ANANIA GEOLOGIC ENGINEERING

89 AUG 13 AM 9:08

November 9, 1989

Ms. Katherine Chesick
Alameda County Health Department
80 Swan Way
Oakland, California

RE: Wastewater Discharge Permit Application for the Groundwater Treatment System at the Carnation Dairy Facility in Oakland

AGE Project Numbers: 004-88-059, 004-89-093 and 004-89-096

Dear Ms. Chesick:

Enclosed for your information is a copy of the permit application for the discharge of the water from the groundwater treatment system at the Carnation Oakland Dairy Facility to the sanitary sewer. The permit package was submitted to East Bay Municipal Utitlites District (EBMUD) on November 9, 1989. Mr. Bill Meckel from EBMUD stated at a meeting at the site on November 3 that the permit approval process can take 30 days. He also asked that AGE notify him when we have analytical results from treated groundwater that meet EBMUD's discharge requirements. At that point in time, a permit can be issued. AGE intends to have the system assembled at the site beginning in approximately one week. The initial run through the treatment system will begin by the third week of November.

The permit application package contains several figures that may be of interest to you. The schematic flow diagram of the treatment system shows the order and components of the system. The piping diagram of the carbon vessels show how the water can be pumped through the cannisters. There is also a map that shows the location of the treatment system with respect to the existing structures at the facility. The text of the application explains the design criteria and the proposed self monitoring program.

I will keep you notified of the project schedule if changes are required. If you have any other questions on the system, please do not hesitate to call me at (916) 631-0154.

Sincerely,

ANANIA GEOLOGIC ENGINEERING

Karl J Anania for

Mary L. Scruggs
Senior Project Manager

cc: Howard Shmuckler, Carnation
Jim Person, Carnation

AGE
11330 SUNRISE PARK DR., SUITE C • RANCHO CORDOVA, CA 95742
P.O. BOX 161148 • SACRAMENTO, CA 95816 • PHONE (916) 631-0154 FAX (916) 631-0528

GROUNDWATER TREATMENT SYSTEM DISCHARGE PERMIT APPLICATION
CARNATION DAIRY FACILITY
1310 14TH STREET
OAKLAND, CALIFORNIA

AGE PROJECT NUMBERS 004-88-059, 004-89-093 AND 004-89-096

NOVEMBER 2, 1989

1.0 PROJECT DESCRIPTION AND HISTORY

Anania Geologic Engineering (AGE) is currently investigating and remediating the contaminated soil and groundwater associated with the leaking underground fuel tanks at the Carnation Dairy Facility (Facility) located at 1310 14th Street in Oakland, California. For years the facility was an ice cream and milk production facility. Ice cream production was terminated in March 1989. Current activity at the facility consists of storage and distribution operations.

A large warehouse with several storage and service bays occupies the northwest corner of the facility. Two 10,000 gallon gasoline tanks, two 12,000 gallon diesel tanks and one 1,000 gallon waste oil tank were located south of the service bays. The tanks were removed in early January 1989. Free product was observed in the excavation. With the exception of the waste oil tank, the steel tanks appeared competent and did not have visible holes at the time of their removal. The soil under the product lines was heavily stained and the evidence suggested leaking pipelines as a source of contamination.

Fuel leaks associated with the former gasoline and diesel tanks have resulted in free product floating on the groundwater in the northwest portion of the Carnation facility. The depth to groundwater at the site is approximately ten feet below ground surface. Product recovery points have been installed at the site to recover free product with a skimming system and to introduce microorganisms to enhance bioremediation of the hydrocarbon contamination. Monitoring wells have also been installed and

sampled to determine extent of the contaminant plume and to monitor progress of the remediation efforts. Drilling and sampling have defined the extent of the contaminant plume which is shown on Figure 1. Groundwater cleanup will be accomplished using groundwater extraction in conjunction with a separator and carbon adsorption system.

A polychlorinated biphenyl (PCB), arachlor, also known as PCB 1254, has been detected at a concentration of 60 micrograms per liter, parts per billion (ppb), in groundwater samples from product recovery probes PR-12, PR-32, PR-72, PR-85, and PR-86. These points are located at the southeastern end of the plume. The extent and origin of the PCB contamination has not been completely defined. However, investigations to date indicate that the PCB contamination is of limited extent and does not appear to be associated with the underground fuel tanks removed in January 1989.

AGE has identified the hydraulic oil associated with the hydraulic lifts as an additional source of soil and groundwater contamination. Approximately 1000 gallons of the oil was pumped out of the hydraulic lifts, sumps and associated lines. The hydraulic fluid has mixed with the gasoline contamination and appears to be restricted to inside the building in the northwestern end of the plume.

2.0 SYSTEM DESIGN AND OPERATION

Activated carbon adsorption has been selected for the treatment of the contaminated groundwater due to its ease of operation and proven results. The groundwater and floating product will be separated by a tandem pumping system to eliminate emulsification of groundwater and floating product. The product will be pumped to a storage tank until manifested off the site. The groundwater will be pumped through a petro pak separator for removal of any floating or emulsified product. From the separator, the contaminated groundwater will pass through a filter rated at 5 microns. The water will then flow into one of the two parallel series of two carbon adsorption vessels for removal of the dissolved organic constituents. Figure 2 is a schematic diagram of the groundwater treatment system including sampling ports. Figure 3 is the carbon adsorption unit piping diagram. Figure 4 shows the layout of the treatment system and the point of discharge to the sanitary sewer.

The maximum operating flow rate was determined using a flow rate of 42 gallons per minute. The treatment system will operate for 10 hours per day at 42 gallons per minute resulting in a discharge

of 25,000 gallons of water per day. A list of expected concentrations through the system as well as treatment objectives are presented in Table 1.

In order to meet the discharge requirements stipulated by East Bay Municipal Utilities District, the following monitoring program will be implemented. Treated water from the initial run will be stored in a Baker tank and sampled prior to discharge to the sewer. The water will be analyzed for volatile organics (EPA 8240), semi-volatile organics (EPA 8270), CAM metals, oil and grease, pH, total dissolved solids, total suspended solids and PCBs (EPA 8080). If the discharge requirements are met, the water will be pumped to the sewer. If the requirements are not met,the water will be recycled through the treatment system again and refinements will be made to the system if required. Once the system meets discharge requirements, the treated water will be sampled daily for a week, then weekly for a month, and then monthly for the duration of the treatment operation.

Table 1: Design Concentrations

Contaminant	Expected Concentrations (ppb)	Treatment Concentration Objectives (ppb)
Benzene	45000	1
Toluene	35000	25
Ethylbenzene	40000	3
Xylenes	25000	40
PCB 1254	6000	3
Napthalene	60000	5

PIPING DIAGRAM FOR CARBON ADSORPTION UNIT

FIGURE 3

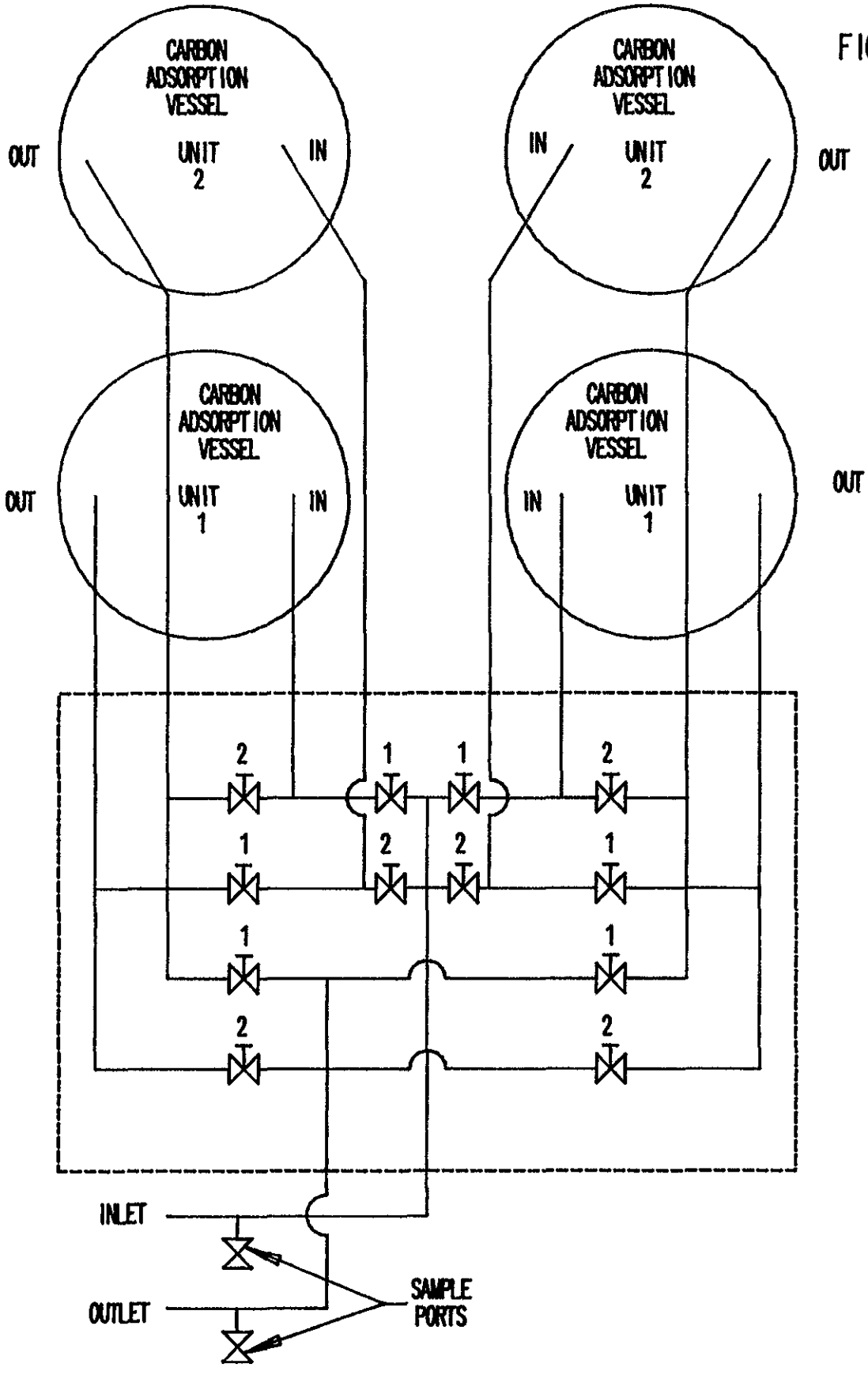
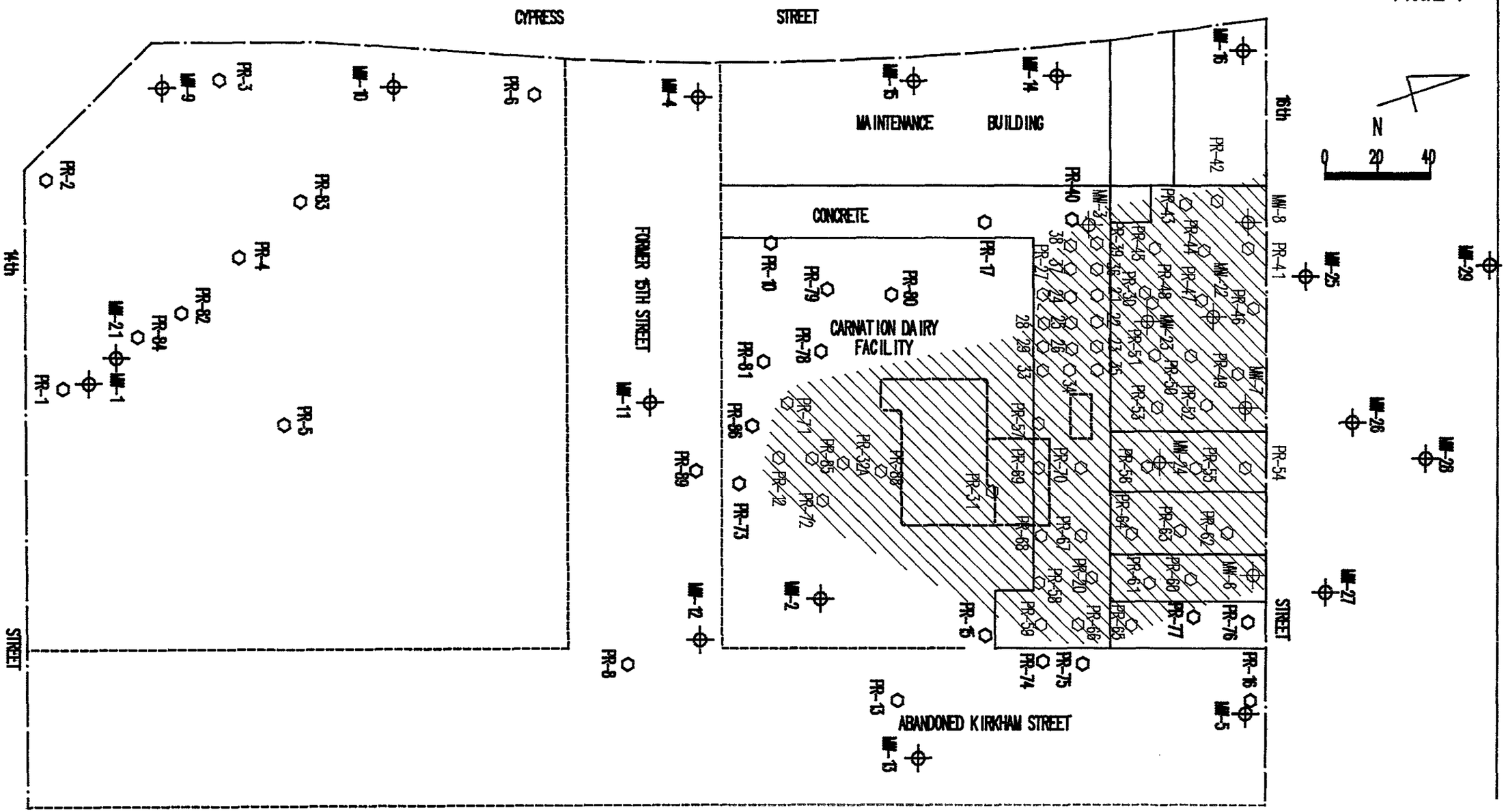


FIGURE 1



LEGEND

- MONITORING WELL
- PRODUCT RECOVERY POINT
- PROPERTY BOUNDARY

FIGURE 2

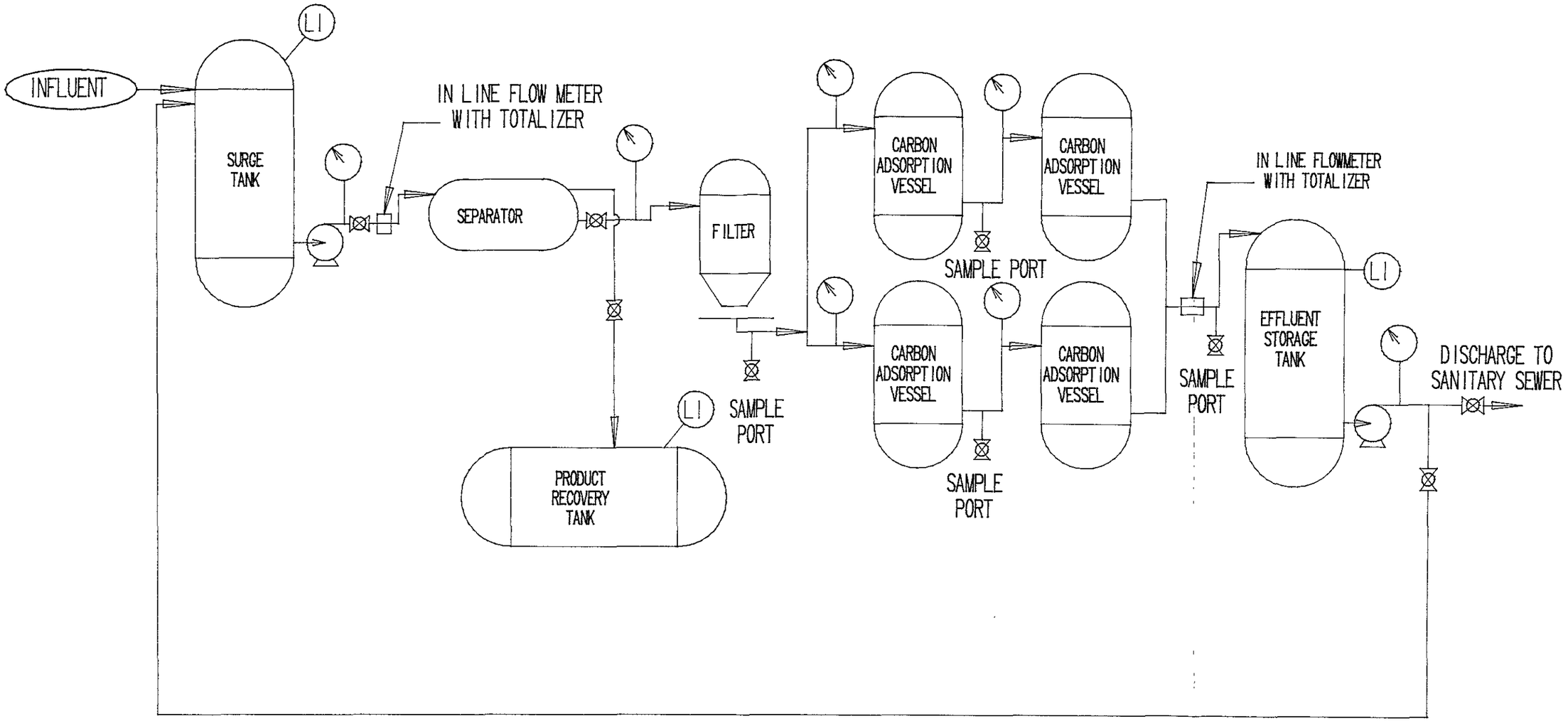
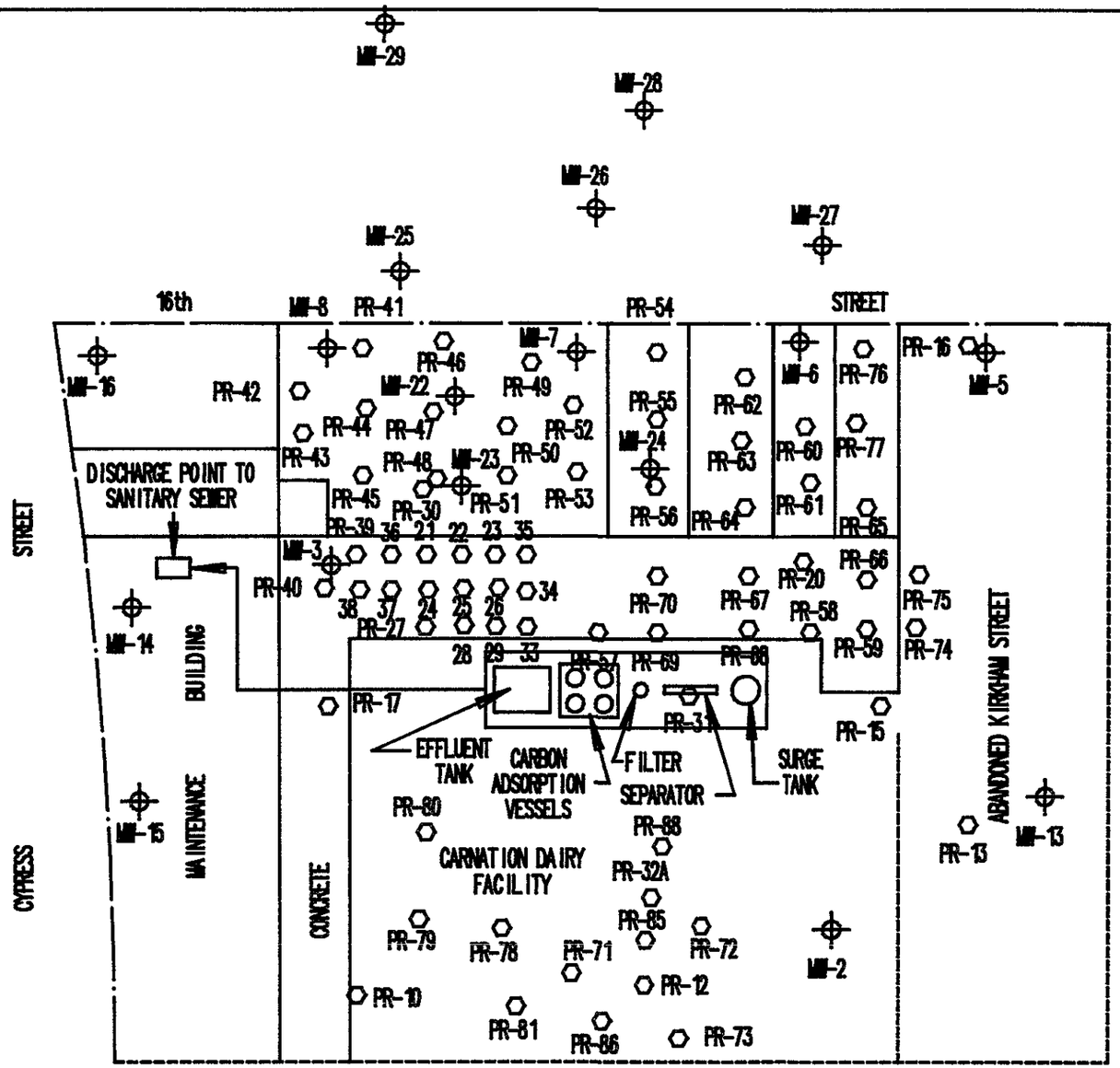

INFLUENT
LI
SURGE TANK
IN LINE FLOW METER WITH TOTALIZER
SEPARATOR
FILTER
SAMPLE PORT
LI
PRODUCT RECOVERY TANK
CARBON ADSORPTION VESSEL
CARBON ADSORPTION VESSEL
CARBON ADSORPTION VESSEL
CARBON ADSORPTION VESSEL
SAMPLE PORT
SAMPLE PORT
IN LINE FLOWMETER WITH TOTALIZER
EFFLUENT STORAGE TANK
LI
DISCHARGE TO SANITARY SEWER
LI LEVEL INDICATOR
PRESSURE INDICATOR
VALVE

FIGURE 4


MW-29
MW-28
MW-26
MW-27
MW-25
16th
STREET
MW-8
PR-41
PR-54
MW-7
PR-16
MW-16
PR-42
PR-46
MW-22
PR-49
MW-6
PR-76
MW-5
PR-55
PR-62
PR-44
PR-47
PR-52
MW-24
PR-60
PR-77
DISCHARGE POINT TO SANITARY SEWER
PR-43
PR-48
MW-23
PR-50
PR-63
PR-45
PR-30
PR-51
PR-53
PR-56
PR-64
PR-61
PR-65
PR-39
36
21
22
23
35
MW-3
PR-66
PR-40
PR-20
PR-75
38
37
24
25
26
34
PR-70
PR-67
PR-58
PR-27
MW-14
28
29
33
PR-59
PR-74
PR-57
PR-69
PR-68
BUILDING
PR-17
PR-31
PR-15
EFFLUENT TANK
CARBON ADSORPTION VESSELS
FILTER SEPARATOR
SURGE TANK
PR-80
PR-88
MAINTENANCE
MW-15
CARNATION DAIRY FACILITY
PR-32A
CONCRETE
PR-13
MW-13
ABANDONED KIRKHAM STREET
CYPRESS
PR-85
PR-79
PR-78
PR-71
PR-72
MW-2
PR-12
PR-10
PR-9
PR-81
PR-86
PR-73
N
0
20
40