CEC WRA

○ Certified Environmental Corporation, Inc. ○
○ Water Resources Associates, Inc. ○

FLOOD CONTROL DISTRICT
RECEIVED
AUG 15 '94

CHENG		P & PM	
DEP		HYDRO	
ADMIN		LMGT	
FINANCE		FILE	
C & O	/	DE6	
ENGR			

REMARKS

August 12, 1994

Mr. Dave Gardner
Maricopa County Flood Control District
2801 West Durango Street
Phoenix, Arizona 85009

SUBJECT: DRILLING AND SAMPLING OF THREE ANGLE BORINGS NEAR VIRGINIA AVENUE AND THE OLD CROSS-CUT CANAL, PHOENIX, ARIZONA

Dear Mr. Gardner:

CEC/WRA is pleased to present the results of our work which included the drilling and sampling of three angle borings adjacent to the old Cross-Cut Canal near Virginia Avenue, in Phoenix, Arizona. The site is located in the Southeast Quarter of the Northeast Quarter of the Northeast Quarter of Section 31, Township 2 North, Range 4 East of the Gila and Salt River Baseline and Meridian. The site location is shown in the figure presented as Attachment I. A plan view of the site is shown in the figure presented in Attachment II.

SOIL BORINGS

CEC/WRA was contracted by the Maricopa County Flood Control District (MCFCD) to drill and sample three borings adjacent to the Old Cross-Cut Canal near Virginia Avenue. This work was conducted to evaluate background soil concentrations of various constituents including petroleum hydrocarbons, volatile organic compounds, and organochlorine pesticides and PCBs. This project was completed as a portion of the Scope of Work which was provided by the MCFCD (Attachment III). The results of this work will be utilized by the MCFCD to design and implement a suitable health and safety plan prior to conducting re-construction of the Old Cross-Cut Canal.

Prior to conducting any field activities, CEC/WRA contacted the Blue Stake Center of Arizona to locate public utilities in the vicinity of the study area.

Three soil borings (B-1, B-2, and B-3) were drilled on the west bank of the Old Cross-Cut Canal on July 5, 1994. Boring B-1 was drilled near Virginia Avenue and Borings B-2 and B-3 were drilled 50 feet north and 50 feet south, respectively, of Boring B-1. The boring locations are shown in the figure presented in Attachment II.

Phoenix, AZ ○ Benicia, CA ○ Salt Lake City, UT ○ Denver, CO ○ Sacramento, CA ○ Lake Forest, CA ○ Prescott, AZ

4041 North Central Avenue
Suite 1050
Phoenix, Arizona 85012-3393

Office: (602) 248-8808
FAX: (602) 248-7722
Toll Free: (800) 554-0288

FLOOD CONTROL DISTRICT
of
MARICOPA COUNTY

Interoffice Memorandum

SUBJECT: OCC Borings at Virginia Avenue

DATE: August 18, 1994

TO: Don Rerick **FROM:** David Gardner

VIA: Catesby Moore

The borings/sampling activities at OCC and Virginia Avenue are complete. Two copies of the report are attached for your use.

Samples were taken at thirty feet below grade and analyzed for the same pollutants that Dames and Moore included in their studies for Motorola. Three samples were taken, with one sample taken in the Virginia Avenue alignment and one each 50 feet north and south of this first point.

In only one sample did organic compounds appear. The levels of the organic compounds present are well below any health based threshold level. Metals appeared in all of the samples in essentially background levels.

Based on the findings of the samples, it is not anticipated that any significant health concerns will arise during construction. However, your suggestion of periodic testing of the excavated materials is warranted and should be implemented during any construction activities.

If you have any questions, please call me at x8401.

Thank you

All three borings were drilled with a hollow stem auger rig using 30 feet of 3.25-inch diameter (ID) augers. The borings were drilled on an angle (approximately 67° from the horizontal), approximately parallel to the slope of the canal bank, so that soil samples could be collected as close to the base of the canal as possible.

Down-hole drilling equipment was decontaminated prior to its first use and before each subsequent use with a high-pressure steam cleaner. Following removal of the augers, the borings were backfilled with a bentonite grout. Cuttings removed during the drilling process were placed on plastic sheeting for temporary storage. It is our understanding that the cuttings were later removed by the MCFCD and moved to a central storage location provided by the MCFCD.

During drilling and sampling, the CEC/WRA geologist maintained boring logs detailing the soil types encountered, sample intervals, and blows per foot to drive the sampler. The soil boring logs are included in Attachment IV. Soils were classified using the Unified Soil Classification System.

A total of 12 soil samples were collected during the course of this investigation. Each sample was collected using a decontaminated 2-inch ID split barrelled sampler lined with clean brass tubes. At the selected sample interval, the sampler was lowered inside the augers and driven into relatively undisturbed soil using a pneumatic hammer. The total number of blows to drive the sampler 1 foot into the soil was recorded on the soil boring log (Attachment IV).

After retrieving the sampler from the boring, the lowermost sleeve containing soil was secured. The sleeve ends were sealed using teflon® tape which were held in place by plastic end caps. Each sleeve was labeled, placed in a sealed plastic bag, and stored on ice for preservation prior to and during transportation to the laboratory. The samples were transported under proper chain-of-custody procedures and delivered to Westech Laboratories (Westech) in Phoenix, Arizona.

Sampling equipment was decontaminated prior to each use. Sampler decontamination consisted of a vigorous wash in detergent solution, a double tap water rinse, and a final rinse in distilled water.

ANALYTICAL CHEMISTRY PROCEDURES AND RESULTS

Soil samples were submitted to Westech Laboratories in Phoenix, Arizona. Analytical procedures were followed in accordance with EPA standards.

The deepest sample (30 feet bgs, measured along the angle) collected from each boring was laboratory analyzed by the following methods.

Method	Parameters
EPA 8080	Organochlorine Pesticides and PCBs
EPA 8260	Volatile Organics
EPA 8270	Semi-Volatile Organics
EPA 8020	BTEX
ADHS BLS-181	Total Petroleum Hydrocarbons (gasoline)
ADHS BLS-191	Total Petroleum Hydrocarbons (diesel)
EPA 6010	Eight Toxic Metals

The laboratory results of all three samples analyzed were below method detection limits for total petroleum hydrocarbons (TPH) and benzene, ethylbenzene, toluene, and xylenes (BTEX). The detection limits were well below the state suggested soil clean-up levels (SSCLs) established for TPH and BTEX in soil. The SSCL for TPH in soil is 100 milligrams per kilogram (mg/kg). The SSCLs for BTEX in soil are 0.13 mg/kg, 200 mg/kg, 68 mg/kg, and 44 mg/kg, respectively. The TPH and BTEX results are summarized in the table presented in Attachment V.

The results of the three samples analyzed by the EPA Method 8080 for pesticides and PCBs were below method detection limits for all of the parameters.

The results of the samples collected from Borings B-2 and B-3 were below method detection limits for volatile organic compounds (VOCs) as identified by the EPA Method 8260. Low concentrations of two separate VOCs were detected in the sample collected from Boring B-1. The compounds, which were detected at concentrations just above the method detection limit, included naphthalene at 62 micrograms per kilogram (μg/kg) and 1,2,4-trichlorobenzene at 63 (μg/kg). The concentrations detected were well below state human health-based guidance levels (HBGLs) for ingesting soil containing naphthalene and 1,2,4-trichlorobenzene. The ingestion HBGLs for naphthalene and 1,2,4-trichlorobenzene in soil are 280 mg/kg and 180 mg/kg, respectively.

The laboratory results of all three samples analyzed by the EPA Method 8720 were below method detection limits for semi-volatile organic compounds.

Low concentrations of five separate metals were detected in all three samples analyzed by the EPA Method 6010 for eight toxic metals. The metals detected included arsenic, barium, cadmium, chromium and lead. The detected concentrations were well below soil ingestion HBGLs for the individual metals detected. The laboratory concentrations detected and the HBGLs for each individual metal are summarized in the table presented in Attachment VI.

The laboratory results for all of the analytical work conducted including chain-of-custody records and the associated quality control data are presented in Attachment VII.

CONCLUSIONS

Based on the laboratory results of soil samples collected from the three borings drilled adjacent to the Old Cross-Cut Canal near Virginia Avenue, low levels of two separate volatile organic compounds (VOCs) are present in subsurface soil at that location. The detected concentrations were well below state human health based guidance levels (HBGLs) established for ingestion of soil containing those compounds.

The detected VOCs may relate to groundwater contamination emanating from off-site sources. The three soil borings were drilled approximately 0.25 miles from the southern boundary of the East Central Phoenix Water Quality Assurance Revolving Fund (WQARF) Study Area. Irrigation wells within the WQARF study area have been reported to be contaminated with VOCs.

Relatively low concentrations of five separate metals were detected in the samples collected from all three borings. The concentrations were all well below HBGLs established for ingestion of soil containing each individual metal. The observed concentrations are within the range of background levels typically observed in Arizona soils. Furthermore, since there is no suspected source for the observed metals, it is the opinion of CEC/WRA that the concentrations detected are probably representative of background soil conditions.

Based on the results of this limited investigation, it appears that health and safety concerns during the re-construction of the Old Cross-Cut Canal are minimal. However, CEC/WRA recommends that the proposed re-construction work be monitored by qualified personnel and that any excavated soil be periodically tested to confirm the results of this limited investigation.

If you have any questions concerning the information provided in this letter report, please call.

Sincerely,

CEC/WRA

Kevin Hebert, P.G.
Manager, UST Programs

Alan C. Thomas
Arizona Operations Manager

Attachments: Attachment I - Site Location Map
Attachment II - Site Plan
Attachment III - MCFCD Scope of Work
Attachment IV - Soil Boring Logs
Attachment V - Summary of TPH and BTEX Analytical Results
Attachment VI - Summary of Analytical Results for Total Metals
Attachment VII - Laboratory Reports

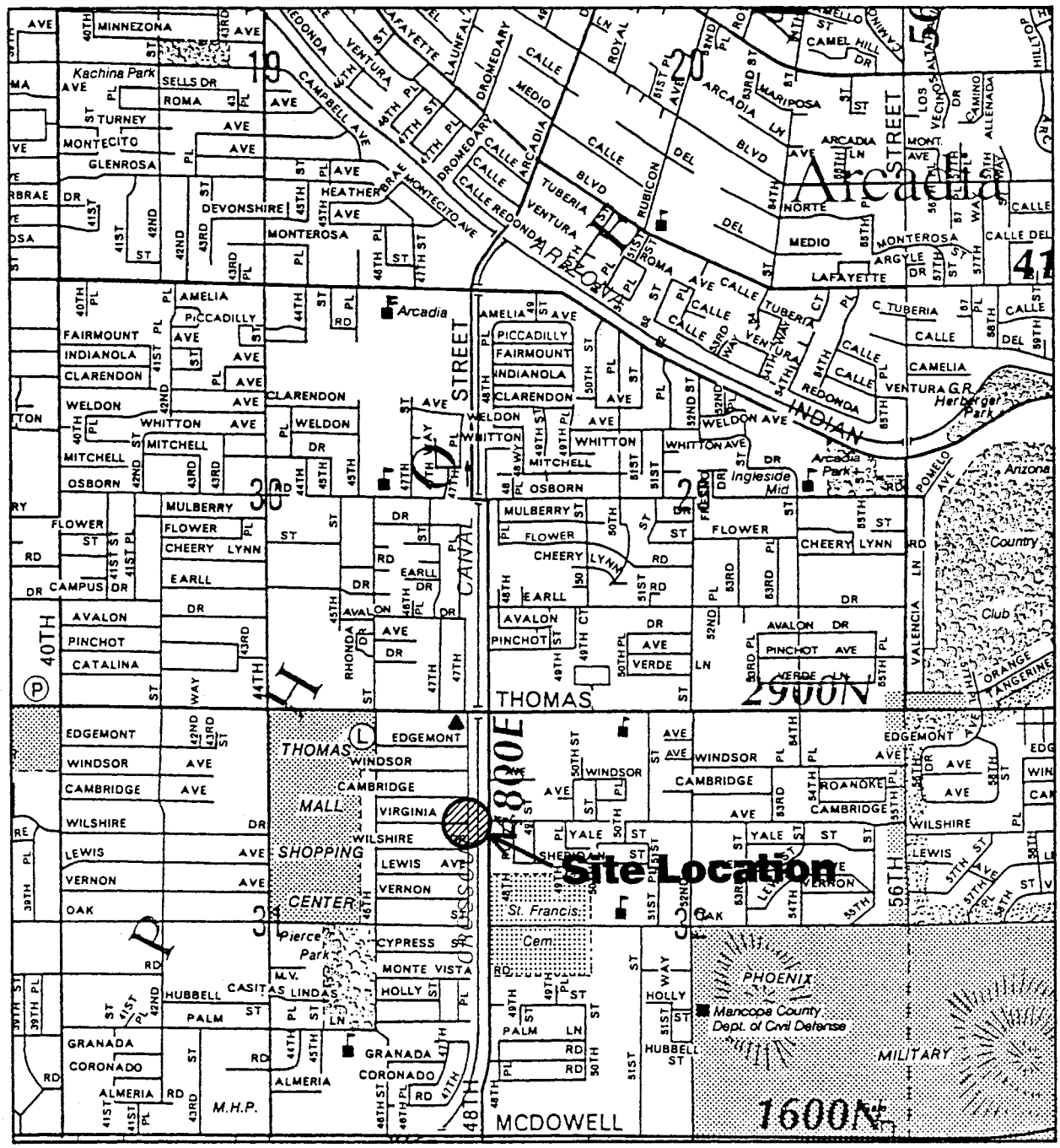
cc: CEC/WRA File AR390-1617

REGISTERED GEOLOGIST
CERTIFICATE NO.
26388
KEVIN D.
HEBERT
Date Signed
ARIZONA U.S.A.

AUG94\PJ\3901617A.KH

ATTACHMENT I

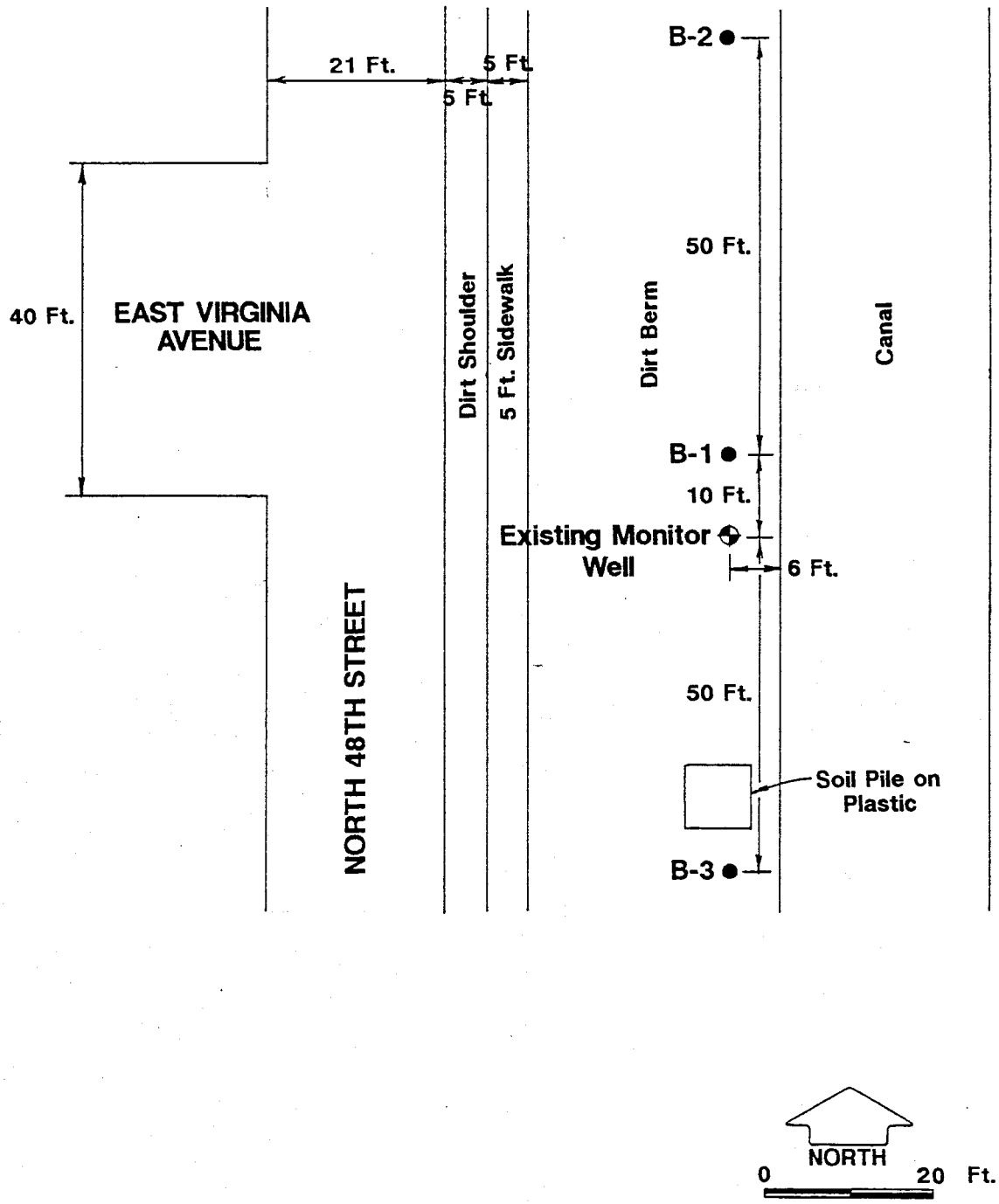
Site Location Map



CEC WRA	SITE LOCATION MAP	FIGURE 1
PROJECT NO. AR390-1617	DRAWN BY K. Andrews	
DATE August 12, 1994	CHECKED BY K. Hebert	

ATTACHMENT II

Site Plan



CEC WRA	SITE PLAN	FIGURE 2
PROJECT NO. AR390-1617 DRAWN BY K. Andrews		
DATE August 12, 1994 CHECKED BY K. Hebert		

ATTACHMENT III

MCFCD Scope of Work

Scope of Work

Old Cross Cut Channel

Water and Sediment Quality Sampling

The Flood Control District is proposing to reconstruct the Old Cross Cut channel from the Arizona Canal north of Indian School Road to McDowell Road. During excavation work on the channel, it is anticipated that groundwater will be encountered. The construction plan includes a dewatering plan to move groundwater away from the active construction area and flow it downstream to the Salt River.

Groundwater in the area is contaminated, with the likely source being the Motorola facility located near Osborn Road and 56th Street. Salt River Project installed a series of underground drains between 1920 and 1930 to remove groundwater from citrus orchards on the east side of the channel. The high groundwater made citrus production in this area difficult. It is believed that these underground drains are transporting groundwater contaminated by the Motorola facility into the Old Cross Cut channel.

In 1990-1991 Thomas-Hartig & Associates performed a geotechnical survey of the channel. Twenty-two test borings were drilled along the channel from McDowell Road to Indian School Road. The borings were drilled with a CME 55 drill rig using 7-inch hollow stem augers. Five of the borings became permanent piezometer wells for groundwater monitoring.

It is desired that the groundwater be monitored to determine what contaminants may be present. Furthermore, it is a concern that pollutants may be accumulating in the sediments in the channel.

The work will involve the following action items:

- Determine the depth to groundwater at each of the five wells.
- Sample each well site for pollutants on the attached sheet.
- Sample soil at 1/4 mile intervals (10 locations) for pollutants on the attached sheet. One sample at each site approximately 30 feet bgs will be taken (14 samples total).

Indian School Road to Thomas Road

1 sample at Indian School, Weldon, Osborn, Earll, Thomas

Thomas Road to McDowell Road

3 samples at Virginia Ave.
2 samples at Oak St.
2 samples at Holly St.
1 sample north of McDowell Road, at end of concrete.

Water Quality Analysis

Volatile Organic Compounds

EPA 601
EPA 602

Total Metals

Antimony (Sb)	Arsenic (As)	Barium (Ba)
Beryllium (Be)	Boron (B)	Cadmium (Cd)
Chromium (Cr)	Copper (Cu)	Iron (Fe)
Lead (Pb)	Manganese (Mn)	Mercury (Hg)
Nickel (Ni)	Selenium (Se)	Silicon (Si)
Silver (Ag)	Thallium (Tl)	Zinc (Zn)

Ions

Alkalinity	Na^+
Ammonia (NH_3 as N)	SO_4^{2-}
Ca^{2+}	F^-
Cl^-	Nitrate (NO_3 as N)
Mg^{2+}	Total Phosphorus
K^+	

Characteristics

pH
Conductivity
Total Dissolved Solids
Hardness
Cyanide
Phenols

Sediment Quality Analysis

Metals

Eight Toxic Metals

Arsenic (As)	total
Barium (Ba)	total
Cadmium (Cd)	total
Chromium (Cr)	total
Lead (Pb)	total
Mercury (Hg)	total
Selenium (Se)	total
Silver (Ag)	total

Organic Compounds

8080	Organochlorine Pesticides and PCBs
8260	Volatile Organics
8270	Semi-volatile Organics
8015	Modified for BTEX
BLS-181	Total Petroleum Hydrocarbons
BLS-191	Petroleum Hydrocarbons (Diesel)

ATTACHMENT IV

Soil Borings Logs

SOIL BORING LOG

WATER RESOURCES ASSOCIATES, INC.

Hydrologists * Hydrogeologists * Engineers * Forensic Hydrologists

BORING NO. B1 SHEET 1 OF 1

PROJECT: MCFCD-Old Cross-Cut Canal	PROJECT NO.: AR390-1617	ELEVATION: 1,200	LOCATION: A(2-4)31AAD
DRILLING AGENCY: Heber Mining & Exploration		DRILLING EQUIPMENT: CME-75	
FOREMAN: Randy Wilder	DATE STARTED: 07-05-94		DATE FINISHED: 07-05-94
COMPLETION DEPTH: 30 Feet	METHOD OF BACKFILLING OR COMPLETION: with cement		INSPECTOR: MWB

FIELD DATA*

TIME	DEPTH (feet)		SPT (blows/foot)	SOIL DESCRIPTION	(PID) FIELD READING (Parts per million)
0835	0		NS	CLAYEY SAND (SC), reddish brown, with trace of gravel (5%), very fine to medium grained, loose, some silt	NM
0837	5		NS	CLAYEY SAND (SC), same as above	NM
0840	10		NS	CLAYEY SAND (SC), same as above	NM
				Water at 13.5 feet	
0845	15	■	02-14-15 (29 b/f)	SAND (SC), with some gravel, reddish brown, wet, with some clay	NM
0857	20	■	07-12-17 (29 b/f)	SAND (SC), same as above	NM
0905	25	■	4-7-14 (21 b/f)	SAND (SC), same as above	NM
0918	30	■	11-32-44 (76 b/f)	SAND (SC), same as above	NM
				Boring Terminated at 30 Feet	
	35				
	40				
	45				
	50				

* EXPLANATION

□ Standard Penetration Test 140 lb. Hammer - 30" fall

■ Undisturbed Driven Sample (S&H Brass Rings)

NS = Not Sampled

NM = Not Measured

AUG94\PJ\3901617A.KH

SOIL BORING LOG

WATER RESOURCES ASSOCIATES, INC.

Hydrologists * Hydrogeologists * Engineers * Forensic Hydrologists

BORING NO. B2 SHEET 1 OF 1

PROJECT: MCFCD-Old Cross-Cut Canal	PROJECT NO.: AR390-1617	ELEVATION: 1,200	LOCATION: A(2-4)31AAD
DRILLING AGENCY: Heber Mining & Exploration		DRILLING EQUIPMENT: CME-75	
FOREMAN: Randy Wilder	DATE STARTED: 07-05-94		DATE FINISHED: 07-05-94
COMPLETION DEPTH: 30 Feet	METHOD OF BACKFILLING OR COMPLETION: with cement		INSPECTOR: MWB

FIELD DATA*

TIME	DEPTH (feet)		SPT (blows/foot)	SOIL DESCRIPTION	(PID) FIELD READING (Parts per million)
	-- 0 --				
1011			NS	CLAYEY SAND (SC), with silt and trace of gravel, reddish brown, very fine to medium grained, fine to course grained gravel	NM
1013	-- 5 --		NS	CLAYEY SAND (SC), same as above	NM
1018	-- 10 --		NS	CLAYEY SAND (SC), same as above	NM
1022	-- 15 --	■	7-14-17 (31 b/f)	GRAVELLY SAND (SP), with clay, wet, fine to coarse grained sand, fine to medium grained gravel	NM
1037	-- 20 --	■	8-12-14 (26 b/f)	GRAVELLY SAND (SP), same as above	NM
1048	-- 25 --	■	5-7-15 (22 b/f)	GRAVELLY SAND (SP), same as above	NM
1057	-- 30 --	■	10-22-28 (50 b/f)	GRAVELLY SAND (SP), same as above	NM
				Boring Terminated at 30 Feet	
	-- 35 --				
	-- 40 --				
	-- 45 --				
	-- 50 --				

* EXPLANATION

□ Standard Penetration Test 140 lb. Hammer - 30" fall — NS = Not Sampled

■ Undisturbed Driven Sample (S&H Brass Rings) — NM = Not Measured

AUG94\PJ\3901617A.KH

SOIL BORING LOG

WATER RESOURCES ASSOCIATES, INC.

Hydrologists * Hydrogeologists * Engineers * Forensic Hydrologists

BORING NO. B3 SHEET 1 OF 1

PROJECT: MCFCD-Old Cross-Cut Canal	PROJECT NO.: AR390-1617	ELEVATION: 1,200	LOCATION: A(2-4)31AAD
DRILLING AGENCY: Heber Mining & Exploration		DRILLING EQUIPMENT: CME-75	
FOREMAN: Randy Wilder	DATE STARTED: 07-05-94	DATE FINISHED: 07-05-94	
COMPLETION DEPTH: 30 Feet	METHOD OF BACKFILLING OR COMPLETION: with cement	INSPECTOR: MWB	

FIELD DATA*

TIME	DEPTH (feet)		SPT (blows/foot)	SOIL DESCRIPTION	(PID) FIELD READING (Parts per million)
	-- 0 --				
1202			NS	CLAYEY SAND (SC), reddish brown, with silt and trace of gravel, fine to medium grained sand, medium plasticity	NM
1204	-- 5 --		NS	CLAYEY SAND (SC), same as above	NM
1207	-- 10 --		NS	CLAYEY SAND (SC), same as above	NM
1216	-- 15 --	■	9-14-15 (29 b/f)	CLAYEY SAND (SC), same as above	NM
				Water at approximately 18 feet	
1226	-- 20 --	■	7-14-18 (32 b/f)	CLAYEY SAND (SC), same as above	NM
1235	-- 25 --	■	9-18-20 (38 b/f)	SANDY CLAY (CL), with gravel, reddish brown	NM
1242	-- 30 --	■	8-17-18 (35 b/f)	SANDY CLAY (CL), same as above	NM
				Boring Terminated at 30 Feet	
	-- 35 --				
	-- 40 --				
	-- 45 --				
	-- 50 --				

* EXPLANATION

□ Standard Penetration Test 140 lb. Hammer - 30" fall

■ Undisturbed Driven Sample (S&H Brass Rings)

NS = Not Sampled

NM = Not Measured

AUG94\PJ\3901617A.KH

ATTACHMENT V

Summary of TPH and BTEX Analytical Results

ATTACHMENT V

SUMMARY OF TPH AND BTEX ANALYTICAL RESULTS

Sample ID	Depth (ft)	Date Sampled	BLS-181	BLS-191	EPA Method 8020			
			TPH (mg/kg)	TPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)
B-1 30	30	07/05/94	<10	<20	<0.01	<0.01	<0.01	<0.003
B-2 30	30	07/05/94	<10	<20	<0.01	<0.01	<0.01	<0.003
B-3 30	30	07/05/94	<10	<20	<0.01	<0.01	<0.01	<0.003
Suggested Soil Clean-Up Levels			100	100	0.13	200	68	44

mg/kg = milligrams per kilogram

ATTACHMENT VI

Summary of Analytical Results for Total Metals

ATTACHMENT VI

SUMMARY OF ANALYTICAL RESULTS FOR TOTAL METALS

Sample ID	Depth (ft)	Date Sampled	EPA Method 6010							
			Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)
B-1	30	07/05/94	11	30	3.0	10	3.4	<0.25	<2.5	<2.5
B-2	30	07/05/94	6.5	81	2.5	10	<2.5	<0.25	<2.5	<2.5
B-3	30	07/05/94	5.8	88	<2.5	8.8	<2.5	<0.25	<2.5	<2.5
Health Based Guidance Level (HBGL)			1,000	100,00	100	2,000	400	40	900	1,000

mg/kg = milligrams per kilogram

ATTACHMENT VII

Laboratory Reports

Westech Laboratories Inc.
The Quality People
Since 1955

3737 East Broadway Road
Phoenix, Arizona 85040
(602) 437-1080 • fax 437-8706

CLIENT MARICOPA FLOOD CONTROL DISTRICT
ATTN: DAVE GARDNER
PROJECT: CROSS CUT CANAL
2801 WEST DURANGO STREET
PHOENIX, AZ 85009

RECEIVED
AUG 0 9 1994
WATER RESOURCES
ASSESSMENTS

SAMPLE NO. : 9412038
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: AGN
PAGE : 1 OF 1

CLIENT SAMPLE ID : B1-30
SAMPLE TYPE .....: SOIL
SAMPLED BY .....: M. BOSTIC
SUBMITTED BY ....: M. BOSTIC
SAMPLE SOURCE ...: N 48 ST CANAL

AUTHORIZED BY : D. GARDNER
CLIENT P.O. : PG95B26191
SAMPLE DATE ...: 07-05-94
SUBMITTAL DATE : 07-06-94
EXTRACTION DATE: --

Inorganic Chemistry - Total Metals

DATA TABLE

Parameter	Result	Unit	Detection Limit	Analysis Date
Total Arsenic .....:	11.	mg/Kg	2.5	07-15-94
Total Barium .....:	30.	mg/Kg	2.5	07-15-94
Total Cadmium .....:	3.0	mg/Kg	2.5	07-15-94
Total Chromium .....:	10.	mg/Kg	2.5	07-15-94
Total Lead .....:	3.4	mg/Kg	2.5	07-15-94
Total Mercury .....:	<0.25	mg/Kg	0.25	07-15-94
Total Selenium .....:	<2.5	mg/Kg	2.5	07-15-94
Total Silver .....:	<2.5	mg/Kg	2.5	07-15-94

(2) Copies to Client

M. Gulli
Managing Director

Westech Laboratories Inc.
The Quality People
Since 1955

3737 East Broadway Road
Phoenix, Arizona 85040
(602) 437-1080 • fax 437-8706

CLIENT MARICOPA FLOOD CONTROL DISTRICT
ATTN: DAVE GARDNER
PROJECT: CROSS CUT CANAL
2801 WEST DURANGO STREET
PHOENIX, AZ 85009

SAMPLE NO. : 9412038
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: AGW
PAGE : 1 OF 1

CLIENT SAMPLE ID : B1-30
SAMPLE TYPE .....: SOIL
SAMPLED BY .....: M. BOSTIC
SUBMITTED BY ....: M. BOSTIC
SAMPLE SOURCE ...: N 48 ST CANAL
ANALYST .....: G. SANNING

AUTHORIZED BY : D. GARDNER
CLIENT P.O. : PG95B26191
SAMPLE DATE ...: 07-05-94
SUBMITTAL DATE : 07-06-94
EXTRACTION DATE: 07-11-94
ANALYSIS DATE .: 07-11-94

BLS 181/Modified 418.1 - Total Petroleum Fuel Hydrocarbons

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
Total Petroleum Hydrocarbons .....:	<10.	mg/Kg	10.

(2) Copies to Client

M. Gadi
Managing Director

Westech Laboratories Inc.
The Quality People
Since 1955

3737 East Broadway Road
Phoenix, Arizona 85040
(602) 437-1080 • fax 437-8706

CLIENT MARICOPA FLOOD CONTROL DISTRICT
ATTN: DAVE GARDNER
PROJECT: CROSS CUT CANAL
2801 WEST DURANGO STREET
PHOENIX, AZ 85009

SAMPLE NO. : 9412038
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: AGH
PAGE : 1 OF 1

CLIENT SAMPLE ID : B1-30
SAMPLE TYPE .....: SOIL
SAMPLED BY .....: M. BOSTIC
SUBMITTED BY ....: M. BOSTIC
SAMPLE SOURCE ...: N 48 ST CANAL
ANALYST .....: A. JAIN

AUTHORIZED BY : D. GARDNER
CLIENT P.O. : PG95B26191
SAMPLE DATE ...: 07-05-94
SUBMITTAL DATE : 07-06-94
EXTRACTION DATE: 07-22-94
ANALYSIS DATE .: 07-25-94

BLS 191/Modified 8015
Total Petroleum Fuel Hydrocarbons (C10 - C22)

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
Total Petroleum Fuel Hydrocarbons :	<20.	mg/Kg	20.

Surrogate Information -

	Percent Recovery	Range
o-Terphenyl .....:	115.0	80-120

(2) Copies to Client

Managing Director

Westech Laboratories Inc.
The Quality People
Since 1955

3737 East Broadway Road
Phoenix, Arizona 85040
(602) 437-1080 • fax 437-8706

CLIENT MARICOPA FLOOD CONTROL DISTRICT
ATTN: DAVE GARDNER
PROJECT: CROSS CUT CANAL
2801 WEST DURANGO STREET
PHOENIX, AZ 85009

SAMPLE NO. : 9412038
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: AGN
PAGE : 1 OF 1

CLIENT SAMPLE ID : B1-30
SAMPLE TYPE .....: SOIL
SAMPLED BY .....: M. BOSTIC
SUBMITTED BY ....: M. BOSTIC
SAMPLE SOURCE ...: N 48 ST CANAL
ANALYST .....: S.KUTA

AUTHORIZED BY : D. GARDNER
CLIENT P.O. : PG95B26191
SAMPLE DATE ...: 07-05-94
SUBMITTAL DATE : 07-06-94
EXTRACTION DATE: 07-11-94
ANALYSIS DATE .: 07-11-94

Method 8020 - Aromatic Volatiles

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
Benzene .....:	<10.	ug/Kg	10.
Toluene .....:	<10.	ug/Kg	10.
Ethylbenzene .....:	<10.	ug/Kg	10.
Total Xylenes .....:	<3.0	ug/Kg	3.0

Surrogate Information -

	Percent Recovery	Range
a,a,a -Trifluorotoluene (8020) ...:	115.0	80-120

(2) Copies to Client

Managing Director

Westech Laboratories Inc.
The Quality People
Since 1955

3737 East Broadway Road
Phoenix, Arizona 85040
(602) 437-1080 • fax 437-8706

CLIENT MARICOPA FLOOD CONTROL DISTRICT
ATTN: DAVE GARDNER
PROJECT: CROSS CUT CANAL
2801 WEST DURANGO STREET
PHOENIX, AZ 85009

SAMPLE NO. : 9412038
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: AGW
PAGE : 1 OF 1

CLIENT SAMPLE ID : B1-30
SAMPLE TYPE .....: SOIL
SAMPLED BY .....: M. BOSTIC
SUBMITTED BY ....: M. BOSTIC
SAMPLE SOURCE ...: N 48 ST CANAL
ANALYST .....: W. ABER

AUTHORIZED BY : D. GARDNER
CLIENT P.O. : PG95B26191
SAMPLE DATE ...: 07-05-94
SUBMITTAL DATE : 07-06-94
EXTRACTION DATE: 07-13-94
ANALYSIS DATE .: 07-24-94

Method 8080 - Pesticides & PCB'S

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
4,4'-DDD	<2.0	ug/Kg	2.0
4,4'-DDE	<2.0	ug/Kg	2.0
4,4'-DDT	<8.0	ug/Kg	8.0
Aldrin	<2.5	ug/Kg	2.5
alpha-BHC	<2.0	ug/Kg	2.0
beta-BHC	<4.0	ug/Kg	4.0
delta-BHC	<6.0	ug/Kg	6.0
Chlordane	<9.0	ug/Kg	9.0
Dieldrin	<1.2	ug/Kg	1.2
Endosulfan I	<9.0	ug/Kg	9.0
Endosulfan II	<2.5	ug/Kg	2.5
Endosulfan sulfate	<40.	ug/Kg	40.
Endrin	<4.0	ug/Kg	4.0
Endrin aldehyde	<15.	ug/Kg	15.
Heptachlor	<2.0	ug/Kg	2.0
Heptachlor Epoxide	<55.	ug/Kg	55.
Lindane	<2.5	ug/Kg	2.5
Methoxychlor	<110.	ug/Kg	110.
Toxaphene	<150.	ug/Kg	150.
PCB 1016	<100.	ug/Kg	100.
PCB 1221	<1000.	ug/Kg	1000.
PCB 1232	<250.	ug/Kg	250.
PCB 1242	<250.	ug/Kg	250.
PCB 1248	<200.	ug/Kg	200.
PCB 1254	<200.	ug/Kg	200.
PCB 1260	<200.	ug/Kg	200.

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Managing Director

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PHOENIX, AZ 85009

SAMPLE NO. : 9412038
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PAGE : 1 OF 2

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SAMPLE TYPE .....: SOIL
SAMPLED BY .....: M. BOSTIC
SUBMITTED BY ....: M. BOSTIC
SAMPLE SOURCE ...: N 48 ST CANAL
ANALYST .....: W. MCCANN

AUTHORIZED BY : D. GARDNER
CLIENT P.O. : PG95B26191
SAMPLE DATE ...: 07-05-94
SUBMITTAL DATE : 07-06-94
EXTRACTION DATE: 07-08-94
ANALYSIS DATE .: 07-08-94

Method 8260 - Volatile Organics

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
1,1,1,2-Tetrachloroethane .....:	<50.	ug/Kg	50.
1,1,1-Trichloroethane .....:	<50.	ug/Kg	50.
1,1,2,2-Tetrachloroethane .....:	<50.	ug/Kg	50.
Tetrachloroethene (PCE) .....:	<50.	ug/Kg	50.
1,1,2-Trichloroethane .....:	<50.	ug/Kg	50.
1,1-Dichloroethane .....:	<50.	ug/Kg	50.
1,1-Dichloroethene .....:	<50.	ug/Kg	50.
1,1-Dichloropropene .....:	<50.	ug/Kg	50.
1,2-Dibromoethane .....:	<50.	ug/Kg	50.
1,2,3-Trichlorobenzene .....:	<50.	ug/Kg	50.
1,2,3-Trichloropropane .....:	<50.	ug/Kg	50.
1,2,4-Trichlorobenzene .....:	63.	ug/Kg	50.
1,2,4-Trimethylbenzene .....:	<50.	ug/Kg	50.
1,2-Dichlorobenzene .....:	<50.	ug/Kg	50.
1,2-Dichloroethane .....:	<50.	ug/Kg	50.
1,2-Dichloropropane .....:	<50.	ug/Kg	50.
1,3,5-Trimethylbenzene .....:	<50.	ug/Kg	50.
1,3-Dichlorobenzene .....:	<50.	ug/Kg	50.
1,3-Dichloropropane .....:	<50.	ug/Kg	50.
1,4-Dichlorobenzene .....:	<50.	ug/Kg	50.
2,2-Dichloropropane .....:	<50.	ug/Kg	50.
2-Chlorotoluene .....:	<50.	ug/Kg	50.
4-Chlorotoluene .....:	<50.	ug/Kg	50.
4-Isopropyltoluene .....:	<50.	ug/Kg	50.
Benzene .....:	<50.	ug/Kg	50.
Bromobenzene .....:	<100.	ug/Kg	100.
Bromochloromethane .....:	<50.	ug/Kg	50.
Bromodichloromethane .....:	<50.	ug/Kg	50.
Bromoform .....:	<100.	ug/Kg	100.
Bromomethane .....:	<100.	ug/Kg	100.

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SAMPLE NO. : 9412038
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PAGE : 2 OF 2

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
Carbon tetrachloride	<50.	ug/Kg	50.
Chlorobenzene	<50.	ug/Kg	50.
Chloroethane	<100.	ug/Kg	100.
Chloroform	<50.	ug/Kg	50.
Chloromethane	<100.	ug/Kg	100.
cis 1,2-Dichloroethene	<50.	ug/Kg	50.
Dibromochloromethane	<50.	ug/Kg	50.
Dibromochloropropane	<250.	ug/Kg	250.
Dibromomethane	<100.	ug/Kg	100.
Dichlorodifluoromethane	<250.	ug/Kg	250.
Dichloromethane	<250.	ug/Kg	250.
Ethylbenzene	<50.	ug/Kg	50.
Hexachlorobutadiene	<50.	ug/Kg	50.
Isopropylbenzene	<50.	ug/Kg	50.
m-Xylene	<50.	ug/Kg	50.
Naphthalene	62.	ug/Kg	50.
n-Butylbenzene	<50.	ug/Kg	50.
o-Xylene	<50.	ug/Kg	50.
Propylbenzene	<50.	ug/Kg	50.
p-Xylene	<50.	ug/Kg	50.
sec-Butylbenzene	<50.	ug/Kg	50.
Styrene	<50.	ug/Kg	50.
tert-Butylbenzene	<50.	ug/Kg	50.
Toluene	<50.	ug/Kg	50.
trans 1,2-Dichloroethene	<50.	ug/Kg	50.
Trichloroethene	<50.	ug/Kg	50.
Trichlorofluoromethane	<250.	ug/Kg	250.
Vinyl chloride	<250.	ug/Kg	250.

Surrogate Information -

	Percent Recovery	Range
4-Bromofluorobenzene	85.0	74-121
1,2-Dichloroethane-D4	94.0	70-121
Toluene-D8	100.0	81-117

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SUBMITTED BY ....: M. BOSTIC
SAMPLE SOURCE ...: N 48 ST CANAL
ANALYST .....: S.KARA

AUTHORIZED BY : D. GARDNER
CLIENT P.O. : PG95B26191
SAMPLE DATE ...: 07-05-94
SUBMITTAL DATE : 07-06-94
EXTRACTION DATE: 07-12-94
ANALYSIS DATE .: 07-27-94

Semi-Volatiles by Gas Chromatography/ Mass Spectrometry

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
Phenol .....:	<20.	mg/Kg	20.
Bis(2-Chloroethyl)ether .....:	<20.	mg/Kg	20.
2-Chlorophenol .....:	<20.	mg/Kg	20.
1,3-Dichlorobenzene .....:	<20.	mg/Kg	20.
1,4-Dichlorobenzene .....:	<20.	mg/Kg	20.
1,2-Dichlorobenzene .....:	<20.	mg/Kg	20.
2-Methylphenol .....:	<20.	mg/Kg	20.
Bis(2-chloroisopropyl)ether .....:	<20.	mg/Kg	20.
4-Methylphenol .....:	<20.	mg/Kg	20.
N-Nitroso-di-n-propylamine .....:	<20.	mg/Kg	20.
Hexachloroethane .....:	<20.	mg/Kg	20.
Nitrobenzene .....:	<20.	mg/Kg	20.
Isophorone .....:	<20.	mg/Kg	20.
2-Nitrophenol .....:	<20.	mg/Kg	20.
2,4 Dimethylphenol .....:	<20.	mg/Kg	20.
Bis(2-Chloroethoxy) methane .....:	<20.	mg/Kg	20.
2,4-Dichlorophenol .....:	<20.	mg/Kg	20.
1,2,4-Trichlorobenzene .....:	<20.	mg/Kg	20.
Napthalene .....:	<20.	mg/Kg	20.
4-Chloroaniline .....:	<40.	mg/Kg	40.
Hexachlorobutadiene .....:	<20.	mg/Kg	20.
4-Chloro-3-methylphenol .....:	<30.	mg/Kg	30.
2-Methylnaphthalene .....:	<20.	mg/Kg	20.
Hexachlorocyclopentadiene .....:	<20.	mg/Kg	20.
2,4,6-Trichlorophenol .....:	<20.	mg/Kg	20.
2,4,5-Trichlorophenol .....:	<20.	mg/Kg	20.
2-Chloronaphthalene .....:	<20.	mg/Kg	20.
2-Nitroaniline .....:	<30.	mg/Kg	30.
Dimethyl Phthalate .....:	<20.	mg/Kg	20.
Acenaphthylene .....:	<20.	mg/Kg	20.

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PHOENIX, AZ 85009

SAMPLE NO. : 9412038
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: AGN

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
3-Nitroaniline	<40.	mg/Kg	40.
Acenaphthene	<20.	mg/Kg	20.
2,4-Dinitrophenol	<20.	mg/Kg	20.
4-Nitrophenol	<30.	mg/Kg	30.
Dibenzofuran	<20.	mg/Kg	20.
2,4-Dinitrotoluene	<20.	mg/Kg	20.
2,6-Dinitrotoluene	<20.	mg/Kg	20.
Diethyl Phthalate	<20.	mg/Kg	20.
4-Chlorophenyl phenyl ether	<20.	mg/Kg	20.
Fluorene	<20.	mg/Kg	20.
4-Nitroaniline	<40.	mg/Kg	40.
2-Methyl-4,6-dinitrophenol	<30.	mg/Kg	30.
N-Nitrosodiphenylamine	<20.	mg/Kg	20.
4-Bromophenyl phenyl ether	<20.	mg/Kg	20.
Hexachlorobenzene	<20.	mg/Kg	20.
Pentachlorophenol	<30.	mg/Kg	30.
2,6-Dichlorophenol	<20.	mg/Kg	20.
N-Nitrosodibutylamine	<20.	mg/Kg	20.
N-Nitrosodimethylamine	<20.	mg/Kg	20.
Phenanthrene	<20.	mg/Kg	20.
Anthracene	<20.	mg/Kg	20.
Di-n-Butyl Phthalate	<20.	mg/Kg	20.
Fluoranthene	<20.	mg/Kg	20.
Pyrene	<20.	mg/Kg	20.
Butyl Benzyl Phthalate	<20.	mg/Kg	20.
3,3'-Dichlorobenzidine	<30.	mg/Kg	30.
Benzo(a)anthracene	<20.	mg/Kg	20.
Bis(2-ethylhexyl) Phthalate	<20.	mg/Kg	20.
Chrysene	<20.	mg/Kg	20.
Di-n-Octyl Phthalate	<20.	mg/Kg	20.
Benzo(b)fluoranthene	<66.	mg/Kg	66.
Benzo(k)fluoranthene	<20.	mg/Kg	20.
Benzo(a)pyrene	<20.	mg/Kg	20.
Indeno(1,2,3-cd)pyrene	<20.	mg/Kg	20.
Dibenz(a,h)anthracene	<20.	mg/Kg	20.
Benzo(ghi)perylene	<20.	mg/Kg	20.
alpha-BHC	<20.	mg/Kg	20.
beta-BHC	<20.	mg/Kg	20.

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PHOENIX, AZ 85009

SAMPLE NO. : 9412038
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: ABW

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
delta-BHC	<20.	mg/Kg	20.
gamma-BHC (Lindane)	<20.	mg/Kg	20.
Aldrin	<20.	mg/Kg	20.
Heptachlor	<20.	mg/Kg	20.
Heptachlor Epoxide	<20.	mg/Kg	20.
Endosulfan I	<20.	mg/Kg	20.
4,4'-DDE	<20.	mg/Kg	20.
Dieldrin	<20.	mg/Kg	20.
Endrin	<20.	mg/Kg	20.
4,4'-DDD	<20.	mg/Kg	20.
Endosulfan II	<20.	mg/Kg	20.
4,4'-DDT	<20.	mg/Kg	20.
Endrin Aldehyde	<20.	mg/Kg	20.
Endosulfan Sulfate	<20.	mg/Kg	20.
Methoxychlor	<20.	mg/Kg	20.
Toxaphene	<50.	mg/Kg	50.
Chlordanes (alpha + gamma)	<20.	mg/Kg	20.
PCB 1016	<50.	mg/Kg	50.
PCB 1221	<50.	mg/Kg	50.
PCB 1232	<50.	mg/Kg	50.
PCB 1242	<50.	mg/Kg	50.
PCB 1248	<50.	mg/Kg	50.
PCB 1254	<50.	mg/Kg	50.
PCB 1260	<50.	mg/Kg	50.
Endrin ketone	<20.	mg/Kg	20.
Endosulfan II	<20.	mg/Kg	20.
Benzoic acid	<330.	mg/Kg	330.
Benzidine	<40.	mg/Kg	40.
1-Chloronaphthalene	<20.	mg/Kg	20.
Dibenz(a,j)acridine	<20.	mg/Kg	20.
7,12-Dimethylbenzo(a)anthracene	<66.	mg/Kg	66.
a,a Dimethylphenethylamine	<50.	mg/Kg	50.
Diphenylamine	<20.	mg/Kg	20.
1,2-Diphenylhydrazine	<30.	mg/Kg	30.
Ethyl Methanesulfonate	<130.	mg/Kg	130.
3-Methylcholanthrene	<66.	mg/Kg	66.
Methylmethansulfonate	<66.	mg/Kg	66.
N-Nitrosopiperidine	<40.	mg/Kg	40.

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PHOENIX, AZ 85009

SAMPLE NO. : 9412038
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: ABM

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
1-Naphthylamine	<66.	mg/Kg	66.
2-Naphthylamine	<20.	mg/Kg	20.
2-Picoline	<50.	mg/Kg	50.
Pentachlorobenzene	<66.	mg/Kg	66.
Pentachloronitrobenzene	<130.	mg/Kg	130.
Phenacetin	<130.	mg/Kg	130.
Pronamide	<66.	mg/Kg	66.
1,2,4,5-Tetrachlorobenzene	<66.	mg/Kg	66.
2,3,4,6-Tetrachlorophenol	<20.	mg/Kg	20.
Aniline	<50.	mg/Kg	50.
Acetophenone	<40.	mg/Kg	40.
Benzyl alcohol	<130.	mg/Kg	130.
Dimethylaminoazobenzene	<66.	mg/Kg	66.

Surrogate Information -

	Percent Recovery	Range
2-Fluorophenol	49.0	25-121
Phenol-d5	48.0	24-113
2,4,6-Tribromophenol	24.5	19-122
2-Fluorobiphenyl	101.0	30-115
Nitrobenzene-d5	106.0	23-120
4-Terphenyl-d14	93.0	18-137

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SAMPLE NO. : 9412042
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: AEN
PAGE : 1 OF 1

CLIENT SAMPLE ID : B2-30
SAMPLE TYPE .....: SOIL
SAMPLED BY .....: M. BOSTIC
SUBMITTED BY ....: M. BOSTIC
SAMPLE SOURCE ...: N 48 ST CANAL

AUTHORIZED BY : D. GARDNER
CLIENT P.O. : PG95B26191
SAMPLE DATE ...: 07-05-94
SUBMITTAL DATE : 07-06-94
EXTRACTION DATE: --

Inorganic Chemistry - Total Metals

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Total Arsenic .....:	6.5	mg/Kg	2.5	07-15-94
Total Barium .....:	81.	mg/Kg	2.5	07-15-94
Total Cadmium .....:	2.5	mg/Kg	2.5	07-15-94
Total Chromium .....:	10.	mg/Kg	2.5	07-15-94
Total Lead .....:	<2.5	mg/Kg	2.5	07-15-94
Total Mercury .....:	<0.25	mg/Kg	0.25	07-15-94
Total Selenium .....:	<2.5	mg/Kg	2.5	07-15-94
Total Silver .....:	<2.5	mg/Kg	2.5	07-15-94

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ANALYST .....: G. SANNING

AUTHORIZED BY : D. GARDNER
CLIENT P.O. : PG95B26191
SAMPLE DATE ...: 07-05-94
SUBMITTAL DATE : 07-06-94
EXTRACTION DATE: 07-11-94
ANALYSIS DATE .: 07-11-94

BLS 181/Modified 418.1 - Total Petroleum Fuel Hydrocarbons

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
Total Petroleum Hydrocarbons .....:	<10.	mg/Kg	10.

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ANALYST .....: A. JAIN

AUTHORIZED BY : D. GARDNER
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SAMPLE DATE ...: 07-05-94
SUBMITTAL DATE : 07-06-94
EXTRACTION DATE: 07-22-94
ANALYSIS DATE .: 07-25-94

BLS 191/Modified 8015
Total Petroleum Fuel Hydrocarbons (C10 - C22)

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
Total Petroleum Fuel Hydrocarbons :	<20.	mg/Kg	20.

Surrogate Information -

	Percent Recovery	Range
o-Terphenyl .....:	115.0	80-120

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ANALYST .....: S.KUTA

AUTHORIZED BY : D. GARDNER
CLIENT P.O. : PG95B26191
SAMPLE DATE ...: 07-05-94
SUBMITTAL DATE : 07-06-94
EXTRACTION DATE: 07-11-94
ANALYSIS DATE .: 07-11-94

Method 8020 - Aromatic Volatiles

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
Benzene .....:	<10.	ug/Kg	10.
Toluene .....:	<10.	ug/Kg	10.
Ethylbenzene .....:	<10.	ug/Kg	10.
Total Xylenes .....:	<3.0	ug/Kg	3.0

Surrogate Information -

	Percent Recovery	Range
a,a,a -Trifluorotoluene (8020) ...:	114.0	80-120

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Since 1955

3737 East Broadway Road
Phoenix, Arizona 85040
(602) 437-1080 • fax 437-8706

CLIENT MARICOPA FLOOD CONTROL DISTRICT
ATTN: DAVE GARDNER
PROJECT: CROSS CUT CANAL
2801 WEST DURANGO STREET
PHOENIX, AZ 85009

SAMPLE NO. : 9412042
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: AEW
PAGE : 1 OF 1

CLIENT SAMPLE ID : B2-30
SAMPLE TYPE .....: SOIL
SAMPLED BY .....: M. BOSTIC
SUBMITTED BY ....: M. BOSTIC
SAMPLE SOURCE ...: N 48 ST CANAL
ANALYST .....: W. ABER

AUTHORIZED BY : D. GARDNER
CLIENT P.O. : PG95B26191
SAMPLE DATE ...: 07-05-94
SUBMITTAL DATE : 07-06-94
EXTRACTION DATE: 07-13-94
ANALYSIS DATE .: 07-24-94

Method 8080 - Pesticides & PCB'S

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
4,4'-DDD	<2.0	ug/Kg	2.0
4,4'-DDE	<2.0	ug/Kg	2.0
4,4'-DDT	<8.0	ug/Kg	8.0
Aldrin	<2.5	ug/Kg	2.5
alpha-BHC	<2.0	ug/Kg	2.0
beta-BHC	<4.0	ug/Kg	4.0
delta-BHC	<6.0	ug/Kg	6.0
Chlordane	<9.0	ug/Kg	9.0
Dieldrin	<1.2	ug/Kg	1.2
Endosulfan I	<9.0	ug/Kg	9.0
Endosulfan II	<2.5	ug/Kg	2.5
Endosulfan sulfate	<40.	ug/Kg	40.
Endrin	<4.0	ug/Kg	4.0
Endrin aldehyde	<15.	ug/Kg	15.
Heptachlor	<2.0	ug/Kg	2.0
Heptachlor Epoxide	<55.	ug/Kg	55.
Lindane	<2.5	ug/Kg	2.5
Methoxychlor	<110.	ug/Kg	110.
Toxaphene	<150.	ug/Kg	150.
PCB 1016	<100.	ug/Kg	100.
PCB 1221	<1000.	ug/Kg	1000.
PCB 1232	<250.	ug/Kg	250.
PCB 1242	<250.	ug/Kg	250.
PCB 1248	<200.	ug/Kg	200.
PCB 1254	<200.	ug/Kg	200.
PCB 1260	<200.	ug/Kg	200.

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SAMPLE NO. : 9412042
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: AGN
PAGE : 1 OF 2

CLIENT SAMPLE ID : B2-30
SAMPLE TYPE .....: SOIL
SAMPLED BY .....: M. BOSTIC
SUBMITTED BY ....: M. BOSTIC
SAMPLE SOURCE ...: N 48 ST CANAL
ANALYST .....: W. MCCANN

AUTHORIZED BY : D. GARDNER
CLIENT P.O. : PG95B26191
SAMPLE DATE ...: 07-05-94
SUBMITTAL DATE : 07-06-94
EXTRACTION DATE: 07-08-94
ANALYSIS DATE .: 07-08-94

Method 8260 - Volatile Organics

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
1,1,1,2-Tetrachloroethane .....:	<50.	ug/Kg	50.
1,1,1-Trichloroethane .....:	<50.	ug/Kg	50.
1,1,2,2-Tetrachloroethane .....:	<50.	ug/Kg	50.
Tetrachloroethene (PCE) .....:	<50.	ug/Kg	50.
1,1,2-Trichloroethane .....:	<50.	ug/Kg	50.
1,1-Dichloroethane .....:	<50.	ug/Kg	50.
1,1-Dichloroethene .....:	<50.	ug/Kg	50.
1,1-Dichloropropene .....:	<50.	ug/Kg	50.
1,2-Dibromoethane .....:	<50.	ug/Kg	50.
1,2,3-Trichlorobenzene .....:	<50.	ug/Kg	50.
1,2,3-Trichloropropane .....:	<50.	ug/Kg	50.
1,2,4-Trichlorobenzene .....:	<50.	ug/Kg	50.
1,2,4-Trimethylbenzene .....:	<50.	ug/Kg	50.
1,2-Dichlorobenzene .....:	<50.	ug/Kg	50.
1,2-Dichloroethane .....:	<50.	ug/Kg	50.
1,2-Dichloropropane .....:	<50.	ug/Kg	50.
1,3,5-Trimethylbenzene .....:	<50.	ug/Kg	50.
1,3-Dichlorobenzene .....:	<50.	ug/Kg	50.
1,3-Dichloropropane .....:	<50.	ug/Kg	50.
1,4-Dichlorobenzene .....:	<50.	ug/Kg	50.
2,2-Dichloropropane .....:	<50.	ug/Kg	50.
2-Chlorotoluene .....:	<50.	ug/Kg	50.
4-Chlorotoluene .....:	<50.	ug/Kg	50.
4-Isopropyltoluene .....:	<50.	ug/Kg	50.
Benzene .....:	<50.	ug/Kg	50.
Bromobenzene .....:	<100.	ug/Kg	100.
Bromochloromethane .....:	<50.	ug/Kg	50.
Bromodichloromethane .....:	<50.	ug/Kg	50.
Bromoform .....:	<100.	ug/Kg	100.
Bromomethane .....:	<100.	ug/Kg	100.

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Managing Director

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2801 WEST DURANGO STREET
PHOENIX, AZ 85009

SAMPLE NO. : 9412042
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: AGN

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
Carbon tetrachloride	<50.	ug/Kg	50.
Chlorobenzene	<50.	ug/Kg	50.
Chloroethane	<100.	ug/Kg	100.
Chloroform	<50.	ug/Kg	50.
Chloromethane	<100.	ug/Kg	100.
cis 1,2-Dichloroethene	<50.	ug/Kg	50.
Dibromochloromethane	<50.	ug/Kg	50.
Dibromochloropropane	<250.	ug/Kg	250.
Dibromomethane	<100.	ug/Kg	100.
Dichlorodifluoromethane	<250.	ug/Kg	250.
Dichloromethane	<250.	ug/Kg	250.
Ethylbenzene	<50.	ug/Kg	50.
Hexachlorobutadiene	<50.	ug/Kg	50.
Isopropylbenzene	<50.	ug/Kg	50.
m-Xylene	<50.	ug/Kg	50.
Naphthalene	<50.	ug/Kg	50.
n-Butylbenzene	<50.	ug/Kg	50.
o-Xylene	<50.	ug/Kg	50.
Propylbenzene	<50.	ug/Kg	50.
p-Xylene	<50.	ug/Kg	50.
sec-Butylbenzene	<50.	ug/Kg	50.
Styrene	<50.	ug/Kg	50.
tert-Butylbenzene	<50.	ug/Kg	50.
Toluene	<50.	ug/Kg	50.
trans 1,2-Dichloroethene	<50.	ug/Kg	50.
Trichloroethene	<50.	ug/Kg	50.
Trichlorofluoromethane	<250.	ug/Kg	250.
Vinyl chloride	<250.	ug/Kg	250.

Surrogate Information -

	Percent Recovery	Range
4-Bromofluorobenzene	92.0	74-121
1,2-Dichloroethane-D4	94.0	70-121
Toluene-D8	100.0	81-117

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SAMPLE SOURCE ...: N 48 ST CANAL
ANALYST .....: S.KARA

AUTHORIZED BY : D. GARDNER
CLIENT P.O. : PG95B26191
SAMPLE DATE ...: 07-05-94
SUBMITTAL DATE : 07-06-94
EXTRACTION DATE: 07-12-94
ANALYSIS DATE .: 07-27-94

Semi-Volatiles by Gas Chromatography/ Mass Spectrometry

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
Phenol .....:	<20.	mg/Kg	20.
Bis(2-Chloroethyl)ether .....:	<20.	mg/Kg	20.
2-Chlorophenol .....:	<20.	mg/Kg	20.
1,3-Dichlorobenzene .....:	<20.	mg/Kg	20.
1,4-Dichlorobenzene .....:	<20.	mg/Kg	20.
1,2-Dichlorobenzene .....:	<20.	mg/Kg	20.
2-Methylphenol .....:	<20.	mg/Kg	20.
Bis(2-chloroisopropyl)ether .....:	<20.	mg/Kg	20.
4-Methylphenol .....:	<20.	mg/Kg	20.
N-Nitroso-di-n-propylamine .....:	<20.	mg/Kg	20.
Hexachloroethane .....:	<20.	mg/Kg	20.
Nitrobenzene .....:	<20.	mg/Kg	20.
Isophorone .....:	<20.	mg/Kg	20.
2-Nitrophenol .....:	<20.	mg/Kg	20.
2,4 Dimethylphenol .....:	<20.	mg/Kg	20.
Bis(2-Chloroethoxy) methane .....:	<20.	mg/Kg	20.
2,4-Dichlorophenol .....:	<20.	mg/Kg	20.
1,2,4-Trichlorobenzene .....:	<20.	mg/Kg	20.
Napthalene .....:	<20.	mg/Kg	20.
4-Chloroaniline .....:	<40.	mg/Kg	40.
Hexachlorobutadiene .....:	<20.	mg/Kg	20.
4-Chloro-3-methylphenol .....:	<30.	mg/Kg	30.
2-Methylnaphthalene .....:	<20.	mg/Kg	20.
Hexachlorocyclopentadiene .....:	<20.	mg/Kg	20.
2,4,6-Trichlorophenol .....:	<20.	mg/Kg	20.
2,4,5-Trichlorophenol .....:	<20.	mg/Kg	20.
2-Chloronaphthalene .....:	<20.	mg/Kg	20.
2-Nitroaniline .....:	<30.	mg/Kg	30.
Dimethyl Phthalate .....:	<20.	mg/Kg	20.
Acenaphthylene .....:	<20.	mg/Kg	20.

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M. Gurdil
Managing Director

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2801 WEST DURANGO STREET
PHOENIX, AZ 85009

SAMPLE NO. : 9412042
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: AEW

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
3-Nitroaniline	<40.	mg/Kg	40.
Acenaphthene	<20.	mg/Kg	20.
2,4-Dinitrophenol	<20.	mg/Kg	20.
4-Nitrophenol	<30.	mg/Kg	30.
Dibenzofuran	<20.	mg/Kg	20.
2,4-Dinitrotoluene	<20.	mg/Kg	20.
2,6-Dinitrotoluene	<20.	mg/Kg	20.
Diethyl Phthalate	<20.	mg/Kg	20.
4-Chlorophenyl phenyl ether	<20.	mg/Kg	20.
Fluorene	<20.	mg/Kg	20.
4-Nitroaniline	<40.	mg/Kg	40.
2-Methyl-4,6-dinitrophenol	<30.	mg/Kg	30.
N-Nitrosodiphenylamine	<20.	mg/Kg	20.
4-Bromophenyl phenyl ether	<20.	mg/Kg	20.
Hexachlorobenzene	<20.	mg/Kg	20.
Pentachlorophenol	<30.	mg/Kg	30.
2,6-Dichlorophenol	<20.	mg/Kg	20.
N-Nitrosodibutylamine	<20.	mg/Kg	20.
N-Nitrosodimethylamine	<20.	mg/Kg	20.
Phenanthrene	<20.	mg/Kg	20.
Anthracene	<20.	mg/Kg	20.
Di-n-Butyl Phthalate	<20.	mg/Kg	20.
Fluoranthene	<20.	mg/Kg	20.
Pyrene	<20.	mg/Kg	20.
Butyl Benzyl Phthalate	<20.	mg/Kg	20.
3,3'-Dichlorobenzidine	<30.	mg/Kg	30.
Benzo(a)anthracene	<20.	mg/Kg	20.
Bis(2-ethylhexyl) Phthalate	<20.	mg/Kg	20.
Chrysene	<20.	mg/Kg	20.
Di-n-Octyl Phthalate	<20.	mg/Kg	20.
Benzo(b)fluoranthene	<66.	mg/Kg	66.
Benzo(k)fluoranthene	<20.	mg/Kg	20.
Benzo(a)pyrene	<20.	mg/Kg	20.
Indeno(1,2,3-cd)pyrene	<20.	mg/Kg	20.
Dibenz(a,h)anthracene	<20.	mg/Kg	20.
Benzo(ghi)perylene	<20.	mg/Kg	20.
alpha-BHC	<20.	mg/Kg	20.
beta-BHC	<20.	mg/Kg	20.

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2801 WEST DURANGO STREET
PHOENIX, AZ 85009

SAMPLE NO. : 9412042
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: RGH
PAGE : 3 OF 4

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
delta-BHC	<20.	mg/Kg	20.
gamma-BHC (Lindane)	<20.	mg/Kg	20.
Aldrin	<20.	mg/Kg	20.
Heptachlor	<20.	mg/Kg	20.
Heptachlor Epoxide	<20.	mg/Kg	20.
Endosulfan I	<20.	mg/Kg	20.
4,4'-DDE	<20.	mg/Kg	20.
Dieldrin	<20.	mg/Kg	20.
Endrin	<20.	mg/Kg	20.
4,4'-DDD	<20.	mg/Kg	20.
Endosulfan II	<20.	mg/Kg	20.
4,4'-DDT	<20.	mg/Kg	20.
Endrin Aldehyde	<20.	mg/Kg	20.
Endosulfan Sulfate	<20.	mg/Kg	20.
Methoxychlor	<20.	mg/Kg	20.
Toxaphene	<50.	mg/Kg	50.
Chlordanes (alpha + gamma)	<20.	mg/Kg	20.
PCB 1016	<50.	mg/Kg	50.
PCB 1221	<50.	mg/Kg	50.
PCB 1232	<50.	mg/Kg	50.
PCB 1242	<50.	mg/Kg	50.
PCB 1248	<50.	mg/Kg	50.
PCB 1254	<50.	mg/Kg	50.
PCB 1260	<50.	mg/Kg	50.
Endrin ketone	<20.	mg/Kg	20.
Endosulfan II	<20.	mg/Kg	20.
Benzoic acid	<330.	mg/Kg	330.
Benzidine	<40.	mg/Kg	40.
1-Chloronaphthalene	<20.	mg/Kg	20.
Dibenz(a,j)acridine	<20.	mg/Kg	20.
7,12-Dimethylbenzo(a)anthracene	<66.	mg/Kg	66.
a,a Dimethylphenethylamine	<50.	mg/Kg	50.
Diphenylamine	<20.	mg/Kg	20.
1,2-Diphenylhydrazine	<30.	mg/Kg	30.
Ethyl Methanesulfonate	<130.	mg/Kg	130.
3-Methylcholanthrene	<66.	mg/Kg	66.
Methylmethansulfonate	<66.	mg/Kg	66.
N-Nitrosopiperidine	<40.	mg/Kg	40.

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SAMPLE NO. : 9412042
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: ASN
PAGE : 4 OF 4

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
1-Naphthylamine	<66.	mg/Kg	66.
2-Naphthylamine	<20.	mg/Kg	20.
2-Picoline	<50.	mg/Kg	50.
Pentachlorobenzene	<66.	mg/Kg	66.
Pentachloronitrobenzene	<130.	mg/Kg	130.
Phenacetin	<130.	mg/Kg	130.
Pronamide	<66.	mg/Kg	66.
1,2,4,5-Tetrachlorobenzene	<66.	mg/Kg	66.
2,3,4,6-Tetrachlorophenol	<20.	mg/Kg	20.
Aniline	<50.	mg/Kg	50.
Acetophenone	<40.	mg/Kg	40.
Benzyl alcohol	<130.	mg/Kg	130.
Dimethylaminoazobenzene	<66.	mg/Kg	66.

Surrogate Information -

	Percent Recovery	Range
2-Fluorophenol	56.0	25-121
Phenol-d5	55.5	24-113
2,4,6-Tribromophenol	24.0	19-122
2-Fluorobiphenyl	109.0	30-115
Nitrobenzene-d5	116.0	23-120
4-Terphenyl-d14	107.0	18-137

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SAMPLE NO. : 9412046
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: AGN
PAGE : 1 OF 1

CLIENT SAMPLE ID : B3-30
SAMPLE TYPE .....: SOIL
SAMPLED BY .....: M. BOSTIC
SUBMITTED BY ....: M. BOSTIC
SAMPLE SOURCE ...: N 48 ST CANAL

AUTHORIZED BY : D. GARDNER
CLIENT P.O. : PG95B26191
SAMPLE DATE ...: 07-05-94
SUBMITTAL DATE : 07-06-94
EXTRACTION DATE: --

Inorganic Chemistry - Total Metals

D A T A T A B L E

Parameter	Result	Unit	Detection Limit	Analysis Date
Total Arsenic .....:	5.8	mg/Kg	2.5	07-15-94
Total Barium .....:	88.	mg/Kg	2.5	07-15-94
Total Cadmium .....:	<2.5	mg/Kg	2.5	07-15-94
Total Chromium .....:	8.8	mg/Kg	2.5	07-15-94
Total Lead .....:	<2.5	mg/Kg	2.5	07-15-94
Total Mercury .....:	<0.25	mg/Kg	0.25	07-15-94
Total Selenium .....:	<2.5	mg/Kg	2.5	07-15-94
Total Silver .....:	<2.5	mg/Kg	2.5	07-15-94

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ANALYST .....: G. SANNING

AUTHORIZED BY : D. GARDNER
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SAMPLE DATE ...: 07-05-94
SUBMITTAL DATE : 07-06-94
EXTRACTION DATE: 07-11-94
ANALYSIS DATE .: 07-11-94

BLS 181/Modified 418.1 - Total Petroleum Fuel Hydrocarbons

DATA TABLE

Parameter	Result	Unit	Detection Limit
Total Petroleum Hydrocarbons .....:	<10.	mg/Kg	10.

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SAMPLE SOURCE ...: N 48 ST CANAL
ANALYST .....: A. JAIN

AUTHORIZED BY : D. GARDNER
CLIENT P.O. : PG95B26191
SAMPLE DATE ...: 07-05-94
SUBMITTAL DATE : 07-06-94
EXTRACTION DATE: 07-22-94
ANALYSIS DATE .: 07-25-94

BLS 191/Modified 8015
Total Petroleum Fuel Hydrocarbons (C10 - C22)

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
Total Petroleum Fuel Hydrocarbons :	<20.	mg/Kg	20.

Surrogate Information -

	Percent Recovery	Range
o-Terphenyl .....:	100.0	80-120

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SAMPLE SOURCE ...: N 48 ST CANAL
ANALYST .....: S.KUTA

AUTHORIZED BY : D. GARDNER
CLIENT P.O. : PG95B26191
SAMPLE DATE ...: 07-05-94
SUBMITTAL DATE : 07-06-94
EXTRACTION DATE: 07-11-94
ANALYSIS DATE .: 07-11-94

Method 8020 - Aromatic Volatiles

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
Benzene .....:	<10.	ug/Kg	10.
Toluene .....:	<10.	ug/Kg	10.
Ethylbenzene .....:	<10.	ug/Kg	10.
Total Xylenes .....:	<3.0	ug/Kg	3.0

Surrogate Information -

	Percent Recovery	Range
a,a,a -Trifluorotoluene (8020) ...:	112.0	80-120

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3737 East Broadway Road
Phoenix, Arizona 85040
(602) 437-1080 • fax 437-8706

CLIENT MARICOPA FLOOD CONTROL DISTRICT
ATTN: DAVE GARDNER
PROJECT: CROSS CUT CANAL
2801 WEST DURANGO STREET
PHOENIX, AZ 85009

SAMPLE NO. : 9412046
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: AGW
PAGE : 1 OF 1

CLIENT SAMPLE ID : B3-30
SAMPLE TYPE .....: SOIL
SAMPLED BY .....: M. BOSTIC
SUBMITTED BY ....: M. BOSTIC
SAMPLE SOURCE ...: N 48 ST CANAL
ANALYST .....: W. ABER

AUTHORIZED BY : D. GARDNER
CLIENT P.O. : PG95B26191
SAMPLE DATE ...: 07-05-94
SUBMITTAL DATE : 07-06-94
EXTRACTION DATE: 07-13-94
ANALYSIS DATE .: 07-24-94

Method 8080 - Pesticides & PCB'S

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
4,4'-DDD	<2.0	ug/Kg	2.0
4,4'-DDE	<2.0	ug/Kg	2.0
4,4'-DDT	<8.0	ug/Kg	8.0
Aldrin	<2.5	ug/Kg	2.5
alpha-BHC	<2.0	ug/Kg	2.0
beta-BHC	<4.0	ug/Kg	4.0
delta-BHC	<6.0	ug/Kg	6.0
Chlordane	<9.0	ug/Kg	9.0
Dieldrin	<1.2	ug/Kg	1.2
Endosulfan I	<9.0	ug/Kg	9.0
Endosulfan II	<2.5	ug/Kg	2.5
Endosulfan sulfate	<40.	ug/Kg	40.
Endrin	<4.0	ug/Kg	4.0
Endrin aldehyde	<15.	ug/Kg	15.
Heptachlor	<2.0	ug/Kg	2.0
Heptachlor Epoxide	<55.	ug/Kg	55.
Lindane	<2.5	ug/Kg	2.5
Methoxychlor	<110.	ug/Kg	110.
Toxaphene	<150.	ug/Kg	150.
PCB 1016	<100.	ug/Kg	100.
PCB 1221	<1000.	ug/Kg	1000.
PCB 1232	<250.	ug/Kg	250.
PCB 1242	<250.	ug/Kg	250.
PCB 1248	<200.	ug/Kg	200.
PCB 1254	<200.	ug/Kg	200.
PCB 1260	<200.	ug/Kg	200.

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M. Gudi
Managing Director

Westech Laboratories Inc.
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2801 WEST DURANGO STREET
PHOENIX, AZ 85009

SAMPLE NO. : 9412046
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: AGU
PAGE : 1 OF 2

CLIENT SAMPLE ID : B3-30
SAMPLE TYPE .....: SOIL
SAMPLED BY .....: M. BOSTIC
SUBMITTED BY ....: M. BOSTIC
SAMPLE SOURCE ...: N 48 ST CANAL
ANALYST .....: W. MCCANN

AUTHORIZED BY : D. GARDNER
CLIENT P.O. : PG95B26191
SAMPLE DATE ...: 07-05-94
SUBMITTAL DATE : 07-06-94
EXTRACTION DATE: 07-08-94
ANALYSIS DATE .: 07-08-94

Method 8260 - Volatile Organics

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
1,1,1,2-Tetrachloroethane .....:	<50.	ug/Kg	50.
1,1,1-Trichloroethane .....:	<50.	ug/Kg	50.
1,1,2,2-Tetrachloroethane .....:	<50.	ug/Kg	50.
Tetrachloroethene (PCE) .....:	<50.	ug/Kg	50.
1,1,2-Trichloroethane .....:	<50.	ug/Kg	50.
1,1-Dichloroethane .....:	<50.	ug/Kg	50.
1,1-Dichloroethene .....:	<50.	ug/Kg	50.
1,1-Dichloropropene .....:	<50.	ug/Kg	50.
1,2-Dibromoethane .....:	<50.	ug/Kg	50.
1,2,3-Trichlorobenzene .....:	<50.	ug/Kg	50.
1,2,3-Trichloropropane .....:	<50.	ug/Kg	50.
1,2,4-Trichlorobenzene .....:	<50.	ug/Kg	50.
1,2,4-Trimethylbenzene .....:	<50.	ug/Kg	50.
1,2-Dichlorobenzene .....:	<50.	ug/Kg	50.
1,2-Dichloroethane .....:	<50.	ug/Kg	50.
1,2-Dichloropropane .....:	<50.	ug/Kg	50.
1,3,5-Trimethylbenzene .....:	<50.	ug/Kg	50.
1,3-Dichlorobenzene .....:	<50.	ug/Kg	50.
1,3-Dichloropropane .....:	<50.	ug/Kg	50.
1,4-Dichlorobenzene .....:	<50.	ug/Kg	50.
2,2-Dichloropropane .....:	<50.	ug/Kg	50.
2-Chlorotoluene .....:	<50.	ug/Kg	50.
4-Chlorotoluene .....:	<50.	ug/Kg	50.
4-Isopropyltoluene .....:	<50.	ug/Kg	50.
Benzene .....:	<50.	ug/Kg	50.
Bromobenzene .....:	<100.	ug/Kg	100.
Bromochloromethane .....:	<50.	ug/Kg	50.
Bromodichloromethane .....:	<50.	ug/Kg	50.
Bromoform .....:	<100.	ug/Kg	100.
Bromomethane .....:	<100.	ug/Kg	100.

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Managing Director

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CLIENT MARICOPA FLOOD CONTROL DISTRICT
ATTN: DAVE GARDNER
PROJECT: CROSS CUT CANAL
2801 WEST DURANGO STREET
PHOENIX, AZ 85009

SAMPLE NO. : 9412046
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: ABW

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
Carbon tetrachloride	<50.	ug/Kg	50.
Chlorobenzene	<50.	ug/Kg	50.
Chloroethane	<100.	ug/Kg	100.
Chloroform	<50.	ug/Kg	50.
Chloromethane	<100.	ug/Kg	100.
cis 1,2-Dichloroethene	<50.	ug/Kg	50.
Dibromochloromethane	<50.	ug/Kg	50.
Dibromochloropropane	<250.	ug/Kg	250.
Dibromomethane	<100.	ug/Kg	100.
Dichlorodifluoromethane	<250.	ug/Kg	250.
Dichloromethane	<250.	ug/Kg	250.
Ethylbenzene	<50.	ug/Kg	50.
Hexachlorobutadiene	<50.	ug/Kg	50.
Isopropylbenzene	<50.	ug/Kg	50.
m-Xylene	<50.	ug/Kg	50.
Naphthalene	<50.	ug/Kg	50.
n-Butylbenzene	<50.	ug/Kg	50.
o-Xylene	<50.	ug/Kg	50.
Propylbenzene	<50.	ug/Kg	50.
p-Xylene	<50.	ug/Kg	50.
sec-Butylbenzene	<50.	ug/Kg	50.
Styrene	<50.	ug/Kg	50.
tert-Butylbenzene	<50.	ug/Kg	50.
Toluene	<50.	ug/Kg	50.
trans 1,2-Dichloroethene	<50.	ug/Kg	50.
Trichloroethene	<50.	ug/Kg	50.
Trichlorofluoromethane	<250.	ug/Kg	250.
Vinyl chloride	<250.	ug/Kg	250.

Surrogate Information -

	Percent Recovery	Range
4-Bromofluorobenzene	87.0	74-121
1,2-Dichloroethane-D4	95.0	70-121
Toluene-D8	100.0	81-117

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SAMPLE NO. : 9412046
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: AEN
PAGE : 1 OF 4

CLIENT SAMPLE ID : B3-30
SAMPLE TYPE .....: SOIL
SAMPLED BY .....: M. BOSTIC
SUBMITTED BY ....: M. BOSTIC
SAMPLE SOURCE ...: N 48 ST CANAL
ANALYST .....: S.KARA

AUTHORIZED BY : D. GARDNER
CLIENT P.O. : PG95B26191
SAMPLE DATE ...: 07-05-94
SUBMITTAL DATE : 07-06-94
EXTRACTION DATE: 07-12-94
ANALYSIS DATE .: 07-27-94

Semi-Volatiles by Gas Chromatography/ Mass Spectrometry

D A T A T A B L E

Parameter	Result	Unit	Detection Limit
Phenol	<20.	mg/Kg	20.
Bis(2-Chloroethyl)ether	<20.	mg/Kg	20.
2-Chlorophenol	<20.	mg/Kg	20.
1,3-Dichlorobenzene	<20.	mg/Kg	20.
1,4-Dichlorobenzene	<20.	mg/Kg	20.
1,2-Dichlorobenzene	<20.	mg/Kg	20.
2-Methylphenol	<20.	mg/Kg	20.
Bis(2-chloroisopropyl)ether	<20.	mg/Kg	20.
4-Methylphenol	<20.	mg/Kg	20.
N-Nitroso-di-n-propylamine	<20.	mg/Kg	20.
Hexachloroethane	<20.	mg/Kg	20.
Nitrobenzene	<20.	mg/Kg	20.
Isophorone	<20.	mg/Kg	20.
2-Nitrophenol	<20.	mg/Kg	20.
2,4 Dimethylphenol	<20.	mg/Kg	20.
Bis(2-Chloroethoxy) methane	<20.	mg/Kg	20.
2,4-Dichlorophenol	<20.	mg/Kg	20.
1,2,4-Trichlorobenzene	<20.	mg/Kg	20.
Napthalene	<20.	mg/Kg	20.
4-Chloroaniline	<40.	mg/Kg	40.
Hexachlorobutadiene	<20.	mg/Kg	20.
4-Chloro-3-methylphenol	<30.	mg/Kg	30.
2-Methylnaphthalene	<20.	mg/Kg	20.
Hexachlorocyclopentadiene	<20.	mg/Kg	20.
2,4,6-Trichlorophenol	<20.	mg/Kg	20.
2,4,5-Trichlorophenol	<20.	mg/Kg	20.
2-Chloronaphthalene	<20.	mg/Kg	20.
2-Nitroaniline	<30.	mg/Kg	30.
Dimethyl Phthalate	<20.	mg/Kg	20.
Acenaphthylene	<20.	mg/Kg	20.

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Managing Director

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ATTN: DAVE GARDNER
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2801 WEST DURANGO STREET
PHOENIX, AZ 85009

SAMPLE NO. : 9412046
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: AGN

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
3-Nitroaniline	<40.	mg/Kg	40.
Acenaphthene	<20.	mg/Kg	20.
2,4-Dinitrophenol	<20.	mg/Kg	20.
4-Nitrophenol	<30.	mg/Kg	30.
Dibenzofuran	<20.	mg/Kg	20.
2,4-Dinitrotoluene	<20.	mg/Kg	20.
2,6-Dinitrotoluene	<20.	mg/Kg	20.
Diethyl Phthalate	<20.	mg/Kg	20.
4-Chlorophenyl phenyl ether	<20.	mg/Kg	20.
Fluorene	<20.	mg/Kg	20.
4-Nitroaniline	<40.	mg/Kg	40.
2-Methyl-4,6-dinitrophenol	<30.	mg/Kg	30.
N-Nitrosodiphenylamine	<20.	mg/Kg	20.
4-Bromophenyl phenyl ether	<20.	mg/Kg	20.
Hexachlorobenzene	<20.	mg/Kg	20.
Pentachlorophenol	<30.	mg/Kg	30.
2,6-Dichlorophenol	<20.	mg/Kg	20.
N-Nitrosodibutylamine	<20.	mg/Kg	20.
N-Nitrosodimethylamine	<20.	mg/Kg	20.
Phenanthrene	<20.	mg/Kg	20.
Anthracene	<20.	mg/Kg	20.
Di-n-Butyl Phthalate	<20.	mg/Kg	20.
Fluoranthene	<20.	mg/Kg	20.
Pyrene	<20.	mg/Kg	20.
Butyl Benzyl Phthalate	<20.	mg/Kg	20.
3,3'-Dichlorobenzidine	<30.	mg/Kg	30.
Benzo(a)anthracene	<20.	mg/Kg	20.
Bis(2-ethylhexyl) Phthalate	<20.	mg/Kg	20.
Chrysene	<20.	mg/Kg	20.
Di-n-Octyl Phthalate	<20.	mg/Kg	20.
Benzo(b)fluoranthene	<66.	mg/Kg	66.
Benzo(k)fluoranthene	<20.	mg/Kg	20.
Benzo(a)pyrene	<20.	mg/Kg	20.
Indeno(1,2,3-cd)pyrene	<20.	mg/Kg	20.
Dibenz(a,h)anthracene	<20.	mg/Kg	20.
Benzo(ghi)perylene	<20.	mg/Kg	20.
alpha-BHC	<20.	mg/Kg	20.
beta-BHC	<20.	mg/Kg	20.

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PHOENIX, AZ 85009

SAMPLE NO. : 9412046
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: AGN

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
delta-BHC	<20.	mg/Kg	20.
gamma-BHC (Lindane)	<20.	mg/Kg	20.
Aldrin	<20.	mg/Kg	20.
Heptachlor	<20.	mg/Kg	20.
Heptachlor Epoxide	<20.	mg/Kg	20.
Endosulfan I	<20.	mg/Kg	20.
4,4'-DDE	<20.	mg/Kg	20.
Dieldrin	<20.	mg/Kg	20.
Endrin	<20.	mg/Kg	20.
4,4'-DDD	<20.	mg/Kg	20.
Endosulfan II	<20.	mg/Kg	20.
4,4'-DDT	<20.	mg/Kg	20.
Endrin Aldehyde	<20.	mg/Kg	20.
Endosulfan Sulfate	<20.	mg/Kg	20.
Methoxychlor	<20.	mg/Kg	20.
Toxaphene	<50.	mg/Kg	50.
Chlordanes (alpha + gamma)	<20.	mg/Kg	20.
PCB 1016	<50.	mg/Kg	50.
PCB 1221	<50.	mg/Kg	50.
PCB 1232	<50.	mg/Kg	50.
PCB 1242	<50.	mg/Kg	50.
PCB 1248	<50.	mg/Kg	50.
PCB 1254	<50.	mg/Kg	50.
PCB 1260	<50.	mg/Kg	50.
Endrin ketone	<20.	mg/Kg	20.
Endosulfan II	<20.	mg/Kg	20.
Benzoic acid	<330.	mg/Kg	330.
Benzidine	<40.	mg/Kg	40.
1-Chloronaphthalene	<20.	mg/Kg	20.
Dibenz(a,j)acridine	<20.	mg/Kg	20.
7,12-Dimethylbenzo(a)anthracene	<66.	mg/Kg	66.
a,a Dimethylphenethylamine	<50.	mg/Kg	50.
Diphenylamine	<20.	mg/Kg	20.
1,2-Diphenylhydrazine	<30.	mg/Kg	30.
Ethyl Methanesulfonate	<130.	mg/Kg	130.
3-Methylcholanthrene	<66.	mg/Kg	66.
Methylmethansulfonate	<66.	mg/Kg	66.
N-Nitrosopiperidine	<40.	mg/Kg	40.

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SAMPLE NO. : 9412046
INVOICE NO.: 22142740
REPORT DATE: 07-19-94
REVIEWED BY: AGN

D A T A T A B L E (Cont.)

Parameter	Result	Unit	Detection Limit
1-Naphthylamine	<66.	mg/Kg	66.
2-Naphthylamine	<20.	mg/Kg	20.
2-Picoline	<50.	mg/Kg	50.
Pentachlorobenzene	<66.	mg/Kg	66.
Pentachloronitrobenzene	<130.	mg/Kg	130.
Phenacetin	<130.	mg/Kg	130.
Pronamide	<66.	mg/Kg	66.
1,2,4,5-Tetrachlorobenzene	<66.	mg/Kg	66.
2,3,4,6-Tetrachlorophenol	<20.	mg/Kg	20.
Aniline	<50.	mg/Kg	50.
Acetophenone	<40.	mg/Kg	40.
Benzyl alcohol	<130.	mg/Kg	130.
Dimethylaminoazobenzene	<66.	mg/Kg	66.

Surrogate Information -

	Percent Recovery	Range
2-Fluorophenol	57.5	25-121
Phenol-d5	54.5	24-113
2,4,6-Tribromophenol	29.0	19-122
2-Fluorobiphenyl	108.0	30-115
Nitrobenzene-d5	114.0	23-120
4-Terphenyl-d14	106.0	18-137

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QUALITY CONTROL REPORT

QC IDENTIFIER .....: 103-072594-1
REFERENCE NOTEBOOK :
REFERENCE PAGE ....:

INSTRUMENT : Hewlett Packard GC with Dual FID
ANALYZED BY : A. JAIN
ANALYZED ON : 07-25-94

TEST DESCRIPTION ..: BLS 191/Modified 8015

SAMPLES IN THIS RUN: 9412038 9412042 9412046 9412284 9412285 9412286

CALIBRATION CHECK -

PARAMETER	UNIT	TRUE VALUE	FOUND VALUE	%RECOVERY
Total Petroleum Fuel Hydrocarbons	mg/L	100.	116.	116.0
Total Petroleum Fuel Hydrocarbons	mg/L	100.	118.	118.0

SPIKES -

SAMPLE NUMBER	PARAMETER	UNIT	SAMPLE RESULT	SPIKE CONC.	SAMPLE+SPIKE DUP1/DUP2	%REC	RPD
9412046	Total Petroleum Fuel Hydroca	mg/Kg	<20.	100.	1) 111.	111.0	
					2) 112.	112.0	0.9

METHOD BLANKS -

PARAMETER	UNIT	RESULT
Total Petroleum Fuel Hydrocarbons	mg/L	<1.0

NOTE -

1) NC: Not Calculable because result is < 5 times the MDL

2) NP: Not Practical because sample result is 4 times or more greater than spike added.

3) Percent Recovery is:

$$\frac{\text{Sample+Spike Result} - \text{Sample Result}}{\text{Spike Amount}} \times 100$$

4) Relative Percent Difference (RPD) is:

$$\frac{\text{Sample Result} - \text{Replicate Result}}{(\text{Sample Result} + \text{Replicate Result})/2} \times 100$$

WESTECH LABORATORIES INC.
QUALITY ASSURANCE OFFICER
A. Nichols
DATE: 8/5/94

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QUALITY CONTROL REPORT

QC IDENTIFIER .....: 115-071194-1
REFERENCE NOTEBOOK : CH-191
REFERENCE PAGE ....: 36

INSTRUMENT : Beckman Acculab IR-TPHC
ANALYZED BY : G. SANNING
ANALYZED ON : 07-11-94

TEST DESCRIPTION ..: BLS 181/Modified 418.1 - Total Petroleum Fuel Hydrocarbons

SAMPLES IN THIS RUN: 9411989 9411994 9411995 9412038 9412042 9412046 9412096
9412097 9412098 9412099 9412141 9412142 9412143 9412144
9412145 9412146 9412147 9412165 9412231

CALIBRATION CHECK -

PARAMETER	UNIT	TRUE VALUE	FOUND VALUE	%RECOVERY
Total Petroleum Hydrocarbons	mg/L	100.	100.	100.0
Total Petroleum Hydrocarbons	mg/L	100.	100	100.0
Total Petroleum Hydrocarbons	mg/L	100.	105	105.0

SPIKES -

SAMPLE NUMBER	PARAMETER	UNIT	SAMPLE RESULT	SPIKE CONC.	SAMPLE+SPIKE DUP1/DUP2		%REC	RPD%
9411989	Total Petroleum Hydrocarbons	mg/Kg	74.	100.	1)	180.	106.0	
					2)	180.	106.0	0.[illegible]
9412099	Total Petroleum Hydrocarbons	mg/Kg	32.	100.	1)	120.	88.0	
					2)	135.	103.0	15.[illegible]

METHOD BLANKS -

PARAMETER	UNIT	RESULT
Total Petroleum Hydrocarbons	mg/L	<1.0

QUALITY CONTROL REPORT

QC IDENTIFIER .....: 115-071194-1
REFERENCE NOTEBOOK : CH-191
REFERENCE PAGE ....: 36

INSTRUMENT : Beckman Acculab IR-TPHC
ANALYZED BY : G. SANNING
ANALYZED ON : 07-11-94

NOTE -

1) NC: Not Calculable because result is < 5 times the MDL

2) NP: Not Practical because sample result is 4 times or more greater than spike added.

3) Percent Recovery is:

$$\frac{\text{Sample+Spike Result - Sample Result}}{\text{Spike Amount}} \times 100$$

4) Relative Percent Difference (RPD) is:

$$\frac{\text{Sample Result - Replicate Result}}{(\text{Sample Result + Replicate Result})/2} \times 100$$

WESTECH
LABORATORIES
INC.
QUALITY ASSURANCE OFFICER
R. Nichols
DATE: 8/5/94

Westech Laboratories Inc.
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Phoenix, Arizona 85040
(602) 437-1080 • fax 437-8706

QUALITY CONTROL REPORT

QC IDENTIFIER .....: 106-071194-1
REFERENCE NOTEBOOK :
REFERENCE PAGE ....:

INSTRUMENT : Hewlett Packard GC w/ PID & FID
ANALYZED BY : S.KUTA
ANALYZED ON : 07-11-94

TEST DESCRIPTION ..: Method 8020 - Aromatic Volatiles

SAMPLES IN THIS RUN: 9412038 9412042 9412046 9412141 9412142 9412143 9412144 9412145 9412146 9412147 9412166 9412167

CALIBRATION CHECK -

PARAMETER	UNIT	TRUE VALUE	FOUND VALUE	%RECOVERY
Ethylbenzene	ug/L	10.	11.	110.0
Toluene	ug/L	10.	11.	110.0
Total Xylenes	ug/L	30.	33.	110.0
Benzene	ug/L	10.	11.	110.0
Ethylbenzene	ug/L	10.	10.	100.0
Toluene	ug/L	10.	10.	100.0
Total Xylenes	ug/L	30.	32.	106.7
Benzene	ug/L	10.	10.	100.0
Ethylbenzene	ug/L	10.	11.	110.0
Toluene	ug/L	10.	11.	110.0
Total Xylenes	ug/L	30.	33.	110.0
Benzene	ug/L	10.	11.	110.0

BLANK SPIKE & BLANK SPIKE DUPLICATE -

SAMPLE NUMBER	PARAMETER	UNIT	SAMPLE RESULT	SPIKE CONC.	SAMPLE+SPIKE DUP1/DUP2	% REC.	RPD%
Meth. Blank	Benzene	ug/L	<0.40	10.	11. 9.7	110.0 97.0	12.6
Meth. Blank	Toluene	ug/L	<1.0	10.	11. 9.8	110.0 98.0	11.6
Meth. Blank	Ethylbenzene	ug/L	<1.0	10.	11. 9.9	110.0 99.0	10.5
Meth. Blank	Total Xylenes	ug/L	<0.3	30.	33. 29.	110.0 96.7	12.9
Meth. Blank	Benzene	ug/L	<0.40	10.	10. 10.	100.0 100.0	0.0
Meth. Blank	Toluene	ug/L	<1.0	10.	10. 10.	100.0 100.0	0.0
Meth. Blank	Ethylbenzene	ug/L	<1.0	10.	10. 10.	100.0 100.0	0.0
Meth. Blank	Total Xylenes	ug/L	<0.3	30.	32. 30.	106.7 100.0	6.5

QUALITY CONTROL REPORT

QC IDENTIFIER .....: 106-071194-1
REFERENCE NOTEBOOK :
REFERENCE PAGE ....:

INSTRUMENT : Hewlett Packard GC w/ PID & FID
ANALYZED BY : S.KUTA
ANALYZED ON : 07-11-94

TEST DESCRIPTION ..: Method 8020 - Aromatic Volatiles

SAMPLES IN THIS RUN: 9412038 9412042 9412046 9412141 9412142 9412143 9412144 9412145 9412146 9412147 9412166 9412167

METHOD BLANKS -

PARAMETER	UNIT	RESULT
Benzene	ug/L	<0.40
Toluene	ug/L	<1.0
Ethylbenzene	ug/L	<1.0
Total Xylenes	ug/L	<0.3

NOTE -

1) NC: Not Calculable because result is < 5 times the MDL

2) NP: Not Practical because sample result is 4 times or more greater than spike added.

3) Percent Recovery is:

$$\frac{\text{Sample+Spike Result - Sample Result}}{\text{Spike Amount}} \times 100$$

4) Relative Percent Difference (RPD) is:

$$\frac{\text{Sample Result - Replicate Result}}{(\text{Sample Result + Replicate Result})/2} \times 100$$

WESTECH
LABORATORIES
INC.
QUALITY ASSURANCE OFFICER
[illegible]
DATE: 8/5/94

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CHAIN OF CUSTODY RECORD

Page 1 of 1

CLIENT: MCFCD	ADDRESS: 2801 W DURANGO ST
CONTACT PERSON: DANE GARDNER	PHNX, AZ 85009
TELEPHONE:	PROJECT: CROSS-CUT CANAL / JOB / P.O. NO.: PG95B26191
FAX:	WESTECH QUOTE / CONTRACT NO.:

• SEE FEE SCHEDULE •

SAMPLER (SIGNATURE): [signature]
(PRINT NAME): MICHAEL W BOSTIC

SAMPLE TYPE CODES: S - SOIL, O - OIL, G - SLUDGE, D - DRINKING WATER, W - WASTEWATER, T - TRAVEL BLANK, F - FIELD BLANK, X - OTHER (SPECIFY): ____

SAMPLE / COOLER TEMPERATURE:

SAMPLE IDENTIFICATION	DATE	TIME	SAMPLE LOCATION	NO. CONTAINERS	COMPOSITE	GRAB	SAMPLE TYPE	Unpreserved	HNO_3	NaOH	H_2SO_4	HCl		HOLD (Do Not Analyze)	EPA 8080	EPA 8100	EPA 8270	EPA 8010 (GC/MS)	ADHS BLS-181	ADHS BLS-191 (GC/MS)	EPA 6010 (ICP)			COMMENTS	LABORATORY IDENTIFICATION
B1-15	07/06/94	0845	N48ST CANAL	2			S							X											9412035
B1-20		0857												X											36
B1-25		0905												X											37
B1-30		0918													X	X	X	X	X	X	X				38
B2-15		1022												X											39
B2-20		1037												X											40
B2-25		1048												X											41
B2-30		1057													X	X	X	X	X	X	X				42
B3-15		1216												X											43
B3-20		1226												X											44
B3-25		1235												X											45
B3-30		1242													X	X	X	X	X	X	X				46
				RLD			RLD																		

RELINQUISHED BY (SIGNATURE)	PRINT NAME	RECEIVED BY (SIGNATURE)	PRINT NAME	DATE / TIME
[signature]	Michael W Bostic	Rebecca L Dixon	R. DIXON	7/6/94 1130

REMARKS: Also send results to CSI/WRA Attn: Kevin Hebert

☐ Fax Results ☐ Special Detection Limits / Requirements

SAMPLE PROCESS TURNAROUND TIME:
☑ Standard ☐ Other (specify) ____