

ANANIA GEOLOGIC ENGINEERING

UNAUTHORIZED RELEASE REPORT
FOR PCB CONTAMINATION
AT THE CARNATION DAIRY FACILITY
OAKLAND, ALAMEDA COUNTY, CALIFORNIA

SEPTEMBER 12, 1989

AGE Project No. 004-89-093

In order to comply with the request of the Alameda County Health Department (County), AGE has prepared this Unauthorized Release Report. Ms. Mary Scruggs of AGE gave verbal notice to the County on July 21, 1989. This report is prepared as a follow up and written confirmation of the unauthorized release at the Carnation Dairy Facility in Oakland, California.

During the remediation of a previously reported gasoline and diesel release, groundwater samples were collected from five product recovery points to establish preliminary remediation data. Polychlorinated-biphenyls (PCB), identified as arochlor 1254, were detected in the groundwater sample from PR-12 at concentrations of 0.06 mg/l parts per million (ppm). To corroborate the presence of PCB, a free product sample was collected from PR-12 and found to contain 66 ppm of PCB, arochlor 1254. The sample analyses and Chain of Custody forms for these samples are included as Attachment A.

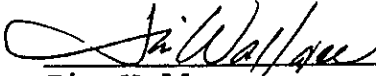
The analytical method used to determine the concentration of PCB is EPA Method 8080. EPA Method 8080 is used to determine whether a matrix contains a hazardous waste within the definition of Section 3001 of the Resource Conservation and Recovery Act (PL 94-580). This method is approved for obtaining data to satisfy the requirements of 40 CFR Part 261, Identification and Listing of Hazardous Waste. Attachement B is a copy of the approved method to evaluate PCB's, which was followed for the enclosed analytical results.

Additional analytical results from the groundwater and free product samples collected from PR-12 have been included in Attachment A. These samples were analyzed for volatile organics (8240), semi-volatile organics (8270), PCB's (8080), total lead, soluble lead, and organic lead. The additional sample analysis and Chain of Custody forms for these samples have been included in Attachment A.

AGE has begun additional field investigations to determine the possible lateral extent and impact of the potential PCB contamination on soils and groundwater at the Facility. Groundwater and free product samples will be collected from product

recovery points in the vicinity of PR-12 to determine the lateral extent of possible PCB contamination. This data will also be used to resolve subsequent site safety and decontamination protocols.

Prepared by:



Jim Wallace
Senior Project Manager

Sept 13, 1989
Date

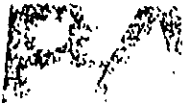
Approved by:



Karl J. Anania
California Registered Geologist No. 4306
Managing Partner

Sept. 13, 1989
Date

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Precision Analytical Laboratory, Inc.

4136 LAKESIDE DRIVE, RICHMOND, CA 94806

PHONE (415) 222 3002

FAX (415) 222-1251

CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 211

Received: 06/09/89

Reported: 06/29/89

Job No. #: 70879

*Kand
Mary*

Attn: Mary Scruggs
Anania Geological Engineering
11330 Sunrise Park Drive, Suite C
Rancho Cordova, CA. 95742

Project: #004-88-059

Polychlorinated Biphenyls
EPA Method 8080
mg/kg

Lab ID	Client ID	Results	MDL
70879-1	3279 MW-17	ND<0.5	0.5
70879-2	3269 MW-18	ND<0.5	0.5
70879-3	3273 MW-19	ND<0.5	0.5
70879-4	4187 MW-20	ND<0.5	0.5
70879-5	3253 MW-23	ND<0.5	0.5

QA/QC: Spike Recovery: 85%

MDL: Method detection limit: Compound below this level would not be detected.

Jaime Chow
Laboratory Director

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Project: #004-88-059

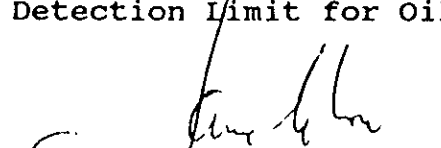
Total Petroleum Hydrocarbon Analysis;
By EPA Method 5030 and DHS Extraction Method
Oil & Grease Analysis: By Standard Method 503D
Hydrocarbons Analysis; By Std Method 503E
mg/kg

Lab ID	Client ID	Gasoline	Diesel	Oil & Grease	Hydrocarbons
70879-1	3279 MW-17	ND<0.5	ND<0.5	ND<50	0.7
70879-2	3269 MW-18	ND<0.5	ND<0.5	ND<50	1.8
70879-3	3273 MW-19	ND<0.5	ND<0.5	ND<50	0.7
70879-4	4187 MW-20	ND<0.5	ND<0.5	ND<50	1.6
70879-5	3253 MW-23	ND<0.5	ND<0.5	ND<50	1.1

QA/QC: Spike Recovery for Gasoline: 100%
Spike Recovery for Diesel: 95%
Spike Recovery for Oil & Grease: 98%

MDL: Method detection limit; Compound below this level would not be detected.

Detection Limit for Gasoline: 0.5
Detection Limit for Diesel: 0.5
Detection Limit for Oil & Grease: 50


Jaime Chow
Laboratory Director

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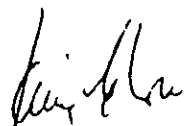
Project: #004-88-059

Aromatic Volatile Hydrocarbon Analysis:
EPA Method 8020
ug/l

Lab ID	Client ID	Benzene	Ethylbenzene	Toluene	Xylene	MDL
70879-1	3279 MW-17	ND<0.3	ND<0.3	ND<0.3	ND<0.3	0.3
70879-2	3269 MW-18	ND<0.3	ND<0.3	ND<0.3	ND<0.3	0.3
70879-3	3273 MW-19	ND<0.3	ND<0.3	ND<0.3	ND<0.3	0.3
70879-4	4187 MW-20	ND<0.3	ND<0.3	ND<0.3	ND<0.3	0.3
70879-5	3253 MW-23	ND<0.3	ND<0.3	ND<0.3	ND<0.3	0.3

QA/QC: Spike Recovery Average: 80%

MDL: Method detection limit; Compound below this level would not be detected.



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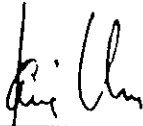
Attn: Mary Scruggs
Anania Geological Engineering
11330 Sunrise Park Drive, Suite C
Rancho Cordova, CA. 95742

Project: #004-88-059

Analysis Method EPA 6010
Prep Method EPA 3010
mg/l

Lab ID	Client ID	Total Lead	MDL	% SPIKE RECOVERY
70879-1	3279 MW-17	ND<0.044	0.044	96.5
70879-2	3269 MW-18	ND<0.044	0.044	96.5
70879-3	3273 MW-19	ND<0.044	0.044	96.5
70879-4	4187 MW-20	ND<0.044	0.044	96.5
70879-5	3253 MW-23	ND<0.044	0.044	96.5

MDL: Method detection limit; Compound below this level would not be detected.



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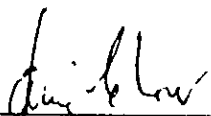
Attn: Mary Scruggs
Anania Geological Engineering
11330 Sunrise Park Drive, Suite C
Rancho Cordova, CA. 95742

Project: #004-88-059

Analysis Method EPA 6010
STLC
mg/l

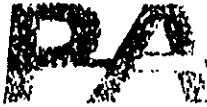
Lab ID	Client ID	STLC Lead	MDL	% SPIKE RECOVERY
70879-1	3279 MW-17	<0.044	0.044	88
70879-2	3269 MW-18	<0.044	0.044	88
70879-3	3273 MW-19	<0.044	0.044	88
70879-4	4187 MW-20	<0.044	0.044	88
70879-5	3253 MW-23	<0.044	0.044	88

MDL: Method detection limit; Compound below this level would not be detected.



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4136 LAKESIDE DRIVE, RICHMOND, CA 94806

PHONE (415) 222 3002

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cc Karl
Mary

CERTIFICATE OF ANALYSIS

State License No. 211

Received: 05/17/89
Reported: 06/01/89
Job No #: 70839

Attn: Mary Scruggs
Anania Geological Engineering
11330 Sunrise Park Drive, Suite C
Rancho Cordova, CA. 95742

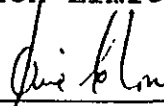
Project: #004-88-059

Total Petroleum Hydrocarbon Analysis: By Modified Method 8015
Oil & Grease Analysis: By Standard Method 503D
Total Hydrocarbons Analysis: By Standard Method 503E
Polychlorinated BiPhenyls Analysis: By EPA 8080
mg/kg

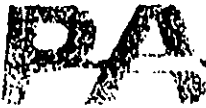
Lab ID	Client ID	Gasoline	TPH as Diesel	Oil & Grease	PCB's	Total Hydro-carbons
70839-1	#4123 MW-19-10'	ND<10	22	ND<50	ND<0.5	15
70839-2	#4125 MW-19-15'	ND<10	ND<10	ND<50	ND<0.5	0
70839-3	#4127 MW-19-20'	ND<10	ND<10	<50	ND<0.5	25
70839-4	#4129 MW-20- 5'	ND<10	ND<10	<50	ND<0.5	25
70839-5	#4131 MW-20-10'	ND<10	ND<10	<50	ND<0.5	25
70839-6	#4133 MW-20-15'	ND<10	ND<10	<50	ND<0.5	20
70839-7	#4135 MW-20-20'	ND<10	ND<10	ND<50	ND<0.5	15

QA/QC: Spike Recovery for Diesel: 109%
Spike Recovery for PCB's: 110%
Spike Recovery for Oil & Grease: 98%
Spike Recovery for Gasoline: 115%

Detection Limit for Diesel: 10
Detection Limit for Oil & Grease: 50
Detection Limit for Gasoline: 10
Detection Limit for PCB: 0.5


Jaime Chow
Laboratory Director

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Received: 05/17/89

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Job #: 70839

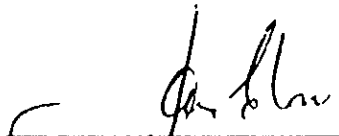
Attn: Mary Scruggs
Anania Geological Engineering
11330 Sunrise Park Drive, Suite C
Rancho Cordova, CA. 95742

Project: #004¹-88-059

Analysis Method EPA 6010
Prep Method EPA 3050
mg/kg

Lab ID	Client ID	Total Lead	MDL	% SPIKE RECOVERY
70839-1	#4123 MW-19-10'	670	1.1	76
70839-2	#4125 MW-19-15'	2.8	1.1	76
70839-3	#4127 MW-19-20'	ND<1.1	1.1	76
70839-4	#4129 MW-20- 5'	ND<1.1	1.1	76
70839-5	#4131 MW-20-10'	ND<1.1	1.1	76
70839-6	#4133 MW-20-15'	ND<1.1	1.1	76
70839-7	#4135 MW-20-20'	ND<1.1	1.1	76

MDL: Method detection limit; Compound below this level would not be detected.


Jaime Chow
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4136 LAKESIDE DRIVE, RICHMOND CA 94806 PHONE (415) 222 3002 FAX (415) 222-1251

CERTIFICATE OF ANALYSIS

State License No. 211

Received: 05/12/89
Reported: 05/16/89
Job No #: 70832

Attn: Mary Scruggs
Anania Geological Engineering
11330 Sunrise Park Drive, Suite C
Rancho Cordova, CA. 95742

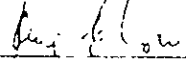
Project: #004-88-059

Total Petroleum Hydrocarbon Analysis: By Modified Method 8015
Oil & Grease Analysis: By Standard Method 503D
Total Hydrocarbons Analysis: By Standard Method 503E
Polychlorinated BiPhenyls Analysis: By EPA 8080
mg/kg

Lab ID	Client ID	Gasoline	TPH as Diesel	Oil & Grease	PCB's	Total Hydro -carbons
70832-1	#4105 MW-17- 5'	ND<10	ND<10	<50	ND<0.5	10
70832-2	#4107 MW-17-10'	ND<10	ND<10	<50	ND<0.5	30
70832-3	#4109 MW-17-15'	ND<10	ND<10	<50	ND<0.5	40
70832-4	#4111 MW-17-20'	ND<10	ND<10	<50	ND<0.5	10
70832-5	#4113 MW-18- 5'	ND<10	ND<10	<50	ND<0.5	25
70832-6	#4115 MW-18-10'	ND<10	ND<10	<50	ND<0.5	25
70832-7	#4117 MW-18-15'	ND<10	ND<10	<50	ND<0.5	25
70832-8	#4119 MW-18-20'	ND<10	ND<10	<50	ND<0.5	10
70832-9	#4121 MW-19- 5'	ND<10	ND<10	<50	ND<0.5	30
70832-10	#3189 MW-18	ND<0.5	ND<0.5	<50	ND<0.5	1.0

QA/QC: Spike Recovery for Diesel: 114%
Spike Recovery for PCB's: 90%
Spike Recovery for Oil & Grease: 101%
Spike Recovery for Gasoline: 100%

Detection Limit for Diesel: 10
Detection Limit for Oil & Grease: 50
Detection Limit for Gasoline: 10
Detection Limit for PCB: 0.5


Jaime Chow
Laboratory Director

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4136 LAKE SIDE DRIVE, RICHMOND, CA 94806

PHONE (415) 222 3002

FAX (415) 222 1251

CERTIFICATE OF ANALYSIS

CC Mary

STATE LICENSE NO. 211

Received: 05/12/89
Reported: 05/16/89
Job #: 70832

Attn: Mary Scruggs
Anania Geological Engineering
11330 Sunrise Park Drive, Suite C
Rancho Cordova, CA. 95742

Project: #00488-059

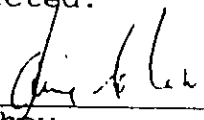
Analysis Method EPA 6010
Prep Method EPA 3050
mg/kg

Lab ID	Client ID	Total Lead	MDL	% SPIKE RECOVERY
70832-1	#4105 MW-17- 5'	ND<1.1	1.1	70
70832-2	#4107 MW-17-10'	ND<1.1	1.1	70
70832-3	#4109 MW-17-15'	1.5	1.1	70
70832-4	#4111 MW-17-20'	ND<1.1	1.1	70
70832-5	#4113 MW-18- 5'	1.6	1.1	70
70832-6	#4115 MW-18-10'	ND<1.1	1.1	70
70832-7	#4117 MW-18-15'	ND<1.1	1.1	70
70832-8	#4119 MW-18-20'	ND<1.1	1.1	70
70832-9	#4121 MW-19- 5'	ND<1.1	1.1	70

Analysis Method EPA 6010
Prep Method EPA 3010
mg/l

Lab ID	Client ID	Total Lead	MDL	% SPIKE RECOVERY
70832-10	#3189 MW-18	0.13	0.044	74

MDL: Method detection limit; Compound below this level would not be detected.



Jaime Chow
Laboratory Director

ANANIA GEOLOGIC ENGINEERING

AGE

PROJECT NO.		LAB REPORT NO.		NO. OF CONTAINERS	ANALYSES							REMARKS			
P.D. NO.		SAMPLERS: (signature)			SAMPLE TYPE			8240	8270	8080	M 8015		TTZC	Leaf	0.17 g/anal
LAB LOG NO.	DATE	TIME	SAMPLE I.D.		SOIL		WATER								
					COMP	GRAB									
	5/11/89		MW-17 5' 4105	2		X		X	X	X	X	X			
			MW-17 10' 4107	2		X		X	X	X	X	X			
			MW-17 15' 4109	2		X		X	X	X	X	X			
			MW-17 20' 4111	2		X		X	X	X	X	X			
			MW-18 5' 4113	2		X		X	X	X	X	X			
			MW-18 10' 4115	2		X		X	X	X	X	X			
			MW-18 15' 4117	2		X		X	X	X	X	X			
			MW-18 20' 4119	2		X		X	X	X	X	X			
			MW-19 5' 4121	2		X		X	X	X	X	X			
	5/12/89		MW-18 3189	8			X	X	X	X	X	X			

RELINQUISHED BY: (signature) 5/12/89

E. J. Ahl 12:40

DATE/TIME
5/12/89 8:00

RECEIVED BY: (signature)
Anne Calinguir

REMARKS:
Rush verbals by Tuesday 8:00 Am distinguish on Bit & barrel between animal/veg. fat & hydrocarbons

SEND RESULTS TO:
ATTN: Mary Scruggs
Anania Geologic Engineering
11330 Sunrise Park Dr OC
Rancho Conejo, CA

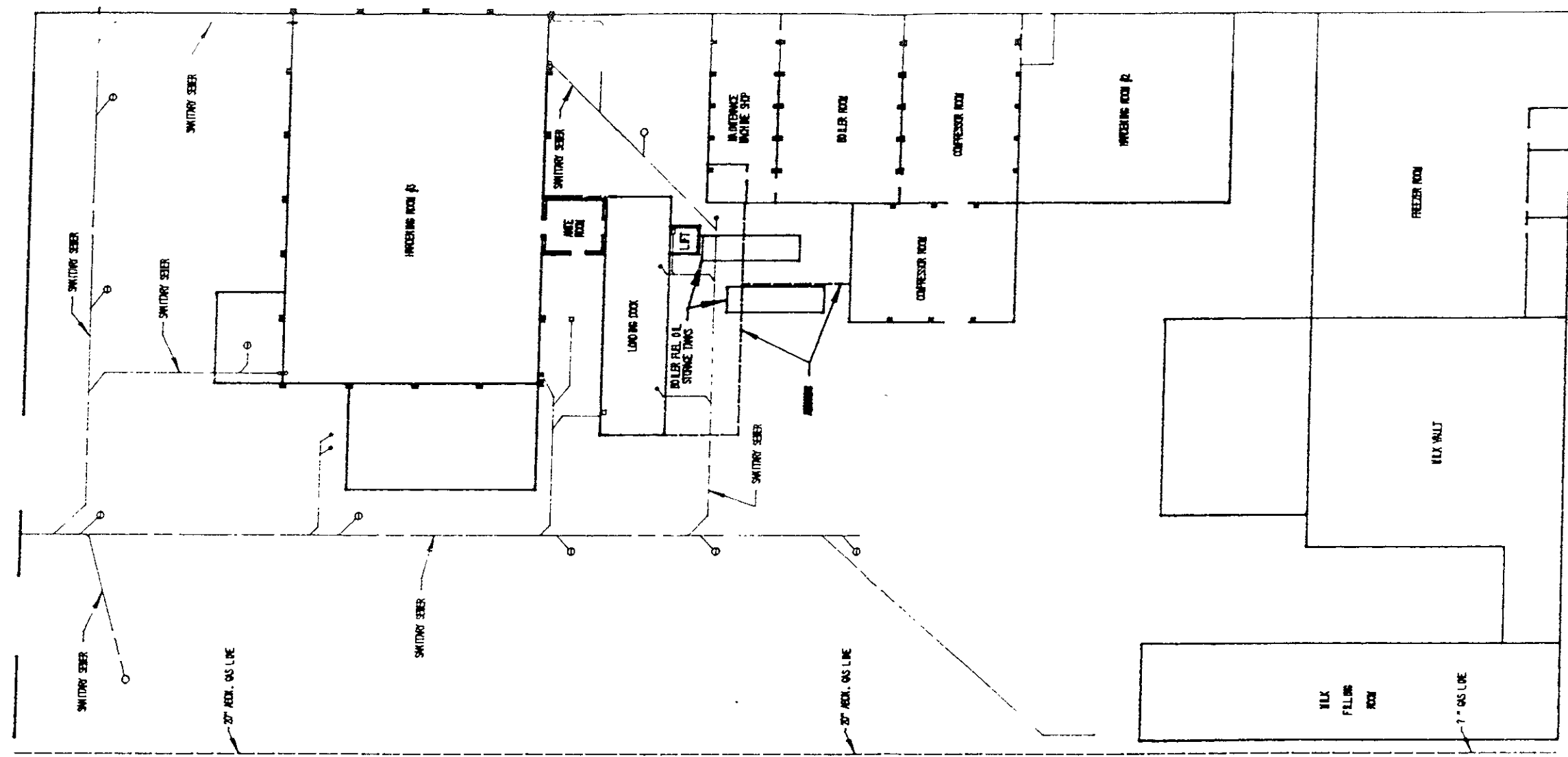
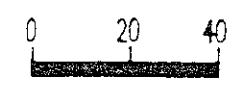
PHONE NO. (916) 451-0821

White-AGE

CHAIN OF CUSTODY
Yellow-LAB Copy
Pink-File

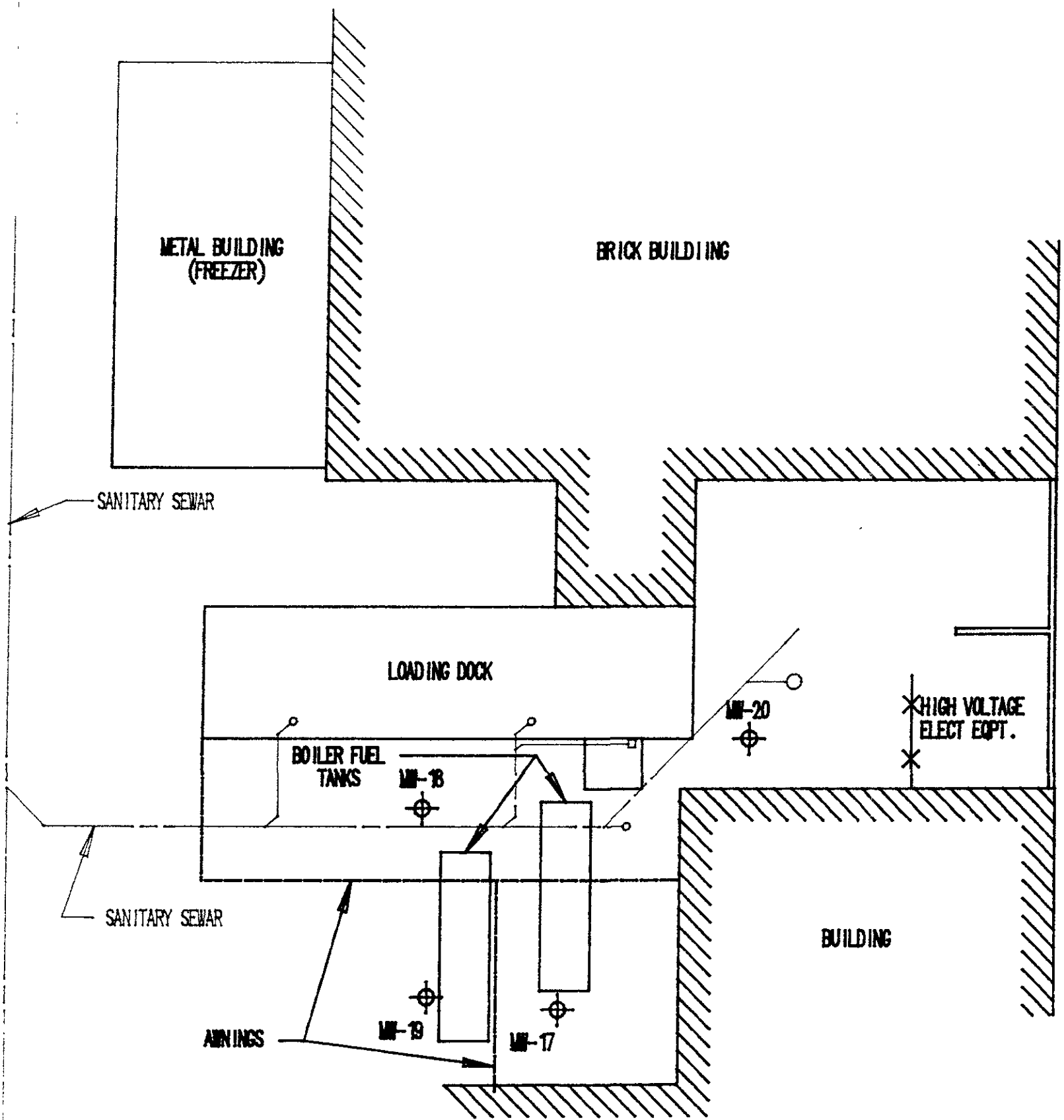
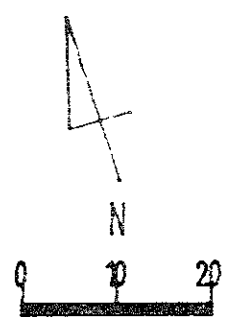
631-0150

Attachment A



AGE
ANANIA GEOLOGIC ENGINEERING

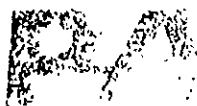
TITLE: CARNATION DAIRY FACILITY - EASTERN PORTION			
PROJECT NAME: CARNATION/OAKLAND	PROJECT NO: 004-88-059		
SITE LOCATION: 1310 14TH ST. AT POPLAR OAKLAND, CA.			
DATE: 3-24-89	DRAWING NO: 059-022	SCALE	1" = 40'



AGE
ANANIA GEOLOGIC ENGINEERING

TITLE: MONITORING WELLS MW-17 THROUGH MW-20			
PROJECT NAME: CAPNATION/OAKLAND			
SITE LOCATION: 1310 14th ST. OAKLAND, CA.			
DATE: 7-11-89	DRAWING NO.: 059-026	SCALE: 1"=20'	PROJ. NO. 004-88-059

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Rancho Cordova, CA. 95742

Project: #004-88-059

Polychlorinated Biphenyls
EPA Method 8080
mg/kg

Lab ID	Client ID	Results	MDL
70879-1	3279 MW-17	ND<0.5	0.5
70879-2	3269 MW-18	ND<0.5	0.5
70879-3	3273 MW-19	ND<0.5	0.5
70879-4	4187 MW-20	ND<0.5	0.5
70879-5	3253 MW-23	ND<0.5	0.5

QA/QC: Spike Recovery: 85%

MDL: Method detection limit: Compound below this level would not be detected.

Jaime Chow

Jaime Chow
Laboratory Director

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Project: #004-88-059

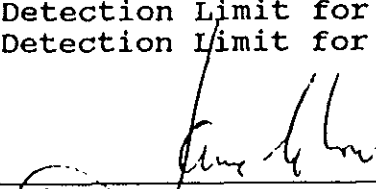
Total Petroleum Hydrocarbon Analysis;
By EPA Method 5030 and DHS Extraction Method
Oil & Grease Analysis: By Standard Method 503D
Hydrocarbons Analysis; By Std Method 503E
mg/kg

Lab ID	Client ID	Gasoline	Diesel	Oil & Grease	Hydrocarbons
70879-1	3279 MW-17	ND<0.5	ND<0.5	ND<50	0.7
70879-2	3269 MW-18	ND<0.5	ND<0.5	ND<50	1.8
70879-3	3273 MW-19	ND<0.5	ND<0.5	ND<50	0.7
70879-4	4187 MW-20	ND<0.5	ND<0.5	ND<50	1.6
70879-5	3253 MW-23	ND<0.5	ND<0.5	ND<50	1.1

QA/QC: Spike Recovery for Gasoline: 100%
Spike Recovery for Diesel: 95%
Spike Recovery for Oil & Grease: 98%

MDL: Method detection limit; Compound below this level would not be detected.

Detection Limit for Gasoline: 0.5
Detection Limit for Diesel: 0.5
Detection Limit for Oil & Grease: 50


Jaime Chow
Laboratory Director

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 Reported: 06/29/89
 Job No #: 70879

Attn: Mary Scruggs
 Anania Geological Engineering
 11330 Sunrise Park Drive, Suite C
 Rancho Cordova, CA. 95742

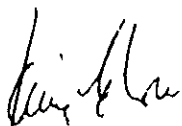
Project: #004-88-059

Aromatic Volatile Hydrocarbon Analysis:
 EPA Method 8020
 ug/l

Lab ID	Client ID	Benzene	Ethylbenzene	Toluene	Xylene	MDL
70879-1	3279 MW-17	ND<0.3	ND<0.3	ND<0.3	ND<0.3	0.3
70879-2	3269 MW-18	ND<0.3	ND<0.3	ND<0.3	ND<0.3	0.3
70879-3	3273 MW-19	ND<0.3	ND<0.3	ND<0.3	ND<0.3	0.3
70879-4	4187 MW-20	ND<0.3	ND<0.3	ND<0.3	ND<0.3	0.3
70879-5	3253 MW-23	ND<0.3	ND<0.3	ND<0.3	ND<0.3	0.3

QA/QC: Spike Recovery Average: 80%

MDL: Method detection limit; Compound below this level would not be detected.



Jaime Chow
 Laboratory Director

RECEIVED JUL 05 1989

Precision Analytical Laboratory, Inc.

4136 LAKESIDE DRIVE, RICHMOND, CA 94806

PHONE (415) 222 3002

FAX (415) 222-1251

CERTIFICATE OF ANALYSIS

STATE LICENSE NO. 211

Received: 06/09/89
Reported: 06/29/89
Job #: 70879

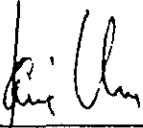
Attn: Mary Scruggs
Anania Geological Engineering
11330 Sunrise Park Drive, Suite C
Rancho Cordova, CA. 95742

Project: #004-88-059

Analysis Method EPA 6010
Prep Method EPA 3010
mg/l

Lab ID	Client ID	Total Lead	MDL	% SPIKE RECOVERY
70879-1	3279 MW-17	ND<0.044	0.044	96.5
70879-2	3269 MW-18	ND<0.044	0.044	96.5
70879-3	3273 MW-19	ND<0.044	0.044	96.5
70879-4	4187 MW-20	ND<0.044	0.044	96.5
70879-5	3253 MW-23	ND<0.044	0.044	96.5

MDL: Method detection limit; Compound below this level would not be detected.



Jaime Chow
Laboratory Director

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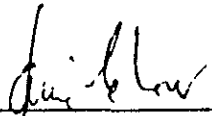
Attn: Mary Scruggs
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11330 Sunrise Park Drive, Suite C
Rancho Cordova, CA. 95742

Project: #004-88-059

Analysis Method EPA 6010
STLC
mg/l

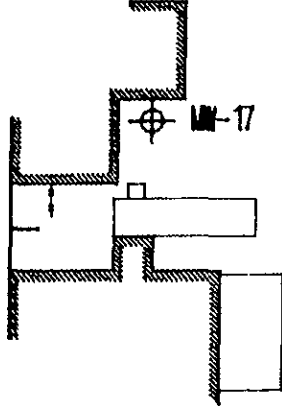
Lab ID	Client ID	STLC Lead	MDL	% SPIKE RECOVERY
70879-1	3279 MW-17	<0.044	0.044	88
70879-2	3269 MW-18	<0.044	0.044	88
70879-3	3273 MW-19	<0.044	0.044	88
70879-4	4187 MW-20	<0.044	0.044	88
70879-5	3253 MW-23	<0.044	0.044	88

MDL: Method detection limit; Compound below this level would not be detected.



Jaime Chow
Laboratory Director

Attachment C

LOCATION OF BORING 	SITE/LOCATION CARRNATION/OAKLAND			BORING NO. MW-17	
	PROJECT NO. 004-88-089			SHEET 1 OF 1	
	WATER LEVEL	13.0		DRILLER	
	TIME			START	FINISH
	DATE			TIME	TIME
	CASING DEPTH	20'		15:30	17:00
	DRILLING CONTRACTOR			DATE	DATE
	DRILLER MIKE MOORE			5-11-89	5-11-89
	DRILLING METHOD HOLLOW STEM AUGER			SAMPLING METHOD MPS	
	LOGGER JOHN RUSSELL				
N/S 2336.5		E/W 3415.8	ELEV. 16.48		
BORING DIAMETER: 6 INCHES		WELL CASING DIAMETER: 2 INCHES			
REVIEWED BY: M.A.M.			DATE: 10-10-89		

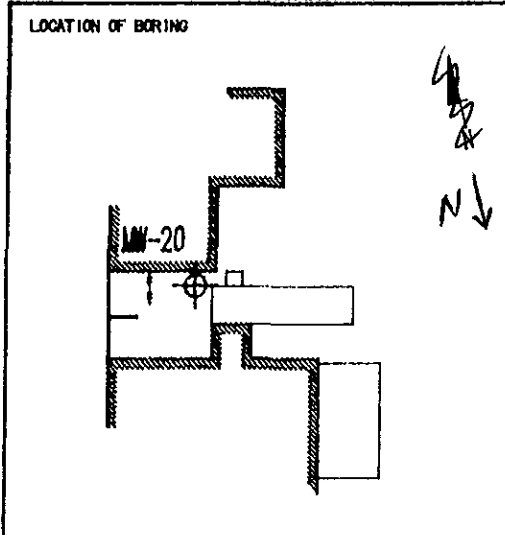
DIST. FROM SURF.	WELL CONST.		LEGEND	TLV READING	SAMPLE NO.	RECOVERY	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
	CASING	ANNULUS							
1									PORTLAND CEMENT CONCRETE
2									
3		4% BENTONITE CEMENT SLURRY							
4	BLANK	3/8" BENT. PELLET				X	17		SILTY SAND- BROWN, MOIST, MEDIUM DENSE, FINE-GRAINED WITH QUARTZ.
5						X	8		MAFICS, NO HYDROCARBON ODOR.
6				90	4105	X	8		
6									
7								SM	
8									
9						X	9		
10						X	11		
10				80	4107	X	24		
11									
12	0.030 INCH SLOT								
13									
14						X	4		CLAYEY SAND- BROWN, WET, MEDIUM DENSE, FINE-GRAINED WITH QUARTZ.
15						X	5		MAFICS, NO HYDROCARBON ODOR.
16				108	4108	X	7	SC	
16									
17									
18									
19						X	5	SP	SAND- BROWN, WET, VERY DENSE WITH QUARTZ, MAFICS, NO HYDROCARBON ODOR.
19						X	24		VERY DENSE.
20				42	4111	X	50		TEST BORING TERMINATED @ 20' ON 5-11-89
									MATERIALS: 2 1/4 BAGS OF SAND 2/3 5 GALLON BUCKET OF BENTONITE

LOCATION OF BORING 	SITE/LOCATION CARNATION/OAKLAND		BORING NO. MW-18		
	PROJECT NO. 004-88-089		SHEET 1 OF 1		
	WATER LEVEL		DRILLER		
	TIME		START TIME		
	DATE		FINISH TIME		
	CASING DEPTH 20'		DATE 5-11-89		
	DRILLING CONTRACTOR		DATE 5-11-89		
	DRILLER MIKE MOORE		DATE		
	DRILLING METHOD HOLLOW STEM AUGER		DATE		
	SAMPLING METHOD MPS		DATE		
LOGGER JOHN RUSSELL		DATE			
N/S 2372.8		E/W 3404.1		ELEV. 16.11	
BORING DIAMETER: 6 INCHES		WELL CASING DIAMETER: 2 INCHES			
REVIEWED BY:		DATE			

DIST. FROM SURF.	WELL CONST.			TLV READING	SAMPLE NO.	RECOVERY	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
	CASING	ANNULUS	LEGEND						
1									PORTLAND CEMENT CONCRETE
2									SILTY SAND- DARK BROWN, MOIST, MEDIUM DENSE, FINE-GRAINED WITH QUARTZ, MAFICS, SUBROUNDED, NO HYDROCARBON ODOR.
3									
4	BLANK	4# BENTONITE CEMENT SLURRY				X	24		
5		3/8" BENT. PELLET				X	12		
6				100	4113	X	6		
7								SM	
8									
9						X	16		GRADES VERY MOIST, VERY DENSE, NO HYDROCARBON ODOR.
10				38	4116	X	36		
11									
12	0.030 INCH SLOT								
13									
14						X	24		SANDY SILT- BROWN, VERY MOIST, SEMI-PLASTIC, SOME CLAY, QUARTZ, MAFICS, NO HYDROCARBON ODOR, HARD.
15				48	4117	X	19	ML	
16									
17									
18									
19						X	11	SM	SILTY SAND- BROWN, VERY MOIST, DENSE, FINE GRAINED, QUARTZ, MAFICS, FELDSPARS, NO HYDROCARBON ODOR.
20				66	4119	X	34		TEST BORING TERMINATED @ 20' ON 5-11-89 MATERIALS: 2 1/4 BAGS OF SAND 2/3 5 GALLON BUCKET OF BENTONITE

LOCATION OF BORING 	SITE/LOCATION CARNATION/OAKLAND			BORING NO.
	PROJECT NO. 004-88-059			MW-19
	WATER LEVEL			SHEET 1
	TIME			OF 1
	DATE			DRILLER
	CASING DEPTH	20'		START TIME
	DRILLING CONTRACTOR			FINISH TIME
	DRILLER MIKE MOORE			DATE
	DRILLING METHOD HOLLOW STEM AUGER			DATE
	SAMPLING METHOD MPS			5-11-89 5-16-89
LOGGER JOHN RUSSELL				
N/S 2348.2	E/W 3395.8	ELEV. 16.29		
BORING DIAMETER: 6 INCHES	WELL CASING DIAMETER: 2 INCHES			
REVIEWED BY:	DATE			

DIST. FROM SURF.	WELL CONST.			TLV READING	SAMPLE NO.	RECOVERY	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
	CASING	ANNULUS	LEGEND						
1									PORTLAND CEMENT CONCRETE
2									
3									
4	BLANK	4# BENTONITE CEMENT SLURRY				X	32		SILTY SAND- MOTTLED GRAY AND BROWN, MOIST, MEDIUM DENSE, FINE-
5						X	9		GRAINED, SUBANGULAR - SUBROUNDED GRAINS, QUARTZ, MAFICS,
6		3/8" BENT. PELLET		110	4121	X	10		NO HYDROCARBON ODOR, SOUR MILK ODOR.
7									
8									
9						X	30		GRADES VERY DENSE, NO HYDROCARBON ODOR, SOUR MILK ODOR, CLASTS OF
10				64	4123	X	34	SM	METAMORPHIC ROCK FRAGMENTS TO 1CM.
11									
12	0.000 INCH SLOT	3/4 SAND							
13									
14						X	4		GRADES, NO HYDROCARBON ODOR.
15						X	6		
16				78	4125	X	8		
17								H2O	
18									
19						X	8		GRADES VERY DENSE, NO HYDROCARBON ODOR.
20						X	24		TEST BORING TERMINATED @ 20' ON 5-16-89
				30	4127	X	36		MATERIALS: 2 1/4 BAGS OF SAND 2/3 5 GALLON BUCKET OF BENTONITE.



SITE/LOCATION		CARBATION/OAKLAND		BORING NO.	
PROJECT NO.		004-88-059		MW-20	
WATER LEVEL				SHEET 1	
TIME				OF 1	
DATE				DRILLER	
CASING DEPTH		20'		START	FINISH
DRILLING CONTRACTOR				TIME	TIME
DRILLER		MIKE MOORE		12:30	13:30
DRILLING METHOD		HOLLOW STEM AUGER		DATE	DATE
SAMPLING METHOD		MPS		5-16-89	5-16-89
LOGGER		JOHN RUSSELL			
N/S	2387.9	E/W	3458.1	ELEV. 16.39	
BORING DIAMETER:		6 INCHES		WELL CASING DIAMETER: 2 INCHES	
REVIEWED BY:				DATE	

DIST. FROM SURF.	WELL CONST.			TLV READING	SAMPLE NO.	RECOVERY	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL
	CASING	ANNULUS	LEGEND						
1									PORTLAND CEMENT CONCRETE
2									SAND- TAN, MOIST, MEDIUM DENSE WITH QUARTZ, FINE GRAINED, MAFICS, NO HYDROCARBON ODOR.
3									
4	BLANK					X	25		
5		3/8" BENTONITE RESIST. PELLET		32	4129	X	15		
6									
7									
8						X	8		
9						X	8		SILTY SAND- LIGHT BROWN, MOIST, FINE-GRAINED WITH SOME CLAY, QUARTZ, MAFICS, NO HYDROCARBON ODOR.
10				26	4131	X	17		
11									
12	0.030 INCH SLOTS								
13									
14						X	14		COLOR CHANGE TO MOTTLED GREY AND TAN, NO HYDROCARBON ODOR.
15				28	4133	X	6		
16									
17									
18									
19									
20				28	4135		6		SAND- MOTTLED GREY AND TAN, WET, DENSE, FINE GRAINED, NO HYDROCARBON ODOR.

H2O

SP

TEST BORING TERMINATED @20' ON 5-16-89

MATERIALS: 2 1/4 BAGS OF SAND 2/3 5 GALLON BUCKET OF BENTONITE