Kenneth R. Henneman, Water Resources Consultant
3142 Montpelier Court, Pleasanton, CA 94588
(415) 846-4450

October 17, 1990

Mr. Todd Bettencourt
Dublin Rock & Ready Mix
6393 Scarlett Court
Dublin, CA 94568

Subject: Laboratory results from water samples taken from five borings to water around old gas tank site on 10/3/90 at Dublin Rock & Ready Mix, 6393 Scarlett Court, Dublin, CA

Dear Mr. Bettencourt:

Enclosed herewith (Attachment 2) are the 10/8/90 Clayton laboratory report for subject water samples. The water samples were taken generally in accordance with the 9/27/90 work plan submitted to the County Department of Environmental Health.

The location map from the work plan (Attachment 1) is also enclosed for reference purposes, as is the Zone 7, Alameda County Flood Control and Water Conservation District Permit #90599 dated 11/1/90 (Attachment 3).

The borings to water were made by you and the rig operator on 10/3/90 using a small truck mounted shallow power 10" auger. Pursuant to the plan no geologs or extra soil samples were taken because of limited funding.

The borings were made in the morning, and I was present during the drilling. They were drilled in the following order D5, D4, D3, D1, and D6. Water was encountered between 13' and 14'. They were drilled to between 15' and 15½'. Water samples were taken with a standard "clear" plastic bailor, put on ice, and taken to Clayton laboratory for analysis (TPH gas with BTX) in the afternoon. Water levels rose to about 6'. The borings were sealed with an 8 sack cement grout as proposed.

Floating product was not observed when the 500 gallon tank (empty for past 3-5 years) so no gas was expected. However, there was odor in the soil at 10'-11' in D5. Gas could clearly be detected in the water at D1 and D6, and faintly at D4 and D3. Well D5 appeared clean. Since the gas spill was probably old, possibly 10-20 years, the bright "sheen" of floating gas was not evident, but there clearly was gas in the water in D4, D3, D1 and D6.

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The soil column was the surprise. Reportedly the tank excavation (to about 11' or 12') was all clay, and did not cave in.There was sand (thought to be standard backfill sand) on top of the tank, topped with a gravel. The clear fact from all five borings is that there is a rather well graded (SW to SP) sand topsoil down to 3½ to 5'. Some small pea gravel was detected in D2 and D3, and some fines in some places. Below this a dark soil, mostly clay (CL) with some silt in places, was observed down to about 9' or 10' in D5, D4, and to 6' to 8' in the other three borings. Clays (mostly plastic CH or CH/CL), brown in color, were observed below the dark soil. At water level traces of sand and more silt appeared. Due to funding constraints, I did not take extra soil samples for quality or physical testing.

My guess, and at this point is just that, is that the gas possibly entered the groundwater through a manmade point of entry through the top clay, such as below the tank bottom (most likely), or it went sideways along the sand/clay contact to a water or sewer pipeline trench. The tank was small, and apparently did not leak, so the amount spilled is anybody's guess.

The Clayton laboratory results confirmed the field observation, as summarized below (ug/L - EPA #8015/8020 analyses):

	#D1	#D2*	#D3	#D4	#D5	#D6
Total Petroleum Hydrocarbons (TPH, gas)	100,000		110,000	15,000	420	30,000
Benzene (B)	250		600	1,300	2	200
Toluene (T)	ND		200	ND	ND	ND
Ethylbenzene (E)	750		800	700	14	200
Xylenes (X)	880		1,000	1,000	4	200

* Not drilled, the landlord did not want drilling in the spot selected (roadway).

One soil sample was taken at 11' depth (below tank bottom, above water) from boring D1. The analyses showed 600 ppb TPH and no BTEX compounds.

The objective of the borings was to determine if there was a problem. The results show, unfortunately, that there is.

There are normally three things that need to be done now, 1) define the extent of the contamination, 2) dig out the most contaminated soil, and 3) extract and treat and discharge the most contaminated groundwater.

With respect to defining the extent of the problem it will take, at least, 2 to 3 days of probing using borings to water, a hydropunch type unit, or a probe type unit that can be used for vapor and water sampling. Possibly 10 to 30 borings may be needed. I like to use an on-site laboratory and shallow probing method that costs perhaps $3,500 to $5,000 per day, since this includes the laboratory analysis, it is an efficient procedure. Vapor samples with depth would help define the vertical pollution. This would not necessarily include any wells or deep borings or much geology, such as may subsequently be needed. It will help tell you where to put wells, if needed.

Removing more contaminated soil may or may not be necessary, and should probably await additional definition of the problem.

Starting to remove contaminated water is probably the most efficient use of the cleanup dollar where funding is limited. Possibly (depends on excavation costs) for under about $3,000 to $4,000 you could put an extraction sump at the tank site and start removing contaminated water. Sampling and DSRSD fees would be about $500 a month.

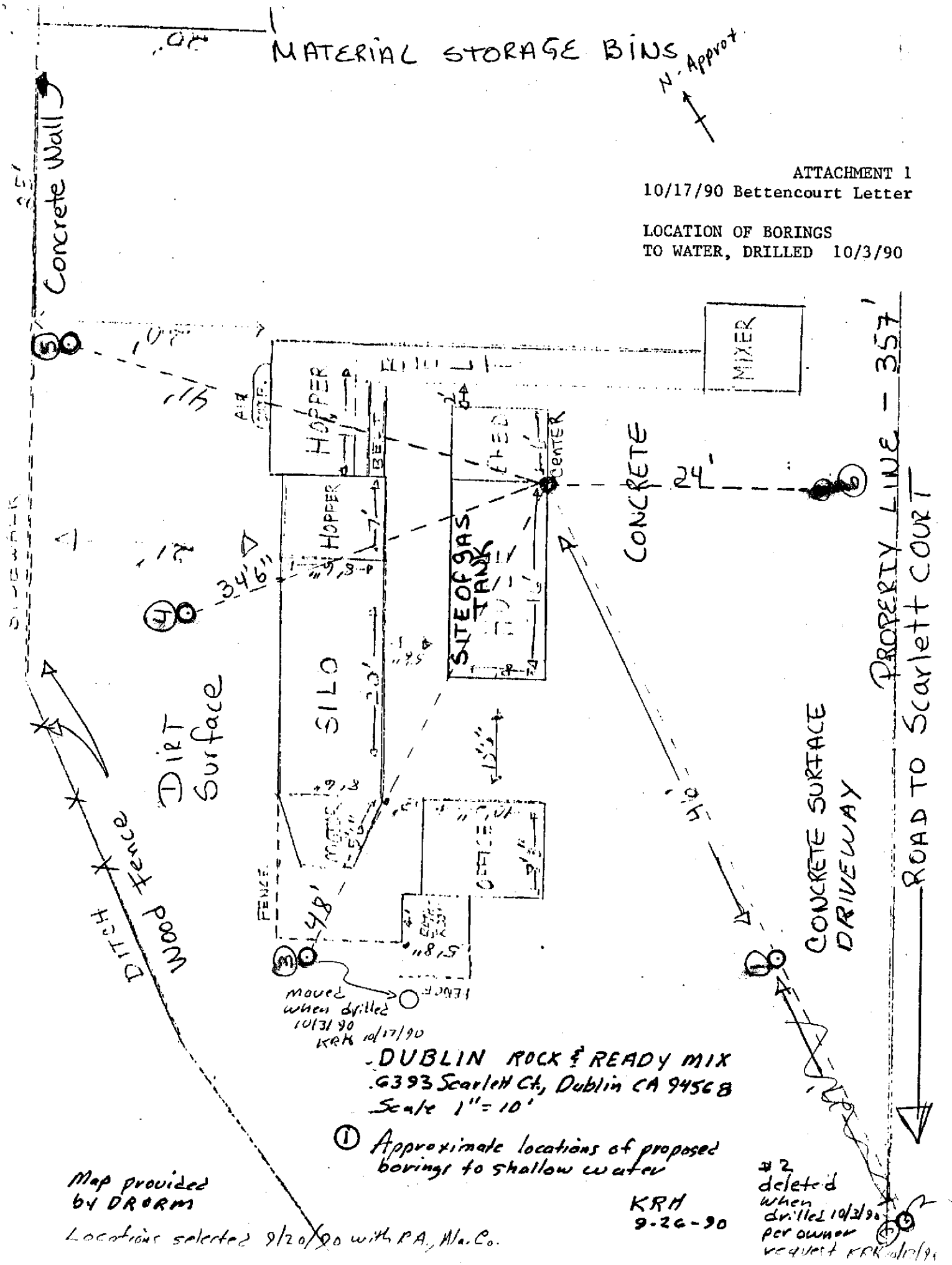
This report should be sent to the Alameda County Health Department and the Regional Water Quality Control Board.

Please call if you have any questions, or want additional help. I am sorry the results were not as expected.

Sincerely yours,

Kenneth R. Henneman

Kenneth R. Henneman
Water Resources Consultant, RE17700



ATTACHMENT 1
10/17/90 Bettencourt Letter

LOCATION OF BORINGS
TO WATER, DRILLED 10/3/90

DUBLIN ROCK & READY MIX

Western Operations

1252 Quarry Lane
Pleasanton, CA 94566
(415) 426-2600
Fax (415) 426-0106

Clayton
ENVIRONMENTAL
CONSULTANTS

ATTACHMENT 2
10/17/90 Bettencourt Letter

October 8, 1990

CLAYTON LABORATORY
REPORT FOR 5 SAMPLES

Mr. Ken Henneman
HENNEMAN & ASSOCIATES
3142 Montpelier Ct.
Pleasanton, CA 94566

Client Ref. 19.1 DRRM
Clayton Project No. 90100.31
Lab Client Code 79476

Dear Mr. Henneman:

Attached is our analytical laboratory report for the samples received on October 3, 1990. A copy of the Chain-of-Custody form acknowledging receipt of these samples is attached.

Please note that any unused portion of the samples will be disposed of 30 days after the date of this report, unless you have requested otherwise.

We appreciate the opportunity to be of assistance to you. If you have any questions, please contact Maryann Gambino, Client Services Supervisor, at (415) 426-2657.

Sincerely,

Mary D. Beck for

Ronald H. Peters, CIH
Director, Laboratory Services
Western Operations

RHP/tb
Attachments

Results of Analysis
for
Henneman & Associates

Client Reference: 19.1 DRRM
Clayton Project No. 90100.31

Sample Identification: D1
Lab Number: 9010031-01A
Sample Matrix/Media: WATER
Preparation Method: EPA 5030
Analytical Method: EPA 8015/8020

Date Sampled: 10/03/90
Date Received: 10/03/90
Date Prepared:
Date Analyzed: 10/05/90

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	250	40
Toluene	108-88-3	ND	30
Ethylbenzene	100-41-4	750	30
Xylenes	1330-20-7	880	40
Gasoline	-----	22,000	5,000

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Henneman & Associates

Client Reference: 19.1 DRRM
Clayton Project No. 90100.31

Sample Identification: D3
Lab Number: 9010031-02A
Sample Matrix/Media: WATER
Preparation Method: EPA 5030
Analytical Method: EPA 8015/8020

Date Sampled: 10/03/90
Date Received: 10/03/90
Date Prepared:
Date Analyzed: 10/05/90

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	600	200
Toluene	108-88-3	200	200
Ethylbenzene	100-41-4	800	200
Xylenes	1330-20-7	1,000	200
Gasoline	-----	110,000	30,000

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Henneman & Associates

Client Reference: 19.1 DRRM
Clayton Project No. 90100.31

Sample Identification:	D4	Date Sampled:	10/03/90
Lab Number:	9010031-03A	Date Received:	10/03/90
Sample Matrix/Media:	WATER	Date Prepared:	
Preparation Method:	EPA 5030	Date Analyzed:	10/05/90
Analytical Method:	EPA 8015/8020		

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	1,800	40
Toluene	108-88-3	ND	30
Ethylbenzene	100-41-4	700	30
Xylenes	1330-20-7	1,000	40
Gasoline	-----	15,000	5,000

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Henneman & Associates

Client Reference: 19.1 DRRM
Clayton Project No. 90100.31

Sample Identification: ~~B5~~
Lab Number: 9010031-04A
Sample Matrix/Media: WATER
Preparation Method: EPA 5030
Analytical Method: EPA 8015/8020

Date Sampled: 10/03/90
Date Received: 10/03/90
Date Prepared:
Date Analyzed: 10/05/90

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	2. 4	0.4
Toluene	108-88-3	ND	0.3
Ethylbenzene	100-41-4	14	0.3
Xylenes	1330-20-7	4.2	0.4
Gasoline	-----	~~420~~	50

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Henneman & Associates

Client Reference: 19.1 DRRM
Clayton Project No. 90100.31

Sample Identification: D6
Lab Number: 9010031-05A
Sample Matrix/Media: WATER
Preparation Method: EPA 5030
Analytical Method: EPA 8015/8020

Date Sampled: 10/03/90
Date Received: 10/03/90
Date Prepared:
Date Analyzed: 10/05/90

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	4,000	200
Toluene	108-88-3	4,400	200
Ethylbenzene	100-41-4	3,700	200
Xylenes	1330-20-7	10,000	200
Gasoline	-----	320,000	30,000

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Henneman & Associates

Client Reference: 19.1 DRRM
Clayton Project No. 90100.31

Sample Identification:	METHOD BLANK	Date Sampled:	--
Lab Number:	9010031-07B	Date Received:	--
Sample Matrix/Media:	WATER	Date Prepared:	
Preparation Method:	EPA 5030	Date Analyzed:	10/05/90
Analytical Method:	EPA 8015/8020		

Analyte	CAS #	Concentration (ug/L)	Limit of Detection (ug/L)
BTEX/Gasoline			
Benzene	71-43-2	ND	0.4
Toluene	108-88-3	ND	0.3
Ethylbenzene	100-41-4	ND	0.3
Xylenes	1330-20-7	ND	0.4
Gasoline	-----	ND	50

ND Not detected at or above limit of detection
-- Information not available or not applicable

Results of Analysis
for
Henneman & Associates

Client Reference: 19.1 DRRM
Clayton Project No. 90100.31

Sample Identification:	D1-10.0	Date Sampled:	10/03/90
Lab Number:	9010031-06A	Date Received:	10/03/90
Sample Matrix/Media:	SOIL	Date Prepared:	10/06/90
Preparation Method:	EPA 5030	Date Extracted:	10/06/90
Extraction Method:	EPA 5030	Date Analyzed:	10/06/90
Analytical Method:	EPA 8015/8020		

Analyte	CAS #	Concentration (ug/kg)	Limit of Detection (ug/kg)
BTEX/Gasoline			
Benzene	71-43-2	ND	5
Toluene	108-88-3	ND	5
Ethylbenzene	100-41-4	ND	5
Xylenes	1330-20-7	ND	5
Gasoline	-----	600 *	300

ND Not detected at or above limit of detection
-- Information not available or not applicable

* Hydrocarbons in the C4-C12 range quantitated as gasoline

Results of Analysis
for
Henneman & Associates

Client Reference: 19.1 DRRM
Clayton Project No. 90100.31

Sample Identification:	METHOD BLANK	Date Sampled:	--
Lab Number:	9010031-07A	Date Received:	--
Sample Matrix/Media:	SOIL	Date Prepared:	10/06/90
Preparation Method:	EPA 5030	Date Extracted:	10/06/90
Extraction Method:	EPA 5030	Date Analyzed:	10/06/90
Analytical Method:	EPA 8015/8020		

Analyte	CAS #	Concentration (ug/kg)	Limit of Detection (ug/kg)
BTEX/Gasoline			
Benzene	71-43-2	ND	5
Toluene	108-88-3	ND	5
Ethylbenzene	100-41-4	ND	5
Xylenes	1330-20-7	ND	5
Gasoline	-----	ND	300

ND Not detected at or above limit of detection
-- Information not available or not applicable

Clayton
ENVIRONMENTAL CONSULTANTS
A Marsh & McLennan Company

REQUEST FOR LABORATORY ANALYTICAL SERVICES

For Clayton Use Only | Page 1 of 1
Project No.
Batch No. 9010031
Client No.
Date Logged In 10-3-90 | By TS

REPORT RESULTS TO: Name Kenneth R. Hennemann | Title Consulting Engineer | Purchase Order No. | Client Job No. 19.10 RRM
Company on file | Dept. | SEND INVOICE TO: Name K.R. Hennemann
Mailing Address | Company Same | Dept.
City, State, Zip Pleasanton CA | Address | City, State, Zip
Telephone No. 846-4490 | Telefax No.

Date Results Required: | Rush Charges Authorized? ☐ Yes ☒ No | Phone Results ☐

Special Instructions: (method, limit of detection, etc.)

Explanation of Preservative: P=HCl

Samples are: (check if applicable)
☐ Drinking Water
☐ Collected in the State of New York

ANALYSIS REQUESTED
(Enter an 'X' in the box below to indicate request; Enter a 'P' if Preservative added. *)

CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	TPH gas w/ BTEX	FOR LAB USE ONLY
5 WATER SAMPLES FROM 15' BORINGS TO WATER TAKEN AROUND OLD GAS TANK SITE @ DUBLIN ROCK & READ MIX, DUBLIN CA, TAKEN @ 11:30 AM.						
D1	10/3/90	W	40ml	2	√P	01A,B
~~D2~~ not taken						
D3			40ml	2	√P	02A,B
D4					√	03
D5					√	04
D6	10/3/90	√			√	05
D1-10.0	"	Soil	2x6 BC	1	√	06A

CHAIN OF CUSTODY
Relinquished by: Kenneth R Hennemann | Date/Time
Relinquished by: | Date/Time
Method of Shipment:

Received by: | Date/Time
Received at Lab by: Tracy Bullock | Date/Time 10/3/90 2PM
Sample Condition Upon Receipt: ☒ Acceptable ☐ Other (explain)

Authorized by: Kenneth R Hennemann Date 10/3/90
(Client Signature Must Accompany Request)

Please return completed form and samples to one of the Clayton Environmental Consultants, Inc. labs listed below:

22345 Roethel Drive, Novi, MI 48050, (313) 344-1770
Raritan Center, 160 Fieldcrest Ave., Edison, NJ 08837, (201) 225-6040
400 Chastain Center Blvd., N.W., Suite 490, Kennesaw, GA 30144, (404) 499-7500
1252 Quarry Lane, Pleasanton, CA 94566, (415) 426-2600

6/90

DISTRIBUTION:
WHITE - Clayton Laboratory
YELLOW - Clayton Accounting
PINK - Client Copy