0.7
Bromodichloromethane	ug/L	<0.4	<0.4	<0.4
Bromoform	ug/L	<0.7	<0.7	<0.7
Carbon Tetrachloride	ug/L	<0.5	<0.5	<0.5
Chlorobenzene	ug/L	<0.6	<0.6	<0.6
Choloroethane	ug/L	<0.9	<0.9	<0.9
Chloromethane	ug/L	<0.8	<0.8	<0.8
Chlorodibromomethane	ug/L	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5
Dichlorodiflouromethane	ug/L	<0.9	<0.9	<0.9
1,1-Dichloroethane	ug/L	<0.4	<0.4	<0.4
1,2-Dichloroethane	ug/L	<0.3	<0.3	<0.3
1,1-Dichloroethene	ug/L	<0.3	<0.3	<0.3
trans-1,2-Dichloroethene	ug/L	<0.5	<0.5	<0.5
1,2-Dichloropropane	ug/L	<0.3	<0.3	<0.3
cis-1,3-Dichloropropene	ug/L	<0.5	<0.5	<0.5
trans-1,3-Dichloropropen	ug/L	<0.5	<0.5	<0.5
Methylene chloride	ug/L	<0.4	<0.4	<0.4
1,1,2,2-Tetrachloroethan	ug/L	<0.5	<0.5	<0.5
Tetrachloroethylene	ug/L	<0.6	<0.6	<0.6
1,1,1-Trichloroethane	ug/L	<0.5	12	<0.5
1,1,2-Trichloroethane	ug/L	<0.5	<0.5	<0.5
Trichloroethylene	ug/L	<0.5	<0.5	<0.5
Trichlorofluoromethane	ug/L	<0.4	<0.4	<0.4
Vinyl chloride	ug/L	<0.9	<0.9	<0.9
Bromomethane	ug/L	<0.9	<0.9	<0.9
2-Chloroethylvinyl ether	ug/L	<0.9	<0.9	<0.9

SAMPLE SITE IDENTIFICATION: Site 8, Manhole 108
US Navy Dental Clinic

DATE SAMPLED: 18 Jun 91

DAYS OF SAMPLING: 3 Days

METALS	UNITS	Day 1	Day 2	Day 3	Duplicate
ARSENIC	ug/L	<10.0	<10.0	<10.0	<10.0
BARIUM	ug/L	<100	<100	<100	<100
BERYLLIUM	ug/L	<10.0	<10.0	<10.0	<10.0
CADMIUM	ug/L	<10.0	<10.0	<10.0	<10.0
CALCIUM	mg/L	17.0	12.0	13.0	14.0
CHROMIUM	ug/L	<50	<50	<50	<50
COPPER	ug/L	30	<20	<20	<20
IRON	ug/L	4300	4900	1300	5600
MANGANESE	ug/L	100	110	60	120
ZINC	ug/L	80	80	50	90
NICKEL	ug/L	<50	<50	<50	<50
ALUMINUM	ug/L	4900	6100	1100	6900
COBALT	ug/L	<100	<100	<100	<100
TITANIUM	ug/L	200	200	<100	200
VANADIUM	ug/L	<100	<100	<100	<100
MOLYBDENUM	ug/L	<100	<100	<100	<100
MERCURY	ug/L	<1.0	<1.0	<1.0	<1.0
MAGNESIUM	mg/L	2.5	1.9	1.9	2.2

1,4-Dichlorobenzene	ug/L	<0.7	<0.7	<0.7	<0.7
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5	<0.5
Ethyl Benzene	ug/L	<0.3	<0.3	<0.3	<0.3
Chlorobenzene	ug/L	<0.6	<0.6	<0.6	<0.6
Toluene	ug/L	27	<0.3	<0.3	<0.3
Benzene	ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0	<1.0

Chloroform	ug/L	<0.3	<0.3	<0.3	<0.3
1,4-Dichlorobenzene	ug/L	<0.7	<0.7	<0.7	<0.7
Bromodichloromethane	ug/L	<0.4	<0.4	<0.4	<0.4
Bromoform	ug/L	<0.7	<0.7	<0.7	<0.7
Carbon Tetrachloride	ug/L	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	ug/L	<0.6	<0.6	<0.6	<0.6
Choloroethane	ug/L	<0.9	<0.9	<0.9	<0.9
Chloromethane	ug/L	<0.8	<0.8	<0.8	<0.8
Chlorodibromomethane	ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5	<0.5
Dichlorodiflouromethane	ug/L	<0.9	<0.9	<0.9	<0.9
1,1-Dichloroethane	ug/L	<0.4	<0.4	<0.4	<0.4
1,2-Dichloroethane	ug/L	<0.3	<0.3	<0.3	<0.3
1,1-Dichloroethene	ug/L	<0.3	<0.3	<0.3	<0.3
trans-1,2-Dichloroethene	ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	ug/L	<0.3	<0.3	<0.3	<0.3
cis-1,3-Dichloropropene	ug/L	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropen	ug/L	<0.5	<0.5	<0.5	<0.5
Methylene chloride	ug/L	15	<0.4	0.4	0.4
1,1,2,2-Tetrachloroethan	ug/L	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	ug/L	<0.6	<0.6	<0.6	<0.6
1,1,1-Trichloroethane	ug/L	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	ug/L	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	ug/L	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	ug/L	<0.4	<0.4	<0.4	<0.4
Vinyl chloride	ug/L	<0.9	<0.9	<0.9	<0.9
Bromomethane	ug/L	<0.9	<0.9	<0.9	<0.9
2-Chloroethylvinyl ether	ug/L	<0.9	<0.9	<0.9	<0.9

SAMPLE SITE IDENTIFICATION: Site 9, Manhole 76
Air Force Reserve Civil Engineering and Welding Shop

DATE SAMPLED: 18 Jun 91

DAYS OF SAMPLING: 3 Days

METALS	UNITS	Day 1	Day 2	Day 3	Duplicate
ARSENIC	ug/L	<10.0	<10.0	<10.0	<10.0
BARIUM	ug/L	<100	<100	<100	<100
BERYLLIUM	ug/L	<10.0	<10.0	<10.0	<10.0
CADMIUM	ug/L	<10.0	<10.0	<10.0	<10.0
CALCIUM	mg/L	12.0	15.0	12.0	12.0
CHROMIUM	ug/L	<50	<50	<50	<50
COPPER	ug/L	10.0	120	40	40
IRON	ug/L	<10.0	600	600	600
MANGANESE	ug/L	<50	<50	<50	<50
ZINC	ug/L	90	90	110	110
NICKEL	ug/L	<50	<50	<50	<50
ALUMINUM	ug/L	300	300	400	400
COBALT	ug/L	<100	<100	<100	<100
TITANIUM	ug/L	<100	<100	<100	<100
VANADIUM	ug/L	<100	<100	<100	<100
MOLYBDENUM	ug/L	<100	<100	<100	<100
MERCURY	ug/L	<1.0	<1.0	<1.0	<1.0
MAGNESIUM	mg/L	1.6	2.3	1.9	1.9
Chromium VI	ug/L	<50	<50	<50	<50
Silver	ug/L	<10.0	<10.0	<10.0	<10.0
Oils & Greases	mg/L	169.6	105.6	56.8	56.8
Total hydrocarbons	mg/L	102.4	38.4	17.6	17.6
Lead	ug/L	<20	<20	<20	<20
1,4-Dichlorobenzene	ug/L	<0.7	61	38	38
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5	<0.5
Ethyl Benzene	ug/L	16	<0.3	<0.3	<0.3
Chlorobenzene	ug/L	<0.6	<0.6	<0.6	<0.6
Toluene	ug/L	137	4.3	<0.3	<0.3
Benzene	ug/L	56	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0	<1.0
Chloroform	ug/L	17	<0.3	13	13
1,4-Dichlorobenzene	ug/L	<0.7	25	21	21
Bromodichloromethane	ug/L	<0.4	<0.4	<0.4	<0.4
Bromoform	ug/L	<0.7	<0.7	<0.7	<0.7
Carbon Tetrachloride	ug/L	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	ug/L	<0.6	<0.6	<0.6	<0.6
Choloroethane	ug/L	<0.9	<0.9	<0.9	<0.9
Chloromethane	ug/L	<0.8	<0.8	<0.8	<0.8
Chlorodibromomethane	ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5	<0.5
Dichlorodiflouromethane	ug/L	<0.9	<0.9	<0.9	<0.9
1,1-Dichloroethane	ug/L	<0.4	<0.4	11	11
1,2-Dichloroethane	ug/L	<0.3	<0.3	<0.3	<0.3
1,1-Dichloroethene	ug/L	<0.3	<0.3	<0.3	<0.3
trans-1,2-Dichloroethene	ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	ug/L	<0.3	<0.3	<0.3	<0.3
cis-1,3-Dichloropropene	ug/L	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropen	ug/L	<0.5	<0.5	<0.5	<0.5
Methylene chloride	ug/L	<0.4	<0.4	<0.4	<0.4
1,1,2,2-Tetrachloroethan	ug/L	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	ug/L	<0.6	<0.6	7.7	7.7
1,1,1-Trichloroethane	ug/L	7.1	6.2	76	76
1,1,2-Trichloroethane	ug/L	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	ug/L	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	ug/L	<0.4	<0.4	<0.4	<0.4
Vinyl chloride	ug/L	<0.9	<0.9	<0.9	<0.9
Bromomethane	ug/L	<0.9	<0.9	<0.9	<0.9
2-Chloroethylvinyl ether	ug/L	<0.9	<0.9	<0.9	<0.9

SAMPLE SITE IDENTIFICATION: Site 10, Manhole 79
Air Force Reserve Motor Pool

DATE SAMPLED: 12 Jun 91

DAYS OF SAMLING: 3 Days

METALS	UNITS	Day 1	Day 2	Day 3
ARSENIC	ug/L	<10.0	<10.0	<10.0
BARIUM	ug/L	<100	<100	<100
BERYLLIUM	ug/L	<10.0	<10.0	<10.0
CADMIUM	ug/L	<10.0	<10.0	<10.0
CALCIUM	mg/L	11.0	11.0	11.0
CHROMIUM	ug/L	<50	<50	<50
COPPER	ug/L	30	48000	430
IRON	ug/L	700	400	500
MANGANESE	ug/L	200	130	170
ZINC	ug/L	<50	<50	50
NICKEL	ug/L	<50	<50	<50
ALUMINUM	ug/L	100	200	<100
COBALT	ug/L	<100	<100	<100
TITANIUM	ug/L	<100	<100	<100
VANADIUM	ug/L	<100	<100	<100
MOLYBDENUM	ug/L	<100	8200	<100
MERCURY	ug/L	<1.0	<1.0	<1.0
MAGNESIUM	mg/L	1.7	1.7	1.6
Oils & Greases	mg/L	8.8	1.6	2.8
Total hydrocarbons	mg/L	<1.0	<1.0	1.9
Surfactants	mg/L	0.6		
Glycol	ug/L	40400		
1,4-Dichlorobenzene	ug/L	<0.7	<0.7	<0.7
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5
Ethyl Benzene	ug/L	<0.3	<0.3	<0.3
Chlorobenzene	ug/L	<0.6	<0.6	<0.6
Toluene	ug/L	218	<0.3	<0.3
Benzene	ug/L	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0
Chloroform	ug/L	8.8	<0.3	1.4
1,4-Dichlorobenzene	ug/L	<0.7	<0.7	<0.7
Bromodichloromethane	ug/L	<0.4	<0.4	<0.4
Bromoform	ug/L	<0.7	<0.7	<0.7
Carbon Tetrachloride	ug/L	<0.5	<0.5	<0.5
Chlorobenzene	ug/L	<0.6	<0.6	<0.6
Choloroethane	ug/L	<0.9	<0.9	<0.9
Chloromethane	ug/L	<0.8	<0.8	<0.8
Chlorodibromomethane	ug/L	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5
Dichlorodiflouromethane	ug/L	<0.9	<0.9	<0.9
1,1-Dichloroethane	ug/L	<0.4	<0.4	<0.4
1,2-Dichloroethane	ug/L	<0.3	<0.3	<0.3
1,1-Dichloroethene	ug/L	<0.3	<0.3	<0.3
trans-1,2-Dichloroethene	ug/L	<0.5	<0.5	<0.5
1,2-Dichloropropane	ug/L	<0.3	<0.3	<0.3
cis-1,3-Dichloropropene	ug/L	<0.5	<0.5	<0.5
trans-1,3-Dichloropropen	ug/L	<0.5	<0.5	<0.5
Methylene chloride	ug/L	<0.4	<0.4	<0.4
1,1,2,2-Tetrachloroethan	ug/L	<0.5	<0.5	<0.5
Tetrachloroethylene	ug/L	<0.6	<0.6	<0.6
1,1,1-Trichloroethane	ug/L	<0.5	9.1	2.4
1,1,2-Trichloroethane	ug/L	<0.5	<0.5	<0.5
Trichloroethylene	ug/L	<0.5	<0.5	<0.5
Trichlorofluoromethane	ug/L	<0.4	<0.4	<0.4
Vinyl chloride	ug/L	<0.9	<0.9	<0.9
Bromomethane	ug/L	<0.9	<0.9	<0.9
2-Chloroethylvinyl ether	ug/L	<0.9	<0.9	<0.9

SAMPLE SITE IDENTIFICATION: Site 12, Manhole 46
Lockheed Waste

DATE SAMPLED: 12 Jun 91

DAYS OF SAMPLING: 3 Days

METALS	UNITS	Day 1	Day 2	Day 3
ARSENIC	ug/L	<10.0	<10.0	<10.0
BARIUM	ug/L	<100	<100	<100
BERYLLIUM	ug/L	<10.0	<10.0	<10.0
CADMIUM	ug/L	<10.0	<10.0	<10.0
CALCIUM	mg/L	13.0	15.0	14.0
CHROMIUM	ug/L	<50	<50	<50
COPPER	ug/L	30	560	150
IRON	ug/L	800	1100	1000
MANGANESE	ug/L	80	90	70
ZINC	ug/L	70	110	80
NICKEL	ug/L	<50	<50	<50
ALUMINUM	ug/L	300	300	300
COBALT	ug/L	<100	<100	<100
TITANIUM	ug/L	<100	<100	<100
VANADIUM	ug/L	<100	<100	<100
MOLYBDENUM	ug/L	<100	100	<100
MERCURY	ug/L	<1.0	<1.0	<1.0
MAGNESIUM	mg/L	2.2	2.6	2.2
Ortho phosphate	mg/L	2.75	2.7	2.7
Oils & Greases	mg/L	70.4	164.8	16.0
Total hydrocarbons	mg/L	8.9	81.6	8.2
1,4-Dichlorobenzene	ug/L	see end	see end	<0.7
1,3-Dichlorobenzene	ug/L	see end	see end	<0.5
Ethyl Benzene	ug/L	see end	see end	<0.3
Chlorobenzene	ug/L	see end	see end	<0.6
Toluene	ug/L	see end	see end	<0.3
Benzene	ug/L	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	see end	see end	<1.0
Chloroform	ug/L	6.0	<0.3	1.7
1,4-Dichlorobenzene	ug/L	18.6	80	<0.7
Bromodichloromethane	ug/L	<0.4	<0.4	<0.4
Bromoform	ug/L	<0.7	<0.7	<0.7
Carbon Tetrachloride	ug/L	<0.5	<0.5	<0.5
Chlorobenzene	ug/L	<0.6	<0.6	<0.6
Choloroethane	ug/L	<0.9	<0.9	<0.9
Chloromethane	ug/L	<0.8	<0.8	<0.8
Chlorodibromomethane	ug/L	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5
Dichlorodiflouromethane	ug/L	<0.9	<0.9	<0.9
1,1-Dichloroethane	ug/L	<0.4	<0.4	<0.4
1,2-Dichloroethane	ug/L	<0.3	<0.3	<0.3
1,1-Dichloroethene	ug/L	<0.3	<0.3	<0.3
trans-1,2-Dichloroethene	ug/L	<0.5	<0.5	<0.5
1,2-Dichloropropane	ug/L	<0.3	<0.3	<0.3
cis-1,3-Dichloropropene	ug/L	<0.5	<0.5	<0.5
trans-1,3-Dichloropropen	ug/L	<0.5	<0.5	<0.5
Methylene chloride	ug/L	<0.4	<0.4	<0.4
1,1,2,2-Tetrachloroethan	ug/L	<0.5	<0.5	<0.5
Tetrachloroethylene	ug/L	<0.6	<0.6	<0.6
1,1,1-Trichloroethane	ug/L	<0.5	<0.5	1.3
1,1,2-Trichloroethane	ug/L	<0.5	<0.5	<0.5
Trichloroethylene	ug/L	<0.5	<0.5	<0.5
Trichlorofluoromethane	ug/L	<0.4	<0.4	<0.4
Vinyl chloride	ug/L	<0.9	<0.9	<0.9
Bromomethane	ug/L	<0.9	<0.9	<0.9
2-Chloroethylvinyl ether	ug/L	<0.9	<0.9	<0.9

Sample diluted 1:10. BOD should be adjusted by a factor of 10.
Due to interfering compounds, cannot accurately identify peaks.

SAMPLE SITE IDENTIFICATION: Site 13, Manhole 70
Lockheed Waste

DATE SAMPLED: 18 Jun 91

DAYS OF SAMPLING: 3 Days

METALS	UNITS	Day 1	Day 2	Day 3	Duplicate
ARSENIC	ug/L	<10.0	<10.0	14	<10.0
BARIUM	ug/L	<100	<100	440	<100
BERYLLIUM	ug/L	<10.0	<10.0	<10.0	<10.0
CADMIUM	ug/L	<10.0	<10.0	40	<10.0
CALCIUM	mg/L	13.0	16.0	48.0	15.0
CHROMIUM	ug/L	<50	<50	430	<50
COPPER	ug/L	30	20	290	<20
IRON	ug/L	1000	700	48000	500
MANGANESE	ug/L	<50	<50	530	<50
ZINC	ug/L	100	150	3000	100
NICKEL	ug/L	<50	<50	90	<50
ALUMINUM	ug/L	700	300	29000	300
COBALT	ug/L	<100	<100	<100	<100
TITANIUM	ug/L	<100	<100	500	<100
VANADIUM	ug/L	<100	<100	<100	<100
MOLYBDENUM	ug/L	<100	<100	<100	<100
MERCURY	ug/L	<1.0	<1.0	<1.0	<1.0
MAGNESIUM	mg/L	2.1	2.4	7.0	2.3
Ortho phosphate	mg/L	5	1.95	4.78	2.1
Oils & Greases	mg/L	8.2	14.1	39.2	16.0
Total hydrocarbons	mg/L	2.6	3.8	3.2	2.6
1,4-Dichlorobenzene	ug/L	<0.7	<0.7	9.5	<0.7
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5	<0.5
Ethyl Benzene	ug/L	<0.3	<0.3	<0.3	<0.3
Chlorobenzene	ug/L	<0.6	<0.6	<0.6	<0.6
Toluene	ug/L	<0.3	<0.3	<0.3	<0.3
Benzene	ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0	<1.0
Chloroform	ug/L	3.9	<0.3	12	4.5
1,4-Dichlorobenzene	ug/L	<0.7	<0.7	12	<0.7
Bromodichloromethane	ug/L	<0.4	<0.4	<0.4	<0.4
Bromoform	ug/L	<0.7	<0.7	<0.7	<0.7
Carbon Tetrachloride	ug/L	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	ug/L	<0.6	<0.6	<0.6	<0.6
Choloroethane	ug/L	<0.9	<0.9	<0.9	<0.9
Chloromethane	ug/L	<0.8	<0.8	<0.8	<0.8
Chlorodibromomethane	ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5	<0.5
Dichlorodiflouromethane	ug/L	<0.9	<0.9	<0.9	<0.9
1,1-Dichloroethane	ug/L	<0.4	<0.4	<0.4	<0.4
1,2-Dichloroethane	ug/L	<0.3	<0.3	<0.3	<0.3
1,1-Dichloroethene	ug/L	<0.3	<0.3	<0.3	<0.3
trans-1,2-Dichloroethene	ug/L	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	ug/L	<0.3	<0.3	<0.3	<0.3
cis-1,3-Dichloropropene	ug/L	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropen	ug/L	<0.5	<0.5	<0.5	<0.5
Methylene chloride	ug/L	<0.4	<0.4	<0.4	<0.4
1,1,2,2-Tetrachloroethan	ug/L	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	ug/L	<0.6	<0.6	<0.6	<0.6
1,1,1-Trichloroethane	ug/L	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	ug/L	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	ug/L	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	ug/L	<0.4	<0.4	<0.4	<0.4
Vinyl chloride	ug/L	<0.9	<0.9	<0.9	<0.9
Bromomethane	ug/L	<0.9	<0.9	<0.9	<0.9
2-Chloroethylvinyl ether	ug/L	<0.9	<0.9	<0.9	<0.9

SAMPLE SITE IDENTIFICATION: Site 14, Influent
Wastewater Treatment Plant

DATE SAMPLED: 12 Jun 91

DAYS OF SAMPLING: 6 Days

METALS	UNITS	Day 1	Day 2	Day 3	Duplicate	Day 4	Day 5	Day 6
ARSENIC	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
BARIUM	ug/L	<100	<100	<100	<100	<100	<100	250
BERYLLIUM	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
CADMIUM	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	20
CALCIUM	mg/L	54.0	62.0	49.0	48.0	51.0	48.0	58.0
CHROMIUM	ug/L	200	540	850	520	730	80	2600
COPPER	ug/L	50	270	250	150	100	30	540
IRON	ug/L	1100	2800	4100	2700	3500	600	1400
MANGANESE	ug/L	<50	90	110	80	80	<50	270
ZINC	ug/L	50	110	170	100	140	<50	380
NICKEL	ug/L	<50	50	<50	<50	50	<50	<50
ALUMINUM	ug/L	900	1800	3000	1900	2600	400	9100
COBALT	ug/L	<100	<100	<100	<100	<100	<100	<100
TITANIUM	ug/L	<100	<100	<100	<100	<100	<100	100
VANADIUM	ug/L	<100	<100	<100	<100	<100	<100	<100
MOLYBDENUM	ug/L	<100	<100	<100	<100	<100	<100	<100
MERCURY	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MAGNESIUM	mg/L	1.4	2.0	1.8	1.6	1.2	1.4	2.4
Ammonia	mg/L	5.86	7.67	1.39		6.36	5.81	7.17
Ortho phosphate	mg/L	.88	3.2	1.45		1.9	6.8	1.25
Phenol	ug/L	114	84	44		50	37	25
Surfactants-MBAS	mg/L	0.2	see end	0.5		0.2	0.4	0.7
Chromium VI	ug/L		<50			<50	<10.0	<50
Silver	ug/L		<10.0			<10.0	<10.0	10
Cyanide	ug/L	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005
Oils & Greases	mg/L	see end	13.9	12.6	56.8	19.2	23.6	81.6
Total hydrocarbons	mg/L	see end	5.7	4.8	15.0	13.9	12.8	52.0
Lead	ug/L		<20				<20	43
1,4-Dichlorobenzene	ug/L	5	see end	<0.7	<0.7	<0.7	<0.7	<0.7
1,3-Dichlorobenzene	ug/L	<0.5	see end	<0.5	<0.5	<0.5	<0.5	<0.5
Ethyl Benzene	ug/L	<0.3	see end	<0.3	<0.3	<0.3	<0.3	<0.3
Chlorobenzene	ug/L	<0.6	see end	<0.6	<0.6	<0.6	<0.6	<0.6
Toluene	ug/L	7	see end	<0.3	<0.3	<0.3	<0.3	<0.3
Benzene	ug/L	<0.5	see end	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	see end	<1.0	<1.0	<1.0	<1.0	<1.0
o-Xylene						9.7		
Chloroform	ug/L	19.5	16	2.9	3.7	17.0	<0.3	8.9
1,4-Dichlorobenzene	ug/L	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Bromodichloromethane	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Bromoform	ug/L	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Carbon Tetrachloride	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	ug/L	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Choloroethane	ug/L	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
Chloromethane	ug/L	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Chlorodibromomethane	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodiflouromethane	ug/L	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
1,1-Dichloroethane	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
1,2-Dichloroethane	ug/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
1,1-Dichloroethene	ug/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
trans-1,2-Dichloroethene	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	ug/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
cis-1,3-Dichloropropene	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropen	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methylene chloride	ug/L	46.5	10	<0.4	<0.4	63.3	184	147
1,1,2,2-Tetrachloroethan	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	ug/L	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
1,1,1-Trichloroethane	ug/L	<0.5	12	4.2	5.3	15.5	12	<0.5
1,1,2-Trichloroethane	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	ug/L	<0.5	<0.5	<0.5	<0.5	43.3	<0.5	<0.5
Trichlorofluoromethane	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Vinyl chloride	ug/L	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
Bromomethane	ug/L	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
2-Chloroethylvinyl ether	ug/L	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9

No sample submitted per Mr. Almanza.
Sample diluted 1:10. LOD shloud be adjusted by a factor of 10.
Sample was improperly collected was preserved G group isn't preserved
Due to interfering compounds cannot accurately identify peaks.
Method blank methylene chloride result of 0.9 yg/L.
Analyzed by megabore capillary column.
Analyzed greater than 14 days after collection.

SAMPLE SITE IDENTIFICATION: Site 15, Effluent
Wastewater Treatment Plant

DATE SAMPLED: 12 Jun 91

DAYS OF SAMPLING: 6 Days

METALS	UNITS	Day 1	Day 2	Day 3	Duplicate	Day 4	Day 5	L
ARSENIC	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.
BARIUM	ug/L	<100	<100	<100	<100	<100	<100	<100
BERYLLIUM	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
CADMIUM	ug/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
CALCIUM	mg/L	53.0	65.0	57.0	55.0	49.0	48.0	53.0
CHROMIUM	ug/L	<50	<50	<50	<50	<50	<50	<50
COPPER	ug/L	<20	20	20	<20	<50	<20	<10.0
IRON	ug/L	<100	100	<100	<100	<100	<100	100
MANGANESE	ug/L	<50	<50	<50	<50	<50	<50	<50
ZINC	ug/L	<50	<50	<50	<50	<50	<50	<50
NICKEL	ug/L	<50	<50	<50	<50	<50	<50	<50
ALUMINUM	ug/L	<100	100	100	<100	<100	<100	<100
COBALT	ug/L	<100	<100	<100	<100	<100	<100	<100
TITANIUM	ug/L	<100	<100	<100	<100	<100	<100	<100
VANADIUM	ug/L	<100	<100	<100	<100	<100	<100	<100
MOLYBDENUM	ug/L	<100	<100	<100	<100	<100	<100	<100
MERCURY	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MAGNESIUM	mg/L	1.2	1.3	1.2	1.2	1.1	1.2	1.3
Ammonia	mg/L	<0.2	<0.2	<0.2		<0.2	<0.2	<0.2
Ortho phosphate	mg/L	.23	.3	.4		.3	.27	.3
Phenol	ug/L	<10.0	<10.0	<10.0		<10.0	<10.0	<10.0
Surfactants-MBAS	mg/L	0.1	<0.1	<0.1		0.1	0.1	<0.1
Chromium VI	ug/L		<50			<50	<50	<50
Silver	ug/L		<10.0			<10.0	<10.0	<10.0
Cyanide	ug/L	<0.005	<0.005	.012		.016	<0.005	<0.005
Oils & Greases	mg/L	1.3	1.3	1.9	1.3	2.2	5.7	<0.3
Total hydrocarbons	mg/L	1.0	1.0	1.0	<1.0	<1.0	5.4	<1.0
Lead	ug/L		<20			<20	<20	<20
1,4-Dichlorobenzene	ug/L	<0.7	<0.7	<0.7	<0.7	12	<0.7	<0.7
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethyl Benzene	ug/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Chlorobenzene	ug/L	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Toluene	ug/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Benzene	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	ug/L	99.8	17	<0.3	<0.3	<0.3	8.1	<0.3
1,4-Dichlorobenzene	ug/L	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Bromodichloromethane	ug/L	70.2	<0.4	<0.4	<0.4	<0.4	70.2	<4.5
Bromoform	ug/L	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7	<0.7
Carbon Tetrachloride	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	ug/L	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Choloroethane	ug/L	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
Chloromethane	ug/L	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Chlorodibromomethane	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-Dichlorobenzene	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dichlorodiflouromethane	ug/L	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
1,1-Dichloroethane	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
1,2-Dichloroethane	ug/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
1,1-Dichloroethene	ug/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
trans-1,2-Dichloroethene	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	ug/L	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
cis-1,3-Dichloropropene	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-Dichloropropen	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Methylene chloride	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	8.2
1,1,2,2-Tetrachloroethan	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethylene	ug/L	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
1,1,1-Trichloroethane	ug/L	<0.5	11	<0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-Trichloroethane	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethylene	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Trichlorofluoromethane	ug/L	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Vinyl chloride	ug/L	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
Bromomethane	ug/L	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9
2-Chloroethylvinyl ether	ug/L	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9	<0.9

SAMPLE SITE IDENTIFICATION: Site 15, Effluent (Continued)
Wastewater Treatment Plant

DATE SAMPLED: 12 Jun 91

DAYS OF SAMPLING: 1 Day

Pesticides		
Aldrin	ug/L	<0.02
alpha-BHC	ug/L	<0.02
beta-BHC	ug/L	<0.02
delta-BHC	ug/L	<0.02
gamma-BHC	ug/L	<0.02
Chlordane	ug/L	<.16
DDD	ug/L	<0.02
DDE	ug/L	<0.02
p,p-DDT	ug/L	<0.02
Dieldrin	ug/L	<0.02
Endosulfan I	ug/L	<0.02
Endosulfan II	ug/L	<0.02
Endosulfan sulfate	ug/L	<0.02
Endrin	ug/L	<0.02
Endrin aldehyde	ug/L	<0.02
Heptachlor	ug/L	<0.02
Heptachlor epoxide	ug/L	<0.02
Toxaphene	ug/L	<1.0
Aroclor 1016	ug/L	<0.2
Aroclor 1221	ug/L	<0.2
Aroclor 1232	ug/L	<0.2
Aroclor 1242	ug/L	<0.2
Aroclor 1248	ug/L	<0.2
Aroclor 1254	ug/L	<0.2
Aroclor 1260	ug/L	<0.2

APPENDIX H

Discharge Limitations for Various Waste Sources

TYPICAL DISCHARGE LIMITATIONS FOR VARIOUS WASTE SOURCES[1]

WASTE SOURCE	PARAMETER	REFERENCE	TYPICAL EFFLUENT LIMITATION
Air Force Industrial Facilities[2]	Cadmium	40 CFR 433	0.69 mg/l
	Chromium	40 CFR 433	2.77 mg/l
	Copper	40 CFR 433	3.38 mg/l
	Lead	40 CFR 433	0.69 mg/l
	Nickel	40 CFR 433	3.98 mg/l
	Silver	40 CFR 433	0.43 mg/l
	Zinc	40 CFR 433	2.61 mg/l
	Cyanide	40 CFR 433	1.20 mg/l
	TTO	40 CFR 433	2.13 mg/l
	pH	40 CFR 403	5.0
Hospital Facilities	BOD	40 CFR 460	41.0[3]
	TSS	40 CFR 460	55.6[3]
	pH	40 CFR 460	6.0-9.0
Photographic and NDI Facilities	Silver	40 CFR 459	0.14[4]
	Cyanide	40 CFR 459	0.18[4]
	pH	40 CFR 459	6.0-9.0
Sewage Treatment Plant[5]	BOD	OEHL	20-30 mg/l
	COD	OEHL	125.00 mg/l
	TSS	OEHL	20-30 mg/l
	Oil and Grease	OEHL	15.00 mg/l
	Phosphorus	OEHL	8.00 mg/l
	Ammonia as N	OEHL	14.00 mg/l
	Phenols	OEHL	50-500 µg/l
	MBAS	OEHL	4.00 mg/l
	Fecal Coliforms	OEHL	200 per 100 ml

[1] Pretreatment standards (40 CFR 403-471) apply only to industrial facilities discharging to publicly owned treatment works.
[2] Includes all facilities except (NDI), hospital and photolab.
[3] Metric units (kilograms per 1,000 occupied beds)
[4] Metric units (kilograms per 1,000 m square of product)
[5] Typical NPDES effluent limitations for sewage treatment plants located on Air Force installations.

Ref: AFOEHL Sampling Guide, March 1989

AIRCRAFT WASHRACK WASTEWATER CONTAMINANT CONCENTRATIONS

Pollutant or Property	Concentration (mg/l)
BOD	100-2,500
COD	700-2,500
TOC	130-1,200
Oil and Grease	2-55
Cadmium	0-0.2
Chromium (total)	0-4
Phenol	0-210
Methylene Chloride	Trace
Surfactants	0-2
Ammonia Nitrogen	80
Suspended Solids	50-90

MOTORPOOL WASHRACK WASTEWATER CONTAMINANT CONCENTRATIONS

Pollutant or Property	Concentration (mg/l)
Total Solids	570-12,900
COD	64-3,400
TOC	24-1,700
Oil and Grease	20-8,700
Surfactants	0-2

BATTERY SHOP WASTEWATER CONTAMINANT CONCENTRATIONS

Pollutant or Property	Concentration (mg/l)
Lead	14.9
pH	7.5*
Copper	3.4
Iron	15.0
Zinc	21.5

*pH units rather than mg/l

NDI WASTEWATER CONTAMINANT CONCENTRATIONS

Pollutant or Property	Concentration (mg/l)
COD	1,510
BOD	1,110
Ammonia Nitrogen	74
Suspended Solids	560

PHOTO PROCESSING WASTEWATER CONTAMINANT CONCENTRATIONS

Pollutant or Property	Concentration (mg/l)
COD	37-6,700
TOC	5-140
Cyanide	<0.01-12.5
Silver	<0.1-1.11
pH	4.3-4.4*
Boron	7.0-7.5

*pH units rather than mg/l

APPENDIX I

Water Quality Criteria

Water Quality Criteria Summary

Note: This chart is for general information; please use criteria documents or detailed summaries in "Quality Criteria for Water 1986" for regulatory purposes.

			CONCENTRATIONS IN µg/L				UNITS PER LITER				
	Priority Pollutant	Carcinogen	Fresh Acute Criteria	Fresh Chronic Criteria	Marine Acute Criteria	Marine Chronic Criteria	Water and Fish Ingestion	Fish Consumption Only	Drinking Water M.C.L.	Date Reference	# of States With Aquatic Life Standard
ACENAPTHENE	Y	N	*1,700	*520	*970	*710				1980 FR	1
ACROLEIN	Y	N	*68	*21	*55		320 µg	780 µg		1980 FR	1
ACRYLONITRILE	Y	Y	*7,550	*2,600			0.058µg**	0.65µg**		1980 FR	
ALDRIN	Y	Y	3.0		1.3		0.074ng**	0.079ng**		1980 FR	16
ALKALINITY	N	N		20,000						1976 RB	
AMMONIA	N	N	CRITERIA ARE pH AND TEMPERATURE DEPENDENT—SEE DOCUMENT							1985 FR	24
ANTIMONY	Y	N	*9,000	*1,600			146 µg	45,000 µg		1980 FR	1
ARSENIC	Y	Y					2.2ng**	17.5ng**	0.05mg	1980 FR	21
ARSENIC (PENT)	Y	Y	*850	*48	*2,319	*13				1985 FR	2*
ARSENIC (TRI)	Y	Y	360	190	69	36				1985 FR	21
ASBESTOS	Y	Y					30k f/L**			1980 FR	
BACTERIA	N	N	FOR PRIMARY RECREATION AND SHELLFISH USES—SEE DOCUMENT						<1/100ml	1986 FR	56
BARIUM	N	N					1 mg		1.0mg	1976 RB	8
BENZENE	Y	Y	*5,300		*5,100	*700	0.66µg**	40 µg**		1980 FR	1
BENZIDINE	Y	Y	*2,500				0.12ng**	0.53ng**		1980 FR	6
BERYLLIUM	Y	Y	*130	*5.3			6.8ng**	117 ng**		1980 FR	8
BHC	Y	N	*100		*0.34					1980 FR	
CADMIUM	Y	N	3.9+	1.1+	43	9.3	10 µg		0.010mg	1985 FR	2*
CARBON TETRACHLORIDE	Y	Y	*35,200		*50,000		0.4µg**	6.94µg**		1980 FR	1
CHLORDANE	Y	Y	2.4	0.0043	0.09	0.004	0.46ng**	0.48ng**		1980 FR	12
CHLORINATED BENZENES	Y	Y	*250	*50	*160	*129				1980 FR	1
CHLORINATED NAPHTHALENES	Y	N	*1,600		*7.5					1980 FR	1
CHLORINE	N	N	19	11	13	7.5				1985 FR	2*
CHLOROALKYL ETHERS	Y	N	*238,000							1980 FR	1
CHLOROETHYL ETHER (BIS-2)	Y	Y					0.03µg**	1.36µg**		1980 FR	
CHLOROFORM	Y	Y	*28,900	*1,240			0.19µg**	15.7µg**		1980 FR	1
CHLOROISOPROPYL ETHER (BIS-2)	Y	N					34.7µg	4.36mg		1980 FR	
CHLOROMETHYL ETHER (BIS)	N	Y					0.00000376ng**	0.00184µg**		1980 FR	
CHLOROPHENOL 2	Y	N	*4,380	*2,000						1980 FR	1
CHLOROPHENOL 4	N	N			*29,700					1980 FR	1
CHLOROPHENOXY HERBICIDES (2,4,5,-TP)	N	N					10 µg			1980 FR	
CHLOROPHENOXY HERBICIDES (2,4-D)	N	N					100 µg			1976 RB	7
CHLORPYRIFOS	N	N	0.083	0.041	0.011	0.0056				1986 FR	
CHLORO-4 METHYL-3 PHENOL	N	N	*30							1980 FR	
CHROMIUM (HEX)	Y	N	16	11	1,100	50	50 µg		0.05mg	1985 FR	24
CHROMIUM (TRI)	N	N	1,700+	210+	*10,300		170 mg	3,433 mg	0.05mg	1985 FR	24
COLOR	N	N	NARRATIVE STATEMENT—SEE DOCUMENT							1976 RB	
COPPER	Y	N	18+	12+	2.9	2.9				1985 FR	20
CYANIDE	Y	N	22	5.2	1	1	200 µg			1985 FR	23
DDT	Y	Y	1.1	0.001	0.13	0.001	0.024ng**	0.024ng**		1980 FR	16
DDT METABOLITE (DDE)	Y	Y	*1,050		*14					1980 FR	
DDT METABOLITE (TDE)	Y	Y	*0.06		*3.6					1980 FR	
DEMETON	Y	N		0.1		0.1				1976 RB	
DIBUTYL PHTHALATE	Y	N					35 mg	154 mg		1980 FR	
DICHLOROBENZENES	Y	N	*1,120	*763	*1,970		400 µg	2.6mg		1980 FR	1
DICHLOROBENZIDINE	Y	Y					0.01µg**	0.020µg**		1980 FR	1
DICHLOROETHANE 1,2	Y	Y	*118,000	*20,000	*113,000		0.94µg**	243 µg**		1980 FR	1
DICHLOROETHYLENES	Y	Y	*11,600		*224,000		0.033µg**	1.85µg**		1980 FR	1
DICHLOROPHENOL 2,4	N	N	*2,020	*365			3.09mg			1980 FR	1
DICHLOROPROPANE	Y	N	*23,000	*5,700	*10,300	*3,040				1980 FR	1
DICHLOROPROPENE	Y	N	*6,060	*244	*790		87 µg	14.1mg		1980 FR	1
DIELDRIN	Y	Y	2.5	0.0019	0.71	0019	0.071ng**	0.076ng**		1980 FR	16
DIETHYL PHTHALATE	Y	N					350 mg	1.8g		1980 FR	
DIMETHYL PHENOL 2,4	Y	N	*2,120							1980 FR	
DIMETHYL PHTHALATE	Y	N					313 mg	2.9g		1980 FR	
DINITROTOLUENE 2,4	N	Y					0.11µg**	9.1µg**		1980 FR	
DINITROTOLUENE	Y	N					70 µg	14.3mg		1980 FR	
DINITROTOLUENE	N	Y	*330	*230	*590	*370				1980 FR	1
DINITRO-O-CRESOL 2,4	Y	N					13.4µg	765 µg		1980 FR	
DIOXIN (2,3,7,8-TCDD)	Y	Y	*0.01	*0.00001			0.000013ng**	0.000014ng**		1984 FR	1
DIPHENYLHYDRAZINE	Y	N					42 ng**	0.56µg**		1980 FR	1
DIPHENYLHYDRAZINE 1,2	Y	N	*270							1980 FR	
DI-2-ETHYLHEXYL PHTHALATE	Y	N					15 mg	50 mg		1980 FR	

APPENDIX J

Oil/Water Separator Sampling Data

SAMPLE SITE IDENTIFICATION: Oil/Water Separator Building 747

DATE SAMPLED: 13 Jun 91

SITE 16

	UNITS	INFLUENT	EFFLUENT
Oils & Greases	mg/L	9.40	2.20
Total hydrocarbons	mg/L	6.10	1.00
1,3-Dichlorobenzene	ug/L	<0.7	<0.7
Ethyl Benzene	ug/L	<0.3	<0.3
Chlorobenzene	ug/L	<0.6	<0.6
Toluene	ug/L	<0.3	<0.3
Benzene	ug/L	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<0.1	<0.1
Chloroform	ug/l	5.20	<0.3
1,4-Dichlorobenzene	ug/l	<0.7	<0.7
Bromodichlorobenzene	ug/l	<0.5	<0.5
Bromoform	ug/l	<0.7	<0.7
Carbon Tetrachloride	ug/l	<0.5	<0.5
Chlorobenzene	ug/l	<0.6	<0.6
Choloroethane	ug/l	<0.9	<0.9
Chloromethane	ug/l	<0.8	<0.8
Chlorodibromomethane	ug/l	<0.5	<0.5
1,2-Dichlorobenzene	ug/l	<1.0	<1.0
1,3-Dichlorobenzene	ug/l	<0.5	<0.5
Dichlorodiflouromethane	ug/l	<0.9	<0.9
1,1-Dichloroethane	ug/l	<0.4	<0.4
1,2-Dichloroethane	ug/l	<0.3	<0.3
1,1-Dichloroethene	ug/l	<0.3	<0.3
trans-1,2-Dichloroethene	ug/l	<0.5	<0.5
1,2-Dichloropropane	ug/l	<0.3	<0.3
cis-1,3-Dichloropropene	ug/l	<0.5	<0.5
trans-1,3-Dichloropropen	ug/l	<0.5	<0.5
1,1,2,2-Tetrachloroethan	ug/l	<0.5	<0.5
Tetrachloroethylene	ug/l	<0.6	<0.6
1,1,1-Trichloroethane	ug/l	<0.5	<0.5
1,1,2-Trichloroethane	ug/l	<0.5	<0.5
Trichloroethylene	ug/l	<0.5	<0.5
Trichlorofluoromethane	ug/l	<0.4	<0.4
Vinyl chloride	ug/l	<0.9	<0.9
Bromomethane	ug/l	<0.9	<0.9
2-Chloroethylvinyl ether	ug/l	<0.9	<0.9
Methylene chloride	ug/l	<0.4	<0.4

SAMPLE SITE IDENTIFICATION: Oil/Water Separator Building 819

DATE SAMPLED: 13 Jun 91

SITE 17

	UNITS	INFLUENT	EFFLUENT
Oils & Greases	mg/L	214.40	198.40
Total hydrocarbons	mg/L	6.40	6.40
1,3-Dichlorobenzene	ug/L	<0.7	<0.7
Ethyl Benzene	ug/L	<0.3	<0.3
Chlorobenzene	ug/L	<0.6	<0.6
Toluene	ug/L	<0.3	<0.3
Benzene	ug/L	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<0.1	<0.1
Chloroform	ug/l	<0.3	3.40
1,4-Dichlorobenzene	ug/l	<0.7	<0.7
Bromodichlorobenzene	ug/l	<0.5	<0.5
Bromoform	ug/l	<0.7	<0.7
Carbon Tetrachloride	ug/l	<0.5	<0.5
Chlorobenzene	ug/l	<0.6	<0.6
Choloroethane	ug/l	<0.9	<0.9
Chloromethane	ug/l	<0.8	<0.8
Chlorodibromomethane	ug/l	<0.5	<0.5
1,2-Dichlorobenzene	ug/l	<1.0	<1.0
1,3-Dichlorobenzene	ug/l	<0.5	<0.5
Dichlorodiflouromethane	ug/l	<0.9	<0.9
1,1-Dichloroethane	ug/l	<0.4	<0.4
1,2-Dichloroethane	ug/l	<0.3	<0.3
1,1-Dichloroethene	ug/l	<0.3	<0.3
trans-1,2-Dichloroethene	ug/l	<0.5	<0.5
1,2-Dichloropropane	ug/l	<0.3	<0.3
cis-1,3-Dichloropropene	ug/l	<0.5	<0.5
trans-1,3-Dichloropropen	ug/l	<0.5	<0.5
1,1,2,2-Tetrachloroethan	ug/l	<0.5	<0.5
Tetrachloroethylene	ug/l	<0.6	<0.6
1,1,1-Trichloroethane	ug/l	<0.5	<0.5
1,1,2-Trichloroethane	ug/l	<0.5	<0.5
Trichloroethylene	ug/l	<0.5	<0.5
Trichlorofluoromethane	ug/l	<0.4	<0.4
Vinyl chloride	ug/l	<0.9	<0.9
Bromomethane	ug/l	<0.9	<0.9
2-Chloroethylvinyl ether	ug/l	<0.9	<0.9
Napthalene	ug/l		4.90
Methylene chloride	ug/l	<0.4	<0.4

SAMPLE SITE IDENTIFICATION: Oil/Water Separator Army Reserve Area Aircraft Maintenance

DATE SAMPLED: 17 Jun 91

SITE 18

	UNITS	INFLUENT	EFFLUENT
Oils & Greases	mg/L	12.20	1.30
Total hydrocarbons	mg/L	2.60	<1.0
1,3-Dichlorobenzene	ug/L	<0.7	<0.7
Ethyl Benzene	ug/L	<0.3	<0.3
Chlorobenzene	ug/L	<0.6	<0.6
Toluene	ug/L	<0.3	<0.3
Benzene	ug/L	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<0.1	<0.1
Chloroform	ug/l	22.00	<0.3
1,4-Dichlorobenzene	ug/l	<0.7	<0.7
Bromodichlorobenzene	ug/l	<0.5	<0.5
Bromoform	ug/l	<0.7	<0.7
Carbon Tetrachloride	ug/l	<0.5	<0.5
Chlorobenzene	ug/l	<0.6	<0.6
Choloroethane	ug/l	<0.9	<0.9
Chloromethane	ug/l	<0.8	<0.8
Chlorodibromomethane	ug/l	<0.5	<0.5
1,2-Dichlorobenzene	ug/l	<1.0	<1.0
1,3-Dichlorobenzene	ug/l	<0.5	<0.5
Dichlorodiflouromethane	ug/l	<0.9	<0.9
1,1-Dichloroethane	ug/l	<0.4	<0.4
1,2-Dichloroethane	ug/l	<0.3	<0.3
1,1-Dichloroethene	ug/l	<0.3	<0.3
trans-1,2-Dichloroethene	ug/l	<0.5	<0.5
1,2-Dichloropropane	ug/l	<0.3	<0.3
cis-1,3-Dichloropropene	ug/l	<0.5	<0.5
trans-1,3-Dichloropropen	ug/l	<0.5	<0.5
1,1,2,2-Tetrachloroethan	ug/l	<0.5	<0.5
Tetrachloroethylene	ug/l	<0.6	<0.6
1,1,1-Trichloroethane	ug/l	<0.5	<0.5
1,1,2-Trichloroethane	ug/l	<0.5	<0.5
Trichloroethylene	ug/l	<0.5	<0.5
Trichlorofluoromethane	ug/l	<0.4	<0.4
Vinyl chloride	ug/l	<0.9	<0.9
Bromomethane	ug/l	<0.9	<0.9
2-Chloroethylvinyl ether	ug/l	<0.9	<0.9
Methylene chloride	ug/l	<0.4	<0.4

SAMPLE SITE IDENTIFICATION: Oil/Water Separator Building 731

DATE SAMPLED: 17 Jun 91

SITE 19

	UNITS	INFLUENT	EFFLUENT
Oils & Greases	mg/L	252.80	5.70
Total hydrocarbons	mg/L	252.80	5.00
1,3-Dichlorobenzene	ug/L	<0.7	<0.7
Ethyl Benzene	ug/L	<0.3	<0.3
Chlorobenzene	ug/L	<0.6	<0.6
Toluene	ug/L	<0.3	<0.3
Benzene	ug/L	<0.5	<0.5
1,2-Dichlorobenzene	ug/L	<0.1	<0.1
Chloroform	ug/l	3.00	<0.3
1,4-Dichlorobenzene	ug/l	<0.7	<0.7
Bromodichlorobenzene	ug/l	<0.5	<0.5
Bromoform	ug/l	<0.7	<0.7
Carbon Tetrachloride	ug/l	<0.5	<0.5
Chlorobenzene	ug/l	<0.6	<0.6
Choloroethane	ug/l	<0.9	<0.9
Chloromethane	ug/l	<0.8	<0.8
Chlorodibromomethane	ug/l	<0.5	<0.5
1,2-Dichlorobenzene	ug/l	<1.0	<1.0
1,3-Dichlorobenzene	ug/l	<0.5	<0.5
Dichlorodiflouromethane	ug/l	<0.9	<0.9
1,1-Dichloroethane	ug/l	<0.4	<0.4
1,2-Dichloroethane	ug/l	<0.3	<0.3
1,1-Dichloroethene	ug/l	<0.3	<0.3
trans-1,2-Dichloroethene	ug/l	<0.5	<0.5
1,2-Dichloropropane	ug/l	<0.3	<0.3
cis-1,3-Dichloropropene	ug/l	<0.5	<0.5
trans-1,3-Dichloropropen	ug/l	<0.5	<0.5
1,1,2,2-Tetrachloroethan	ug/l	<0.5	<0.5
Tetrachloroethylene	ug/l	<0.6	<0.6
1,1,1-Trichloroethane	ug/l	<0.5	<0.5
1,1,2-Trichloroethane	ug/l	<0.5	<0.5
Trichloroethylene	ug/l	<0.5	<0.5
Trichlorofluoromethane	ug/l	<0.4	<0.4
Vinyl chloride	ug/l	<0.9	<0.9
Bromomethane	ug/l	<0.9	<0.9
2-Chloroethylvinyl ether	ug/l	<0.9	<0.9
Methylene chloride	ug/l	<0.4	<0.4
Naphathelene	ug/l	2.80	