**Commonwealth Edison**
72 West Adams Street Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690

EPA Region 5 Records Ctr.
321830

rcd 4/12/81

November 5, 1981

CERTIFIED MAIL

Mr. Lawrence W. Eastep
Illinois Environmental Protection
Agency
Division of Water Pollution Control
Permits Section
2200 Churchill Road
Springfield, Illinois 62706

Re: Maywood Technical Center Storm-
water Runoff Collection System

Dear Mr. Eastep:

As agreed at the meeting of October 20, 1981, we are submitting the monitoring data regarding the Maywood facility.

Prior to 1981, discharge samples were taken by the grab method. Since early 1981, refrigerated composite samplers have been used on both the North and South oil/water separator systems. Twenty-five (25) milliliter samples are taken from the sampling effluent manhole every 10 minutes, so that whenever there is a discharge, a composite sample is obtained. The sampling manhole is located after the oil/water separators so that a sample representative of the effluent may be obtained. Rainfall measurements are made using standard gauges. Flow estimation is made using elapsed time meters and pump capacity of the influent lift pumps. Analyses are performed at the Technical Center laboratory using standard methods.

It is important to note that there have been several problems in obtaining this information for the effluent. First, it was recently (August 25, 1981) discovered that the sampling for the North system was unrepresentative of discharges from the North oil/water separator. This problem has been temporarily rectified, but due to the specific configuration of the piping, representative sampling problems continue to persist. Consequently, sample results from those days with heavy rainfall and high receiving stream water levels are likely to be artificially high for both TSS and PCB. Since it is difficult to separate out these days, all the data for this

system in our possession are being submitted with the above reservations included. We are continuing to seek resolution of this deficiency.

Second, there have been many technical problems with the flow estimating method. Only since September 2, 1981 can we confidently state that flow estimation is accurate for the runoff entering the treatment system. It has been our assumption that this inlet flow is representative of discharge flow with a possible delay depending on the amount and period of the last rainfall event. Consequently, on days when a flow was detected into the system, it is possible that no flow was observed leaving the system. Conversely, a flow could be leaving the system when no flow was measured into the system. This makes loading calculations difficult and any attempt to estimate these using present flow data should be viewed with suspicion.

Attached also are the data obtained in several other sampling periods undertaken in the Company's continuing effort to identify services of possible contamincation and to reduce the level of PCB discharge. A complete, detailed discussion of these data would be too lengthy to present here, but will be provided at the November 12, 1981 meeting.

sources

Sincerely,

Steven K. Winslow / for
Thomas E. Hemminger
Director of Water Quality

TEH:DAU:bc

Encs.

## ATTACHMENTS

| | |
|---|---|
| A | Effluent prior to installation of oil/water separators, 1975-1978 |
| B | 1979 Effluent |
| C | 1980 Effluent |
| D | 1981 -- as seen by IEPA, January, 1981 to March 12, 1981 |
| E | 1981 to Present Effluent |
| F | 1981 Influent |
| G | River Sediment Samples |
| H | Catch Basin -- Sediment Samples |
| I | Soil Sample Results |

## ATTACHMENT A

| DATE | LOCATION | FLOW CONDITIONS | PCB mg/l | |
|---|---|---|---|---|
| 2-10-76 | #1 | | 85 | IEPA sample |

| Flow Conditions on 7-20-76 | Location | PCB's in micrograms/liter 7-20-76 | 8-6-76 | 8-6-76 Agency |
|---|---|---|---|---|
| slight | #1 27" Discharge to river | 22.6 | 2.77 | 6.4 |
| N.A. | #2 River background | 2.80 | 0.76 | 1.0 |
| none | #3 Manhole bottom water | 41.5 | 6.02 | 6.9 |
| none | #3A Water flow from north pipe | - | 1.63 | 2.4 |
| none | #4 Manhole bottom water | 5.5 | 1.65 | 0.9 |
| none | #5 Manhole bottom water | 50.3 | 70.0 | 124.0 |
| none | #6 Manhole bottom water | 473 | 286 | 197.0 |
| - | #7 Manhole bottom water | - | 6.23 | 35.0 |
| - | #8 Puddle on roof | - | 18.1 | - |

| Date | Flow Conditions | Location | PCB, ppb |
|---|---|---|---|
| 1-04-77 | none | #6 Manhole by gas pump | 1150 |

April 18, 1977 PCB sampling by IEPA and CECo.

| Sample Location | PCB's in mg/kg* | Agency PCB's in ppm |
|---|---|---|
| #1 - By manhole near south parking | 76.89 | 43.1 |
| #2 - Among large transformer storage | 52.53 | 14.3 |
| #3 - Among small transformer storage | 75.43 | 86.4 |
| #4 - Old storage area | 251.1 | 210.0 |
| #5 - River bed downstream of 27" discharge | 4.60 | 6.0 |
| #6 - River bed upstream of 27" discharge | 1.75 | 1.65 |
| #7 - River bed downstream of pumping station | 6.87 | 4.08 |
| #8 - River bed further downstream | 1.83 | 2.5 |
| #9 - Forest Preserve soil sample - background | 1.31 | 0.23 |

4 - inch surface samples, sieved

*mg/kg is parts per million-based on dry weight

NOVEMBER 6, 1977

| Sample Location | Flow | PCB's in micrograms/liter | Oil & Grease milligrams/liter | Total Suspended Solid milligrams/liter |
|---|---|---|---|---|
| #1 - Sewer along First Ave.* (Background) | none | 0.4 | 5 | 14 |
| #2 - 27" discharge at river | 1 l/min | 0.2 | 5 | 4 |
| #3 - South line sewer* | none | 6.2 | 1025 | 2680 |
| #4 - Northeast corner sewer* | slight | 0.2 | 41 | 525 |

*Samples #1, 3, and 4 were of the water at the bottom of the sewer.

| | Site #1 - 1st Avenue | | Site #2 - South Pipe into 27" line | |
|---|---|---|---|---|
| Sample Date | 5-5-78 | 5-11-78 | 5-5-78 | 5-11-78 |
| Flow, gallon/minute | none visible | - | 0.2 | 250 |
| | Micrograms/liter (ppb) | | | |
| Polychorinated Biphenyls (PCB) | 1.0 | 11.6* | 3.2** | 2.0 |
| | Milligrams/liter (ppm) | | | |
| Biochemical Oxygen Demand | 70.2 | - | 8.2 | - |
| Cyanide (total), Cn | <0.002 | - | 0.004 | - |
| Iron (total), Fe | 0.39 | - | 4.0 | - |
| Lead (total), Pb | <0.1 | - | <0.1 | - |
| Manganese (total), Mn | <0.02 | - | 0.13 | - |
| Mercury (total), Hg | 0.0007 | - | <0.0002 | - |
| Oil and Grease | 3 | - | 2 | - |
| Total Suspended Solids | 9 | - | 150 | - |

* Unknown spiked sample obtained from US Environmental Protection Agency. EPA reported the sample prepared to contain 341 ug/liter Arochlor 1254 (341 ppb PCB).

** A duplicate sample was taken and analyzed by the OAD lab. OAD reported the sample having 13 ppb PCB.

May 18, 1978 OAD split sampling with IEPA (MSD was also present).

| Sample | Description | Flow | PCB's |
|---|---|---|---|
| #1 | Before 27" line, Catch basin A - Surface water | none(1) | 24.1 ppb |
| #3 | Catch basin B - Surface water | | 757 ppb |

(1) However, the next catch basin in line was discharging which was also [illegible]

June 28, 1978 Sampling at Tech Center to verify May 18, 1978 results.

| Sample - water | Flow | Total PCB, ppb (ug/l) |
|---|---|---|
| Line into 27" line #1 (A) | none | 28.0 |
| #2 (A) | 2 l/min. | 1.6 |
| #3 (A) | none | 18.0 |
| #5 (A) | none | 258 |

July 28, 1978 Soil seepage samples taken at site of oil/water separator installation.

| Sample Area | PCB Content* | |
|---|---|---|
| | Oil Phase ppm ( g/g) | Water Phase (sediment included) ppm (ug/l) |
| Dike #1 | 28 | 0.017 |
| Railroad Area | 485 | 0.105 |

* Composed mainly of arochlor #1260 with traces of arochlor #1016 (#1242).

ATTACHMENT B

| Date, 1979 | Flow Conditions | Total Suspended Solids, mg/l | PCB ug/l | O & G, mg/l | PCB in oil, ug/g | PCB in sediment, ug/g |
|---|---|---|---|---|---|---|
| | | NORTH | | | | |
| 6-7 | 1-hr. 0.87 inch rain | - | 213 | 21 | 958 | 347 |
| 11-26 | Low 18-hr. 1.15 inch rain | 104 | 59 | 9 | - | 197 |
| | | SOUTH | | | | |
| 6-7 | 1-hr. 0.87 inch rain | - | 66 | 11 | 424 | 159 |
| 11-26 | Low 18-hr. 1.15 inch rain | 23 | 74 | 7 | 232 | 200 |

ATTACHMENT C

## North Separator

| Date, 1980 | Flow Conditions | Total Suspended Solids, mg/l | PCB, ug/l | O&G, mg/l | PCB in oil, mg/l | PCB in sediment, ug/g |
|---|---|---|---|---|---|---|
| 1-16 | | 22 | 3.0 | 2 | -- | 205 |
| 3-4 | | <1 | 4.0 | 10 | -- | 311 |
| 4-30 | none | -- | -- | 4 | -- | -- |
| 5-29 | none | 144 | 54.0 | 8 | -- | 288 |
| 6-17 | none | -- | 29.6 | -- | -- | -- |
| 6-27 | none | 2 | 1.6 | 1 | -- | -- |
| 7-24 | none | 22 | 12.5 | 3 | -- | 230 |
| 8-7 | | 33 | 12.7 | 2 | -- | 276 |
| 9-26 | none | 39 | 22.1 | <1 | -- | -- |
| 10-31 | none | 2 | 1.6 | <1 | -- | -- |
| 11-21 | none | 1 | 0.6 | <1 | -- | -- |
| 12-5 | none | 45 | 40.8 | 2 | -- | -- |

## South Separator

| | | | | | | |
|---|---|---|---|---|---|---|
| 1-11 | (0.30" RAIN) | 73 | 15.0 | 12 | 283 | 141 |
| 1-16 | (0.19" RAIN) | 139 | 23.0 | 4 | 272 | 265 |
| 2-20 | | 138 | 18.0 | 3 | 387 | -- |
| 2-21 | | 333 | 44.0 | 7 | 376 | 253 |
| 2-22 | | 204 | 31.0 | 12 | 418 | -- |
| 3-4 | | <1 | <3.0 | 21 | 386 | -- |
| 3-5 | | 43 | 13.0 | 3 | 381 | -- |
| 4-8 | | 56 | -- | 12 | -- | -- |
| 4-29 | | 36 | 9.0 | 7 | 382 | -- |
| 5-29 | | 117 | 15.0 | 6 | 357 | -- |
| 6-17 | | -- | 3.0 | -- | -- | -- |
| 6-27 | | 5 | 4.7 | 5 | -- | -- |
| 7-24 | | 1 | 4.0 | 6 | 107 | -- |
| 8-7 | | 3 | 1.6 | 2 | 407 | -- |
| 9-26 | | 15 | 4.2 | 2 | -- | -- |
| 10-31 | none | 5 | 1.5 | <1 | -- | -- |
| 11-21 | none | 1 | 1.3 | <1 | -- | -- |
| 12-5 | none | 13 | 3.1 | 3 | -- | -- |

ATTACHMENT D

**Stormwater Runoff from North Separator with Chemical Treatment(1)**

| Date 1981 | Rainfall Inches Per Day | Total Volume, gal. or Flow, gpd(2) | Total Suspended Solids, mg/l(3) | Total PCB, ug/l(3) |
|---|---|---|---|---|
| 1-20(4) | N.A. | N.A.(11) | 21.0 | 8.2 |
| 1-27 | N.A. | 0 | N.S. | N.S. |
| 1-28 | N.A. | 0 | N.S. | N.S. |
| 1-29 | N.A. | 0 | N.S. | N.S. |
| 1-30 | N.A. | 0 | N.S. | N.S. |
| 2-02 | N.A. | 27(6) | N.S. | N.S. |
| 2-03 | N.A. | 0 | N.S. | N.S. |
| 2-04 | N.A. | 480 | N.S. | N.S. |
| 2-05 | N.A. | 0 | N.S. | N.S. |
| 2-06 | N.A. | 0 | N.S. | N.S. |
| 2-09 | N.A. | 0(6) | N.S. | N.S. |
| 2-10 | N.A. | 0 | N.S. | N.S. |
| 2-11 | N.A. | 0 | N.S. | N.S. |
| 2-13 | N.A. | 0(9) | N.S. | N.S. |
| 2-17 | N.A. | N.A.(8) | 59.0 | 10.2 |
| 2-18 | N.A. | 0 | 58.0 | 5.2 |
| 2-19 | N.A. | 80 | 35.0 | 4.4 |
| 2-20 | N.A. | 80 | 35.0 | 1.8 |
| 2-23(5) | 0.50(10) | N.A.(8) | 6.0 | 1.8 |
| 2-24 | 0.60 | 0 | 61.0 | 10.1 |
| 2-25 | 0 | 1520 | N.S. | N.S. |
| 2-26 | 0 | 0 | N.S. | N.S. |
| 2-27 | 0.50 | N.A.(8) | N.S. | N.S. |
| 3-02 | 0.05(10) | 1093(6) | N.S. | N.S. |
| 3-03 | 0 | 80 | N.S. | N.S. |
| 3-04 | 0.09 | 0 | N.S. | N.S. |
| 3-05 | 0 | 0 | N.S. | N.S. |
| 3-06 | 0 | 0 | N.S. | N.S. |
| 3-09 | 0(10) | 0(6) | N.S. | N.S. |
| 3-10 | 0 | 1520 | N.S. | N.S. |
| 3-11 | 0.06 | 80 | N.S. | N.S. |
| 3-12 | 0 | 0 | N.S. | N.S. |

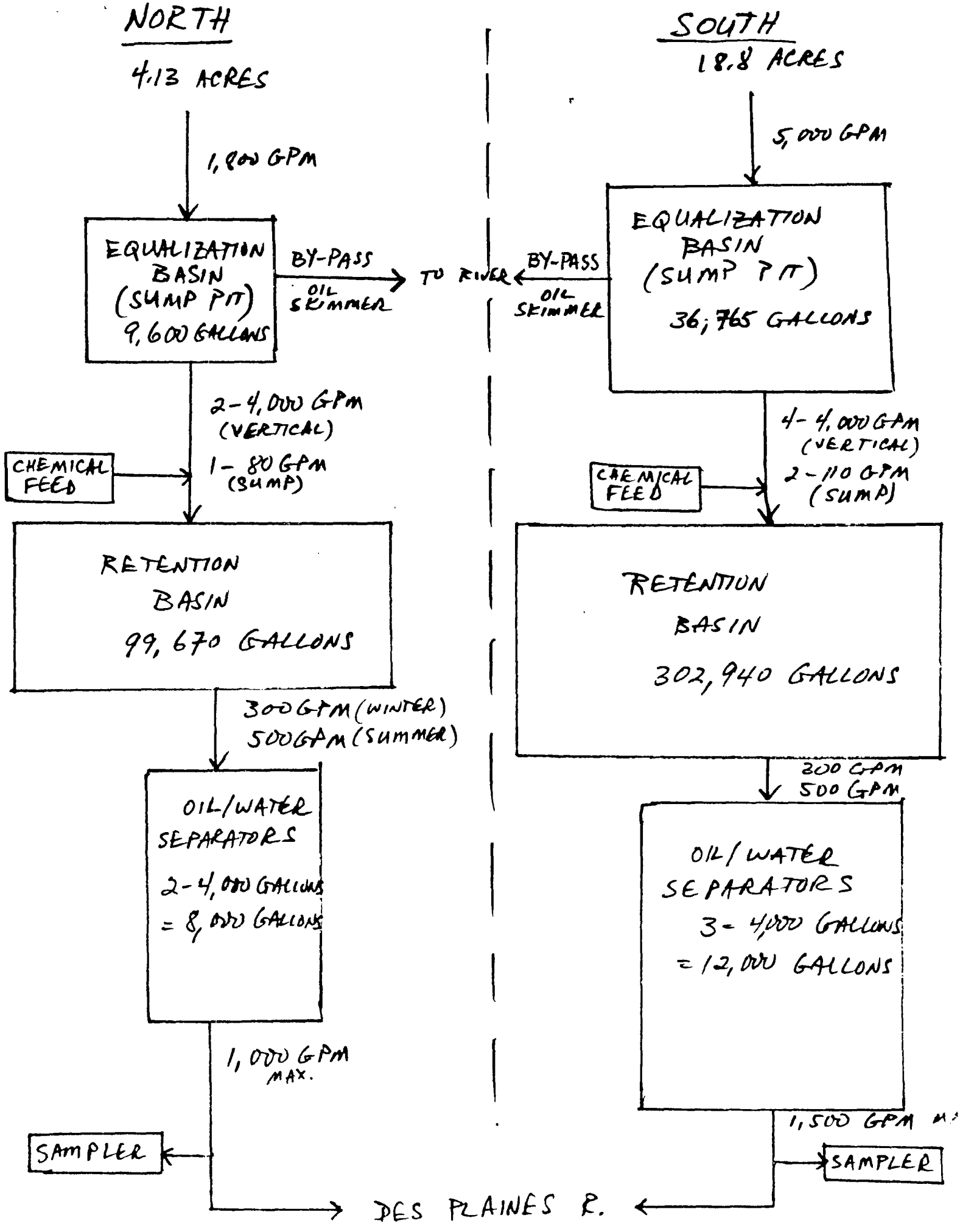
N.A. Not available.
N.S. No sample - no flow from separator.
(1) Anionic polymer used, but was changed on 3-19-81 to cationic polymer to provide better TSS removal.
(2) Estimate based on duration of pump operation located in the entrance to the treatment system.
(3) Composite samples are collected at the exit from the treatment, i.e., from the discharge from the oil/water separators.
(4) Grab sample; all others are composites.
(5) Composite sampler changed to shorter time intervals.
(6) 3-day (weekend) average.
(7) 4-day (weekend plus holiday) average.
(8) Electrical problem in timer.
(9) 2-day (holiday) average.
(10) Total since previous measurement.
(11) [illegible]

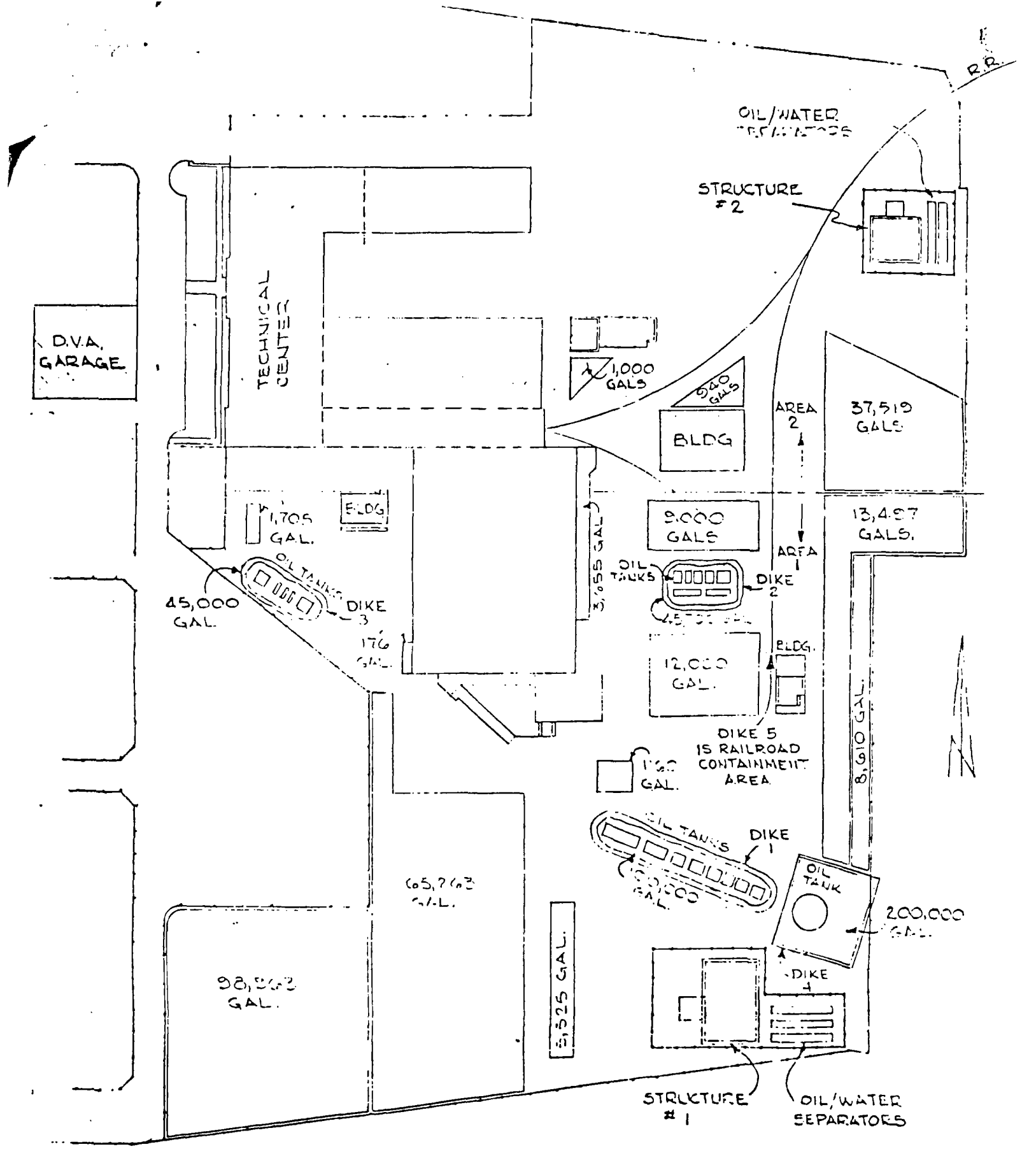
## Stormwater Runoff from South Separator with Chemical Treatment(1)

| Date 1981 | Rainfall Inches Per Day | Total Volume, gal. or Flow, gpd(2) | Total Suspended Solids, mg/l(3) | Total PCB, ug/l(3) |
|---|---|---|---|---|
| 1-19(4) | N.A. | N.A.(11) | 1.0 | 0.7 |
| 1-27 | N.A. | 0 | N.S. | N.S. |
| 1-28 | N.A. | 0 | N.S. | N.S. |
| 1-29 | N.A. | 0 | 19.0 | 2.3 |
| 1-30 | N.A. | 220 | 7.0 | 1.8 |
| 2-02 | N.A. | 37(6) | N.S. | N.S. |
| 2-03 | N.A. | 550 | N.S. | N.S. |
| 2-04 | N.A. | 880 | N.S. | N.S. |
| 2-05 | N.A. | 0 | N.S. | N.S. |
| 2-06 | N.A. | 220 | N.S. | N.S. |
| 2-09 | N.A. | 147(6) | N.S. | N.S. |
| 2-10 | N.A. | 0 | N.S. | N.S. |
| 2-11 | N.A. | 0 | N.S. | N.S. |
| 2-13 | N.A. | 0(9) | N.S. | N.S. |
| 2-17 | N.A. | 743(7) | 9.0 | 2.3 |
| 2-18 | N.A. | 0 | 19.0 | 2.1 |
| 2-19 | N.A. | 880 | 41.0 | 3.8 |
| 2-20 | N.A. | 0 | 40.0 | 3.3 |
| 2-23(5) | 0.5(10) | 220(6) | 3.0 | 0.8 |
| 2-24 | 0.6 | 440 | 39.0 | 3.2 |
| 2-25 | 0 | 4950 | 15.0 | 1.5 |
| 2-26 | 0 | 0 | 14.0 | 2.2 |
| 2-27 | 0.05 | 1320 | 16.0 | 1.7 |
| 3-02 | 0.05(10) | 0(6) | 6.0 | 0.7 |
| 3-03 | 0 | 440 | 20.0 | 1.9 |
| 3-04 | 0.09 | 440 | 18.0 | 2.3 |
| 3-05 | 0 | 0 | 16.0 | 2.4 |
| 3-06 | 0 | 10,670(12) | 10.0 | N.A. |
| 3-09 | 0(10) | 183(6) | 23.0 | 2.0 |
| 3-10 | 0 | 0 | 7.0 | 1.3 |
| 3-11 | 0.06 | 550 | 13.0 | 1.3 |
| 3-12 | 0 | 0 | 16.0 | 4.7 |

N.A. Not available.
N.S. No sample - no flow from separator.
(1) Anionic polymer used, but was changed on 3-19-81 to cationic polymer to provide better TSS removal.
(2) Estimate based on duration of pump operation located in the entrance to the treatment system.
(3) Composite samples are collected at the exit from the treatment, i.e., from the discharge from the oil/water separators.
(4) Grab sample; all others are composites.
(5) Composite sampler changed to shorter time intervals.
(6) 3-day (weekend) average.
(7) 4-day (weekend plus holiday) average.
(8) Electrical problem in timer.
(9) 2-day (holiday) average.
(10) Total since previous measurement.
(11) [illegible]

MAYWOOD TECHNICAL CENTER






TECHNICAL CENTER PROPERTY PLAT
OIL STORAGE AREAS & OIL/WATER SEPARATION FACILITIES

11/8/78