DUNN

GROUND WATER REMEDIAL PLAN AMERICAN NATIONAL CAN COMPANY OAKLAND, CALIFORNIA, FACILITY

Areas 2 + 4

Prepared for:
American National Can Company
Chicago, Illinois

DRAFT

August, 1992

DUNN CORPORATION

Engineers, Geologists, Environmental Scientists
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August 11, 1992

Mr. Barney Chan
Hazardous Materials Specialist
Department of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, CA 94621

Dear Mr. Chan:

Subject: Ground Water Remedial Plan
ANC Oakland, CA, Facility

Enclosed please find a copy of the subject workplan for your review. The Ground Water Remedial Plan addresses the subsurface conditions as reported in the Subsurface Investigation Summary Report dated June, 1992.

A Wastewater Discharge Permit Application has been filed with the East Bay Municipal Utility District along with a copy of the subject plan as supporting documentation.

Please call me with your questions and comments.

Very truly yours,

DUNN CORPORATION

Edward W. Alusow

Edward W. Alusow
Senior Project Manager
CA Registered Geologist #4282

EWA/me

Enclosure

cc: Mr. Lester Feldman
San Francisco Bay Regional Water Quality Ccontrol Board
2101 Webster Street, Suite 500
Oakland, CA 94612

J. Moran, ANCC
J. Peters, ANCC

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

LIST OF DRAWINGS

1.0 INTRODUCTION

This remedial plan was prepared by a licensed professional engineer from the Environmental Engineering Group of Dunn Corporation (DUNN) at the request of the American National Can Company (ANCC) to address conditions at ANCC's Oakland, California, facility. Five areas of concern have been investigated at this facility. This workplan presents our approach to ground water remediation in Areas 2 and 4 as they were delineated in the Subsurface Investigation (SI) Report (DUNN, 1991).

1.1 Site Description

1.1.1 Physical Setting

The Site is located at 3801 East 8th Street in Oakland, California (Figure 1) in an area of commercial and industrial land use. The property, shown on Sheet 1, is a triangular shaped parcel bordered by East 8th Street to the northeast, 37th Avenue to the west, and Alameda Avenue to the south. The Site occupies approximately 16 acres of which 80% is covered by a series of interconnected buildings. Most of the remaining land areas are paved and are principally used for vehicle parking and truck loading/unloading.

Area 2 is located along the northeast perimeter of the plant site and generally includes the immediate vicinity of a former heating oil storage tank.

Area 4 is located on the southern portion of the plant site and includes the vicinity of the Compound Storage building extending east to the former Lithography building, Building 12. The plant boundary and Alameda Avenue are located immediately south of Area 4.

1.1.2 Site History

The Site has been used exclusively for the manufacturing of steel beverage and food cans since American Can Company began operations in the early 1900's. The merger of National Can Company with American Can Company in 1986 led to the formation of the current site owner, ANCC. In 1988, the manufacturing process was discontinued and now the site is used only for warehousing purposes.

Typical can manufacturing operations are believed to have utilized various solvent- and petroleum-based compounds related to either the manufacturing process, the fueling of vehicles, or the heating of the facility.

1.1.3 Prior Subsurface Investigations (in-place)

In 1986, Aqua Terra Technologies (ATT) closed the 15,000 gallon heating oil tank in Area 2. The tank closure activities included removing product from this tank and filling the tank with a cement-sand grout. Subsequent to the tank closure, ATT installed a downgradient monitoring well (existing well GW-6). At that time, well GW-6 was reported to contain approximately 3" of a hydrocarbon product.

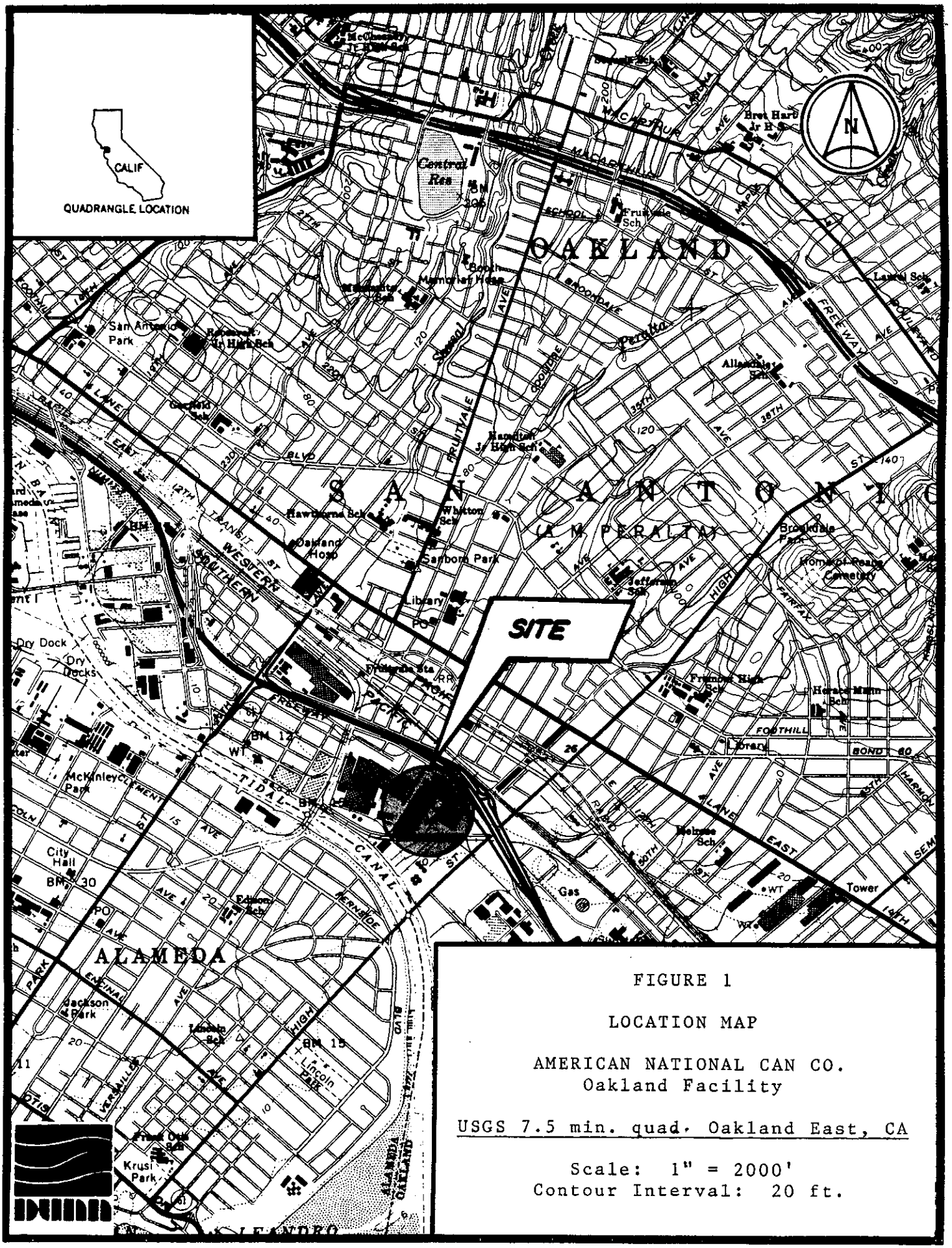

FIGURE 1

LOCATION MAP

AMERICAN NATIONAL CAN CO.
Oakland Facility

USGS 7.5 min. quad. Oakland East, CA

Scale: 1" = 2000'
Contour Interval: 20 ft.

In 1987, Aqua Terra Tech Corporation removed a group of seven USTs from the area immediately east of the compound storage building in Area 4. These tanks had been used to store various coating and coatingr-related products used in the food and beverage can manufacturing process. The UST removal activities included the removal of tanks and contaminated soil from the tank pit. During soil excavation, an 8-inch propane line was encountered along the east and north ends of the pit. When this pipeline was undermined by the excavation of soil, it sagged and began to leak. At that point, the excavation was also endangering the compound storage building's foundation. Emergency procedures were initiated, which included repairing the leak and backfilling the pit to provide support to the pipeline and building foundation. As a result of these actions, some of the contaminated soil could not be removed. The buried product pipeline which was used to transfer product from the UST to the lithography operations in Building 12 was not removed.

Prior to 1988, a 500 gallon underground storage tank (UST), located in Area 4, was removed from service. The tank was reportedly used for the storage of gasoline motor fuel used in the plant vehicles. The associated above ground dispensing equipment is no longer present. There is no information available concerning closure assessments performed on this UST site. The reported location of this tank is shown on Sheet 1 of the drawings.

In August, 1989, Dames & Moore (D&M) conducted a Phase I site investigation at the request of ANCC. The final report was issued in February, 1990. D&M reported having measured nearly 4-feet of product in well GW-6. However, additional drilling or sampling in Area 2 was not performed as part of this investigation. As part of their study, D&M installed one monitoring well (GW-3) and collected 5 shallow soil samples in Area 4.

In late 1990, 1991, and early 1992 DUNN conducted subsurface investigations at the request of ANCC. Reports issued in August, 1991 and June, 1992 summarized the results of these investigations. Ground water monitoring wells were installed in all areas to characterize the nature and extent of ground water contamination. Following installation and development of ground water monitoring wells, ground water samples were collected from all wells and sent to a California-certified laboratory for analysis. Ground water sampling of selected wells is currently being performed on a quarterly basis.

1.1.4 Summary of Investigations

Area 2

A total of 6 ground water monitoring wells (MW-13, MW-15, MW-17, MW-21, GW-6 and TW-1) presently exist in Area 2. Monitoring of these wells has shown that the layer of product is still present in well GW-6 and that the ground water on the downgradient side of the former tank (TW-1) contains low levels of total petroleum hydrocarbon as diesel (TPHd).

Geologic and hydrogeologic data gathered over the past year indicates that the fluvial stratigraphic unit (principle water bearing unit) in Area 2 is very fine grained and much less permeable than in other areas of the site (DUNN; June, 1992). A pump test completed in October, 1991, revealed a maximum sustainable pumping yield of not more than 0.2 gallons per minute from well TW-1. In addition, as ground water was lowered in well GW-6, in

response to the pumping of well TW-1, additional product flow was induced into well GW-6. Ground water monitoring results indicate that free product present in Area 2 is not dissolving into the ground water to any significant degree. Downgradient ground water monitoring also indicates that no significant levels of contaminants are migrating from Area 2 and, therefore, are not impacting ground water in other areas of the site. Table 1 provides a summary of ground water analytical results obtained from Area 2 wells between April, 1991, and February, 1992.

Area 4

A total of 6 ground water monitoring wells (MW-8, MW-9, MW-10, MW-14, MW-16 and GW-3) presently exist in Area 4. Analytical results of ground water samples collected from these wells indicate that ground water in the immediate vicinity of the area from which the seven USTs were removed is impacted with toluene, ethylbenzene and xylene and low concentrations of semi-volatile organic compounds (semi-VOCs). Analyses of ground water samples taken from monitoring well GW-3 indicate the source of these contaminants is related to motor fuel.

During drilling activities conducted in September, 1991, perched water was encountered within the base fill gravel beneath the plant's concrete driveway slab at a location immediately north of the former UST excavation pit discussed above. Subsequent chemical analyses of a grab sample of this perched water (MW-1S) revealed elevated levels of toluene, ethylbenzene, xylenes and TPH as gasoline. The relatively impermeable tidal marsh layer underlying the basefill is the cause of the perching of the water discussed above. It is possible that the perched water may be recharging the ground water in the area of the seven former USTs since the tidal marsh layer has been removed in this area. As a result, the contaminants in this perched water may be contributing to the volatile organics present in well GW-3. Table 2 provides a summary of ground water analytical results obtained from Area 4 wells between April, 1991, and February, 1992.

1.2 Remedial Approach

In order to restore the plant site and mitigate potential environmental liabilities, several steps recommended to remediate ground water contamination are proposed in this remedial plan. Based on the results of the subsurface investigations conducted at the site, DUNN has developed the following remedial approach:

AREA 2

- Construction of a product/ground water recovery system;
- Construction of a product/ground water separator system; and
- Construction of a product storage facility.

TABLE 1
AMERICAN NATIONAL CAN COMPANY
OAKLAND, CALIFORNIA PLANT

Summary of Ground Water and Product Analytical Results - AREA 2
April, 1991 - January 1992

ANALYSIS	MW-13				GW-6 (GW)	GW-6 (Product)	MW-15		TW-1		MW-17	MW-21
	Apr-91	Jul-91	Oct-91	Jan-92	Jul-91	Oct-91	Oct-91	Jan-92	Oct-91	Jan-92	Feb-92	Feb-92
Volatile Organics (EPA Methods 8240/624)(ug/l)												
Dilution Factor	1.00	1.00	--	--	1.00	10,000	--	--	--	--	1.00	1.00
Benzene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Toluene	nd	nd	nd	nd	3 J	nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	nd	nd	--	--	3 J	nd	--	--	--	--	nd	nd
Ethylbenzene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Total Xylenes	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Total	nd	nd	--	--	6 J	nd	--	--	--	--	nd	nd
TICS Total	--	nd	--	--	34	2,400,000	--	--	--	--	nd	nd
Semi-Volatile Organics (EPA Methods 8270/625)(ug/l)												
Dilution Factor	1.00	1.00	--	--	1.00	10.00	--	--	--	--	1.00	1.00
Naphthalene	nd	nd	--	--	31	82000 J	--	--	--	--	nd	nd
2-Methylnaphthalene	nd	nd	--	--	58	250,000	--	--	--	--	nd	nd
Dibenzofuran	nd	nd	--	--	nd	24000 J	--	--	--	--	nd	nd
Fluorene	nd	nd	--	--	10	53000 J	--	--	--	--	nd	nd
Pentachlorophenol	nd	nd	--	--	nd	nd	--	--	--	--	13 J	nd
Phenanthrene	nd	nd	--	--	16	nd	--	--	--	--	nd	nd
Total	nd	nd	--	--	115	250,000	--	--	--	--	13 J	nd
TICS Total	--	70	--	--	960	13,100,000	--	--	--	--	10 J	18 J
TPH as Gasoline (EPA Method 5030)(ug/l)	--	--	nd	nd	--	39,000,000	nd	nd	nd	nd	nd	nd
TPH as Diesel (EPA Method 3510)(ug/l)	430	500	200	180	29,000	500,000,000	260	610	680	2,600	110	55
PCBs (EPA Method 8080)(ug/l)	nd	nd	--	--	nd	nd	--	--	--	--	nd	nd
Metals (ug/l)												
Arsenic (total)	nd	--	--	--	--	300	--	--	--	--	--	--
Barium (total)	nd	--	--	--	--	nd	--	--	--	--	--	--
Beryllium (total)	nd	--	--	--	--	--	--	--	--	--	--	--
Cadmium (total)	nd	--	--	--	--	--	--	--	--	--	--	--
Cobalt (total)	nd	--	--	--	--	--	--	--	--	--	--	--
Total Chromium (total)	13.4	nd	--	--	nd	160	--	--	--	--	--	--
Total Chromium (filtered)	--	nd	--	--	nd	--	--	--	--	--	--	--
Copper (total)	nd	--	--	--	--	--	--	--	--	--	--	--
Mercury (total)	nd	--	--	--	--	--	--	--	--	--	--	--
Molybdenum (total)	nd	--	--	--	--	--	--	--	--	--	--	--
Nickel (total)	90.3	73.3	170	59.3	nd	--	82.7	nd	nd	nd	nd	152
Nickel (filtered)	--	51.4	55.9	54.1	nd	--	nd	--	nd	--	nd	nd
Lead (total)	18.0	nd	--	--	5.0	470	--	--	--	--	--	--
Lead (filtered)	--	nd	--	--	nd	--	--	--	--	--	--	--
Antimony (total)	nd	--	--	--	--	--	--	--	--	--	--	--
Selenium (total)	nd	--	--	--	--	--	--	--	--	--	--	--
Thallium (total)	nd	--	--	--	--	--	--	--	--	--	--	--
Vanadium (total)	nd	--	--	--	--	--	--	--	--	--	--	--
Zinc (total)	9,940	8,740	10,300	8,770	nd	--	55.9	nd	24	nd	nd	30.8
Zinc (filtered)	--	7,410	6,880	7,890	nd	--	21.8	--	26.9	--	nd	nd
Silver (total)	nd	--	--	--	--	--	--	--	--	--	--	--

-- indicates compound was not analyzed for.
nd indicates compound was not detected.
J indicates compound was detected at an amount below the specified reporting limit. Consequently, the amount should be considered an approximate value.

TABLE 2
AMERICAN NATIONAL CAN COMPANY
OAKLAND, CALIFORNIA PLANT

Summary of Ground Water Analytical Results - AREA 4
April, 1991 - January 1992

23~45 4/4/2000

ANALYSIS	GW-3				MW-8				MW-9			
	Apr-91	Jul-91	Oct-91	Jan-92	Apr-91	Jul-91	Oct-91	Jan-92	Apr-91	Jul-91	Oct-91	Jan-92
Volatile Organics (EPA Methods 8240/624)(ug/l)												
Dilution Factor	100.00	100.00	50.00	10.00	1.00	1.00	--	--	1.00	1.00	--	--
Benzene	nd	nd	nd	nd	nd	nd	--	--	nd	nd	--	--
Toluene	nd	220 J	nd	100	nd	nd	--	--	nd	nd	--	--
Ethylbenzene	4600	10000	3800	10000	nd	nd	--	--	nd	nd	--	--
Total Xylenes	20000	35000 E	12000	31000	nd	nd	--	--	nd	nd	--	--
Total	24600	45220 E	15800	41100	nd	nd	--	--	nd	nd	--	--
TICS Total	--	51	--	--	--	nd	--	--	--	nd	--	--
Semi-Volatile Organics (EPA Methods 8270/625)(ug/l)												
Dilution Factor	1.00	1.00	1.00	1.00	1.00	1.00	--	--	1.00	1.00	--	--
2-Methylphenol	3 J	nd	nd	nd	nd	nd	--	--	nd	nd	--	--
4-Methylphenol	13	9 J	nd	nd	nd	nd	--	--	nd	nd	--	--
2,4-Dimethylphenol	40	39	15	34	nd	nd	--	--	nd	nd	--	--
Naphthalene	24	25	13	32	nd	nd	--	--	nd	nd	--	--
2-Methylnaphthalene	nd	nd	nd	2 J	nd	nd	--	--	nd	nd	--	--
Acenaphthalene	nd	5 J	4 J	10 J	nd	nd	--	--	nd	nd	--	--
Dibenzofuran	nd	nd	nd	4 J	nd	nd	--	--	nd	nd	--	--
Fluorene	nd	3 J	2 J	5 J	nd	nd	--	--	nd	nd	--	--
Phenanthrene	4 J	8 J	11	29	nd	nd	--	--	nd	nd	--	--
Anthracene	nd	nd	3 J	8 J	nd	nd	--	--	nd	nd	--	--
Fluoranthene	nd	nd	7 J	21	nd	nd	--	--	nd	nd	--	--
Pyrene	nd	nd	7 J	23	nd	nd	--	--	nd	nd	--	--
Benzo(A)Anthracene	nd	nd	3 J	8 J	nd	nd	--	--	nd	nd	--	--
Chrysene	nd	nd	3 J	10 J	nd	nd	--	--	nd	nd	--	--
Benzo(K)Fluoranthene	nd	nd	nd	8 J	nd	nd	--	--	nd	nd	--	--
Benzo(A)Pyrene	nd	nd	nd	7 J	nd	nd	--	--	nd	nd	--	--
Bis (2-Ethylhexyl) Phthalate	nd	nd	nd	nd	nd	nd	--	--	nd	nd	--	--
Total	84	89 J	68 J	201 J	nd	nd	--	--	nd	nd	--	--
TICS Total	--	2570	--	--	--	29	--	--	--	19	--	--
TPH as Gasoline (EPA Method 5030)(ug/l)	--	--	--	42000	--	--	--	--	--	--	--	--
TPH as Diesel (EPA Method 3510)(ug/l)	--	--	--	--	--	--	--	--	--	--	--	--
PCBs (EPA Method 8080)(ug/l)	nd	nd	--	--	nd	nd	--	--	nd	nd	--	--
Metals (ug/L)												
Arsenic (total)	13.0	52.3	20.0	--	nd	nd	nd	--	nd	nd	nd	--
Arsenic (filtered)	--	43.4	20.4	--	--	nd	nd	--	--	nd	nd	--
Barium (total)	220	285	282	--	nd	108	nd	--	201	209	250	--
Barium (filtered)	--	231	244	--	--	101	nd	--	--	142	nd	--
Beryllium (total)	nd	--	--	--	nd	--	--	--	nd	--	--	--
Cadmium (total)	nd	--	--	--	nd	--	--	--	nd	--	--	--
Cobalt (total)	nd	--	--	--	nd	--	--	--	nd	--	--	--
Total Chromium (total)	nd	nd	nd	--	nd	nd	nd	--	nd	13.8	nd	--
Total Chromium (filtered)	--	nd	nd	--	--	nd	nd	--	--	nd	nd	--
Copper (total)	nd	--	--	--	nd	--	--	--	nd	--	--	--
Mercury (total)	nd	--	--	--	nd	--	--	--	nd	--	--	--
Molybdenum (total)	nd	--	--	--	nd	--	--	--	nd	--	--	--
Nickel (total)	nd	nd	nd	--	nd	nd	nd	--	48.6	71.5	56.7	--
Nickel (filtered)	--	nd	nd	--	--	nd	nd	--	--	nd	42.6	--
Lead (total)	nd	27.2	5.0	--	nd	nd	10.4	--	nd	4.3	nd	--
Lead (filtered)	--	4.1	3.1	--	--	nd	nd	--	--	nd	3.5	--
Antimony (total)	nd	--	--	--	nd	--	--	--	nd	--	--	--
Selenium (total)	nd	--	--	--	nd	--	--	--	nd	--	--	--
Thallium (total)	nd	--	--	--	nd	--	--	--	nd	--	--	--
Vanadium (total)	nd	--	--	--	nd	--	--	--	nd	--	--	--
Zinc (total)	34.0	28.8	nd	--	23.4	31.9	nd	--	29.0	30.6	nd	--
Zinc (filtered)	--	82.1	nd	--	--	49.4	nd	--	--	24.8	nd	--
Silver (total)	nd	15.7	nd	--	nd	nd	nd	--	10.0	nd	nd	--
Silver (filtered)	--	11.7	nd	--	--	nd	nd	--	--	nd	nd	--

-- indicates compound was not analyzed for.
nd indicates compound was not detected.
J indicates compound was detected at an amount below the specified reporting limit. Consequently, the amount should be considered an approximate value.

TABLE 2 (continued)
AMERICAN NATIONAL CAN COMPANY
OAKLAND, CALIFORNIA PLANT

Summary of Ground Water Analytical Results - AREA 4
April, 1991 - February 1992

ANALYSIS	MW-10				MW-14		MW-16		MW-1S
	Apr-91	Jul-91	Oct-91	Jan-92	Oct-91	Jan-92	Oct-91	Jan-92	Sep-91
Volatile Organics									
(EPA Methods 8240/624)(ug/l)									
Dilution Factor	1.00	1.00	--	--	1.00	1.00	1.00	1.00	1.00
Benzene	nd	nd	--	--	nd	nd	nd	nd	nd
Toluene	nd	nd	--	--	nd	nd	nd	nd	nd
Ethylbenzene	nd	nd	--	--	nd	nd	nd	nd	6000
Total Xylenes	nd	nd	--	--	nd	nd	nd	6	50000
Total	nd	nd	--	--	nd	nd	nd	6	56000
TICS Total	--	nd	--	--	--	--	--	--	nd
Semi-Volatile Organics									
(EPA Methods 8270/625)(ug/l)									
Dilution Factor	1.00	1.00	--	--	1.00	1.00	1.00	1.00	1.00
2-Methylphenol	nd	nd	--	--	nd	nd	nd	nd	nd
4-Methylphenol	nd	nd	--	--	nd	nd	nd	nd	45
2,4-Dimethylphenol	nd	nd	--	--	nd	nd	nd	nd	nd
Naphthalene	nd	nd	--	--	nd	nd	nd	nd	32
2-Methylnaphthalene	nd	nd	--	--	nd	nd	nd	nd	nd
Acenaphthalene	nd	nd	--	--	nd	nd	nd	nd	nd
Dibenzofuran	nd	nd	--	--	nd	nd	nd	nd	nd
Fluorene	nd	nd	--	--	nd	nd	nd	nd	nd
Phenanthrene	nd	nd	--	--	nd	nd	nd	nd	nd
Anthracene	nd	nd	--	--	nd	nd	nd	nd	nd
Fluoranthene	nd	nd	--	--	nd	nd	nd	nd	nd
Pyrene	nd	nd	--	--	nd	nd	nd	nd	nd
Benzo(A)Anthracene	nd	nd	--	--	nd	nd	nd	nd	nd
Chrysene	nd	nd	--	--	nd	nd	nd	nd	nd
Benzo(K)Fluoranthene	nd	nd	--	--	nd	nd	nd	nd	nd
Benzo(A)Pyrene	nd	nd	--	--	nd	nd	nd	nd	nd
Bis (2-Ethylhexyl) Phthalate	nd	nd	--	--	nd	nd	nd	nd	7 J
Total	nd	nd	--	--	nd	nd	nd	nd	84 J
TICS Total	--	7	--	--	--	--	--	--	2,780
TPH as Gasoline									
(EPA Method 5030)(ug/l)	--	--	--	--	--	nd	--	nd	--
TPH as Diesel									
(EPA Method 3510)(ug/l)	--	--	--	--	--	--	--	--	--
PCBs									
(EPA Method 8080)(ug/l)	nd	nd	--	--	--	--	--	--	--
Metals (ug/l)									
Arsenic (total)	nd	16.9	nd	--	14.1	--	nd	--	--
Arsenic (filtered)	--	10.3	nd	--	12.3	--	nd	--	--
Barium (total)	101	nd	nd	--	232	--	255.0	--	--
Barium (filtered)	--	nd	nd	--	nd	--	nd	--	--
Beryllium (total)	nd	--	--	--	--	--	--	--	--
Cadmium (total)	nd	--	--	--	--	--	--	--	--
Cobalt (total)	nd	--	--	--	--	--	--	--	--
Total Chromium (total)	14.8	nd	nd	--	nd	--	nd	--	--
Total Chromium (filtered)	--	nd	11.1	--	nd	--	nd	--	--
Copper (total)	nd	--	--	--	--	--	--	--	--
Mercury (total)	nd	--	--	--	--	--	--	--	--
Molybdenum (total)	nd	--	--	--	--	--	--	--	--
Nickel (total)	40.0	nd	nd	--	nd	--	96.5	--	--
Nickel (filtered)	--	nd	nd	--	nd	--	nd	--	--
Lead (total)	nd	nd	nd	--	nd	--	10.1	--	--
Lead (filtered)	--	nd	nd	--	5.5	--	nd	--	--
Antimony (total)	nd	--	--	--	--	--	--	--	--
Selenium (total)	nd	--	--	--	--	--	--	--	--
Thallium (total)	nd	--	--	--	--	--	--	--	--
Vanadium (total)	nd	--	--	--	--	--	--	--	--
Zinc (total)	37.6	nd	nd	--	nd	--	46.2	--	--
Zinc (filtered)	--	nd	nd	--	nd	--	24.9	--	--
Silver (total)	nd	12.1	nd	--	nd	--	nd	--	--
Silver (filtered)	--	28.3	nd	--	nd	--	nd	--	--

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AREA 4

- Construction of a perched-water collection trench;
- Extended pump testing of well GW-3 (pumping well) while simultaneously removing water from the perched water collection trench;
- Temporary storage of pumping well and collection system pump test waters;
- Conversion of the perched-water collection trench into a long-term recovery system; and
- Conversion of well GW-3 into a long-term ground water recovery well..

GENERAL

- Construction of a water treatment system to treat ground water from the product/ground water separator system in Area 2 and, if necessary, from the the recovery well/perched water recovery system in Area 4; What will determine necessary?
- Construction of effluent discharge lines from the ground water treatment system to existing sanitary sewer lines; and
- Operation and maintenance of the ground water recovery and treatment system.

2.0 DESCRIPTION OF REMEDIAL PROGRAM - AREA 2

This portion of the remedial program will address Area 2 ground water. Two closely spaced existing monitoring wells (GW-6 and TW-1) will be converted to ground water and/or product recovery wells as shown on Sheet 2 of the drawings. Due to the low volume of product, its only occasional occurrence, and the low yield of wells, no effort will be made to recover water and product separately. Instead, total fluids will be recovered from wells and treated by an oil water separator. Clean water from the separator will be passed through a ground water treatment system (Section 4.0) prior to discharge to an on-site sanitary sewer. Specific elements to be implemented as part of the Area 2 ground water remedial plan are described below.

2.1 Recovery Wells

Wells GW-6 and TW-1 will be converted to recovery wells by installing a submersible rotary gear pump in each well. Discharge lines from these recovery wells to the separator will be either buried or placed in a conduit at grade.

2.2 Product Separation, Storage and Spill Prevention

A coalescing oil/water separator will be placed adjacent to the recovery wells at the location shown on Sheet 1 of the drawings. The pump discharge line from wells GW-6 and TW-1 will be connected to the influent port of the separator. The product discharge line will be connected to a product holding drum which will be equipped with a level sensor to automatically shut down the system to prevent overflow of the product holding drum. As an additional spill prevention measure, the product holding drum will be stationed inside a larger, secondary containment drum.

Clear water from the separator will be drained via gravity to an equalization tank and pumped to the water treatment system. A detailed description of the water treatment system is provided in Section 4.0.

2.3 System Controls

A NEMA 4 enclosure, housing the recovery well liquid level controls, high level shutdown controls, and other system electronics will be mounted inside the building in close proximity to the separator. Recovery well pumps will be powered by the existing plant electrical service.

3.0 DESCRIPTION OF REMEDIAL PROGRAM - AREA 4

3.1 Site Preparation

A 21,000 gallon storage tank will be set up adjacent to the Compound Storage Building in order to store ground water and perched water that are collected while implementing the initial stages of this remedial plan. The construction and the condition of the tank will be inspected to verify that it will be adequate for on-site storage of the water. The tank will be placed inside a previously constructed secondary containment cell in the event that the tank develops a leak or there is an inadvertent spill or overflow. The containment cell will consist of a soil berm around the perimeter of the tank lined with heavy duty polyethylene plastic.

∴ properly shaded have secondary containment not necessarily double-walled

3.2 Installation of Perched Water Recovery System

A perched water collection trench will be constructed along the northern edge of the former UST area to recover water from the crushed stone base course beneath the concrete pad. If sufficient water is recovered, this will be converted into a permanent recovery system.

3.2.1 Trench Construction

An approximate 2-foot wide by 30-foot long section of concrete slab will be removed from the northern edge of the former UST area so that an evaluation of the perched water present beneath the concrete can be made. The construction of the perched water collection trench will be initiated by excavating the trench to an elevation and grade sufficient to provide proper drainage to an open sump area. This will involve removal of the base fill gravel layer and the top 4 to 8 inches of the tidal marsh layer. The open trench will be lined with polyethylene sheeting to provide drainage to the open sump. As soil is removed, it will be stock-piled with soil previously removed during the product pipeline excavation. If it is necessary to dewater the trench excavation during construction, all water will be contained on site in Department of Transportation (DOT) approved 55-gallon drums or in the storage tank.

3.2.2 Pumping of Perched Water Collection Trench

Water will be pumped from the perched water collection trench prior to beginning the pumping test of well GW-3 (Section 3.3). Water will be continuously removed from the trench sump throughout the duration of the pumping test of GW-3 in order to:

- evaluate the potential yield and contaminant level of the perched water layer; and
- prevent perched water from recharging ground water during the pump test of GW-3.

All perched water removed from the trench during this stage of the remedial plan will be stored in the storage tank. At the completion of pumping of the perched water collection trench, a sample of the perched water will be sent to a California-certified laboratory where it will be analyzed for benzene, toluene, ethylbenzene and xylene (BTEX) (EPA Method 602) and TPH as gasoline (EPA Method 5030). This sample will also be analyzed for typical water quality parameters (e.g., iron, hardness, etc.) to determine operating and maintenance requirements for a water treatment system.

3.2.3 Final Installation or Abandonment of the Recovery System

DUNN will evalaute whether conversion of the collection trench into a permanent perched water recovery system is necessary, based on the results of trench pumping as described in Section 3.2.2. In general, if impacted water is recovered with a sufficient and sustainable yield, the permanent recovery system will be installed. Otherwise, the trench will be abandoned as described latertow.

Recovery System Installation

If installed, the permanent perched water recovery system would be constructed as follows. Polyethylene sheeting would be removed from the trench. Crushed stone bedding material would be placed in the base of the trench. Perforated drainage pipe would be placed on the crushed stone at a one percent grade, sloped towards the sump location. A precast concrete sump will be installed and equipped with a level actuated electric submersible pump. Recovery pipe will be covered with crushed stone and pavement will be replaced.

Abandonment of Collection Trench — need to sple bore & determine extent of contam. perch. so

In the event that results of pumping of the collection trench indicate that continued operation of a recovery system is not necessary, the trench will be abandoned. System abandonment will be performed by removing polyethylene sheeting, compacting low permeability soil in the former trench, placing crushed stone base course, and replacing the pavement.

3.3 Pump Test of Well GW-3

An extended duration pump test will be performed on well GW-3. The objectives of the pump test are to:

- evaluate the hydrologic conditions of the water bearing unit in the vicinity of the well;
- provide data to determine if well GW-3 can be utilized as the recovery well for the Area 4 ground water removal;

- evaluate routine water quality parameters (e.g., iron, hardness, etc.) needed to determine operating and maintenance requirements for a treatment system; and

- monitor changes in chemical concentrations over the duration of the pump test.

3.3.1 Pumping Test Procedure

The initial pump test of well GW-3 will consist of a short term step rate drawdown test followed by a longer duration, constant rate pumping test. A 4-inch diameter submersible pump with a 1-inch PVC discharge line will be used to conduct the pump tests. The discharge pipe will be equipped with a flow meter to monitor pump discharge rates and a sampling port valve to provide for sample collection. All water generated during these tests will be stored in the storage tank.

The step rate drawdown test will be conducted to determine the maximum drawdown anticipated for the constant rate test and to determine the volume of water that will be produced at that anticipated drawdown. The step rate test is expected to take between 2 and 4 hours to complete.

The extended duration, constant rate pumping test will not be started until the water levels in any wells affected by the step rate pumping test have equilibrated. The extended duration pump test will be started with a pump discharge rate which, based on the results of the step rate pumping test, is anticipated to produce a measurable but minimal drawdown in the nearest observation well (MW-14). The constant rate pumping test will proceed for a minimum of 24-hours and until static drawdown conditions exist in the pumping and observation wells. The test will not be run for more than 72-hours.

Monitoring wells MW-9, MW-14, MW-16, MW-10, and MW-8 will be utilized as observation wells for the pumping tests. To accurately record the change in water table elevation, during both the step rate and constant rate tests, pressure transducers will be installed in the pumping and observation wells. Data acquired throughout the pumping tests will be recorded and stored in a multi-channel data logger and analyzed using data reduction software.

3.3.2 Sampling and Analysis

Samples of ground water will be collected from well GW-3 at periodic intervals during the pumping test to monitor changes in chemical concentrations during the test. During the step test, the well will be sampled after the removal of the first three well water volumes to establish a baseline concentration. The well will next be sampled at the completion of the step test. The well will be sampled every 5,000 gallons of discharge as the constant rate pump test is carried out. All samples will be collected from the discharge line of the pump. All samples collected during the pump tests will be sent to a California-certified laboratory and analyzed for BTEX (EPA Method 602) and for TPH as gasoline (EPA Method 5030). In addition, samples will be collected at the completion of the pump test to evaluate typical

water quality parameters (e.g., iron, hardness, etc.) to determine how they may affect the treatment system during operation.

3.3.3 Water Disposal

Water generated during the pump tests described in Sections 3.2.2 and 3.3 will be pumped through the water treatment system (Section 4.0) and discharged to the sanitary sewer.

3.4 Ground Water Recovery System

3.4.1 Recovery System

Following the completion of the pumping test of well GW-3, it is expected that a ground water recovery system will be constructed in Area 4, as shown on Sheet 2 of the drawings and as discussed in the following sections. The conceptual design of the proposed system includes plans for recovering water from both the recovery well and from the perched water collection system in Area 4 and piping this water to a treatment system proposed for construction in Area 2. However, final system design details may vary as a result of information gathered during the pumping and recovery tests.

Due to the apparently limited area of ground water contamination, it is possible that the extended duration pump test and preliminary collection of the perched water may provide substantial improvements in ground water quality. If these improvements are such that long-term recovery is not needed or appropriate, the Area 4 ground water recovery system will not be constructed. In this case, water generated during the Area 4 recovery well tests will be pumped through the proposed Area 2 water treatment system and discharged to the sanitary sewer.

3.4.1 System Controls

A submersible well pump with level actuated controls will be installed in the recovery well. A sump pump with level actuated controls will be installed in the perched water collection system sump. Water will be pumped through PVC piping from each of these pumps to a PVC header, and then to the location of the treatment system, as shown on Sheet 1. The electrical service from the Area 4 recovery system pumps and the liquid level control wiring will be connected in a control panel box mounted inside the compound storage building. Power and control cables will be placed in conduit pipe and buried in a trench, above the ground water discharge piping, between the compound storage building and the recovery system.

4.0 GROUND WATER TREATMENT SYSTEM

A ground water treatment system will be constructed in Area 2, as shown on Sheet 2 of the drawings, to treat ground water from the recovery systems described earlier. Effluent from the treatment system will be discharged to an on-site sanitary sewer under a permit from the East Bay Municipal Utility District (EBMUD).

4.1 Treatment System

Water from Area 2 recovery wells will be passed through an oil/water separator to remove product as discussed in Section 2.2. Clean water from the separator will drain by gravity to an equalization tank. Water from the Area 4 recovery system will be pumped directly to the equalization tank. Water from the tank will be removed using a level actuated transfer pump which will pump water under pressure through the filtration and adsorption vessels. Water will be filtered using disposable bags or cartridges for sediment removal. Sorbent media (Calgon Kleen - Sorb or equal) will be placed in line before the granular activated carbon (GAC) units. Water will then be passed in series through two GAC units. Each unit will contain a minimum 36-inch GAC bed depth, and provide a minimum contact time of ten minutes per bed. The GAC will absorb both the volatile organic compounds (VOCs) and semi-VOCs from the ground water.

If necessary to increase capacity, two or more dual-stage systems can be manifolded in parallel. Sampling valves and a flow meter will be provided as shown on Sheet 2 of the drawings. Additional valving and pressure gauges will be installed to provide a functioning system.

4.2 Effluent Discharge

Effluent from the ground water treatment system will be piped through a two-inch PVC pipe, to the on-site sanitary sewer. The location of this connection is shown on Sheet 1. Concentrations of contaminants in the treated effluent will not exceed the waste water discharge limits as set forth by EBMUD. Based on previous hydrogeologic data gathered, the average discharge from the two recovery systems combined is not expected to exceed 15 gallons per minute. This translates into an average daily discharge to the sanitary sewer of approximately 2,900 ft^3/day.

5.0 REMEDIAL SYSTEM START-UP

The oil/water separator will be filled with tap water and checked for leaks prior to energizing the well pumps. The GAC and sorbent media filters as well as all piping will be filled with water, purged and vented to remove entrapped air and pressure tested. The high liquid level shutdowns will be checked manually for proper operation.

Startup sampling of the system, with expedited analysis will be performed as described in Section 7.0.

6.0 SITE RESTORATION

Following the installation of the ground water recovery and treatment systems, the site will be restored. This will include backfilling, sealing and/or capping any excavations resulting from the implementation of this remedial plan. Any fill material necessary to backfill excavations will be brought in from a clean, off-site borrow source. All equipment and trash will be removed and the site will be left in an orderly condition.

7.0 REMEDIAL SYSTEM MONITORING AND REPORTING

A sampling program will be implemented as part of this remedial plan to monitor the performance of the treatment system and to evaluate the remedial effectiveness of the recovery systems.

7.1 System Performance Monitoring

System performance monitoring will be conducted to assure that the system effluent discharged to the sanitary sewer is in compliance with EBMUD discharge limits and to determine if system maintanence (e.g., GAC replacement) is necessary. Upon start-up of the recovery and treatment system, samples will be collected from the final effluent tap at a rate of 1 per day for the first three days of operation. These samples will be analyzed on an expedited (24 hour) basis to ensure compliance with EBMUD discharge limits. Subsequently, samples will be collected at a rate of 1 per week (expedited basis) for the first month of operation and 1 per month for the first six months of operation. During these sampling events, samples will be collected from the treatment system influent, intermediate and final taps.

All samples will be analyzed for BTEX, TPH as gasoline and organic lead. Effluent discharged from the water treament system to the sanitary sewer will meet or exceed the standards required by EBMUD, which are as follows:

lead	2.000 mg/L
benzene	0.005 mg/L
toluene	0.015 mg/L
ethylbenzene	0.005 mg/L
xylene	0.014 mg/L

Total BTEX concentrations in GW-3 ground water have consistently been at least 200 times greater than associated total semi-VOC concentrations. Considering that the semi-VOCs will be desorbed from the treated ground water at least as efficiently as will the BTEX compounds, monitoring the system for semi-VOCs is not warranted.

7.2 Remedial Effectiveness Monitoring

Remedial effectiveness monitoring will include monitoring the amount of product recovered from the Area 2 recovery wells and sampling of the four potential recovery points (e.g., GW-6 and TW-1 in Area 2; perched water recovery system and GW-3 in Area 4) at the individual sampling taps. Upon start of the recovery and treatment system, these samples will be collected on a monthly basis. Samples collected from Area 2 sampling points will be analyzed for BTEX and TPH as diesel while samples from Area 4 sampling points will be analyzed for BTEX and TPH as gasoline and organic lead.

+ gasoline

An evaluation of analytical results obtained over the first six months of operation will be performed and the data will be submitted in a report to the Alameda County Health Care

Services Agency (Agency). The report will include recommendations for continued remedial effectiveness monitoring as well as proposed clean-up goals for Areas 2 and 4.

7.3 Sample Collection and Handling

Sample containers will be provided by the analytical laboratory. All water samples will be collected in standard VOA vials without headspace utilizing procedures previously described in the SI Report. The field notebook will be filled out at each sampling location. The field notes will be complete and contain sufficient information to enable reconstruction of the sampling and handling procedures at a later time. Samples will be placed in cooler(s) on ice and delivered to the laboratory within 24 hours of sample collection.

The sampling team is responsible for the custody of the samples until the samples are properly dispatched to the receiving laboratory or given to an assigned custodian. Each set of samples submitted to the laboratory will be accompanied by a chain-of-custody form. When transferring the possession of samples, the individuals relinquishing and receiving the samples will sign, date and note the time on the form. The form documents transfer of samples from the sampling team to the custody of another individual and/or the laboratory.

7.4 Analytical Methods and Requirements

All samples will be analyzed by a California approved laboratory by California Agency approved methods. Following are practical quantitation reporting limits outlined in the Alameda County tank removal permit application. These limits are influenced by matrix interference and laboratory QA/QC procedures.

	SOIL PPM	WATER PPB
TPH G	1.0	50.0
TPH D	1.0	50.0
BTX&E	0.005	0.5

Based upon a Regional Board survey of Department of Health Services Certified Laboratories, the Practical Quantitation Reporting Limits are attainable by a majority of laboratories with the exception of diesel fuel in soils. The Diesel Practical Quantitation Reporting Limits, shown by the survey, are:

ROUTINE	MODIFIED PROTOCOL
≤10 ppm (42%)	≤10 ppm (10%)
≤ 5 ppm (19%)	≤ 5 ppm (21%)
≤ 1 ppm (35%)	≤ 1 ppm (60%)

When the Practical Quantitation Reporting Limits are not achievable, an explanation of the problem will be submitted on the laboratory data sheets.

Laboratory data sheets will be signed and submitted, and include the laboratory's assessment of the condition of the samples on receipt including temperature, suitable container type, air bubbles present/absent in sample bottles, proper preservation, etc. The sheets will include the dates samples are collected, submitted, prepared for analysis, and analyzed.

If peaks are found, when running samples, that do not conform to the standard, the laboratory will report the peaks, including any unknown complex mixtures that elute at times varying from the standards.

Reporting limits for TPH are: gasoline standard $\leq$ 20 carbon atoms, diesel and jet fuel (kerosene) standard $\leq$ 50 carbon atoms. Chromatography runs will not be continued beyond the limit, standard, or EPA/DHS method protocol (whichever time is greater).

8.0 OPERATION AND MAINTENANCE

Prior to start-up of the system, a draft O&M plan will be prepared. Following completion of the initial six month operating period, the O&M Plan will be revised if needed to serve as the final plan.

The monthly O&M procedures planned are as follow:

- Read pressure gauges and flow meter;
- Change out sediment filter;
- Collect samples;
- Remove accumulated product, if necessary;
- Inspect piping and valves for leakage and to confirm proper settings;

The principal O&M problems likely to be encountered, and the planned corrective actions are:

- Excess pressure loss: Change particulate filter more frequently and, if necessary, backwash the GAC bed periodically.

- Chemical breakthrough at intermediate sample tap: When chemical analysis shows that water from the intermediate tap contains 50% or more of the level of chemicals found in the raw influent, the GAC should be exchanged. To exchange the GAC, remove primary GAC media, place secondary GAC in the primary position and put a new GAC media in the final position.

- Chemical breakthrough at final sample tap: Replace both primary and final GAC with new media and report any violations as required by the permit.

9.0 RECORDKEEPING AND REPORTING

All data and records collected pursuant to the discharge and sampling will be maintained for a period of at least three years. Any violations of the discharge permit will be reported to EBMUD within 24 hours of discovery of the violation.

Following completing of the recovery and treatment system construction and start-up, an installation report and system drawings will be provided to the Alameda County Health Care Services Agency.

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WOH/ce
August 12, 1992

APPENDIX 1

East Bay Municipal Utility District
Wastewater Discharge Permit Application

WASTEWATER DISCHARGE PERMIT APPLICATION

EBMUD

PERMIT NUMBER

APPLICANT BUSINESS NAME

American National Can Company

ADDRESS OF PREMISE DISCHARGING WASTEWATER	BUSINESS MAILING ADDRESS
3801 East 8th Street (STREET ADDRESS)	Mail Suite 14C, 8770 W. Bryn Mawr Ave. (STREET ADDRESS)
Oakland, CA 94601 (CITY / ZIP CODE)	Chicago, IL 60631-3542 (CITY / ZIP CODE)

CHIEF EXECUTIVE OFFICER

Jean Pierre Ergas (NAME)	Chairman of the Board & Chief Executive Officer (TITLE)
8770 West Bryn Mawr Avenue (STREET ADDRESS)	Chicago, Illinois 60631-3542 (CITY / ZIP CODE)

PERSON TO BE CONTACTED ABOUT THIS APPLICATION	PERSON TO BE CONTACTED IN EVENT OF EMERGENCY
Edward W. Alusow (Dunn Corporation) (NAME)	Judith Peters (NAME)
Senior Project Manager (518) 458-8931 (TITLE / PHONE)	(312) 399-3162 (DAY PHONE) (312) 399-3162 (NIGHT PHONE)

DOCUMENTATION TO BE RETURNED WITH THE PERMIT APPLICATION:

- ☒ PROCESS DESCRIPTION
- ☒ WATER BALANCE CALCULATIONS
- ☒ WASTEWATER STRENGTH DATA BASE — See Remedial Plan
- ☒ SCHEMATIC FLOW DIAGRAM — See Remedial Plan Drawings
- ☒ BUILDING LAYOUT PLAN — See Remedial Plan Drawings
- ☒ DESCRIPTION OF TREATMENT SYSTEM — See Remedial Plan; Section 4.0
- ☒ SELF-MONITORING METHOD — See Remedial Plan; Section 7.0
- ☒ SPILL PREVENTION AND CONTAINMENT PLAN — See Remedial Plan; Section 2.2
- ☐ A LIST OF ALL ENVIRONMENTAL PERMITS (E.G. Air, Hazardous Waste)
- ☒ OTHER Attached Remedial Plan (SPECIFY)

PROVISIONS

Applicant will comply with the EBMUD Wastewater Control Ordinance and all applicable rules and regulations.

Applicant will report to EBMUD, Wastewater Department any changes, permanent or temporary, to the premise or operations that significantly change the quality or volume of the wastewater discharge or deviation from the terms and conditions under which this permit is granted.

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that the qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME (See certification requirements on reverse) _____ SIGNATURE _____

TITLE _____ DATE _____

EBMUD

American National Can Company
BUSINESS NAME

Process Description

PURPOSE – The **Process Description** is intended to provide a description of the primary business activities and the substances which may enter into the wastewater from the business activity.	EBMUD USE Permit Number
BUSINESS ACTIVITY Former Can Manufacturer, Presently used As Can Warehouse	Business Classification Code

DESCRIPTION OF PRODUCT

TYPE OF PRODUCT OR BRAND NAME	QUANTITIES	
	Past Calendar Year	Estimated This Year
NA: See Above		

PROCESS DESCRIPTION

PROCESS DESCRIPTION List all wastewater generating operations	CHARACTERISTICS List all substances that may be discharged to the sewer.
Example: Rinsewater from electroplating bath	**Cr, Cu, Ni, Zn**
Example: Washdown of milk filling area	**fatty acids, milk**
Treated Effluent from a groundwater	
recovery and treatment system	Trace levels at Petroleum hydrocarbons
	(Also see Remedial Plan; Section 7.1)

DISCHARGE PERIOD: Continuous

a. Time of day from _____ to _____

b. Days of the week _____

BATCH DISCHARGE(S) NA

a. Day(s) of the week _____ b. Time(s) of the day _____

c. Volume discharged _____ d. Rate of discharge _____

OTHER WASTES – List the type and volume of liquid waste and sludges removed from the premises by means other than the community sewer.

WASTE REMOVED BY (Name, address and State Transporter ID No.)	TYPE OF WASTE (Example: alkaline cleaners, organic solvents, treatment sludge)	WASTE I.D. No.	VOLUME (lbs)(gal)/mo
To be determined (T.B.D.)	Separated Waste Oil	221	T.B.D.

EBMUD

Business Name American National Can Company

Water Balance / Strength Summary

PURPOSE: This information will enable EBMUD to evaluate the volumes, source(s) and strengths of wastewater discharged to the community sewer.

Permit Number

WATER USE AND DISPOSITION: Show on a separate sheet the method and calculations used to determine the quantities shown in the table.

Figures are: [X] gallons per calendar day [ ] gallons per working day Number of working days per year 365

WATER USE	WATER SUPPLY FROM:			WASTEWATER DISCHARGED TO:					
	EBMUD	OTHER (1)		SIDE SEWER (gal/day)				OTHER (2)	
	gal/day	gal/day	CODE	No.1	No. ____	No. ____	No. ____	gal/day	CODE
Sanitary	175			Discharge divided among existing side sewers					
Processes									
Boiler									
Cooling									
Washing									
Irrigation									
Product									
Stormwater									
Other (3)		21,600	A	21,600					
Subtotal	175	21,600							

EBMUD AND OTHER SUPPLY TOTAL 21,775 **ALL SIDE SEWERS TOTAL** 21,775

NOTES:

1. Enter the quantity and the appropriate code letter indicating the source:
   a. Well **b.** Creek **c.** Stormwater **d.** Reclaimed Water **e.** Raw Materials.
2. Enter the quantity and appropriate code letter indicating the discharge point:
   a. Stormdrain **b.** Rail, Truck, Barge **c.** Evaporation **d.** Product
3. Describe Other: Recovery of contaminated ground water

SANITARY DISCHARGE: Please use the following data from the Uniform Plumbing Code, 1985, to determine sanitary wastewater volumes.

Field service employees - 5 gallons per employee per day
Office employees - 20 gallons per employee per day
Production employees - 25 gallons per employee per day
Production employees with showers - 35 gallons per employee per day

Include the effect that seasonal and weekend staffing changes may have on determining average volumes.

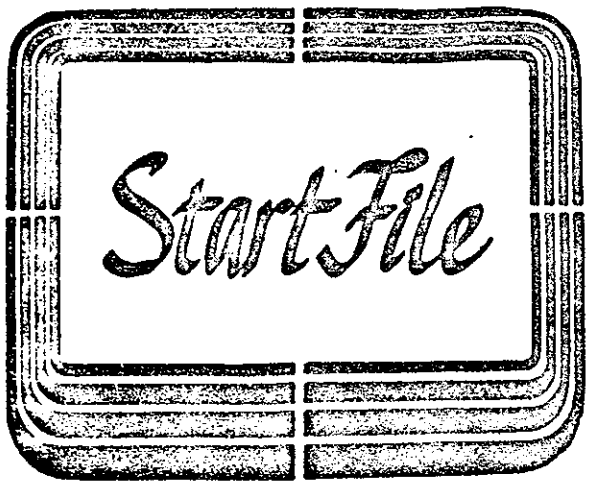
AVERAGE WASTEWATER STRENGTH: Data base must be attached, average self-monitoring and EBMUD data.
Waste water is treated ground water, data is not necessary.

SIDE SEWER (mg/L)

	No. 1	No. ____	No. ____	No. ____
CODF				
TSS				

GROUND WATER REMEDIAL PLAN AMERICAN NATIONAL CAN COMPANY OAKLAND, CALIFORNIA, FACILITY

Areas 2 + 4



August, 1992

GROUND WATER REMEDIAL PLAN
AMERICAN NATIONAL CAN COMPANY
OAKLAND, CALIFORNIA, FACILITY

Areas 2 + 4

Prepared for:
American National Can Company
Chicago, Illinois

DRAFT

August, 1992

DUNN CORPORATION

Engineers, Geologists, Environmental Scientists
12 Metro Park Road
Albany, New York 12205
Tel: 518/458-1313
Fax: 518/458-2472

August 11, 1992

Mr. Barney Chan
Hazardous Materials Specialist
Department of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, CA 94621

Dear Mr. Chan:

Subject: Ground Water Remedial Plan
ANC Oakland, CA, Facility

Enclosed please find a copy of the subject workplan for your review. The Ground Water Remedial Plan addresses the subsurface conditions as reported in the Subsurface Investigation Summary Report dated June, 1992.

A Wastewater Discharge Permit Application has been filed with the East Bay Municipal Utility District along with a copy of the subject plan as supporting documentation.

Please call me with your questions and comments.

Very truly yours,

DUNN CORPORATION

Edward W. Alusow

Edward W. Alusow
Senior Project Manager
CA Registered Geologist #4282

EWA/me

Enclosure

cc: Mr. Lester Feldman
San Francisco Bay Regional Water Quality Ccontrol Board
2101 Webster Street, Suite 500
Oakland, CA 94612

J. Moran, ANCC
J. Peters, ANCC

DUNN CORPORATION

Engineers, Geologists, Environmental Scientists
12 Metro Park Road
Albany, New York 12205
Tel: 518/458-1313
Fax: 518/458-2472

GROUND WATER REMEDIAL PLAN
AMERICAN NATIONAL CAN COMPANY
OAKLAND, CALIFORNIA, FACILITY

Prepared for:

American National Can Company

Chicago, Illinois

Prepared by:

DUNN CORPORATION
12 Metro Park Road
Albany, New York 12205

Date:
August, 1992

DRAFT

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

LIST OF DRAWINGS

1.0 INTRODUCTION

This remedial plan was prepared by a licensed professional engineer from the Environmental Engineering Group of Dunn Corporation (DUNN) at the request of the American National Can Company (ANCC) to address conditions at ANCC's Oakland, California, facility. Five areas of concern have been investigated at this facility. This workplan presents our approach to ground water remediation in Areas 2 and 4 as they were delineated in the Subsurface Investigation (SI) Report (DUNN, 1991).

1.1 Site Description

1.1.1 Physical Setting

The Site is located at 3801 East 8th Street in Oakland, California (Figure 1) in an area of commercial and industrial land use. The property, shown on Sheet 1, is a triangular shaped parcel bordered by East 8th Street to the northeast, 37th Avenue to the west, and Alameda Avenue to the south. The Site occupies approximately 16 acres of which 80% is covered by a series of interconnected buildings. Most of the remaining land areas are paved and are principally used for vehicle parking and truck loading/unloading.

Area 2 is located along the northeast perimeter of the plant site and generally includes the immediate vicinity of a former heating oil storage tank.

Area 4 is located on the southern portion of the plant site and includes the vicinity of the Compound Storage building extending east to the former Lithography building, Building 12. The plant boundary and Alameda Avenue are located immediately south of Area 4.

1.1.2 Site History

The Site has been used exclusively for the manufacturing of steel beverage and food cans since American Can Company began operations in the early 1900's. The merger of National Can Company with American Can Company in 1986 led to the formation of the current site owner, ANCC. In 1988, the manufacturing process was discontinued and now the site is used only for warehousing purposes.

Typical can manufacturing operations are believed to have utilized various solvent- and petroleum-based compounds related to either the manufacturing process, the fueling of vehicles, or the heating of the facility.

1.1.3 Prior Subsurface Investigations (in-place)

In 1986, Aqua Terra Technologies (ATT) closed the 15,000 gallon heating oil tank in Area 2. The tank closure activities included removing product from this tank and filling the tank with a cement-sand grout. Subsequent to the tank closure, ATT installed a downgradient monitoring well (existing well GW-6). At that time, well GW-6 was reported to contain approximately 3" of a hydrocarbon product.

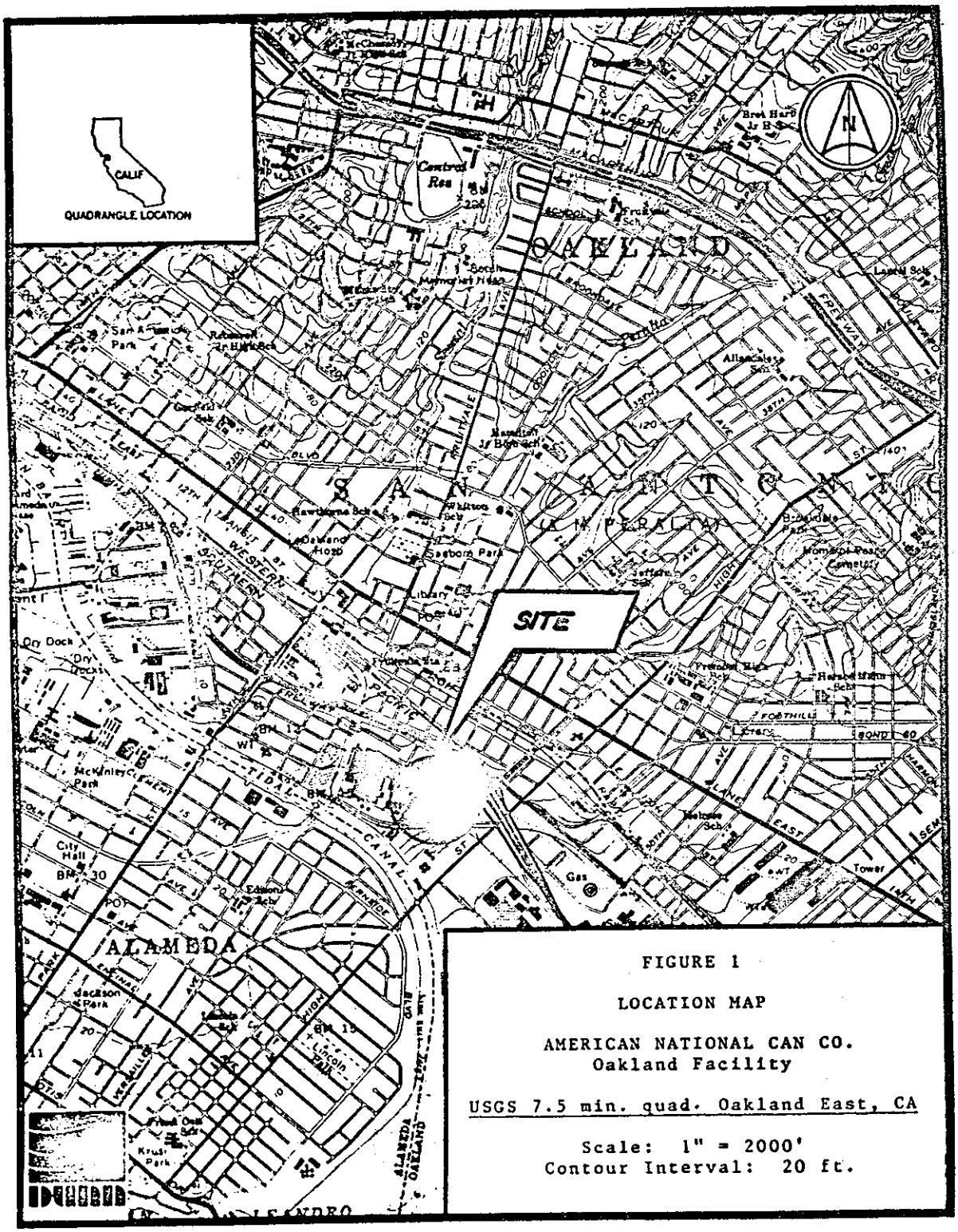


FIGURE 1

LOCATION MAP

AMERICAN NATIONAL CAN CO.
Oakland Facility

USGS 7.5 min. quad. Oakland East, CA

Scale: 1" = 2000'
Contour Interval: 20 ft.

EH 000-2554

In 1987, Aqua Terra Tech Corporation removed a group of seven USTs from the area immediately east of the compound storage building in Area 4. These tanks had been used to store various coating and coatingr-related products used in the food and beverage can manufacturing process. The UST removal activities included the removal of tanks and contaminated soil from the tank pit. During soil excavation, an 8-inch propane line was encountered along the east and north ends of the pit. When this pipeline was undermined by the excavation of soil, it sagged and began to leak. At that point, the excavation was also endangering the compound storage building's foundation. Emergency procedures were initiated, which included repairing the leak and backfilling the pit to provide support to the pipeline and building foundation. As a result of these actions, some of the contaminated soil could not be removed. The buried product pipeline which was used to transfer product from the UST to the lithography operations in Building 12 was not removed.

Prior to 1988, a 500 gallon underground storage tank (UST), located in Area 4, was removed from service. The tank was reportedly used for the storage of gasoline motor fuel used in the plant vehicles. The associated above ground dispensing equipment is no longer present. There is no information available concerning closure assessments performed on this UST site. The reported location of this tank is shown on Sheet 1 of the drawings.

In August, 1989, Dames & Moore (D&M) conducted a Phase I site investigation at the request of ANCC. The final report was issued in February, 1990. D&M reported having measured nearly 4-feet of product in well GW-6. However, additional drilling or sampling in Area 2 was not performed as part of this investigation. As part of their study, D&M installed one monitoring well (GW-3) and collected 5 shallow soil samples in Area 4.

In late 1990, 1991, and early 1992 DUNN conducted subsurface investigations at the request of ANCC. Reports issued in August, 1991 and June, 1992 summarized the results of these investigations. Ground water monitoring wells were installed in all areas to characterize the nature and extent of ground water contamination. Following installation and development of ground water monitoring wells, ground water samples were collected from all wells and sent to a California-certified laboratory for analysis. Ground water sampling of selected wells is currently being performed on a quarterly basis.

1.1.4 Summary of Investigations

Area 2

A total of 6 ground water monitoring wells (MW-13, MW-15, MW-17, MW-21, GW-6 and TW-1) presently exist in Area 2. Monitoring of these wells has shown that the layer of product is still present in well GW-6 and that the ground water on the downgradient side of the former tank (TW-1) contains low levels of total petroleum hydrocarbon as diesel (TPHd).

Geologic and hydrogeologic data gathered over the past year indicates that the fluvial stratigraphic unit (principle water bearing unit) in Area 2 is very fine grained and much less permeable than in other areas of the site (DUNN; June, 1992). A pump test completed in October, 1991, revealed a maximum sustainable pumping yield of not more than 0.2 gallons per minute from well TW-1. In addition, as ground water was lowered in well GW-6, in

response to the pumping of well TW-1, additional product flow was induced into well GW-6. Ground water monitoring results indicate that free product present in Area 2 is not dissolving into the ground water to any significant degree. Downgradient ground water monitoring also indicates that no significant levels of contaminants are migrating from Area 2 and, therefore, are not impacting ground water in other areas of the site. Table 1 provides a summary of ground water analytical results obtained from Area 2 wells between April, 1991, and February, 1992.

Area 4

A total of 6 ground water monitoring wells (MW-8, MW-9, MW-10, MW-14, MW-16 and GW-3) presently exist in Area 4. Analytical results of ground water samples collected from these wells indicate that ground water in the immediate vicinity of the area from which the seven USTs were removed is impacted with toluene, ethylbenzene and xylene and low concentrations of semi-volatile organic compounds (semi-VOCs). Analyses of ground water samples taken from monitoring well GW-3 indicate the source of these contaminants is related to motor fuel.

During drilling activities conducted in September, 1991, perched water was encountered within the base fill gravel beneath the plant's concrete driveway slab at a location immediately north of the former UST excavation pit discussed above. Subsequent chemical analyses of a grab sample of this perched water (MW-1S) revealed elevated levels of toluene, ethylbenzene, xylenes and TPH as gasoline. The relatively impermeable tidal marsh layer underlying the basefill is the cause of the perching of the water discussed above. It is possible that the perched water may be recharging the ground water in the area of the seven former USTs since the tidal marsh layer has been removed in this area. As a result, the contaminants in this perched water may be contributing to the volatile organics present in well GW-3. Table 2 provides a summary of ground water analytical results obtained from Area 4 wells between April, 1991, and February, 1992.

1.2 Remedial Approach

In order to restore the plant site and mitigate potential environmental liabilities, several steps recommended to remediate ground water contamination are proposed in this remedial plan. Based on the results of the subsurface investigations conducted at the site, DUNN has developed the following remedial approach:

AREA 2

- Construction of a product/ground water recovery system;
- Construction of a product/ground water separator system; and
- Construction of a product storage facility.

TABLE 1
AMERICAN NATIONAL CAN COMPANY
OAKLAND, CALIFORNIA PLANT

Summary of Ground Water and Product Analytical Results - AREA 2
April, 1991 - January 1992

ANALYSIS	MW-13				GW-6 (GW)	GW-6 (Product)	MW-15		TW-1		MW-17	MW-21
	Apr-91	Jul-91	Oct-91	Jan-92	Jul-91	Oct-91	Oct-91	Jan-92	Oct-91	Jan-92	Feb-92	Feb-92
Volatile Organics (EPA Methods 8240/624)(ug/l)												
Dilution Factor	1.00	1.00	--	--	1.00	10,000	--	--	--	--	1.00	1.00
Benzene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Toluene	nd	nd	nd	nd	3 J	nd	nd	nd	nd	nd	nd	nd
Chlorobenzene	nd	nd	--	--	3 J	nd	--	--	--	--	nd	nd
Ethylbenzene	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Total Xylenes	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Total	nd	nd	--	--	6 J	nd	--	--	--	--	nd	nd
TICS Total	--	nd	--	--	34	2,400,000	--	--	--	--	nd	nd
Semi-Volatile Organics (EPA Methods 8270/625)(ug/l)												
Dilution Factor	1.00	1.00	--	--	1.00	10.00	--	--	--	--	1.00	1.00
Naphthalene	nd	nd	--	--	31	82000 J	--	--	--	--	nd	nd
2-Methylnaphthalene	nd	nd	--	--	58	250,000	--	--	--	--	nd	nd
Dibenzofuran	nd	nd	--	--	nd	24000 J	--	--	--	--	nd	nd
Fluorene	nd	nd	--	--	10	53000 J	--	--	--	--	nd	nd
Pentachlorophenol	nd	nd	--	--	nd	nd	--	--	--	--	13 J	nd
Phenanthrene	nd	nd	--	--	16	nd	--	--	--	--	nd	nd
Total	nd	nd	--	--	115	250,000	--	--	--	--	13 J	nd
TICS Total	--	70	--	--	960	13,100,000	--	--	--	--	18 J	18 J
TPH as Gasoline (EPA Method 5030)(ug/l)	--	--	nd	nd	--	39,000,000	nd	nd	nd	nd	nd	nd
TPH as Diesel (EPA Method 3510)(ug/l)	430	500	200	180	29,000	500,000,000	260	610	680	2,600	110	55
PCBs (EPA Method 8080)(ug/l)	nd	nd	--	--	nd	nd	--	--	--	--	nd	nd
Metals (ug/l)												
Arsenic (total)	nd	--	--	--	--	300	--	--	--	--	--	--
Barium (total)	nd	--	--	--	--	nd	--	--	--	--	--	--
Beryllium (total)	nd	--	--	--	--	--	--	--	--	--	--	--
Cadmium (total)	nd	--	--	--	--	--	--	--	--	--	--	--
Cobalt (total)	nd	--	--	--	--	--	--	--	--	--	--	--
Total Chromium (total)	13.4	nd	--	--	nd	160	--	--	--	--	--	--
Total Chromium (filtered)	--	nd	--	--	nd	--	--	--	--	--	--	--
Copper (total)	nd	--	--	--	--	--	--	--	--	--	--	--
Mercury (total)	nd	--	--	--	--	--	--	--	--	--	--	--
Molybdenum (total)	nd	--	--	--	--	--	--	--	--	--	--	--
Nickel (total)	90.3	73.3	170	59.3	nd	--	82.7	nd	nd	nd	nd	152
Nickel (filtered)	--	51.4	55.9	54.1	nd	--	nd	--	nd	--	nd	nd
Lead (total)	18.0	nd	--	--	5.0	470	--	--	--	--	--	--
Lead (filtered)	--	nd	--	--	nd	--	--	--	--	--	--	--
Antimony (total)	nd	--	--	--	--	--	--	--	--	--	--	--
Selenium (total)	nd	--	--	--	--	--	--	--	--	--	--	--
Thallium (total)	nd	--	--	--	--	--	--	--	--	--	--	--
Vanadium (total)	nd	--	--	--	--	--	--	--	--	--	--	--
Zinc (total)	9,940	8,740	10,300	8,770	nd	--	55.9	nd	24	nd	nd	30.8
Zinc (filtered)	--	7,410	6,880	7,890	nd	--	21.8	--	26.9	--	nd	nd
Silver (total)	nd	--	--	--	--	--	--	--	--	--	--	--

-- Indicates compound was not analyzed for.
nd indicates compound was not detected.
J indicates compound was detected at an amount below the specified reporting limit. Consequently, the amount should be considered an approximate value.

EH 0000-1-00007

TABLE 2
AMERICAN NATIONAL CAN COMPANY
OAKLAND, CALIFORNIA PLANT

Summary of Ground Water Analytical Results - AREA 4
April, 1991 - January 1992

23~45464/2570

ANALYSIS	GW-3				MW-8				MW-9			
	Apr-91	Jul-91	Oct-91	Jan-92	Apr-91	Jul-91	Oct-91	Jan-92	Apr-91	Jul-91	Oct-91	Jan-92
Volatile Organics (EPA Methods 8240/624)(ug/l)												
Dilution Factor	100.00	100.00	50.00	10.00	1.00	1.00	--	--	1.00	1.00	--	--
Benzene	nd	nd	nd	nd	nd	nd	--	--	nd	nd	--	--
Toluene	nd	220 J	nd	190	nd	nd	--	--	nd	nd	--	--
Ethylbenzene	4600	10000	3500	10000	nd	nd	--	--	nd	nd	--	--
Total Xylenes	20000	35000 E	12000	31000	nd	nd	--	--	nd	nd	--	--
Total	24600	45220 E	15500	41190	nd	nd	--	--	nd	nd	--	--
TICS Total	--	51	--	--	--	nd	--	--	--	nd	--	--
Semi-Volatile Organics (EPA Methods 8270/625)(ug/l)												
Dilution Factor	1.00	1.00	1.00	1.00	1.00	1.00	--	--	1.00	1.00	--	--
2-Methylphenol	3 J	nd	nd	nd	nd	nd	--	--	nd	nd	--	--
4-Methylphenol	13	9 J	nd	nd	nd	nd	--	--	nd	nd	--	--
2,4-Dimethylphenol	40	39	15	34	nd	nd	--	--	nd	nd	--	--
Naphthalene	24	25	13	32	nd	nd	--	--	nd	nd	--	--
2-Methylnaphthalene	nd	nd	nd	2 J	nd	nd	--	--	nd	nd	--	--
Acenaphthalene	nd	5 J	4 J	10 J	nd	nd	--	--	nd	nd	--	--
Dibenzofuran	nd	nd	nd	4 J	nd	nd	--	--	nd	nd	--	--
Fluorene	nd	3 J	2 J	5 J	nd	nd	--	--	nd	nd	--	--
Phenanthrene	4 J	8 J	11	29	nd	nd	--	--	nd	nd	--	--
Anthracene	nd	nd	3 J	8 J	nd	nd	--	--	nd	nd	--	--
Fluoranthene	nd	nd	7 J	21	nd	nd	--	--	nd	nd	--	--
Pyrene	nd	nd	7 J	23	nd	nd	--	--	nd	nd	--	--
Benzo(A)Anthracene	nd	nd	3 J	8 J	nd	nd	--	--	nd	nd	--	--
Chrysene	nd	nd	3 J	10 J	nd	nd	--	--	nd	nd	--	--
Benzo(K)Fluoranthene	nd	nd	nd	8 J	nd	nd	--	--	nd	nd	--	--
Benzo(A)Pyrene	nd	nd	nd	7 J	nd	nd	--	--	nd	nd	--	--
Bis (2-Ethylhexyl) Phthalate	nd	nd	nd	nd	nd	nd	--	--	nd	nd	--	--
Total	84	89 J	68 J	201 J	nd	nd	--	--	nd	nd	--	--
TICS Total	--	2570	--	--	--	29	--	--	--	19	--	--
TPH as Gasoline (EPA Method 5030)(ug/l)	--	--	--	42000	--	--	--	--	--	--	--	--
TPH as Diesel (EPA Method 3510)(ug/l)	--	--	--	--	--	--	--	--	--	--	--	--
PCBs (EPA Method 8080)(ug/l)	nd	nd	--	--	nd	nd	--	--	nd	nd	--	--
Metals (ug/L)												
Arsenic (total)	13.0	52.3	20.0	--	nd	nd	nd	--	nd	nd	nd	--
Arsenic (filtered)	--	43.4	20.4	--	--	nd	nd	--	--	nd	nd	--
Barium (total)	220	285	282	--	nd	106	nd	--	201	209	250	--
Barium (filtered)	--	231	244	--	--	101	nd	--	--	142	nd	--
Beryllium (total)	nd	--	--	--	nd	--	--	--	nd	--	--	--
Cadmium (total)	nd	--	--	--	nd	--	--	--	nd	--	--	--
Cobalt (total)	nd	--	--	--	nd	--	--	--	nd	--	--	--
Total Chromium (total)	nd	nd	nd	--	nd	nd	nd	--	nd	13.8	nd	--
Total Chromium (filtered)	--	nd	nd	--	--	nd	nd	--	--	nd	nd	--
Copper (total)	nd	--	--	--	nd	--	--	--	nd	--	--	--
Mercury (total)	nd	--	--	--	nd	--	--	--	nd	--	--	--
Molybdenum (total)	nd	--	--	--	nd	--	--	--	nd	--	--	--
Nickel (total)	nd	nd	nd	--	nd	nd	nd	--	48.6	71.5	56.7	--
Nickel (filtered)	--	nd	nd	--	--	nd	nd	--	--	nd	42.6	--
Lead (total)	nd	27.2	5.0	--	nd	nd	18.4	--	nd	4.3	nd	--
Lead (filtered)	--	4.1	3.1	--	--	nd	nd	--	--	nd	3.5	--
Antimony (total)	nd	--	--	--	nd	--	--	--	nd	--	--	--
Selenium (total)	nd	--	--	--	nd	--	--	--	nd	--	--	--
Thallium (total)	nd	--	--	--	nd	--	--	--	nd	--	--	--
Vanadium (total)	nd	--	--	--	nd	--	--	--	nd	--	--	--
Zinc (total)	34.0	28.8	nd	--	23.4	31.9	nd	--	29.0	30.6	nd	--
Zinc (filtered)	--	82.1	nd	--	--	49.4	nd	--	--	34.8	nd	--
Silver (total)	nd	15.7	nd	--	nd	nd	nd	--	10.0	nd	nd	--
Silver (filtered)	--	11.7	nd	--	--	nd	nd	--	--	nd	nd	--

-- indicates compound was not analyzed for.
nd indicates compound was not detected.
J indicates compound was detected at an amount below the specified reporting limit. Consequently, the amount should be considered an approximate value.

EH 00-1-0120

TABLE 2 (continued)
AMERICAN NATIONAL CAN COMPANY
OAKLAND, CALIFORNIA PLANT

Summary of Ground Water Analytical Results - AREA 4
April, 1991 - February 1992

ANALYSIS	MW-10				MW-14		MW-16		MW-18
	Apr-91	Jul-91	Oct-91	Jan-92	Oct-91	Jan-92	Oct-91	Jan-92	Sep-91
Volatile Organics (EPA Methods 8240/624)(ug/l)									
Dilution Factor	1.00	1.00	--	--	1.00	1.00	1.00	1.00	1.00
Benzene	nd	nd	--	--	nd	nd	nd	nd	nd
Toluene	nd	nd	--	--	nd	nd	nd	nd	nd
Ethylbenzene	nd	nd	--	--	nd	nd	nd	nd	6000
Total Xylenes	nd	nd	--	--	nd	nd	nd	6	50000
Total	nd	nd	--	--	nd	nd	nd	6	56040
TICS Total	--	nd	--	--	--	--	--	--	nd
Semi-Volatile Organics (EPA Methods 8270/625)(ug/l)									
Dilution Factor	1.00	1.00	--	--	1.00	1.00	1.00	1.00	1.00
2-Methylphenol	nd	nd	--	--	nd	nd	nd	nd	nd
4-Methylphenol	nd	nd	--	--	nd	nd	nd	nd	45
2,4-Dimethylphenol	nd	nd	--	--	nd	nd	nd	nd	nd
Naphthalene	nd	nd	--	--	nd	nd	nd	nd	32
2-Methylnaphthalene	nd	nd	--	--	nd	nd	nd	nd	nd
Acenaphthalene	nd	nd	--	--	nd	nd	nd	nd	nd
Dibenzofuran	nd	nd	--	--	nd	nd	nd	nd	nd
Fluorene	nd	nd	--	--	nd	nd	nd	nd	nd
Phenanthrene	nd	nd	--	--	nd	nd	nd	nd	nd
Anthracene	nd	nd	--	--	nd	nd	nd	nd	nd
Fluoranthene	nd	nd	--	--	nd	nd	nd	nd	nd
Pyrene	nd	nd	--	--	nd	nd	nd	nd	nd
Benzo(A)Anthracene	nd	nd	--	--	nd	nd	nd	nd	nd
Chrysene	nd	nd	--	--	nd	nd	nd	nd	nd
Benzo(K)Fluoranthene	nd	nd	--	--	nd	nd	nd	nd	nd
Benzo(A)Pyrene	nd	nd	--	--	nd	nd	nd	nd	nd
Bis (2-Ethylhexyl) Phthalate	nd	nd	--	--	nd	nd	nd	nd	7 J
Total	nd	nd	--	--	nd	nd	nd	nd	84 J
TICS Total	--	7	--	--	--	--	--	--	2,780
TPH as Gasoline (EPA Method 5030)(ug/l)	--	--	--	--	--	nd	--	nd	--
TPH as Diesel (EPA Method 3510)(ug/l)	--	--	--	--	--	--	--	--	--
PCBs (EPA Method 8080)(ug/l)	nd	nd	--	--	--	--	--	--	--
Metals (ug/l)									
Arsenic (total)	nd	16.9	nd	--	14.1	--	nd	--	--
Arsenic (filtered)	--	10.3	nd	--	12.3	--	nd	--	--
Barium (total)	101	nd	nd	--	232	--	255.0	--	--
Barium (filtered)	--	nd	nd	--	nd	--	nd	--	--
Beryllium (total)	nd	--	--	--	--	--	--	--	--
Cadmium (total)	nd	--	--	--	--	--	--	--	--
Cobalt (total)	nd	--	--	--	--	--	--	--	--
Total Chromium (total)	14.8	nd	nd	--	nd	--	nd	--	--
Total Chromium (filtered)	--	nd	11.1	--	nd	--	nd	--	--
Copper (total)	nd	--	--	--	--	--	--	--	--
Mercury (total)	nd	--	--	--	--	--	--	--	--
Molybdenum (total)	nd	--	--	--	--	--	--	--	--
Nickel (total)	44.0	nd	nd	--	nd	--	96.5	--	--
Nickel (filtered)	--	nd	nd	--	nd	--	nd	--	--
Lead (total)	nd	nd	nd	--	nd	--	18.1	--	--
Lead (filtered)	--	nd	nd	--	5.5	--	nd	--	--
Antimony (total)	nd	--	--	--	--	--	--	--	--
Selenium (total)	nd	--	--	--	--	--	--	--	--
Thallium (total)	nd	--	--	--	--	--	--	--	--
Vanadium (total)	nd	--	--	--	--	--	--	--	--
Zinc (total)	37.6	nd	nd	--	nd	--	46.3	--	--
Zinc (filtered)	--	nd	nd	--	nd	--	24.9	--	--
Silver (total)	nd	12.1	nd	--	nd	--	nd	--	--
Silver (filtered)	--	28.3	nd	--	nd	--	nd	--	--

-- indicates compound was not analyzed for.
nd indicates compound was not detected.
J indicates compound was detected at an amount below the specified reporting limit. Consequently, the amount should be considered an approximate value.

56 only / 28 = 200

AREA 4

- Construction of a perched-water collection trench;
- Extended pump testing of well GW-3 (pumping well) while simultaneously removing water from the perched water collection trench;
- Temporary storage of pumping well and collection system pump test waters;
- Conversion of the perched-water collection trench into a long-term recovery system; and
- Conversion of well GW-3 into a long-term ground water recovery well..

GENERAL

- Construction of a water treatment system to treat ground water from the product/ground water separator system in Area 2 and, if necessary, from the the recovery well/perched water recovery system in Area 4; What will determine necessary?
- Construction of effluent discharge lines from the ground water treatment system to existing sanitary sewer lines; and
- Operation and maintenance of the ground water recovery and treatment system.

2.0 DESCRIPTION OF REMEDIAL PROGRAM - AREA 2

This portion of the remedial program will address Area 2 ground water. Two closely spaced existing monitoring wells (GW-6 and TW-1) will be converted to ground water and/or product recovery wells as shown on Sheet 2 of the drawings. Due to the low volume of product, its only occasional occurrence, and the low yield of wells, no effort will be made to recover water and product separately. Instead, total fluids will be recovered from wells and treated by an oil water separator. Clean water from the separator will be passed through a ground water treatment system (Section 4.0) prior to discharge to an on-site sanitary sewer. Specific elements to be implemented as part of the Area 2 ground water remedial plan are described below.

2.1 Recovery Wells

Wells GW-6 and TW-1 will be converted to recovery wells by installing a submersible rotary gear pump in each well. Discharge lines from these recovery wells to the separator will be either buried or placed in a conduit at grade.

2.2 Product Separation, Storage and Spill Prevention

A coalescing oil/water separator will be placed adjacent to the recovery wells at the location shown on Sheet 1 of the drawings. The pump discharge line from wells GW-6 and TW-1 will be connected to the influent port of the separator. The product discharge line will be connected to a product holding drum which will be equipped with a level sensor to automatically shut down the system to prevent overflow of the product holding drum. As an additional spill prevention measure, the product holding drum will be stationed inside a larger, secondary containment drum.

Clear water from the separator will be drained via gravity to an equalization tank and pumped to the water treatment system. A detailed description of the water treatment system is provided in Section 4.0.

2.3 System Controls

A NEMA 4 enclosure, housing the recovery well liquid level controls, high level shutdown controls, and other system electronics will be mounted inside the building in close proximity to the separator. Recovery well pumps will be powered by the existing plant electrical service.

3.0 DESCRIPTION OF REMEDIAL PROGRAM - AREA 4

3.1 Site Preparation

A 21,000 gallon storage tank will be set up adjacent to the Compound Storage Building in order to store ground water and perched water that are collected while implementing the initial stages of this remedial plan. The construction and the condition of the tank will be inspected to verify that it will be adequate for on-site storage of the water. The tank will be placed inside a previously constructed secondary containment cell in the event that the tank develops a leak or there is an inadvertent spill or overflow. The containment cell will consist of a soil berm around the perimeter of the tank lined with heavy duty polyethylene plastic.

∴ piping should have secondary containment not necessarily double-walled

3.2 Installation of Perched Water Recovery System

A perched water collection trench will be constructed along the northern edge of the former UST area to recover water from the crushed stone base course beneath the concrete pad. If sufficient water is recovered, this will be converted into a permanent recovery system.

3.2.1 Trench Construction

An approximate 2-foot wide by 30-foot long section of concrete slab will be removed from the northern edge of the former UST area so that an evaluation of the perched water present beneath the concrete can be made. The construction of the perched water collection trench will be initiated by excavating the trench to an elevation and grade sufficient to provide proper drainage to an open sump area. This will involve removal of the base fill gravel layer and the top 4 to 8 inches of the tidal marsh layer. The open trench will be lined with polyethylene sheeting to provide drainage to the open sump. As soil is removed, it will be stock-piled with soil previously removed during the product pipeline excavation. If it is necessary to dewater the trench excavation during construction, all water will be contained on site in Department of Transportation (DOT) approved 55-gallon drums or in the storage tank.

3.2.2 Pumping of Perched Water Collection Trench

Water will be pumped from the perched water collection trench prior to beginning the pumping test of well GW-3 (Section 3.3). Water will be continuously removed from the trench sump throughout the duration of the pumping test of GW-3 in order to:

- evaluate the potential yield and contaminant level of the perched water layer; and
- prevent perched water from recharging ground water during the pump test of GW-3.

All perched water removed from the trench during this stage of the remedial plan will be stored in the storage tank. At the completion of pumping of the perched water collection trench, a sample of the perched water will be sent to a California-certified laboratory where it will be analyzed for benzene, toluene, ethylbenzene and xylene (BTEX) (EPA Method 602) and TPH as gasoline (EPA Method 5030). This sample will also be analyzed for typical water quality parameters (e.g., iron, hardness, etc.) to determine operating and maintenance requirements for a water treatment system.

3.2.3 Final Installation or Abandonment of the Recovery System

DUNN will evalaute whether conversion of the collection trench into a permanent perched water recovery system is necessary, based on the results of trench pumping as described in Section 3.2.2. In general, if impacted water is recovered with a sufficient and sustainable yield, the permanent recovery system will be installed. Otherwise, the trench will be abandoned as described latertow. ?

Recovery System Installation

If installed, the permanent perched water recovery system would be constructed as follows. Polyethylene sheeting would be removed from the trench. Crushed stone bedding material would be placed in the base of the trench. Perforated drainage pipe would be placed on the crushed stone at a one percent grade, sloped towards the sump location. A precast concrete sump will be installed and equipped with a level actuated electric submersible pump. Recovery pipe will be covered with crushed stone and pavement will be replaced.

Abandonment of Collection Trench

— need to sple bore & determine extent of cont. pers. to

In the event that results of pumping of the collection trench indicate that continued operation of a recovery system is not necessary, the trench will be abandoned. System abandonment will be performed by removing polyethylene sheeting, compacting low permeability soil in the former trench, placing crushed stone base course, and replacing the pavement.

3.3 Pump Test of Well GW-3

An extended duration pump test will be performed on well GW-3. The objectives of the pump test are to:

- evaluate the hydrologic conditions of the water bearing unit in the vicinity of the well;
- provide data to determine if well GW-3 can be utilized as the recovery well for the Area 4 ground water removal;

- evaluate routine water quality parameters (e.g., iron, hardness, etc.) needed to determine operating and maintenance requirements for a treatment system; and

- monitor changes in chemical concentrations over the duration of the pump test.

3.3.1 Pumping Test Procedure

The initial pump test of well GW-3 will consist of a short term step rate drawdown test followed by a longer duration, constant rate pumping test. A 4-inch diameter submersible pump with a 1-inch PVC discharge line will be used to conduct the pump tests. The discharge pipe will be equipped with a flow meter to monitor pump discharge rates and a sampling port valve to provide for sample collection. All water generated during these tests will be stored in the storage tank.

The step rate drawdown test will be conducted to determine the maximum drawdown anticipated for the constant rate test and to determine the volume of water that will be produced at that anticipated drawdown. The step rate test is expected to take between 2 and 4 hours to complete.

The extended duration, constant rate pumping test will not be started until the water levels in any wells affected by the step rate pumping test have equilibrated. The extended duration pump test will be started with a pump discharge rate which, based on the results of the step rate pumping test, is anticipated to produce a measurable but minimal drawdown in the nearest observation well (MW-14). The constant rate pumping test will proceed for a minimum of 24-hours and until static drawdown conditions exist in the pumping and observation wells. The test will not be run for more than 72-hours.

Monitoring wells MW-9, MW-14, MW-16, MW-10, and MW-8 will be utilized as observation wells for the pumping tests. To accurately record the change in water table elevation, during both the step rate and constant rate tests, pressure transducers will be installed in the pumping and observation wells. Data acquired throughout the pumping tests will be recorded and stored in a multi-channel data logger and analyzed using data reduction software.

3.3.2 Sampling and Analysis

Samples of ground water will be collected from well GW-3 at periodic intervals during the pumping test to monitor changes in chemical concentrations during the test. During the step test, the well will be sampled after the removal of the first three well water volumes to establish a baseline concentration. The well will next be sampled at the completion of the step test. The well will be sampled every 5,000 gallons of discharge as the constant rate pump test is carried out. All samples will be collected from the discharge line of the pump. All samples collected during the pump tests will be sent to a California-certified laboratory and analyzed for BTEX (EPA Method 602) and for TPH as gasoline (EPA Method 5030). In addition, samples will be collected at the completion of the pump test to evaluate typical

water quality parameters (e.g., iron, hardness, etc.) to determine how they may affect the treatment system during operation.

3.3.3 Water Disposal

Water generated during the pump tests described in Sections 3.2.2 and 3.3 will be pumped through the water treatment system (Section 4.0) and discharged to the sanitary sewer.

3.4 Ground Water Recovery System

3.4.1 Recovery System

Following the completion of the pumping test of well GW-3, it is expected that a ground water recovery system will be constructed in Area 4, as shown on Sheet 2 of the drawings and as discussed in the following sections. The conceptual design of the proposed system includes plans for recovering water from both the recovery well and from the perched water collection system in Area 4 and piping this water to a treatment system proposed for construction in Area 2. However, final system design details may vary as a result of information gathered during the pumping and recovery tests.

Due to the apparently limited area of ground water contamination, it is possible that the extended duration pump test and preliminary collection of the perched water may provide substantial improvements in ground water quality. If these improvements are such that long-term recovery is not needed or appropriate, the Area 4 ground water recovery system will not be constructed. In this case, water generated during the Area 4 recovery well tests will be pumped through the proposed Area 2 water treatment system and discharged to the sanitary sewer.

3.4.1 System Controls

A submersible well pump with level actuated controls will be installed in the recovery well. A sump pump with level actuated controls will be installed in the perched water collection system sump. Water will be pumped through PVC piping from each of these pumps to a PVC header, and then to the location of the treatment system, as shown on Sheet 1. The electrical service from the Area 4 recovery system pumps and the liquid level control wiring will be connected in a control panel box mounted inside the compound storage building. Power and control cables will be placed in conduit pipe and buried in a trench, above the ground water discharge piping, between the compound storage building and the recovery system.

4.0 GROUND WATER TREATMENT SYSTEM

A ground water treatment system will be constructed in Area 2, as shown on Sheet 2 of the drawings, to treat ground water from the recovery systems described earlier. Effluent from the treatment system will be discharged to an on-site sanitary sewer under a permit from the East Bay Municipal Utility District (EBMUD).

4.1 Treatment System

Water from Area 2 recovery wells will be passed through an oil/water separator to remove product as discussed in Section 2.2. Clean water from the separator will drain by gravity to an equalization tank. Water from the Area 4 recovery system will be pumped directly to the equalization tank. Water from the tank will be removed using a level actuated transfer pump which will pump water under pressure through the filtration and adsorption vessels. Water will be filtered using disposable bags or cartridges for sediment removal. Sorbent media (Calgon Kleen - Sorb or equal) will be placed in line before the granular activated carbon (GAC) units. Water will then be passed in series through two GAC units. Each unit will contain a minimum 36-inch GAC bed depth, and provide a minimum contact time of ten minutes per bed. The GAC will absorb both the volatile organic compounds (VOCs) and semi-VOCs from the ground water.

If necessary to increase capacity, two or more dual-stage systems can be manifolded in parallel. Sampling valves and a flow meter will be provided as shown on Sheet 2 of the drawings. Additional valving and pressure gauges will be installed to provide a functioning system.

4.2 Effluent Discharge

Effluent from the ground water treatment system will be piped through a two-inch PVC pipe, to the on-site sanitary sewer. The location of this connection is shown on Sheet 1. Concentrations of contaminants in the treated effluent will not exceed the waste water discharge limits as set forth by EBMUD. Based on previous hydrogeologic data gathered, the average discharge from the two recovery systems combined is not expected to exceed 15 gallons per minute. This translates into an average daily discharge to the sanitary sewer of approximately 2,900 ft^3/day.

5.0 REMEDIAL SYSTEM START-UP

The oil/water separator will be filled with tap water and checked for leaks prior to energizing the well pumps. The GAC and sorbent media filters as well as all piping will be filled with water, purged and vented to remove entrapped air and pressure tested. The high liquid level shutdowns will be checked manually for proper operation.

Startup sampling of the system, with expedited analysis will be performed as described in Section 7.0.

6.0 SITE RESTORATION

Following the installation of the ground water recovery and treatment systems, the site will be restored. This will include backfilling, sealing and/or capping any excavations resulting from the implementation of this remedial plan. Any fill material necessary to backfill excavations will be brought in from a clean, off-site borrow source. All equipment and trash will be removed and the site will be left in an orderly condition.

7.0 REMEDIAL SYSTEM MONITORING AND REPORTING

A sampling program will be implemented as part of this remedial plan to monitor the performance of the treatment system and to evaluate the remedial effectiveness of the recovery systems.

7.1 System Performance Monitoring

System performance monitoring will be conducted to assure that the system effluent discharged to the sanitary sewer is in compliance with EBMUD discharge limits and to determine if system maintanence (e.g., GAC replacement) is necessary. Upon start-up of the recovery and treatment system, samples will be collected from the final effluent tap at a rate of 1 per day for the first three days of operation. These samples will be analyzed on an expedited (24 hour) basis to ensure compliance with EBMUD discharge limits. Subsequently, samples will be collected at a rate of 1 per week (expedited basis) for the first month of operation and 1 per month for the first six months of operation. During these sampling events, samples will be collected from the treatment system influent, intermediate and final taps.

All samples will be analyzed for BTEX, TPH as gasoline and organic lead. Effluent discharged from the water treament system to the sanitary sewer will meet or exceed the standards required by EBMUD, which are as follows:

lead	2.000 mg/L
benzene	0.005 mg/L
toluene	0.015 mg/L
ethylbenzene	0.005 mg/L
xylene	0.014 mg/L

Total BTEX concentrations in GW-3 ground water have consistently been at least 200 times greater than associated total semi-VOC concentrations. Considering that the semi-VOCs will be desorbed from the treated ground water at least as efficiently as will the BTEX compounds, monitoring the system for semi-VOCs is not warranted.

7.2 Remedial Effectiveness Monitoring

Remedial effectiveness monitoring will include monitoring the amount of product recovered from the Area 2 recovery wells and sampling of the four potential recovery points (e.g., GW-6 and TW-1 in Area 2; perched water recovery system and GW-3 in Area 4) at the individual sampling taps. Upon start of the recovery and treatment system, these samples will be collected on a monthly basis. Samples collected from Area 2 sampling points will be analyzed for BTEX and TPH as diesel while samples from Area 4 sampling points will be analyzed for BTEX and TPH as gasoline and organic lead.

+ gasoline

An evaluation of analytical results obtained over the first six months of operation will be performed and the data will be submitted in a report to the Alameda County Health Care

Services Agency (Agency). The report will include recommendations for continued remedial effectiveness monitoring as well as proposed clean-up goals for Areas 2 and 4.

7.3 Sample Collection and Handling

Sample containers will be provided by the analytical laboratory. All water samples will be collected in standard VOA vials without headspace utilizing procedures previously described in the SI Report. The field notebook will be filled out at each sampling location. The field notes will be complete and contain sufficient information to enable reconstruction of the sampling and handling procedures at a later time. Samples will be placed in cooler(s) on ice and delivered to the laboratory within 24 hours of sample collection.

The sampling team is responsible for the custody of the samples until the samples are properly dispatched to the receiving laboratory or given to an assigned custodian. Each set of samples submitted to the laboratory will be accompanied by a chain-of-custody form. When transferring the possession of samples, the individuals relinquishing and receiving the samples will sign, date and note the time on the form. The form documents transfer of samples from the sampling team to the custody of another individual and/or the laboratory.

7.4 Analytical Methods and Requirements

All samples will be analyzed by a California approved laboratory by California Agency approved methods. Following are practical quantitation reporting limits outlined in the Alameda County tank removal permit application. These limits are influenced by matrix interference and laboratory QA/QC procedures.

	SOIL PPM	WATER PPB
TPH G	1.0	50.0
TPH D	1.0	50.0
BTX&E	0.005	0.5

Based upon a Regional Board survey of Department of Health Services Certified Laboratories, the Practical Quantitation Reporting Limits are attainable by a majority of laboratories with the exception of diesel fuel in soils. The Diesel Practical Quantitation Reporting Limits, shown by the survey, are:

ROUTINE	MODIFIED PROTOCOL
≤10 ppm (42%)	≤10 ppm (10%)
≤ 5 ppm (19%)	≤ 5 ppm (21%)
≤ 1 ppm (35%)	≤ 1 ppm (60%)

When the Practical Quantitation Reporting Limits are not achievable, an explanation of the problem will be submitted on the laboratory data sheets.

Laboratory data sheets will be signed and submitted, and include the laboratory's assessment of the condition of the samples on receipt including temperature, suitable container type, air bubbles present/absent in sample bottles, proper preservation, etc. The sheets will include the dates samples are collected, submitted, prepared for analysis, and analyzed.

If peaks are found, when running samples, that do not conform to the standard, the laboratory will report the peaks, including any unknown complex mixtures that elute at times varying from the standards.

Reporting limits for TPH are: gasoline standard $\leq$ 20 carbon atoms, diesel and jet fuel (kerosene) standard $\leq$ 50 carbon atoms. Chromatography runs will not be continued beyond the limit, standard, or EPA/DHS method protocol (whichever time is greater).

8.0 OPERATION AND MAINTENANCE

Prior to start-up of the system, a draft O&M plan will be prepared. Following completion of the initial six month operating period, the O&M Plan will be revised if needed to serve as the final plan.

The monthly O&M procedures planned are as follow:

- Read pressure gauges and flow meter;
- Change out sediment filter;
- Collect samples;
- Remove accumulated product, if necessary;
- Inspect piping and valves for leakage and to confirm proper settings;

The principal O&M problems likely to be encountered, and the planned corrective actions are:

- Excess pressure loss: Change particulate filter more frequently and, if necessary, backwash the GAC bed periodically.

- Chemical breakthrough at intermediate sample tap: When chemical analysis shows that water from the intermediate tap contains 50% or more of the level of chemicals found in the raw influent, the GAC should be exchanged. To exchange the GAC, remove primary GAC media, place secondary GAC in the primary position and put a new GAC media in the final position.

- Chemical breakthrough at final sample tap: Replace both primary and final GAC with new media and report any violations as required by the permit.

9.0 RECORDKEEPING AND REPORTING

All data and records collected pursuant to the discharge and sampling will be maintained for a period of at least three years. Any violations of the discharge permit will be reported to EBMUD within 24 hours of discovery of the violation.

Following completing of the recovery and treatment system construction and start-up, an installation report and system drawings will be provided to the Alameda County Health Care Services Agency.

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WOH/ce
August 12, 1992

APPENDIX 1

East Bay Municipal Utility District
Wastewater Discharge Permit Application

WASTEWATER DISCHARGE PERMIT APPLICATION

EBMUD

PERMIT NUMBER

APPLICANT BUSINESS NAME

American National Can Company

ADDRESS OF PREMISE DISCHARGING WASTEWATER	BUSINESS MAILING ADDRESS
3801 East 8th Street (STREET ADDRESS)	Mail Suite 14C, 8770 W. Bryn Mawr Ave. (STREET ADDRESS)
Oakland, CA 94601 (CITY / ZIP CODE)	Chicago, IL 60631-3542 (CITY / ZIP CODE)

CHIEF EXECUTIVE OFFICER

Jean Pierre Ergas (NAME)	Chairman of the Board & Chief Executive Officer (TITLE)
8770 West Bryn Mawr Avenue (STREET ADDRESS)	Chicago, Illinois 60631-3542 (CITY / ZIP CODE)

PERSON TO BE CONTACTED ABOUT THIS APPLICATION	PERSON TO BE CONTACTED IN EVENT OF EMERGENCY
Edward W. Alusow (Dunn Corporation) (NAME)	Judith Peters (NAME)
Senior Project Manager (518) 458-8931 (TITLE / PHONE)	(312) 399-3162 (312) 399-3162 (DAY PHONE / NIGHT PHONE)

DOCUMENTATION TO BE RETURNED WITH THE PERMIT APPLICATION:

- ☐ PROCESS DESCRIPTION
- ☐ WATER BALANCE CALCULATIONS
- ☒ WASTEWATER STRENGTH DATA BASE — See Remedial Plan
- ☒ SCHEMATIC FLOW DIAGRAM — See Remedial Plan Drawings
- ☒ BUILDING LAYOUT PLAN — See Remedial Plan Drawings
- ☒ DESCRIPTION OF TREATMENT SYSTEM — See Remedial Plan; Section 4.0
- ☒ SELF-MONITORING METHOD — See Remedial Plan; Section 7.0
- ☒ SPILL PREVENTION AND CONTAINMENT PLAN — See Remedial Plan; Section 2.2
- ☐ A LIST OF ALL ENVIRONMENTAL PERMITS (E.G. Air, Hazardous Wastes)
- ☒ OTHER Attached Remedial Plan (SPECIFY)

PROVISIONS

Applicant will comply with the EBMUD Wastewater Control Ordinance and all applicable rules and regulations.

Applicant will report to EBMUD, Wastewater Department any changes, permanent or temporary, to the premise or operations that significantly change the quality or volume of the wastewater discharge or deviation from the terms and conditions under which this permit is granted.

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that the qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

NAME (See certification requirements on reverse) _____ SIGNATURE _____

TITLE _____ DATE _____

EH 00-1-7-15

INSTRUCTIONS FOR COMPLETING THE APPLICATION

CLEARLY TYPE OR PRINT THE INFORMATION REQUESTED AND RETURN THE SIGNED ORIGINAL TO EAST BAY MUNICIPAL UTILITY DISTRICT, WASTEWATER DEPARTMENT, MS #69, P.O. BOX 24055, OAKLAND, CA.

- **APPLICANT BUSINESS NAME** - Enter the name or title of your business.
- **ADDRESS OF PREMISES DISCHARGING WASTEWATER** - Enter the full street address of the building or premise which is discharging the wastewater pertinent to this application.
- **BUSINESS MAILING ADDRESS** - Enter the complete mailing address.
- **CHIEF EXECUTIVE OFFICER** - Enter the full name and title of the Principle Executive or Authorized Agent of the Business.
- **PERSON TO BE CONTACTED ABOUT THIS APPLICATION** - Provide the name, title and phone number of the person who is thoroughly familiar with the facts reported in the application and who can be contacted by the staff of EBMUD.
- **PERSON TO BE CONTACTED IN EVENT OF EMERGENCY** - Give the name and phone number(s) of the responsible person who can be contacted in case of an emergency (e.g., spill to the sanitary sewer).
- **DOCUMENTATION TO BE RETURNED WITH THE PERMIT APPLICATION** - Return with the Wastewater Discharge Permit Application all documentation as requested. Documentation requirements are indicated by an "x" marked in the box along side a specific item. Permits cannot be processed without this information.
- **CERTIFICATION** - Type or print the name and title of the person signing the application. All applications, reports, or information requested by the District must contain the following certification statement and be signed as required in sections (a), (b), (c), or (d) below. (Use whichever alternative best applies).

  a. By a responsible corporate officer, if the Permit Holder submitting the reports is a corporation. For the purpose of this paragraph, a responsible corporate officer means:

     i. a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy - or decision-making functions for the corporation, or;

     ii. the manager of one or more manufacturing, production, or operation facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

  b. By a general partner or proprietor if the Permit Holder submitting the reports is a partnership or sole proprietorship respectively.

  c. By a duly authorized representative of the individual designated in paragraph (a) or (b) of this section if:

     i. the authorization is made in writing by the individual described in paragraph (a) or (b);

     ii. the authorization specifies either an individual or a position having responsibility for the overall operation of the facility from which the wastewater discharge originates, such as the position of plant manager, a field superintendent, or a position of equivalent responsibility, or having overall responsibility for environmental matters for the company; and

     iii. the written authorization is submitted to the District.

  d. If an authorization under paragraph (c) of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, or overall responsibility for the environmental matters for the company, a new authorization satisfying the requirements of paragraph (c) of this section must be submitted to the District prior to or together with any reports to be signed by an authorized representative.

EBMUD

American National Can Company
BUSINESS NAME

Process Description

PURPOSE — The Process Description is intended to provide a description of the primary business activities and the substances which may enter into the wastewater from the business activity.

EBMUD USE
Permit Number

BUSINESS ACTIVITY

Former Can Manufacturer, Presently used As Can Warehouse

Business Classification Code

DESCRIPTION OF PRODUCT

TYPE OF PRODUCT OR BRAND NAME	QUANTITIES	
	Past Calendar Year	Estimated This Year
NA: See Above		

PROCESS DESCRIPTION

PROCESS DESCRIPTION List all wastewater generating operations	CHARACTERISTICS List all substances that may be discharged to the sewer.
Example: Rinsewater from electroplating bath	Cr, Cu, Ni, Zn
Example: Washdown of milk filling area	fatty acids, milk
Treated Effluent from a groundwater	
recovery and treatment system	Trace levels at Petroleum hydrocarbons
	(Also see Remedial Plan; Section 7.1)

DISCHARGE PERIOD: Continuous

a. Time of day from _____ to _____

b. Days of the week _____

BATCH DISCHARGE(S) NA

a. Day(s) of the week _____ b. Time(s) of the day _____

c. Volume discharged _____ d. Rate of discharge _____

OTHER WASTES — List the type and volume of liquid waste and sludges removed from the premises by means other than the community sewer.

WASTE REMOVED BY (Name, address and State Transporter ID No.)	TYPE OF WASTE (Example: alkaline cleaners, organic solvents, treatment sludge)	WASTE I.D. No.	VOLUME (lbs)(gal)/mo
	Separated Waste Oil	221	T.B.D.
To be determined (T.B.D.)			

EH 00127

INSTRUCTIONS FOR COMPLETING THE PROCESS DESCRIPTION

- **BUSINESS ACTIVITY** - Describe the major activities conducted on the premise. Clearly identify activities generating wastewater.

- **DESCRIPTION OF PRODUCT** - List the types of products, giving the common or brand name and the proper scientific name. Enter the quantity produced daily for this activity during the previous 12 months and the estimated daily production for the forthcoming 12 months. Specify units of measure.

- **PROCESS DESCRIPTION** - Describe each wastewater generating process occurring on the premises, and list pollutants common to each of the process wastestreams. Identify specific chemical and physical hazards associated with each process wastestream, attach Material Safety Data Sheets if appropriate.

- **DISCHARGE PERIOD** - Identify the time period in which the facility normally discharges wastewater, specify hours and days of the week.

- **BATCH DISCHARGE(S)** - Identify the day(s) of the week and the time(s) of the day batch discharge normally occurs at the facility. List the average discharge volume (gallons/batch) and the discharge flow rate (gallons/minute). Please indicate if batch discharges occur on other than a scheduled basis.

  Batch discharges are intentional, controlled discharges that occur intermittently. They typically occur as the result of noncontinuous operations.

- **OTHER WASTES:**

  Provide the name, address and State Transporter Identification Number of those persons or firms removing liquid wastes and sludges from your facility site. (Note: Refer to the Uniform Hazardous Waste Manifest - DHS 8022 A(1/87), when appropriate).

  List the types of wastes and other spent materials removed from the premise by other than the community sewer (e.g., caustics, spent solvents, distillation residues, reactive materials, pesticides, plating solutions, heavy metals, etc.).

  Enter the corresponding EPA Hazardous Waste Number for each type of wast removed.

  Calculate the average monthly volume of waste removed from the premise for the past 12 months.

EBMUD

Business Name American National Can Company

Water Balance / Strength Summary

PURPOSE: This information will enable EBMUD to evaluate the volumes, source(s) and strengths of wastewater discharged to the community sewer.

Permit Number

WATER USE AND DISPOSITION: Show on a separate sheet the method and calculations used to determine the quantities shown in the table.

Figures are: [X] gallons per calendar day [ ] gallons per working day Number of working days per year 365

WATER USE	WATER SUPPLY FROM:			WASTEWATER DISCHARGED TO:					
	EBMUD	OTHER (1)		SIDE SEWER (gal/day)				OTHER (2)	
	gal/day	gal/day	CODE	No.1	No. ____	No. ____	No. ____	gal/day	CODE
Sanitary	175			Discharge divided among existing side sewers					
Processes									
Boiler									
Cooling									
Washing									
Irrigation									
Product									
Stormwater									
Other (3)		21,600	A	21,600					
Subtotal	175	21,600							

EBMUD AND OTHER SUPPLY TOTAL 21,775 **ALL SIDE SEWERS TOTAL** 21,775

NOTES:

1. Enter the quantity and the appropriate code letter indicating the source:
   a. Well **b.** Creek **c.** Stormwater **d.** Reclaimed Water **e.** Raw Materials.
2. Enter the quantity and appropriate code letter indicating the discharge point:
   a. Stormdrain **b.** Rail, Truck, Barge **c.** Evaporation **d.** Product
3. Describe Other: Recovery of contaminated ground water

SANITARY DISCHARGE: Please use the following data from the Uniform Plumbing Code, 1985, to determine sanitary wastewater volumes.

Field service employees - 5 gallons per employee per day
Office employees - 20 gallons per employee per day
Production employees - 25 gallons per employee per day
Production employees with showers - 35 gallons per employee per day

Include the effect that seasonal and weekend staffing changes may have on determining average volumes.

AVERAGE WASTEWATER STRENGTH: Data base must be attached, average self-monitoring and EBMUD data.
Waste water is treated ground water, data is not necessary.

SIDE SEWER (mg/L)

	No. 1	No. ____	No. ____	No. ____
CODF				
TSS				

34 • 10-88

EH 00-127

Water Balance / Strength Summary
INSTRUCTIONS

Water Balance

The purpose of this section is to summarize the volume of water used by the various processes. All water sources must be balanced with water uses and allocated to specific discharge points. The database and calculations used to arrive at the values submitted in the water balance summary must be included with the application.

The first step in computing the water balance is to determine a relevant average gallon per day consumption. This calculation and all subsequent calculations are to be expressed in either gallons per calendar day or gallons per working day, as is appropriate for the facility. If water use is expected to be similar to the prior year, the water consumption history supplied by EBMUD may be used to compute the average supply. Please contact your EBMUD representative if you have any questions about what is an appropriate water use period. In addition, water inputs from raw materials, stormwater and other significant sources of water that are discharged to the sanitary sewer should be added to the EBMUD supply. This calculated water supply average is entered under, *EBMUD AND OTHER SUPPLY TOTAL.*

The next step is to identify the water usage for processes that are fully characterized using data from meters or other accurate methods. The volume of water supplied for sanitary purposes may be estimated using Uniform Plumbing Code estimates. Other water uses that are less precisely known should then be calculated. These are uses that are determined by methods such as measuring instantaneous flow coupled with estimates of process operation. There is generally a water use that cannot be well characterized. The difference between the supply total and the known water uses is assigned to this process.

When all water use estimates have been calculated, determine the discharge point(s) for each water use. Thorough documentation is required, including any assumptions made, for all diversions.

If the facility has more than one EBMUD water meter and those meters have different billing rates, it is necessary to breakdown the discharge points for each meter in the support calculations.

Strength Summary

Facilities applying for a wastewater strength permit must submit average CODF and TSS data for each sampled side sewer. All data collected by EBMUD and from self-monitoring required during the past year, must be included in the average unless a part of the database has been found to be nonrepresentative. **Support your reasoning.**

ATE

0

NOT TO SCALE

DUNN CORPORATION
12 Metro Park Road
Albany, NY 12205

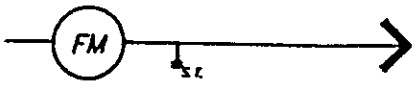
AREAS 2 & 4 GROUNDWATER
RECOVERY AND TREATMENT SYSTEMS

AMERICAN NATIONAL CAN
OAKLAND PLANT

CITY OF OAKLAND ALAMEDA COUNTY, CA.

SHEET 2 OF 2 DWG. NO. 2m9164

AC No. 2



NOTES

1.) *This drawing is for permitting purposes only and is not intended for construction.*

LEGEND

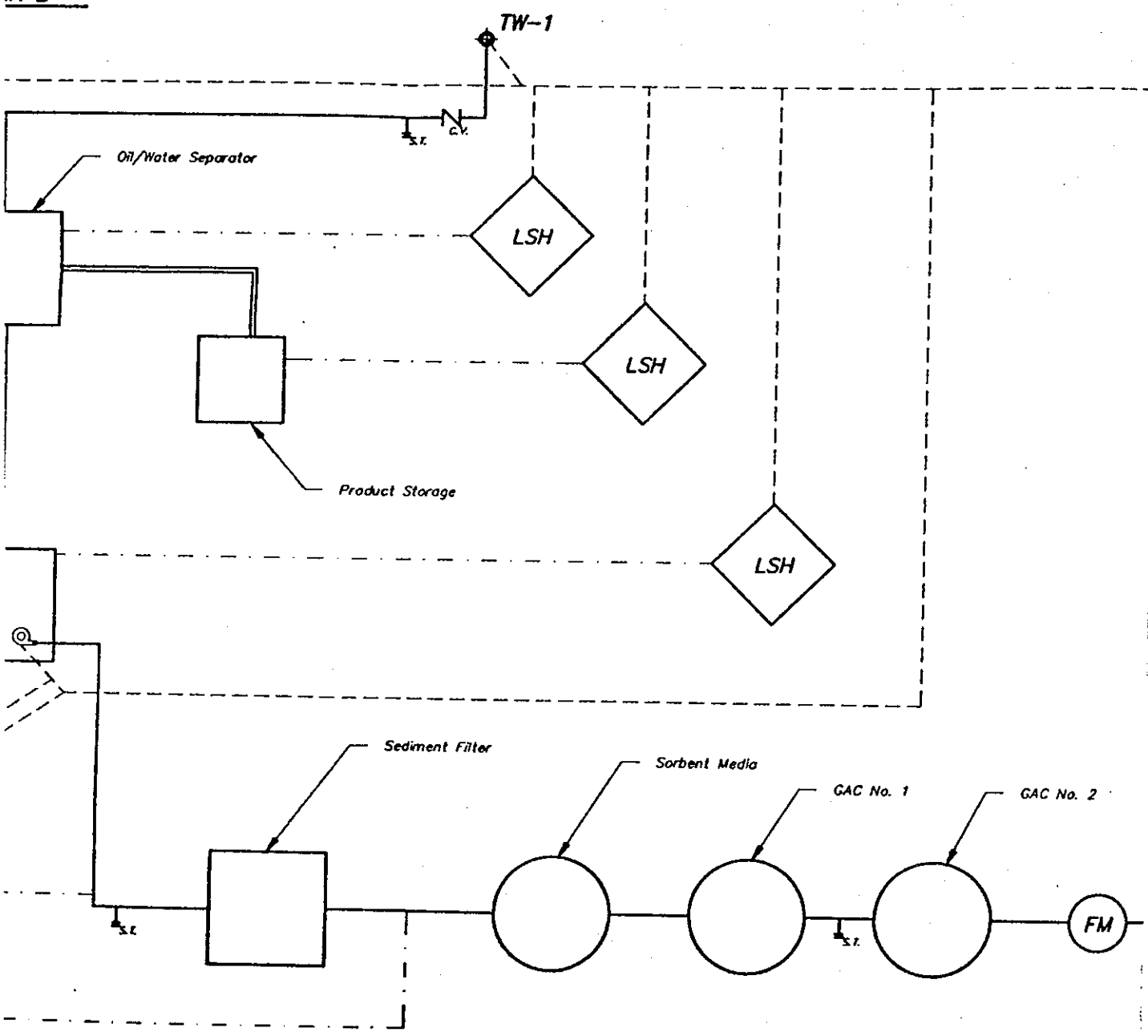
- Water Line (pressure)
- Water Line (gravity)
- Electrical Power Line
- Control Line
- LSH — High Level Shut Off
- PSH — High Pressure Shut Off
- C.V. — Check Valve
- S.T. — Water Sampling Tap
- FM — Flow Meter
- Submersible Pump
- Recovery Well

EH 00-1-2003

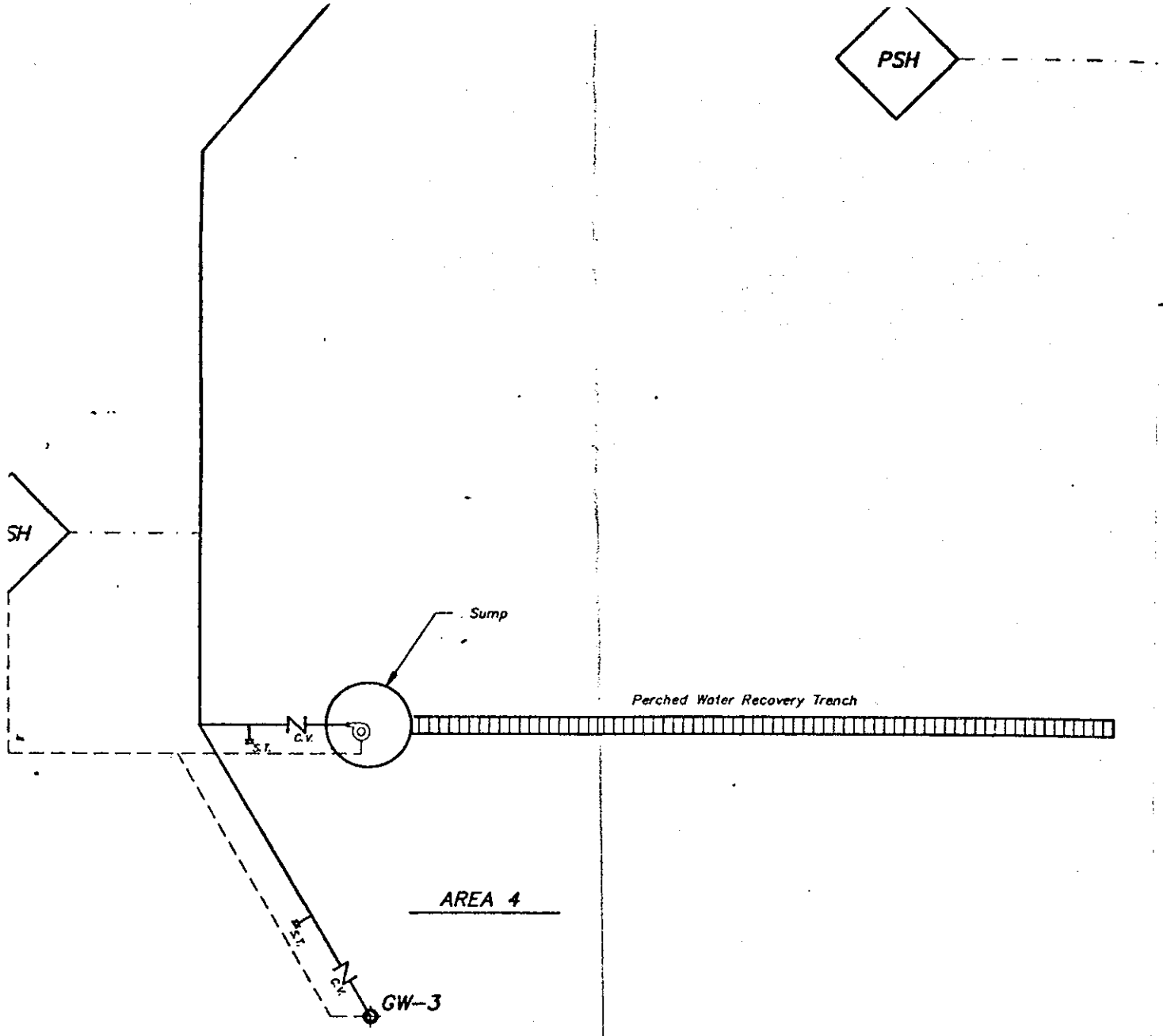
NOTE:
UNAUTHORIZED ALTERATION OR ADDITION TO THIS DRAWING IS A VIOLATION OF SECTION 7209, SUBDIVISION 2, OF THE NEW YORK STATE EDUCATION LAW.

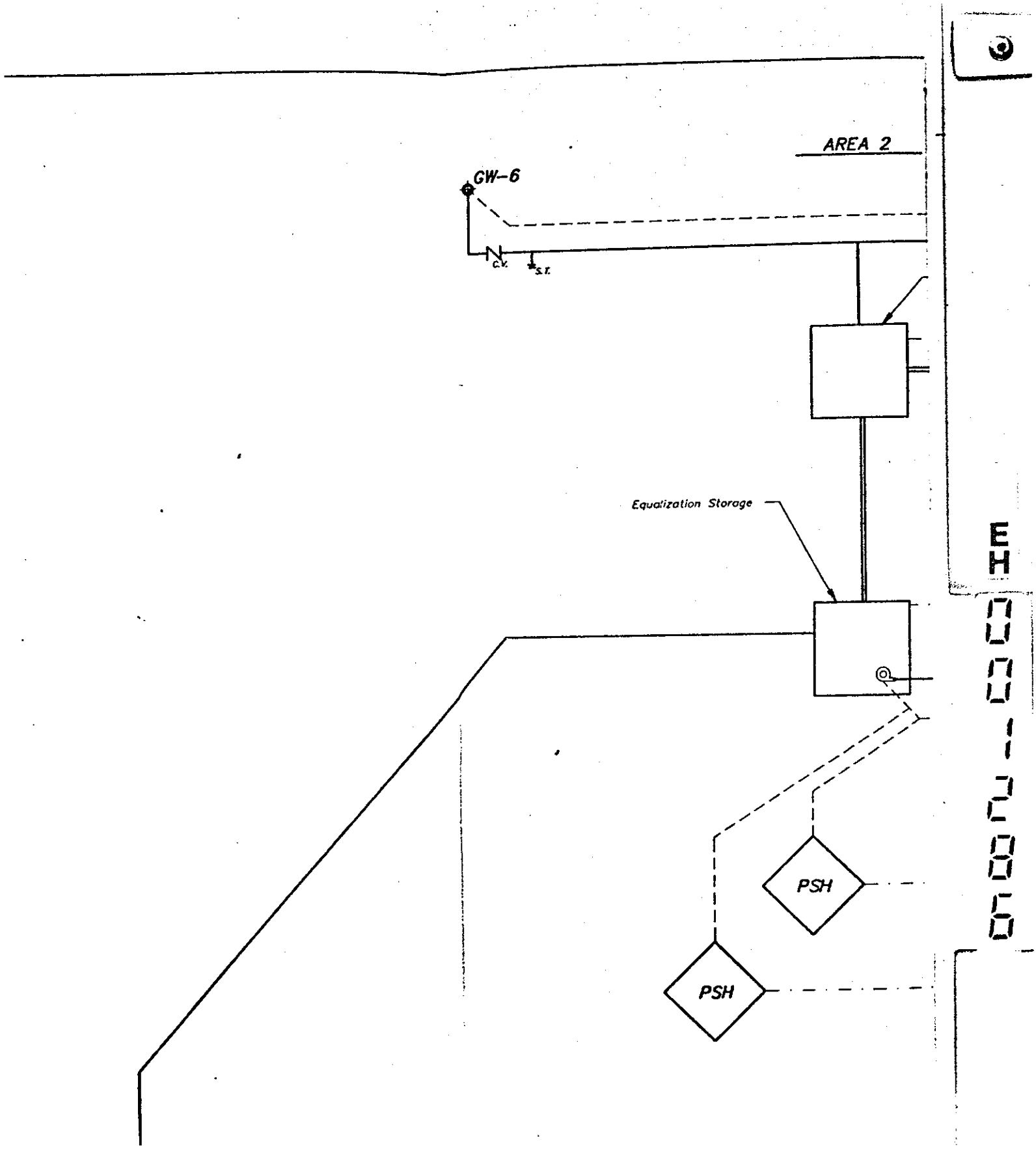
PROJ. MGR:	Edward W. Alusow
PROJ. ENG.	Alan Tavenner, P.E.
PREPARED BY:	Alan Tavenner, P.E.
DRAFTED BY:	R.J. Near
CHECKED BY:	Joesph Slack, P.E.
PROJ. NO.:	02345-01983
DATE:	June 1992
DATUM:	-
CONTOUR INTERVAL =	- FEET
USGS QUAD.:	-

NO.	REVISIONS	BY	DATE

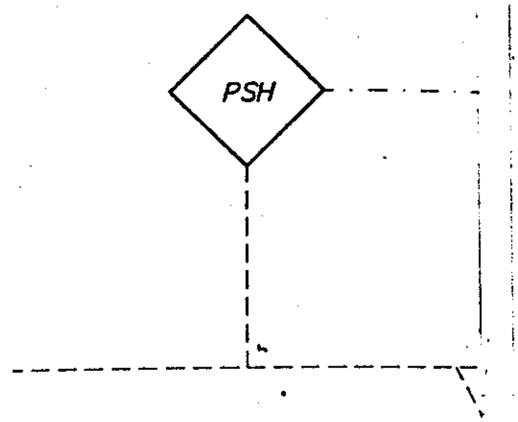

A 2
TW-1
C.V.
Oil/Water Separator
LSH
LSH
Product Storage
LSH
Sediment Filter
Sorbent Media
GAC No. 1
GAC No. 2
FM

EH 000-2084


PSH
SH
Sump
Perched Water Recovery Trench
C.V.
S.T.
AREA 4
S.T.
C.V.
GW-3



EH 000-2006



FRAGMENT END

Propose to have Ones checked annually regularly by a watchman

Question:

(1) Didn't address approval

(2) do they need double walled pipe in treatment system (above ground)

(3) Need actual data sheets for equipment (treatment) approval

Soil excavation - Find out & early Nov

H2O treatment system - waiting

- disposal to SBMUD proposed

EH 00-12-09