



EXCELTECH

41674 CHRISTY STREET • FREMONT, CA 94538
PHONE (415) 659-0404 • CONTR. LIC. NO. 464324

Enclosure 12

October 16, 1987

O.I. Glass Container Division, S.T.S.
3600 Alameda Avenue
Oakland, CA 94601

Attn: Mr. Robert Barber

Re: Quarterly Groundwater Sampling
Owens Illinois Facility, Oakland

Dear Mr. Barber:

INTRODUCTION

This letter report presents the second quarterly groundwater sampling and analysis report for the above referenced site. This phase of quarterly sampling was delayed due to extensive site construction activity which precluded access to most monitoring wells. The wells were sampled between September 18th and 24th, 1987 and tested for the presence of floating product and dissolved hydrocarbons. The water samples were collected in approved containers and accompanied with chain of custody documentation. All analyses were performed at a State certified laboratory using E.P.A. approved methods (see attached sample protocol).

GROUNDWATER OCCURRENCE

Groundwater beneath the site is tidally influenced daily due to its proximity to the Alameda Channel and San Francisco Bay. Past observations of the groundwater surface revealed deflections which vary from 0.1 to 6.0 feet. The range of observed fluctuations is attributed to the changing range of daily tidal fluctuation. A groundwater elevation map for September 13, 1987 is attached (see figure 1).

GROUNDWATER SAMPLING AND ANALYSES

All monitoring wells except MW-1, 2 and 4 were sampled on this round. These three wells were not accessible due to parked vehicles and ongoing construction. Wells were sampled for presence of floating product, Total Volatile Hydrocarbons (TVH), Benzene, Toluene, Xylene, (BTX), and Total Extractable Hydrocarbons (TEH). Wells were preselected for individual analyses given the proximity to the known contaminants, (i.e., TVH in the vicinity of the Power and Forming Building, where gasoline and diesel fuels spilled, TEH near the southwestern corner of the site where No. 2 oil was the contaminant). The results are presented on Table 1. The analytical reports are attached.

CONTAMINANT PLUME MOVEMENT

The distribution of floating product appears to be similar to that of earlier observations, where floating oil occurs mostly in the southwestern corner of the site. Movement of oil appears to be controlled by tidal rise and fall of groundwater. Dissolved contaminants appear most prevalent in the southern portion of the site, similar to previous observations. However, upgradient wells MW-4 and MW-14 show increased dissolved TEH concentrations.

CONCLUSIONS AND RECOMMENDATIONS

- 1) Monitoring of floating product and dissolved constituents should continue on a quarterly basis, as requested by the RWQCB.
- 2) Increased TEH concentrations in MW-4 and MW-14 maybe due to an off-site source.
- 3) Damage to monitoring well MW-4, was observed and should be repaired to prevent future problems.

REQUIRED ACTION

This report should be forwarded in a timely manner to the following agency:

Greg Zentner
California Regional Water Quality
Control Board
San Francisco Bay Region
1111 Jackson Street
Oakland, CA. 94607

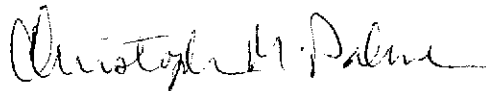
This service performed by Exceltech, Inc. has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the Alameda County area. Please note that contamination of soil and groundwater must be reported to the appropriate agencies in a timely manner. No other warranty, expressed or implied, is made.

Sincerely,
EXCETECH, INC.



Stephen Costello
Staff Geologist

SC/CMP/da



Christopher M. Palmer, C.E.G. 1262
Manager, Geotechnical Services

TABLE 1

	<u>TEH</u>	<u>TVH</u>	<u>B</u>	<u>T</u>	<u>X</u>
MW-1	- -	COVERED BY GLASS		- -	- -
MW-2	- -	COVERED BY PALLETS		- -	- -
MW-3	- -	COVERED BY TRUCK		- -	- -
MW-4	66	1.3	ND	ND	ND
MW-5	96,000	NR	NR	NR	NR
MW-6	400,000	NR	NR	NR	NR
MW-7	790,000	NR	NR	NR	NR
MW-8	- -	COVERED BY EQUIPMENT		- -	- -
MW-9	1,300	NR	NR	NR	NR
MW-10	3,800	NR	NR	NR	NR
MW-11	NR	ND	ND	ND	ND
MW-12	NR	ND	ND	ND	ND
MW-13	NR	ND	ND	ND	ND
MW-14	56	1.7	ND	ND	ND
MW-15	ND	8.4	ND	ND	ND
MW-16	64	ND	ND	ND	ND
MW-17	680	4.4	ND	ND	0.55
MW-18	480	ND	ND	ND	ND

Note - All data reported in parts per billion (ug/l)

TEH - Total Extractable Hydrocarbons

TVH - Total Volatile Hydrocarbons

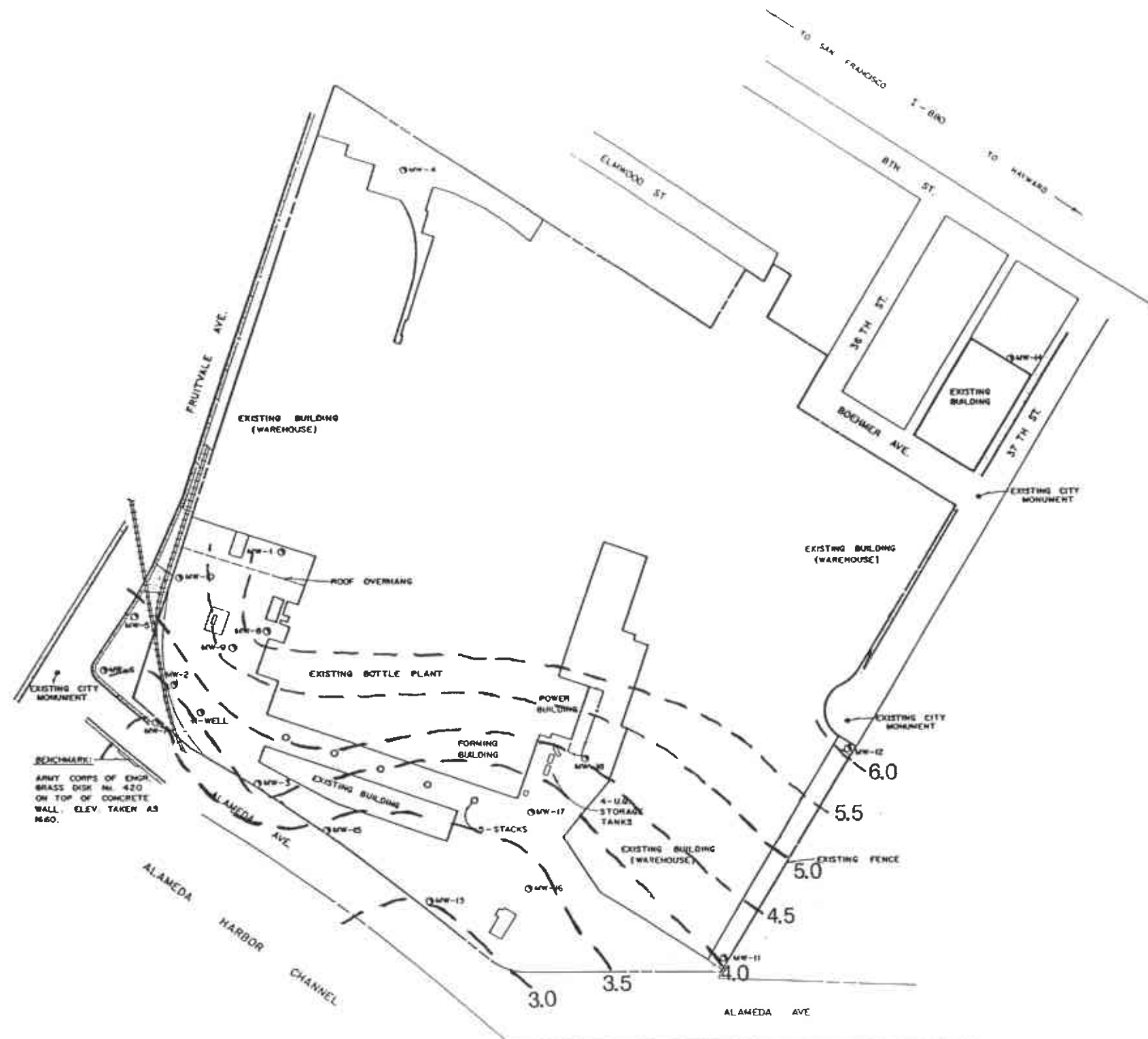
B - Benzene

T - Toluene

X - Xylene

ND - Not Detected

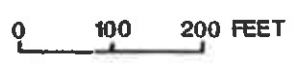
NR - Not Requested



LEGEND

○ MW-2 MONITORING WELL LOCATION

--- 3.5 ESTIMATED GROUNDWATER CONTOUR AND ELEVATION



	SITE PLAN		
	GROUNDWATER CONTOUR MAP	DESIGNED BY	APPROVED BY
	OIL GLASS CONTAINER DIVISION, S.T.S.	DATE	SCALE
	OAKLAND, CALIFORNIA	10/19/87	FIG 1

APPENDIX A
SAMPLE PROTOCOL

APPENDIX A

Sampling of monitoring wells is performed by Exceltech technicians. Field sampling procedures are as follows:

1. Measurement of liquid surface elevation and depth of monitoring well.
2. Field check for presence of floating product.
3. If measurement of floating product is $<1/4$ inch, a groundwater sample is taken.
4. Prior to sampling a minimum of four well casings of water is removed.
5. During purging, water is monitored for temperature, pH, and specific conductance.
6. Samples for analysis are placed in EPA-approved containers.
7. Samples are immediately put in a chilled cooler for transportation to a state-certified analytical laboratory.
8. Appropriate documentation accompanys the sample at all times.

SAMPLING PROCEDURES

Equipment Cleaning - All water samples are placed in precleaned laboratory supplied glassware. Sample bottles and caps remain sealed until actual usage at the site. Before use at the site, all equipment which comes in contact with the well or groundwater is thoroughly cleaned with trisodium phosphate and rinsed with deionized or distilled water. This procedure is followed between each well sampled, and wells are sampled in approximate order of increasing contamination. A pump blank is collected prior to all sampling. Pump blanks are analyzed periodically to ensure proper cleaning.

Water Level Measurements - Prior to checking for floating product, purging of the well, and sampling, the depth to water is measured in each well using a sealed sounding tape or a scaled electric sounder. Water levels are recorded in the field log book to the nearest 0.01 foot.

Floating Product Thickness - A field check for floating product is made with a clear acrylic or teflon bailer. Thickness of floating product is measured to the nearest 1/32 of an inch. Any observed film as-well-as odor and color of the water is recorded. If a teflon cord is used, the cord is cleaned. If a nylon or cotton cord is used, a new cord is used in each well.

Water Sampling Procedures

Immediately prior to sampling of the groundwater, four well-casing volumes of water are removed. Water is removed by either bailer or submersible nitrogen-driven bladder pump. During the purging operation, purged water is monitored for temperature, pH and specific conductance. After the wells are purged and the temperature, pH, and specific conductance of the water stabilize, a water sample is collected. Samples for volatile organic and gasoline analyses are placed in EPA-approved 40-ml containers with teflon-septa caps. Sample bottles are completely filled with water with no observed air bubbles present within the bottle. Samples for acid, base and neutral organics, pesticides and heavy metals analysis are placed in appropriate laboratory prepared containers. Water sample containers are labeled with the appropriate sample number, location, project name and number, time, and date of collection. All samples are placed in an iced cooler and transported to a state-certified analytical laboratory.

Chain-of-custody forms are logged and signed and accompany the samples to the laboratory. One travel blank accompanies the samples and is held by the lab for possible analysis.

All sample containers issued by the laboratory are properly prepared by the laboratory for the requested analysis.

- o Total Volatile Hydrocarbons and/or benzene, toluene and xylenes - 2 40-milliliter bottles
- o Total Lead - 1 500-milliliter bottle
- o Ethylene Dibromide - 1 500-milliliter bottle
- o Metals - 1 500-milliliter bottle
- o Pesticides/Herbicides - 2 2-liter bottles
- o Acid Base Neutral Organics - 2 1-liter bottles
- o Halogenated Volatile Organics - 2 40-milliliter bottles
- o Aromatic Volatile Organics - 2 40-milliliter bottles (preserved)
- o Total Phenolics - 1 1-liter bottle (preserved)

APPENDIX B

LABORATORY PROCEDURES

APPENDIX B

Selection of the Laboratory

The laboratories selected to perform the analytical work are certified by the California State Department of Health Services as being qualified to perform the selected analyses. The selected laboratories are reviewed by Exceltech, Inc. to ensure that an adequate quality control program is in place.

Chain-of-Custody Control

The following procedures are used during sampling and analytical activities to provide chain-of-custody control during transfer of samples from collection through delivery to the laboratories. Record keeping activities used to achieve chain-of-custody control are:

- o Contact made by sampling organization with facility supervisor and laboratory prior to sampling to alert them of dates of sampling and sample delivery.
- o Well location map with well identification number prominently displayed.
- o Field log book for documenting sampling activities in the field.
- o Labels for identifying individual samples.

- o Chain-of-custody record for documenting transfer and possession of samples.

- o Laboratory analysis request sheet for documenting analyses to be performed.

Sample Containers

Sample containers vary with each type of analytical parameter. Selected container types and materials are non-reactive with the sample and the particular analytical parameter being tested. Appropriate containers for volatile organics are glass bottles of at least 40 milliliters in size fitted with teflon-faced silicon septa. Sample containers are properly cleaned and sterilized by the certified laboratory according to the EPA protocol for the individual analysis.

Sample Preservation and Shipment

Various preservatives are used by the certified laboratory to retard changes in samples. Sample shipment from Exceltech to laboratories performing the selected analyses routinely occurs within 24 hours of sample collection.

Analytical Procedures

The analysis of groundwater samples is conducted in accordance with accepted quantitative analytical procedures. The following four publications are considered the primary references for groundwater sample analysis, and

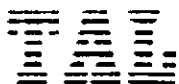
the contracts with the laboratories analyzing the samples stipulate that the methods set out in these publications be used. Please note that procedures used are periodically updated by federal and state agencies, and the certified laboratories amend analysis as required by the update.

- o Standard Methods for the Examination of Water and Wastewater, 16th Ed., American Public Health Association, et al., 1985.
- o Methods for Chemical Analysis of Water and Wastes, U.S. EPA, 600/4-79-020, March 1979.
- o Test Methods for Evaluation of Solid Waste: Physical/Chemical Methods, U.S. EPA SW-846, 1982.
- o Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, EPA, 600/4-82-057, 1982.
- o Practical Guide for Groundwater Sampling, EPA, 600/2-85/104, September 1985.

Analytical Methods

The analytical methods used by the selected laboratories are those required by the type of analysis (fuels, metals, etc.). These methods are those currently approved by the State Regional Water Quality Control Board.

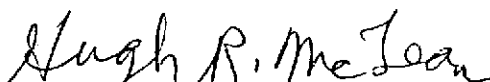
APPENDIX C
LABORATORY REPORTS



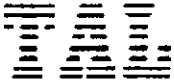
DATE: 10/6/87
LOG NO.: 5227
DATE SAMPLED: 9/22/87
DATE RECEIVED: 9/24/87

CUSTOMER: Exceltech Inc.
REQUESTER: Steve Costello
PROJECT: No. 1467G, Owens Illinois

Sample Type: Water					
Method and Constituent	Units	MW-5		MW-6	
		Concen- tration	Detection Limit	Concen- tration	Detection Limit
Modified EPA Method 8015:					
Extractable Hydrocarbons	ug/l	96000	10	400000	10
Modified EPA Method 8015:					
Extractable Hydrocarbons	ug/l	790000	10	3800	10
Modified EPA Method 8015:					
Volatile Hydrocarbons	ug/l	8.4	0.9		
Extractable Hydrocarbons	ug/l	< 10	10		
Modified EPA Method 8020:					
Benzene	ug/l	< 2	2		
Toluene	ug/l	< 2	2		
Xylene	ug/l	< 2	2		


Hugh R. McLean
Supervisory Chemist

HRM:mln



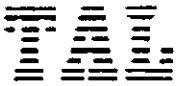
DATE: 10/8/87
LOG NO.: 5230
DATE SAMPLED: 9/24/87
DATE RECEIVED: 9/24/87

CUSTOMER: Exceltech Inc.
REQUESTER: Steve Costello
PROJECT: No. 1467G, Owens Illinois

Sample Type: Water

<u>Method and Constituent</u>	<u>Units</u>	<u>MW-9</u>		<u>MW-17</u>	
		<u>Concen- tration</u>	<u>Detection Limit</u>	<u>Concen- tration</u>	<u>Detection Limit</u>
Modified EPA Method 8015:					
Volatile Hydrocarbons	ug/l			44	0.09
Extractable Hydrocarbons	ug/l	1300	0.2	680	0.2
Modified EPA Method 8020:					
Benzene	ug/l			< 0.2	0.2
Toluene	ug/l			< 0.2	0.2
Xylene	ug/l			0.55	0.2

For: Roland X. Fu
Hugh R. McLean
Supervisory Chemist



DATE: 10/9/87
 LOG NO.: 5220
 DATE SAMPLED: 9/21/87
 DATE RECEIVED: 9/22/87

CUSTOMER: Exceltech Inc.
 REQUESTER: Steve Costello
 PROJECT: No. 1467G, Owens-Illinois

Sample Type: Water

Method and Constituent	Units	MW-4		MW-11																																																	
		Concen- tration	Detection Limit	Concen- tration	Detection Limit																																																
Modified EPA Method 8015:																																																					
Volatile Hydrocarbons	ug/l	1.3	0.9	< 0.9	0.9																																																
Extractable Hydrocarbons	ug/l	66	20																																																		
Modified EPA Method 8020:																																																					
Benzene	ug/l	< 2	2	< 2	2																																																
Toluene	ug/l	< 2	2	< 2	2																																																
Xylene	ug/l	< 2	2	< 2	2																																																
<table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th></th> <th></th> <th colspan="2">MW-12</th> <th colspan="2">MW-13</th> </tr> <tr> <th></th> <th></th> <th>Concen- tration</th> <th>Detection Limit</th> <th>Concen- tration</th> <th>Detection Limit</th> </tr> </thead> <tbody> <tr> <td colspan="6">Modified EPA Method 8015:</td> </tr> <tr> <td>Volatile Hydrocarbons</td> <td>ug/l</td> <td>< 0.9</td> <td>0.9</td> <td>< 0.9</td> <td>0.9</td> </tr> <tr> <td colspan="6">Modified EPA Method 8020:</td> </tr> <tr> <td>Benzene</td> <td>ug/l</td> <td>< 2</td> <td>2</td> <td>< 2</td> <td>2</td> </tr> <tr> <td>Toluene</td> <td>ug/l</td> <td>< 2</td> <td>2</td> <td>< 2</td> <td>2</td> </tr> <tr> <td>Xylene</td> <td>ug/l</td> <td>< 2</td> <td>2</td> <td>< 2</td> <td>2</td> </tr> </tbody> </table>								MW-12		MW-13				Concen- tration	Detection Limit	Concen- tration	Detection Limit	Modified EPA Method 8015:						Volatile Hydrocarbons	ug/l	< 0.9	0.9	< 0.9	0.9	Modified EPA Method 8020:						Benzene	ug/l	< 2	2	< 2	2	Toluene	ug/l	< 2	2	< 2	2	Xylene	ug/l	< 2	2	< 2	2
		MW-12		MW-13																																																	
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Toluene	ug/l	< 2	2	< 2	2																																																
Xylene	ug/l	< 2	2	< 2	2																																																

DATE: 10/9/87
 LOG NO.: 5220
 DATE SAMPLED: 9/21/87
 DATE RECEIVED: 9/22/87
 PAGE: Two

Sample Type: Water

Method and Constituent	Units	MW-14		MW-16	
		Concen- tration	Detection Limit	Concen- tration	Detection Limit
Modified EPA Method 8015:					
Volatile Hydrocarbons	ug/l	1.7	0.9	< 0.9	0.9
Extractable Hydrocarbons	ug/l	56	20	64	20
Modified EPA Method 8020:					
Benzene	ug/l	< 2	2	< 2	2
Toluene	ug/l	< 2	2	< 2	2
Xylene	ug/l	< 2	2	< 2	2
MW-18					
Modified EPA Method 8015:					
Volatile Hydrocarbons	ug/l	< 0.9	0.9		
Extractable Hydrocarbons	ug/l	480	20		
Modified EPA Method 8020:					
Benzene	ug/l	< 2	2		
Toluene	ug/l	< 2	2		
Xylene	ug/l	< 2	2		

Hugh R. McLean
 Supervisory Chemist

10 day Turn Around Time CHAIN OF CUSTODY RECORD PO# 6452

PROJECT NO		PROJECT NAME				TEST REQUESTED										REMARKS						
1467G		OWENS ILLINOIS				TVH	BTX	TEH														
SAMPLERS (Signature):																						
<i>Angelo Costello</i>																						
NO	DATE	TIME	DRIVE	GRAB	STATION AND LOCATION	TVH	BTX	TEH														
MW-5	9/24/87																					
MW-6	↓				ALL WATER			X														
MW-7	↓								X													
MW-10	↓								X													
MW-15	↓								X													
RELINQUISHED BY		DATE	TIME	RECEIVED BY		RELINQUISHED BY:		DATE	TIME	RECEIVED BY		RELINQUISHED BY:		DATE	TIME	RECEIVED BY LABORATORY						
<i>Angelo Costello</i>		9/24/87	10:30	<i>[Signature]</i>																		
RELINQUISHED BY		DATE	TIME	RECEIVED BY		RELINQUISHED BY:		DATE	TIME	RECEIVED BY LABORATORY		RELINQUISHED BY:		DATE	TIME	RECEIVED BY LABORATORY						
REMARKS										EXCELTECH		41638 CHRISTY STREET FREMONT, CA 94538 (415) 659-0404 CONT. LIC. #484324										
Report to Steve Costello										EXCELTECH												
DISTRIBUTION																						

10 day TAT

CHAIN OF CUSTODY RECORD PO # 6452

PROJECT NO		PROJECT NAME					TEST REQUESTED										REMARKS					
14676		OWENS ILLINOIS																				
SAMPLERS (Signature)																						
[Signature]																						
NO	DATE	TIME	DRIVE	GRAB	STATION AND LOCATION										REMARKS							
MW-12	9/24/87				WATER																	
MW-9	↓																					

RELINQUISHED BY	DATE	TIME	RECEIVED BY	RELINQUISHED BY:	DATE	TIME	RECEIVED BY
[Signature]	9/24/87	2:30	[Signature] TAL				
RELINQUISHED BY	DATE	TIME	RECEIVED BY	RELINQUISHED BY	DATE	TIME	RECEIVED BY LABORATORY

REMARKS:
REPORT TO Steve Costello

DISTRIBUTION:



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FREMONT, CA 94538
(415) 659-0404
CONT. LIC. #464324

10 DAY TAT

CHAIN OF CUSTODY RECORD

PO# ~~14629~~ 6452

PROJECT NO 14674		PROJECT NAME OWENS - ILLINOIS				TEST REQUESTED								REMARKS				
SAMPLERS (Signature) <i>[Signature]</i>						TVH/BTX	TEH											
NO.	DATE	TIME	DRIVE	GRAB	STATION AND LOCATION													
MW-4	9/21				ALL	X	X											
MW-11	9/18					X	X											
MW-12	9/21					X	X											
MW-13	↓				WATER	X	X											
MW-14	↓					X	X											
MW-16	↓					X	X											
MW-18	↓					X	X											
RELINQUISHED BY <i>[Signature]</i>		DATE 9/22/87	TIME 9:45	RECEIVED BY <i>[Signature]</i> TAL		RELINQUISHED BY:		DATE	TIME	RECEIVED BY								
RELINQUISHED BY		DATE	TIME	RECEIVED BY		RELINQUISHED BY:		DATE	TIME	RECEIVED BY LABORATORY								
REMARKS																		
DISTRIBUTION:																		



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