NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION
INACTIVE HAZARDOUS WASTE DISPOSAL REPORT

CLASSIFICATION CODE: 4 REGION: 7 SITE CODE: 704014
EPA ID: NYD002233039

NAME OF SITE : IBM Corp.; Endicott Facility
STREET ADDRESS: 1701 North Street
TOWN/CITY: COUNTY: ZIP:
Endicott (V); Union (T) Broome 13760

SITE TYPE: Open Dump- X Structure- Lagoon- Landfill- Treatment Pond-
ESTIMATED SIZE: 220 Acres

SITE OWNER/OPERATOR INFORMATION:
CURRENT OWNER NAME....: IBM Endicott Facility
CURRENT OWNER ADDRESS.: IBM Corp. 1701 North St., Endicott, NY
OWNER(S) DURING USE...: same as above
OPERATOR DURING USE...: IBM Endicott Facility
OPERATOR ADDRESS.....: 1701 North St., Endicott, NY
PERIOD ASSOCIATED WITH HAZARDOUS WASTE: From 1940 To 1981

SITE DESCRIPTION:
In December of 1979, a leak developed in an underground distribution pipeline that transported methyl chloroform. IBM estimated that about 4,100 gallons of the raw product flowed into the groundwater as a result. The Company hired an engineering consultant to conduct an intensive hydrogeologic investigation of their facility property and the adjacent area. The consultant discovered that concentrations of methyl chloroform, trichloroethylene, tetrachloroethylene, methylene chloride, freon, benzene, toluene and xylene were found in groundwater contained in the upper alluvial aquifer beneath the IBM main site and extending into residential and commercial areas of the Village of Endicott. The methyl chloroform plume (50 ppb concentration or higher) was identified. It covered an area measuring approximately 2400 feet by 4000 feet. The Company conducted additional investigation work as needed to quantify the contamination problem and identify the most appropriate strategy for remediating the groundwater. Twelve groundwater recovery wells were installed along the perimeter of the plume to recover the contaminated water and prevent the plume from spreading further. The collected groundwater is passed through activated carbon filter units in order to remove the contaminants. Treated effluent is then discharged in compliance with a SPDES permit. Approximately 60,000 gallons of raw solvent has also been recovered at this site.

| HAZARDOUS WASTE DISPOSED: TYPE | Confirmed-X | Suspected- QUANTITY (units) |
|---|---|---|
| Methylene chloride | | unknown |
| Methyl chloroform, trichloroethylene | | unknown |
| Perchloroethylene, toluene, xylene | | unknown |
| Freon | | unknown |
| Benzene | | unknown |

ENDICOTT LANDFILL SITE
ANALYSIS OF INDUSTRIAL CONTRIBUTION

This analysis reviews the available data to determine if the PRP assertion that the problems associated with the landfill are attributable to municipal operations and would be present regardless of the documented and substantial hazardous waste contribution of the PRP's.

The shallow groundwater at the site due to the high water table is the best indicator of leachate quality, although, due to the large volume of groundwater present this is expected to be dilute. The groundwater displays elevated levels of a number of chlorinated organics, notably TCE and its breakdown products DCE and VINYL CHLORIDE, in addition to CHLOROETHANE. The levels of these compounds present are similar to the mean levels of these compounds identified in an EPA study of mixed industrial/municipal waste landfills and significantly higher than the same compounds identified in what were termed municipal waste landfills. The levels of conventional landfill metals, iron, calcium and magnesium, which typically comprise the plume from MSW facilities are noticeably lower in the Endicott groundwater than would be anticipated, likely attributable to the expected dilution. Therefore, while dilution has lowered the typical municipal landfill signature metals from what could be expected, the chlorinated organic levels remain elevated when compared to expected MSW levels and are in fact comparable to industrial landfill levels, not factoring in dilution. This supports the conclusion that the presence of the PRP waste has in fact significantly increased the adverse impact which a strictly municipal would have had in this setting.

1-Municipal landfill indicator metals (iron, calcium and magnesium) are lower than typically encountered in MSW leachate, attributable to the significant dilution anticipated in this high yield, high transport aquifer, while chlorinated organic levels are significantly higher than mean values anticipated from MSW facilities and are comparable to those reported for co-disposal (mixed MSW and industrial) landfills. These levels, even with the dilution evidenced by the metals data, show the impact of the disposal by the PRPs and support the contention that the resultant problems are not the result of the disposal of municipal waste.

2-A signature compound, Freon 113, which is typically used in the electronics industry as a degreasing and flux removal solvent, has been identified in the groundwater contamination at the IBM Endicott facility. This compound has also been identified in sampling of the purge well which is currently operating to intercept the plume heading toward the Ranney Well as well as at other locations in the landfill.

3- A pump and treat system currently operating at the IBM plant is reported to date to have recovered approximately 100,000 gallons of pure product consisting of the various chlorinated organics identified in the attached groundwater monitoring well report for the facility. This system was originally installed to recover a reported spill of about 4000 gallons of methyl chloroform. Once in operation a significant pool of chlorinated solvents was discovered under the site. This clear factual discrepancy illustrates that IBM is without question a significant source of chlorinated organic chemical contamination at its own facility and that these are the same contaminants that are emanating from the landfill it used, and secondly,IBM has an inaccurate assessment of its past chemical handling and disposal activities.

4- Based on available information from the Solid Waste program it is unlikely that the Department would have pursued Endicott for further closure of the landfill had not the subsequent problems been identified. Since these appear attributable to the hazardous waste disposal which has been documented, there should be no incremental cost of the closure attributable to the municipal landfill operation.

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PART 360 VARIANCE JUSTIFICATION ENDICOTT PRAP/ROD

The variance procedure, part 360-1.7(c), describes three (3) conditions which must be satisfied for any applicant to receive a variance from any provisions of Part 360. The variance requested for the Endicott landfill site concerns the use of a soil cap in lieu of the final cover system described in part 360-2.15(b), etc

The following provides a brief explanation of how the proposed remedial action satisfies the variance conditions identified in Part 360-1.7(c) (i-iii):

Variance to Part 360-2.15 (b) Final Cover System

(i) Identify the specific provisions of this Part from which variance is sought.

Response: The remedial action proposed for the Endicott Landfill deviates from the specified cap requirements presented in part 360-2.15 (b).

(ii) Demonstrate that compliance with the identified provisions would, on the basis of the conditions unique to the particular situation , tend to impose an unreasonable economic, technological, or safety burden.

Response: An unreasonable cost burden would be imposed and more importantly a safety hazard could result if a Part 360 cap is required at the Endicott Landfill. The difference in cost between the Part 360 cap and the proposed soil cap is approximately $ million. Based on the evaluation in the RI/FS and other documentation presented, the incremental cost does not provide any significant increase in protection. In addition, the landfill is located immediately adjacent to the Tri-City Airport and must conform to FAA requirements with regard to construction in and adjacent to the approach zone. The additional height required to accommodate the full 360 cap will be precluded by these requirements which are intended to provide for safe use of the airport.

(iii) Demonstrate that the proposed activity will have no significant adverse impact on the public health, safety or the welfare, the environment or natural resources and will be consistent with the provisions of the ECL and the performance expected from application of this Part.

Response: Based on the RI and the health risk assessment, contact with the surface of the landfill does not pose a significant risk therefore, the proposed cap will be sufficient to address direct contact with the landfill materials. The health and environmental impact from this site arises from the

contamination of the groundwater by contact with and leaching from the landfill waste. The landfill is located adjacent to the Susquehanna River and due to the geology of the area any rise of the river level results in a corresponding rise in the groundwater elevation, saturating the landfill waste periodically. Thus since the elimination of infiltration will not and eliminate the impact on the groundwater from landfill waste, since this cannot be fully controlled the construction of a part 360 cap is not justified. The proposed cap, a 12 inch low permeability soil layer with a 6 inch topsoil cover, and synthetic membrane lined swales which will serve to maximize runoff and transpiration and minimize infiltration will provide adequate and cost effective control of the generation of leachate from the waste when it is unsaturated by the rise in groundwater induced by the river.

Landfill gas generation is currently not a problem therefore no gas venting layer will be required but gas vents will be installed at a minimum on a one per acre basis.

Variance to Part 360-2.15 (i) (2) (ii)-Four (4) percent slope

The request for a variance to the requirement for a four percent minimum slope for the cap to be constructed as part of the proposed remedial action is denied.

This denial is based on the need to maintain positive drainage from the landfill surface both to maintain the effectiveness of the protection offered by the cap and to ensure the long term reliability of the system. The basis for the variance to the construction requirements of the Part 360 cap was granted based upon the condition that the soil cap be constructed of low permeability material and promote runoff transpiration and to minimize infiltration. A cap at less than the four percent minimum slope will not reliably meet these conditions. positive drainage must be maintained not only to minimize the infiltration but to drain the cap so as to prevent ponding or saturation of the soil which could lead to frost heaves or other structural failure of the system. If properly designed and configured, utilizing the existing topography and with limited excavation, the cap system can be constructed as a series of low rises and swales maintaining minimum profiles to avoid any impact on the adjacent airfield.

Analysis by Triton Laboratory, except as noted

Payne Well Pumping @ 600 GPM
All results in ug/l (ppb)

| DATE | LOCATION | VINYL CHLORIDE | CHLORO-ETHANE | TRANS-1,2 DICHLORO-ETHENE | TRI-CHLORO-ETHENE | 1,1-DI-CHLORO-ETHANE | 1,1,1-TRI-CHLORO-ETHANE | METHYLENE CHLORIDE | 1,1-DI-CHLORO-ETHENE | 1,2-DI-CHLORO-ETHANE | CHLORO-FORM | OTHER HALO-HYDROCARBONS | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9/2/86 | PURGE | 19 | 75 | 70 | | 22 | | | | | | | |
| | B-13 | | | | | | | | | | | | |
| | BARNEY | | | | | | | | | | | | |
| | PURGE | | | | | | | | | | | | |
| 9/16/86 | BARNEY | <1 | | 4 | 2 | 2 | | | | | 1 | | |
| | PURGE | 5 | 150 | 102 | 1 | 26 | | | | | | | |
| | B-3 | | | | | | | | | | | | |
| | B-12 | | 463 | 10 | | 30 | | 6 | | 1 | | | |
| | B-13 | 3 | 8 | 64 | | 27 | | | | | | | |
| 9/30/86 | BARNEY | | Present | 2 | | | | | | | 2 | | Bromodichloromethane 2ug/L, Dichlorofluoro-methane 2ug/L |
| | PURGE | | | 19 | | 9 | | | 1 | | | | Dichlorofluoromethane 70ug/L |
| 10/15/86 | BARNEY | | | 2 | | | | | | | 2 | | Bromodichloromethane 2 ug/L, Dichlorodifluoro-methane 3 ug/L |
| | PURGE | | | 17 | | 8 | | | | | | | Dichlorodifluoromethane 83 ug/L |
| | B-3 | | | | | | | | | | | | |
| | B-12 | | | 3 | | | | 2 | | 2 | | | |
| | B-13 | | | 43 | | 15 | | | | 2 | | | Dichlorodifluoromethane 9 ug/L |
| 10/29/86 | BARNEY | | | 2 | | | | | | | 1 | | Dichlorodifluoromethane Purge |
| | PURGE | 49 | | 42 | 1 | 13 | | | | | | | |
| 11/13/86 | BARNEY | | | | | 2 | | | | | | | |
| | PURGE | | | | | 91 | | | 11 | | | | |
| | B-12 | | | | | 24 | | | 16 | | | | |
| | B-13 | | | | | 137 | | | 19 | | | | |
| | B-3 | | | | | | | | | | | | |

Data Obtained from Village of Endicott Water Department
Analysis by Friend Laboratory, except as noted

Purge Well Pumping @ 600 GPM
All results in ug/l (ppb)

| DATE | LOCATION | VINYL CHLORIDE | CHLORO-ETHANE | TRANS-1,2 DICHLORO-ETHENE | TRI-CHLORO-ETHENE | 1,1-DI-CHLORO-ETHANE | 1,1,1-TRI-CHLORO-ETHANE | METHYLENE CHLORIDE | 1,1-DI-CHLORO-ETHENE | 1,2-DI-CHLORO-ETHANE | CHLORO-FORM | OTHER HALOMETHANES | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6/24/86 | RANNEY | | | 3 | | 1 | | | | | 2 | | Trichlorofluoromethane 2 ug/L |
| | PURGE | 60 | 120 | 62 | | 11 | | | | | | | |
| | B-3 | 1 | 4 | 26 | | 8 | | 1 | | | | | |
| | B-13 | | | | | | | | | | | | |
| | B-12 | 23 | 120 | 8 | | 14 | | 2 | | | | | Bromodichloromethane <3 ug/L |
| 7/8/86 | RANNEY | | | 2 | 1 | | | | | | | | Trichlorofluoromethane 1 ug/L, Bromoform <3 ug/L |
| | PURGE | 61 | 65 | 69 | 1 | 9 | | 2 | | | 1 P | | |
| 7/23/86 | RANNEY | 1 | | 3 | | 1 | | | | | 2 | | |
| | PURGE | | | | | | | | | | | | |
| | B-3 | | | | | | | | | | | | |
| | B-12 | 5 | 93 | | | 15 | | 3 | | | | | |
| | B-13 | 4 | 1 | 59 | | 14 | | | | | | | |
| 8/5/86 | RANNEY | | | 2 | | | | | | | | | |
| | PURGE | 7 | 70 | 59 | | 12 | | | | 1 | | | |
| 8/19/86 | B-3 | | | | | | | | | | | | |
| | B-12 | 3 | >10 | | | 16 | | 3 | | | | | |
| | B-13 | 2 | >10 | | | 15 | | 1 | | 2 | | | |
| | RANNEY | | | | | | | | | | | | |
| | PURGE | 55 | >10 | | | 14 | | 3 | | | | | |
| 9/2/86 | B-13 | | | | | | | | | | | | |
| | B-3 | | | | | | | | | | | | |
| | RANNEY | | | 3 | 1 | 2 | 1 | | | | 2 | | |

Data Obtained from Village of Endicott Water Department
Analysis by Friend Laboratory, except as noted

Purge Well Pumping @ 600 GPM
All results in ug/l (ppb)

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| DATE | LOCATION | VINYL CHLORIDE | CHLORO-ETHANE | TRANS-1,2 DICHLORO-ETHENE | TRI-CHLORO-ETHYLENE | 1,1-DI-CHLORO-ETHANE | 1,1,1-TRI-CHLORO-ETHANE | METHYLENE CHLORIDE | 1,1-DI-CHLORO-ETHYLENE | 1,2-DI-CHLORO-ETHANE | CHLORO-FORM | BROMO-DICHLORO-METHANE | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4/1/86 | RAINEY | 1 | 1 | 2 | | 1 | | 1 | | | 2 | | Bromoform 5ug/L |
| | B-13 | 2 | 2 | 3 | | 14 | | 1 | | 1 | 1 | | Bromodichloromethane 2ug/L |
| | B-3 | | | | | | | | | | | | |
| | B-12 | | | | | | | | | | | | |
| | PURGE | 43 | 28 | 98 | | 13 | | 2 | | | | | Bromodichloromethane 2ug/L |
| 4/15/86 | RAINEY | | | 2 | 1 | 1 | | | | | | | |
| | PURGE | 39 | 50 | 120 | | 15 | | 3 | | | 1 | | |
| 4/24/86 | B-3 | 6 | 3 | 13 | | 6 | | 1 | | 3 | | | |
| | B-13 | 6 | 4 | 10 | | 14 | | 1 | | | | | |
| | B-12 | 5 | 12 | 2 | | 3 | | 1 | | 2 | | | |
| | PURGE | 75 | 50 | 100 | 1 | 16 | | 2 | | | | | |
| | RAINEY | 3 | | 2 | 1 | 1 | | 2 | | 2 | | | |
| 5/13/86 | RAINEY | 1 | | | 1 | | | | | | | | |
| | PURGE | 97 | 84 | 60 | 1 | 12 | | 1 | | 1 | | | |
| 5/29/86 | RAINEY | 2 | | 2 | 1 | 1 | 1 | | | | 3 | | Bromodichloromethane 4 ug/L |
| | PURGE | 90 | 120 | 64 | 1 | 60 | | | | | | | |
| | B-3 | 5 | 4 | 38 | | 10 | | | | | | | |
| | B-12 | 110 | 460 | 81 | 2 | 26 | | 1 | | | | | |
| | B-13 | 9 | 20 | 96 | 2 | 20 | | | | | | | |
| 6/10/86 | PURGE | 39 | 73 | 38 | 5 | | 7 | 2 | | 15 | 7 | | Trichlorofluoromethane 2 ug/L |
| | RAINEY | | | 3 | 2 | | 1 | | 1 | | 2 | | |
| | RAINEY | | | | | | | | | | | | |
| | B-3 | | | | | | | | | | | | |
| | B-12 | | | | | | | | | | | | |

Data Obtained from Village of Endicott Water Department
Analysis by Triend Laboratory, except as noted

Purge Well Pumping @ 600 GPM
All results in ug/l (ppb)

| DATE | LOCATION | VINYL CHLORIDE | CHLORO-ETHANE | TRANS-1,2 DICHLORO-ETHENE | 1&1-CHLORO-ETHENE | 1,1-DI-CHLORO-ETHANE | 1,1,1-TRI-CHLORO-ETHANE | METHYLENE CHLORIDE | 1,1-DI-CHLORO-ETHENE | 1,2-DI-CHLORO-ETHANE | CHLORO-FORM | OTHER VOLATILE ORGANICS | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 06-Nov-85 | B-12 | 20 | 260 | 45 | 7 | 21 | | 3 | | | | | |
| 12-Nov-85 | PURGE | | | | | | | | 140 | | | 3 | |
| | RANNEY | | | | | | | | 19 | | | | TRICHLOROFLUOROMETHANE: 1 ug/l |
| 26-Nov-85 | B-12 | 43 | 730 | 9 | | 33 | | | | | | | |
| | B-13 | | | | | | | 14 | | | 10 | | |
| | B-3 | | | 24 | | | | | | | | | |
| | PURGE | 79 | 35 | 11 | | 2 | | 3 | | | | | |
| | RANNEY | | | | 1 | | | | | | 5 | | |
| 10-Dec-85 | RANNEY | | | | 1 | 1 | | | | | | | |
| 23-Dec-85 | RANNEY | | | | | 3 | | | | | | | |
| | PURGE | 7 | 39 | | | 56 | | | 10 | | | | |
| 08-Jan-86 | RANNEY | | | 2 | 1 | 1 | | | | | | | |
| | PURGE | 45 | 49 | 56 | | 12 | | 2 | 1 | | | | TRICHLOROFLUOROMETHANE: 1 ug/l |
| | B-3 | 3 | 1 | 16 | | 0 | | | | | | | |
| | B-12 | | 130 | 1 | | 15 | | 4 | 1 | | | | |
| | B-13 | 2 | 6 | 2 | | 19 | | | 1 | | | | |

TABLE 6.7



SUMMARY OF SELECTED CHEMICAL TEST DATA: UPPER FILL/SOIL GROUNDWATER ZONE[1]

| COMPOUND | FREQUENCY[2] (%) | (N'/N) | RANGE OF CONCENTRATIONS[3] (mg/l) |
|---|---|---|---|
| Acetone | 25.0 | 6/24 | 0.0013J - 0.04 |
| Aluminum, Dissolved | 35.7 | 5/14 | 0.0394X - 0.174X |
| Antimony, Dissolved | 44.4 | 8/18 | 0.0160X - 0.0319X |
| Arsenic, Dissolved | 61.1 | 11/18 | 0.0033X - 0.105 |
| Barium, Dissolved | 94.7 | 18/19 | 0.0430X - 26.7 |
| Benzene | 50.0 | 12/24 | 0.0011J - 0.024 |
| Benzoic Acid | 10.5 | 2/19 | 0.0220J - 0.033J |
| Beryllium,Dissolved | 11.1 | 2/18 | 0.0010X - 0.0017X |
| Bis(2-chloroisopropyl)ether | 5.3 | 1/19 | 0.0028J |
| Bis(2-ethylhexyl)phthalate (DEHP) | 73.7 | 14/19 | 0.0010J - 0.31 |
| 2-Butanone | 8.3 | 2/24 | 0.0035JB - 0.0039J |
| Calcium, Dissolved | 100.0 | 14/14 | 52 - 191 |
| Carbon Disulfide | 4.2 | 1/24 | 0.0011J |
| 4-Chloro-3-methylphenol | 10.5 | 2/19 | 0.0018J - 0.0039J |
| Chlorobenzene | 41.7 | 10/24 | 0.0013J - 0.025 |
| Chloroethane | 66.7 | 16/24 | 0.012 - 0.17 |
| Chloromethane | 4.2 | 1/24 | 0.0075J |
| Chromium, Dissolved | 26.3 | 5/19 | 0.0037X - 0.012 |
| Cobalt, Dissolved | 85.7 | 12/14 | 0.0028X - 0.017X |
| Copper, Dissolved | 11.1 | 2/18 | 0.0076X - 0.067 |
| Di-n-Butylphthalate | 10.5 | 2/19 | 0.0011J - 0.0025J |
| Di-n-octyl phthalate | 15.8 | 3/19 | 0.0020J - 0.0050J |
| 1,4-Dichlorobenzene | 47.4 | 9/19 | 0.0010J - 0.0098J |
| 1,1-Dichloroethane | 25.0 | 6/24 | 0.0070 - 0.20 |
| 1,2-Dichloroethane (EDC) | 4.2 | 1/24 | 0.0021J |
| Trans-1,2-Dichloroethene | 4.2 | 1/24 | 0.0030J |
| Diethylphthalate | 68.4 | 13/19 | 0.0014J - 0.088 |
| 2,4-Dimethylphenol | 21.1 | 4/19 | 0.0027J - 0.0072J |
| Ethylbenzene | 54.2 | 13/24 | 0.0012J - 0.14 |
| 2-Hexanone | 8.3 | 2/24 | 0.0024J - 0.0034J |

TABLE 6.7 (Continued)

SUMMARY OF SELECTED CHEMICAL TEST DATA: UPPER FILL/SOIL GROUNDWATER ZONE[1]

| COMPOUND | FREQUENCY[2] (%) | (N'/N) | RANGE OF CONCENTRATIONS[3] (mg/l) |
|---|---|---|---|
| Iron, Dissolved | 100.0 | 14/14 | 0.456 - 28.8 |
| Lead, Dissolved | 15.8 | 3/19 | 0.0057 - 0.028 |
| Magnesium, Dissolved | 100.0 | 15/15 | 20 - 661 |
| Manganese, Dissolved | 100.0 | 14/14 | 0.0292X - 0.551 |
| Methylene Chloride | 70.8 | 17/24 | 0.0018JB - 0.022B |
| 2-Methylnaphthalene | 15.8 | 3/19 | 0.0011J - 0.0020J |
| 4-Methylphenol | 5.3 | 1/19 | 0.0070J |
| Naphthalene | 42.1 | 8/19 | 0.0021J - 0.013J |
| Nickel, Dissolved | 77.8 | 14/18 | 0.0108X - 0.152 |
| N-Nitrosodiphenylamine | 47.4 | 9/19 | 0.0010J - 0.0086JB |
| Potassium, Dissolved | 100.0 | 14/14 | 1.53 - 598 |
| Selenium, Dissolved | 5.6 | 1/18 | 0.0058 |
| Silver, Dissolved | 5.6 | 1/18 | 0.0031X |
| Sodium, Dissolved | 100.0 | 14/14 | 18.5 - 597 |
| Toluene | 37.5 | 9/24 | 0.0014J - 0.016J |
| 1,1,1-Trichloroethane | 16.7 | 4/24 | 0.0015J - 0.11 |
| Trichloroethene | 8.3 | 2/24 | 0.020 - 0.026 |
| Vanadium, Dissolved | 14.3 | 2/14 | 0.0054X - 0.0087X |
| Xylenes (Mixed) | 62.5 | 15/24 | 0.0032J - 0.30 |
| Zinc, Dissolved | 94.7 | 18/19 | 0.0107X - 1.61 |

TABLE 6.8 (Continued)

SUMMARY OF SELECTED CHEMICAL TEST DATA: LOWER SOIL GROUNDWATER ZONE[1]

| COMPOUND | FREQUENCY[2] (%) | (N'/N) | RANGE OF CONCENTRATIONS[3] (mg/l) |
|---|---|---|---|
| Iron, Dissolved | 96.6 | 28/29 | 0.0331X - 141 |
| Lead, Dissolved | 14.3 | 5/35 | 0.0055 - 0.0796 |
| Magnesium, Dissolved | 100.0 | 31/31 | 31.5 - 459 |
| Manganese, Dissolved | 100.0 | 29/29 | 0.0524 - 2.18 |
| 4-Methyl-2-Pentanone | 8.9 | 4/45 | 0.052 - 0.36 |
| Methylene Chloride | 86.7 | 39/45 | 0.0010J - 0.18B |
| 2-Methylnaphthalene | 3.8 | 1/26 | 0.0022J |
| 4-Methylphenol | 23.1 | 6/26 | 0.0037J - 4.7 |
| Naphthalene | 3.8 | 1/26 | 0.040J |
| Nickel, Dissolved | 78.8 | 26/33 | 0.0061X - 0.276 |
| N-Nitrosodiphenylamine | 42.3 | 11/26 | 0.0010J - 0.16JB |
| Phenol | 19.2 | 5/26 | 0.0061J - 0.59J |
| Phenols, Total | 30.0 | 6/20 | 0.017 - 1.87 |
| Potassium, Dissolved | 100.0 | 29/29 | 0.729X - 33.4 |
| Silver, Dissolved | 15.2 | 5/33 | 0.0035X - 0.0085X |
| Sodium, Dissolved | 100.0 | 29/29 | 4.70X - 954 |
| Tetrachloroethene | 2.2 | 1/45 | 0.026J |
| Toluene | 13.3 | 6/45 | 0.0029J - 1.90B |
| 1,1,1-Trichloroethane | 6.7 | 3/45 | 0.0012J - 0.058 |
| Trichloroethene | 6.7 | 3/45 | 0.011 - 0.099 |
| Vanadium, Dissolved | 6.9 | 2/29 | 0.0058X - 0.0086X |
| Vinyl Chloride | 8.9 | 4/45 | 0.0035J - 0.48 |
| Xylenes (Mixed) | 8.9 | 4/45 | 0.027J - 0.13 |
| Zinc, Dissolved | 100.0 | 35/35 | 0.0155X - 4.35 |

NOTES: Refer to Table 6.7.

TABLE 6.8

SUMMARY OF SELECTED CHEMICAL TEST DATA: LOWER SOIL GROUNDWATER ZONE[1]

| COMPOUND | FREQUENCY[2] (%) | (N'/N) | RANGE OF CONCENTRATIONS[3] (mg/l) |
|---|---|---|---|
| Acetone | 42.2 | 19/45 | 0.0030JB - 2.3 |
| Aluminum, Dissolved | 51.7 | 15/29 | 0.0280X - 0.102X |
| Antimony, Dissolved | 51.5 | 17/33 | 0.0171X - 0.0468X |
| Arsenic, Dissolved | 27.3 | 9/33 | 0.0049X - 0.092 |
| Barium, Dissolved | 94.3 | 33/35 | 0.0484X - 0.824 |
| Benzene | 20.0 | 9/45 | 0.0016J - 0.017J |
| Beryllium,Dissolved | 3.0 | 1/33 | 0.0013X |
| Bis(2-ethylhexyl)phthalate (DEHP) | 57.7 | 15/26 | 0.0010JB - 0.25B |
| 2-Butanone | 13.3 | 6/45 | 0.0035JB - 13 |
| Cadmium, Dissolved | 6.1 | 2/33 | 0.0040X - 0.0061 |
| Calcium, Dissolved | 100.0 | 29/29 | 0.00125 - 961 |
| Chloroethane | 48.9 | 22/45 | 0.0023J - 0.10 |
| Chloroform | 2.2 | 1/45 | 0.0015J |
| Chromium, Dissolved | 22.9 | 8/35 | 0.0035X - 0.0209 |
| Cobalt, Dissolved | 48.3 | 14/29 | 0.0020X - 0.0197X |
| Copper, Dissolved | 42.4 | 14/33 | 0.0036X - 0.027 |
| Di-n-Butylphthalate | 3.8 | 1/26 | 0.0025J |
| 1,1-Dichloroethane | 42.2 | 19/45 | 0.0012J - 0.34 |
| 1,2-Dichloroethane (EDC) | 2.2 | 1/45 | 0.0015J |
| 1,1-Dichloroethene | 2.3 | 1/44 | 0.0037J |
| Trans-1,2-Dichloroethene | 24.4 | 11/45 | 0.0038J - 0.16 |
| 1,2-Dichloropropane | 2.2 | 1/45 | 0.0035J |
| Diethylphthalate | 3.8 | 1/26 | 0.0190J |
| Dimethyl Phthalate | 11.5 | 3/26 | 0.0010J - 0.05J |
| Ethylbenzene | 8.9 | 4/45 | 0.0240J - 0.046 |
| 2-Hexanone | 8.9 | 4/45 | 0.0064J - 0.037 |

composes); vapor density 6.414; volatility 18,000 mg/cu m (20°C). Insoluble in water. Nonflammable, but supports combustion.
Derivation: Chlorination of carbon disulfide, thiophosgene, or methyl thiocyanate.
Grade: Technical.
Containers: Steel bottles.
Hazard: Highly toxic by ingestion and inhalation; strong irritant to eyes and skin. Tolerance, 0.1 ppm in air.
Uses: Organic synthesis; dye intermediate; fumigant.
Shipping regulations: (Rail, Air) Poison label. Not acceptable passenger. Legal label name perchloromethyl mercaptan.

**trichloronaphthalene.** See chlorinated naphthalene.

**trichloronitromethane.** See chloropicrin.

**trichloronitrosomethane** $CCl_3NO$.
Properties: Dark blue liquid. Unpleasant odor. Slowly decomposes, but is more stable in solution. Soluble in alcohol, benzene, ether; insoluble in water. Sp. gr. 1.5 (20°C); b.p. 5°C (70 mm).
Derivation: Interaction of sulfuric acid, sodium trichloromethylsulfinate, and sodium nitrate.
Grade: Technical.
Hazard: Strong irritant to eyes and tissue.
Uses: Organic synthesis; military poison gas (lachrymator).

**trichlorononylsilane.** See nonyl trichlorosilane.

**trichloroöctadecylsilane.** See octadecyltrichlorosilane.

**trichloroöctylsilane.** See octyl trichlorosilane.

**2,4,5-trichlorophenol** $C_6H_2Cl_3OH$.
Properties: Gray flakes in sublimed mass with a strong phenolic odor; sp. gr. (25/4°C) 1.678; b.p. 252°C; m.p. 68–70°C; no flash point. Soluble in alcohol, ether, and acetone. Nonflammable.
Hazard: May cause skin irritation.
Uses: Fungicide, bactericide.

**2,4,6-trichlorophenol** (2,4,6-T). $C_6H_2Cl_3OH$.
Properties: Yellow flakes with strong phenolic odor; sp. gr. (25/4°C) 1.675; f.p. 61°C; b.p. 248–249°C; no flash point. Soluble in acetone, alcohol, and ether. Nonflammable.
Hazard: May cause skin irritation.
Use: Fungicide, herbicide, defoliant.

**2,4,5-trichlorophenoxyacetic acid** (2,4,5-T) $C_6H_2Cl_3OCH_2CO_2H$.
Properties: Light tan solid; m.p. 151–153°C; soluble in alcohol; insoluble in water; available as sodium and amine salts.
Hazard: Toxic. Tolerance, 10 mg per cubic meter of air. Use has been restricted.
See also dioxin.
Uses: Plant hormone; herbicide; defoliant.

**2-(2,4,5-trichlorophenoxy)ethyl 2,2-dichloropropionate.** See erbon.

**2-(2,4,5-trichlorophenoxy)propionic acid.** See silvex.

**2,4,5-trichlorophenyl acetate** $C_6H_2Cl_3OOCCH_3$.
Hazard: May be toxic.
Use: As fungicide, especially on cotton seed.

**1,2,3-trichloropropane** $CH_2ClCHClCH_2Cl$.
Properties: Colorless liquid; sp. gr. 1.3888 (20/4°C); f.p. −15°C; b.p. 156.17°C; refractive index (n 20/D) 1.4822. Flash point (COC) 180°F (82.2°C). Slightly soluble in water; dissolves oils, fats, waxes, chlorinated rubber and numerous resins. Combustible. Autoignition temp. 580°F (304°C).
Derivation: Chlorination of propylene.
Hazard: Toxic by inhalation, and skin absorption. Strong irritant. Tolerance, 50 ppm in air.
Uses: Paint and varnish remover; solvent; degreasing agent.

**trichlorosilane**
(1) $SiHCl_3$ (silicochloroform).
Properties: Colorless, volatile liquid; sp. gr. 1.336; f.p. −127°C; b.p. 32°C; refractive index 1.3990. Soluble in benzene, ether, heptane, perchloroethylene; decomposed by water. Flash point 7°F (−13.9°C). Purity of 99.9999% is commercially attainable.
Containers: To 55-gal drums.
Hazard: Flammable, dangerous fire risk. Moderately toxic.
Uses: Intermediate; purification of silicon.
Shipping regulations: (Rail, Air) Flammable Liquid label. Not acceptable passenger.
(2) Generic name for compounds of the formula $RSiCl_3$ of which methyl trichlorosilane, $CH_3SiCl_3$, is most important.

**N,N′,N″-trichloro-2,4,6-triamine-1,3,5-triazine.** See trichloromelamine.

**2,4,6-trichloro-1,3,5-triazine.** See cyanuric chloride.

**1,3,5-trichloro-s-triazine-2,4,6-trione.** See trichloroisocyanuric acid.

**trichlorotrifluoroacetone** (1,1,3-trichloro-1,3,3-trifluoroacetone) $CCl_2FCOCClF_2$.
Properties: Colorless liquid; b.p. 84.5°C; f.p. below −78°C. Soluble in all proportions with water and most organic solvents. Stable to acid but not alkalies. Nonflammable.
Hazard: Strong irritant to eyes.
Uses: Solvent in acid media; complexing agent.

**1,1,2-trichloro-1,2,2-trifluoroethane** (trifluorotrichloroethane) $CCl_2FCClF_2$.
Properties: Colorless, nearly odorless, volatile liquid. B.p. 47.6°C; f.p. −35°C; critical pressure 33.7 atm; sp. gr. 1.42 (25°C). Noncombustible.
Derivation: From perchloroethylene and hydrofluoric acid.
Grades: Technical; spectrophotometric.
Containers: Drums.
Hazard: Tolerance, 1000 ppm in air.

Uses: Dry-cleaning solvent; fire extinguishers; to make chlorotrifluoroethylene; blowing agent; polymer intermediate; solvent drying; drying electronic parts and precision equipment.

**tricholine citrate** (tris(2-hydroxyethyl)trimethylammonium citrate) $[(CH_3)_3NCH_2CH_2OH]_3 \cdot C_6H_5O_7$.
Containers: Carboys (65% solution); drums.
Uses: Medicine; nutrition.

**tricobalt tetraoxide.** See cobalto-cobaltic oxide.

**tricosane** $CH_3(CH_2)_{21}CH_3$.
Properties: Glittering leaflets. Soluble in alcohol; insoluble in water. Sp. gr. 0.779 (48°C); b.p. 234°C (15 mm); m.p. 48°C. Combustible.
Grade: Technical.
Containers: Bottles; fiber containers.
Use: Organic synthesis.

**n-tricosanoic acid** $CH_3(CH_2)_{21}COOH$. A saturated fatty acid not normally found in natural fats or oils. Synthetic compound is a white crystalline solid; m.p. 79.1°C. Purified product is used in medical research and as reference standard for gas chromatography.

**tri-meta, para-cresyl borate** $(CH_3C_6H_4)_3BO_3$.
Properties: Light amber liquid; sp. gr. 1.065 (25°C); b.p. 385–395°C; refractive index 1.5480 (24°C); flash point 240°F (115.5°C) (COC). Soluble in all proportions in acetone, benzene, chloroform, hydrolyzes on contact with $H_2O$. Combustible.
Containers: 55-gal drums.
Hazard: Moderately toxic.
Uses: Plasticizer; organic synthesis.

**tricresyl phosphate** (tritolyl phosphate; TCP) $(CH_3C_6H_4O)_3PO$. A mixture of isomers.
Properties: Practically colorless, odorless liquid. Stable, nonvolatile. B.p. 420°C; refractive index 1.556 (25°C); sp. gr. 1.162 (25/25°C); wt/gal 9.7 lb; crystallizing point below −35°C. Miscible with all the common solvents and thinners, also with vegetable oils; insoluble in water. Flash point 437°F (225°C); autoignition temp. 770°F (410°C). Combustible.
Derivation: From cresol and phosphorus oxychloride.
Containers: 1-, 5-, 55-gal drums; tank cars.
Hazard: Moderately toxic by ingestion and skin absorption. The ortho isomer is highly toxic; its tolerance is 0.1 mg per cubic meter of air.
Uses: Plasticizer for polyvinyl chloride, polystyrene, nitrocellulose; fire retardant for plastics; air filter medium; solvent mixtures; waterproofing; additive to extreme pressure lubricants; hydraulic fluid; heat exchange medium.

**tricresyl phosphite** $(CH_3C_6H_4O)_3P$.
Properties: Colorless liquid; slight phenolic odor. B.p. (0.11 mm) 191°C; sp. gr. (20/4°C) 1.115; flash point (open cup) 440°F (226.6°C). Insoluble in water; miscible with acetone, alcohol, benzene, ether, and kerosine. Combustible.
Grade: Technical.
Uses: Stabilizer and plasticizer for plastics and resins.

**tricyanic acid.** See cyanuric acid.

**tricyclic.** An organic compound comprised of three (only) ring structures, which may be the same or different, e.g., anthracene.

**sym-tricyclodecane.** See adamantane.

**tricyclohexyl borate.** See boric acid ester.

**n-tridecane** $CH_3(CH_2)_{11}CH_3$.
Properties: Colorless liquid. Soluble in alcohol; insoluble in water. Sp. gr. 0.755 (20/4°C); b.p. 225.5°C; f.p. −5.45°C; refractive index 1.4250 (20/D); flash point 175°F (79.4°C). Combustible; low toxicity.
Grades: 95%; 99%; research.
Containers: Glass bottles; 1-, 5-gal drums.
Uses: Organic synthesis; distillation chaser.

**n-tridecanoic acid** (tridecylic acid; tridecoic acid) $CH_3(CH_2)_{11}COOH$. A saturated fatty acid usually prepared synthetically.
Properties: Colorless crystals; m.p. 44.5°C; sp. gr. 0.8458 (80/4°C); b.p. 312.4°C, 192.2°C (16 mm); refractive index 1.4328 (50°C). Slightly soluble in water; soluble in alcohol and ether. Combustible; low toxicity.
Grade: 99% pure.
Uses: Organic synthesis; medical research.

**tridecanol.** See tridecyl alcohol.

**tridecoic acid.** See n-tridecanoic acid.

**tridecyl alcohol** (tridecanol). A commercial mixture of isomers of the formula $C_{12}H_{25}CH_2OH$.
Properties: Low-melting white solid with pleasant odor; b.p. 274°C; m.p. 31°C; sp. gr. (20/20°C) 0.845; wt/gal 7.0 lb; flash point (TOC) 180°F (82.2°C). Combustible; low toxicity.
Derivation: Oxo process (q.v.) from $C_{15}$ hydrocarbons.
Grade: Technical.
Containers: 55-gal drums.
Uses: Esters for synthetic lubricants; detergents; antifoam agent; other tridecyl compounds; perfumery.

**tridecylbenzene** (1-phenyltridecane) $C_6H_5(CH_2)_{12}CH_3$.
Properties: Colorless liquid; sp. gr. 0.85–0.86 (60/60°F); refractive index 1.4815–1.4830. Combustible.
Use: Detergent intermediate.

**tridecylic acid.** See n-tridecanoic acid.

**tri(decyl) orthoformate** $CH(OC_{10}H_{21})_3$.
Properties: Liquid; b.p. 194°C; f.p. −15 to −20°C; refractive index 1.448; insoluble in water; soluble in benzene, naphtha, ether, and alcohol.
Use: To remove small quantities of water from ethers or other solvents where acid catalysts can be employed.

**tri(decyl) phosphite** $(C_{10}H_{21}O)_3P$.
Properties: Water-white liquid; decyl al
sp. gr. 0.892 (25/15.5°C); m.p. less
refractive index 1.4565 (25°C). Flash
(235°C). Combustible.
Containers: 55-gal drums.
Uses: Chemical intermediate; stabilizer f
and polyolefin resins.

**2,4,6-tri(dimethylaminomethyl)phenol** $[(CH_3)_2NCH_2]_3C_6H_2OH$.
Properties: Liquid; refractive index 1.518
tible.
Hazard: May be toxic.
Uses: Antioxidants, acid neutralizers, stal
catalysts for epoxy and polyurethane r

**tri(dimethylphenyl)phosphite** (trixylenyl $[(CH_3)_2C_6H_3O]_3PO$.
Properties: Liquid. Sp. gr. 1.155; refra
1.5535; b.p. (10 mm), 243–265°C; flash p
(232°C); solubility in water (85°C),
weight. Combustible.
Use: Plasticizer.

**tridodecyl amine.** See trilauryl amine.

**tridodecyl borate.** See boric acid ester.

**tridymite** $SiO_2$. A vitreous, colorless or w
form of pure silica. Found variously but
monly as quartz (q.v.). Quartz will c
tridymite with a 16.2% increase in volum
Unlike quartz, it is soluble in boiling s
bonate solution. Sp. gr. 2.28–2.3; Mohs

**trietazine.** Generic name for 2-chloro
amino-6-ethylamino-s-triazine
$ClC_3N_3[N(C_2H_5)_2]NHC_2H_5$.
Properties: Solid; practically insoluble
partially soluble in benzene and chlorof
Uses: Herbicide; plant growth regulator.

**triethanolamine** (TEA; tri(2-hydroxyethyl) $(HOCH_2CH_2)_3N$.
Properties: Colorless, viscous, hygrosco
with slight ammoniacal odor; m.p. 21
335°C (dec); vapor pressure <0.01 mm
gr. 1.126; flash point (open cup) 375°F
wt/gal 9.4 lb; miscible with water, alcoh
in chloroform; slightly soluble in benzene
slightly less alkaline than ammonia. C
product contains up to 25% diethanolami
to 5% monoethanolamine. Combustible;
icity.
Derivation: Reaction of ethylene oxide
monia.
Grades: Technical; regular; 98%; U.S.P.
Containers: Drums; tank cars.
Uses: Fatty acid soaps used in drycleaning
ics, household detergents, and emulsio
couring; textile antifume agent and wa
ent; dispersion agent; corrosion inhibito
ng agent, emulsifier; humectant and pl
chelating agent; rubber accelerator; pharm
alkalizing agent.

81-20-2 (1/89) NEW [redacted] SPDES NO. RECEIVED

State Pollutant Discharge Elimination System (SPDES) DEC 18 1989

DISCHARGE PERMIT

EFFLUENT LIMITATIONS AND Special Conditions (Part I)

IBM PLANT SPDES

DIVISION OF WATER
BUREAU OF WASTEWATER FACILITIES
DEC

Industrial Code: 3471
Discharge Class (CL): 3
Toxic Class (TX): T
Major Drainage Basin: 06
Sub Drainage Basin: 03
Water Index Number:
Compact Area: SRBC

SPDES Number: NY- 0005808
DEC Number: 7-0346-00032/00007-0
Effective Date (EDP): September 1, 1989
Expiration Date (ExPD): September 1, 1994
Modification Date(s):
Attachment(s): General Conditions (Part II) Date: 2/85
Revised December 4, 1989

This SPDES permit is issued in compliance with Title 8 of Article 17 of the Environmental Conservation Law of New York State and in compliance with the Clean Water Act, as amended, (33 U.S.C. §1251 et.seq.)(hereinafter referred to as "the Act").

**PERMITTEE NAME AND ADDRESS:** Attention: Plant Engineer, Dept. 699-0034

Name: IBM Corp.
Street: 1701 North Street
City: Endicott State: New York Zip Code: 13760

is authorized to discharge from the facility described below:

**FACILITY NAME AND ADDRESS:**

Name: IBM Corp.
Location (C,T,V): Union (T) County: Broome
Facility Address: 1701 North Street
City: Endicott State: New York Zip Code: 13760
NYTM-E: NYTM-N: 4
From Outfall No. 001 at Latitude: 42° 05' 45" & Longitude: 76° 03' 15"
into receiving waters known as: Susquehanna River ,Class: A

and: (list other Outfalls, Receiving Waters & Water Classifications)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 002 | Susquehanna River | A | 007 | Susquehanna River | A | 012 | Brixius Creek | D |
| 003 | Susquehanna River | A | 008 | Susquehanna River | A | 013 | Susquehanna River | A |
| 004 | Susquehanna River | A | 009 | Susquehanna River | A | 014 | Susquehanna River | A |
| 005 | Susquehanna River | A | 010 | Brixius Creek | D | 015 | Susquehanna River | A |
| 006 | Susquehanna River | A | 011 | Brixius Creek | D | | | |

in accordance with the effluent limitations, monitoring requirements and other conditions set forth in Special Conditions (Part I) and General Conditions (Part II) of this permit.

**DISCHARGE MONITORING REPORT (DMR) MAILING ADDRESS**

Mailing Name: IBM Corp. - Manager, Dept. 451/0961
Street: 1701 North Street
City: Endicott State: New York Zip Code: 13760
Responsible Official or Agent: Vito Spinelli Phone: (607) 755-6266

This permit and the authorization to discharge shall expire on midnight of the expiration date shown above and the permittee shall not discharge after the expiration date unless this permit has been renewed, or extended pursuant to law. To be authorized to discharge beyond the expiration date, the permittee shall apply for permit renewal not less than 180 days prior to the expiration date shown above.

DISTRIBUTION: Water Div., Region 7// EPA - Region II//EPA - NJ// R. Hannaford - BWFD//Broome County Health Dept.//SRBC

Permit Administrator: Deputy
Robert A. Torba
Address:
615 Erie Blvd. West, Syracuse, NY 13204
Signature: Robert A. Torba Date: August 21, 1989

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning September 1, 1989

and lasting until September 1, 1994

the discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

| Outfall Number & Effluent Parameter | Discharge Limitations Daily Avg. | Daily Max. | Units | Minimum Monitoring Requirements Measurement Frequency | Sample Type |
|---|---|---|---|---|---|
| **001 Process & Groundwater Remediation** | | | | | |
| Flow | NA | Monitor | gpd | Continuous | Recorded |
| Chromium, Total | 4 | 8 | lbs/day | Weekly | 24-hr. Comp. |
| Chromium, Hexavalent | 1.0 | 1.9 | lbs/day | Weekly | 24-hr. Comp. |
| Copper, Total | 4 | 8 | lbs/day | Weekly | 24-hr. Comp. |
| Cyanide, Total | 1.0 | 1.9 | lbs/day | Weekly | 24-hr. Comp. |
| Iron, Total | 10 | 15 | lbs/day | Weekly | 24-hr. Comp. |
| Nickel, Total | 10.1 | 20.2 | lbs/day | Weekly | 24-hr. Comp. |
| Oil & Grease | NA | 15 | mg/l | Weekly | Grab |
| Temperature | NA | 90 | °F | Weekly | Grab |
| pH (Range) | 6.0 - 9.0 | | SU | Weekly | Grab |
| 1,2-Dichloroethane | NA | .5 | lbs/day | Monthly | Grab |
| 1,1-Dichloroethylene | .097 | NA | lbs/day | Monthly | Grab |
| Methylene Chloride | NA | .8 | lbs/day | Monthly | Grab |
| Tetrachloroethylene | NA | .17 | lbs/day | Monthly | Grab |
| 1,1,1-Trichloroethane | NA | .17 | lbs/day | Monthly | Grab |
| Trichloroethylene | NA | .17 | lbs/day | Monthly | Grab |
| Benzene | NA | .17 | lbs/day | Quarterly | Grab |
| Toluene | NA | .17 | lbs/day | Quarterly | Grab |
| Trichlorotrifluoroethane | NA | .8 | lbs/day | Quarterly | Grab |
| Xylene | NA | .17 | lbs/day | Quarterly | Grab |
| **002 Cooling Water** | | | | | |
| Flow | NA | Monitor | gpd | Monthly | Instantaneous |
| Temperature | NA | 90 | °F | Monthly | Grab |
| pH (Range) | 6.0 - 9.0 | | SU | Monthly | Grab |
| **003 Cooling Water** | | | | | |
| Flow | NA | Monitor | gpd | Monthly | Instantaneous |
| Temperature | NA | 90 | °F | Monthly | Grab |
| pH (Range) | 6.0 - 9.0 | | SU | Monthly | Grab |
| **004 Storm Runoff** | | | | | |
| Flow | NA | Monitor | gpd | Monthly | Instantaneous |
| Oil & Grease | NA | 15 | mg/l | Monthly | Grab |

AL ____EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

ıe Period Beginning September 1, 1989

ng until September 1, 1994

harges from the permitted facility shall be limited and monitored by the
:e as specified below:

| Number & Parameter | Discharge Limitations Daily Avg. | Daily Max. | Units | Minimum Monitoring Requirements Measurement Frequency | Sample Type |
|---|---|---|---|---|---|
| orm Runoff | | | | | |
| | NA | Monitor | gpd | Monthly | Instantaneous |
| Grease | NA | 15 | mg/l | Monthly | Grab |
| ›oling Tower Blowdown | | | | | |
| | NA | Monitor | gpd | When Discharging | Instantaneous |
| :ature | NA | 90 | °F | When Discharging | Grab |
| ange)* | | 6.0 - 9.0 | SU | When Discharging | Grab |
| ›oling Water | | | | | |
| | NA | Monitor | gpd | Monthly | Instantaneous |
| rature | NA | 90 | °F | Monthly | Grab |
| ange) | | 6.0 - 9.0 | SU | Monthly | Grab |
| ooling Water | | | | | |
| | NA | Monitor | gpd | Monthly | Instantaneous |
| :rature | NA | 90 | °F | Monthly | Grab |
| :ange) | | 6.0 - 9.0 | SU | Monthly | Grab |
| :ooling Water | | | | | |
| | NA | Monitor | gpd | Monthly | Instantaneous |
| erature | NA | 90 | °F | Monthly | Grab |
| Range) | | 6.0 - 9.0 | SU | Monthly | Grab |
| Cooling Water | | | | | |
| | NA | Monitor | gpd | Monthly | Instantaneous |
| erature | NA | 90 | °F | Monthly | Grab |
| Range) | | 6.0 - 9.0 | SU | Monthly | Grab |

Modification Date: 5/21/89

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

ring the period beginning September 1, 1989

l lasting until September 1, 1994

discharges from the permitted facility shall be limited and monitored by the permittee as specified below:

| tfall Number & uent Parameter | Discharge Limitations Daily Avg. | Daily Max. | Units | Minimum Monitoring Requirements Measurement Frequency | Sample Type |
|---|---|---|---|---|---|
| .1 Cooling Water | | | | | |
| ow | NA | Monitor | gpd | Monthly | Instantaneous |
| mperature | NA | 90 | °F | Monthly | Grab |
| l (Range) | 6.0 - 9.0 | | SU | Monthly | Grab |
| .2 Storm Runoff | | | | | |
| ow | NA | Monitor | gpd | Monthly | Instantaneous |
| l & Grease | NA | 15 | mg/l | Monthly | Grab |
| .3 Storm Runoff | | | | | |
| ow | NA | Monitor | gpd | Monthly | Instantaneous |
| l & Grease | NA | 15 | mg/l | Monthly | Grab |
| 14 Cooling Water | | | | | |
| ow | NA | Monitor | gpd | Monthly | Instantaneous |
| mperature | NA | 90 | °F | Monthly | Grab |
| (Range) | 6.0 - 9.0 | | SU | Monthly | Grab |
| 5 Cooling Water | | | | | |
| ow | NA | Monitor | gpd | Monthly | Instantaneous |
| mperature | NA | 90 | °F | Monthly | Grab |
| (Range) | 6.0 - 9.0 | | SU | Monthly | Grab |

Designated as outfall 002A in application.

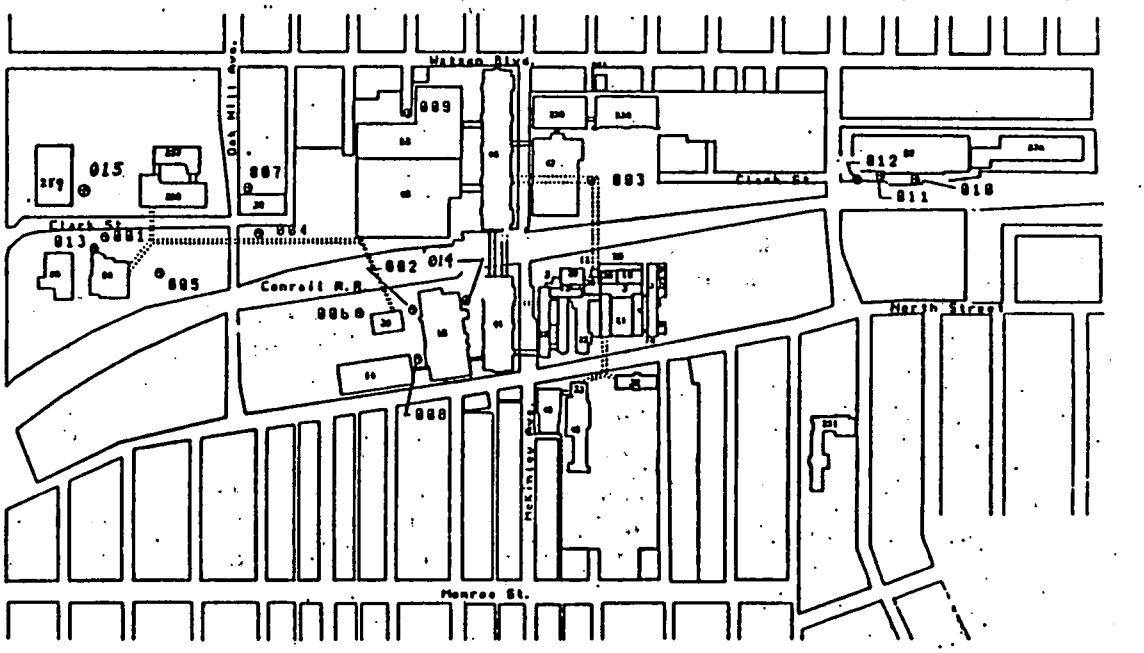
**finition of Daily Average and Daily Maximum**

e daily average discharge is the total discharge by weight or in other appropriate units as specified herein, during a calen- month divided by the number of days in the month that the production or commercial facility was operating. Where less n daily sampling is required by this permit, the daily average discharge shall be determined by the summation of all the asured daily discharges in appropriate units as specified herein divided by the number of days during the calendar month en the measurements were made.

: daily maximum discharge means the total discharge by weight or in other appropriate units as specified herein, during calendar day.

**nitoring Locations**

nittee shall take samples and measurements to meet the monitoring requirements at the location(s) indicated below: )w locations of outfalls with sketch or flow diagram as appropriate).



## RECORDING, REPORTING AND ADDITIONAL MONITORING REQUIREMENTS

a) The permittee shall also refer to the General Conditions (Part II) of this permit for additional information concerning monitoring and reporting requirements and conditions.

b) The monitoring information required by this permit shall be summarized, signed and retained for a period of three years from the date of the sampling for subsequent inspection by the Department or its designated agent. Also;

[X] (if box is checked) monitoring information required by this permit shall be summarized and reported by submitting completed and signed Discharge Monitoring Report (DMR) forms for each 1 month reporting period to the locations specified below. Blank forms are available at the Department's Albany office listed below. The first reporting period begins on the effective date of this permit and the reports will be due no later than the 28th day of the month following the end of each reporting period.

Send the original (top sheet) of each DMR page to:

Department of Environmental Conservation
Division of Water
Bureau of Wastewater Facilities Operations
50 Wolf Road
Albany, New York 12233-3506

Phone: (518) 457-3790

Broome County Health Dept.
Div. of Environmental Health
One Wall Street
Binghamton, NY 13901

Send the first copy (second sheet) of each DMR page to:

Department of Environmental Conservation
Regional Water Engineer
615 Erie Blvd. West
Syracuse, NY 13204

) A monthly "Wastewater Facility Operation Report..." (form 92-15-7) shall be submitted (if box is checked) to the [ ] Regional Water Engineer and/or [ ] County Health Department or Environmental Control Agency listed above.

) **Noncompliance** with the provisions of this permit shall be reported to the Department as prescribed in the attached General Conditions (Part II)

Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

If the permittee monitors any pollutant more frequently than required by the permit, using test procedures approved under 40 CFR Part 136 or as specified in this permit, the results of this monitoring shall be included in the calculations and recording of the data on the Discharge Monitoring Reports.

Calculation for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this permit.

Unless otherwise specified, all information recorded on the Discharge Monitoring Report shall be based upon measurements and sampling carried out during the most recently completed reporting period.

Any laboratory test or sample analysis required by this permit for which the State Commissioner of Health issues certificates of approval pursuant to section five hundred two of the Public Health Law shall be conducted by a laboratory which has been issued a certificate of approval. Inquiries regarding laboratory certification should be sent to the Environmental Laboratory Accreditation Program, New York State Health Department Center for Laboratories and Research, Division of Environmental Sciences , The Nelson A. Rockerfeller Empire State Plaza, Albany, New York 12201.

Likely mtg of IBM / Village week of 4/5

For Lacey
Re Endicott

✓ Analysis —

✓ → Mini Trash

✓ — Toxicity Mini

✓ → Current Leachate vs Mini Leachate

75/25 split

3/29/93
- Population of Town
- Truckloads to Landfill
- IBM - willing 50/50
Jeff Lacey - unacceptable
~~75/25~~
Talk to Solid Waste
Est. Garbage/capita
calculate based on 1985 data
- Pin down pop of Endicott & Union.
- Get average garbage
- Pop estimate
What is profile of typical leachate

- Est. degree of haz sent by IBM & Endicott to LF
- what in this stuff

# ENDICOTT

— Compare

A) Typical leachate vs. Endicott leachate (toxicity)

B) Typical municipal for given population

C) They claim the wastes they deposited didn't have vinyl chloride (but: did it create vinyl chloride)

PULL IT ALL TOGETHER

- ~~Get data~~ from IBM PLANT
- ~~704-014~~ Class 4
  - $m_e Cl$
  - PERC
  - FREON
  - BENZENE
  - TCE
  - Tol / Xyl
  - methyl chloroform

Endicott population ~ 45,000

SI

POTW Discharge limits

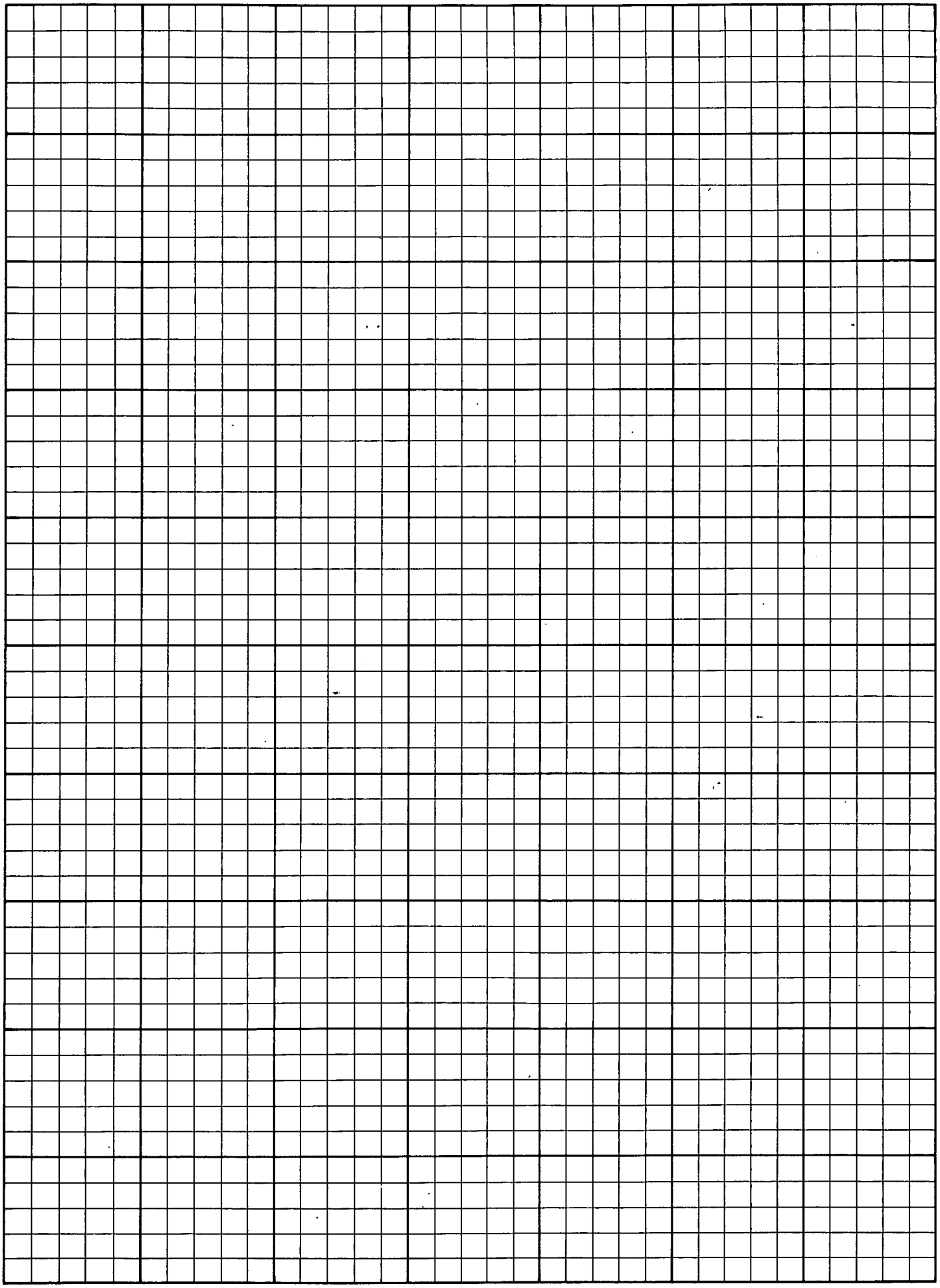
IBM Discharge

Typical Leachate discharge

- Compare
  - Typical leachate vs. end leachate (toxicity)
  - Typical muni volume for sweep pop
- The wastes that they deposited didn't have vinyl chloride
  - what did they dispose
  - created vinyl chloride
  - what is in wells?
  - what is in the leachate seep

pull it all together

- get data from plant
- class 4 - end
  - 7-04-014
    - MeCl
      - PERC
      - FREON
      - BENZENE
      - TCE
      - TOL/Xyl
      - MeChloroform



GIVEN:

1) 6.1 lb/capita/day

2) 52×5 = 260 days/yr

3) 45,000 people in Endicott/Union

4) 1955–1961
   ≈ 1958 estimation

5) Landfill closed in 1977

BASIS

1) Assume all municipal trash comes from per capita at pre-1988 figures of 6.1 lb/day

2) Use an average of 45,000 people for range of 1958 to 1977

3) In 1955 no landfill (aerial photos) in 1961 landfill in operation (aerial)
   ∴ use 1958 as starting date.

CALCULATIONS

$$\frac{6.1\ \text{lbs}}{\text{capita day}} \left| \frac{45{,}000\ \text{capita}}{} \right| \frac{\text{ton}}{2{,}000\ \text{lb}} \left| \frac{260\ \text{days}}{\text{year}} \right. = 35{,}685\ \text{tons/year}$$

municipal refuse

| M.W. | DEPTH OF SCREEN | Top of RISER |
|---|---|---|
| 1 | 70-75 ft | 818.71 |
| 2 | 154-159 ft | 811.17 |
| * 3 | 27- 32 ft | 827.27 |
| 4 | 91-96 ft | 818.12 |
| ** 5 | 17.5-22.5 ft | 821.52 |
| ** 6-S | 17 - 22 ft | 830.16 |
| * 7 | 19-24 ft | 823.75 |
| * 9-S | 14-19 ft | 824.81 |
| ** 10-S | 20-25 ft | 931.34 |
| * 11 | 33-38 ft | 833.60 |
| * 12 | 34-39 ft | 835.81 |
| * 13-S | 14-19 ft | 814.18 |
| 15-D | 30-35 ft | 816.96 |
| 15-S | 9- 14 ft | 817.69 |
| 16 | 25-30 ft | 832.15 |
| 18 | 17-22 ft | 826.19 |
| 19 | 21-26 ft | 830.60 |
| 20 | 30- 35 ft | 833.36 |

7-6716

Wastes from Plant

Wastes present in Landfill

Records from Plant on sludges

Amounts sent to landfill

Industries

Municipal

Landfill

1950's — 1970's

Approximately 50 Acres

Depth of fill _____

pop - 45,000

Town of Union & Endicott

Union

Endicott

Endwell

Leachate Characteristics

- EPA Report
- Sable and Clark

Contacts

Solidwaste — Dennis Wolterding 5-5855

Solidwaste — David O'Toole 7-2051

DOW — Shane Mitchell 7-6716

TRI - SARA

Toxic Release Inventory

Construction — Bill Miner Rm 340

Literature

1986 USEPA Study

Municipal Landfill Leachate

Overall

- Tremendous range for municipal landfill data.
- Bureau of Mun. landfill Permitting
- 1986 EPA Study
- Municipal Subtitled D Landfill leachate

- Sable & Clark 1983

Site : IBM CORP. (SYSTEMS MFG.DIV.)
1701 NORTH STREET
ENDICOTT, NY 13760
County: BROOME
Sortkey : 030520

Public Contact : DOUGLAS MILLER
Phone : (607) 755-3070
SIC Code : 3471
POTW Used : ENDICOTT (V)
Receiving Waterbodies : SUSQUEHANNA RIVER

RCIS # : 7034600032
EPA TRI # : 13706NTRNT1701N
Air Emmissions Permit # : 0346010129
RCRA # : 002233039
SPDES Permit # : 0003808

# Form R Submitted : 18

| CAS Number (Year)<br>Chemical Name<br>Max. Stored on Site (lbs.) | 67561 (89)<br>METHANOL (METHYL ALCOHOL)<br>1 K+ - < 10 K | 67561 (88)<br>METHANOL (METHYL ALCOHOL)<br>Invalid Amount | 71556 (91)<br>1,1,1-TRICHLOROETHANE<br>100 K+ - < 1 M | 71556 (90)<br>1,1,1-TRICHLOROETHANE<br>100 K+ - < 1 M | 71556 (89)<br>1,1,1-TRICHLOROETHANE<br>100 K+ - < 1 M | 71556 (88)<br>1,1,1-TRICHLOROETHANE<br>Invalid Amount |
|---|---|---|---|---|---|---|
| RELEASES TO THE ENVIRONMENT | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year |
| AIR EMISSIONS | | | | | | |
| Fugative or Non Point... | None | None | 52,000 | 54,000 | 57,000 | 943,000 |
| Stack or Point..... | 7,700 | 17,000 | 59,000 | 59,000 | 63,200 | 201,000 |
| DISCHARGES TO WATER | | | | | | |
| Water 1..... | None | None | 1 - 10 | 1 - 10 | None | None |
| Water 2..... | | None | None | None | | None |
| Water 3..... | | | None | None | | |
| UNDERGROUND INJECTION..... | None | None | None | None | None | None |
| RELEASES TO LAND | | | | | | |
| On Site Landfill..... | None | None | None | None | None | None |
| Application Farming..... | None | None | None | None | None | None |
| Surface Impoundment..... | None | None | None | None | None | None |
| Other Disposal..... | None | None | None | None | None | None |
| OFF SITE TRANSFERS IN WASTE | | | | | | |
| Discharge to POTW..... | | None | | None | | None |
| In State Transfers..... | 0 | 5,900 | 6 | 6 | 0 | 9,700 |
| Out of State Trans..... | 4,600 | 0 | 521,655 | 5,655 | 1,400 | 0 |
| Spills..... | | | None | | | |

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SPDES Permit # : 0003808

# Form R Submitted : 18

| CAS Number (Year)<br>Chemical Name<br><br>Max. Stored on Site (lbs.) | 75092 (91)<br>METHYLENE CHLORIDE (DICHLOROMETHANE)<br>100 K+ - < 1 M | 75092 (90)<br>METHYLENE CHLORIDE (DICHLOROMETHANE)<br>100 K+ - < 1 M | 75092 (89)<br>METHYLENE CHLORIDE (DICHLOROMETHANE)<br>100 K+ - < 1 M | 75092 (88)<br>METHYLENE CHLORIDE (DICHLOROMETHANE)<br>Invalid Amount | 75650 (90)<br>TERT-BUTYL ALCOHOL<br><br>1 K+ - < 10 K | 75650 (89)<br>TERT-BUTYL ALCOHOL<br><br>1 K+ - < 10 K |
|---|---|---|---|---|---|---|
| RELEASES TO THE ENVIRONMENT | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year |
| AIR EMISSIONS | | | | | | |
| Fugative or Non Point... | 79,000 | 76,000 | 70,500 | 1,844,000 | 1,100 | None |
| Stack or Point..... | 16,000 | 18,000 | 50,000 | 83,000 | 2,900 | 1 - 499 |
| DISCHARGES TO WATER | | | | | | |
| Water 1..... | 11 - 499 | 11 - 499 | None | None | 1 - 10 | None |
| Water 2..... | None | None | | None | None | |
| Water 3..... | None | None | | | None | |
| UNDERGROUND INJECTION..... | None | None | None | None | None | None |
| RELEASES TO LAND | | | | | | |
| On Site Landfill..... | None | None | None | None | None | None |
| Application Farming..... | None | None | None | None | None | None |
| Surface Impoundment..... | None | None | None | None | None | None |
| Other Disposal..... | None | None | None | None | None | None |
| OFF SITE TRANSFERS IN WASTE | | | | | | |
| Discharge to POTW..... | | None | | None | None | |
| In State Transfers..... | 6 | 6 | 3,400 | 17,650 | 0 | 0 |
| Out of State Trans..... | 878,550 | 7,950 | 250 | 0 | 261 | 0 |
| Spills..... | None | | | | | |

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Receiving Waterbodies : SUSQUEHANNA RIVER

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SPDES Permit # : 0003808

# Form R Submitted : 18

| CAS Number (Year)<br>Chemical Name<br><br>Max. Stored on Site (lbs.) | 75650 (88)<br>TERT-BUTYL ALCOHOL<br><br>Invalid Amount | 76131 (91)<br>FREON 113 (1,1,2-TRIC<br>HLORO-1,2,2-TRIFLUORO<br>100 K+ - < 1 M | 76131 (90)<br>FREON 113 (1,1,2-TRIC<br>HLORO-1,2,2-TRIFLUORO<br>100 K+ - < 1 M | 76131 (89)<br>FREON 113 (1,1,2-TRIC<br>HLORO-1,2,2-TRIFLUORO<br>100 K+ - < 1 M | 76131 (88)<br>FREON 113 (1,1,2-TRIC<br>HLORO-1,2,2-TRIFLUORO<br>Invalid Amount | 78933 (91)<br>2-BUTANONE(METHYL ETH<br>YL KETONE)<br>100 K+ - < 1 M |
|---|---|---|---|---|---|---|
| RELEASES TO THE ENVIRONMENT | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year |
| AIR EMISSIONS | | | | | | |
| Fugative or Non Point... | 8,700 | 136,000 | 260,000 | 122,200 | 656,000 | 11 - 499 |
| Stack or Point..... | 2,000 | 34,000 | 36,000 | 362,000 | 372,000 | 14,000 |
| DISCHARGES TO WATER | | | | | | |
| Water 1..... | None | 1 - 10 | 1 - 10 | None | None | 0 |
| Water 2..... | None | None | None | | None | None |
| Water 3..... | | None | None | | | None |
| UNDERGROUND INJECTION..... | None | None | None | None | None | None |
| RELEASES TO LAND | | | | | | |
| On Site Landfill..... | None | None | None | None | None | None |
| Application Farming..... | None | None | None | None | None | None |
| Surface Impoundment..... | None | None | None | None | None | None |
| Other Disposal..... | None | None | None | None | None | None |
| OFF SITE TRANSFERS IN WASTE | | | | | | |
| Discharge to POTW..... | None | | None | | None | |
| In State Transfers..... | 0 | 0 | 6 | 0 | 250 | 1,005 |
| Out of State Trans..... | 0 | 797,765 | 510 | 0 | 0 | 370,255 |
| Spills..... | | 1,200 | | | | None |

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SIC Code : 3471
POTW Used : ENDICOTT (V)
Receiving Waterbodies : SUSQUEHANNA RIVER

RCIS # : 7034600032
EPA TRI # : 13706NTRNT1701N
Air Emmissions Permit # : 0346010129
RCRA # : 002233039
SPDES Permit # : 0003808

# Form R Submitted : 18

| CAS Number (Year)<br>Chemical Name<br><br>Max. Stored on Site (lbs.) | 78933 (90)<br>2-BUTANONE(METHYL ETH YL KETONE)<br>100 K+ - < 1 M | 78933 (89)<br>2-BUTANONE(METHYL ETH YL KETONE)<br>100 K+ - < 1 M | 78933 (88)<br>2-BUTANONE(METHYL ETH YL KETONE)<br>Invalid Amount | 95501 (91)<br>1,2-DICHLORO- BENZENE (ORTHO)<br>10 K+ - < 100 K | 95501 (90)<br>1,2-DICHLORO- BENZENE (ORTHO)<br>10 K+ - < 100 K | 95501 (89)<br>1,2-DICHLORO- BENZENE (ORTHO)<br>10 K+ - < 100 K |
|---|---|---|---|---|---|---|
| RELEASES TO THE ENVIRONMENT | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year |
| AIR EMISSIONS | | | | | | |
| Fugative or Non Point... | 11 - 499 | None | 1 - 499 | 3,700 | 4,000 | 8,100 |
| Stack or Point..... | 11,000 | 9,000 | 59,000 | 3,800 | 4,100 | 2,100 |
| DISCHARGES TO WATER | | | | | | |
| Water 1..... | 0 | 0 | 0 | 1 - 10 | 1 - 10 | None |
| Water 2..... | None | | None | None | None | |
| Water 3..... | None | | | None | None | |
| UNDERGROUND INJECTION..... | None | None | None | None | None | None |
| RELEASES TO LAND | | | | | | |
| On Site Landfill..... | None | None | None | None | None | None |
| Application Farming..... | None | None | None | None | None | None |
| Surface Impoundment..... | None | None | None | None | None | None |
| Other Disposal..... | None | None | None | None | None | None |
| OFF SITE TRANSFERS IN WASTE | | | | | | |
| Discharge to POTW..... | None | | None | | None | |
| In State Transfers..... | 750 | 16,450 | 38,400 | 6 | 14,000 | 0 |
| Out of State Trans..... | 3,250 | 250 | 0 | 179,000 | 2,755 | 0 |
| Spills..... | | | | None | | |

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Receiving Waterbodies : SUSQUEHANNA RIVER

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EPA TRI # : 13706NTRNT1701N
Air Emmissions Permit # : 0346010129
RCRA # : 002233039
SPDES Permit # : 0003808

# Form R Submitted : 18

| CAS Number (Year)<br>Chemical Name<br><br>Max. Stored on Site (lbs.) | 95501 (88)<br>1,2-DICHLORO- BENZENE (ORTHO)<br>Invalid Amount | 100414 (91)<br>ETHYLBENZENE<br><br>10 K+ - < 100 K | 100414 (90)<br>ETHYLBENZENE<br><br>10 K+ - < 100 K | 100414 (89)<br>ETHYLBENZENE<br><br>10 K+ - < 100 K | 100414 (88)<br>ETHYLBENZENE<br><br>Invalid Amount | 107211 (91)<br>ETHYLENE GLYCOL<br><br>10 K+ - < 100 K |
|---|---|---|---|---|---|---|
| RELEASES TO THE ENVIRONMENT | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year |
| AIR EMISSIONS | | | | | | |
| Fugative or Non Point... | 6,500 | 500 - 999 | 500 - 999 | 1 - 499 | None | 500 - 999 |
| Stack or Point..... | 4,000 | 1,600 | 2,600 | 3,800 | 2,400 | 3,600 |
| DISCHARGES TO WATER | | | | | | |
| Water 1..... | None | 1 - 10 | 1 - 10 | None | None | 0 |
| Water 2..... | None | None | None | | None | None |
| Water 3..... | | None | None | | | None |
| UNDERGROUND INJECTION..... | None | None | None | None | None | None |
| RELEASES TO LAND | | | | | | |
| On Site Landfill..... | None | None | None | None | None | None |
| Application Farming..... | None | None | None | None | None | None |
| Surface Impoundment..... | None | None | None | None | None | None |
| Other Disposal..... | None | None | None | None | None | None |
| OFF SITE TRANSFERS IN WASTE | | | | | | |
| Discharge to POTW..... | None | | None | | None | |
| In State Transfers..... | 250 | 510 | 5,855 | 0 | 0 | 0 |
| Out of State Trans..... | 0 | 102,555 | 1,005 | 0 | 0 | 17,255 |
| Spills..... | | None | | | | 190 |

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RCIS # : 7034600032
EPA TRI # : 13706NTRNT1701N
Air Emmissions Permit # : 0346010129
RCRA # : 002233039
SPDES Permit # : 0003808

# Form R Submitted : 18

| CAS Number (Year)<br>Chemical Name<br><br>Max. Stored on Site (lbs.) | 107211 (90)<br>ETHYLENE GLYCOL<br><br>10 K+ - < 100 K | 107211 (89)<br>ETHYLENE GLYCOL<br><br>10 K+ - < 100 K | 107211 (88)<br>ETHYLENE GLYCOL<br><br>Invalid Amount | 108952 (91)<br>PHENOL<br><br>10 K+ - < 100 K | 108952 (90)<br>PHENOL<br><br>10 K+ - < 100 K | 108952 (89)<br>PHENOL<br><br>10 K+ - < 100 K |
|---|---|---|---|---|---|---|
| RELEASES TO THE ENVIRONMENT | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year |
| AIR EMISSIONS | | | | | | |
| Fugative or Non Point... | 500 - 999 | None | None | 1,000 | 500 - 999 | None |
| Stack or Point..... | 3,600 | 3,600 | 3,600 | 500 - 999 | 500 - 999 | 1 - 499 |
| DISCHARGES TO WATER | | | | | | |
| Water 1..... | 11 - 499 | None | None | 1 - 10 | 11 - 499 | None |
| Water 2..... | None | | None | None | None | |
| Water 3..... | None | | | None | None | |
| UNDERGROUND INJECTION..... | None | None | None | None | None | None |
| RELEASES TO LAND | | | | | | |
| On Site Landfill..... | None | None | None | None | None | None |
| Application Farming..... | None | None | None | None | None | None |
| Surface Impoundment..... | None | None | None | None | None | None |
| Other Disposal..... | None | None | None | None | None | None |
| OFF SITE TRANSFERS IN WASTE | | | | | | |
| Discharge to POTW..... | None | None | None | | None | |
| In State Transfers..... | 6 | 0 | 0 | 6 | 0 | 9,250 |
| Out of State Trans..... | 750 | 0 | 0 | 46,805 | 6,900 | 0 |
| Spills..... | | | | None | | |

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# Form R Submitted : 18

| CAS Number (Year)<br>Chemical Name<br><br>Max. Stored on Site (lbs.) | 108952 (88)<br>PHENOL<br><br>Invalid Amount | 109864 (91)<br>2-METHOXY ETHANOL<br><br>10 K+ - < 100 K | 109864 (90)<br>2-METHOXY ETHANOL<br><br>100 K+ - < 1 M | 109864 (89)<br>2-METHOXY ETHANOL<br><br>100 K+ - < 1 M | 109864 (88)<br>2-METHOXY ETHANOL<br><br>Invalid Amount | 127184 (91)<br>TETRACHLOROETHYLENE<br><br>100 K+ - < 1 M |
|---|---|---|---|---|---|---|
| RELEASES TO THE ENVIRONMENT | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year |
| AIR EMISSIONS | | | | | | |
| Fugative or Non Point... | None | 6,000 | 8,300 | None | None | 38,000 |
| Stack or Point..... | None | 12,000 | 1,900 | 6,700 | 28,000 | 24,000 |
| DISCHARGES TO WATER | | | | | | |
| Water 1..... | None | 0 | 0 | 0 | 0 | 1 - 10 |
| Water 2..... | None | None | None | | None | None |
| Water 3..... | | None | None | | | None |
| UNDERGROUND INJECTION..... | None | None | None | None | None | None |
| RELEASES TO LAND | | | | | | |
| On Site Landfill..... | None | None | None | None | None | None |
| Application Farming..... | None | None | None | None | None | None |
| Surface Impoundment..... | None | None | None | None | None | None |
| Other Disposal..... | None | None | None | None | None | None |
| OFF SITE TRANSFERS IN WASTE | | | | | | |
| Discharge to POTW..... | None | | None | | None | |
| In State Transfers..... | 9,450 | 0 | 0 | 0 | 53,000 | 0 |
| Out of State Trans..... | 0 | 16,600 | 0 | 4,500 | 0 | 1,271,510 |
| Spills..... | | None | | | | None |

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# Form R Submitted : 18

| CAS Number (Year)<br>Chemical Name<br><br>Max. Stored on Site (lbs.) | 127184 (90)<br>TETRACHLOROETHYLENE<br><br>100 K+ - < 1 M | 127184 (89)<br>TETRACHLOROETHYLENE<br><br>100 K+ - < 1 M | 127184 (88)<br>TETRACHLOROETHYLENE<br><br>Invalid Amount | 1310732 (88)<br>SODIUM HYDROXIDE (SOLUTION)<br><br>Invalid Amount | 1330207 (91)<br>XYLENE<br><br>10 K+ - < 100 K | 1330207 (90)<br>XYLENE<br><br>100 K+ - < 1 M |
|---|---|---|---|---|---|---|
| RELEASES TO THE ENVIRONMENT | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year |
| AIR EMISSIONS | | | | | | |
| Fugative or Non Point... | 58,000 | 54,000 | 102,000 | None | 11 - 499 | 11 - 499 |
| Stack or Point..... | 32,000 | 55,000 | 46,000 | 6,400 | 21,000 | 24,000 |
| DISCHARGES TO WATER | | | | | | |
| Water 1..... | 1 - 10 | None | None | 0 | 1 - 10 | 1 - 10 |
| Water 2..... | None | | None | None | None | None |
| Water 3..... | None | | | | None | None |
| UNDERGROUND INJECTION..... | None | None | None | None | None | None |
| RELEASES TO LAND | | | | | | |
| On Site Landfill..... | None | None | None | None | None | None |
| Application Farming..... | None | None | None | None | None | None |
| Surface Impoundment..... | None | None | None | None | None | None |
| Other Disposal..... | None | None | None | None | None | None |
| OFF SITE TRANSFERS IN WASTE | | | | | | |
| Discharge to POTW..... | None | | None | None | | None |
| In State Transfers..... | 14,006 | 0 | 1,550 | 97,000 | 1,005 | 24,255 |
| Out of State Trans..... | 5,055 | 250 | 0 | 0 | 386,750 | 2,750 |
| Spills..... | | | | | None | |

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EPA TRI # : 13706NTRNT1701N
Air Emmissions Permit # : 0346010129
RCRA # : 002233039
SPDES Permit # : 0003808

# Form R Submitted : 18

| CAS Number (Year)<br>Chemical Name<br><br>Max. Stored on Site (lbs.) | 1330207 (89)<br>XYLENE<br><br>100 K+ - < 1 M | 1330207 (88)<br>XYLENE<br><br>Invalid Amount | 7440508 (91)<br>COPPER<br><br>10 K+ - < 100 K | 7440508 (90)<br>COPPER<br><br>100 K+ - < 1 M | 7440508 (89)<br>COPPER<br><br>100 K+ - < 1 M | 7440508 (88)<br>COPPER<br><br>Invalid Amount |
|---|---|---|---|---|---|---|
| RELEASES TO THE ENVIRONMENT | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year |
| AIR EMISSIONS | | | | | | |
| Fugative or Non Point... | 1 - 499 | None | 500 - 999 | 500 - 999 | None | None |
| Stack or Point..... | 18,600 | 16,200 | 11 - 499 | 11 - 499 | None | None |
| DISCHARGES TO WATER | | | | | | |
| Water 1..... | None | None | 0 | 0 | 0 | 0 |
| Water 2..... | | None | None | None | | None |
| Water 3..... | | | None | None | | |
| UNDERGROUND INJECTION..... | None | None | None | None | None | None |
| RELEASES TO LAND | | | | | | |
| On Site Landfill..... | None | None | None | None | None | None |
| Application Farming..... | None | None | None | None | None | None |
| Surface Impoundment..... | None | None | None | None | None | None |
| Other Disposal..... | None | None | None | None | None | None |
| OFF SITE TRANSFERS IN WASTE | | | | | | |
| Discharge to POTW..... | | None | | None | | None |
| In State Transfers..... | 1,400 | 1,400 | 17,900 | 12,100 | 11,150 | 8,100 |
| Out of State Trans..... | 0 | 0 | 55,800 | 60,805 | 77,550 | 0 |
| Spills..... | | | None | | | |

Site : IBM CORP.(SYSTEMS MFG.DIV.)
1701 NORTH STREET
ENDICOTT, NY 13760
County: BROOME
Sortkey : 030520

Public Contact : DOUGLAS MILLER
Phone : (607) 755-3070
SIC Code : 3471
POTW Used : ENDICOTT (V)
Receiving Waterbodies : SUSQUEHANNA RIVER

RCIS # : 7034600032
EPA TRI # : 13706NTRNT1701N
Air Emmissions Permit # : 0346010129
RCRA # : 002233039
SPDES Permit # : 0003808

# Form R Submitted : 18

| CAS Number (Year)<br>Chemical Name<br><br>Max. Stored on Site (lbs.) | 7647010 (91)<br>HYDROCHLORIC ACID<br><br>100 K+ - < 1 M | 7647010 (90)<br>HYDROCHLORIC ACID<br><br>100 K+ - < 1 M | 7647010 (89)<br>HYDROCHLORIC ACID<br><br>100 K+ - < 1 M | 7647010 (88)<br>HYDROCHLORIC ACID<br><br>Invalid Amount | 7664382 (90)<br>PHOSPHORIC ACID (AS P O4)<br><br>1 K+ - < 10 K | 7664382 (89)<br>PHOSPHORIC ACID (AS P O4)<br><br>1 K+ - < 10 K |
|---|---|---|---|---|---|---|
| RELEASES TO THE ENVIRONMENT | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year |
| AIR EMISSIONS | | | | | | |
| Fugative or Non Point... | 500 - 999 | 500 - 999 | None | 1 - 499 | 11 - 499 | None |
| Stack or Point..... | 19,000 | 30,000 | 29,400 | 25,000 | 11 - 499 | None |
| DISCHARGES TO WATER | | | | | | |
| Water 1..... | None | 0 | 0 | 0 | 0 | 0 |
| Water 2..... | None | None | | None | None | |
| Water 3..... | None | None | | | None | |
| UNDERGROUND INJECTION..... | None | None | None | None | None | None |
| RELEASES TO LAND | | | | | | |
| On Site Landfill..... | None | None | None | None | None | None |
| Application Farming..... | None | None | None | None | None | None |
| Surface Impoundment..... | None | None | None | None | None | None |
| Other Disposal..... | None | None | None | None | None | None |
| OFF SITE TRANSFERS IN WASTE | | | | | | |
| Discharge to POTW..... | | None | | None | None | |
| In State Transfers..... | 2,456 | 2,300 | 2,050 | 1,100 | 0 | 0 |
| Out of State Trans..... | 91,406 | 255 | 0 | 0 | 0 | 0 |
| Spills..... | None | | | | | |

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POTW Used : ENDICOTT (V)
Receiving Waterbodies : SUSQUEHANNA RIVER

RCIS # : 7034600032
EPA TRI # : 13706NTRNT1701N
Air Emmissions Permit # : 0346010129
RCRA # : 002233039
SPDES Permit # : 0003808

# Form R Submitted : 18

| CAS Number (Year)<br>Chemical Name<br><br>Max. Stored on Site (lbs.) | 7664382 (88)<br>PHOSPHORIC ACID (AS P O4)<br>Invalid Amount | 7664939 (91)<br>SULFURIC ACID<br>100 K+ - < 1 M | 7664939 (90)<br>SULFURIC ACID<br>100 K+ - < 1 M | 7664939 (89)<br>SULFURIC ACID<br>100 K+ - < 1 M | 7664939 (88)<br>SULFURIC ACID<br>Invalid Amount | 7697372 (90)<br>NITRIC ACID<br>10 K+ - < 100 K |
|---|---|---|---|---|---|---|
| RELEASES TO THE ENVIRONMENT | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year |
| AIR EMISSIONS | | | | | | |
| Fugative or Non Point... | None | 500 - 999 | 500 - 999 | None | None | 500 - 999 |
| Stack or Point..... | None | 14,000 | 14,000 | 15,400 | 15,700 | 11 - 499 |
| DISCHARGES TO WATER | | | | | | |
| Water 1..... | 0 | 0 | 0 | 0 | 0 | 0 |
| Water 2..... | None | None | None | | None | None |
| Water 3..... | | None | None | | | None |
| UNDERGROUND INJECTION..... | None | None | None | None | None | None |
| RELEASES TO LAND | | | | | | |
| On Site Landfill..... | None | None | None | None | None | None |
| Application Farming..... | None | None | None | None | None | None |
| Surface Impoundment..... | None | None | None | None | None | None |
| Other Disposal..... | None | None | None | None | None | None |
| OFF SITE TRANSFERS IN WASTE | | | | | | |
| Discharge to POTW..... | None | | None | | None | None |
| In State Transfers..... | 0 | 3,950 | 9,711 | 66,700 | 88,000 | 0 |
| Out of State Trans..... | 0 | 255 | 6,255 | 250 | 0 | 255 |
| Spills..... | | None | | | | |

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SIC Code : 3471
POTW Used : ENDICOTT (V)
Receiving Waterbodies : SUSQUEHANNA RIVER

RCIS # : 7034600032
EPA TRI # : 13706NTRNT1701N
Air Emmissions Permit # : 0346010129
RCRA # : 002233039
SPDES Permit # : 0003808

# Form R Submitted : 18

| CAS Number (Year)<br>Chemical Name<br><br>Max. Stored on Site (lbs.) | 7697372 (89)<br>NITRIC ACID<br><br>10 K+ - < 100 K | 7697372 (88)<br>NITRIC ACID<br><br>Invalid Amount | 7782505 (88)<br>CHLORINE<br><br>Invalid Amount | 91344281 (88)<br>ALUMINUM OXIDE (NON-FIBROUS)<br>Invalid Amount | | |
|---|---|---|---|---|---|---|
| RELEASES TO THE ENVIRONMENT | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year |
| AIR EMISSIONS | | | | | | |
| Fugative or Non Point... | None | None | 0 | None | | |
| Stack or Point..... | None | 1 - 499 | 0 | 1,700 | | |
| DISCHARGES TO WATER | | | | | | |
| Water 1..... | 0 | 0 | 0 | 0 | | |
| Water 2..... | | None | None | None | | |
| Water 3..... | | | | | | |
| UNDERGROUND INJECTION..... | None | None | None | None | | |
| RELEASES TO LAND | | | | | | |
| On Site Landfill..... | None | None | None | None | | |
| Application Farming..... | None | None | None | None | | |
| Surface Impoundment..... | None | None | None | None | | |
| Other Disposal..... | None | None | None | None | | |
| OFF SITE TRANSFERS IN WASTE | | | | | | |
| Discharge to POTW..... | | None | None | None | | |
| In State Transfers..... | 0 | 0 | 0 | 79,400 | | |
| Out of State Trans..... | 1,200 | 0 | 0 | 0 | | |
| Spills..... | | | | | | |

New York State Department of Environmental Conservation
SARA Title III, Toxic Release Inventory Data, Facility Report
April 02, 1993

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Public Contact : DOUGLAS MILLER
Phone : (607) 755-3070
SIC Code : 3471
POTW Used : ENDICOTT (V)
Receiving Waterbodies : SUSQUEHANNA RIVER

RCIS # : 7034600032
EPA TRI # : 13706NTRNT1701N
Air Emmissions Permit # : 0346010129
RCRA # : 002233039
SPDES Permit # : 0003808

# Form R Submitted : 18

| CAS Number (Year)<br>Chemical Name<br><br>Max. Stored on Site (lbs.) | N090 (89)<br>CHROMIUM COMPOUNDS<br><br>10 K+ - < 100 K | N090 (88)<br>CHROMIUM COMPOUNDS<br><br>Invalid Amount | N100 (91)<br>COPPER COMPOUNDS<br><br>10 K+ - < 100 K | N100 (90)<br>COPPER COMPOUNDS<br><br>10 K+ - < 100 K | N100 (89)<br>COPPER COMPOUNDS<br><br>10 K+ - < 100 K | N100 (88)<br>COPPER COMPOUNDS<br><br>Invalid Amount |
|---|---|---|---|---|---|---|
| RELEASES TO THE ENVIRONMENT | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year |
| AIR EMISSIONS | | | | | | |
| Fugative or Non Point... | None | None | 1,000 | 2,600 | None | None |
| Stack or Point..... | None | None | 1,500 | 11 - 499 | 1,250 | 1,400 |
| DISCHARGES TO WATER | | | | | | |
| Water 1..... | None | 50 | 11 - 499 | 11 - 499 | None | None |
| Water 2..... | | None | None | None | | None |
| Water 3..... | | | None | None | | |
| UNDERGROUND INJECTION..... | None | None | None | None | None | None |
| RELEASES TO LAND | | | | | | |
| On Site Landfill..... | None | None | None | None | None | None |
| Application Farming..... | None | None | None | None | None | None |
| Surface Impoundment..... | None | None | None | None | None | None |
| Other Disposal..... | None | None | None | None | None | None |
| OFF SITE TRANSFERS IN WASTE | | | | | | |
| Discharge to POTW..... | | None | | None | | None |
| In State Transfers..... | 9,100 | 9,100 | 8,006 | 5,961 | 1,900 | 1,300 |
| Out of State Trans..... | 7,600 | 0 | 183,006 | 6 | 0 | 0 |
| Spills..... | | | None | | | |

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SIC Code : 3471
POTW Used : ENDICOTT (V)
Receiving Waterbodies : SUSQUEHANNA RIVER

RCIS # : 7034600032
EPA TRI # : 13706NTRNT1701N
Air Emmissions Permit # : 0346010129
RCRA # : 002233039
SPDES Permit # : 0003808

# Form R Submitted : 18

| CAS Number (Year)<br>Chemical Name<br><br>Max. Stored on Site (lbs.) | N420 (89)<br>LEAD COMPOUNDS<br><br>10 K+ - < 100 K | N420 (88)<br>LEAD COMPOUNDS<br><br>Invalid Amount | N450 (91)<br>MANGANESE COMPOUNDS<br><br>1 K+ - < 10 K | N450 (90)<br>MANGANESE COMPOUNDS<br><br>1 K+ - < 10 K | N450 (89)<br>MANGANESE COMPOUNDS<br><br>1 K+ - < 10 K | N450 (88)<br>MANGANESE COMPOUNDS<br><br>Invalid Amount |
|---|---|---|---|---|---|---|
| RELEASES TO THE ENVIRONMENT | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year |
| AIR EMISSIONS | | | | | | |
| Fugative or Non Point... | 0 | 0 | 11 - 499 | 11 - 499 | None | None |
| Stack or Point..... | 30 | 21 | 5,100 | 2,000 | 2,200 | 2,200 |
| DISCHARGES TO WATER | | | | | | |
| Water 1..... | None | None | 11 - 499 | 11 - 499 | None | None |
| Water 2..... | | None | None | None | | None |
| Water 3..... | | | None | None | | |
| UNDERGROUND INJECTION..... | None | None | None | None | None | None |
| RELEASES TO LAND | | | | | | |
| On Site Landfill..... | None | None | None | None | None | None |
| Application Farming..... | None | None | None | None | None | None |
| Surface Impoundment..... | None | None | None | None | None | None |
| Other Disposal..... | None | None | None | None | None | None |
| OFF SITE TRANSFERS IN WASTE | | | | | | |
| Discharge to POTW..... | | None | | None | | None |
| In State Transfers..... | 0 | 0 | 255 | 765 | 11,500 | 17,250 |
| Out of State Trans..... | 0 | 0 | 10,355 | 11,750 | 0 | 0 |
| Spills..... | | | None | | | |

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RCRA # : 002233039
SPDES Permit # : 0003808

# Form R Submitted : 18

| CAS Number (Year)<br>Chemical Name<br><br>Max. Stored on Site (lbs.) | 50000 (91)<br>FORMALDEHYDE<br><br>1 K+ - < 10 K | 50000 (90)<br>FORMALDEHYDE<br><br>1 K+ - < 10 K | 50000 (89)<br>FORMALDEHYDE<br><br>1 K+ - < 10 K | 50000 (88)<br>FORMALDEHYDE<br><br>Invalid Amount | 67561 (91)<br>METHANOL (METHYL ALCOHOL)<br><br>100 K+ - < 1 M | 67561 (90)<br>METHANOL (METHYL ALCOHOL)<br><br>100 K+ - < 1 M |
|---|---|---|---|---|---|---|
| RELEASES TO THE ENVIRONMENT | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year | lbs./year |
| AIR EMISSIONS | | | | | | |
| Fugative or Non Point... | 11 - 499 | 11 - 499 | None | None | 11 - 499 | 11 - 499 |
| Stack or Point..... | 5,800 | 7,000 | 7,400 | 11,000 | 9,000 | 11,000 |
| DISCHARGES TO WATER | | | | | | |
| Water 1..... | 0 | 1 - 10 | None | None | 0 | 1 - 10 |
| Water 2..... | None | None | | None | None | None |
| Water 3..... | None | None | | | None | None |
| UNDERGROUND INJECTION..... | None | None | None | None | None | None |
| RELEASES TO LAND | | | | | | |
| On Site Landfill..... | None | None | None | None | None | None |
| Application Farming..... | None | None | None | None | None | None |
| Surface Impoundment..... | None | None | None | None | None | None |
| Other Disposal..... | None | None | None | None | None | None |
| OFF SITE TRANSFERS IN WASTE | | | | | | |
| Discharge to POTW..... | | None | | None | | None |
| In State Transfers..... | 1,500 | 750 | 2,250 | 6,300 | 1,610 | 750 |
| Out of State Trans..... | 0 | 750 | 1,600 | 0 | 255 | 0 |
| Spills..... | None | | | | None | |

PRAP - Summary Sheet

**Site Number:** 7-04-008

**Name of Site:** Endicott Wellfield

**Town and County:** Village of Endicott, Broome County

**Prepared By:**

EPA/Federal Superfund (Enforcement-lead)

**Description of Problem:**

The Endicott Wellfield site is a municipal landfill that has contaminated the primary drinking aquifer in the Village of Endicott. Previous investigations have determined that an upgradient source contaminated the village of Endicott Ranney Well with chlorinated organics, including vinyl chloride. An air stripper was built to protect the municipal well and a purge well was installed to intercept the contamination (operable unit 1). A second purge well is currently being installed to intercept the plume emanating from the Endicott landfill, (operable unit 2).

The now completed Endicott Landfill Remedial Investigation (RI) has determined the landfill to be the source of contamination in the primary aquifer. The closure of this landfill is the subject of this PRAP (operable unit 3). The groundwater directly below the site is contaminated with chlorinated organics in the low to mid parts per billion range. Vinyl chloride is the contaminant of most concern.

**Description of the Remedy:**

The EPA signed a Record of Decision (ROD) on March 31, 1992 for the installation of a second, more inclusive purge well. This second purge well is operable unit 2. The closure of the landfill is operable unit 3.

The landfill closure will include site capping, leachate collection and groundwater plume interception and treatment.

The RI has identified only one leachate outbreak along the entire landfill berm. This has been identified as a former stream bed. The remainder of the leachate percolates downward to the lower zone and towards the Ranney well.

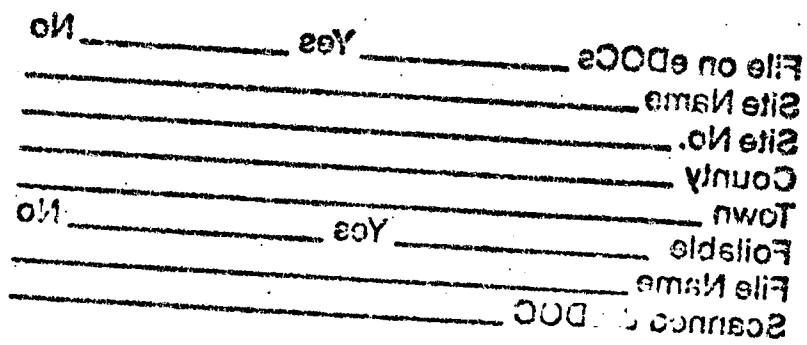
Operable unit 3 will use a low permeability layer of $10^{-5}$ cm/sec or less. This will be mounded in adequate slopes to reduce infiltration. The groundwater from the site will be addressed by the additional purge well (operable unit 2). This remedy will prevent exposure, allow site wetlands to remain intact and allow future use of the site by the Village. The Village of Endicott plans to turn the landfill into a par 3 golf course.

**Costs:**

| | |
|---|---|
| Capital Costs: | $ 10,000,000 (approx.) |
| O&M Costs: | $ 1,000,000 (approx.) |
| Present Worth: | $ 15,000,000 (approx.) |

**Issues:**

This remedy requires a variance from the closure requirements of Part 360 relative to the cap construction.



File on eDOCs X Yes ____ No
Site Name Endicott
Site No. ~~7380~~ 704008
County Broome
Town Endicott
Foilable X Yes ____ No
File Name 1993-04-03, Prop and Backup
Scanned & eDOC ____