ENVIRONMENTAL **AGE** ENERGY MINERALS

ANANIA GEOLOGIC ENGINEERING

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Date: 11/7/89 No. of Pages: 14 (Including cover)

TO: Howard Schmuckler FAX #:

DESTINATION:

SUBJECT: Revised Preliminary Assessment - PCB's at Oakland

FROM: Jim Wallace - Sacramento AGE PHONE: 916-631-0154

COMMENTS: I have copies of all the chain of custodies and analytical results for PCBs at Oakland. Let me know if you need these and I will Fed Ex. them to you.

____ Urgent

1.1 PURPOSE

The purpose of this report is to summarize the results of the investigations conducted by AGE since the PCB contamination was discovered during sampling on June 23, 1989. An extensive monitoring program in the monitoring wells and product recovery probes which existed prior to June 23, 1989 has been supplemented with additional soil and groundwater investigations. The purpose of the investigation was to determine the source and extent of the PCB contamination.

1.2 BACKGROUND

Carnation's Oakland Dairy Facility is located at 1310 14th Street in the City of Oakland, Alameda County, California. Figure No. 1 shows the northwestern quadrant of the Facility including locations of the product recovery probes, monitoring wells, and recovery wells. The areas excavated to remove the former underground gasoline and diesel fuel tanks and the associated fuel pumps and product lines, and the underground waste oil storage tank are outlined on Figure No.1.

1.2.1 PCB Sampling Prior to June 22, 1989

During the initial groundwater and soil investigations, PCB

analysis were conducted on a limited number of samples. There had been no indication from previous work, or from data supplied by Carnation that PCB contamination was a potential on the Facility. However, PCB analysis was conducted on selected water and soil samples between January 25 and June 22, 1989. All PCB analysis indicated no detectable levels during this time period. All Chain of Custody forms and analytical reports for PCB have been includined in the attached appendices.

On January 25, 1989, a soil sample (No. W-001) was taken beneath the product distribution lines in the tank excavation area. This sample, attached in Appendix A, was non-detect for PCB. It was apparent that no PCB contamination was associated with the fuel tank excavation.

1.3 PCB Discovery

Groundwater samples were collected on June 22 and 23, 1989 from five recovery probes at the request of the Alameda County Department of Health Hazardous Materials Division (County) and the San Francisco Regional Water Quality Control Board (Water Board). AGE received the certified analytical results for these groundwater samples on July 13, 1989. PCB was detected at 60 micrograms per liter, parts per billion (ppb), in a groundwater sample from PR-12. No PCB contamination was detected in groundwater samples taken from the other four product recovery probes, PR nos. 20, 22, 41,

and 55.

Another groundwater sample was collected from PR-12 on July 14, 1989 to verify if trace quantities of PCB were present in the groundwater. At the same time, a sample of floating product was also collected from PR-12. AGE received the certified analytical results for these samples on July 18, 1989. The results indicated 80 ppb of PCB in the groundwater sample and 66 milligrams per liter, parts per million (ppm), of PCB in the free product.

In an attempt to define the extent of PCB contamination, AGE collected groundwater and floating product samples from existing product recovery probes in the vicinity of PR-12. The results of this survey indicated that low levels of PCB existed in the following product recovery probes:

PR No.	PCB Level (ppb)
PR-12	0.004 ug/l
PR-71	0.006 ug/l

Groundwater levels measured in the monitoring wells and PR points located in the northwestern quadrant of the Facility, including

those near PR-12, indicate the groundwater flow direction in the area is to the northwest, as shown on Figure 1. PR-12 was installed south and up gradient of the former fuel and waste oil tanks. Three of the four product recovery probes are up gradient from the fuel tank excavation area. It is clear that the PCB source is not associated with the former fuel tanks.

On July 5 and 13, 1989 free product thicknesses were measured in the monitoring wells, recovery wells and product recovery probes located around PR-12. The product thicknesses measured in RW-1, MW Nos. 2 and 12, and PR Nos. 12, 13, 15, 32, 71, 72, and 73; RW-1 and MW Nos. 2 and 12 were listed in Table 1 and shown on Figure 1. These product thickness measurements indicated additional product recovery probes were required west of PR-12 to further define the extent of free product in that direction and if necessary remediate any free product encountered.

On July 14, 1989 after consultation with an industrial hygienist and collection of another sample of groundwater and a sample of free product from PR-12 AGE decided to suspend field work in the vicinity of PR-12. AGE determined stringent site safety procedures would have to be implemented until an assessment of the health risks associated with PCB contamination was completed. In addition, field personnel who had worked on the site, especially in the vicinity of PR-12, were directed to immediately have a blood

tests for PCB. No PCB contamination has been detected in any of the blood samples reported to AGE as of July 26, 1989.

On July 18, 1989 AGE received the certified analytical results from the laboratory which reported 66 ppm was detected in the free product sample collected from PR-12. Carnation representatives were informed that PCB contamination had been detected in groundwater and free product samples from PR-12 on July 20, 1989. AGE informed the County on July 21 ,1989 that PCB had been detected in samples of groundwater and free product from PR-12. The County requested a separate unauthorized release report be filed for the PCB contamination. (Attached in Appendix ???)

1.4 Potential Sources of PCB Contamination

PCB contamination was not detected in the soil or groundwater beneath the waste oil tank excavation area. Nor was any PCB contamination detected in groundwater, soil or product samples from any point down gradient from the tank excavation area. This indicates the former tanks were not the source of the PCB contamination detected in PR-12 which was installed up gradient of the former tanks. The northern groundwater gradient indicates the source of PCB contamination was in the immediate vicinity of PR-12 or to the south southeast.

1.4.1 Historic Oil Spills as a Potential PCB Source

AGE evaluated historic aerial photographs of the Facility. It was clear from the photographs taken prior to 1960 that the present Facility location was a multiple use site. The site was unpaved and the soil was stained with oils. The presence of the old spills, north of 15th Street, was confirmed by observations made while drilling the PR probes numbers 78, 79, 80, and 81; installed by AGE near PR-12, in July, 1989. The boring logs from the product recovery probes indicate that the soil in the vicinity north of abandoned 15th street was visibly discolored and stained from a depth of 1 to 5 feet below ground level. No discoloration or staining was noted on the boring logs for these product recovery probes in the base gravel immediately beneath the asphalt. The absence of staining the base gravel indicates the spills occurred prior to the placement of the base gravel and asphalt.

AGE characterized the near surface soils, ground level to a depth of 6 feet, in the vicinity of PR-12 and north of abandoned 15th Street to assess the possibility that historic hydrocarbon spills were the source of PCB contamination. Surficial oil spills observed in aerial photographs of the Facility taken prior to 1960

indicated that historically, the Facility was unpaved and that the soil was stained with oils from truck traffic and itinerate spills. Existing boring logs and soil analyses were used to refine the extent of historical spills and determine soil type, depth of contamination, and concentration and type of hydrocarbon detected in the soil. The near surface soil borings were located in areas that appear to have had the most significant historical surface spills.

Evaluation of the near surface soils was necessary to determine if historic surface spills resulted in the PCB contamination found in PR-12. Surface staining from spills of oily material is clearly evident north of abandoned 15th Street near PR-12 on the July 3, 1959 aerial photograph of the Facility. Discolored and stained soils noted on boring logs for PR nos. 79, 80, 81 and 82 confirm the near surface soils in the vicinity of PR-12 have been impacted by surface spills.

The soil was analyzed for PCB. The results indicate that there is no PCB contamination in any near-surface soil. Although this does not eliminate the possibility of a very localized surface source, it does indicate that there is not ambient PCB contamination in the near surface soil beneath the Facility.

1.4.2 Investigations in Vicinity of PR-12

In order to identify the aerial extent of PCB contamination, a drilling program was initiated in the vicinity of PR -12. Five product recovery probes were installed: PR Nos. 85, and 88 were located down gradient from PR-12 and PR Nos 86, 87 and 89 were located up gradient of PR-12. The analytical results for the soil samples are listed below:

Date	PR No.	Sample Depth	PCB Level (ppb)
8/31/89	85	2.5	ND
8/31/89	85	4.5	ND
8/31/89	85	9.0	ND
	86	2.0	ND
	86	6.0	ND
	86	10.0	870
	87	2.0	ND
	87	6.0	ND
	87	9.0	ND
	87	14.0	ND
8/31/89	88	10.0	ND
8/31/89	88	14.0	ND
	89	2.0	ND

89	6.0	ND
89	9.5	ND

The analytical results for water samples taken from the product recovery probes in the vicinity of PR-12 are listed below:

Date	PR No.	PCB Level (ppb)
9/15/89	85	ND
9/15/89	86	ND
9/15/89	87	ND
9/15/89	88	ND
9/15/89	89	ND

The Chain of Custody forms and analytical results for the soil and water samples are attached in the appendices.

The analytical results indicate that there is no PCB contamination in the groundwater in any of the above product recovery probes. However, PR-86 indicates that PCB contamination exists at a depth of 10.0 feet. This is the only soil sample from the entire Facility to indicate PCB contamination in the soil. It is very likely, that the source of PCB contamination is in the vicinity of PR-86. Significantly, PR-86 is up gradient of PR-12 and the tank excavation area. To date, AGE has not been able to identify the exact source point for the PCB contamination. However, through a process of elimination several possible sources have been eliminated.

1.5 Possible Sources of PCB Contamination - Eliminated

It is clear from the investigations that two primary possible sources have been eliminated: 1) The tank excavation area was not the source of PCB contamination. The soil sample taken during the excavation was non-detect for PCB. No water from down gradient product recovery probes or soil samples have been contaminated with PCB; 2) The historic oil spills were not contaminated with PCB. There is a clearly stained soil to a depth of five to six feet from historic spills. However, none of these soils has been contaminated with PCB. 3) There are no known underground storage tanks left on the Facility in the vicinity of PR-12 or PR-86.

1.6 Conclusion

The PCB contamination has been isolated to a area up gradient and east of the tank excavation area. There has been no PCB contamination in either the groundwater or the soil down gradient of the tank excavation area. The greatest concentrations of PCB contamination is in the vicinity of PR-12 and PR-86, up gradient of the tank excavation area. Two possible sources for the PCB contamination have been eliminated - the tank excavation area and the historic oil spills. The exact location of the point source for

the PCE appears to be in the vicinity of PR-12 and PR-86.

1.7 REMARKS AND SIGNATURES

This report represents the undersigned's professional opinion. These opinions are based on currently available data and were arrived at in accordance with current hydrogeologic and engineering practices.

Prepared by:

James Wallace — Date

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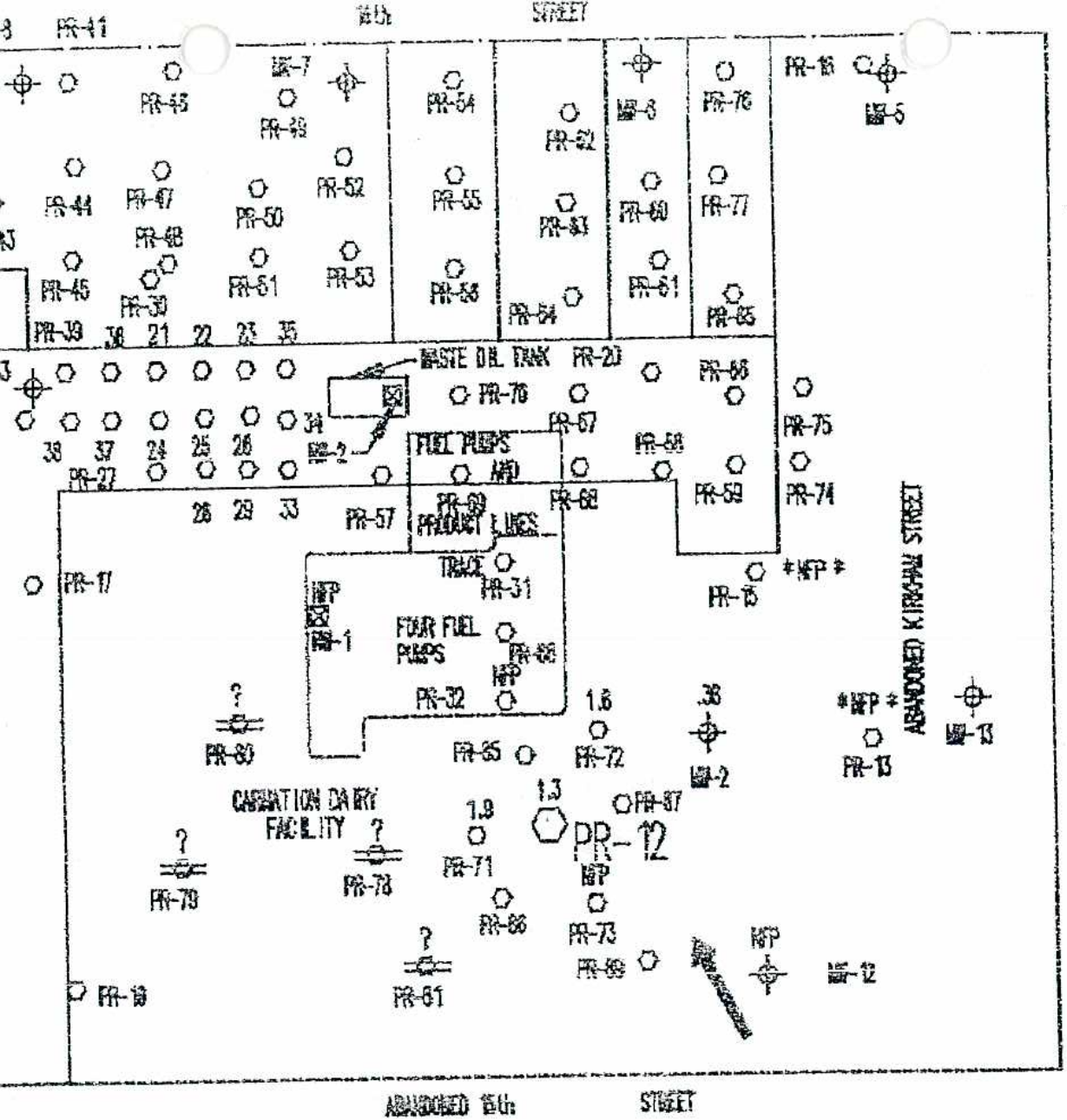
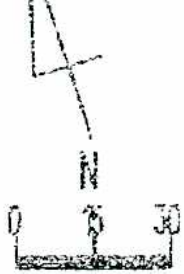
Approved by

Karl J. Anania

California Registered Geologist No. 4306

Managing Partner





LEGEND

WELLS AND PROBES

MONITORING WELLS	MW-2
PRODUCT RECOVERY PROBES	PR-31
RECOVERY WELLS	RW-1
PR PROBES NOT SURVEYED	

BOUNDARIES

PROPERTY LINE	
BOUNDARY OF NORTHWEST QUADRANT OF THE FACILITY	
BOUNDARY OF AREAS EXCAVATED DURING REMOVAL OF TANKS AND ASSOCIATED FUEL DISPENSING SYSTEM	
THICKNESS IN FEET OF FREE PRODUCT MEASURED IN PROBE OR WELLS.	1.8 PR-72
NFP INDICATES NO FREE PRODUCT WAS PRESENT IN THE WELL OR PROBE WHEN THICKNESS WAS MEASURED	NFP PR-15
APPROXIMATE DIRECTION OF GROUNDWATER FLOW	
UNKNOWN PRODUCT THICKNESS IN PRODUCT RECOVERY PROBES INSTALLED JULY 10, 1989	?

THICKNESSES MEASURED
ROBES AROUND PR-12
13, 1989. (* DENOTES
URED ON 7-13-89)

AGE
ANANIA GEOLOGIC ENGINEERING

TITLE:	FREE PRODUCT ASSESSMENT OF THE SOURCE OF PCB CONTAMINATION		
PROJECT NAME:	CARNATION/OAKLAND	PROJECT NO:	004-68-093
SITE LOCATION:	1310 14th ST. AT POPLAR OAKLAND, CA.		
DATE: 11-1-89	DRAWING NO.: 093-001	SCALE:	1" = 30'