James P. Bowers, PE
R. William Rudolph, Jr., PE

91 OCT 1 1 11:27

October 9, 1991
SCI 430.015

Mr. William Meckel
East Bay Municipal Utility District
Wastewater Department - MS59
P.O. Box 24055
Oakland, California

Quarterly Monitoring Report #6 (July 10 thru October 8, 1991)
Wastewater Discharge Permit #001-00009
1330 Martin Luther King Jr. Way
Oakland, California

Dear Mr. Meckel:

This letter presents quarterly monitoring results from the groundwater treatment plant at 1330 Martin Luther King Jr. Way. Monitoring of treated effluent has been performed in accordance with criteria specified in the EBMUD wastewater discharge permit #001-00009, issued to the Oakland Redevelopment Agency for remediation of hydrocarbon contaminated groundwater.

During the sixth quarter of operation (July 10th through October 8, 1991) approximately 626,210 gallons of treated water were discharged into the EBMUD sanitary sewer system. Treatment plant performance remains excellent. The analytical results from 32 sampling events indicate that total volatile hydrocarbons (TVH), benzene, toluene, xylene, and ethylbenzene (BTXE) and volatile organic compounds (VOC) have been reduced to nondetectable concentrations before discharge into the EBMUD sanitary sewer. No indications of breakthrough have occurred in the primary carbon column. Results of the water quality data generated during the sixth quarter are presented in Table 1. Analytical test reports and Chain-of-Custody documents are also attached.

Approximately 105,000 gallons of contaminated water from the adjacent Garage 2 site were treated during the first part of this quarter of operation. The water contained low concentrations of chlorinated hydrocarbons. For this reason, the monitoring program was modified to include testing for EPA 8010 chemicals.

The analytical test results indicate that biologic activity within the primary holding tank, which was documented in previous quarterly reports, is on-going. Hydrocarbon concentrations up to

approximately 1300 parts per billion (ppb) are entering the primary holding tank and not more than 130 ppb of hydrocarbons have been recorded leaving the tank before passing through the carbon treatment system. Consequently, hydrocarbon loading of the carbon treatment system has been minimal.

If you have any questions, please call.

Yours very truly,

Subsurface Consultants, Inc.

Sean O. Carson
Civil Engineer 45074 (expires 3/31/94)

SOC:JPB:ddh

Attachments: Table 1 - Contaminant Concentrations in Water
Analytical Test Reports
Chain-of-Custody Documents

cc: Ms. Lois Parr
Oakland Redevelopment Agency, OEDE

Mr. Paul Smith
ACHCSA

Mr. Lester Feldman
RWQCB

Mr. Donnell Choy
City of Oakland

Table 1. Contaminant Concentrations In Water

Sample	Sampling Date	TVH[1] (ug/L)[3]	Benzene[2] (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)	EPA 8010
WI[4]-30-2[5]	07/23/91	1300	170	71	22	100	NR[10]
WI-30-G2[12]		ND[7]	ND	ND	ND	ND	1.1[11]
I[6]-30		ND	ND	ND	ND	1.7	ND
B[8]-30		ND	ND	ND	ND	ND	ND
E[9]-30		ND	ND	ND	ND	ND	ND
WI-31-2	08/26/91	790	91	20	9.3	62	NR
I-31		130	0.6	ND	ND	3.2	NR
B-31		ND	ND	ND	ND	ND	NR
E-31		ND	ND	ND	ND	ND	NR
WI-32-1	09/26/91	240	18	ND	3.4	4.9	NR
WI-32-2		NR	ND	ND	ND	ND	NR
I-32		180	5.3	0.9	2.0	6.8	NR
B-32		NR	ND	ND	ND	ND	NR
E-32		NR	ND	ND	ND	ND	NR

1 TVH = Total volatile hydrocarbons, EPA 8015/5030
2 BTEX, Analyses by EPA 8020/5030
3 ug/L = micrograms per liter or parts per billion (ppb)
4 WI = Well Influent, i.e. wastewater from well prior to discharge into the primary holding tank
5 -2 indicates sample from Extraction Well #2
6 I = Influent at primary carbon vessel
7 ND = None detected, chemicals not present at concentrations above the detection limits; see test reports for detection limits
8 B = Between carbon vessels
9 E = Effluent
10 NR = Test not requested
11 as Tetrachlorethene
12 G2 indicates sample from Garage 2

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 07/23/91
DATE REPORTED: 07/25/91

LAB NUMBER: 104582

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 430.015

LOCATION: MLK GW EXTRACTION

RESULTS: SEE ATTACHED

QA/QC Approval

Final Approval

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 104582
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 430.015
LOCATION: MLK GW EXTRACTION

DATE RECEIVED: 07/23/91
DATE ANALYZED: 07/23/91
DATE REPORTED: 07/25/91

Total Volatile Hydrocarbons with BTXE in Aqueous Solutions
TVH by California DOHS Method/LUFT Manual October 1989
BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (ug/L)	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)
104582-1	WI-30-2	1,300	170	71	22	100
104582-2	WI-30-G2	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
104582-3	I-30	ND(50)	1.2	ND(0.5)	ND(0.5)	ND(0.5)
104582-4	B-30	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)
104582-5	E-30	ND(50)	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.5)

ND = Not detected at or above reporting limit; Reporting limit indicated in parentheses.

QA/QC SUMMARY

RPD, %	<1
RECOVERY, %	99

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 104582-2
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 430.015
LOCATION: MLK GW EXTRACTION
SAMPLE ID: WI-30-G2

DATE RECEIVED: 07/23/91
DATE ANALYZED: 07/23/91
DATE REPORTED: 07/25/91

EPA 8010
Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
chloromethane	ND	2.0
bromomethane	ND	2.0
vinyl chloride	ND	2.0
chloroethane	ND	2.0
methylene chloride	ND	2.0
trichlorofluoromethane	ND	1.0
1,1-dichloroethene	ND	1.0
1,1-dichloroethane	ND	1.0
cis-1,2-dichloroethene	ND	1.0
trans-1,2-dichloroethene	ND	1.0
chloroform	ND	1.0
freon 113	ND	1.0
1,2-dichloroethane	ND	1.0
1,1,1-trichloroethane	ND	1.0
carbon tetrachloride	ND	1.0
bromodichloromethane	ND	1.0
1,2-dichloropropane	ND	1.0
cis-1,3-dichloropropene	ND	1.0
trichloroethylene	ND	1.0
1,1,2-trichloroethane	ND	1.0
trans-1,3-dichloropropene	ND	1.0
dibromochloromethane	ND	1.0
2-chloroethyl vinyl ether	ND	2.0
bromoform	ND	1.0
tetrachloroethene	1.1	1.0
1,1,2,2-tetrachloroethane	ND	1.0
chlorobenzene	ND	1.0
1,3-dichlorobenzene	ND	1.0
1,2-dichlorobenzene	ND	1.0
1,4-dichlorobenzene	ND	1.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, %	8
RECOVERY, %	82

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 104582-3
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 430.015
LOCATION: MLK GW EXTRACTION
SAMPLE ID: I-30

DATE RECEIVED: 07/23/91
DATE ANALYZED: 07/23/91
DATE REPORTED: 07/25/91

EPA 8010
Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
chloromethane	ND	2.0
bromomethane	ND	2.0
vinyl chloride	ND	2.0
chloroethane	ND	2.0
methylene chloride	ND	2.0
trichlorofluoromethane	ND	1.0
1,1-dichloroethene	ND	1.0
1,1-dichloroethane	ND	1.0
cis-1,2-dichloroethene	ND	1.0
trans-1,2-dichloroethene	ND	1.0
chloroform	ND	1.0
freon 113	ND	1.0
1,2-dichloroethane	ND	1.0
1,1,1-trichloroethane	ND	1.0
carbon tetrachloride	ND	1.0
bromodichloromethane	ND	1.0
1,2-dichloropropane	ND	1.0
cis-1,3-dichloropropene	ND	1.0
trichloroethylene	ND	1.0
1,1,2-trichloroethane	ND	1.0
trans-1,3-dichloropropene	ND	1.0
dibromochloromethane	ND	1.0
2-chloroethyl vinyl ether	ND	2.0
bromoform	ND	1.0
tetrachloroethene	ND	1.0
1,1,2,2-tetrachloroethane	ND	1.0
chlorobenzene	ND	1.0
1,3-dichlorobenzene	ND	1.0
1,2-dichlorobenzene	ND	1.0
1,4-dichlorobenzene	ND	1.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, %	8
RECOVERY, %	82

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 104582-4
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 430.015
LOCATION: MLK GW EXTRACTION
SAMPLE ID: B-30

DATE RECEIVED: 07/23/91
DATE ANALYZED: 07/23/91
DATE REPORTED: 07/25/91

EPA 8010
Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
chloromethane	ND	2.0
bromomethane	ND	2.0
vinyl chloride	ND	2.0
chloroethane	ND	2.0
methylene chloride	ND	2.0
trichlorofluoromethane	ND	1.0
1,1-dichloroethene	ND	1.0
1,1-dichloroethane	ND	1.0
cis-1,2-dichloroethene	ND	1.0
trans-1,2-dichloroethene	ND	1.0
chloroform	ND	1.0
freon 113	ND	1.0
1,2-dichloroethane	ND	1.0
1,1,1-trichloroethane	ND	1.0
carbon tetrachloride	ND	1.0
bromodichloromethane	ND	1.0
1,2-dichloropropane	ND	1.0
cis-1,3-dichloropropene	ND	1.0
trichloroethylene	ND	1.0
1,1,2-trichloroethane	ND	1.0
trans-1,3-dichloropropene	ND	1.0
dibromochloromethane	ND	1.0
2-chloroethyl vinyl ether	ND	2.0
bromoform	ND	1.0
tetrachloroethene	ND	1.0
1,1,2,2-tetrachloroethane	ND	1.0
chlorobenzene	ND	1.0
1,3-dichlorobenzene	ND	1.0
1,2-dichlorobenzene	ND	1.0
1,4-dichlorobenzene	ND	1.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, %	8
RECOVERY, %	82

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 104582-5
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 430.015
LOCATION: MLK GW EXTRACTION
SAMPLE ID: E-30

DATE RECEIVED: 07/23/91
DATE ANALYZED: 07/23/91
DATE REPORTED: 07/25/91

EPA 8010
Purgeable Halocarbons in Water

Compound	Result ug/L	Reporting Limit ug/L
chloromethane	ND	2.0
bromomethane	ND	2.0
vinyl chloride	ND	2.0
chloroethane	ND	2.0
methylene chloride	ND	2.0
trichlorofluoromethane	ND	1.0
1,1-dichloroethene	ND	1.0
1,1-dichloroethane	ND	1.0
cis-1,2-dichloroethene	ND	1.0
trans-1,2-dichloroethene	ND	1.0
chloroform	ND	1.0
freon 113	ND	1.0
1,2-dichloroethane	ND	1.0
1,1,1-trichloroethane	ND	1.0
carbon tetrachloride	ND	1.0
bromodichloromethane	ND	1.0
1,2-dichloropropane	ND	1.0
cis-1,3-dichloropropene	ND	1.0
trichloroethylene	ND	1.0
1,1,2-trichloroethane	ND	1.0
trans-1,3-dichloropropene	ND	1.0
dibromochloromethane	ND	1.0
2-chloroethyl vinyl ether	ND	2.0
bromoform	ND	1.0
tetrachloroethene	ND	1.0
1,1,2,2-tetrachloroethane	ND	1.0
chlorobenzene	ND	1.0
1,3-dichlorobenzene	ND	1.0
1,2-dichlorobenzene	ND	1.0
1,4-dichlorobenzene	ND	1.0

ND = Not detected at or above reporting limit.

QA/QC SUMMARY

RPD, %	8
RECOVERY, %	82

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 08/26/91
DATE REPORTED: 08/30/91

LABORATORY NUMBER: 104962

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 430.010

LOCATION: MLK EXTRACTION

RESULTS: SEE ATTACHED

QA/QC Approval

Final Approval

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 104962
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 430.010
LOCATION: MLK EXTRACTION

DATE RECEIVED: 08/26/91
DATE ANALYZED: 08/27/91
DATE REPORTED: 08/30/91

Total Volatile Hydrocarbons with BTXE in Aqueous Solutions
TVH by California DOHS Method/LUFT Manual October 1989
BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (ug/L)	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)
104962-1	WI-31-2	790	91	20	9.3	62
104962-2	I-31	130	0.6	ND(0.5)	ND(0.5)	3.2

ND = Not detected at or above reporting limit; Reporting limit indicated in parentheses.

QA/QC SUMMARY

RPD, %	<1
RECOVERY, %	107

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 104962
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 430.010
LOCATION: MLK EXTRACTION

DATE RECEIVED: 08/26/91
DATE ANALYZED: 08/27/91
DATE REPORTED: 08/30/91

Benzene, Toluene, Ethyl Benzene, Xylenes by EPA 8020
Extraction by EPA 5030 Purge and Trap

LAB ID	CLIENT ID	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)	REPORTING LIMIT * (ug/L)
104962-3	B-31	ND	ND	ND	ND	0.5
104962-4	E-31	ND	ND	ND	ND	0.5

ND = Not detected at or above reporting limit.

* Reporting Limit applies to all analytes.

QA/QC SUMMARY

RPD, %	<1
RECOVERY, %	107

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (415) 486-0900

DATE RECEIVED: 09/26/91
DATE REPORTED: 09/30/91

LABORATORY NUMBER: 105275

CLIENT: SUBSURFACE CONSULTANTS

PROJECT ID: 430.015

LOCATION: MLK GW EXTRACTION

RESULTS: SEE ATTACHED

QA/QC Approval

Final Approval

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 105275
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 430.015
LOCATION: MLK GW EXTRACTION

DATE RECEIVED: 09/26/91
DATE ANALYZED: 09/28/91
DATE REPORTED: 09/30/91

Benzene, Toluene, Ethyl Benzene, Xylenes by EPA 8020
Extraction by EPA 5030 Purge and Trap

LAB ID	CLIENT ID	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)	REPORTING LIMIT * (ug/L)
105275-3	I-32	ND	ND	ND	ND	0.5
105275-4	B-32	ND	ND	ND	ND	0.5
105275-5	E-32	ND	ND	ND	ND	0.5

ND = Not detected at or above reporting limit.

* Reporting Limit applies to all analytes.

QA/QC SUMMARY

RPD, %	4
RECOVERY, %	112

Curtis & Tompkins, Ltd.

LABORATORY NUMBER: 105275
CLIENT: SUBSURFACE CONSULTANTS
PROJECT ID: 430.015
LOCATION: MLK GW EXTRACTION

DATE RECEIVED: 09/26/91
DATE ANALYZED: 09/28/91
DATE REPORTED: 09/30/91

Total Volatile Hydrocarbons with BTXE in Aqueous Solutions
TVH by California DOHS Method/LUFT Manual October 1989
BTXE by EPA 5030/8020

LAB ID	SAMPLE ID	TVH AS GASOLINE (ug/L)	BENZENE (ug/L)	TOLUENE (ug/L)	ETHYL BENZENE (ug/L)	TOTAL XYLENES (ug/L)
105275-1	WI-32-1	240	18	ND(0.5)	3.4	4.9
105275-2	WI-32-2	180	5.3	0.9	2.0	6.8

ND = Not detected at or above reporting limit; Reporting limit indicated in parentheses.

QA/QC SUMMARY

RPD, %	4
RECOVERY, %	112

Subsurface Consultants

CHAIN OF CUSTODY RECORD
& ANALYTICAL TEST REQUEST

Project Name: MLK GW Extraction

SCI Job Number: 430.015

Project Contact at SCI: Sean Carson

Sampled By: Charles Pearson

Analytical Laboratory: Curtis + Tompkins

Analytical Turnaround: Rapid

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
WI-30-2	W	V×3	7/23/91		TVH/BTXE	8015/8020/5030
WI-30-G2	W	V×3	7/23/91		TVH/BTXE/VOC's	8015/8020/8010/5030
I-30	W	V×3	7/23/91		TVH/BTXE/VOC's	8015/8020/8010/5030
B-30	W	V×3	7/23/91		TVH/BTXE/VOC's	8015/8020/8010/5030
E-30	W	V×3	7/23/91		TVH/BTXE/VOC's	8015/8020/8010/5030

* * * * * *

Released by: Charles C. Pearson Received by: _____ Date: 7/23/91

Released by: _____ Received by: _____ Date: _____

Received by Laboratory: Nancy Wilson Date: 7/23/91

Released by Laboratory: _____ Date: _____

Released by: _____ Date: _____

[1] Sample Type: W = Water, S = Soil, O = Other (specify)
[2] Container Type: V = VOA, P = Plastic, G = Glass, T = Brass Tube, O = Other (specify)

NOTES TO LABORATORY:
- Notify SCI if there are any anomalous peaks on GC or other scans
- Questions/clarifications - Contact SCI at (415) 268-0461

10-1-62

Subsurface Consultants

CHAIN OF CUSTODY RECORD
& ANALYTICAL TEST REQUEST

Project Name: MLK GW Extraction

SCI Job Number: 430.010

Project Contact at SCI: Sean Carson

Sampled By: Charles Pearson

Analytical Laboratory: Curtis + Tompkins Ltd

Analytical Turnaround: Normal

Sample ID	Sample Type[1]	Container Type[2]	Sampling Date	Hold	Analysis	Analytical Method
WI-31-2	W	V x 2	8/26/91		TVH/BTXE	5015/5020/5030
2 I-31	W	V x 2	8/26/91		TVH/BTXE	5015/5020/5030
3 B-31	W	V x 2	8/26/91		BTXE	5020/5030
4 E-31	W	V x 2	8/26/91		BTXE	5020/5030

* * * * * *

Released by: [signature] Received by: _____ Date: 8/26/91

Released by: _____ Received by: _____ Date: _____

Received by Laboratory: [signature] Date: [illegible]

Released by Laboratory: _____ Date: _____

Released by: _____ Date: _____

[1] Sample Type: W = Water, S = Soil, O = Other (specify)
[2] Container Type: V = VOA, P = Plastic, G = Glass, T = Brass Tube, O = Other (specify)

NOTES TO LABORATORY:
- Notify SCI if there are any anomalous peaks on GC or other scans
- Questions/clarifications - Contact SCI at (415) 268-0461

CHAIN OF CUSTODY FORM

PAGE 1 OF 1

PROJECT NAME: MLK GW Extraction

JOB NUMBER: 430.015 LAB: Curtis + Tompkins Ltd

PROJECT CONTACT: Sean Carson TURNAROUND: Normal

SAMPLED BY: _____ REQUESTED BY: Sean Carson

LABORATORY I.D. NUMBER	SCI SAMPLE NUMBER	MATRIX: WATER	SOIL	WASTE	AIR			CONTAINERS: VOA	LITER	PINT	TUBE			METHOD PRESERVED: HCL	H_2SO_4	HNO_3	ICE	NONE	SAMPLING DATE: MONTH	DAY	YEAR	TIME				NOTES	ANALYSIS REQUESTED: TVH / BTXE	BTXE
	WI-32-1	X						3						X			X		09	26	91						X	
	WI-32-2	X						3						X			X										X	
	I-32	X						2						X			X										X	
	B-32	X						2						X			X										X	
	E-32	X						2						X			X										X	

COMMENTS & NOTES:

CHAIN OF CUSTODY RECORD

RELEASED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
Charles Reames	9/26/91 1030		
RELEASED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
RELEASED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	DATE/TIME
		J Keane	9/26/91 1030

Subsurface Consultants, Inc.

171 12TH STREET, SUITE 201, OAKLAND, CALIFORNIA 94607

(510) 268-0461 · FAX: 510-268-0137