AC Transit
Alameda-Contra Costa Transit District

1600 Franklin Street, Oakland, California 94612 ☐ (415) 891-4777

May 26, 1989

TO: H. Kazemi, Regional Water Quality Control Board

FROM: J. David Peery, Safety Specialist, AC Transit

SUBJECT: Status Report: Unauthorized Release of Diesel Oil, AC Transit, Emeryville, California (Report No. 3)

Enclosures:

Summary of cleanup and monitoring efforts to date

Memo from Kaiser Engineers to AC Transit dated May 25, 1989, re status of fuel leak repair and on-site cleanup

Computation of diesel discharge, loss/recapture

Status of AC Transit expended and projected costs of cleanup to date

cc: James L.O'Sullivan
George Skezas
Richard L. Kassis
Carol G. Babington
Ronald H. Julian
Marit Roman
File

5/30/89 DB

SUMMARY OF CLEANUP AND MONITORING ACTIONS BY AC TRANSIT TO DATE

1. Off-site cleanup (Temescal Creek to Bay)

1.1) April 7, 1989: Odor of diesel fuel reported to RWQCB. Inspection of Temescal Creek same date by AC Transit and RWQCB revealed to evidence of a release.

1.2) April 11, 1989: A second inspection of Temescal Creek by AC Transit and RWQCB revealed some sheen and diesel odor. Booms and pads placed in creek and at outfall to bay that afternoon. Saturated oil absorbent pads and booms have been placed in drums and temporarily stored on-site awaiting proper disposal.

1.3) April 12, 1989: The release from AC Transit was stopped when pumping of the oil interceptor was completed at approximately 6:00am.

1.4) April 14, 1989: US Coast Guard and Department of Fish and Game informed AC Transit that cleanup of the marsh area west of Interstate 80 had been completed to their satisfaction. Absorbent booms and pads were left in place both east and west of Interstate 80 and replaced as necessary.

1.5) April 15, 1989: Crosby & Overton commenced off-site cleanup efforts. Crosby & Overton placed additional booms in creek and at outfall to Bay and commenced manual removal of free floating diesel product by utilization of oil absorbent booms and pads. In addition, Crosby & Overton water-flushed the reinforced concrete pipe storm drain from the interceptor to Temescal Creek.

1.6) April 17-19, 1989: Visual demarcation of the most heavily contaminated areas of Temescal Creek and soil sampling. Sampling disclosed heavy metal deposits. Removal of contaminated soil from Temescal Creek was postponed pending authorization from EPA, Fish and Game and US Corps of Engineers.

1.7) April 20, 1989: AC Transit discontinued Crosby & Overton involvement relative to off-site cleanup of diesel fuel. During their period of involvement Crosby & Overton placed and removed approximately 1300 oil absorbent pads and 184 feet of oil absorbent booms.

1.8) April 20, 1989: Authorization given by EPA, Fish and Game and US Corps of Engineers for removal of grossly contaminated soil from Temescal Creek bed. Erickson, Inc. requested by AC Transit to take over the off-site cleanup.

1.9) April 21, 1989: After intermittent rains in the morning, a crew of three (3) laborers and a foreman changed oil pads and boom in the creek as needed. Also approximately six (6) drums of oily debris and soaked absorbents were moved to the AC Transit compound.

1.10) April 24, 1989: A crew of a foreman, four (4) laborers, and a backhoe removed seventeen (17) drums of oil contaminants, soil and rock. These drums were moved to AC Transit's compound for future disposal. All booms were checked and left in place. Approximately 20 percent of the absorbent pads were replaced.

1.11) April 25, 1989: Erickson personnel checked the site. No apparent need to replace absorbents.

1.12) April 26, 1989: Erickson personnel surveyed the site for oil contamination in the creek bed. Absorbents were replaced as needed. Erickson also checked bay outfall boom.

1.13) May 15, 1989: Crew of three (3) laborers and a foreman removed additional contaminated soil from the first section of Temescal Creek. Twenty-one (21) drums of waste were removed to the AC Transit yard.

1.14) May 16, 1989: Crew of three (3) laborers removed twenty-one (21) drums of waste from the first and second section areas. A 130 BBL vacuum truck pumped liquids from the second area. Approximately ninety (90) barrels (3,780 gallons) were pumped into a holding tank at the AC Transit yard.

1.15) May 17, 1989: Crew of three (3) laborers removed fifteen (15) drums of waste from the second area. A 130 BBL vacuum truck pumped liquids from the second area. Approximately eighty (80) barrels (3,360 gallons) were pumped into a holding tank. All absorbent pads were replaced in the creek.

1.16) May 19, 1989: Booms and pads were checked.

1.17) May 23, 1989: Creek area was checked.

1.18) Currently 180 drums of contaminated material (absorbent booms and pads from creek) await transportation to an approved hazardous waste site.

2. On-Site Cleanup (Division 2 Maintenance Facility)

2.1) April 7-10, 1989: Between April 7 and April 10, an unknown quantity of diesel fuel leaked from a fuel supply pipeline from an underground storage tank. The leak was stopped at some unknown time during this time period by the leak detection system (automatic shut off of the fuel pump upon register of low pressure).

2.2) April 12-13, 1989: Pressure testing of the diesel fuel supply system identified the segment of the fuel line that had leaked. Excavation to expose the fuel line system disclosed a 45° elbow which had failed possibly due to improper joint binding.

2.3) April 12-18, 1989: H & H pumped approximately 62,000 gallons of water and free product from the oil interceptor.

2.4) April 20, 1989: Pacific Pipeline survey inspected the storm drain RCP system on the north and west sides of the tank farm area to assess infiltration of diesel fuel from the tank farm area into the storm drain system. Leaks in mortar joints were noted in 3 consecutive joints.

2.5) April 24, 1989: The repaired pipeline as well as all other pipeline segments of the diesel fuel system servicing the fuel island were certified precision pressure tested. Repaired pipeline returned to service.

2.6) May 1-5, 1989: McTighe oil/water separator for treatment and discharge of effluent to EBMUD's sanitary sewer system installed and operational.

3. Monitoring Program

3.1) April 18-May 1, 1989: Crosby & Overton began installing bore holes and monitoring wells at locations approved by RWQCB. Nine bore holes were installed to visually determine the extent of diesel fuel migration from the area of the fuel island tank farm. Visual inspection of ground water at each bore hole indicated essentially no migration of fuel or dissolved diesel product from the tank farm area.

Two bore wells plus a third well casing within the tank farm pea gravel backfill area converted to extraction wells for pumping free and dissolved diesel products.

Three bore holes have been converted to monitoring wells. An additional seven monitoring wells were installed between the tank farm area and the north west end of facility property.

3.2) Sampling: Ground water samples drawn from the monitoring wells are essentially negative for total petroleum hydrocarbons (TPH).

KAISER ENGINEERS

INTER OFFICE MEMORANDUM

TO J. David Peery
AT AC Transit

COPIES TO G. C. Skezas
File D2, 820-8

DATE May 22, 1989
Revised May 25, 1989
FROM R. A. Curry
AT 1600 Franklin Street
JOB NO. 80097-828

SUBJECT AC Transit Division 2, Emeryville
Status of Fuel Leak Repair and Onsite Cleanup

On April 12, 1989, it was determined, by AC Transit personnel, that a leak had occured in a diesel fuel supply line that services the diesel fuel dispensers at the west end of Emeryville's fuel island. Diesel fuel was observed leaking into the pump manhole of diesel fuel tank no. 2 through the secondary containment wall of the product supply line. Kaiser Engineers was requested to locate and fix the leak. On April 14, 1989, Kaiser Engineers was requested to obtain the services of a subcontractor to assist in the offsite cleanup of the diesel fuel spill; KE was also requested to provide environmental and other consulting services required to remediate the effects of the leak and resultant fuel spill.

This report provides a status of Kaiser Engineers' activities to date. It incorporates your comments of May 25, 1989.

At the time the leak was detected, pumping of diesel fuel into the damaged line was immediately discontinued. A force account (time and materials) services contract was issued to C. Overaa for work required to repair the leaking fuel pipe. Pressure testing of the system, on April 12 and 13, identified the segment of the fuel line where the leak was occurring.

After removal of the concrete pavement slab and pea gravel down to and exposing the fuel supply line, the leak was found at a 45° elbow fitting of the red thread, fiberglass inner product flow pipeline. The elbow was located approximately four feet from the pump manhole.

Field investigations made of the removed elbow suggest that failure occurred due to improper joint bonding. Possible causes of bonding failure include a misaligned connection (this could not be determined in the field), insufficient seating (tapered end of straight run pipe appeared to have been seated no more than 1" into the fitting as versus 2" recommended by the manufacturer), improperly cured joint (improper mixing of the adhesive or quantities of hardener and adhesive), and/or faulty manufacturer bond product (no tests have been made of the residue adhesive in the area of the failure). Photographs of the area and the failed joint have been taken and have been separately transmitted to AC Transit.

A technical representative of A. O. Smith, manufacturer of the red thread fiberglass pipe, was present and reviewed and commented on the repair procedures for the joint failure.

After repair of the pipeline and replacement of the secondary containment system, certified precision pressure testing of the repaired segment of pipe, as well as all other pipeline segments of the diesel fuel system servicing the fuel island, were undertaken. All diesel fuel supply line segments tested were found satisfactory. A copy of test results is provided as Attachment 1. The repaired pipeline was returned to service on April 24. Backfill and replacement of concrete pavement activities were finished and all construction work relative to the pipeline repair completed by April 26.

In response to AC Transit's request on April 14, written unit price proposals were obtained from Crosby & Overton Environmental Management, Inc., Erickson Technical Services, Inc., and Riedel Environmental Services, Inc., to provide personnel, material, and equipment to assist in the cleanup of the offsite discharge of diesel fuel. This scope of work was expanded to include the installation of bore holes and monitoring wells needed to define the extent of free and dissolved diesel product plumes associated with the site groundwater. Authorization to proceed with the work was given to Crosby & Overton on April 14 based on their overall lower labor, material, and equipment unit rates.

Crosby & Overton mobilized and had personnel involved in cleanup operations beginning Saturday morning, April 15. In addition to the manual removal of free floating diesel product, Crosby & Overton water-flushed the reinforced concrete pipe storm drain from the Nottingham interceptor to Temescal Creek. On April 20, following a meeting with the hazardous waste spill regulatory agencies, AC Transit requested that Crosby & Overton's activities relative to offsite cleanup of diesel fuel be discontinued. During the period of their involvement, Crosby & Overton placed and removed approximately 1300 oil absorbent pads and 184 feet of oil absorbent boom.

On April 18, Crosby & Overton began installing bore holes and monitoring wells at locations agreed to by the RWQCB.

Nine bore holes were installed for purposes of visually determining the extent of diesel fuel migration from the area of the fuel island tank farm. These holes were installed as a substitution for a more extensive soil/gas survey originally requested. Field investigation of groundwater at each of these bore holes led investigators to believe that there had been essentially no migration of either free or dissolved diesel product from the tank farm area. A layout drawing showing the location of bore holes and monitoring wells is provided as Attachment 2.

Two bore holes plus a third well casing (installed by C. Overaa) within the tank farm pea gravel backfill area were converted to extraction wells for use in pumping free and dissolved diesel product afloat in this area. It is estimated that approximately 1200 gallons of diesel have been removed from the tank farm with approximately 500 gallons of diesel remaining in the pea

gravel. Pumping of diesel/water product from the tank farm area continues; this activity will continue for approximately three more weeks.

Three bore holes were converted to monitoring wells. An additional seven monitoring wells (a total of 10) were installed. Water samples were taken from each monitoring well and analyzed.

In summary, the total petroleum hydrocarbons (TPH) as diesel findings are nondetectable or extremely low in all cases. Complete results of the laboratory analyses have been separately transmitted to AC Transit.

All well installations were completed by Crosby & Overton on May 1.

On April 19, Pacific Pipeline Survey (PPS) was requested to inspect the storm drain RCP system on the north and west sides of the tank farm area to verify and locate the points of infiltration of diesel fuel from the tank farm into the storm drain system. On April 20, PPS, using a remote TV camera, inspected approximately 500 feet of storm drain pipe. A copy of the video tape made of this effort has been separately provided to AC Transit. A copy of the inspection log is provided as Attachment 3. Leaks in mortar joints were noted in 3 consecutive joints (approximately 6 feet apart) beginning 17 feet south of the northern most catch basin in the north-south storm drain lateral. These leaks are less than 10 feet west of the tank farm area. At present no effort is being made to seal these leaks.

In order to reduce the costs to AC Transit of shipping storm water drain discharge offsite (because of the RWQCB directive that temporarily prohibits the unpermitted continuing discharge of storm drain discharge to Temescal Creek), AC Transit has approved the relocation from Division 2, Richmond, of a McTighe oil/water separator for treatment and discharge of effluent to EBMUD's sanitary sewer system. A force account (time and materials) purchase order was issued to C. Overaa (who originally installed the equipment at Richmond) for this work. The McTighe oil/water separator was installed and operational, with treated effluent being discharged to a 12,000 gallon holding tank, by May 5. Water sampling of storm water drain discharge and treated effluent was conducted May 5, 10, and 12. The results of effluent treatment are in full compliance with EBMUD discharge limits. Trace quantities of napthalene, trimethylbenzenes and xylenes plus diesel in amounts of 260 mg/L or below were found in the storm water drain discharge samples. Heavy metals were nondetectable. Sample tests of the treated effluent showed a reduction of gasoline, benzene, toluene, ethlybenzene, and xylene to nondetectable limits. Diesel concentrations were reduced to 40 mg/L or less. Certified analytical laboratory results are available. A permit application was submitted to EBMUD on May 19 for discharging treated storm drain effluent from the McTighe oil/water separator to a nearby sanitary sewer drain. EBMUD approval is expected by June 2. Efforts are being undertaken to expedite the approval process with most optimistic approval date being May 26.

On April 20, we completed and AC Transit submitted to the RWQCB a Report of Unauthorized Release of Diesel Fuel (the "5-day report"). This was the first formal report submitted by AC Transit to regulatory agencies relating to the

accidental release of diesel fuel from the Emeryville site. A second report - a remedial investigation/feasibility study required by RWQCB Guidelines for Investigation of Leaking Tanks - is under preparation and is scheduled for submittal to RWQCB in late June.

It is anticipated that the NPDES permit application required to install an oil/water separator facility at the terminus of the onsite storm water drain system, preparatory to discharge into Temescal Creek, will be completed, ready for transmittal to the RWQCB, by June 5. As part of this permit application process, Kaiser Engineers prepared an engineering study report concluding that AC Transit should base its NPDES permit application on the furnishing of a coalescence type oil filter separator sized to process a 25-year, 24-hour storm water runoff. AC Transit has approved this recommendation and it will be reflected in the permit application.

Design, procurement and installation of a storm water drain effluent treatment facility is dependent upon the results of the NPDES permitting process.

kib

Attachments

ATTACHMENT 1

DATA CHART
For Use With
petro TITE LINE TESTER

1 LOCATION: 45th and San Pablo Av. Emeryville Ca
Street No. and/or Corner — City — State — Telephone No.

2 OWNER: A.C. TRANSIT
Name — Address — Representative — Position — Telephone No.

3 OWNER: A.C. Transit — Name
STATE: CA — State
CITY: — City
DATE OF TEST: Year 89, Mo. 6, Day 24
LOCATION

3 OPERATOR: SAME
Name — Dealer, Mgr. or Other — Address (if different than Location) — Telephone No.

4 REASON FOR TEST: test After Repairing damaged line on line #1, tested line #2 to insure integrety of both piping systems.

5 TEST REQUESTED BY: W.S. OHAIR — Resident Manager — 1600 Franklin St. Oak Ca.
Name — Position — Order No. — Billing Address

6 SPECIAL INSTRUCTIONS:

7 CONTRACTOR OR COMPANY MAKING TEST MECHANIC(S) NAME: R.W. Johnston + Son - by G. Dani

8 IS A TANK TEST TO BE MADE WITH THIS LINE TEST? ☐ YES ☑ NO

9 MAKE AND TYPE OF PUMP OR DISPENSERS: Red Jacket Pumps

10 WEATHER: Rainy — TEMPERATURE IN TANKS ____ °F ____ °C

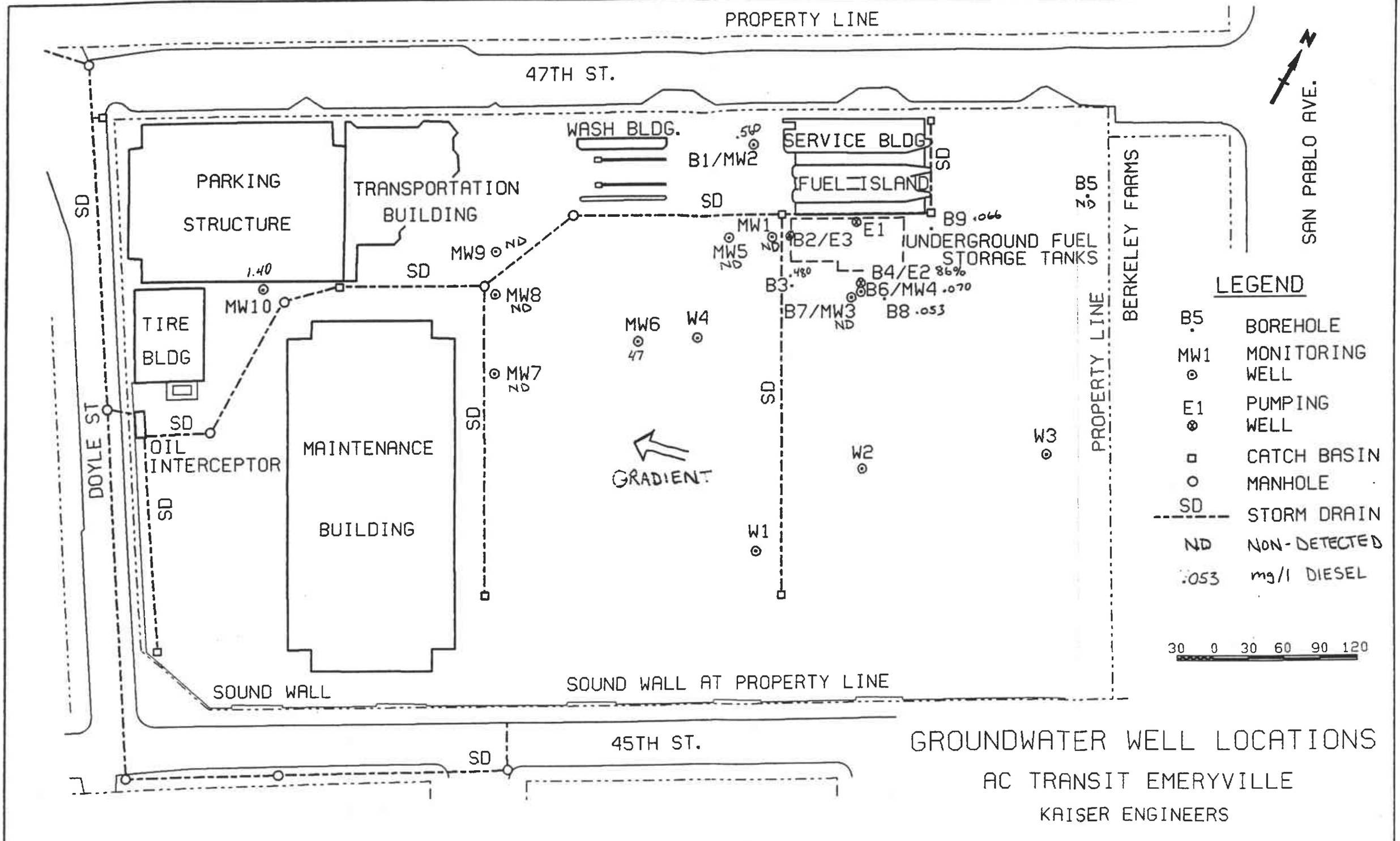
COVER OVER LINES: Concrete (Concrete, Black Top, etc.) — APPROXIMATE BURIAL DEPTH: 2½ Feet

11 IDENTIFY EACH LINE AS TESTED	12 TIME (MILITARY)	13 LOG OF TEST PROCEDURES, AMBIENT TEMPERATURE, WEATHER, ETC.	14 PRESSURE psi OR kPa BEFORE	14 PRESSURE psi OR kPa AFTER	15 VOLUME READING BEFORE	15 VOLUME READING AFTER	15 VOLUME NET CHANGE	16 TEST RESULTS CONCLUSIONS, REPAIRS AND COMMENTS
diesel	0830		60	50	.091	.086	-.005	Lines Are in Apparent Good condition And are tight
line no 1	0845		60	52	.086	.083	-.003	
	0900		60	53	.083	.080	-.003	
	0915		60	55	.080	.080	-.000	
	0930		60	55	.080	.080	-.000	
	0945		60	55	.080	.079	-.001	
	1000		60	55	.079	.079	-.000	
	1015		60	60	.090	.090	-.000	no loss per hour
	1030		60	60	.090	.090	-.000	
	1045		60	60	.090	.090	-.000	

Diesel	1315		60	49	.097	.075	-.022
Line # 2	1330		60	50	.075	.057	-.018
	1345		60	50	.091	.077	-.015
	1400		60	50	.080	.066	-.014
	1415		60	51	.066	.056	-.010
	1430		60	52	.070	.058	-.012
	1445		60	55	.058	.052	-.006
	1500		60	58	.060	.056	-.004
	1515		60	59	.056	.053	-.003
	1530		60	60	.053	.055	+.002
	1545		60	60	.065	.066	+.001

-.004 Gal per Hour

ATTACHMENT 2



GROUNDWATER WELL LOCATIONS

AC TRANSIT EMERYVILLE

KAISER ENGINEERS

ATTACHMENT 3

Pacific Pipeline Survey

Post Office Box 1000, Vacaville, California 95696 (707) 446-0427

CLIENT: A. C. TRANSIT

DATE: APRIL 20, 1989 RUN NO: 1

PIPE SIZE: 15" PIPE TYPE: CEMENT

JOINT LENGTH: 8' APPROX MH DEPTH: 3'

STREET: _____ AREA: EMERYVILLE

DESCRIPTION: TELEVISE FROM CATCH BASIN #1 TO CATCH BASIN #2 - LOOKING FOR LEAK

OPERATOR: ROB MAGOWAN

TOTAL RUN: 370.0'

AIR TEST PRESSURE: _____ AIR TEST DURATION: _____

JOINTS TESTED: _____ JOINTS SEALED: _____

CHEMICALS USED: _____

PHOTOS TAKEN: _____ VIDEO TAPES: #1

PIPE CONDITION: FAIR

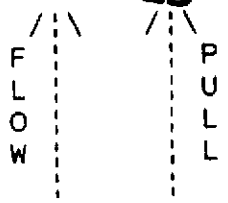
GRADE: GOOD

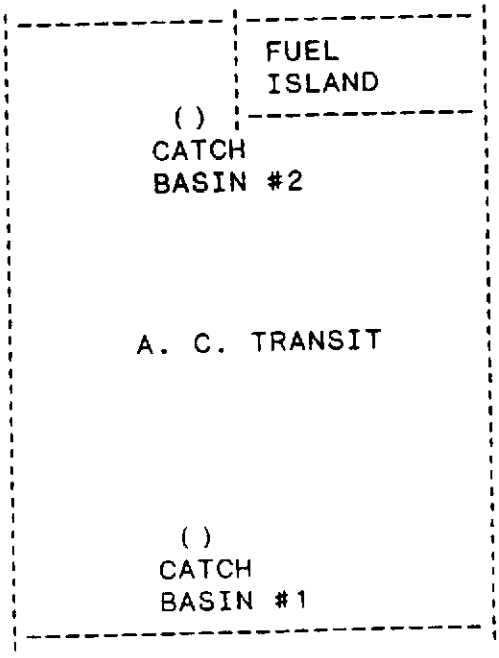
REMARKS: _____

C. OVERAA & CO.

APR 26 1989

RECEIVED





Run 1 Page 1

Client A. C. TRANSIT

pacific pipeline survey

TV INSPECTION REPORT

REMARKS	Roots Ref. #	QUADRANT 4	3	2	1	FOOTAGE
LATERAL					X	35.0
LATERAL					X	75.0
LATERAL					X	116.0
LATERAL (PROTRUDING APPROX. 4")					X	156.0
LATERAL					X	203.0
LATERAL (SMALL GAP AT LATERAL CONNECTION)					X	244.5
LATERAL (SMALL GAP AT LATERAL CONNECTION)					X	284.5
LATERAL (SMALL GAP AT LATERAL CONNECTION)					X	325.0
FUEL LEAKING IN JOINT						346.0
1" OFFSET JOINT LEAKING IN FUEL						353.0
CATCH BASIN #2						370.0
END OF RUN						

Pacific Pipeline Survey

Post Office Box 1000, Vacaville, California 95696 (707) 446-0427

CLIENT: A. C. TRANSIT

DATE: APRIL 20, 1989 RUN NO: 2

PIPE SIZE: 15" PIPE TYPE: CEMENT

JOINT LENGTH: 8' APPROX MH DEPTH: 3'

STREET: _____ AREA: EMERYVILLE

DESCRIPTION: TELEVISE AFTER LOCATING FUEL INFILTRATION AND LOCATING WATER INFILTRATION FROM C.B. #1 TO C.B. #2

OPERATOR: ROB MAGOWAN

TOTAL RUN: 370.0'

AIR TEST PRESSURE: _____ AIR TEST DURATION: _____

JOINTS TESTED: _____ JOINTS SEALED: _____

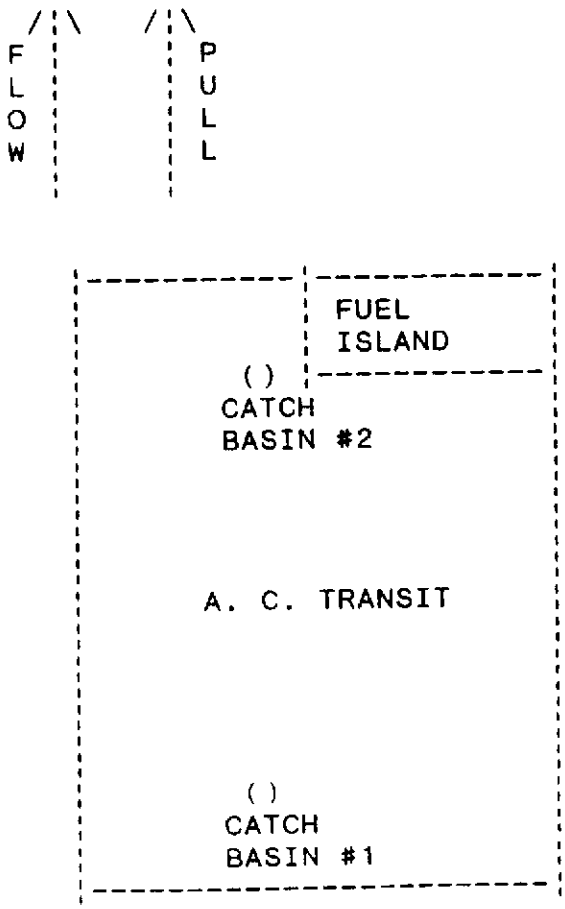
CHEMICALS USED: _____

PHOTOS TAKEN: _____ VIDEO TAPES: #1

PIPE CONDITION: FAIR

GRADE: GOOD

REMARKS: _____



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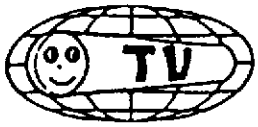
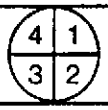
Client ____A__C__TRANSIT____



pacific pipeline survey

TV INSPECTION REPORT



REMARKS	Roots Ref. #	QUADRANT 4	3	2	1	FOOTAGE
LATERAL					X	35.0
LATERAL					X	75.0
LATERAL					X	116.0
LATERAL (PROTRUDING APPROX. 4")					X	156.0
LATERAL					X	203.0
JOINT INFILTRATION						214.0
LATERAL					X	244.5
LATERAL					X	284.0
LATERAL					X	325.0
JOINT INFILTRATION (WATER & FUEL)						340.0
JOINT INFILTRATION (WATER & FUEL)						346.0
POSSIBLE BREAK AT BOTTOM						353.0
CATCH BASIN #2						370.0
END OF RUN						
END OF RUN						

Pacific Pipeline Survey

Post Office Box 1000, Vacaville, California 95696 (707) 446-0427

CLIENT: A. C. TRANSIT

DATE: APRIL 20, 1989 RUN NO: 3

PIPE SIZE: 15" PIPE TYPE: CEMENT

JOINT LENGTH: 8' APPROX MH DEPTH: 4'

STREET: _____ AREA: EMERYVILLE

DESCRIPTION: TELEVISE FROM CATCH BASIN #3 TO CATCH BASIN #2 LOOKING FOR FUEL INFILTRATION

OPERATOR: ROB MAGOWAN

TOTAL RUN: 125.0'

AIR TEST PRESSURE: _____ AIR TEST DURATION: _____

JOINTS TESTED: _____ JOINTS SEALED: _____

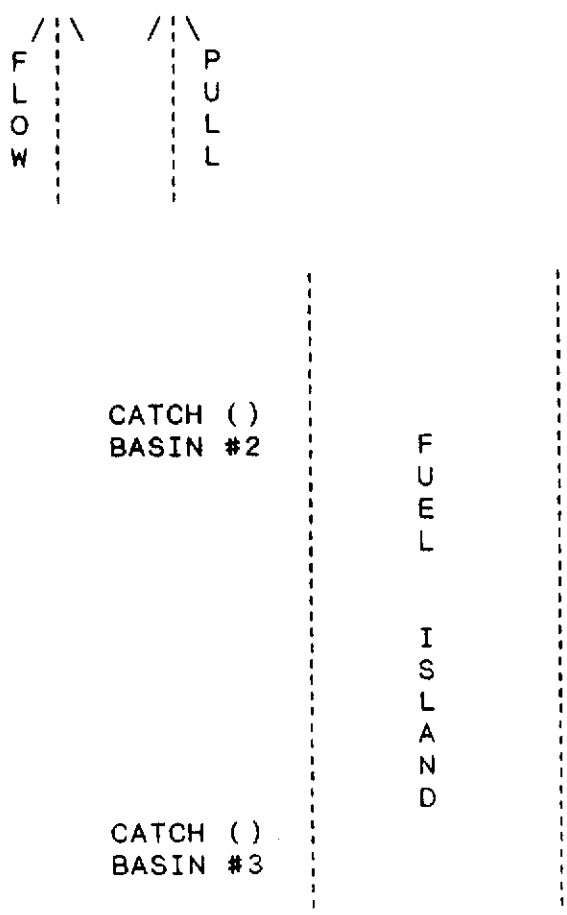
CHEMICALS USED: _____

PHOTOS TAKEN: _____ VIDEO TAPES: #1

PIPE CONDITION: GOOD

GRADE: GOOD

REMARKS: _____



Run _____3_____ Page __1_____

Client _____A__C__IRANSIT_____

pacific pipeline survey

TV INSPECTION REPORT

REMARKS	Roots Ref. #	QUADRANT 4	3	2	1	FOOTAGE
APPEARS TO BE A HOLE PATCHED WITH CEMENT						30.5
LATERAL		X	X			32.0
LATERAL (PROTRUDING 2 1/2")		X				59.5
LATERAL (PROTRUDING 3")		X				87.5
LATERAL (PROTRUDING 1")		X	X			115.0
CATCH BASIN #2						125.0
END OF RUN						

Computation of Diesel Discharge Loss/Recapture

Estimated Release: The release is estimated as 16,000 gallons of diesel fuel. (This calculation is based on reports of fuel usage generated by AC Transit maintenance personnel. The average weekly usage from 2/3/89 to 4/4/89 was approximately 42,000 gallons while the weekly usage from 4/5/89 to 4/11/89 was approximately 58,000 gallons. It was determined that the average use computation was a more accurate indicator than fuel tank guages).

Product Recapture: As of May 13, 1989, it was estimated that 13,300 gallons of diesel product have been recaptured as a result of AC Transit cleanup efforts. (This calculation is based on diesel product recovered by H & H, Erickson, Inc. and AC Transit personnel by deployment of oil absorbent booms and pads as well as through direct pumping of the oil interceptor and from the tank farm pea gravel).

Estimated Remaining On-Site Deposit: It is estimated that an additional 500 gallons of diesel product remain in the fuel island tank farm area and will be recovered through AC Transit's continuing pumping activity.

Quantity of Diesel Product Undetermined: A total of approximately 2800 gallons of diesel product are not accounted for based on the above computations. The Coast Guard has estimated that as much as 1,000 gallons may have escaped into the bay in spite of AC Transit's efforts to contain the offsite discharge of the diesel spill. It is believed that the quantity unaccounted for is well within the accuracy limits of the method of measurement. (For example, an increase of only 1 1/2% average diesel content of the product offhauled by H & H Environmental Services would account for the difference.)

STATUS OF AC TRANSIT EXPENDED AND PROJECTED
COST OF CLEAN UP TO DATE

1. Expended Cost to Date:

RWQCB Permit	$ 2,000.00
EBMUD Permit	$ 2,000.00
H & H	$116,435.00
Kaiser Engineers & Subcontractors	$170,975.00
Erickson, Inc.	$ 57,700.00
Total	**$349,110.00**

2. Projected Cost to Date:

Insurance Consulting Associates	$ 593.20
Bentley Engineering Co.	$ 6,000.00
Erickson, Inc.	$ 18,000.00
Total	**$ 24,593.20**